

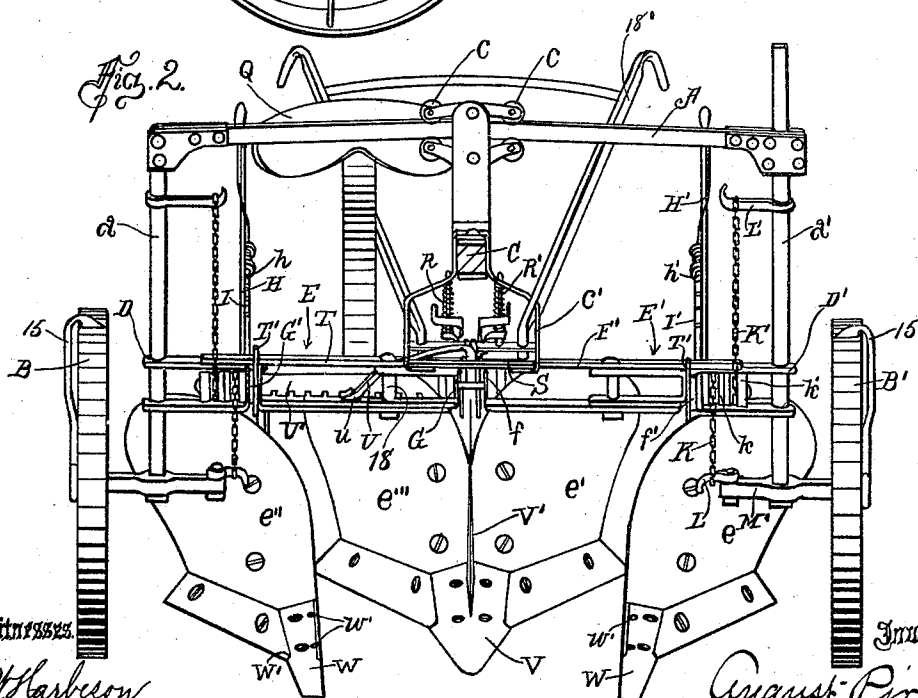
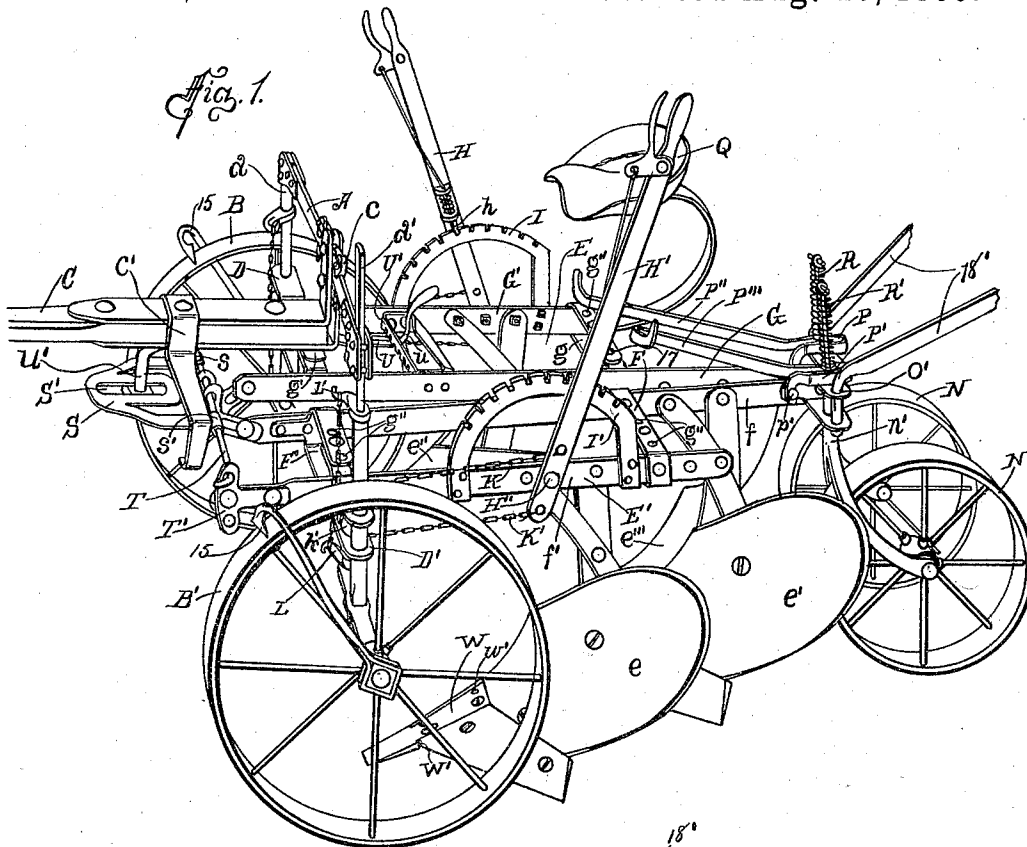
(No Model.)

