

D. M. Osborne & Co.

AUBURN, N.Y.

U.S.A.



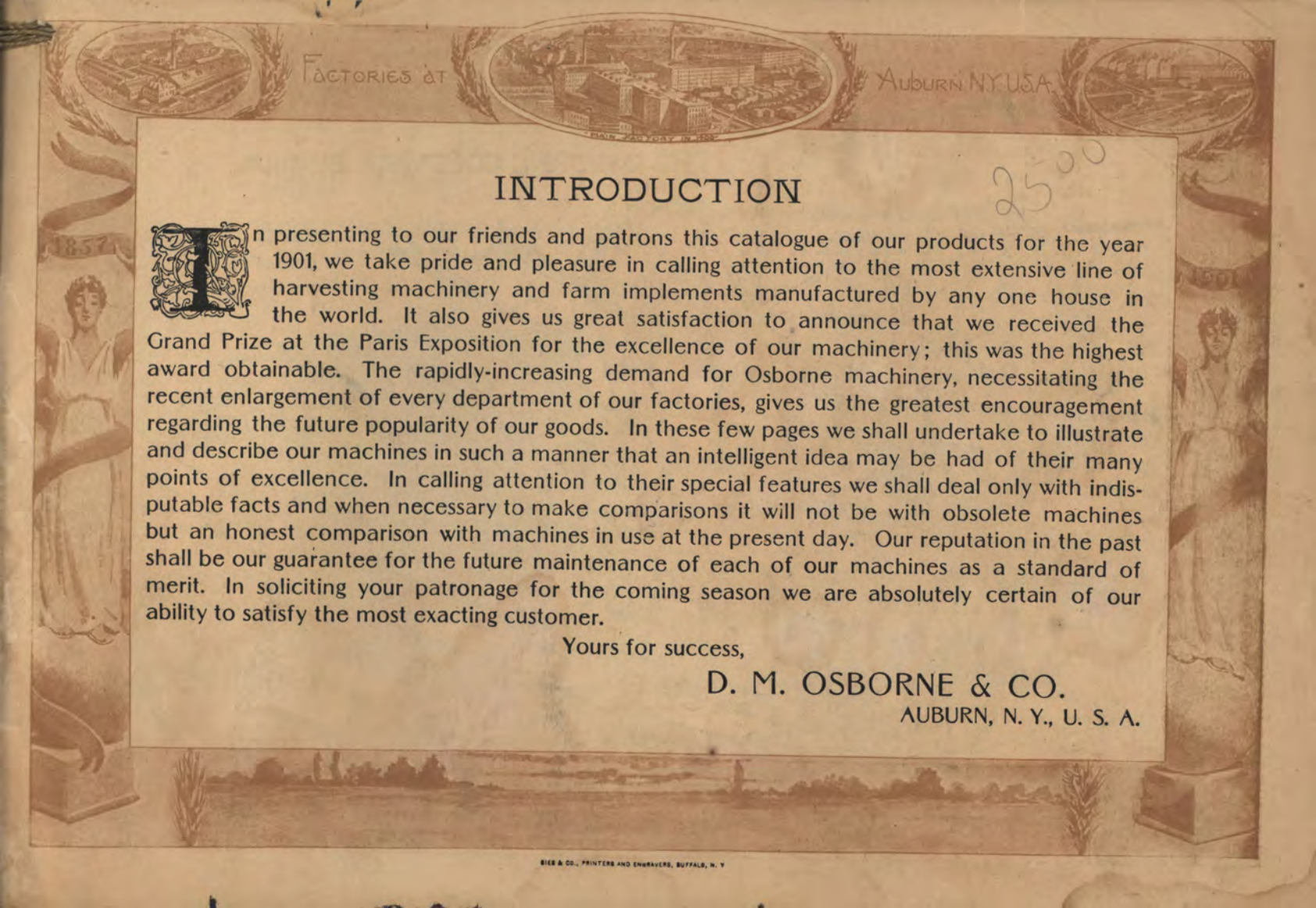
THE KEY TO SUCCESS

Paris -1900- Exposition GRAND PRIZE.



D.M. OSBORNE
AND
COMPANY
AUBURN, N.Y.





Factories at

Auburn N.Y. U.S.A.

INTRODUCTION

2500

In presenting to our friends and patrons this catalogue of our products for the year 1901, we take pride and pleasure in calling attention to the most extensive line of harvesting machinery and farm implements manufactured by any one house in the world. It also gives us great satisfaction to announce that we received the Grand Prize at the Paris Exposition for the excellence of our machinery; this was the highest award obtainable. The rapidly-increasing demand for Osborne machinery, necessitating the recent enlargement of every department of our factories, gives us the greatest encouragement regarding the future popularity of our goods. In these few pages we shall undertake to illustrate and describe our machines in such a manner that an intelligent idea may be had of their many points of excellence. In calling attention to their special features we shall deal only with indisputable facts and when necessary to make comparisons it will not be with obsolete machines but an honest comparison with machines in use at the present day. Our reputation in the past shall be our guarantee for the future maintenance of each of our machines as a standard of merit. In soliciting your patronage for the coming season we are absolutely certain of our ability to satisfy the most exacting customer.

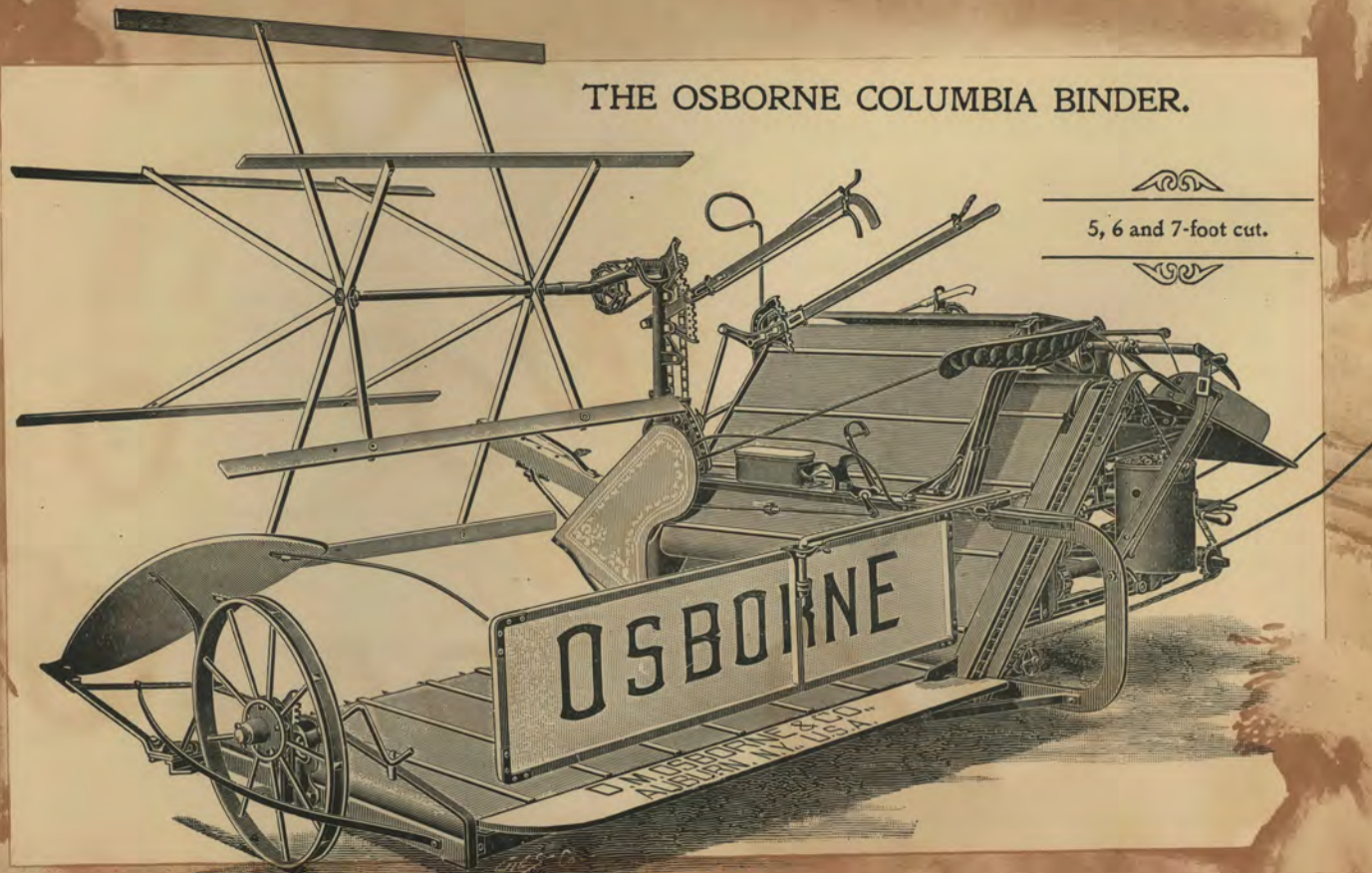
Yours for success,

D. M. OSBORNE & CO.

AUBURN, N. Y., U. S. A.

THE OSBORNE COLUMBIA BINDER.

5, 6 and 7-foot cut.



No Roller
Bearings

The Osborne Main Wheel

Suspension Spokes

Hub & Tire

Main Wheel.

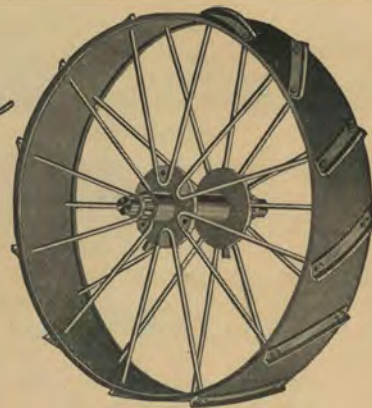
THE COLUMBIA STEEL MAIN WHEEL is equipped with perfect roller bearings and built on the suspension plan, relieving the spokes of compression strain and giving to the wheel a great amount of elasticity. By this means the effect of traveling over

rough ground is not transmitted to

the entire machine to so great an extent as is the case with a rigid spoke wheel. These spokes can be readily removed and replaced, should it ever be necessary, without the assistance of a blacksmith.

The tire is of channel steel, the strengthening ribs being placed on the inside where they cannot wear off, insuring the strength of the tire for all time. The long angle steel lugs bolted diagonally across the smooth-faced tire give positive traction under all conditions. The angle of these lugs is such that all sand carried up by them is thrown away from the chain, preventing rapid wear. The tire face being smooth, it will not readily load with mud and lose its traction power, as would be the case with a wheel having depressed center. Our thickened-edge tire allows the escape of sand or stones that sometimes get into the wheel. A thin, deep-flanged tire will retain sand, sifting it into chain and bearings until removed by hand. The power generated by the wheel is delivered to the driving sprocket through two tangent draw rods fastening directly to the tire and to lugs on outside of sprocket. This construction relieves the spokes of all driving strain. **Our border cuts** represent the construction of the Columbia wheel, also that of three other machines. By careful comparison of the mechanical features of these wheels it will be found that the Columbia Main Wheel is what we claim it—the best made.

Driving Sprocket.



Spokes
Riveted

Old Style Spokes

cast in Hub

Spokes
Riveted to

Heavy Chain always in line. Sprocket not moved when thrown out of gear.

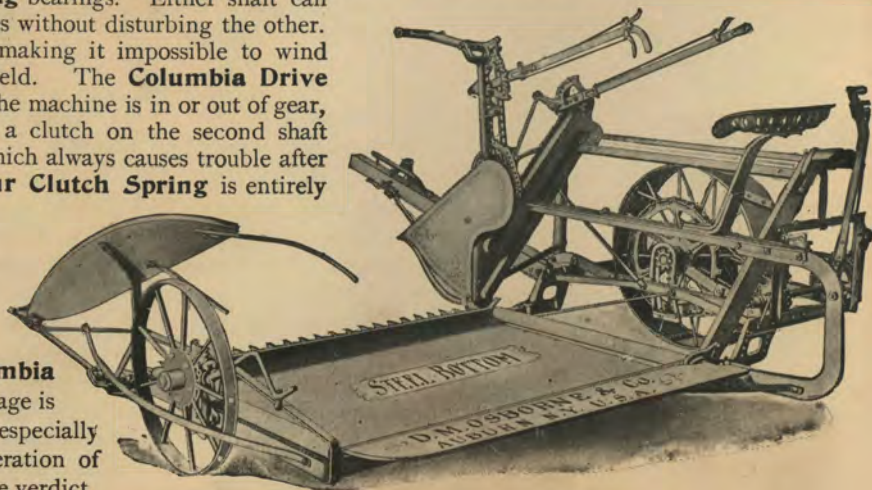


Our Patented Roller Bearing. Impossible for Rollers to lose out.

preventing the shearing and loosening of bolts. The **Second** and **Crank Shafts** are attached by separate malleable iron hangers carrying **self-aligning** bearings. Either shaft can be removed in a very few minutes without disturbing the other. The gears are perfectly shielded, making it impossible to wind with straw when opening up a field. The **Columbia Drive Chain** is always in line, whether the machine is in or out of gear, as the change is made by shifting a clutch on the second shaft instead of moving the sprocket, which always causes trouble after the chain has become worn. **Our Clutch Spring** is entirely encased and cannot be injured by winding with straw or filling with mud. The rear crank shaft hanger provides a ready means of keeping the bevel gears always in proper contact. Our border cut on this page is the **Osborne Columbia Main Frame**. On the opposite page is the cut of another frame said to be especially strong. We ask a careful consideration of both and are willing to abide by the verdict.

Main Frames.

OUR MAIN FRAME is of heavy channel steel with solid forged corners. The malleable iron crank shaft hangers **lap around these corners**, and having projecting ribs top and bottom make the strongest possible connection. The frame is thoroughly braced in every direction and every piece attached to it has ribbed projections,



An All-Steel Frame—the strongest and most symmetrical machine on the market.

Osborne Main Frame, Forged Corners, Strengthened by Malleable Crank Shaft Hangers.

Clutch Spring entirely encased

Heavy Steel Frame, Only Two Riveted Joints

Clutch Spring exposed on Shaft.

Raising and Lowering.

**THE COLUMBIA RAISING AND LOWER-
ING DEVICE** will commend itself to all in search of a simple, strong and durable arrangement. The raising shaft is allowed to slide lengthwise in its bearings by compressing a strong steel spring which carries the weight of the machine. If the wheel drops into a hole or goes over an obstruction, this spring at once receives the shock that would otherwise be transmitted to the entire machine, loosening bolts and causing breakage. Anything that relieves a machine from the effects of severe shocks caused by being driven over rough fields is entitled to great consideration, as it means that the machine will last longer, ride easier and have less breakages. To obtain this advantage just one spring is added to the construction. **Many machines are not provided with carrying springs** and are therefore subject to serious injury and harder running. The effect is similar to carrying to town (traveling over a very rough road) a basket of eggs in a wagon without springs.



Chains.

THE COLUMBIA'S STRONG, HEAVY DRIVE CHAIN has an adjustable tightener that is not affected by the position of the wheel in the hangers. A chain, to run properly, should never be too tight nor too loose. If kept constantly tight it requires more power to operate and is also wearing out much faster than need be. If too loose and close to the ground it gathers dirt and trash, and permits a jerky and irregular motion. All chains on the Columbia have tighteners that will keep the chains just right at all times.

Frame weakened by large holes for Crank & Second Shafts.

Main Frame Riveted together at all four corners

The Osborne Crank Shaft with Perfect Self-aligning Bearings

Rear view of Osborne Columbia Binder Platform. An easily adjusted wind break.



