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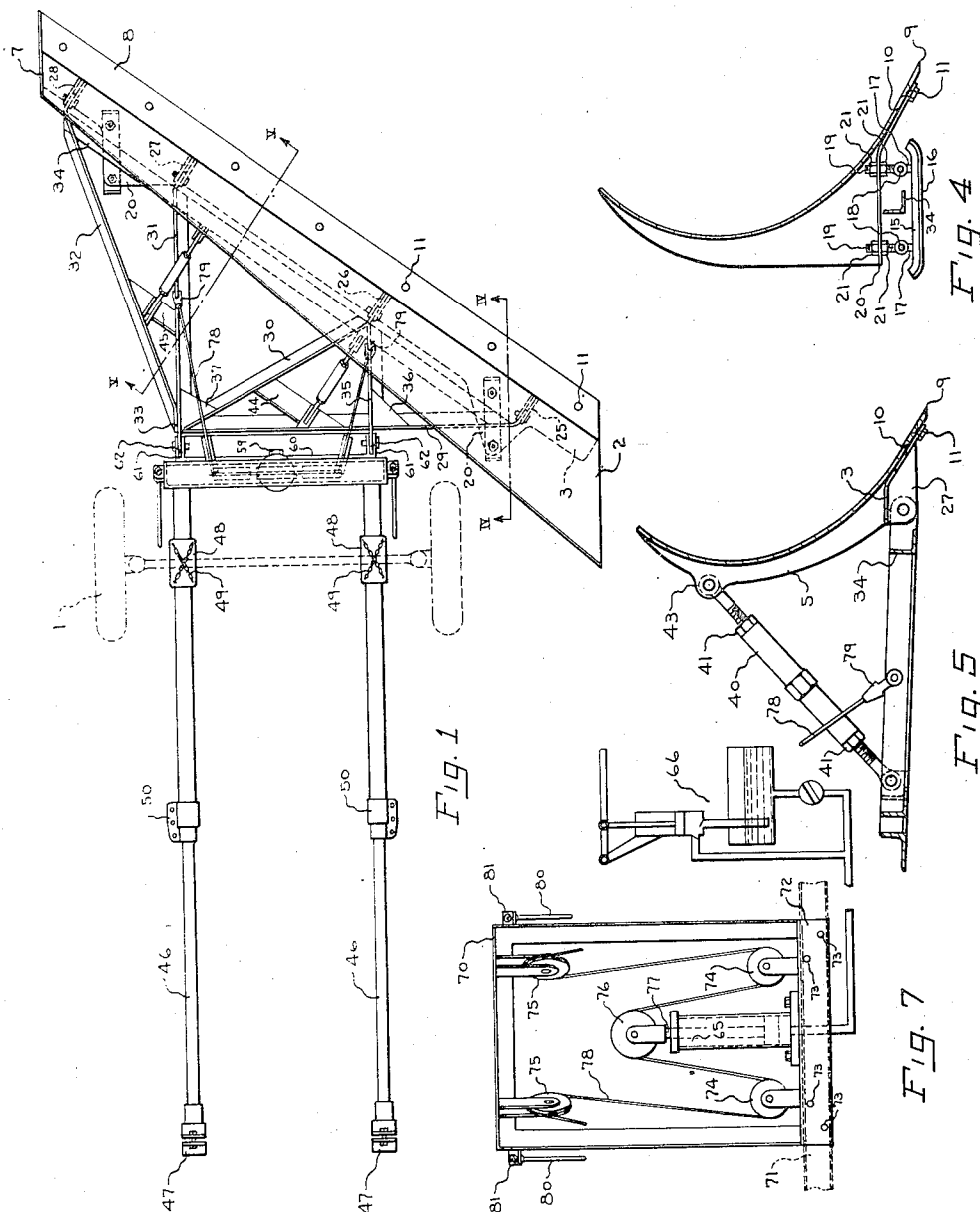
H. G. CLARK ET AL

