

J. B. BARTHOLOMEW.

PLOW.

APPLICATION FILED JAN. 9, 1912.

1,285,900.

Patented Nov. 26, 1918.

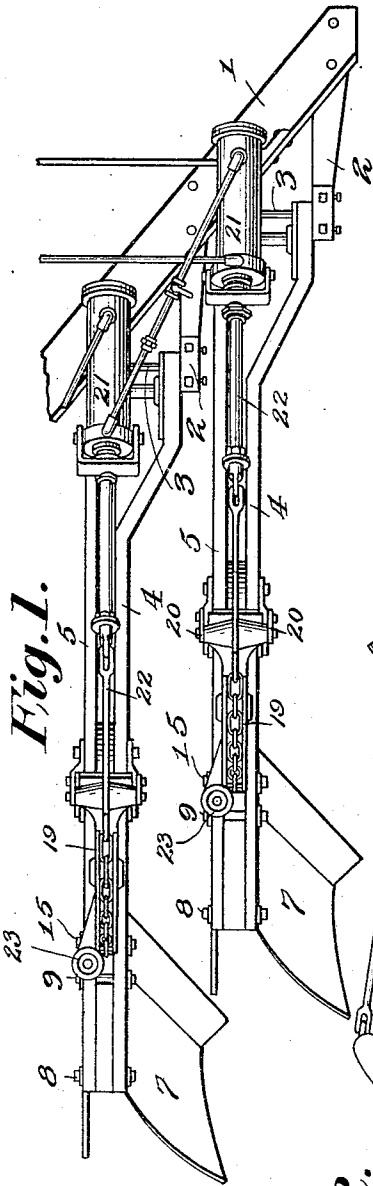


Fig. 1.

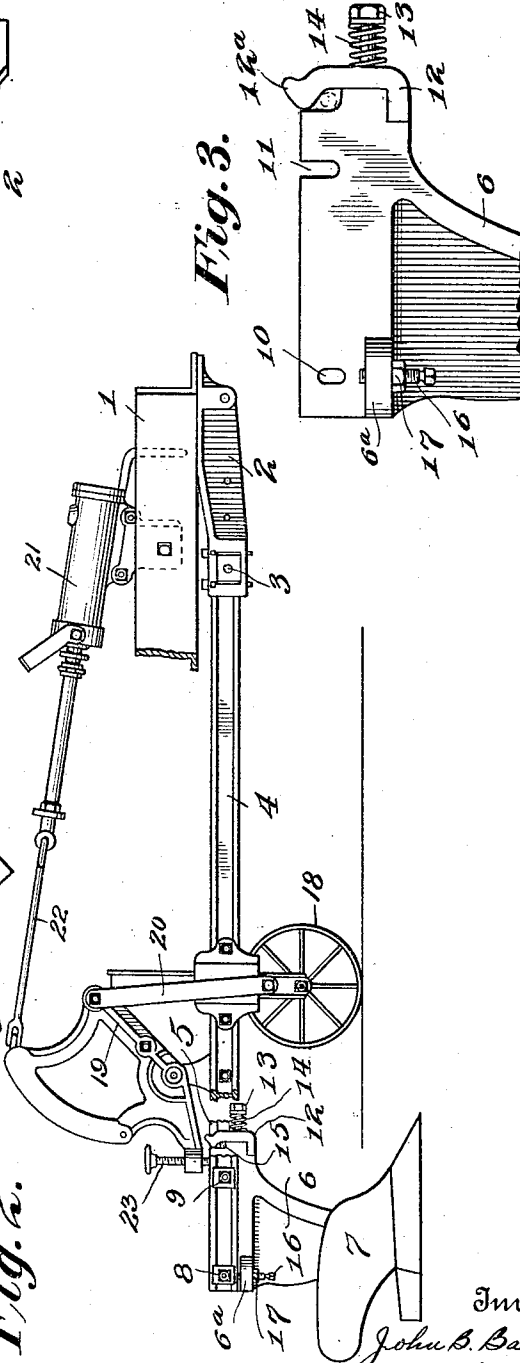


Fig. 2.

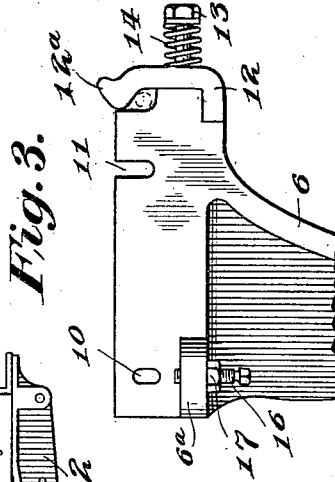


Fig. 3.

Witnesses

H. J. Lybrand

R. S. Gehr

Inventor

John B. Bartholomew

By H. F. Bliss

Attorney

UNITED STATES PATENT OFFICE.