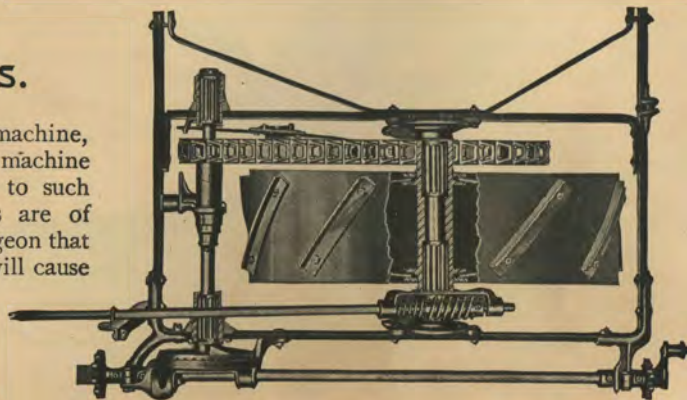
Second and Crank Shafts.

Light draft is one of the requirements of a good machine, and much has been sacrificed to obtain it by some machine makers, by lightening castings, shafts and gearing to such an extent that breakages and springing of shafts are of common occurrence. A single fast-speed shaft or gudgeon that has been slightly bent and revolves in rigid bearings will cause heavier draft than one thousand pounds of weight added to the machine. In order to produce in the Columbia the lightest draft harvester on the market, we have not weakened the several parts by removing a few pounds of metal; but by using self-align-

ing bearings on every important shaft and elevator roller, and roller bearings wherever practical, we are assured that the revolving parts of the machine will move with as little friction as possible. The border cuts on this page show the **Osborne Crank** and **Second Shafts**, also shafts used in similar positions on some other machines. If you look them over thoroughly you will be convinced that the **Osborne Columbia Shafts** will run easier and the bearings last longer than those on other machines.



Osborne Self-Aligning Bearings.



Crank Shaft with Rigid Bearings

Roller Bearing & Suspension Spokes



The Osborne Steel Grain Wheel.

A Cast Iron Grain Wheel Easily Broken.

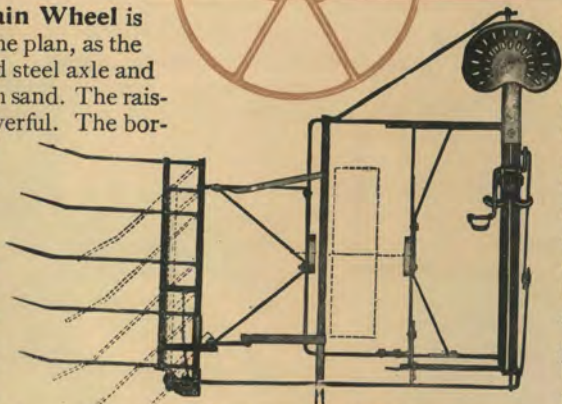


An Unhandy Raising and Lowering Device

The Columbia Steel Grain Wheel is made as carefully, and on the same plan, as the main wheel. It has a cold-rolled steel axle and roller bearing well protected from sand. The raising device is very simple and powerful. The border cuts show three other styles of grain wheel and raising devices.

Sheaf Carrier.

If you have the **Columbia Sheaf Carrier** on your binder you do not need any wider gate than for the binder alone, as the fingers swing backward entirely under the machine. You might also back through this same gate

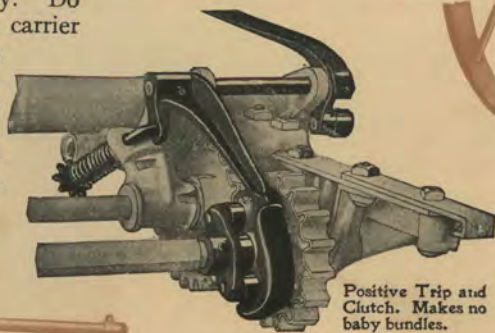


without injury as the fingers swing forward in the same way. Do you know of any other carrier that will do this? This carrier will hold and discharge its bundles equally well going up or down hill or on the level. No matter if you overload the carrier

the sheaves cannot be locked on by undertaking to dump, forcing you to get down and pull them off, but the moment it is tripped the sheaves easily slide off. Not a pound of weight is required on the foot lever to hold the sheaves, no matter how many are on the carrier, neither does it require a pound pull to dump it. In returning to position after discharging the fingers do not drag the stubble nor strike stones, as they come back high above the ground.



Adjustable Lock Stop.



Positive Trip and Clutch. Makes no baby bundles.

A Grain Wheel Without Roller Bearing Spokes Riveted to Hub and Tire



Weak Raising Device Wheel Frame Projects Below Platform

Grain Wheel with Riveted Spokes

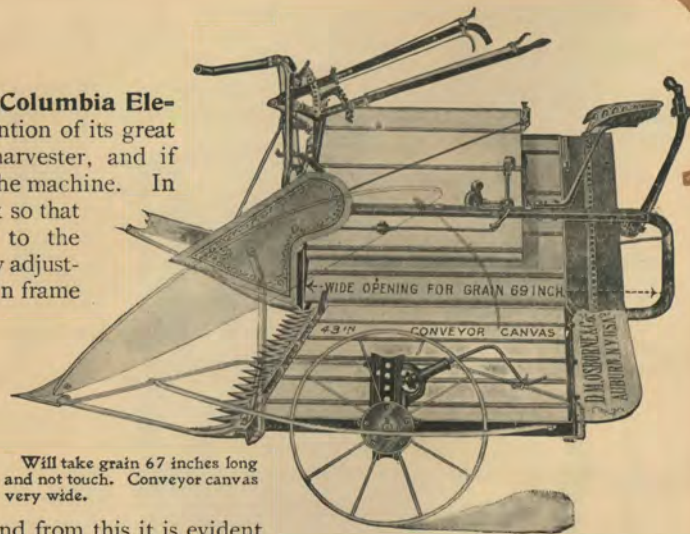
and the Poorest of Raising Devices

Osborne Elevator & Seat Support, Strongest Made.

Seat Support.

In the border on this page we illustrate the **Columbia Elevator and Seat Support**, and make special mention of its great strength. This is a very important part of a harvester, and if weak or poorly braced materially lessens the value of the machine. In our construction the seat can be moved forward or back so that the machine may be perfectly balanced, according to the weight of the driver. The foot rest is also independently adjustable. The seat arch is very strongly braced to both main frame and platform. The elevating mechanism affords an opportunity of saving or wasting a great deal of power. If the elevators are high and steep it will require much more power to run them than if they were of low and easy slope. **The Osborne Columbia Elevators** are the lowest and their incline less than those of any other machine. Both lower and upper elevators are driven from their upper rolls. By this method the grain is carried up by the driving side of each canvas, and from this it is evident that the pressure produced by heavy, tangled grain on these canvases simply gives additional power to the driving rollers for elevating, and clogging at this point is prevented. **Many machines use elevators from six inches to a foot higher**, very much steeper, and drive their upper elevator from the lower roll. This brings the slack side of upper canvas next to the grain, and in heavy, tangled grain clogging is almost sure to occur.

A machine that is drawn over rough and stony land, through ditches and dead furrows, no matter how rigidly constructed nor how securely the parts are bolted together, will be subject to more or less springing of the several parts as the machine drops into holes and goes over obstructions. The effect of this springing is more injurious to the many bearings than anything else, and if some provision is not made to relieve them, much power will be wasted in



Will take grain 67 inches long and not touch. Conveyor canvas very wide.

Actual Size Seat Rails

Actual Size Seat Arch.

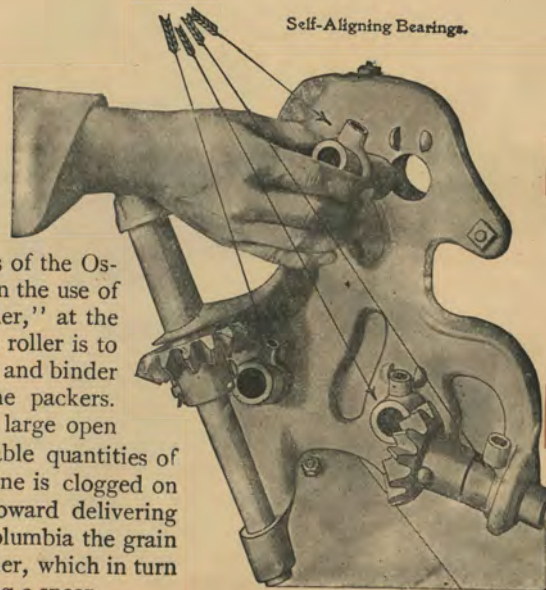
A Warped Roller Never Binds in an Osborne Self-aligning Metal Bearing

the way of heavy draft, and the bearings will rapidly wear out. **The Columbia Elevator Rollers are provided with self-aligning bearings** that entirely prevent additional friction in the case of springing or the slight warping of a roller. The border cuts on this page show our removable self-aligning bearings and their application to a roller that has warped a great deal. Another cut shows a roller treated in the same manner but resting in rigid bearings bored much too large for the gudgeon to allow it to turn, and as it only touches the box in two places it must rapidly wear out. There is also shown a roller resting in wooden bearings, which are much used by some makers.



Seventh Roller.

One of the distinguishing features of the Osborne Harvester for many years has been the use of a plain roller, known as the "Seventh Roller," at the top of the lower elevator. The duty of this roller is to prevent loss of grain between elevator roller and binder deck, and to assist in delivering grain from the elevators to the packers. Machines not using a roller of this kind are obliged to have a large open space between elevator and binder deck, through which considerable quantities of grain are continually passing, and in some conditions the machine is clogged on account of this. Such machines get no mechanical assistance toward delivering grain to the packers after leaving the elevator canvas. In the Columbia the grain is placed by the elevator canvas directly on top of the seventh roller, which in turn carries it from six to eight inches toward the packers without losing a spear.



A Warped Roller Always Binds in a Rigid Metal Bearing

Platform.

Almost all binders manufactured at present use a metal platform of more or less merit, and when a prospective buyer's attention is called to the **steel-bottomed platform of the Osborne Columbia** he is apt to say: "Every machine has a steel-bottomed platform nowadays." But would it not be well to look into the construction of these platforms in detail? They may look all right from the upper side, but suppose we turn them over? On this page we show the all-steel platform of the Osborne Columbia turned bottom side up, and invite your closest inspection as to its merits. The heavy steel Z bar to which the guards are attached will not bend or break (a common fault where plain angle bars are used). The projection from guard surface to bottom of platform is but one inch and is entirely filled in by the special-shaped rounded guard, being the only platform on the market with **perfectly smooth bottom**, making it impossible to push stones and trash ahead of the bar when cutting close for lodged grain. As the guards touch each other at the rear, as well as having the usual separating bars, they will stand the most severe usage without loosening and yet can be easily removed in case of accident. The rear and end frame bar is one solid piece of heavy angle steel, to which the heavy plate steel bottom is riveted, as well as to the finger bar, with large rivets very close together. The platform is also strengthened by two heavy angle steel center braces. **On the next page** we show a platform said to be first class, and if you will kindly compare the construction of this with that of the Columbia you will readily credit us with the strongest and best platform made.



Reel.

The operation of the reel is one of the most important features of a binder, and much depends upon its convenient handling. The Columbia reel is perfectly balanced and operated by a single lever. The convenience of this arrangement is more noticeable when compared with many machines using two hand levers, or one hand and one foot lever, for this purpose. Should the grain be badly lodged in many spots through the field a man would find use for both hands and feet in working such a device; while with the Columbia reel one hand does the work easily. A double sprocket wheel on the reel shaft allows the reel to be speeded fast or slow, as occasion requires.



Sectional view of the Columbia Finger Bar. No projection below the guard, insures close cutting.



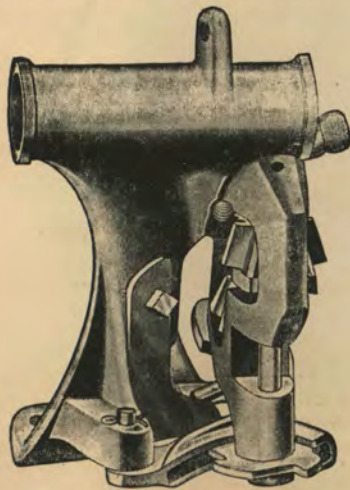
Finger Bars with deep projections below guards gouge into the ground.

Please make comparison with the Columbia.

Steel Bottom riveted to Steel Frame Bars

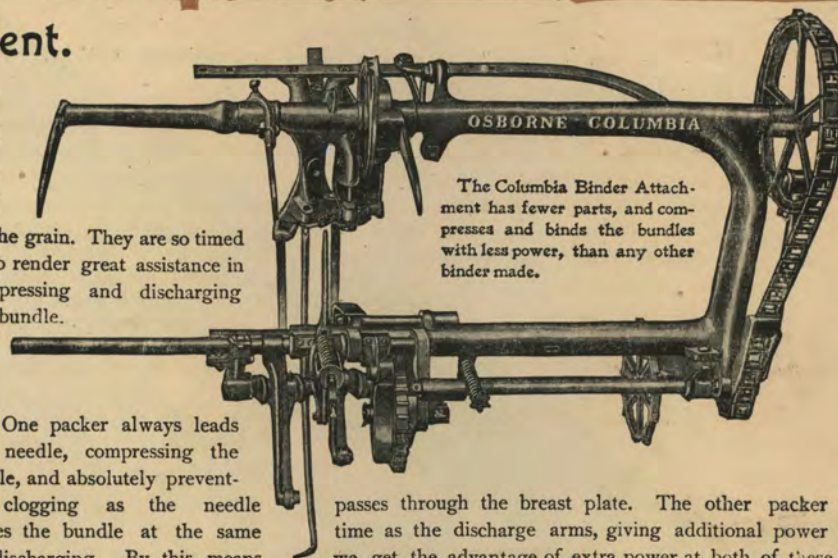
Binder Attachment.

In the construction of the **Columbia Binding Attachment** only the simplest and best known mechanical motions have been used. The packers are driven one-fourth slower than on other machines, a great saving in power and wear; it also prevents shelling the grain. They are so timed as to render great assistance in compressing and discharging the bundle.



Rear view of the Columbia Knotter.

One packer always leads the needle, compressing the bundle, and absolutely preventing clogging as the needle strikes the bundle at the same for discharging. By this means important positions—compressing and discharging. **The knotter** is the **simplest** and **surest** in use. The twine holder automatically adjusts itself to the different sizes and inequalities of twine. The twine disc is positively driven by a four-sided pinion, making but one-quarter revolution for every bundle; and the disc opening for receiving the twine from the needle can never be changed by wear. The compressor is simple and absolutely positive in action. The power for operating is applied within four inches of the compressor, while in all other machines power is applied from two to three feet from compressor.



The Columbia Binder Attachment has fewer parts, and compresses and binds the bundles with less power, than any other binder made.

Rear of Bottom nailed to Wooden Cleat

THE OSBORNE COLUMBIA
CORN HARVESTER.



