C. W. HICKS.

SUBSOIL PLOW.

APPLICATION FILED JAN. 13, 1911.

990,738.

Patented Apr. 25, 1911.

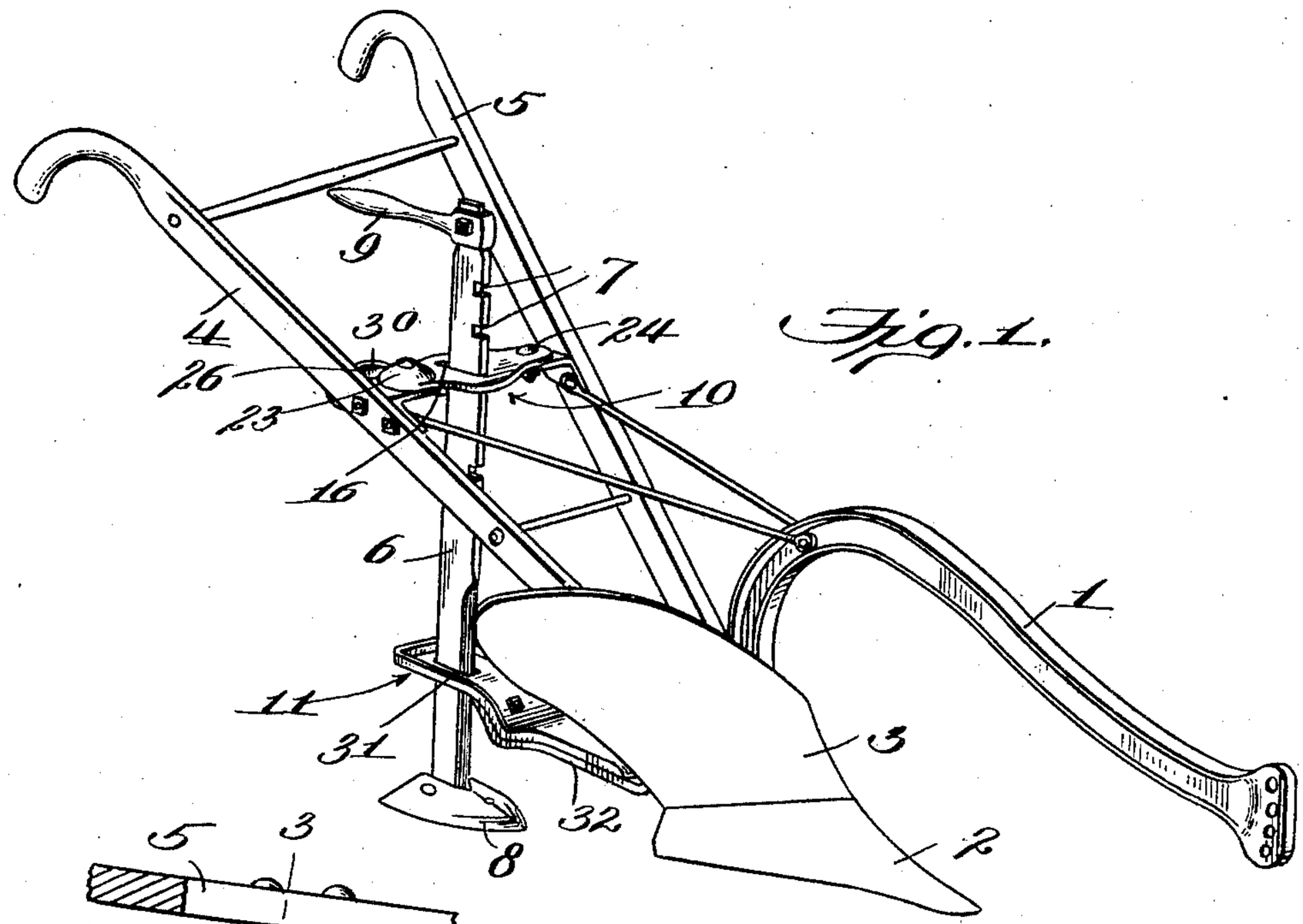


Fig. 1.