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SNOW PLOW

Filed July 16, 1936

2 Sheets-Sheet 1



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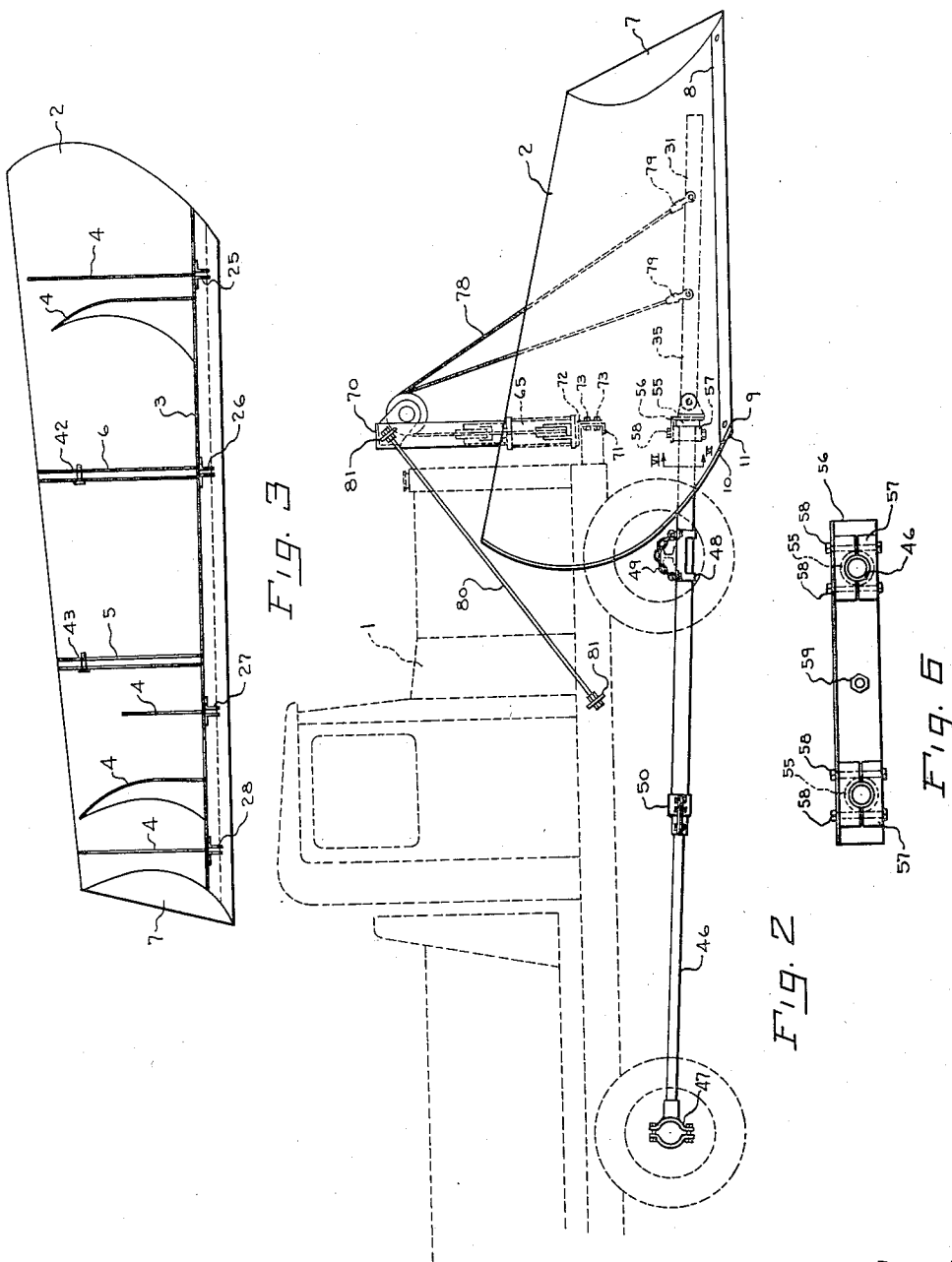
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SNOW PLOW

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3 Claims. (Cl. 37-42)

This invention relates to snow plows and more particularly to single moldboard snow plows for attachment to automobile trucks.

The present invention is an improvement over present snow plows in that it is more sturdy, has a positive support for the top of the moldboard and has an improved shoe construction.

An object of the invention is to provide a snow plow of improved frame structure.

Another object of the invention is to provide a shoe that may be adjusted relatively to the plow body not only in a vertical direction but also angularly.

Still another object is to provide an improved mechanism for adjusting the angle of the moldboard.

A further object of the invention is to provide a support for the top of the mold board.

