July 13, 1926. 1,592,304

C. H. KEYES

SNOW REMOVING APPARATUS

Filed Sept. 3, 1924 3 Sheets-Sheet 1

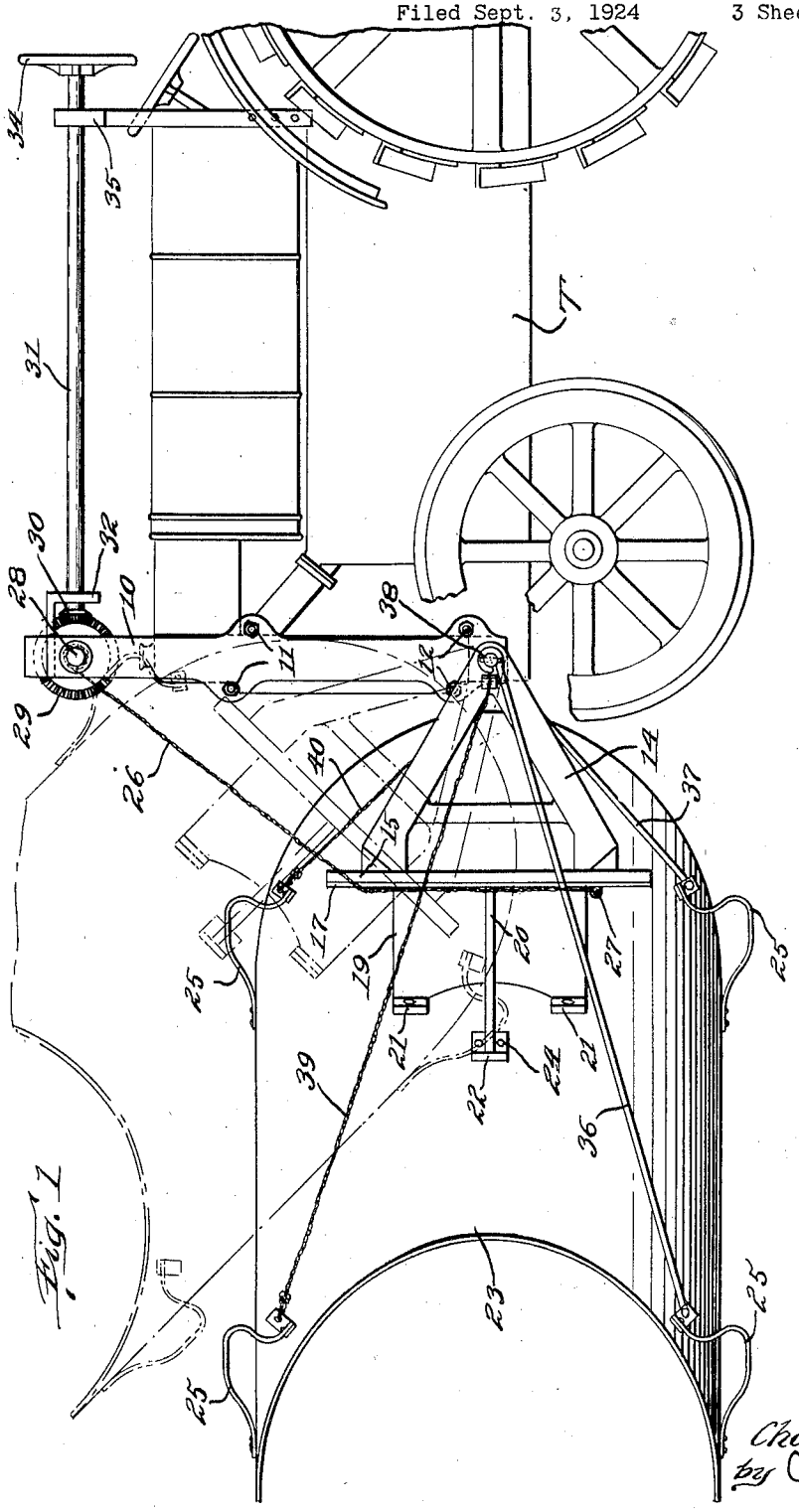


Fig. 1.

Inventor:
Charles H. Keyes
by Clyde L. Rogers
his Atty.