3 Sheets—Sheet 1.

A. PIRCH.
PLOW.

No. 544,994.

Patented Aug. 20, 1895.



Witnesses.

W. H. Harrison,
Alfred Townsend.

Inventor.

August Pirch
By Hazard & Townsend
His Attys.

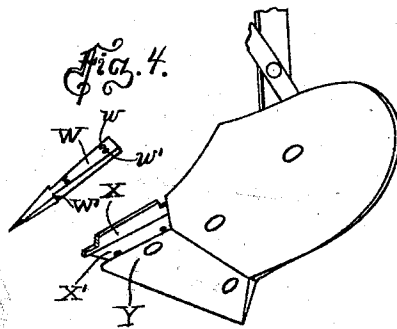
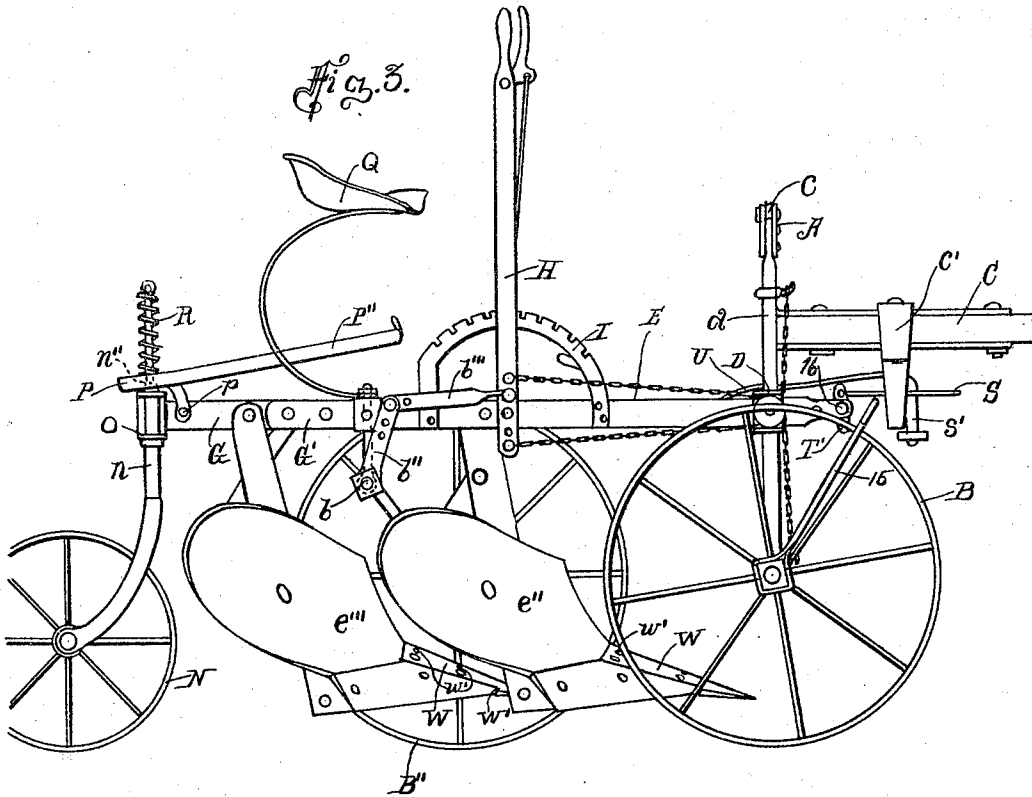
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3 Sheets—Sheet 2.