Lacking
in

Tractive Power

The Osborne Steel Grain Wheel
Steel Axle

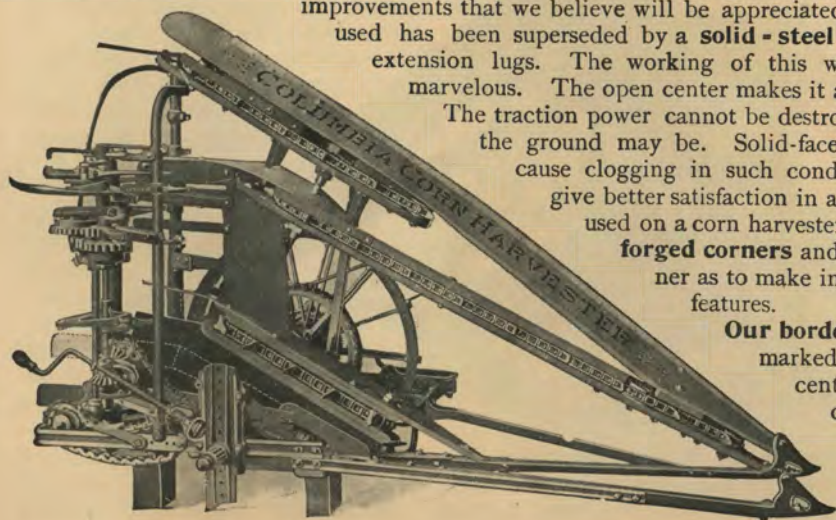


Removable Spokes
Double Hub & Roller Bearing

The Osborne Columbia Corn Harvester.

The rapid advance in public favor of the ensilage process is but another one of the "signs of the times," pointing to the fact that before many years **the Corn Harvester will be as great a necessity on the well regulated farm as is the Grain Binder** at the present time. The Osborne Columbia Corn Harvester is the most successful corn binder ever put on the market. This can only be attributed to the fact that we never rest satisfied with a machine while there is a possible chance of improvement. On this year's machine we have some improvements that we believe will be appreciated by all. **The main wheel** formerly used has been superseded by a **solid-steel wheel with open center** and side extension lugs. The working of this wheel during the last season was simply marvelous. The open center makes it absolutely impossible to load with mud. The traction power cannot be destroyed, no matter how wet and slippery the ground may be. Solid-faced wheels invariably fill with mud and cause clogging in such conditions. The Osborne steel wheel will give better satisfaction in all conditions of soil than any wheel ever used on a corn harvester. **The solid-steel main frame with forged corners** and joints riveted and bolted in such a manner as to make injury impossible is another of our special features.

Our border illustrations on this page show the marked difference between the Osborne open-center steel main wheel and the solid-faced cast-iron wheel used on other machines, also the Osborne double-hub removable spoke grain wheel and the single-hub riveted spoke wheel of another make.



A Solid Faced
Cast Iron
Main Wheel

A Grain Wheel With
Riveted Spokes



Single Hub &
Malleable Iron Axle

Side Extension
Lugs give
Positive Traction

The Osborne
Solid Steel
Main Wheel

Perfect
Adjustable
Tightener

The Osborne Binder Driving Appliance

On our machines of last season, in place of the feeding jaws of former years, a butt conveyor chain was used having long folding fingersextendingentirely across the stalk passage. A third packer on the binder attachment was also used to assist in placing the stalks in proper position and in discharging the bundle.

By reason of these improvements our last year's machine was better than ever before, discharging the bundles freely and placing them a good distance from the machine. We would particularly call your attention to the butt conveyor chain and the positive manner in which the stalks are carried to the binder. The long, powerful fingers force everything before them. Not a stalk can be retarded in the passage under any circumstances. **In the border** on page 15 we show the strong, long-fingered feeding chain of the Columbia and the light, short-fingered chain used for the same purpose on another

A Long
Heavy Chain
Always in Line

Another Form of Binder Driving
Light Frail Gears

Long Heavy Chain with Roller Tightener
Strong Heavy Gears

machine. We also show a comparison of the Osborne binder drive chain and that of another. **Driving chains wear out fast enough at best**, and light, short chains and those running out of line at times are to be avoided—we don't use them on the Columbia. We have adopted the chain form of driving as better adapted to the steel wheel and frame. In using this method we have provided a second shaft at the rear of the binder, which enables us to use a **long drive chain of great strength.**

An adjustable tightener is used, that will

always keep the chain just right—neither too tight nor too loose.

The small sprocket contains ten teeth, seven of which are

engaged by the chain at all times. As this sprocket is not moved when the machine is thrown out of gear the machine is always in perfect line. Some machines using chain drive have very short chain engaging three or

Out of Line
When Out of Gear

A Short Chain
Driving Device

A Very Short Tight Chain
And Sliding Tightener

Osborne

Conveyor

Drive Chain

Drive Chain

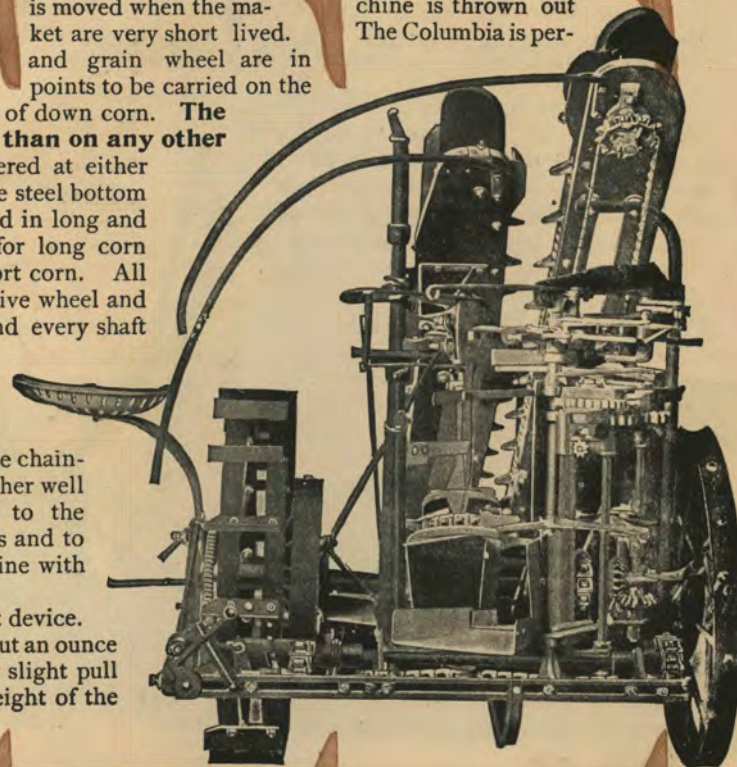
four teeth of a of gear. In such perfectly balanced on line. This arrangement with perfect safety, insuring the gathering of down corn. **The gathering chains are closer to the ground than on any other machine.**

The machine can be raised or lowered at either side, permitting leveling on steep side hills. The steel bottom is adjustable for changing the position of the band in long and short corn. It will tie 30 inches from the butts for long corn and 21 inches or any intermediate distance for short corn. All levers are easily handled from the seat. The drive wheel and grain wheel are provided with roller bearings, and every shaft of importance is furnished with self-aligning and roller bearings. Great pains have been taken to make this machine draw easier and do its work better than any machine ever produced. In the border of page 14 we offer a comparison of the chain-driving devices of the Columbia and those of another well known machine, and would call your attention to the difference in length and strength of these chains and to the fact that our sprocket is not moved out of line with main sprocket when thrown out of gear.

The Osborne bundle carrier is a most perfect device. As many bundles as may be desired are held without an ounce of power being required of the operator. A very slight pull with the foot breaks the lock joint and the weight of the bundles readily dumps the carrier.

is moved when the machine is thrown out. The Columbia is per-

chined. The Columbia is per-



Another

Form of

Conveyor

Another Binder

Osborne Binder

The Columbia Finger Bar. Steel Angle Firmly Bolted to Beam.

The Osborne Columbia Reaper.

The Columbia Reaper is a machine that has made for itself a reputation for durability, light draft, and excellence of work in every country where reapers are used. **The Main Frame** is cast in one piece, and has a heavy, wide hinge coupling for connecting the platform, making it impossible for bearings or platform to get out of line. **The Finger Bar** is of heavy angle steel very firmly bolted to large platform beam. Six broad-faced clips keep the knife in contact with the ledger plates, insuring easy cutting.

5-foot cut.

The broad-faced Drive Wheel revolves on a large steel axle and is provided with roller bearings. **The Rake Standard** and driving mechanism are very close to the drive wheel, and the seat holder being supported by the axle on the opposite side places the weight of the driver and a large part of the weight of the entire machine directly on the drive wheel, giving unlimited traction.

Steel Axle with Roller Bearing

The Neverslip Raising Device

Adjustable Steel Pitman

Simple and Durable Shifting Device.

Strong, Heavy, Removable Gearing

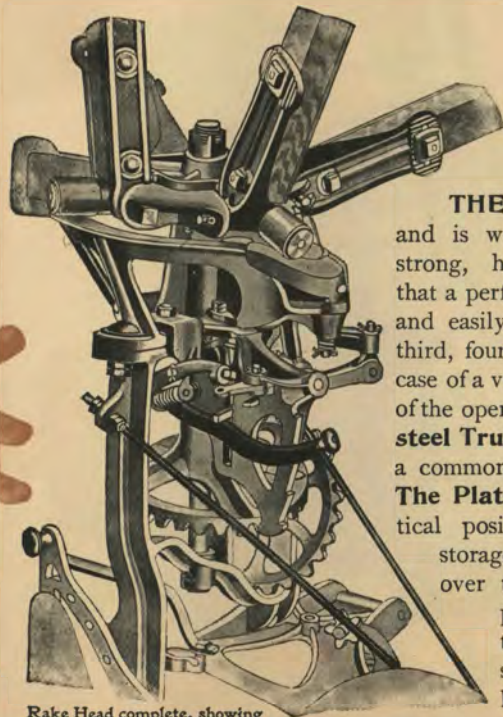
Removable Brass Bushing

*The Platform Folds
Without Removing
a Rake.*

*The Columbia
Rake Holder*

The Columbia Removable

Crank Shaft Bearing

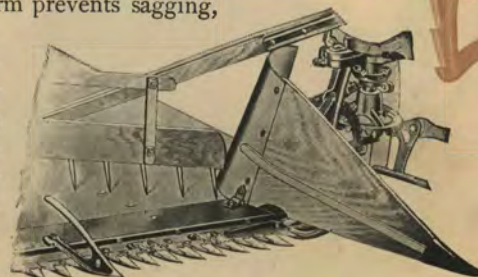


Rake Head complete, showing
the Lever on Automatic Trip, and Adjusting Brace Rods.

The raising and lowering arrangement is very powerful and furnishes a large range of adjustment. The mechanism for throwing out of gear will never get out of order and is easily handled from the seat. **The Columbia Steel Pitman** will never cramp—it has ball-and-socket joints at knife-head end. All wear can be readily taken up. It is also adjustable in length, insuring perfect register of knife.

THE STRONG MAIN GEAR is entirely separate from the drive wheel and is well protected from sand. The malleable rake head is high and strong, having adjustable brace rods for aligning with the platform, that a perfect bundle may be formed. The rake controller is very simple and easily handled. By the movement of a single lever every second, third, fourth or fifth rake will automatically rake the platform, or in case of a very thin and uneven crop the platform can be raked at the will of the operator by simply touching a lever with the foot. **A strong steel Truss Rod** beneath the platform prevents sagging, a common fault with some machines.

The Platform can be raised to a vertical position for transportation or storage. **The Seat** also swings over the wheel. In folding the platform it is not necessary to remove a rake or the inside divider. There are no loose parts to carry.



High Inside Divider; protects Rake Head from
winding with straw.

*A Crank Shaft Bearing
Not Removable*

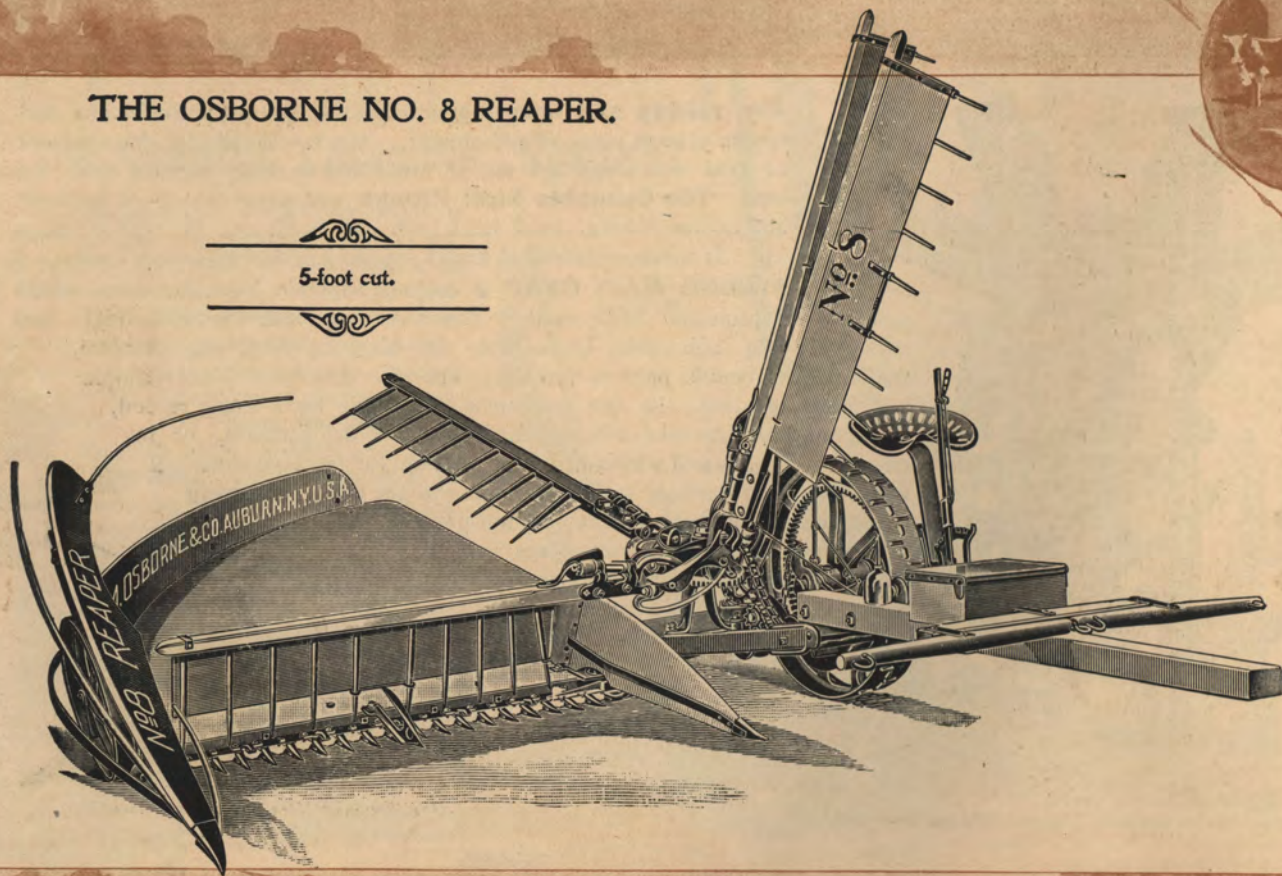
*More Difficult and
Expensive to Repair*

*Simple and
Positive in Action.*

*The Columbia
Automatic Rake Controller*

THE OSBORNE NO. 8 REAPER.

5-foot cut.



*The "No 8"
Rake Arm Holder*



*Rolling Motion and
Adjustable Rake.*

The Osborne No. 8 Reaper.