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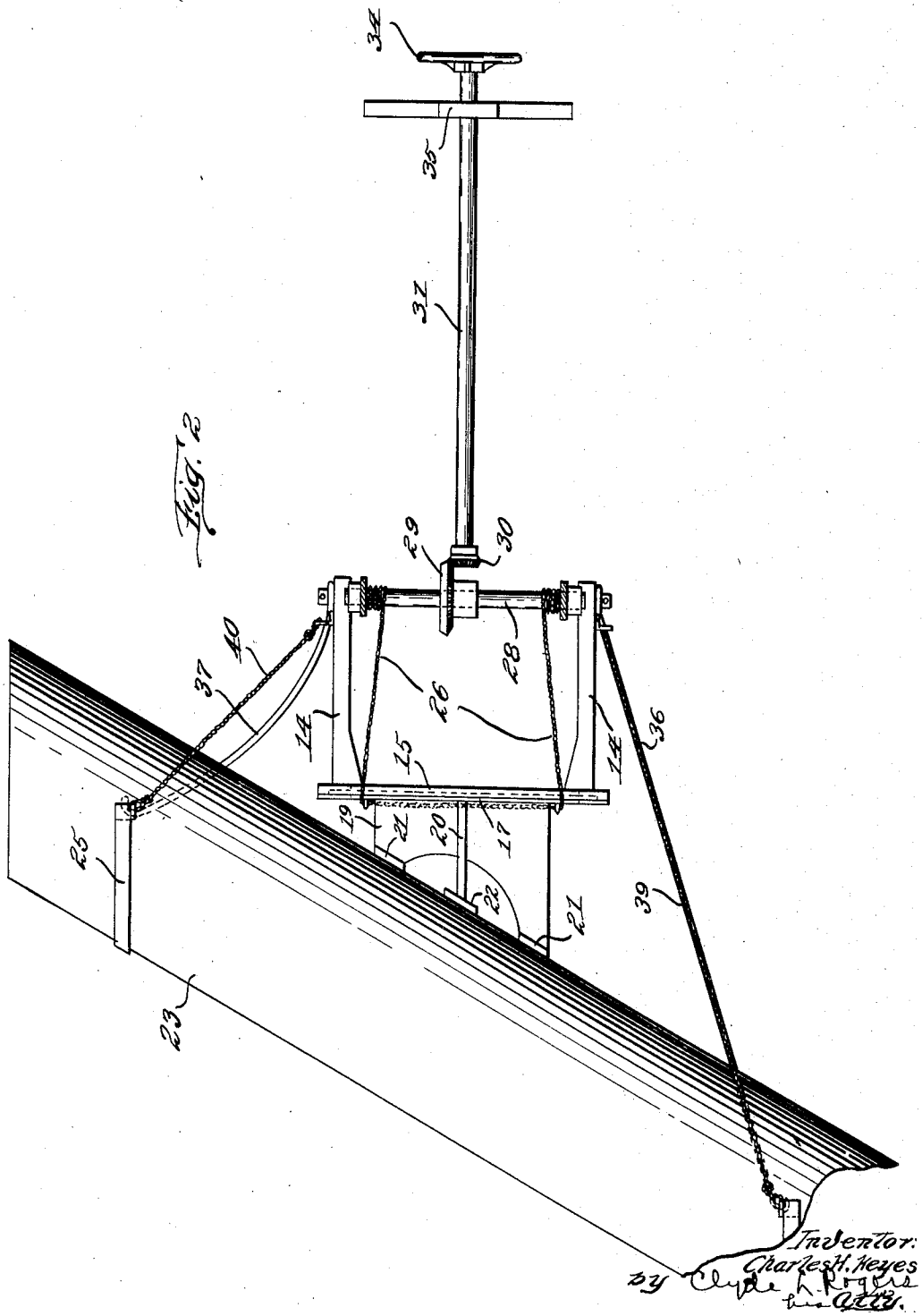


Fig. 2

Inventor:
Charles H. Keyes
by Clyde A. Rogers
his Atty.