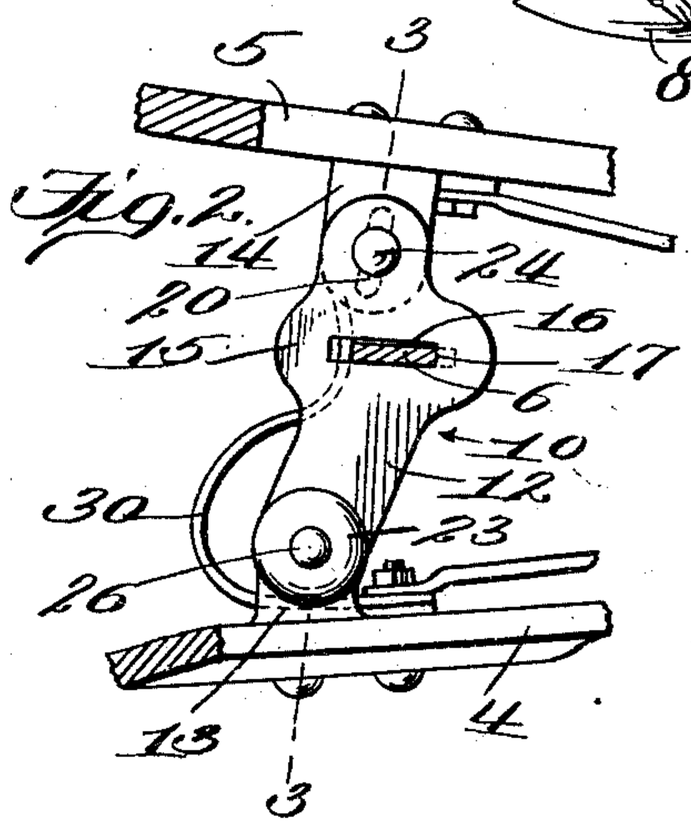


Fig. 2.

Fig. 3.

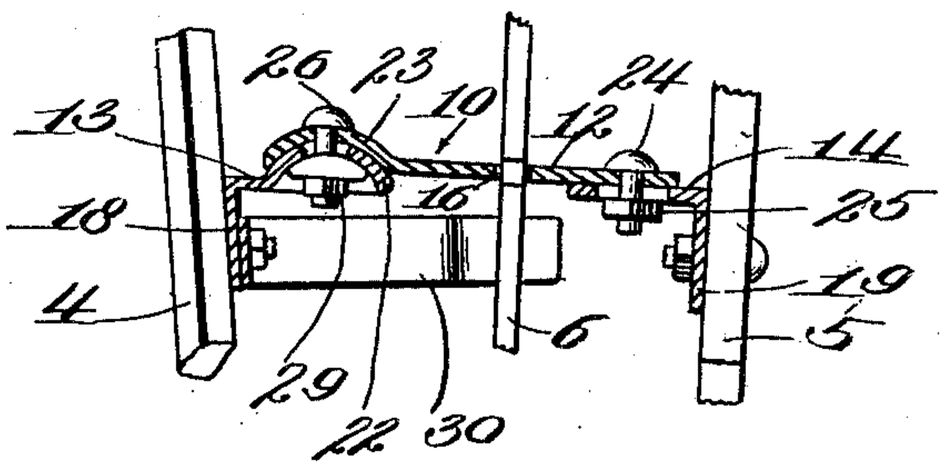
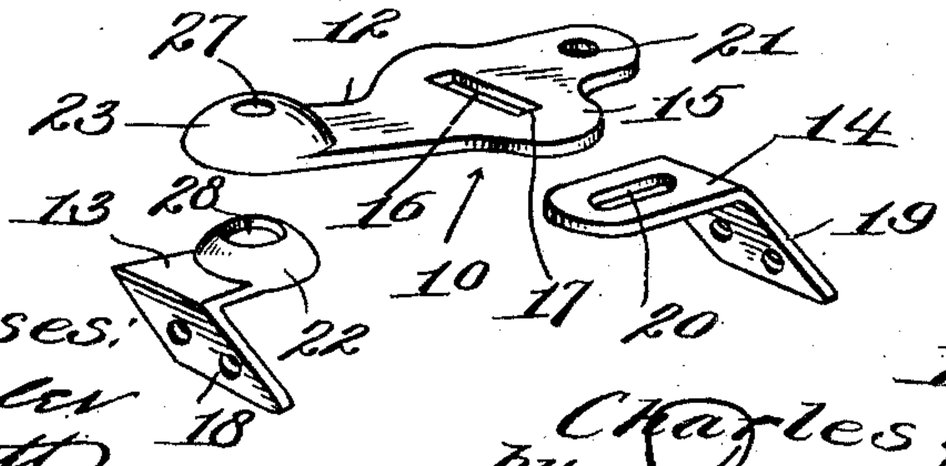


Fig. 4.



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UNITED STATES PATENT OFFICE.

CHARLES W. HICKS, OF SUTHERLAND, FLORIDA.

SUBSOIL-PLOW.

990,738. Specification of Letters Patent. **Patented Apr. 25, 1911.**

Application filed January 13, 1911. Serial No. 602,440.

To all whom it may concern:

Be it known that I, CHARLES W. HICKS, a citizen of the United States, residing at Sutherland, in the county of Hillsboro and State of Florida, have invented new and useful Improvements in Subsoil-Plows, of which the following is a specification.