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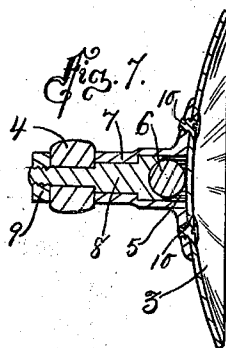
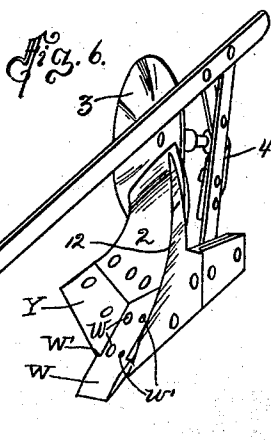
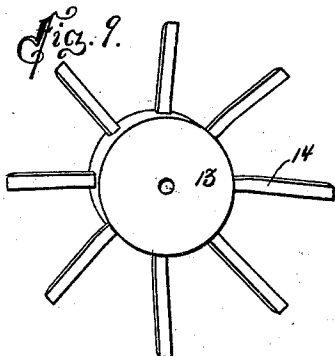
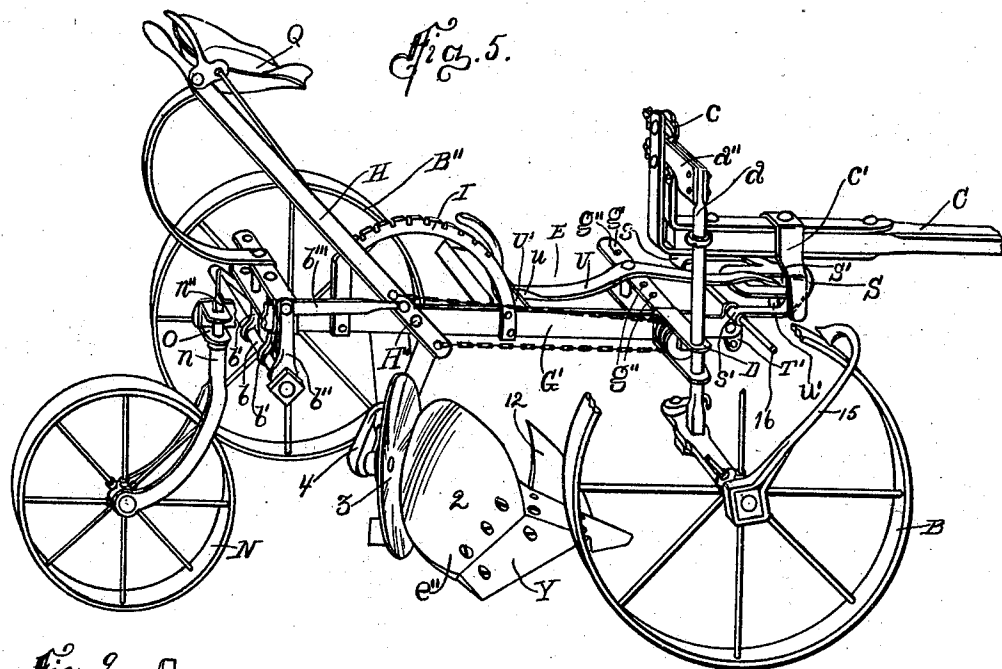
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3 Sheets—Sheet 3.