A machine that has been manufactured for many years, and has proven such a success that in many sections no other reaper can be sold. One of the distinguishing features of this machine, and one that has added largely to its popularity, is the rolling motion of its rakes, permitting the easy delivery of the gavel and in perfect shape for binding. The rake track can be readily extended, so that the rakes will always sweep the entire platform. **The Rake Controller** is the simplest in use. By the insertion of from one to four simple pins every second, fourth, or all four rakes will sweep the platform automatically. They can also be handled at the will of the operator for uneven crops or to prevent laying the gavel on the corner. **The Platform** is always kept straight by a strong steel truss rod, and in line by a wide, well-secured platform hinge. **The Platform**

Platform cannot sag.
and Seat can be folded so as to occupy very little space for storage.



Seat folds close to wheel, for passing gates or for compact storage in barn.

Strong, Durable



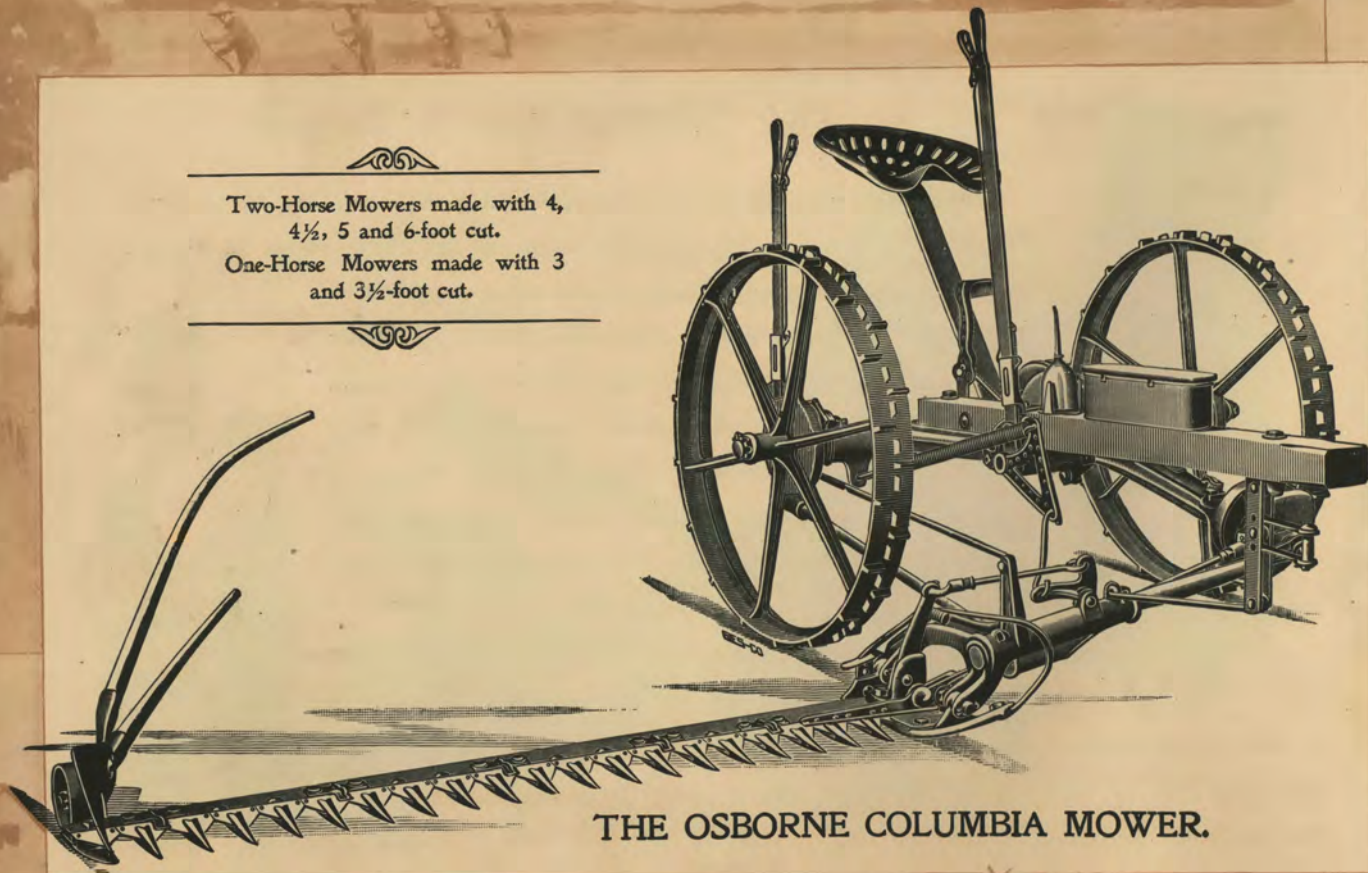
Platform Hinge.

Simple Driving Device
and Rake Controller

Simple and Powerful
Raising and Lowering Device

Two-Horse Mowers made with 4,
4½, 5 and 6-foot cut.

One-Horse Mowers made with 3
and 3½-foot cut.



THE OSBORNE COLUMBIA MOWER.

Entirely Separate
from Frame

*The Osborne
Frame. Note
its Great Length*

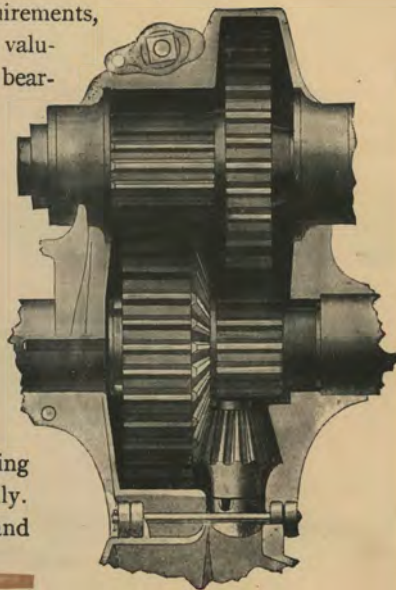
The Osborne Columbia Mower.

Much time and money have been spent in bringing the Columbia Mower to its present state of perfection, that it might fill all requirements, and in these few pages we shall try to demonstrate its many valuable features. **The Main Frame** is very long, with roller bearings in each end, the pawl plates and drive wheels coming close to the bearings, thereby reducing the friction at this point to the smallest possible amount and lessening the danger of springing the axle. You would not like to see the driving wheel on a threshing machine placed a foot away from the bearing, as that would cause much more friction on the bearing and therefore hard running. The principle is just the same on a mower. **The Columbia Gear Shafts** are firmly supported at both ends, and when the machine is in gear no pressure acting between the gears can separate them. **The Gearing is perfectly covered**, keeping it free from dust and dirt, and making it possible to thoroughly grease the teeth of the wheels, assuring lighter running and very long life to this most important part. Machines having gear shafts supported on one end only, and gearing outside of frame, where a little grass or dirt working between the gears will spring the shaft, must wear their gears out rapidly. Grease cannot be safely applied to such gears, as they and dirt, assisting in cutting them out. Kindly examine our border cuts and note which, in your judgment, would be likely to last the longest and run the lightest.

*Shaft Very Firmly Sup-
ported at Both Ends.
Gears cannot Separate*

*Drive Wheels
Close to Bearings
Lessen Friction*

Compact gear, broad
face—will wear a
lifetime.



Very small unsupported shaft,
allowing gears to separate
and soon wear out.

Very Hard to
Renew Bearings

Crank Shaft Runs
Through Solid Frame.

*A Mower With
Very Short Frame*

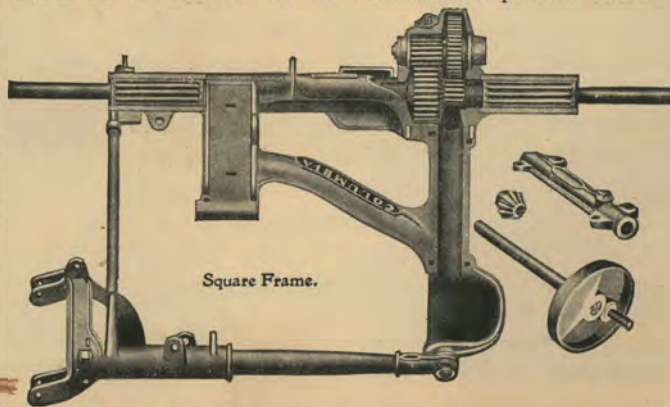
*Drive Wheel
Far from Bearing
Increases Friction*

*Osborne
Wheel*

*Centre Lugs pre-
vent Sliding*

Pawl Plates.

A good Mower must start its knife with the slightest forward motion of the drive wheels after the machine has been backed up. To accomplish this the number of pawls and driving notches in wheel must be such that the smallest backward movement of the wheel will place a pawl in driving contact. The Columbia has four pawls and twenty-nine notches. By this combination the knife is started more promptly than on any other machine made. As the Columbia is thrown out of gear in the most practical manner by separating its driving gears the knife is started just as quickly when thrown in gear as if the machine had been merely backed up. Not so with the many clutch-driven machines, as the drive wheels may move a foot or more before the clutch jaws can come into driving contact, to say nothing of the lost motion to be had by reason of the two and three-pawl construction. **The Crank Shaft Box is removable**, being fastened to the frame by four bolts; this is a very convenient arrangement in case of repairs, as it can be removed and the shaft taken out in a very few minutes; this also affords a ready means of keeping the bevel gear and pinion always in proper contact. On many machines whose crank shaft bearings are in the solid frame, it is a matter of considerable difficulty to renew them should occasion require. **The high broad-faced Drive Wheels** of the Columbia are provided with a center lug, which makes it ride grass. An examination of our border cuts will show the difference in construction at the points referred to between the Columbia and several machines in common use.



Square Frame.

*Without
Centre Lugs*

*Slides on
Side Hill*

*Osborne Pawl Plate
Four Pawls Move Knife Instantly*

*Three Pawls Permit
Considerable Lost Motion
Two Pawls Allow Much More*

Single Lap Connection
Permits Sagging of Cutter Bar

A Cast Iron Coupling.
Short Bearing on Bar

*Osborne Malleable Coupling & Shoe
Very Long Bearing on Hinge Bar*

Hinge Coupling and Shoe.

THE CUTTER BAR should be connected to the machine in the strongest possible manner. The method employed should provide perfect freedom of motion in the direction of tilting the bar, also permitting the bar to raise vertically and allowing it to conform to the irregularities of the ground, while in the direction of sagging back the connection should be as rigid as mechanical skill can make it. The border illustrations on this page represent the Columbia hinge coupling and shoe, and those of three other machines. We request a careful comparison of the merits of each and are confident that you will find the Columbia connection to be the strongest and best used on any mower. Our coupling and shoe are of malleable iron and cannot be broken by any usage they will be subjected to. **The Coupling** has fourteen-inch bearing on hinge

bar up to its work, preventing sagging. **The connection** to the shoe is 12 inches

over all and longer than any other. **The Hinge Pins** are steel, one inch in diameter. Many use three-quarter inch pins. The joint is a forked connection, double ears on the coupling and single on the shoe, making the strongest connection used for this purpose—it's the kind you use on your heavy doors to prevent them from sagging a particle; that's why

*Another Cast Iron Coupling & Shoe.
Exceedingly Short Bearing on Bar*

*Long Double Forked
Connection to Cutter Bar.*

we use it on the Columbia Mower. Others use a single lap connection, one ear on the coupling and one on the shoe. This is the kind you use on your stove door, which you wish to sag, that it may raise over the incline and latch properly. Such connections certainly provide means for sagging back. **Our Push Bar** is pivoted to coupling within



four inches of hinge pins, and to the frame seven inches below, and to the rear of the axle running at right angles to cutter bar. Others attach angular push bar to frame about three feet from a right angle with hinge pins, giving the bar immense leverage for sagging back.

*Single Lap Connection and
Small Hinge Pins.*

Very Short Single Connection
Bar Ahead of Cutter Bar

This Coupling has
Short Bearing on Bar

The Osborne Steel Pitman. Ball & Socket Joint at each End.

Swivel Self-Aligning Box with Oil Chamber at Crank-Head End.

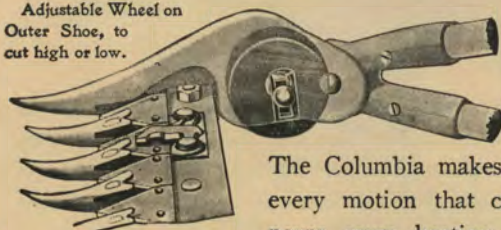


Mower — Pitman.

One of the most important parts of a mower **is the Pitman**, and if it is not supplied with good mechanical joints to protect it from strains caused by the many motions of the cutter bar, hard running and poor work are the result. **The Columbia long steel Pitman** is provided with a ball-and-socket joint at each end, that absolutely prevents binding the crank or knife-head bearing. A ready means of taking up wear on each end is provided. This permits the longest range of tilt to be found in any mower. The pitman can be

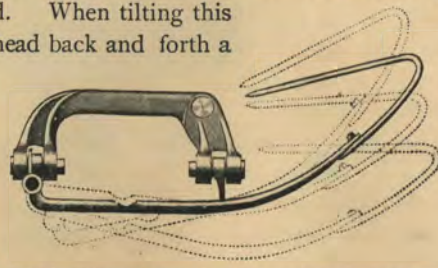
lengthened or shortened, so that in case of wear the knife can always be made to register. — The border illustrations represent the Columbia pitman and two other styles, one of which makes no provision for tilting or any other motion that would tend to affect the alignment of the bar. The other one, which is loudly proclaimed a two-piece pitman, provides for slight tilting by allowing the **threaded end of rod** to rotate in crank box **with no means of taking up wear**, and should the pitman get slightly bent its usefulness is destroyed. When tilting this

Adjustable Wheel on Outer Shoe, to cut high or low.



machine carries the knife head back and forth a considerable distance, yet there is no provision made for this motion unless it be **loose joints**.

The Columbia makes mechanical provision for every motion that can ever occur, and will never cause heating or binding.



The Osborne Cutter Bar has a wide range of tilt.

The Osborne Pitman is Adjustable in Length, Insuring Full Cutting Capacity

Very Large Range of Tilt Permitted by Self-aligning Bearings.

No Way of Taking up Wear at either End
Very Slight Tilt. Threaded Pitman Rotates in Box

This Pitman Makes No Provision for Tilting

*The Osborne
Steel Pitman*

Perfectly Protected

*Against all
Possible injury.*

Protected Pitman.

A **Mower Pitman** should be protected in such a manner that it could not be injured in case of running against a stump or stone. How often in cutting the roadside, rough fields or an unused

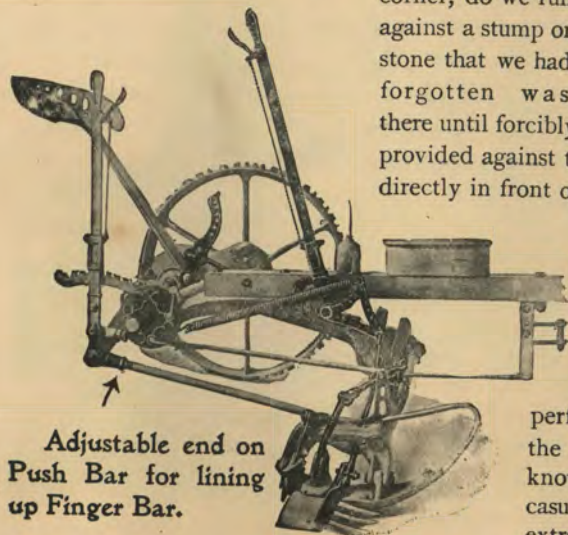
corner, do we run against a stump or stone that we had forgotten was

there until forcibly reminded by a bent or broken pitman. The Osborne Mower is provided against the possibility of such an accident. The large, heavy hinge bar directly in front of the pitman, supported by the heavy push bar at right angles to it, will resist the shock caused by striking any solid obstruction, without injury to any part of the machine. **The Hinge Coupling is provided with a shield underneath the pitman,** giving absolute protection against injury by coming down directly on stone or stump. No other mower is protected in this manner. A shield at the crank head end of pitman keeps crank

perfectly free from cut grass. On this page we illustrate in the border the **Osborne Columbia Protected Pitman** and three other well known machines with the pitman protection afforded by each. A casual examination of these will be enough to convince you of the extra value to be had in this part of the Columbia's construction.



