

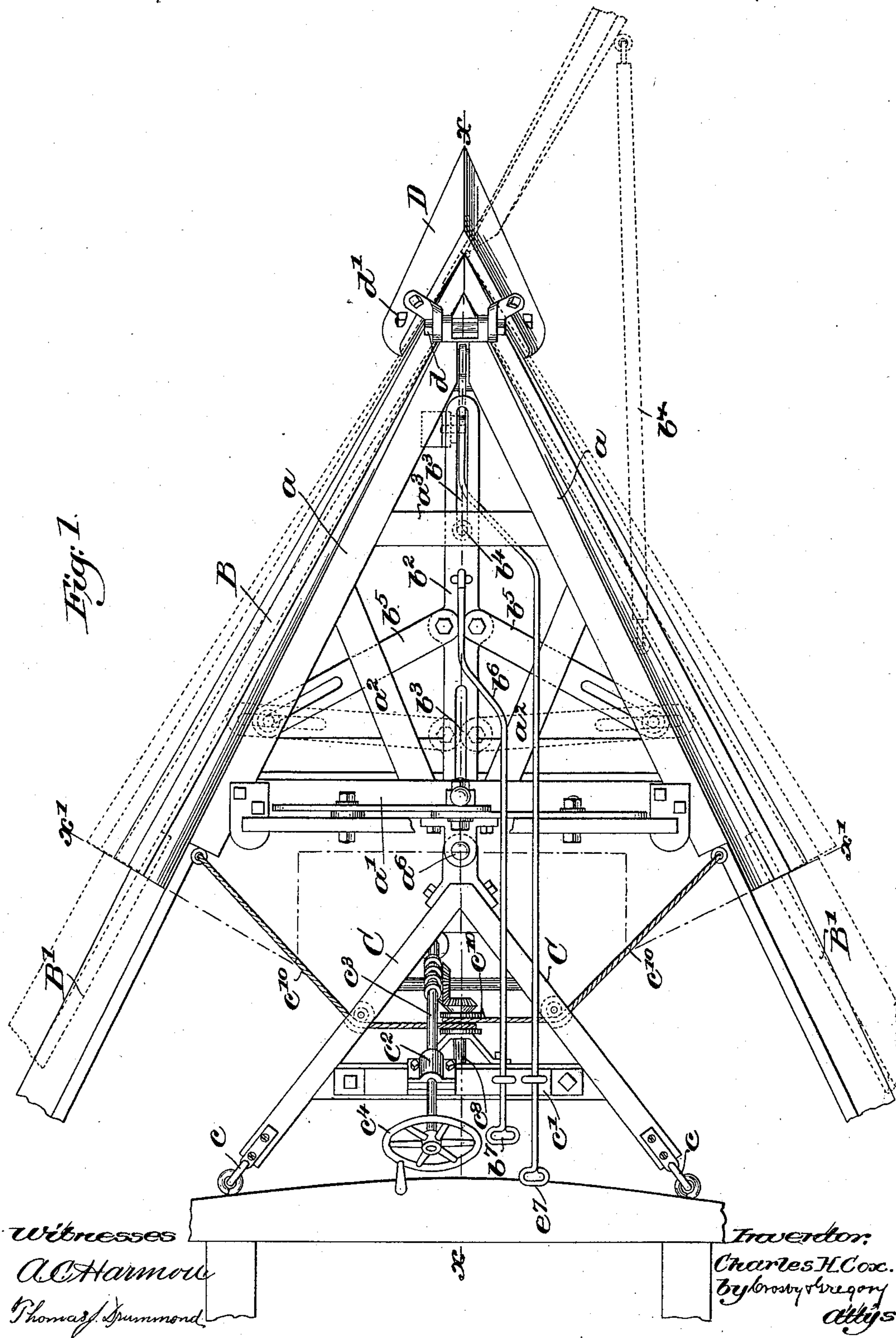
(No Model.)

2 Sheets—Sheet 1.

C. H. COX.  
SNOW PLOW.

No. 533,036.

Patented Jan. 22, 1895.