A. PIRCH.
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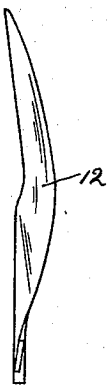


Witnesses.

Fig. 8.

Attestation.

Alfred J. Townsend.



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UNITED STATES PATENT OFFICE.

AUGUST PIRCH, OF LOS ANGELES, CALIFORNIA.

PLOW.

SPECIFICATION forming part of Letters Patent No. 544,994, dated August 20, 1895.

Application filed July 21, 1894. Serial No. 518,191. (No model.)

To all whom it may concern:

Be it known that I, AUGUST PIRCH, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented new and useful Improvements in General-Purpose Plows, of which the following is a specification.

The object of my invention is to produce a device which will be more convenient to use, will be easy to operate, and will be more efficient than any device of this character heretofore produced, and one which, by simply rearranging its various parts, will be adapted to perform many kinds of work.

My invention consists of the features and the combination of parts hereinafter fully set forth and claimed.

The accompanying drawings illustrate my invention.

Figure 1 is a perspective side elevation of a device embodying my invention and arranged for side-hill plowing or for ditching. Fig. 2 is a front elevation of the same arranged for ditching. Fig. 3 is a side elevation of my improved device adapted for use as a double sulky-plow. Fig. 4 is a fragmental elevation of a plow, showing my improved reversible steel point removed from the plow. Fig. 5 is a perspective side elevation of my improved device arranged for use as a single sulky-plow. Fig. 6 is a perspective fragmental side elevation of the plow shown in Fig. 5. Fig. 7 is a sectional view of my improved revolving-disk moldboard and its journal-spindle shown in Figs. 5 and 6. Fig. 8 is a front elevation of a curved colter, which is adapted for use with the revolving moldboard shown in Figs. 5, 6, and 7. Fig. 9 is a perspective view of a rotary pulverizing spider which is adapted to be arranged in place of the rotary disk shown in Figs. 5, 6, and 7 and to pulverize the soil as it is turned by the plow.

In diversified or general farming it becomes necessary to have tools which are suitable for use in performing different kinds of work. For instance, it is sometimes necessary to make ditches and at other times it is desirable to have an implement which may be used advantageously in plowing side-hills, and it is also desirable that the farmer be provided with a double sulky-plow. It is also

essential, in order to perform his work with facility, that he be provided with a single sulky-plow. It has heretofore been necessary to provide a separate implement for each distinct class of work, no one implement being suitable to answer all requirements.

By my improved arrangement I combine in one device the various features which are necessary to provide an implement which will be suitable for performing the various kinds of work which are necessary to be done in general farming. I will now describe the construction whereby I accomplish this end.

In the drawings, A represents a tongue-supporting beam which is arranged upon suitable supporting-wheels B and B'. Upon this beam the tongue C, by means of supporting-wheels c, is so arranged that the tongue may be shifted back and forth along the beam from side to side of the implement. This tongue-supporting beam is provided with two vertical guide-posts a a', one arranged at each end of the tongue-supporting beam, and along which the guides D and D', which are respectively secured to the beams of the right and left hand gangs of plow E and E', are arranged to slide. These guides are each secured to the front end of the beams of its respective gang, and by raising and lowering the guides along the guide-posts a a' the points of the gangs E and E' are raised to throw them out of the soil or lowered so they will be forced into the soil when the plow is drawn forward.