Protection that protects.



Adjustable end on
Push Bar for lining
up Finger Bar.

An Iron pitman

*practically no
protection.*

A Wooden Pitman Partially Protected & in front only

Scarcely any Protection.

*The Osborne
Under Draft*

Prevents Neck Weight

Foot Lift and Draft.

One of the special features of the Columbia

Mower is the perfect working of its Foot Lift. The foot lever is placed directly in front of the operator's right foot. The motion being directly forward,

*The Osborne
"keep-your-seat"
Foot Lift.*

allows the operator the use of his right leg for raising the bar without the necessity of getting off the seat, in fact he is more firmly seated by the power he applies to the lever. The position of the lever is also adjustable to accommodate the length of leg. This lift can be more conveniently operated than any other in existence. The difference in the operation of the Columbia foot lift and that of some other machine is plainly shown in the accompanying illustrations. The

Columbia Underdraft connection to cutter bar is shown in the border, as is also another form of draft attachment. The Columbia under hanger being pivoted to the pole and also to the draft rod with the horses pulling between these points, it can be readily seen that a portion of the power is applied directly to the cutter bar and the remainder taken by the pole. This method removes every vestige of neck weight and side draft. It will be noticed on the other construction shown that the rod connecting cutter bar and pole is hooked to rigid

iron bracket on under side, while the horses pull from fixed connection on top of the pole. This certainly shows that the harder the horses pull the more neck weight there will be. The bar is perfectly balanced by a strong adjustable carrying spring, transferring the weight to the axle, giving greater traction and allowing the bar to conform perfectly to the irregularities of the ground.

*"Get-off-
the-seat"
Foot Lift.*

*A Draft
Attachment*

*That increases
Neck-weight*

*Keep your Seat
Foot Lift*

*The Osborne
Adjustable*

Non-adjustable

*Get off the
seat Foot Lift*

Osborne Rivets headed above and below Bar, prevent Bar clogging

Section easily tightened or removed



Serrated Ledger Plate.

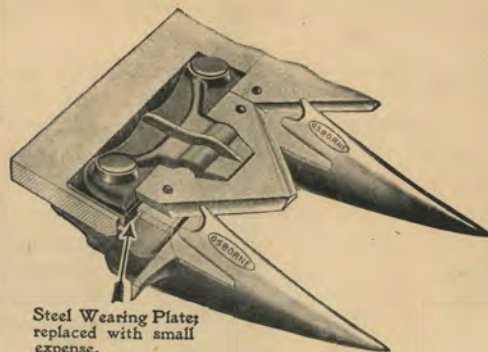
The greatest of care is used in the selection of stock and in the construction of the Columbia cutting mechanism. **The Knife Back** rests against hard steel wearing plates; the sections projecting over the knife back also rest upon these same plates. By this means the friction is greatly reduced and the sections prevented from raising off the ledger plates in front. **The Guards** are fitted with serrated ledger plates which hold the grass from sliding to the front of the knife after it is slightly dull. **The Knife** is prevented from raising off the ledger plates by broad-faced malleable clips, which in case of wear can easily be adjusted, assuring perfect shear cut at all times. **The guards** are fastened to the bar by countersunk head bolts, leaving a smooth surface on top with nothing to gather cut grass and clog the knife.

The Columbia Mowers are made in three sizes. The frames are constructed of different lengths and weights, according to the length of bar they are designed to carry. Our six-foot frame is very much heavier, the distance between wheels greater, the wheels are heavier and have wider tread, every gear used is larger and stronger than is used on the five-foot machine. On some machines a six-foot bar is attached to a five-foot frame, making a very weak construction.

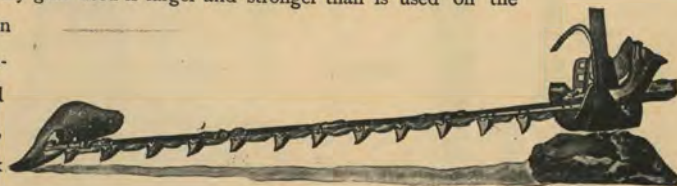


Broad-faced Clip.

Cutter Bar.



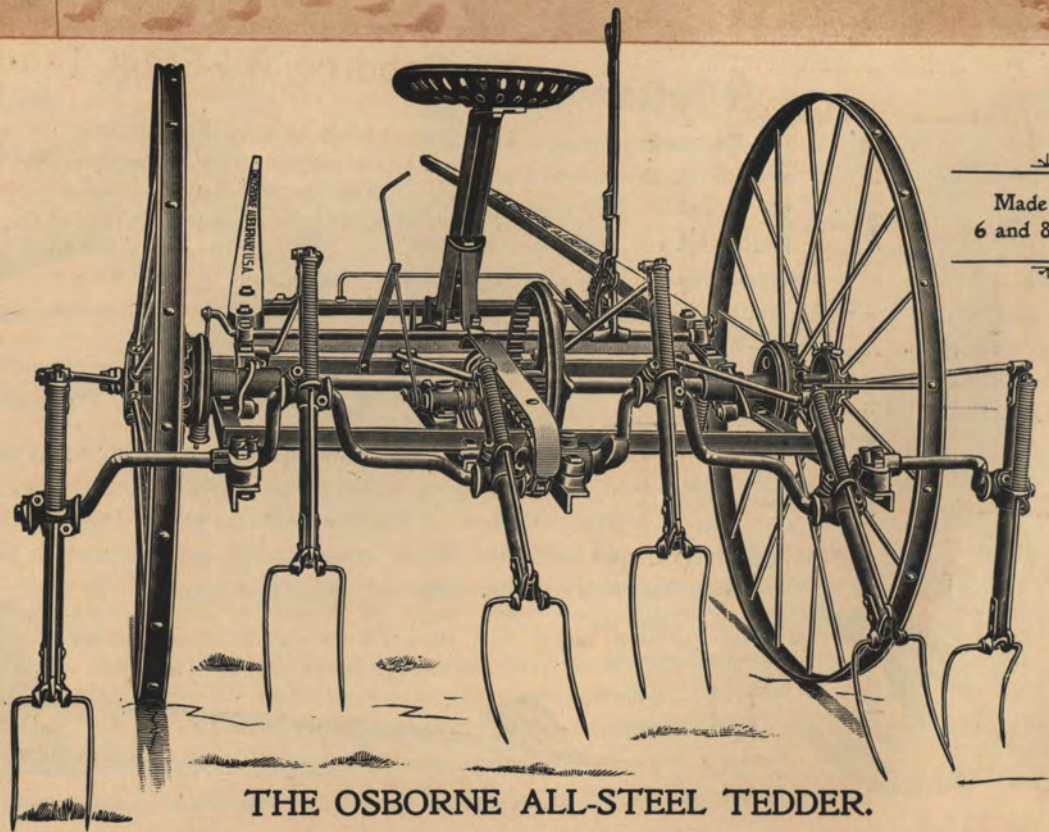
Steel Wearing Plate; replaced with small expense.



The Outer Shoe stays on the ground, while the inner one raises over obstructions.

Cutter Bar Flush Riveted

Section hard to keep tight, difficult to remove



Made with
6 and 8 Forks.

THE OSBORNE ALL-STEEL TEDDER.

*Osborne
Rake and*

Actual

Size

*Tedder
Tire.*

The Osborne All-Steel Tedder.

The Osborne Steel Hay Tedder is universally conceded to be the best machine of its kind, and here are a few of the reasons. **The heavy Angle Steel Frame** solidly riveted together, having brace plates at each corner requiring four large rivets in each, furnishes a foundation that it is impossible to spring or injure. **The Suspension-Spoke Steel Wheels** are the best and strongest to be found on any similar machine. The special-shaped tire gives greater strength than is possible with the same amount of metal in any other form. **The Double Hub**, with twenty removable spokes placed four and one-half inches apart lengthwise the hub, gives evidence that no strain likely to come upon it will ever injure this wheel. The border cuts on this page represent the Osborne wheel and the single riveted spoke wheel used on some other machines. It does not require much of an observer to note the great difference in strength. **The heavy steel Crank Shaft**, one and one-eighth inches in diameter, is larger and stronger than is found on any other machine. It is driven from the center by a strong, heavy chain. The cranks are placed sixty degrees apart, which gives a perfect balance to the machine—these relations can never be changed. By this arrangement only one fork can be

at the ground at a time, and the full power of both wheels is applied to one fork, making it possible to shake out the heaviest windrow. When turning a corner every fork is working as fast as when going straight ahead. Other

Staggered Spokes will not Bend.

Single Spoke

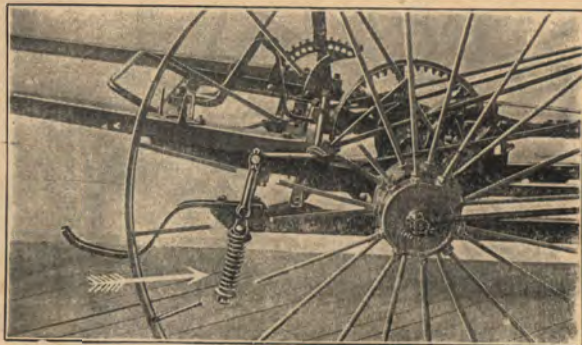
Bends Easily.

Osborne Rake & Tedder Spoke. Actual Size.

Perfect Roller Bearings Insure Light Draft.

machines, with double crank shaft driven independently from each wheel, either by chain or gears, are always out of balance, shaking the machine to pieces and rapidly wearing out its bearings, and when turning a corner but one-half of the forks are tedding hay, the others standing still. With the best of such constructions two forks can arrive at the ground at once, which reduces the power of the machine just one-half as compared with the Osborne Tedder.

On this page we show the Osborne Tedder Fork, also a fork used on another kind of tedder. The Osborne fork is made of the very best steel obtainable, and the method of fastening to the tubular steel fork holder is such that the fork cannot be broken by the points coming in contact with a stone or other obstruction, as the points of the fork are one and one-half inches to the rear of its pivot, while the strong regulating spring to which the fork is connected readily allows a backward movement when the pressure becomes too great. In addition to the fork spring the machine is supplied with two heavy relief springs attached to front of frame and raising shaft. By means of these springs the rear end of the frame can be raised six inches. These, with the assistance of the fork springs, make it practically impossible to injure the machine by striking any obstruction, and also relieve it from the effect of jars occasioned by forks striking hard ground. The wheels do not pass over the hay after it has been shaken out, as a fork on the outside of each wheel assures the perfect tedding of the crop. **The long steel Pitman Rods** connecting upper ends of forks to frame, give to the forks a very easy motion, throwing the hay just high enough to stir it thoroughly, instead of the quick, jerky motion of many machines throwing much of the hay on top of the machine. **The Driver's Seat** is adjustable in both directions. A heavy **steel Foot Rest** is also provided. The shafts are quickly changed to pole. **All Levers** within easy reach from seat.



Jar is relieved by heavy Coil Spring



Centre Drive

*Each Fork Receives
the Full Power of Both Wheels*

The Osborne Whiffletree Prevents Gouging Horse's Shoulders When Turning Rake.

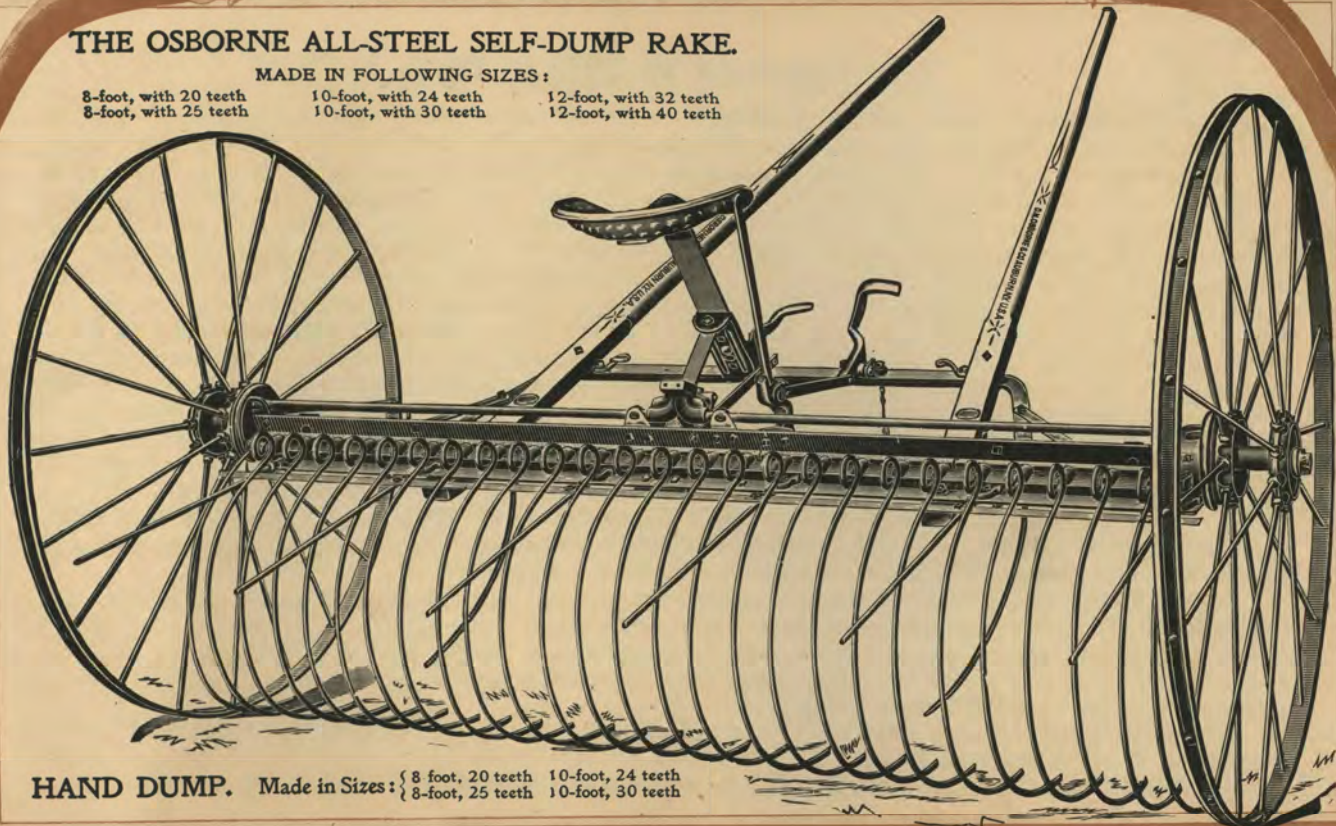
THE OSBORNE ALL-STEEL SELF-DUMP RAKE.

MADE IN FOLLOWING SIZES:

8-foot, with 20 teeth
8-foot, with 25 teeth

10-foot, with 24 teeth
10-foot, with 30 teeth

12-foot, with 32 teeth
12-foot, with 40 teeth



Strong Hinge Connection

Securely Braced

HAND DUMP. Made in Sizes: { 8 foot, 20 teeth 10-foot, 24 teeth
 { 8-foot, 25 teeth 10-foot, 30 teeth

The Osborne Solid Forged Angle Steel Rake Frame.