JOHN B. BARTHOLOMEW, OF PEORIA, ILLINOIS, ASSIGNOR TO AVERY COMPANY, A CORPORATION OF ILLINOIS.

PLOW.

1,285,900.

Specification of Letters Patent.

Patented Nov. 26, 1918.

Original application filed January 23, 1911, Serial No. 604,229. Divided and this application filed January 9, 1912. Serial No. 670,228.

To all whom it may concern:

Be it known that I, JOHN B. BARTHOLOMEW, a citizen of the United States, residing at Peoria, in the county of Peoria and State of Illinois, have invented certain new and useful Improvements in Plows, of which the following is a specification, reference being had therein to the accompanying drawing.

10 The invention relates especially to a plowing unit of the sort which, when combined with other similar units, is adapted to form a part of a gang plowing mechanism. One of the objects of the invention is to provide
15 a mounting or connection for the tool of such a nature that it will automatically give way when an obstruction is struck of such nature that fracture of the tool or other parts would otherwise result. A further
20 object is the provision of improved means for adjusting the body of the plow by means of which its point can readily be thrown upward or downward within certain limits. Another object is to provide in combination
25 with the means for adjusting the angle of the plow body means for adjusting the depth of plowing without, however, interfering with the freedom of the plow body to rise at any time when lifting pressure is
30 applied. The particular construction shown in the accompanying drawings and hereinafter described is like that in my pending application for gang plows, Serial No. 604,229, filed January 23, 1911 of which the
35 present application is a division.

In the accompanying drawings,

Figure 1 is a plan view of two of the individual plows of a gang and a portion of the main frame to which they are connected.

40 Fig. 2 is a side elevation of one of the plows shown in Fig. 3 with a portion of the plow beam broken away to show details of construction.

45 Fig. 3 is a detail view on an enlarged scale of the upper part of one of the plow standards.

Referring in detail to the construction illustrated, 1 is a portion of the rear diagonally arranged beam of the main frame
50 of a gang plow. 2, 2 are rearward extending arms to which the beams of the individual plows are pivoted as by transverse rods 3. Each plow beam comprises heavy bars 4 and 5 spaced apart as shown. 6 is

a standard carrying a plow body 7 of any
55 desired form and having its upper end clamped between the rear ends of the beam bars 4 and 5 by bolts 8 and 9 which extend transversely through said bars.

The standard 6 is secured adjustably and
60 yieldably to the beam. Referring to Fig. 3, it will be observed that an elongated aperture 10 is provided to receive the clamping bolt 8 while an open ended slot 11 is provided to receive the bolt 9. It will be seen
65 that the slot 11 is arranged so that the plow standard might swing downward and rearward around the bolt 8. Such swinging of the standard is normally prevented
70 to a certain extent by the clamping pressure of the bolts 8, 9, but more especially by the clamp 12. This clamp slidably engages the front part of the plow standard and also the screw bolt 13 upon which it is mounted.
75 By preference the metal at the forward upper part of the standard is formed with a forwardly extending projection (see Fig. 3), the upper surface of which is some distance below the top of the standard and the lower
80 edge of which is positioned to leave a rabbet to receive the lower part of the clamp. A stiff coil spring 14 is interposed between the clamp and the head of the bolt 13. The upper end of the clamp has a rearward
85 extending lip or hook 12^a which normally fits over a cross bolt or pin 15 which is carried by the plow beam bars 4 and 5.

The construction is such that any normal
resistance to the plow body 7 is insufficient to disengage the clamp 12 from the cross
90 bolt 15. But in case the plow encounters an obstruction that would subject the plow to stresses great enough to cause breakage, the clamp 12 will be forced forward against the pressure of spring 14 and the plow body and
95 its standard will then be free to swing rearward about the bolt 8. In this manner obstructions are passed without danger of breaking the plows. Of course, when one plow has been released and has swung back-
100 ward, it is necessary after passing the obstruction to replace the plow in its normal position. However, as the devices for supporting the plow beam have a certain novel
coöperative relationship with the devices for
105 adjusting the angle of the plow body the essential parts of the supporting mechanism will be briefly enumerated.

The plow unit is provided with a ground-engaging wheel 18 and with respect to this wheel the unit is vertically movable. Pivotal-ly mounted upon the beam is a lever 19 hav-
 5 ing a connection with the wheel 18 by means of the links 20. It will be seen that when the lever is moved pressure is exerted through the links 20 to the wheel and the reaction of this pressure applied to the beam at the
 10 point of pivotal connection of the lever serves to lift the beam. My present invention as herein presented is not limited to any particular means for operating the lever 19, but for purposes of illustration I have shown
 15 a motor 21 connected with the lever by means of the tension devices 22. This motor is indicated as being a steam or compressed air cylinder, but other suitable forms of motor may be used. For limiting the downward
 20 movement of the beam and the plow body with respect to the wheel 18 I have provided a stop which is adjustable so that the relative positions of the wheel and the plow body can be varied. As shown, this stop consists of
 25 the hand screw 23 extending through a threaded aperture in an arm of the lever 19. The lower end of the screw engages the top of the beam, and by turning the screw the relative positions of the parts at the time of
 30 engagement can be varied.

