No. 819,733. PATENTED MAY 8, 1906.

J. L. CRISLER.

HARROW ATTACHMENT FOR PLOWS.

APPLICATION FILED SEPT. 28, 1905.

2 SHEETS—SHEET 1.

Fig. 1.

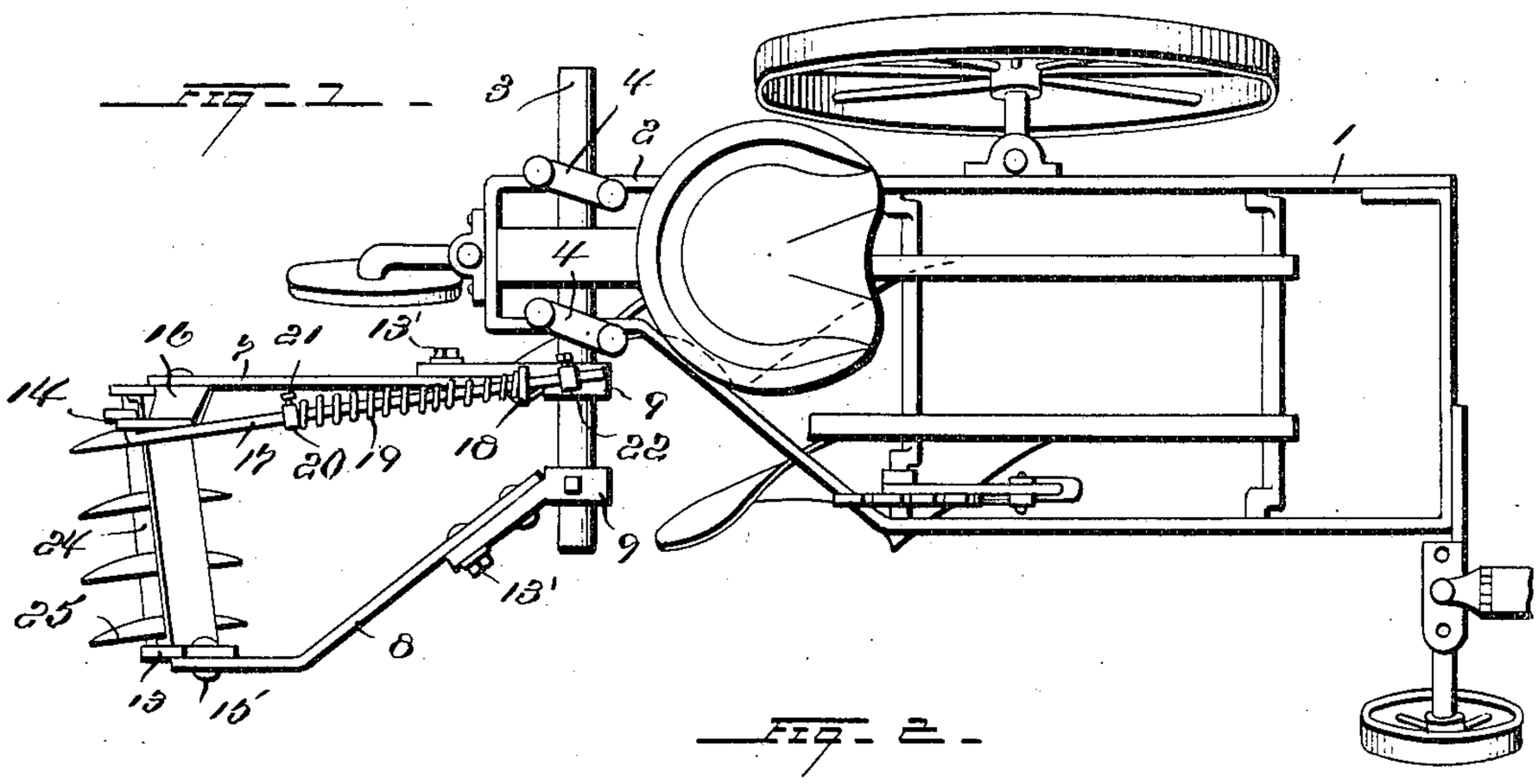


Fig. 2.