The Osborne Heavy Angle Steel

Roller Bearing Rake Axle.

The Osborne All-Steel Rake.

The Osborne Steel Self-Dump Rake is so far superior in construction and operation to any other machine of its kind that comparison seems almost superfluous. Still, with two or more rakes standing together, if attention is not called to the points of great strength or weakness in each, by one who has reason to know them, it is doubtful if the ordinary purchaser would discover all the points of difference.

We illustrate on this page the Osborne heavy angle-steel roller-bearing rake axle, also an axle used in another well-known rake, and take the liberty of calling your attention to the remarkable difference in strength, lightness of draft and interchangeable features of each. The Osborne rake is provided with roller bearings revolving on cold-rolled steel axle and is the only rake in the world equipped in this manner. The teeth are attached to the axle by means of clamps eighteen inches long, each fastened by three bolts. **These Clamps make the Axle much stiffer** and are made in three sizes, holding four, five and six teeth each, and are interchangeable, thus enabling a person having a twenty-tooth rake to make it twenty-five or thirty by simply purchasing another set of clamps and the extra number of teeth. All this is accomplished and only fifteen holes put through the axle for tooth holding purposes. **Kindly compare these features with those of the other Axle shown.** It has no roller bearings, therefore must run much harder than the Osborne. Each tooth is fastened by a separate clip, the axle gaining no strength by this means. If the rake has thirty teeth it will require thirty holes for tooth fasteners. As the teeth pass through the axle there are needed thirty elongated holes for this purpose, each of which is equivalent to two holes. This would equal ninety holes through the axle for the same purpose that the Osborne uses fifteen holes. Which of these axles will serve your purpose best?

The Rake Teeth are made of the best spring steel, and thoroughly tested before leaving the factory. The large coil near the upper end is entirely back of the axle, where its full value can be used, allowing the tooth to spring to the greatest possible extent. Rakes whose teeth pass through the axle, having the coil in front, lose nearly if not quite all of the value of the coil. **The teeth have flattened points** with rounded bottoms, to prevent tearing up the ground and filling the hay with dirt.

The Osborne Hand-Dump Rake is equipped with all of the valuable features used on our other rake, with the exception of the self-dump mechanism and the roller bearings. The balance is so perfect and the leverage so great that very little effort is required to dump the rake, the weight of the driver assisting largely in this operation.

That Soon Loosens.

A Weak Hinge.

*always be
Kept Tight.*

*A Strong Durable
Hinge that can*

Rake Axle Weakened by a Large Number of Holes and Without Roller Bearings

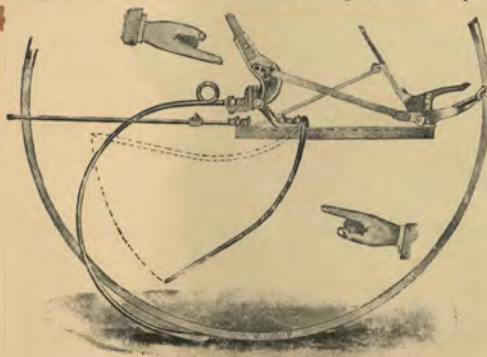
The Osborne

Reversible, Double Dump Rod.

Four Times the Wearing Surface of the Common Single Dump Rod

On this page we show the **Osborne Reversible Dump Rod**, and double-hub steel wheel. We also show the single-hub wheel and non-reversible dump rod used on another rake, and request that you note the difference. The Osborne is a double dump rod of the best grade of steel, both ends of the rods are exactly alike and have full square contact with wheel pawl plate whose notches are square, with no corners to wear off. It is easily seen that there is scarcely any chance for wear, yet should it ever occur that a corner on the rod became rounded the rods can be changed and **reversed until all four corners could be used.**

The Osborne Rake is supplied with Check Teeth for preventing the hay from rolling or roping and working into the wheels. This feature is only found in the Osborne, and is of the greatest value in some conditions of hay. Another of our special features is the adjustable snub casting. By its use the teeth can be raised as high as possible or just as little as desired. No hay will be



Our new Floating Check Tooth prevents hay from rolling and roping.

left unraked back of windrow with this device. **The Wheels are also reversible.** The Osborne suspension-spoke double-hub rake wheel with roller bearing has twenty heavy steel spokes screwed into the hub. They can be easily taken out in case of accident. The spokes are four and one-half inches apart lengthwise the hub, imparting greater strength than is to be found in any other rake wheel. The other wheel shown has no roller bearing, has a single hub and only sixteen spokes riveted to hub and tire. If one should get broken it would be a difficult job for a blacksmith to replace it. Is this as good a wheel as the Osborne? The other dump rod shown is a single rod with sharpened ends and ratchet tooth pawl plates. This construction is subject to rapid wear, and the only remedy is the purchase of new parts. Would you prefer this to an Osborne?



Can be set to dump the teeth to an extreme height, or to drop the teeth close to the windrow, whether using a fast or slow walking horse, leaving no unraked hay.

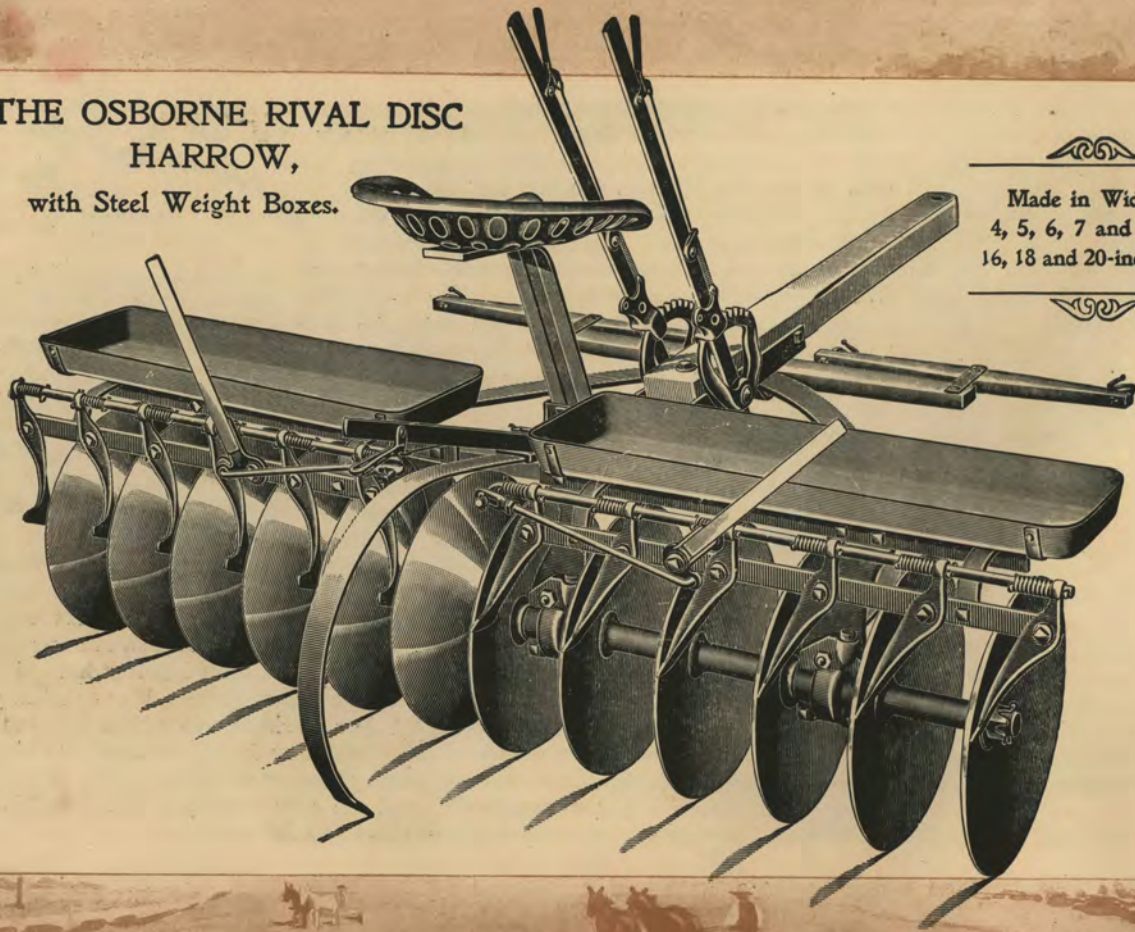
Non-Reversible

Single Dump Rod.

Ratchet Tooth Pawl Plates, Non-Reversible, - Soon Wear Off

THE OSBORNE RIVAL DISC
HARROW,
with Steel Weight Boxes.

Made in Widths:
4, 5, 6, 7 and 8-foot;
16, 18 and 20-inch Discs.



The Osborne Disc Harrow Axle, Large Square Bolt with Lock Nut Preventing Discs from ever Loosening

The Osborne Rival Disc Harrow.

A **Disc Harrow** receives the most severe usage and is generally less cared for than any tool on the farm. How necessary then that its construction should be of the best. The greatest care has been taken with this harrow with regard to strength, and when we say it is the strongest and best harrow in the world we mean **every**

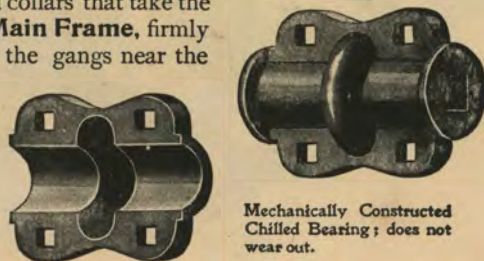
word of it. **The Discs** are of the best tempered steel. Their edges will neither break nor turn over. The large square axle bolt, an inch in diameter (larger than is used on any other machine), prevents the discs from turning on the bolt and is provided with heavy nut with set screw for locking, making it impossible for the discs to work loose. **The Separating Spools** are machine finished on each end, giving perfect bearing on the

discs, lessening the danger of loosening and putting no unequal strain on the bolt. Many machines use separating spools with rough ends. This method is very much cheaper and also the poorest possible construction. The bearings of the Rival are chilled, making them just as hard as possible, and are provided with large inside chilled collars that take the entire end thrust. **The solid steel Main Frame**, firmly riveted together and connected to the gangs near the

center of the discs, makes this the strongest draft arrangement to be found on any harrow. The scrapers are supplied with independent springs—anything affecting one scraper will not affect the others. By the use of two levers the gangs can be set at different angles, which is so necessary on hillsides and in overlapping. An adjustable steel spring tooth working between the gangs entirely removes the center ridge, cultivating all the ground thoroughly.

Adjustable Saddle for regulating the Gangs.

A Frame that will not warp or twist.



Mechanically Constructed Chilled Bearing; does not wear out.

A common round Disc Harrow Axle Bolt with ordinary Nut Impossible to Keep Disc Tight

With Finished Ends.

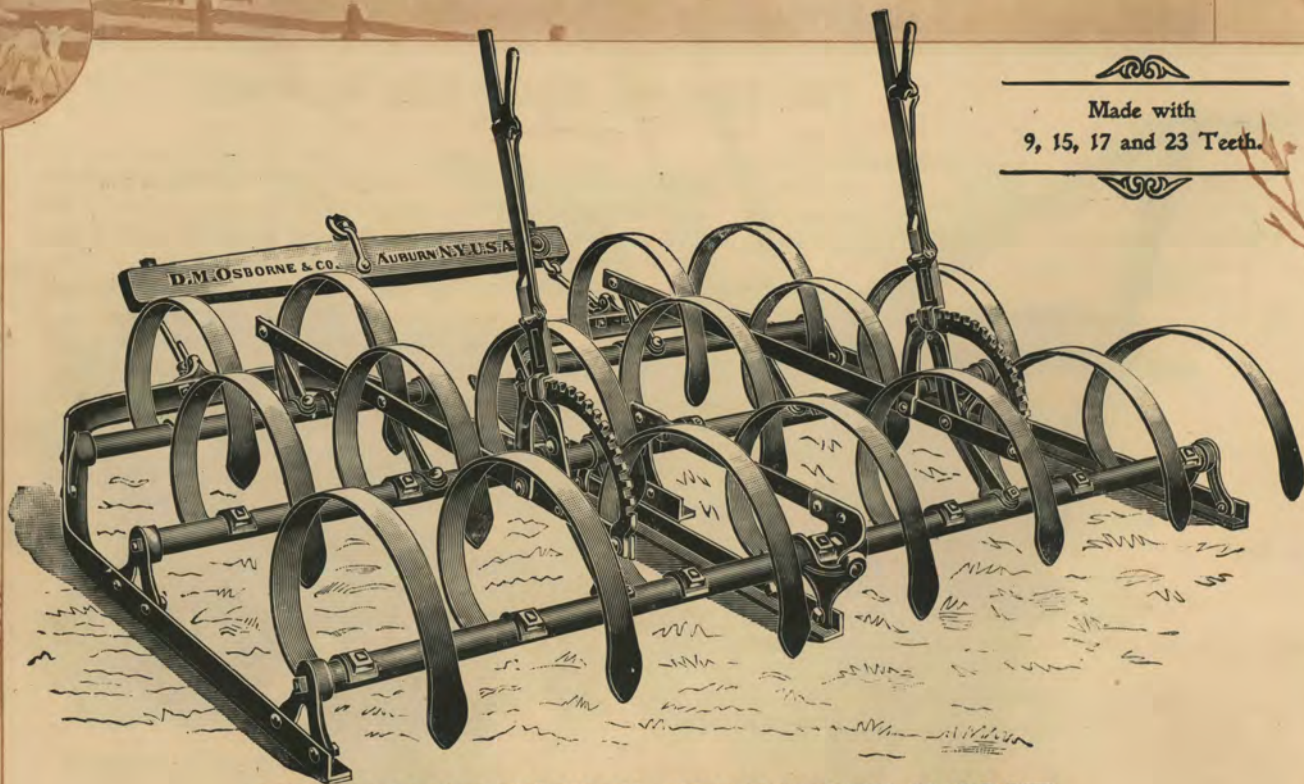
The Osborne

Separating Spool.

With rough ends.

Another kind of

Separating Spool



Made with
9, 15, 17 and 23 Teeth.

THE OSBORNE COLUMBIA SPRING-TOOTH HARROW.

The Osborne

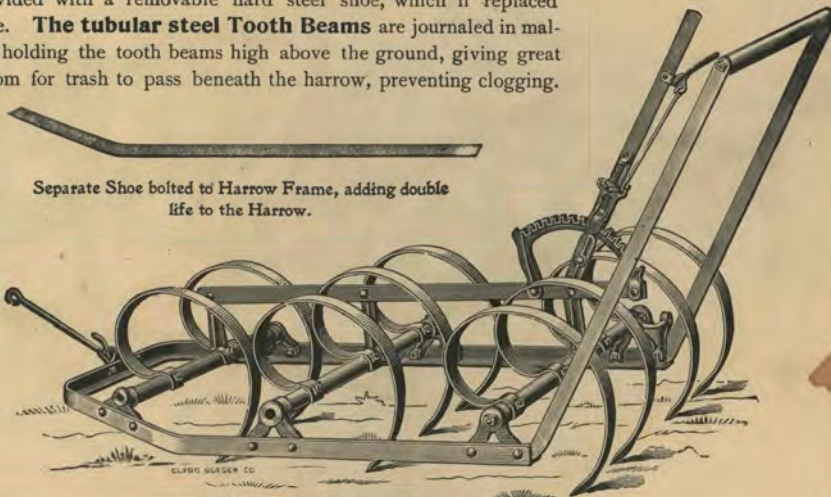
Steel Tubular

Tooth Beam

and Fastenings

The Osborne Spring-Tooth Harrow.