The present invention has reference to sub-soil plows, and particularly to plows equipped with sub-soil attachments of the general type shown and described in my prior application, filed November 18, 1910, Serial No. 593047.

It comprehends certain improvements, hereinafter specified, in the construction of the upper guide bracket, with which the shoe-carrying bar is associated, these improvements being of such a nature as to render the attachment specially applicable to the ordinary forms of "goose-neck" or iron-beam plow now in use, and to permit of its being fitted to plows of that character irrespective of the angle at which the plow handles are set and of the distance between said handles.

A structural embodiment of the invention is illustrated in the accompanying drawing, wherein—

Figure 1 is a perspective view of the improved plow; Fig. 2 is an enlarged plan view of the upper guide bracket and the parts directly associated therewith; Fig. 3 is a vertical section taken on the line 3—3 of Fig. 2; and Fig. 4 is a detail perspective view of the upper guide bracket, the parts of said bracket being shown as separated from one another.

The plow shown in said drawing is of the conventional "goose-neck" type, and includes generally the curved iron beam 1, point 2, and mold board 3, these parts being of the ordinary construction, for which reason they require no extended description. The right- and left-hand handles are indicated, respectively, by the numerals 4 and 5, and these handles are connected to the plow and braced in the usual manner.

The sub-soil attachment is located between the plow handles and to the rear of the beam, as shown, its chief element being the vertical bar 6 which is formed along one edge with a series of notches 7 and carries at its lower end the shoe 8. A handle 9, or other suitable device, is provided for raising and lowering the bar, said handle being here shown as secured to the upper bar end.

To guide the bar during its movements, upper and lower brackets 10 and 11 are employed, the latter being substantially identical with the corresponding element shown and described in my companion application, filed of even date herewith, to which reference may be had for a complete description. No claim for the particular construction of that element is, therefore, made in the present case. The upper bracket 10 is also similar in some respects to that shown in said companion application, but it presents certain improvements thereover which constitute the chief features of this invention. Said bracket 10 is located between the handles, and, as shown in Figs. 2, 3 and 4, comprises three essential parts or members, namely a central member or body portion 12, and two end pieces 13 and 14. The first of these members, *i. e.*, the body 12, is substantially flat, and is provided with an enlarged central portion 15 having formed therein the slot 16 through which the upper portion of the bar 6 passes, the front end of said slot producing the locking shoulder 17 that is designed to interchangeably engage the notches 7 in said bar. The ends of said body member overlap and rest upon the end pieces 13 and 14, and are designed for connection thereto in such a manner as to provide for an angular adjustment of the body member relative to one of the end pieces, and an endwise or longitudinal adjustment relative to the other end piece, thereby permitting the bracket to be attached to the handles irrespective of the angle at which the latter are set to each other and of the distance between said handles. The end pieces themselves are formed with depending flanges 18 and 19 which are bolted or otherwise secured to the adjacent faces of the plow handles, and to obtain the above-described adjustment, one of these end pieces, in the present instance, the left-hand end piece 14, is provided with a longitudinal slot 20, with which a perforation 21 in the corresponding end of the member 12 registers, while the right-hand end piece is provided with a cup 22 that fits and coöperatively engages a reversely-arranged cup 23 formed on the right-hand end of said member 12, said cups constituting a ball-and-socket joint, as will be understood. The left-hand end of member 12 is positively connected with the end piece 14 by a headed bolt 24 which passes through perforation 21 and slot 20 and is provided with a clamp-

ing nut 25, and the right-hand end of said member and the end piece 13 have a positive connection through the medium of a headed bolt 26 passed through perforations 27 and 28 in cups 23 and 22, the perforation 28 being necessarily larger than that in cup 23. Bolt 26 carries a headed nut 29 which fits against the curved under surface of cup 22, as shown in Fig. 3. This arrangement has the obvious effect of enabling the entire length of the bracket to be increased or decreased, to suit the varying distances between the handles, and also of enabling the members 12 and 14 to be adjusted angularly with reference to the member 13, to adapt the bracket to plows wherein the handles are set at angles other than the normal, and also to different makes of plows.

The engagement of the locking shoulder 17 with the notches in the sub-soiler bar 6 is effected automatically, as in the earlier construction, through the medium of a spring 30, said spring being here shown as secured to the end piece 13 and having its free end or working portion disposed beneath the body member 12 and bearing against the adjacent edge of said bar, so as to force the latter toward said shoulder.

The lower guide bracket 11 is provided with the slot 31 through which the lower portion of the sub-soiler bar extends, and said bracket is protected by the wear plate 32 that is removably fitted against its lower surface, this plate being likewise identical in construction and manner of mounting with the wear plate shown and described in the said companion application.