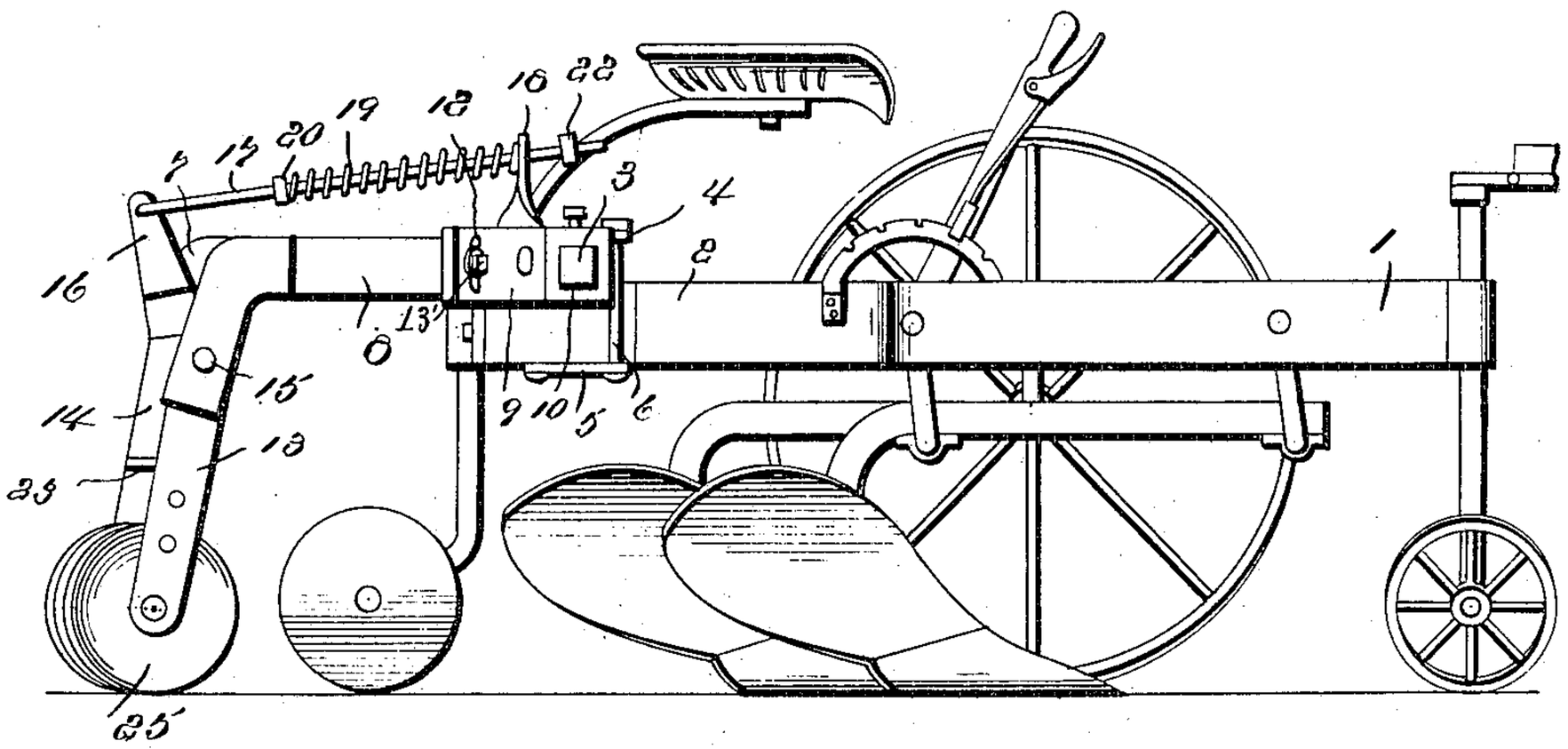


Fig. 5.