The Osborne Adjustable Spring-Tooth Harrow can be depended upon to satisfy you better than any other harrow you ever used. We feel perfectly safe in making this statement, as it is the testimony of thousands of farmers who are using this celebrated implement. **The Frames are made of single pieces of angle steel** sloping upward in front, preventing the accumulation of trash. Every part of the frame coming in contact with the ground is provided with a removable hard steel shoe, which if replaced when worn out will make the harrow last a lifetime. **The tubular steel Tooth Beams** are journaled in malleable iron hangers solidly riveted to the frame, holding the tooth beams high above the ground, giving great range of adjustment for the teeth, and ample room for trash to pass beneath the harrow, preventing clogging. Removable malleable clod crushers at the front prevent large lumps sticking between the sections. The rear of the right-hand section is cut away for the clearance of trash. The draft iron is adjustable for high or low hitching and the teeth are so spaced as to make trailing impossible. Each tooth must do its full share of the work. **The Teeth are fastened** to the beams by our well known spanner hitch, the most secure fastener for such a purpose yet produced. The levers for regulating the depth of cut are placed on the rear tooth beams, where they are within easy reach of the operator. The notches in the quadrant are deep and wide, making slipping impossible. Our border cuts represent some of our special features, also some similar parts used on other harrows. Kindly compare them.



Separate Shoe bolted to Harrow Frame, adding double life to the Harrow.

Nine-Tooth Vineyard Harrow with Handles.

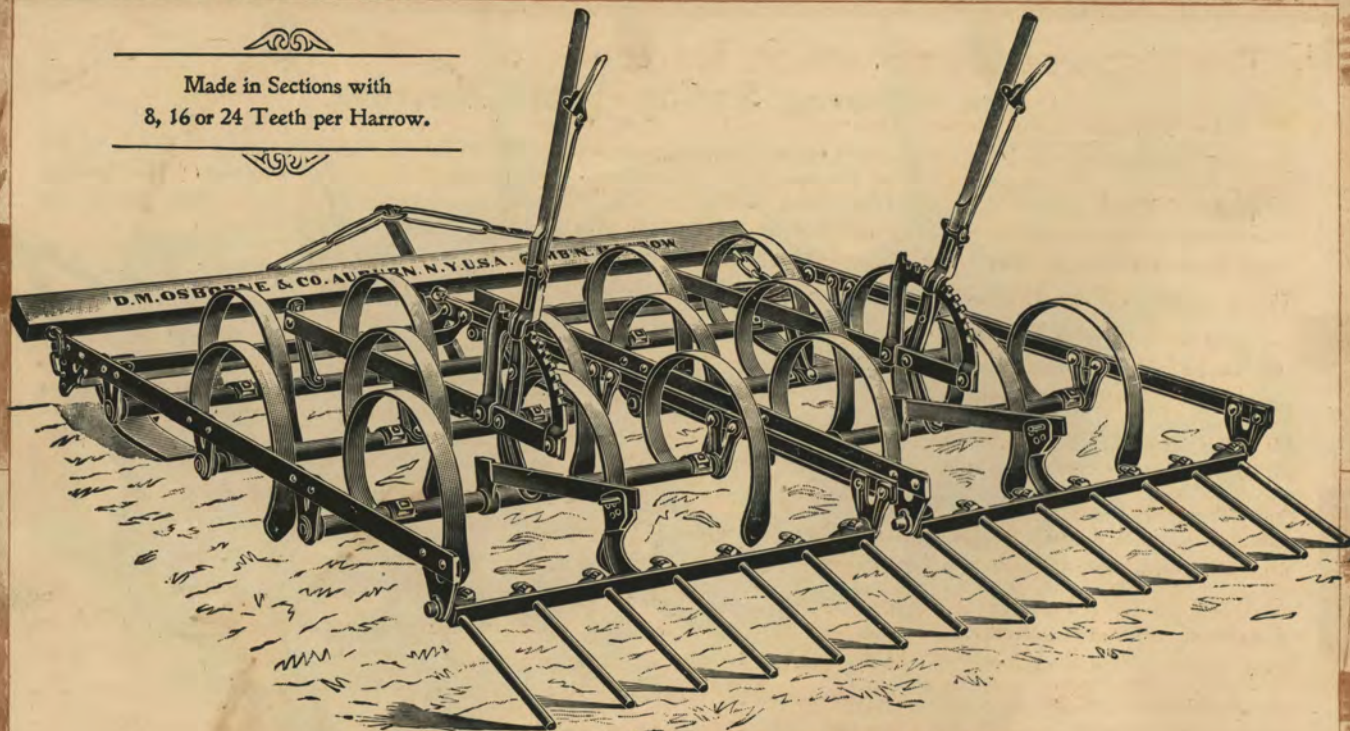
Common

Flat Iron

Tooth Beam

and Fastenings.

Made in Sections with
8, 16 or 24 Teeth per Harrow.



THE OSBORNE COMBINATION HARROW.

*Osborne**Combination**Strongly**Riveted**Frame*

The Osborne Combination Harrow.

The Osborne Combination Harrow is the only implement of its kind manufactured, and its value as a pulverizer and smoother combined is attested by thousands of farmers who use this tool in preference to any other kind of harrow. It is supported in front by high carbon steel shoes and in the rear by the long inclined steel teeth. **These Teeth break all the lumps** left by the spring teeth and also smooth the ground thoroughly. They are provided with upset heads and can not be lost in the field, but can be reversed from time to time until completely worn out. They are adjustable lengthwise and a lever is provided for changing their angle. **The Frame Bars are of channel steel**, connected by angle steel bars at front and rear. The tubular steel tooth beams are supported by malleable iron hangers firmly riveted to the frame bars. Our method of attaching the tooth beams to their hangers is the best and strongest in use, absolutely preventing the frame bars from spreading. The adjustable draft iron allows more or less weight to be carried on the rear teeth as occasion requires. The sections are practically independent of each other, being only connected by the draw bar. The rear of the harrow is prevented from swinging and is perfectly guided by the slanting teeth. The levers are placed on the rear tooth beam and within easy reach of the operator. **The Spring Teeth** are fastened to the beams by our well known spanner hitch, which is so effectual in securing the teeth and preventing the harrow can be used in one, two or three sections, as desired. The special features of this



OSBORNE TOOTH FASTENING.

No strain on the bolt. A tooth constructed on mechanical principles, so that the strain is equally distributed on all parts and stands the wear when others break.

der cuts illustrate a few valuable implement.

*The Osborne
Adjustable*

*Smoothing and
Pulverizing Attachment*



THE OSBORNE SULKY SPRING-TOOTH HARROW.

The Osborne Independent Steel Harrow Axle Bearings Protected from Dirt.

The Osborne Sulky Harrow.

Each year witnesses some improvement in farm machinery, lessening the farmer's labor and increasing his output. One by one the tools that he has been obliged to follow on foot are being adapted for riding, and that too without additional burden to the horses. During the last few years several riding harrows have been placed on the market, among which the Osborne Sulky Spring-Tooth Harrow is the acknowledged leader. This tool, while permitting the operator to ride, does not throw his weight upon the harrow teeth, as the sulky is entirely independent of the harrow. Many harrows have the wheels placed on the rear tooth beams, therefore cannot be flexible, and as the weight of the driver is borne by the teeth the draft is very hard. The heavy angle-steel frame is carried high above the ground, and the tubular-steel tooth beams are journaled in malleable hangers solidly riveted to frame. The tooth beam fastening, which we illustrate, is the strongest that can be produced, and will not allow the frame to spread or the harrow to pull apart. Adjustable steel shoes are provided on the sides and front of the harrow, permitting the frame to be carried high or low, enabling the pitch of the teeth to be changed at will and still insuring a certain depth of cutting. The two hangers attached to the sulky axle have adjustable pins for regulating the cutting depth. The sections are so hinged as to assure perfect flexibility. The border cuts show a few of our special features—the heavy steel axle with sand-proof bearings, the adjustable shoes and draft iron, the hinge connection and twenty-inch steel wheel with removable spokes. The levers are within easy reach from the seat at all times, and a strong foot rest prevents the possibility of the driver being pulled from the seat. The wheels are inside the harrow frame. All wheel tracks are entirely covered by the rear teeth. The teeth are attached to the tooth beams by the best method ever devised. The tooth encircling one-half of the tubular beam, fastening with heavy bolt and steel washer, is prevented from ever loosening. When the teeth are raised for transportation this harrow will not run forward on the horses, if going down a slight incline, a fault common with harrows having wheels in front instead of shoes.



To show secure fastening of Tooth Bar.



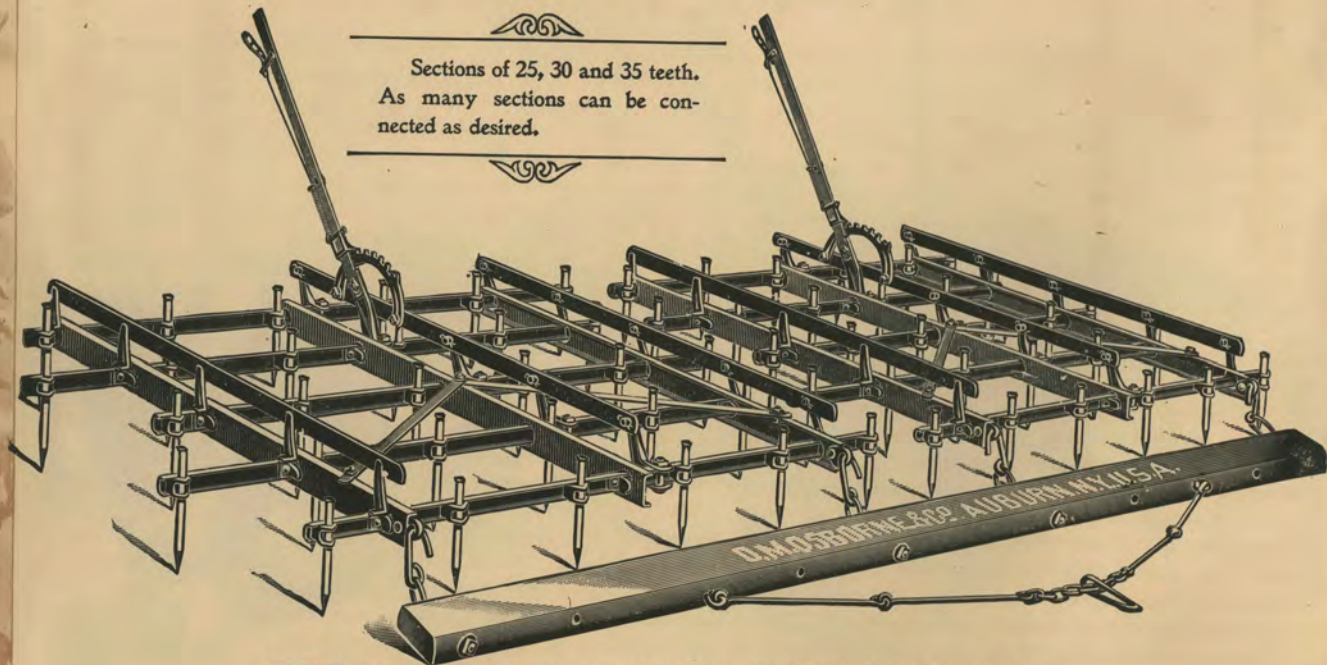
*The Osborne
Steel Wheel*

The Osborne Hinge Assuring

Perfect Flexibility

*Adjustable
Shoe.*

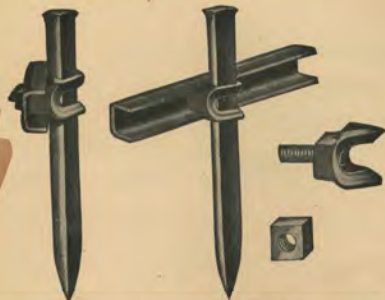
Sections of 25, 30 and 35 teeth.
As many sections can be connected
as desired.



THE OSBORNE JUNIOR PEG-TOOTH HARROW.

*The Osborne
Connected Tooth
Beams*

*Tooth &
Fastening*

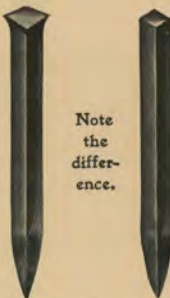


Tooth securely bolted to U-Bar.

The Osborne Peg-Tooth Harrows.

Judging from the appearance of many of the peg-tooth harrows now on the market, it is very generally believed that anything is good enough for a harrow of this kind. The advent of the Osborne Junior Peg-Tooth Harrow has so plainly shown the difference between good and bad construction that even a casual observer must readily recognize it. **The U-shaped channel Tooth Bars** are made of high carbon steel and are nearly double the strength of those used in some harrows. Kindly note the thickness of these bars as compared to others. They are the most important parts of the harrow and they must not be allowed to twist if the teeth strike a fast

*Note
the
difference.*



*Heads upset; cannot
lose out.*

stone or root. In order to give them more than double strength in this direction, they have been connected at each end by heavy steel connecting bars and malleable rocker arms. By this means every bar contributes its share toward resisting twisting strain. No other harrow has any provision of this kind. **The Tooth Bars** in coming through the heavy channel steel frame bars are provided with malleable clips that complete the circle of the bar for journal bearings, and also hold the harrow firmly together. Some harrows are supplied with washers next the frame bars, and pins through the tooth beams, weakening them greatly—note border illustration. **The Steel Braces** on top of frame bars add considerably to the value of the harrow. The heavy malleable tooth holder with steel bolt holds the tooth very firmly—no chance of slipping or breaking. The hard steel teeth have upset heads, which prevents losing them. **They can be adjusted** up or down, and have four cutting edges. The harrow can be used in from one to four sections, each section being entirely independent when detached from draw bar. In cultivating uneven ground the harrow readily adapts itself to the conditions, as it is very flexible. The draft line can be easily changed by the chain and link in draw bail. In the border we show the one-half inch square tooth and fastening of the Osborne Junior Harrow and also the five-eighth inch diamond-shaped tooth and steel clip fastening of the Osborne Columbia, this being the only difference between the two harrows.

*Tooth Beams
not Connected*

*Bars easily
Twisted*



Complete with Wheel Jack,
Two Levers and extra Shovels.

THE OSBORNE COLUMBIA CULTIVATOR.

*The Osborne Double
Expanding Bars*

and Large Circular

Supporting Slide

*Give Great Rigidity
in all Positions*

The Osborne Steel Cultivators.

Like all other Osborne machines, the Columbia Cultivator was designed with the intention of making it the strongest and most desirable machine of its kind in use, and nothing has been left undone to accomplish this result. **The Frame Bars** are of heavy, high-carbon steel. The shovel shanks (upon which so much depends in a cultivator) are of the best quality of steel made for such purposes. They are adjustable, allowing the angle of the shovel to be changed. The adjustable wheel jack is of solid steel, and has long range of adjustment for regulating the depth of cultivating; it can readily be removed if not needed. The draft clevis is adjustable, insuring all shovels cutting to an even depth. The most important feature in this tool, and the one in which it differs from all others, **is the rigidity of its Expanding Device**. In our border we show a detail of this most valuable feature, also a similar part from one of the great number of cultivators using like arrangements. You will notice that the Columbia has **heavy double Expanding Bars** of the best steel, supported by the strong circular malleable supporting slide. Such construction, when compared to the flimsy single bar without any support from slide on this other style, must certainly appeal to your good judgment in a most convincing manner. The handles are made from selected timber and have a large range of adjustment to suit the height of the operator; they are also very well braced. **The shovels** are of the very best tempered steel, and the edges will neither turn over nor break. We build this tool in five styles, from the hand expander without wheel or jack, to the complete two-lever machine.