As shown in Fig. 1, the two plows e and e', which comprise the left-hand gang E', are secured together by means of brackets F and F', which are bolted to the beams f and f', so that the movement of the beam of one of the plows will cause a corresponding movement of the beam of the other plow. The two plows e'' and e''', which comprise the right-hand gang E, have their beams G and G' secured together by brackets g and g' in like manner. These brackets are each provided with a series of holes g'', whereby the brackets are made adjustable to bring the plows nearer together or to throw them farther apart, as may be desired. Each separate gang is provided with an actuating-lever H and H', respectively, which are provided, respectively, with pawls h h', and arc-racks I

I', which are respectively secured to the plow-beams G' and f'.

In order to insure that the operation of raising and lowering the ends of the beams of the plows shall be entirely positive in action, I provide a peculiar arrangement of parts whereby the motion from the actuating-lever is transmitted by means of a chain and operates both to raise the beams and also to draw the end of the beams downward.

The device for raising and lowering the beams of each gang is the same in construction, and therefore I will describe the mechanism for raising the gang E', shown in Figs. 1 and 2, and this description will serve as a description of both. This consists of the actuating-lever H', which is pivoted to the plow-beam f', and two chains K and K', attached to the lever H', one chain, K, attached above the pivotal point H'' of said lever, and the other, K', below the pivotal point thereof. The chain K passes forward and over a pulley k, which is journaled in the guide D' and thence downward, and is attached at its lower end to a suitable support L, which is secured upon axle M' of the wheel B'. The other chain K' passes forward and under a pulley k', which is also journaled in the guide D', and passes upward and is attached at its upper end to a suitable support L', which is attached to the upright guide-post a' near the top thereof. Thus, when the lever H' is thrown forward it draws upon the chain K' and loosens the chain K, so that as the chain K operates to force the guide D' downward the chain K' is loosened to allow the guide D' to move downward along the guide-post a', thus to throw the points of the plows e e' into the soil; and when the lever is reversed and thrown toward the rear the chain K' operates to raise the guide D' and the chain K is loosened to allow such guide to be drawn upward, thus to raise the points of the plows e and e' to cause them to run out of the soil.

I will now describe the manner of supporting the rear ends of the gangs E E'. Each gang is supported by a suitable supporting-wheel N N', respectively, which is provided with a shaft n n', which is journaled in suitable guides O O' and is provided with a square shoulder n''. (Shown in Fig. 5, where the locking-lever is omitted for clearness of illustration.) A suitable locking-lever P P' is arranged to fit upon this square shoulder n'' to prevent the shaft n n' from rotating. The locking-lever P' is pivoted to the plow-beam f by a pivot p and extends from such pivot toward the rear and is arranged to fit upon the square shoulder n'' and is provided with a forwardly-extending actuating-lever P'', which is arranged with its end within convenient reach of the operator when seated in the seat Q. By pressing down upon the end of the lever that portion of the lever which embraces the square shoulder is raised above such shoulder and allows the shaft to rotate as the wheel changes its direction of travel. A spiral

spring R R' is arranged, encircling the upper end of the stem n n', to force the lever P P' downward to cause it to engage the shoulder n'' and to normally lock the wheel N N' against turning.

When it is desired to use the device shown in Fig. 1 as a side-hill plow, the gangs E and E' are alternately brought into use, thus to also throw the land always in the same direction—that is to say, when going in one direction the lever H is actuated to lower the ends of the beams of the plow e'' and e''' to cause such plows to enter the soil and the lever H' is actuated to elevate the ends of the beams of the plows e and e' to cause such plows to ride above the top of the ground, and upon the return trip the lever H is actuated to elevate the ends of the beams of the plows e'' and e''' and the lever H' is actuated to lower the ends of the beams of the plows e and e', so that in returning the land is turned in the same direction as upon the forward trip. When the end of a furrow is reached, the levers P and P' are operated to release the shanks n n' of their respective wheels N and N' in order to allow the shafts to turn as the plow is turned.