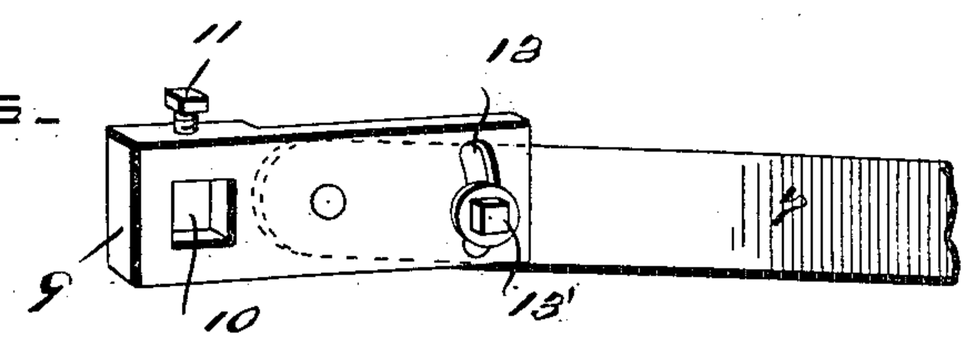
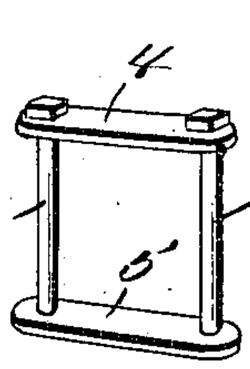


Fig. 7.



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2 SHEETS—SHEET 2.

Fig. 3.

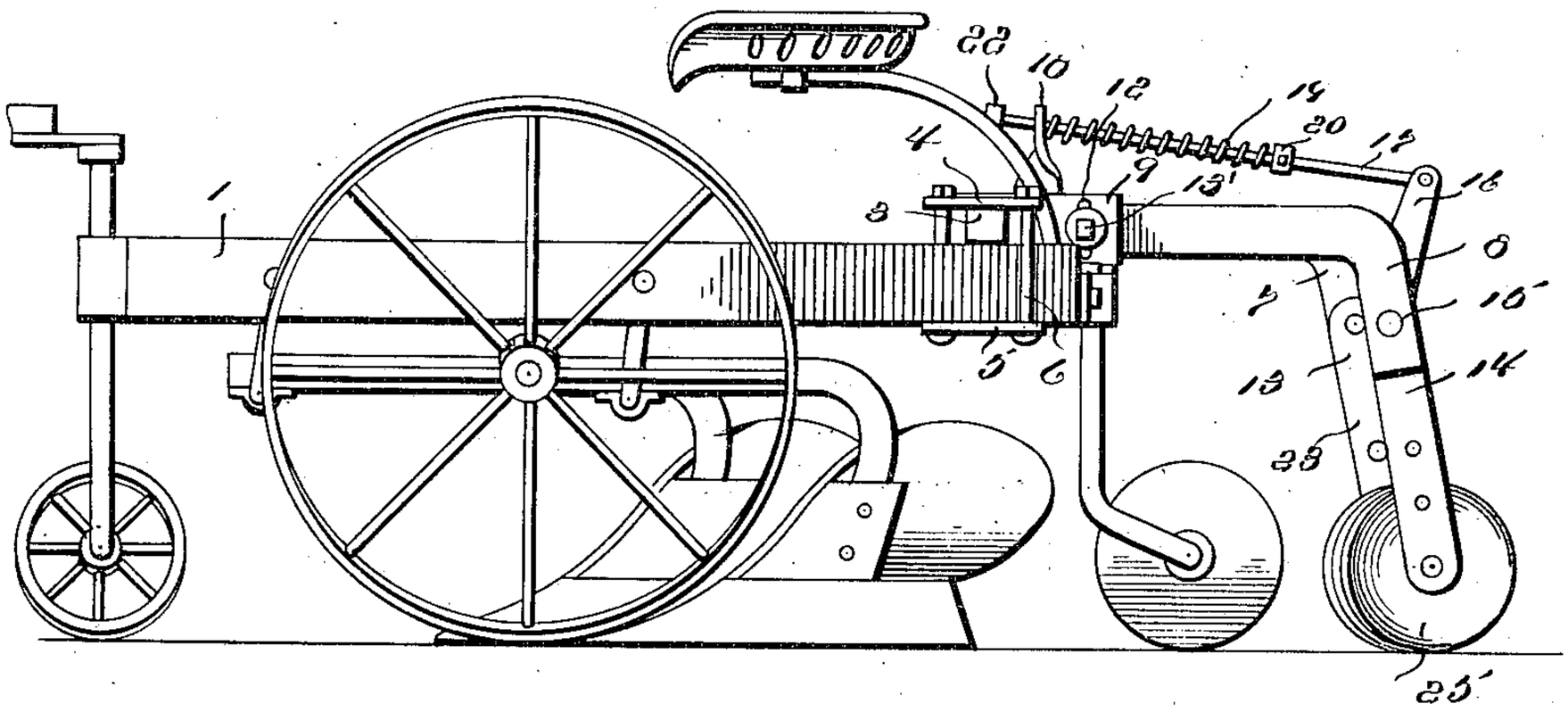


Fig. 4.