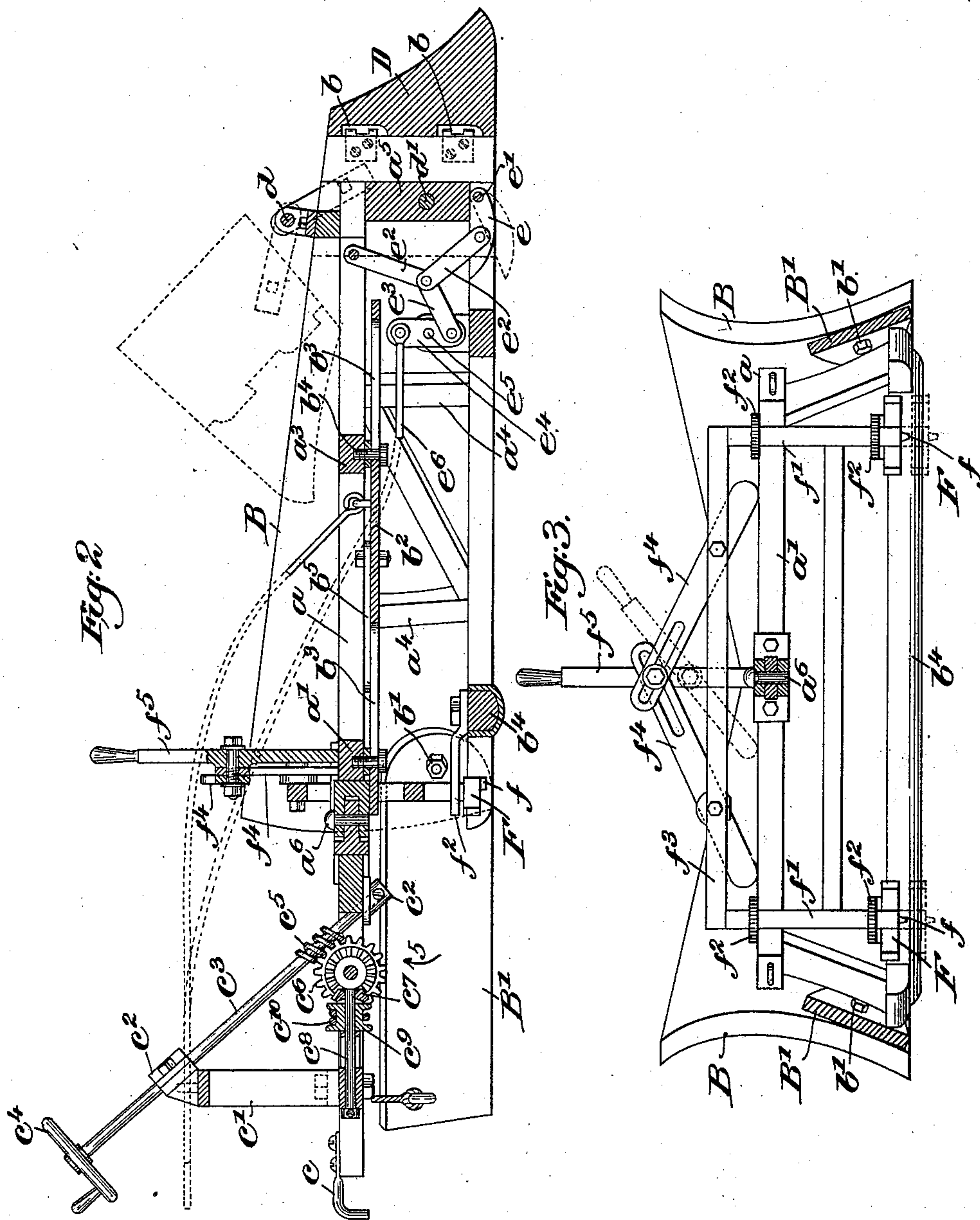
(No Model.)

2 Sheets—Sheet 2.

C. H. COX.  
SNOW PLOW.

No. 533,036.

Patented Jan. 22, 1895.



Witnesses.

A. C. Harmon

Thomas J. Drummond

Inventor:  
Charles H. Cox.  
By Lewis & Gregory  
attys.



# UNITED STATES PATENT OFFICE.

CHARLES H. COX, OF HAVERHILL, MASSACHUSETTS, ASSIGNOR OF ONE-HALF  
TO VERE GOLDTHWAITE, OF SAME PLACE.

## SNOW-PLOW.

SPECIFICATION forming part of Letters Patent No. 533,036, dated January 22, 1895.

Application filed September 28, 1894. Serial No. 524,359. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES H. COX, of Haverhill, county of Essex, State of Massachusetts, have invented an Improvement in Snow-Plows, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention relates to a snow plow, one of the principal objects of this invention being to provide a plow adapted particularly for street railway work.