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C. H. KEYES

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Fig. 3

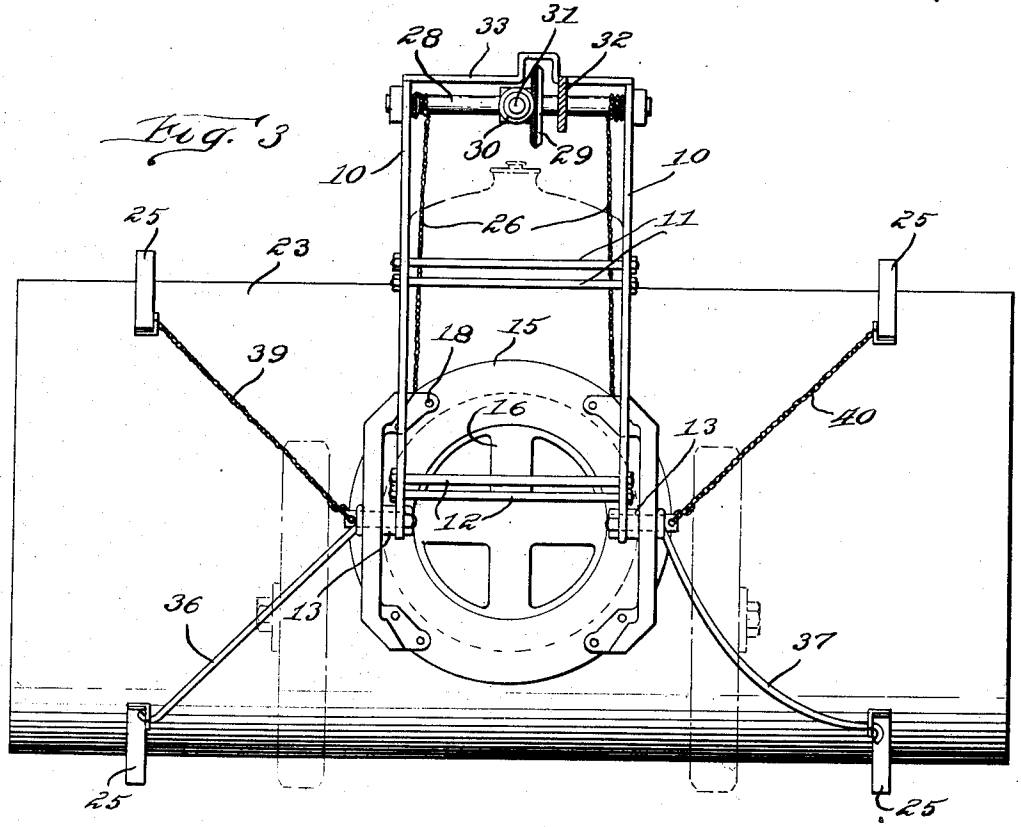
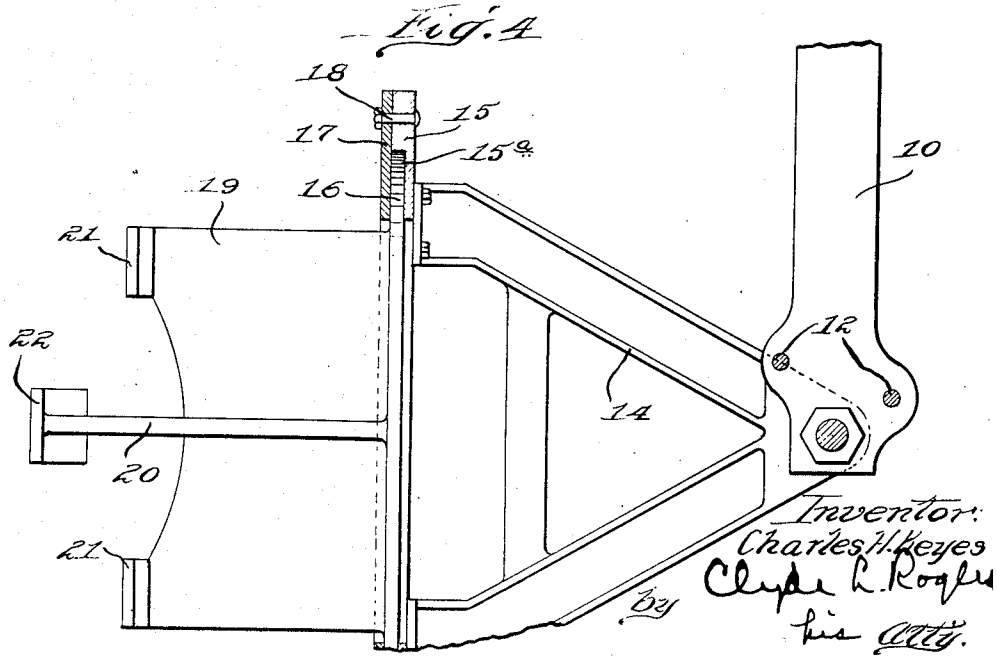