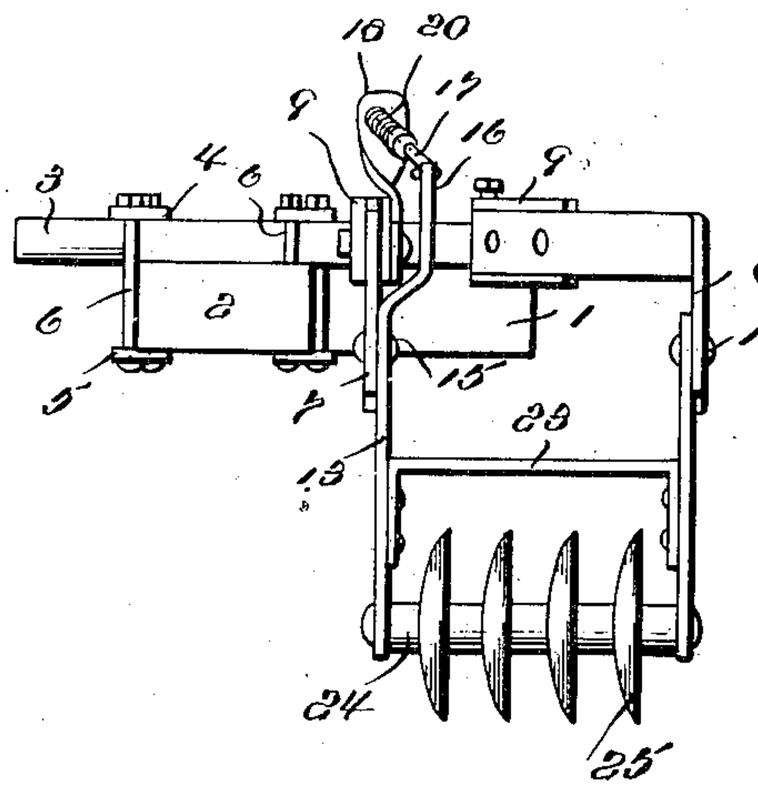
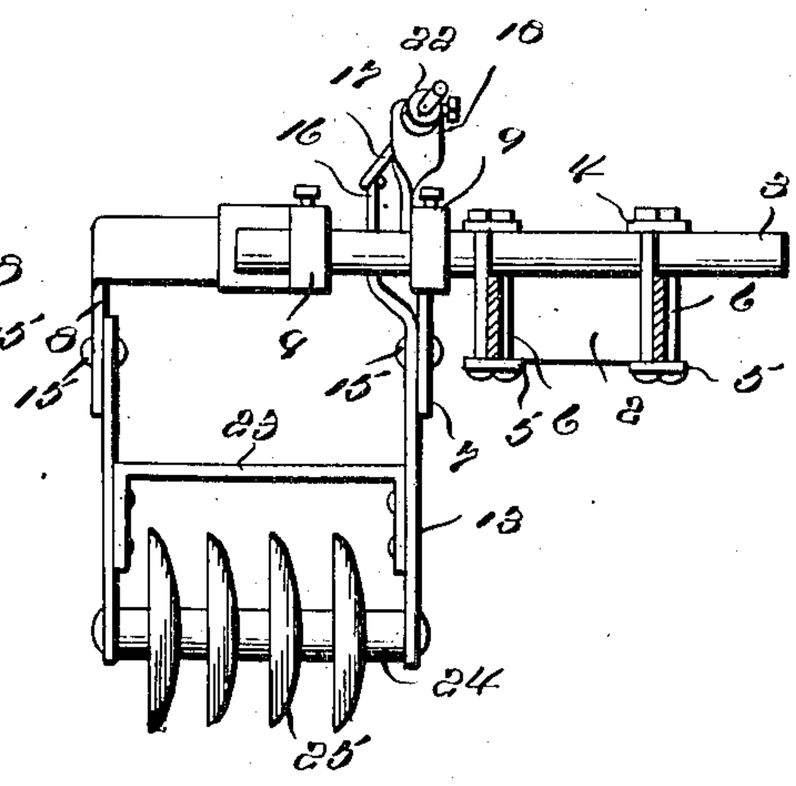


Fig. 5.