In accordance with my invention, the plow is provided normally with a central located nose, extended rearwardly from which are two wings adapted to direct the snow equally to opposite sides of the track. At least one of these wings is so hinged as to enable it to be swung into substantial alignment with and to form a continuation of the other wing to thereby direct the snow entirely to one side of the track as is necessary when operating the plow upon double track lines.

If desired, a false nose may be used when the plow is to throw the snow equally at opposite sides of the track, said nose being removed and turned into an inoperative position when one of the wings is to be swung into alignment with the other for the purpose specified. When in their normal positions, that is, in position to throw the snow to opposite sides of the track, the said wings are preferably adjustable by suitable mechanism whereby their angle of divergence or spread may be varied to thereby vary the path left by the plow.

In the preferred construction the plow frame proper is mounted in such a manner as will enable its nose to be directed to the right or to the left as may be necessary in curving.

Other features of my invention will be hereinafter described and pointed out in the claims.

In the drawings Figure 1 is a top or plan view of the preferred construction of plow embodying my invention; Fig. 2, a longitudinal section of the same taken on the dotted line  $x-x$ , and Fig. 3, a cross section on the irregular dotted line  $x'-x'$  Fig. 1.

In the particular embodiment of my invention shown, the frame consists of two similar triangles each comprising the angular or side members  $a, a$ , and the connecting back member  $a'$ , said triangles being braced in suitable manner by the diverging and cross braces  $a^2$ , and  $a^3$ , and connected by the substantially vertical members  $a^4, a^4$ , the top and bottom triangles, at the nose of the plow, being connected by the nose-post  $a^5$ .

B, B, are the two wings, shown as and preferably hinged together and to the nose-post  $a^5$  by suitable hinges  $b, b$ , see Fig. 2, whereby the said wings may be spread into any desired angle to vary the path formed by the plow.

B', B', are two extension wings shown as and preferably pivoted at  $b'$  to the principal wings B and adapted, when in their full line position Fig. 1, to form a prolongation of the other wing, but, which when desired, may be turned upon their pivots in the direction of arrow 5, Fig. 2, into position behind the principal wings thereby rendering them in effect inoperative.

In the present embodiment of my invention, the main frame of the plow, comprising the two triangles referred to, is pivoted in suitable manner as at  $a^6$ , to a support shown as a triangular frame C, C detachably connected at  $c, c$ , to the car platform. Upon this supporting frame C, C, I have shown erected a suitable support  $c'$ , in bearings  $c^2$ , of which and also upon the frame C proper, I have mounted the worm shaft  $c^3, c^3$ , provided at its upper end, and in convenient position for operation by the driver, with an operating wheel  $c^4$ , and at or near its lower end with a worm  $c^5$ , in mesh with a worm wheel  $c^6$ , which latter is geared to a pinion  $c^7$ , fast on a pulley shaft  $c^8$  journaled in suitable bearings in the supporting frame. This pulley shaft  $c^8$ , is provided with a pulley  $c^9$ , about which is passed a cable or a chain  $c^{10}$ , connected at its opposite ends to the wings B, B, of the plow.

Rotation of the operating wheel  $c^4$ , in one or the other direction, acts through the pulley  $c^9$  and cable  $c^{10}$ , to turn the main plow frame upon its pivot  $a^6$ , to direct its nose in a more



or less angular direction to the right or to the left as may be necessary to follow the line of the track in curving, said worm and worm wheel in themselves constituting a lock to re-

5 tain the plow in desired angular position.  
To spread the wings B, B, I have herein provided a centrally arranged longitudinal slide bar  $b^2$ , provided with guide slots  $b^3$  through which are passed suitable guide pins, 10 one of which is shown in Fig. 1 at  $b^4$  in dotted lines, and to this slide bar are jointed toggle links  $b^5$ , see Fig. 1, said links being also jointed to the wings. The slide bar  $b^2$  is moved longitudinally by means of a pull rod  $b^6$  having 15 its end fitted with a handle  $b^7$ , in convenient position for the operator. When the slide rod and toggle links  $b^5$  are moved into their dotted position Fig. 1, the wings B, B, will be moved into and held in their dotted position, as 20 shown, the said links being preferably moved past their center line so that the pressure of the snow against the wings will not tend to close the latter. When the wings are in the position represented in full lines Fig. 1, the 25 snow will be directed equally to opposite sides of the track. I prefer to provide the nose of the plow with a removable nose piece D, the same as herein shown, being hung upon a suitable pivot  $d$ , Figs. 1 and 2, and when 30 in normal position, as shown in full lines, locked by means of a lock pin or a bolt  $d'$  passed through the nose post  $d^5$ .