By reason of alternately using the right and the left hand gang of plows it becomes necessary to shift the clevis S into position to bring the draft into line with the plows which are in use. In order to provide convenient means for accomplishing this I provide a transverse draft-rod T, which is arranged passing through the clevis-racks T', with one arm s encircling the draft-rod between the two beams of the gang E and its other arm s' arranged encircling the draft-rod T between the two beams of the gang E'. To the tongue C, I secure a suitable bracket c', which is arranged to engage and support the clevis S, and to the bracket g' of the plow e''' I pivot an actuating-lever U, one end u of which is arranged to engage a suitable rack U' and its other end u' is arranged in a slot S' provided in the clevis S, so that by operating the lever U back and forth along the rack the clevis S and the tongue C can be shifted back and forth across the plow to bring the draft-clevis in line with whichever gang of plows is in use. The clevis-racks T' are pivoted to the plow beams to allow the beams to move up and down with relation to the bar T.

In Fig. 2 I have shown the two plows e''' and e' connected by means of a ditching-point V, which is secured to the nose of each of such plows and forms a connection therebetween. A colter V' is arranged extending upward from such point in order to cut the soil to cause the furrows to open easily.

In Fig. 5 I have shown the plows e e' e''' and the wheel B' removed from the device, the tongue-supporting beam A reduced in length, and to take the place of the wheel B' I arrange a supporting-wheel B'' upon a crank-shaft b, which is journaled in suitable journals b', fixed to the rear end of the frame of

of the plow, and provide a crank b'' , rigidly fixed to the shaft b and connected, by means of a connecting-rod b''' , with the actuating-lever H, so that as the lever H is actuated to raise the guide D upward along the guide-post a it also operates upon the crank-shaft b to force the wheel B'' downward, thus to raise the plows out of the ground. When the operation of the lever is reversed to lower the guide D along the guide-post a , the crank-shaft b is operated to raise the wheel B'' , thus to cause the plow-points to enter the ground.

W, Fig. 5, represents my improved reversible steel point, which is provided with two series of bolt-holes w and w' , so arranged that when the point is placed in position upon the plow with one side uppermost, the bolts will be arranged in one series of bolt-holes w , and when the point is reversed to bring the other side uppermost the bolts will be arranged in the other series of bolt-holes w' . This point is slightly twisted, as shown in Fig. 5, in order that the stem which is secured to the plow may conform to the curve of the moldboard, while the point will lie flat in the furrow. I am aware that reversible points have heretofore been made, but they have been reversed by turning them end for end. My invention is to be distinguished from such points in that my point is simply turned to bring the side which was beneath upon the top, and the point thus becomes self-sharpening. In order to allow the point to be reversed it is necessary to extend the landside X forward and form a seat X' for the point upon the upper face of the plow and between the landside and the share, as shown in Fig. 4. I provide the point W with shoulders W' , arranged one upon each side of the point, as shown in Fig. 6; so that when the point is reversed it will fit between the share Y and the landside X, no matter which side of the point is uppermost.

I am aware that plows formed of a rolling disk have been provided heretofore, but such plows simply cut a groove in the earth, and do not cut a furrow square at the bottom, and consequently a portion of the soil between the furrows is not stirred to the full depth to which it should be—that is to say, the disks gouge a series of grooves or channels, which are separated from each other by ridges of unstirred soil. I provide an improved device of this kind which combines the advantages of the ordinary plow with the superior features of the rolling moldboard.

My improvement consists of the plowshare Y, Fig. 5, a fixed moldboard 2, arranged above such share, a rolling moldboard 3, consisting of a disk arranged at the top of such fixed moldboard and having its lower portion arranged behind and below the top of such moldboard and journaled to the frame of the plow by a suitable arm 4. In order to prevent friction upon the bearing of the rolling moldboard I provide a ball-seat 5, Fig. 7, which is secured to the disk 3, and in this seat

I arrange a ball 6. A shouldered sleeve 7 is arranged to receive a shouldered spindle 8, which is provided at its end with a seat adapted to seat upon the ball 6 and at its other end is passed through the supporting-arm 4, which is attached to the plow and secured by means of a nut 9. The sleeve 7 is flanged at its outer end and is secured to the disk 3 by rivets or screws 10. Thus, when the bearing becomes worn the sleeve 7 can be removed from the disk 3, the spindle 8 can be removed from the sleeve, and a new spindle substituted with great facility.