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UNITED STATES PATENT OFFICE.

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HARROW ATTACHMENT FOR PLOWS.

No. 819,733. Specification of Letters Patent. Patented May 8, 1906.

Application filed September 28, 1905. Serial No. 280,438.

To all whom it may concern:

Be it known that I, JOSEPH L. CRISLER, a citizen of the United States, residing at Perth, in the county of Sumner and State of Kansas, have invented a certain new and useful Harrow Attachment for Plows, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to harrow attachments for plows, the object of the invention being to provide a novel construction of harrow-frame and mechanism for allowing the harrow elements to tilt, together with novel and effective means for connecting the harrow-frame to the plow-frame so that the harrow-frame may be adjusted laterally fore and aft or angularly with respect to the plow-frame.

A further object of the invention is to provide a tension device which automatically resists the tilting movement of the harrow elements and to arrange said tension device entirely upon the harrow-frame, whereby the tension device is movable with the harrow-frame under any adjustment of the latter with respect to the plow-frame.

With the above and other objects in view, the nature of which will more fully appear as the description proceeds, the invention consists in the novel construction and arrangement of parts, as hereinafter fully described, illustrated, and claimed.

In the accompanying drawings, Figure 1 is a plan view of a wheeled plow, showing the harrow attachment of this invention connected with the plow-frame. Fig. 2 is a side elevation of the same. Fig. 3 is a side elevation taken from the opposite side. Fig. 4 is a rear elevation thereof. Fig. 5 is a cross-section through the machine, taken in line with the harrow-frame-supporting bar. Fig. 6 is a detail view of a portion of one of the side bars of the harrow-frame and its head-piece, showing the jointed connection between said parts. Fig. 7 is a detail view of one of the clamps which fasten the supporting-bar of the harrow-frame.

Referring to the drawings, 1 designates the frame of an ordinary wheeled plow. Such frame is ordinarily open and substantially rectangular in form; but in the present drawings I have illustrated said frame as having its rear end contracted or reduced in width, as shown in 2. In carrying out the present invention I employ a harrow-frame-supporting bar 3, which ordinarily extends across the contracted rear end portion of the plow-frame 1 and rests thereon, as shown. The bar 3 is preferably flat-sided and is secured firmly to the plow-frame by means of clamps, each consisting of upper and lower plates 4 and 5, respectively, and bolts 6, two bolts being employed for each clamp and arranged one upon the outer side and the other upon the inner side of the adjacent side bar of the plow-frame. The supporting-bar 3 may be made of any suitable length, so as to project any desired distance to one side of the plow-frame, and it will now be apparent that by loosening the clamps the supporting-bar may be moved either longitudinally or laterally or angularly with respect to the plow-frame, thus giving practically a universal adjustment to the harrow-frame, which is carried by said supporting-bar. Upon the projecting portion of the supporting-bar 3 is mounted the harrow-frame, the same comprising rearwardly-extending side bars 7 and 8, which diverge and have their rear end portions deflected downward to receive the tilting hanger, hereinafter described.

Each of the bars 7 and 8 is provided at its forward end with a head-piece 9, provided with a socket or opening 10 to snugly fit over the supporting-bar 3, as clearly shown, the head-piece when adjusted being fastened to the supporting-bar by means of a binding-screw 11 or its equivalent, said binding-screw being preferably carried by the head-piece. One or both of the head-pieces may be provided with a transverse arcuate slot 12 to receive a set-screw 13′, connected with the side bar of the harrow-frame, whereby said side bar may be to a limited extent adjustable up or down as to its rear end for the purpose of changing the lateral pitch of the harrow elements carried by the tilting hanger.