Adjustable

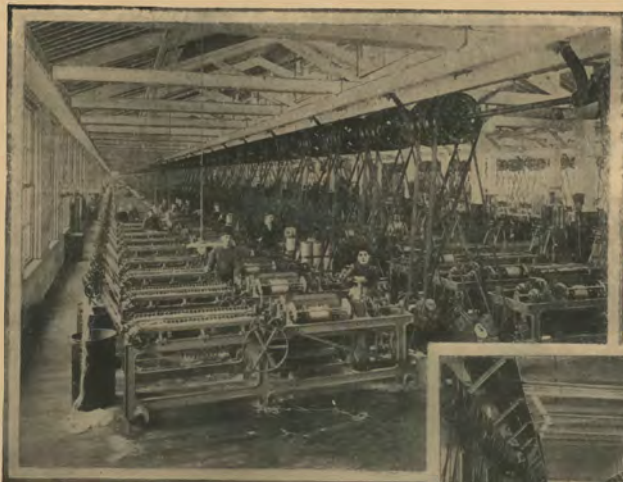
*Heavy Shovel
Shank*

*Adjustable
Wheel Jack*

*The Osborne
Steel*

*A Cultivator with Single
Expanding Bars*

*No Supporting Slide,
will not stand heavy work*



Spinning Room.

The Osborne Binder Twine.

No better guarantee of the excellent quality of the product of the Osborne twine mills can be

given than the wonderfully increasing demand for our twine and cordage; it has obliged us to double the capacity of our factory during the past year. Nothing that can be done to manufacture good twine is omitted, and no expense is spared to make the output of our plant superior to that of any similar institution.

There is nothing more aggravating to the farmer in the harvest season than to have his binder fail to tie the sheaves, and how often this defect is readily traced to the use of a poor quality of twine. Thousands of

machines have gone into the field and failed to do their work from no other cause, as has been proven many a time by simply replacing the faulty twine with a ball of the celebrated Osborne brand, effectually curing the trouble.

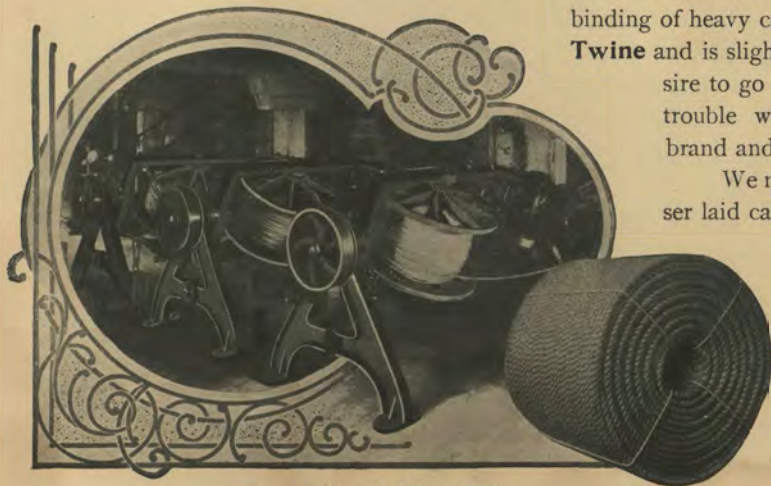


Baling Room.

The Osborne mills are supplied with the latest improved machinery for the production of perfect twine, and only the very best fibre is used in its manufacture. We are satisfied that any man using this twine will, in the future, have no other brand. The greatest of care is exercised in making it perfectly even and free from lumps. Great attention is also given to the operation of twisting. By the use of special appliances we are enabled to overcome that very common difficulty to be found in many brands of twine, of having the ball crush when about two-thirds used, snarling and breaking until the disgusted operator throws it away, causing loss of time and money. Every ball of Osborne twine is of guaranteed length, and will average longer to the pound than any other brand.

We manufacture a brand of twine especially adapted to the binding of heavy corn. It is known as the **Osborne Indian Corn Twine** and is slightly heavier than our other brands. If you desire to go through the next harvest without having any trouble with your twine, insist on having the Osborne brand and you will get the best in the world.

We manufacture all sizes of rope and cordage. Hawser laid cables, in any size and length, for well drilling and like purposes, are made and guaranteed to be of the very best quality. Ratlins, marlins and all kinds and sizes of yarns are regularly manufactured, and in soliciting your patronage for this branch of our business we confidently assert our ability to please you with the excellence of our product. Our trade mark will be found on every ball and bale made by us.



Rope Machines in Osborne Mills.

Osborne Orbit Oil.

If we have been fortunate enough to sell you a machine, our interests demand that you shall be thoroughly satisfied with it and that it shall last as long as possible. By pleasing you in this manner we know that we will receive your future orders for goods in our line. To insure the long life of our machinery we have undertaken to provide our customers with the best oil that can be produced for this purpose. Good oil and plenty of it is to a harvesting machine what a good dinner is to you—you cannot work without it, the machine will not. Your farm machinery costs you a great deal of money and if your judgment has been good in selecting it, full value will be returned in the work performed, provided it is kept housed and well oiled. Nothing will ruin your machinery quicker than neglecting to oil it frequently or using a poor quality of oil. Cheap mineral oils can be had in every town, and they are usually so thin as to rapidly run off the bearings, doing but very little good and requiring about four times the quantity. We have not tried to see how cheap we could make the Osborne Orbit Oil, but how good we could make it at reasonable cost, and do not hesitate to say that it cannot be excelled in quality and price. It is a free running yet heavy bodied oil and is not affected by hot or cold weather. If you wish your machinery to last as long as possible, and your horses saved from an early grave use nothing but Osborne Orbit Oil. This oil is put up in cans of one-half, one and five gallons.



Handy Reference of Weights, Measures, Etc.

Troy.

24 grains (gr.)	1 pennyweight (dwt.)
20 dwt.	1 ounce (oz.)
3.2 grains	1 carat, diamond weight.

By this weight gold, silver and jewels only are weighed. The ounce and pound in this are the same as in apothecaries' weight.

Apothecaries'.

20 grains	1 scruple	8 drs.	1 ounce.
3 scruples	1 drachm.	12 ozs.	1 pound.

Avoldupois.

16 drams (drs.)	1 ounce (oz.)	4 qrs.	100 weight (cwt.)
16 ounces	1 pound (lb.)	20 hundred weight	1 ton.
25 pounds	1 quarter (qr.)		

5,760 grains, apothecaries' or troy weight . . . 1 lb.
7,000 grains, avoldupois weight . . . 1 lb.
Therefore, 144 lbs. avoldupois equal 175 lbs. apothecaries' troy.

Liquids.

1 gallon oil weighs	9.32 lbs. avold.
1 " distilled water	10 lbs.
1 " sea water	10.32 lbs.
1 " proof spirits	9.08 lbs.

Miscellaneous.

Iron, Lead, etc.	Ref, Pork, etc.
14 pounds . . . 1 stone.	200 pounds . . . 1 barrel.
21½ stones . . . 1 pig.	196 " (flour) . 1 "
8 pigs . . . 1 fother.	100 " (fish) . 1 quintal

Dry.

2 pints . . . 1 quart (qt.)	4 pecks . . . 1 bushel (bu.)
8 quarts . . . 1 peck (pk.)	36 bushels . . 1 chaldron.

Liquid or Wine.

4 gills . . . 1 pint (pt.)	U. S. stand'd gal., 231 cub. in.
2 pints . . . 1 quart.	Beer gallon . . . 282 cub. in.
4 quarts . . . 1 gallon (gal.)	36 beer gallons . 1 barrel.
31½ gallons . 1 barrel (bbl.)	2 bbls. . 1 hogshead (hhd.)

Long.

3 barleycorns . . 1 inch—in.	40 rods . . . 1 furlong—fur.
12 inches . . . 1 foot—ft.	8 furlongs, 320 rods, 5,280
3 feet . . . 1 yard—yd.	feet . . . 1 mile.
5½ yards . . . 1 rod—rd.	6,075½ ft. . 1 nautical mile.

Cloth.

2½ inches . . . 1 nail	4 quarters . . . 1 yard.
4 nails . . . 1 quarter.	1 aunze . . . 1½ yards.

Square.

144 sq. inches . . 1 sq. foot.	40 sq. rods . . . 1 rood.
9 sq. feet . . . 1 sq. yard.	4 roods . . . 1 acre.
30½ sq. yds. . . 1 sq. rod.	

A pace is equal to a yard, or 36 inches.
A fathom is equal to 6 feet.
A league is 3 miles, but its length is variable, for it is strictly speaking a nautical term, and should be 3 geographical miles, equal to 3.45 statute miles, but when used on land 3 statute miles are said to be a league.

Surveyors'.

7.92 inches . . . 1 link.	80 chains . . . 1 mile.
25 links . . . 1 rod.	640 acres . . . 1 sq. mile.
4 rods . . . 1 chain.	625 sq. links . . 1 sq. pole.
10 square chains—160 square rods . . . 1 acre.	16 sq. poles . . 1 sq. chain.
	10 sq. chains . . . 1 acre.

Cubic.

1,728 cubic in. . . 1 cubic ft.	2150.42 cubic in. . 1 standard bushel.
27 cubic ft. . . 1 cubic yard.	268.8 cub. in., 1 standard gal.
128 cubic ft. . . 1 cord wood.	1 cubic ft. . . ½ bushel.
40 cubic ft., 1 ton (shipping)	

To find the number of bushels in a bin of any dimensions, find the number of cubic feet by multiplying the 3 dimensions of the bin in feet; deduct ½, and the result is the number of bushels.

Weight of Various Products.

PER BUSH.	PER BUSH.
Wheat 60 lbs.	Hungarian grass seed 50 lbs.
Corn (shelled) . . . 56 "	Broom corn seed . . . 52 "
" (on the cob) . . . 70 "	Sorghum seed . . . 40 "
Rye 56 "	Corn meal . . . 50 "
Barley 48 "	Bran 20 "
Buckwheat (in Penn.) 50 "	Beans 60 "
" (in Kentucky) 52 "	Onions (in Pa. and Ky) 57 "
" (in Mass.) 48 "	" (in Mass.) . . . 52 "
Oats (in Ill. and Mass.) 32 "	Salt, Turks Island . . 76 "
" (in Ohio) . . . 33 "	" Syracuse . . . 56 "
" (in Kentucky) . . 33½ "	" Liverpool . . . 50 "
" (in Maine and Pa.) 30 "	Potatoes 60 "
Clover seed 60 "	Peas 64 "
Flax seed 56 "	Dried apples (in Penn.) 22 "
Timothy seed . . . 45 "	" (in Ill.) . . . 24 "
Hemp seed 48 "	Dried peaches (in Pa.) 33 "
Bluegrass seed . . . 14 "	" (in Ill.) . . . 32 "
Red top seed . . . 14 "	

Miscellaneous Weights.

Barrel flour weighs . 196 lbs.	Barrel fish weighs . 200 lbs.
" salt 280 "	Keg powder 25 "
" beef 200 "	Stone of lead or iron . 14 "
" pork 200 "	Pig " 21½ stone

Anthracite coal, broken, cubic foot averages 54 lbs.
A ton, loose, occupies 40 to 43 cubic ft.
Bituminous coal, broken, cubic ft. averages 49 lbs.
A ton, loose, occupies 43 to 48 cubic ft.

Cement (Hy) Rosendale bush. —70 lbs.	
" " Louisville " —62 "	
" " Portland " —96 "	
Gypsum, ground " —70 "	
Lime, loose " —70 "	
Lime, well shaken " —80 "	
A cable's length—240 yards.	A cord of wood —128 cub. ft.
20 articles 1 score.	1 hand 4 inches.
12 doz. 1 gross.	1 span 9 inches.
12 gross 1 gr. gross.	

Mason Work, Brick.—1½ barrels lime and ¾ yard sand will lay 1000 brick. One man with 1¼ tenders will lay 1,800 to 2,000 brick per day.

Shingles Required in a Roof.—To the square foot it takes 9 if exposed 4 inches; 8 if exposed 4½ inches, and 7½ if exposed 5 inches to the weather. Find the number of shingles required to cover a roof 38 feet long, and the rafters on each side 14 feet. Shingles exposed 4½ inches. 28x38=1064 (sq. ft.) x8=8512 shingles. Ans. To find the length of rafters, giving the roof one-third pitch: take three-fifths of the width of the building. If the building is 30 ft. wide, they must be 18 ft. long, exclusive of projection.

Seed to the Acre.

The opinions of farmers differ materially; and then the climate and soil have much to do with the quantity. The quantity of seed sown broadcast to the acre is about as follows:

Wheat . . . 1¼ to 2 bush.	Flax . . . ½ to 2 bush.
Barley . . . 1½ to 2½ "	Timothy . . 12 to 24 qts.
Oats . . . 2 to 4 "	Mustard . . 8 to 20 "
Rye . . . 1 to 2 "	Redtop . . 12 to 18 "
Buckwheat . ¾ to 1½ "	Flat turnip . 2 to 3 lbs.
Millet . . . 1 to 1½ "	Red clover . 10 to 16 "
Indian corn . 1 to 2 "	White clover 3 to 4 "
Beans . . . 2 to 3 "	Kentucky
Peas . . . 2½ to 3½ "	blue grass . 10 to 15 "
Hemp . . . 1 to 1½ "	Orchard grass 20 to 30 "

The quantity per acre, when planted in rows, in drills, is about thus:

Broom corn . 1 to 1½ bush.	Onions . . . 4 to 5 lbs.
Beans . . . 1½ to 2 "	Carrots . . . 2 to 2½ "
Peas . . . 1½ to 2 "	Parsnips . . 4 to 5 "
Peanuts . . 1 to 2 "	Beets . . . 4 to 6 "

Capacity of Boxes.—The following table will often be found convenient, taking inside dimensions: A box 8½ inches by 8 inches and 8 inches deep, will contain a peck. A box 8 inches square and 4½ inches deep, will contain a gallon. A box 7 inches square and 2½ inches deep, will contain a half gallon. A box 4 inches square and 4½ inches deep, will contain a quart. A box 3 inches square and 3½ inches deep, will contain a pint. A box 24 inches by 17 inches, and 28 inches deep, will contain a barrel. A box 18 inches by 15½ inches, and 8 inches deep, will contain a bushel. A box 13½ inches square and 1½ inches deep, will contain a bushel. A box 12 inches by 11½ inches, and 9 inches deep, will contain a half bushel. A box 10 inches square and 10¼ inches deep, will contain a half bushel.

Wall Paper.—To find the number of double rolls required for a wall, measure every side of the room and add the number of feet; multiply the sum obtained by height in feet; to allow for the doors and windows, multiply the height of each by the width, add all and deduct the sum from the number of feet in the walls; then divide by 72, the number of square feet in a double roll, and the result will be the number of double rolls required for the side walls.

Example.—Room 15 feet long, 12 feet wide and 10 feet high; two windows 6 by 4 feet; two doors 7½ by 4 feet, 15 plus 15 plus 12 plus 12 equals 54; 54 by 10 equals 540 feet in walls; two doors 7½ by 4 by 2 equals 60; two windows 6 by 4 by 2 equals 48; total 108 feet; 540 less 108 equals 432; 432 divided by 72 equals 6 rolls.



OSBORNE

Farm Implements
SUCCEED
Where Others Fail.