I am aware that it has been proposed to provide a revolving disk at the top of a stationary moldboard; but, as heretofore employed, the lower portion of the disk has been arranged to receive the soil and to rotate toward the direction in which the soil is being turned. This causes great friction, for the reason that the moldboard is thus rotated in the direction opposite the movement of the soil which is being turned, and, therefore, instead of lightening the draft, it increases the draft by reason of the increased friction which is thus produced.

In order to facilitate the turning of the soil I provide a gouge-shaped colter 12, which is rigidly secured to the landside of the plow and projects upward therefrom. This form is shown in Figs. 5, 6, and 8, and is designed to be used when the rolling moldboard 3 shown in Figs. 5 and 6 is used. By attaching the colter to the landside it may be made to project upward only a sufficient distance to cut through the top of the soil, and I thereby avoid the collection of weeds and other material which ordinarily gathers upon all colters except rolling colters. This gouge shape of the colter severs the land and causes it to be delivered against the rolling disk 3, so that the upper edge is rounded and holds its shape, and the disk is thereby enabled to readily turn the soil over without the land becoming broken. The disk at the rear of the stationary moldboard rotates as the land is forced thereagainst, thus practically avoiding all friction, and since the friction upon the rear end of a fixed moldboard is always greater than at any other point the draft of the plow is materially reduced by this arrangement, while the bottom of the furrow is cut square across and the soil is uniformly stirred in the same manner it is stirred by the ordinary plow. This construction is especially suitable for use upon my improved device, since it greatly reduces the draft, so that the increased weight of the additional gang of plows is not objectionable. For convenience of illustration I have shown the ordinary form of moldboard on the plows shown in Figs. 1, 2, and 3; but in practice I prefer to use the form shown in Fig. 5.

In Fig. 9 I have shown a rotary spider consisting of the central body 13, provided with a series of radial arms 14, projecting outward from the body and arranged to be rotated by

the land as it is turned over by the plow, and by this rotation to break up and disintegrate the soil. 15 represents suitable scrapers arranged to scrape the wheels B and B'.

5 When it is desired to use the plow as a double sulky-plow, the gang E' is removed from the plow by slipping the end of the supporting-beam A off of the top of the upright guide-post *a'* and by removing the draft-bar
10 T from the clevis-brackets at the end of the beams *f* and *f'*, whereby the plows *e* and *e'*, the wheel B', and the guide-post *a'* are disconnected from the remainder of the device. This removal of the wheel B' renders it neces-
15 sary to provide a support for the gang E to serve in place of the wheel. To accomplish this I provide the crank-shaft *b*, having the wheel B'', journaled thereupon and arranged to be raised and lowered by the operation of the actuating-lever H, as herein-
20 before described.

The clevis S is attached to the gang E by means of a short draft-rod 16, and the beam A is removed from the bracket *a''* and a
25 shorter beam is substituted therefor. This shorter beam is not illustrated in detail, for the reason that the construction will be understood by those versed in the art, and no claim is made thereto.

30 When it is desired to use the device as a single sulky-plow, the bolts 17 and 18, Figs. 1 and 2, are removed, thus releasing the plow *e'''* from the device, leaving the plow *e''* to be used as a single sulky-plow.

35 18 represents suitable handles which may be secured to the rear end of the beams G and *f* when it is desired to guide the device by hand.