The hanger comprises the side bars 13 and 14, which are pivotally mounted at 15, between the rear ends of the harrow-frame bars. One of the side bars of the hanger is extended to form a lever 16, to the extremity of which is connected one end of a tension-rod 17, which extends forward and works in and through a guide 18, mounted rigidly on the harrow-frame. A tension-spring 19 encircles the rod and is confined between the guide 18 and an adjustable tension take-up 20 in the form of a collar movable lengthwise of the rod and held at any desired point by means of a

binding-screw 21. An adjustable stop 22 is mounted upon the forward portion of the tension-rod in advance of the guide 18, so that by adjusting said stop the hanger may be given any desired inclination and its forward movement limited to any desired extent, thus regulating the depth of penetration of the harrow elements as the machine moves across the field.

The hanger in addition to the side bars comprises a cross-bar 23 and also a cross rod or shaft 24, upon which the harrow elements 25 are mounted, the harrow elements being illustrated for convenience in the form of disks. It will be understood, however, that any usual or preferred form of harrow elements may be employed in lieu of that shown.

From the foregoing description it will be seen that the harrow elements taken as a whole are capable of practically a universal adjustment with respect to the plow-frame. The harrow-frame may be adjusted forward, backward, laterally, or angularly with respect to the plow-frame, and in this way the machine as a whole is capable of being adapted to various uses and conditions. It will further be seen that the power of resistance of the tilting hanger and the harrow elements carried thereby may be adjusted to suit the condition of the soil, and, in fact, sufficient tension may be imparted to the tilting hanger to cause the harrow elements to stay down and break up the soil, even where the ground is too hard for the plow-point to act upon it in the usual way. It will therefore be understood that the harrow attachment hereinabove described is applicable to any of the ordinary forms of plows now in common use, and I therefore do not wish to be restricted to its use in connection with any special form of plow.

I claim—

1. The combination with the frame of a wheeled plow comprising oppositely-arranged side bars, of a harrow-frame carrying harrow elements and connected to both side bars of the plow-frame in such manner as to permit the harrow-frame to be adjusted laterally with respect to the plow-frame.

2. The combination with the frame of a wheeled plow comprising oppositely-arranged side bars, of a harrow-frame carrying harrow elements and connected to both side bars of the plow-frame in such manner as to permit the harrow-frame to be adjusted fore and aft with respect to the plow-frame.

3. The combination with the frame of a wheeled plow, of a two-armed harrow-frame, a supporting-bar therefor connected to the plow-frame by means permitting the same to be adjusted lengthwise and laterally, and a tilting harrow-element hanger carried by the harrow-frame.

4. The combination with the frame of a wheeled plow comprising oppositely-arranged side bars, of a harrow-frame carrying harrow elements, a harrow-frame-supporting bar extending transversely across the side bars of the plow-frame, and clamping means connecting said bar to the plow-frame side bars and permitting said bar to be adjusted laterally, fore and aft and angularly with respect to said side bars.

5. The combination with a plow-frame, of a harrow-frame carrying harrow elements, a harrow-frame-supporting bar extending transversely of the plow-frame, side bars thereon, a harrow-element hanger supported at opposite sides by said side bars, and means permitting one of the side bars of the harrow-frame to be adjusted up and down independently of the other side bar.

6. The combination with a plow-frame, of a harrow-frame carrying harrow elements and comprising oppositely-arranged side bars one of which has a jointed and adjustable connection with the plow-frame, and a harrow-element hanger mounted between said side bars to tilt on a substantially horizontal axis.

7. The combination with a plow-frame, of a harrow-frame carrying harrow elements and comprising oppositely-arranged side bars one of which has a head-piece connected to the plow-frame, said side bar having a jointed and adjustable connection with its head-piece, and a tilting harrow-element hanger supported at opposite sides by said side bars.

8. The combination with a plow-frame, of a harrow-frame adjustably but rigidly connected therewith, a tilting harrow-element hanger pivotally connected to and carried by the harrow-frame, a tension device connecting the hanger and harrow-frame and adjustable with the latter, and means for setting the hanger at any angle with respect to the vertical.

9. The combination with a plow-frame, of a harrow-frame adjustably but rigidly connected therewith, a tilting harrow-element hanger pivotally connected to and carried by the harrow-frame, a tension device connecting the hanger and harrow-frame and adjustable with the latter, and means on the hanger for adjusting the tension of said device and regulating the angle of the hanger.

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

JOSEPH L. CRISLER.

Witnesses:
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W. J. BARNES.