Fig. 4



Inventor:
Charles H. Keyes
By Clyde L. Rogers
His Atty.

Patented July 13, 1926. 1,592,304

UNITED STATES PATENT OFFICE.

CHARLES H. KEYES, OF HOLLIS, NEW HAMPSHIRE.

SNOW-REMOVING APPARATUS.

Application filed September 3, 1924. Serial No. 735,592.

This invention relates to an apparatus for removing snow from highways and roads, and has to do more particularly with an improved construction of snow plow equipped with means for securing it adjustably in operative position at the front of a motor tractor. A principal object of the invention is to provide an apparatus of this kind that is simple and especially strong in construction and efficient in operation with a capability of easy and convenient adjustment to set the same for removing snow from either side of a road at will. A further object is to provide a snow-removing plow equipped with provision whereby it may be easily and securely applied to an ordinary type of motor tractor, such as the well-known "Fordson" tractor. The foregoing and other objects and advantages of the invention will more fully appear from the following detailed description taken in connection with the accompanying drawings, and the distinctive features of novelty will be pointed out in the appended claims.

Referring to the drawings:

Fig. 1 is a side elevation of a snow plow embodying the invention applied to a motor tractor, a portion of such tractor being broken away.

Fig. 2 is a plan view of the snow plow with the mounting and adjusting means therefor, removed from the tractor, a portion of the plow being broken away.

Fig. 3 is an elevation looking from the rear of the plow; and

Fig. 4 is a partial side elevation, partly in vertical section showing more particularly the swivel mounting of the plow.

T indicates a motor tractor which may be of the "Fordson" type, though the reference to this type is merely illustrative. The device of the invention is secured to the radiator frame at the front of the tractor by means of stout plates or bars 10, 10 which are fitted vertically and clamped securely against the sides of the radiator frame of the tractor by means of bolts 11, 12 which extend across the radiator frame near the top and bottom thereof, respectively. These bars bear at their lower ends stout pivot bolts or studs 13, 13 to which a spider or yoke frame 14 is pivoted, this yoke frame extending forwardly and bearing an annular plate 15 is rebated as indicated at 15^a to provide a seat for a swivel plate 16, this plate being held for swivel or turning movement with respect to the plate 15 by a retainer plate 17 bolted to the plate 15 as indicated at 18. The swivel plate 16 bears a plurality of stout web projections 19, 20 extending outward therefrom, these web projections bearing lugs 21, 22 at their outer extremities to which the plow 23 is bolted or riveted as indicated at 24. The relative disposition of the swivel lugs 21, 22 is such that the plow 23 is held thereby at a horizontal angle or incline with respect to its mounting on the tractor, of preferably about 35 degrees, the lug 22 being for this purpose extended outward farther than the lugs 21. The plow 23 is preferably made of boiler plate or like substantial stock and in accordance with my invention it is curved to nearly or quite a semi-cylindrical form in cross section, being thus best adapted to gather up the snow and discharge it laterally with a rolling movement as the snow is pressed upward of the curving surface of the plow and at the same time moves endwise thereof by reason of its inclined mounting. In accordance with my invention the plow is provided adjacent its end and at both edges thereof with runners or shoes 25 which may be produced of stout strip iron or steel bent to the requisite shape for supporting the plow with the lower operative edge thereof a pre-determined distance above the ground, sufficient to clear ordinary obstacles. It is to be understood that the plow is adapted by virtue of its swivel mounting on the plate 16 to be turned so as to discharge the snow at either side of the tractor at will, and for this reason it is necessary that the runners 25 be provided at both edges of the plow so as to be in readiness for use whichever way it is set for operation. In order to thus turn the plow from one side to the other, it is necessary first to elevate it as indicated in dotted lines in Figure 1. For this purpose I provide chains 26 anchored at 27 near the bottom of the plate 15, these chains extending upward at the sides of the webs 19, 20 and having their other end portions engaged to be turned onto a shaft 28 which is journaled adjacent the tops of the bars 10. This shaft has fixed thereon a bevelled gear 29 with which meshes a pinion 30 borne at the inner end of a shaft 31. This shaft is journaled at this end portion in a bracket 32 borne by a yoke 33 secured to and extending between the tops of the bars 10. The other end of this shaft extends rearwardly