Further description of the invention is considered unnecessary, in view of the foregoing.

I claim as my invention:

1. In a plow, the combination, with an endwise-movable element, and means for operating the same; of a guide bracket with which said element is slidably engaged, arranged transversely of said plow said bracket comprising a plurality of separately-constructed members, one of which members has a pin-and-slot connection with another of said members, to permit the length of the bracket to be varied.

2. In a plow, the combination, with an endwise-movable element, and means for operating the same; of a guide bracket with which said element is slidably engaged, arranged transversely of said plow said bracket comprising a pair of end members, and a body having a pivotal connection at one end thereof with one of said end members and a pin-and-slot connection at its opposite end with the other end member.

3. The combination, with an endwise-movable element, and means for operating the same; of a guide bracket with which said element is slidably engaged, said bracket comprising a pair of end members, and a body having a ball-and-socket connection at one end thereof with one of said end members and a pin-and-slot connection at its opposite end with the other end member.

4. The combination, with an endwise-movable element, and means for operating the same; of a guide bracket with which said element is slidably engaged, said bracket comprising a pair of end members, and a body having a longitudinally-adjustable connection at one end with one of said end members and an angularly-adjustable connection at its opposite end with the other end member.

5. The combination, with an endwise-movable element, and means for operating the same; of a guide bracket associated with said element and comprising a central member formed with a slot through which the element passes, and a pair of end members with which the ends of said central member are connected, one of such connections being constituted by a pin-and-slot joint.

6. The combination, with an endwise-movable element, and means for operating the same; of a guide bracket associated with said element and comprising a central member formed with a slot through which the element passes, and a pair of end members with which the ends of said central member are connected, one of such connections being constituted by a pin-and-slot joint, and the other connection by a ball-and-socket joint.

7. The combination, with an endwise-movable element, and means for operating the same; of a guide bracket comprising a plurality of separately-constructed members, one of which is formed with a slot for the passage of said element therethrough, said slotted member being adjustable longitudinally with reference to one of the remaining bracket members and angularly with reference to another of said members.

8. A guide bracket of the type specified, comprising a central member and a pair of end members, said central member having a longitudinally-adjustable connection with one end member and an angularly-adjustable connection with the other end member.

9. A guide bracket of the type specified comprising a central member formed at one end with a cup; an end member formed with a reversely-arranged cup coöperatively fitting and connected to the first-mentioned cup, to permit angular movement of said central member relative to said end member; and an end member having a pin-and-slot connection with the other end of said central member, to permit endwise movement of the latter relative to the second-named end member.

10. The combination, with an endwise movable element, and means for operating the same; of a relatively stationary guide

bracket with which the lower portion of said element is engaged; and a guide bracket with which the upper portion of said element is engaged comprising a longitudinally and angularly-adjustable central member, and a pair of end members with which said central member is connected.

11. The combination, with an endwise-movable element formed along one edge with a series of notches, and means for operating said element; of a guide bracket associated with said element and comprising a plurality of separately-constructed members, one of which is provided with a locking shoulder arranged to interchangeably engage said notches, said member being adjustable longitudinally with respect to another of said members; and means for forcing said element toward said shoulder, to produce such engagement.

12. The combination, with an endwise-movable element formed along one edge with a series of notches, and means for operating said element; of a guide bracket associated with said element and comprising a plurality of separately-constructed members, one of which is provided with a locking shoulder arranged to interchangeably engage said notches, said member being adjustable longitudinally with respect to one of the remaining bracket members and adjustable angularly with respect to another of said members; and means for forcing said element toward said shoulder, to produce such engagement.

13. The combination, with an endwise-movable element formed along one edge with a series of notches, and means for operating said element; of a guide bracket associated with said element and comprising a plurality of separately-constructed members, one of which is provided with a locking shoulder arranged to interchangeably engage said notches, said member being adjustable longitudinally and angularly with respect to the remaining bracket members.

14. The combination, with a plow provided with a pair of handles; of a guide bracket arranged between and transversely of said handles and having its ends connected with the same, said bracket comprising a plurality of separately constructed members one of which is adjustable endwise to permit said bracket to be adjusted in point of length, whereby it may be connected to handles set at different distances apart from each other and an endwise-movable element engaged with said bracket.

15. The combination, with a plow provided with a pair of handles; of a longitudinally-adjustable guide bracket arranged between and transversely of said handles, said bracket comprising a pair of end members connected to the adjacent handles and a body having a pivotal connection at one end thereof with one of said end members, and a pin-and-slot connection at its opposite end with the other end member; and an endwise-movable element engaged with said body.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

CHARLES W. HICKS.

Witnesses:
CHARLES A. ROWE,
F. B. KEEFER.