If it is desired to use the device as a double
40 lister, the plow *e'''* may be removed from its beam G and may be secured to the beam *f'*, to which the plow *e'* is attached, and the plow *e* may be removed from its beam *f* and secured to the beam G', to which the plow *e''*
45 is secured, so that when thus arranged the device may be used as a double lister, in addition to the other uses to which it may be applied. This arrangement of the plows is not illustrated, for the reason that it will be
50 readily understood by those versed in the art, and illustration thereof is not deemed necessary herein.

Now having described my invention, what I claim as new, and desire to secure by Letters
55 Patent, is—

1. In a plow the combination of the frame; the rear supporting wheel journaled to the frame and having its stem projecting upward above its journal and provided with an angular
60 shoulder and a cylindrical body above such shoulder; a lever arranged to embrace the angular shoulder to prevent the wheel stem from rotating and to be operated to be raised from the angular shoulder and to embrace
65 the cylindrical portion of the stem to allow the wheel to turn; and the spring arranged encircling the stem and adapted to

force the lever normally into engagement with the angular shoulder of the stem.

2. A plow comprising a gang of right hand
70 plows and a gang of left hand plows secured together and provided with a draft rod extending across the front end of the plow beam and attached thereto; a clevis arranged to slide upon such draft rod, and a lever pivoted
75 to the frame of the implement and arranged to be actuated to shift the clevis along the draft rod, substantially as and for the purpose set forth.

3. A plow comprising a gang of right hand
80 plows and a gang of left hand plows secured together and provided with a draft rod extending across the front end of the plow beam, and also provided with a tongue-supporting beam arranged above the draft rod and par-
85 allel therewith; a clevis arranged to slide upon the draft rod; a tongue arranged upon and adapted to slide along the tongue-supporting beam, and provided with a bracket arranged to engage the clevis; and a lever pivoted to
90 the frame of the implement and arranged to be actuated to shift the clevis along the draft rod, substantially as set forth.

4. In a plow, the combination of the supporting wheels; the vertical guide post; the
95 guide arranged to slide therealong; the beam pivoted near its front end to the guide; the pulleys journaled in the guide; the actuating lever pivoted to the beam and provided with the arc rack and the pawl; the chain or other
100 flexible device having one end secured to the lever above its pivotal point, passed forward under one of the pulleys in the guide, thence upward and secured to a suitable support, and the chain having one end secured to the
105 lever below its pivotal point, passed forward over the other pulley in the guide, and thence downward and secured to a suitable support, substantially as described.

5. In a plow, the combination of the supporting wheels; the vertical guide posts; the
110 guides arranged to slide therealong; the right and left hand gang of plows having the front end of their beams secured respectively to the guides; the draft rod extending along and
115 attached to the front ends of the beams; the clevis arranged to slide along the draft rod; the tongue-supporting beam arranged above the draft rod; the tongue arranged to slide along the tongue-supporting beam and provided
120 with the bracket connected with the clevis; the lever pivoted to the frame of the implement and arranged to be actuated to shift the clevis along the draft rod; the pulleys, two journaled in each guide; the actuating levers, one pivoted to each gang of plows,
125 and provided with an arc rack and a pawl; the chains, or other flexible connections, one secured to each lever above its pivotal point and passed forward under one of the pulleys
130 in its respective guide, and thence upward and secured to a suitable support, and one secured to each lever below its pivotal point, passed forward over the other pulley in its

respective guide, and thence downward and secured to a suitable support, substantially as described.

5 6. The colter set forth consisting of a gouge shaped body rigidly attached to the land side of a plow and projecting upward therefrom.

10 7. A plow provided with a fixed mold board, and with a revolving disk mold board arranged at the top of the fixed mold board and having its lower portion arranged behind and below the top of the fixed mold board, substantially as described.

8. A plow provided upon its upper face with a seat for a plow point, such seat being arranged between the landside and the share; 15 a point having its shank arranged to seat in the point seat and twisted to bring its cutting edge substantially horizontal when its shank is thus seated; and the bolts arranged to secure the point to the plow.

AUGUST PIRCH.

Witnesses:

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