These and other objects will be apparent from the following specification when taken with the accompanying drawings in which—

Fig. 1 is a plan view of the snow plow together with its connecting apparatus showing a portion of the truck to which it is secured,

Fig. 2 is a side elevation showing the snow plow, and truck in dotted outline,

Fig. 3 is a rear view of the moldboard and its reinforcing ribs,

Fig. 4 is a section on the line IV—IV of Fig. 1,

Fig. 5 is a section on the line V—V of Fig. 1,

Fig. 6 is a section on the line VI—VI of Fig. 2, and

Fig. 7 is a front elevation of the hydraulic lift and its frame together with a diagrammatic view of the lift actuating pump.

Referring to the drawings the reference character 1 represents a truck to which the snow plow according to the present invention is shown secured in operating position. The plow consists of a moldboard 2 inclined laterally at an angle to the direction of motion of the truck 1 to throw snow to one side of the path of the truck as it moves forward. The moldboard 2 is provided at the lower portion thereof with a push plate 3 against which most of the push exerted by the truck is directed. The moldboard 2 has the usual forwardly concave configuration diverging from its inner to its outer end and is reinforced by platelike ribs 4 and pairs of ribs 5 and 6 shown particularly in Fig. 3. It will be observed that three of the ribs 4 and the pairs of ribs 5 and 6 are perpendicular to the moldboard 2 whereas two of the ribs 4 are not perpendicular. Those not perpendicular are parallel to the line of motion of the plow. Each of the reinforcing ribs is

welded to the moldboard 2 and to the push plate 3 providing a rigid structure.

The moldboard 2 is provided at its inner end with a landside or end plate 7 which being parallel to the direction of motion of the plow cuts through the snow and prevents the snow from sliding from the inner end. The moldboard 2 is also provided with a scraping blade 8 having beveled cutting edges 9 and 10. The blade 8 is secured by bolts 11 to the push plate 3 and may be reversed so that when one cutting edge is dulled the other may be used.

In operating a snow plow it is desirable to be able to adjust the angle of its moldboard to the ground so that with a light snow for instance it may be inclined sharply to throw the snow further to the side, whereas with a heavy snow where a sharp inclination to the ground would result in too great a resistance, the inclination may be made less sharp. The present snow plow provides for such adjustments of the moldboard inclination by the design of both the pushing frame work and of the shoes on which weight of the plow is carried.

The shoes 15 which support the weight of the plow comprises runners 16 to each of which is rigidly secured a pair of eyes 17. Pinned to each eye 17 to provide a hinged connection is a clevis 18 having threaded rods 19. The rods 19 project upwardly through suitable openings in shoe supporting plates 20 comprising rearward projections from the push plate 3 and are secured therein in adjusted position by nuts 21 threaded thereon and clamping between them the plates 20. Thus when the inclination of the moldboard 2 to the ground is changed the shoes 15 may have their inclination changed by manipulation of the nuts 21 on the threaded rods 19 to maintain the shoes 15 parallel to the ground.

The pushing frame is hinged connected to the moldboard at four points defined by four pairs of spaced plates 25, 26, 27 and 28 welded to the under side of the push plate 3 as shown particularly in Figs. 3 and 5. Pinned between the pairs of spaced plates 25, 26, 27 and 28 are the outer ends of frame members 29, 30, 31 and 32, respectively, the opposite or inner ends of which converge at the point 33. Adjacent the outer ends of the members 29, 30, 31 and 32 is secured a laterally extending frame member 34 for rigidly positioning them in fixed relation. An additional reinforcing frame member 35 extends from the outer end of the member 30 to an intermediate portion of the member 29. Suitable gusset plates

36 and 37 are disposed at the intersections of the members 29 and 35, and 30 and 31.

In order to fix the correct pivotal or angular relation between the moldboard 2 and the frame members 29, 30, 31 and 32 and to provide a support for the upper portion of the moldboard 2, extensible members 40 are provided which are in effect turnbuckles having lock nuts 41. The members 40 are pivoted between the pairs of reinforcing ribs 5 and 6 to pairs of ears 42 and 43 on the upper portions thereof and to frame members 44 and 45 extending between intermediate portions of the members 29 and 30, and 31 and 32.

It will be clear that to sharpen the angle of inclination of the moldboard 2 to the ground it will merely be necessary to increase the length of the members 40 and to adjust the angular relation of the shoes 15 accordingly.