It will be seen that I have provided a plow beam and body which are at all times free for movement upward with respect to the ground wheel, an adjustable stop for limit-
 35 ing the downward movement of the beam to determine the depth of plowing, and an adjusting means for changing the angle of suck of the plow. In plows of this class which are supported on individual ground
 40 wheels, it is necessary for the angle of suck of the plow to be such that the plow tends to move into the ground to a depth slightly greater than that permitted by the support-
 45 ing wheel. This constant tendency of the plow to move inward, which is limited by the ground wheel, causes the plow to travel at a uniform depth. It is obvious, however, that if the operator desires to change the depth by even a fraction of an inch, he must
 50 also change the angle of suck. If the depth is to be increased, the angle of suck must be increased in order to hold the plow to its full depth. Or, if the depth of plowing is to be decreased, the angle of suck must be de-
 55 creased in order to prevent a too great downward pressure on the ground wheels, together with the resulting increased strain on the parts and the resulting increased draft.

For gang plows of certain classes, especially those provided with power lifting devices for the units, it is essential that the units be freely movable vertically with re-
 60 spect to the wheels instantly upon the application of power. And by my invention I
 65 have provided a construction in which such

instantaneous movement is possible. With the features permitting the free vertical movement there are combined the parts by which the angle of suck can be adjusted and by which the depth of plowing can be ad- 70
 justed.

The aperture 10 for the bolt 8 is elongated as shown to permit the plow standard to be adjusted about the axis of the cross bolt 15. To hold the standard in adjusted position, it 75
 is formed with a laterally extending lug or ear 6^a in which is mounted a screw 16 having a lock nut 17. The upper end of this screw is arranged to engage the under side of the beam bar 4. By means of this adjusting fea- 80
 ture, the plow body can have its point adjusted up or down as will readily be understood.

It will be observed that while the plow standard and body is held yieldingly so that 85
 they can give way when serious obstruction is encountered, the holding devices and the adjusting means are of such a nature that adjustment of the plow point is not disturbed when the plow yields to an obstruction. 90
 That is to say the adjustment of the plow point is effected by means of the screw 16 and as the adjusted position of this screw is not effected by the yielding of the standard, the latter can readily be restored to the same 95
 normal position which it previously occupied without any attention being given to the adjusting screw.

In the drawings each plow is shown provided with a movable gage wheel together 100
 with means for adjusting the normal position of the wheel and power devices for forcing the wheel downward relative to its beam to lift the plow from the ground. These devices, by themselves, constitute no 105
 part of the invention claimed in this application and need not, therefore, be described in detail.

What I claim is:

1. In a gang plow, the combination of a 110
 main frame, a plow beam flexibly connected to the frame, a plow body, a plow standard rigidly connected with the body, a connection between the beam and the forward upper part of the standard comprising a hori- 115
 zontal pivot pin, an abutment for engaging the pin at points on one side thereof and a spring held beveled latch for normally engaging the pin at points on the other side thereof, means for vertically adjusting the 120
 rear part of the standard about the said forward horizontal pivot pin to change the angle of suck of the plow, and a loose pivotal connection between the beam and the rear upper part of the standard about which the 125
 standard is movable when the body meets an obstruction sufficient to cause the forward pivot pin to be disengaged from the latch.

2. In a gang plow, the combination of a 130
 main frame, a plow beam flexibly connected

to the frame and comprising two separated bars arranged side by side, a plow body, a plow standard rigidly connected with the body and pivoted at its rear upper part between the beam bars, a transverse pin between the bars adjacent the forward upper part of the standard, and a spring held latch on the standard in position to engage the pin and normally hold the standard against rearward swinging, the said latch being automatically releasable when the plow body meets an unusual obstruction.

3. In a gang plow, the combination of a main frame, a plow beam flexibly connected to the frame, a plow body, a plow standard rigidly connected with the body and pivoted at its rear upper part to the beam, the said standard having a forward extending pro-

jection at its forward upper part, a transverse horizontal pin on the beam adjacent and above the said projection on the standard, a latch having a beveled surface for engaging the pin at its upper side and a horizontally extending part for engaging the said projection, and a spring for normally holding the latch in operative position but adapted to permit it to move out of engagement with the pin when the plow body meets an unusual obstruction.

In testimony whereof I affix my signature, in presence of two witnesses.

JOHN B. BARTHOLOMEW.

Witnesses:

LOUIS M. STACY,
ALBERT L. GREGORY.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."