When it is desired to direct the snow entirely to one side of the track, as in double 35 track work, the locking pin or bolt  $d'$  is removed and the nose piece D is swung about its pivot  $d$  into its dotted position Fig. 2, and one of the wings B turned upon its hinge  $b$  into the position, indicated in dotted lines 40 Fig. 1, the said wing then being in substantial alignment with and forming a continuation of the other wing to direct the snow entirely to one side, the wing, when turned as described, being held in its new position in 45 suitable manner as by a strut, shown at  $b^x$  in dotted lines Fig. 1.

It is obvious that either wing may be turned as described to direct the snow to either side of the track.

50 To raise the nose of the plow to enable the latter to more easily pass frogs and switches, I have herein provided a shoe  $e$ , pivoted at  $e'$  to the nose piece of the frame. This shoe may be thrown into its dotted position Fig. 2, 55 to raise the nose of the plow from the ground, by straightening the toggle links  $e^2$ , in suitable manner as by links  $e^3$ , joined to one end of the lever  $e^4$ , pivoted at  $e^5$ , and operated by a suitable rod  $e^6$ , provided with a handle  $e^7$  in 60 convenient position for operation by the driver.

F, F, are suitable scrapers adapted to scrape the track and provided, as shown, with teats,  $f, f$ , to clear the flange way, the said shoes, as 65 shown, being carried by a suitable frame,

shown as consisting of the uprights  $f' f'$ , adapted to slide, in suitable bearings  $f^2$ , said uprights being connected by the crown piece  $f^3$ , which latter may be raised or lowered by 70 the toggle links  $f^4$ , controlled by a suitable handle  $f^5$ , which when turned into a vertical position, as shown in Figs. 1 and 4, raises the scrapers and when turned into a horizontal position drops the said scrapers upon the rails.

In practice I prefer that the plow rest directly upon the snow, I having herein shown, 75 the lower frame triangle as provided with a cross bar  $b^4$ , see Fig. 2, the same being rounded at its under side to ride upon the snow, although the said plow may be otherwise 80 mounted if desired.

My invention is not limited to the particular embodiment herein shown for the same may be varied and still come within the spirit 85 and scope of my invention as claimed.

Having described my invention, and without limiting myself as to details, what I claim, and desire to secure by Letters Patent, is—

1. In a snow plow, a combination with a frame of two wings secured thereto, one of 90 said wings being hinged at its front end to enable it to be turned into substantial alignment with and to form a continuation of the other of the said wings, and a false nose piece arranged at the apex of the plow and hinged 95 to enable it to be turned upward and backward when the two wings are turned one into alignment with the other, substantially as described.

2. In a snow plow the combination with a 100 frame of two wings secured thereto, one of said wings being hinged at its front end whereby it may be turned into substantial alignment with and to form a continuation of the other of said wings, and a false nose and 105 means to removably secure the same in operating position, substantially as described.

3. The herein described detachable plow, the same consisting of a support and means to detachably connect it to a car body, a plow 110 frame pivotally connected to said support and provided with wings, and means on and removable with the said support to turn the said plow frame on its pivot and with relation to said support, substantially as described. 115

4. In a snow plow, a supporting frame and means for detachably securing it to the car whereby said frame may be removed at will when the plow is not needed, combined with a plow frame pivotally attached to the said 120 supporting frame, and means to vary the angular position of said plow frame, on and with relation to said supporting frame, substantially as described.

5. In a snow plow the combination with a 125 car of a plow frame and a lifting shoe located near the nose of the plow and means to raise the plow from and sustain its nose upon said shoe, substantially as described.

6. The herein described snow plow, the same 130



consisting of a support, and means to detachably connect it to a car body, a plow frame pivotally connected to and removable with the said support, and wings hinged to the said plow frame, and means on the said removable support to turn the said plow frame into one or another angular position with relation to said support, and means also mounted on the said support to spread the

plow wings to vary the path left by the plow, substantially as described.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES H. COX.

Witnesses:

WINFIELD S. PETERS,  
JACOB W. SMALL.