For pushing the snow plow the truck 1 is provided with push bars 46. The rear end of each push bar is provided with a clamp 47 for securing the push bars to the rear axial or banjo housing of the truck 1. The forward ends of the push bars 46 rest in cradles 48 which are suspended from and held against the lower side of the front axle of the truck 1 by chains 49. The push bars 46 are of telescopic construction in order that the length may be adjusted to adapt them with the truck on which they are used and the adjustment is secured by collars 50.

The forward ends of the push bars 46 are provided with radially extending flanges 55 as shown particularly in Figs. 2 and 6. Abutting against the radially extending flanges 55 is an angle bar 56 having portions thereof extending rearwardly over the radially extending flanges 55 and a portion of the push bars 46. The push bars 46 are secured to the angle bar 56 by split collar blocks 57 fitting snugly against the rearward side of the radially extending flanges 55 and are secured by bolts 58 to the overhanging portion of the angle bar 56. The result is that the angle bar 56 is rigidly and securely fixed to the ends of and spaces the push bars 46.

The plow is secured to the angle bar 56 by a bolt 59 passing through the central portion of a coupling member 60, see Figs. 1 and 6, and the central portion of the forward vertical portion of the angle bar 56. The coupling member 60 has at its outer ends pairs of forwardly extending ears 61. Between the ears 61 are pivoted rearward extensions 62 of the frame members 35 and 31.

From the foregoing description it will be clear that the connection provided by the bolt 59 permits rocking movement of the plow laterally while the connection provided by the ears 61 and the rearward extensions 62 permits rocking movement vertically. These pivotal connections are for the purpose of allowing the rocking movement which the plow tends to make when being moved over an uneven surface. It will be observed from Fig. 1 that the frame members 35 and 31 extend parallel to the path of movement of the plow and are in alignment with the push bars 46. This construction permits a straight line of force directly from the rear axle of the truck 1 to the push plate 3 secured to the moldboard 2.

When moving the snow plow from one location to another or when moving it when there is no snow on the ground it is desirable that the shoes 15 be raised from contact with the ground. This raising is accomplished by a hydraulic lift 65 mounted in a frame 70 which is in turn mounted on the bumper 71 of the truck 1 shown particularly in Fig. 7. A diagrammatically shown hand pumping mechanism 66 is disclosed. Preferably a hand pumping mechanism is disclosed in the cab of the truck although any suitable actuating device may be used. The lower portion of the frame 70 is formed from an angle bar 72 having a vertical depending side which is secured by bolts 73 to the bumper 71. The angle bar 72 also has a horizontal portion which overlies the bumper 71 and supports the weight of the frame 70 and lift 65. Mounted on the lower side of the frame 70 preferably to the horizontal portion of the angle bar 72 are sheaves 74. Also mounted in the frame 70 but to the upper portion thereof are sheaves 75. A sheave 76 is mounted on the end of the piston rod 77 of the hydraulic lift 65. Passing over the sheave 76 around the sheaves 74 and 75 is a cable 78 having the ends thereof secured to the frame members 35 and 31 by clevises 79. In order to counteract the weight of the plow tending to move the frame 70 forwardly there are provided tie rods 80 suitably secured to ears 81 projecting from the upper sides of the frame 70 and from the frame of the truck 1 at a position adjacent the forward end of the truck cab.

It will be apparent from the foregoing description that the hydraulic lift together with the plow and its push bars may be readily and simply secured to a truck for operation thereby and that by actuation of the hydraulic lift 65 the entire plow and its framework may be lifted from the ground in order that the same may be readily transported from one location to another. As shown the frame members are for the most part in the form of angle bars. While this construction has been found to be very desirable other suitable structural members may, of course, be used.

Having thus described my invention what we desire to secure by Letters Patent and claim is:

1. A snow plow comprising a moldboard having a blade, a frame pivotally connected to said moldboard, means to adjust the angular relation between said frame and said moldboard, shoes each having a substantially flat ground contacting surface for directly supporting said moldboard, and mechanism at each end of said shoes to adjust positively the angular relation and distance between said shoes and said frame.

2. In combination with a snow plow body, a shoe, said shoe comprising a runner, forward and rear supports pivoted to said runner and mechanism associated with each of said supports for securing said shoes to and for positively adjusting the angularity of said shoes with respect to said snow plow body.

3. In combination with a snow plow body, a runner, forward and rear bolts pivoted to said runner, and nuts on said bolts to adjustably secure said bolts to the body whereby the angularity of said shoe to the body may be adjusted.

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