over the tractor to the locality of the driver's seat where it is equipped with a hand wheel 34, this end portion of the shaft being journaled in yoke bars 35, secured to and extending upward from the body of the tractor. For bracing the end portions of the plow against the operative thrusts to which it is subjected, rods 36, 37 may be provided, detachably secured at one end to the plow near the base thereof, and at their other ends secured as indicated at 38 to the pivot bolts 13, these rods being detachable so that they may be disconnected when the plow is to be reversed, and reconnected in such reversed position of the plow as will be readily understood. The rod 37 is shown as somewhat bent inward, the purpose of this being to insure that it will clear the adjacent tractor wheel. Chains 39, 40 are also secured to extend from the top portions of the plow at the respective sides thereof with their other ends anchored to the yoke frame 14 near the pivot thereof, the purpose of these chains being to steady the upper portions of the plow.

I have found the device thus constituted to be particularly effective in removing large deposits of even damp and heavy snow, the approximate semi-cylindrical form of the plow or scoop 23, with the inclined mounting thereof serving to roll up, and simultaneously slide endwise the snow for discharge at either side of the roadway at will according to the setting of the plow-scoop. The runners or shoes 25 prevent the plow from digging into the ground and permit the plow to slide easily over the surface to be cleared, so that the substantially and entire motive impulse of the tractor is available for removing the snow. The device is under instant and easy control of the operator from the driver's seat on the tractor for elevating the plow whenever required, either to clear obstacles or for reversing the disposition of the plow as required. I am aware that the invention may be embodied in other specific forms without departing from the spirit or essential attributes thereof, and I therefore desire the present embodiment to be considered in all respects as illustrative and not restrictive, reference being had to the appended claims rather than to the foregoing description to indicate the scope of the invention.

Having described my invention what I claim and desire to secure by Letters Patent is;

1. Snow removing apparatus equipped with means for clamping the same to the front of a tractor body, a yoke frame mounted on horizontal pivots, a plow or scoop swivelled to the front of said yoke frame to turn on a horizontal axis at right angles to said horizontal pivots, and means for swinging said yoke frame bearing the plow upward at will, to permit turning of the plow to either of two operative positions with either side up at will.

2. Snow removing apparatus comprising bars adapted to be clamped to the front of a tractor body, a yoke frame pivoted thereto to swing vertically, a mounting swivelled to the front of said yoke frame horizontally at right angles to the pivots of said yoke frame bearing a plow or scoop in inclined relation, and means having connections for operation from the driver's seat of the tractor for swinging said yoke frame bearing the plow upward at will to permit adjustment of the plow to either of two operative positions with either side up at will.

3. Snow removing apparatus comprising a plow or scoop of approximately semi-cylindrical shape and bearing runners on which the plow is adapted to rest in either of two operative positions with either side up at will, and means for mounting the plow at the front of a tractor body, said means including a horizontal swivel connection turning on an axis in line with the direction of operative movement adapted to permit adjustment of the plow for removing the snow from either side of a roadway at will.

4. Snow removing apparatus comprising a plow or scoop of approximately semi-cylindrical shape and bearing runners on both horizontal edges thereof on which the plow is adapted to rest in either of two operative positions with either side up at will, a mounting on which the plow is stationarily secured in inclined relation with respect to the direction of movement, a yoke frame on which said mounting is swivelled horizontally, means secured to the front of a tractor body to which said yoke frame is pivoted for vertical movement, and means for swinging said yoke frame upward at will having connections for operation from the driver's seat of the tractor.

In testimony whereof, I have signed my name to this specification.

CHARLES H. KEYES.