May 8, 1934. F. GETTELMAN 1,957,771

SNOWPLOW

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FIG. 1.

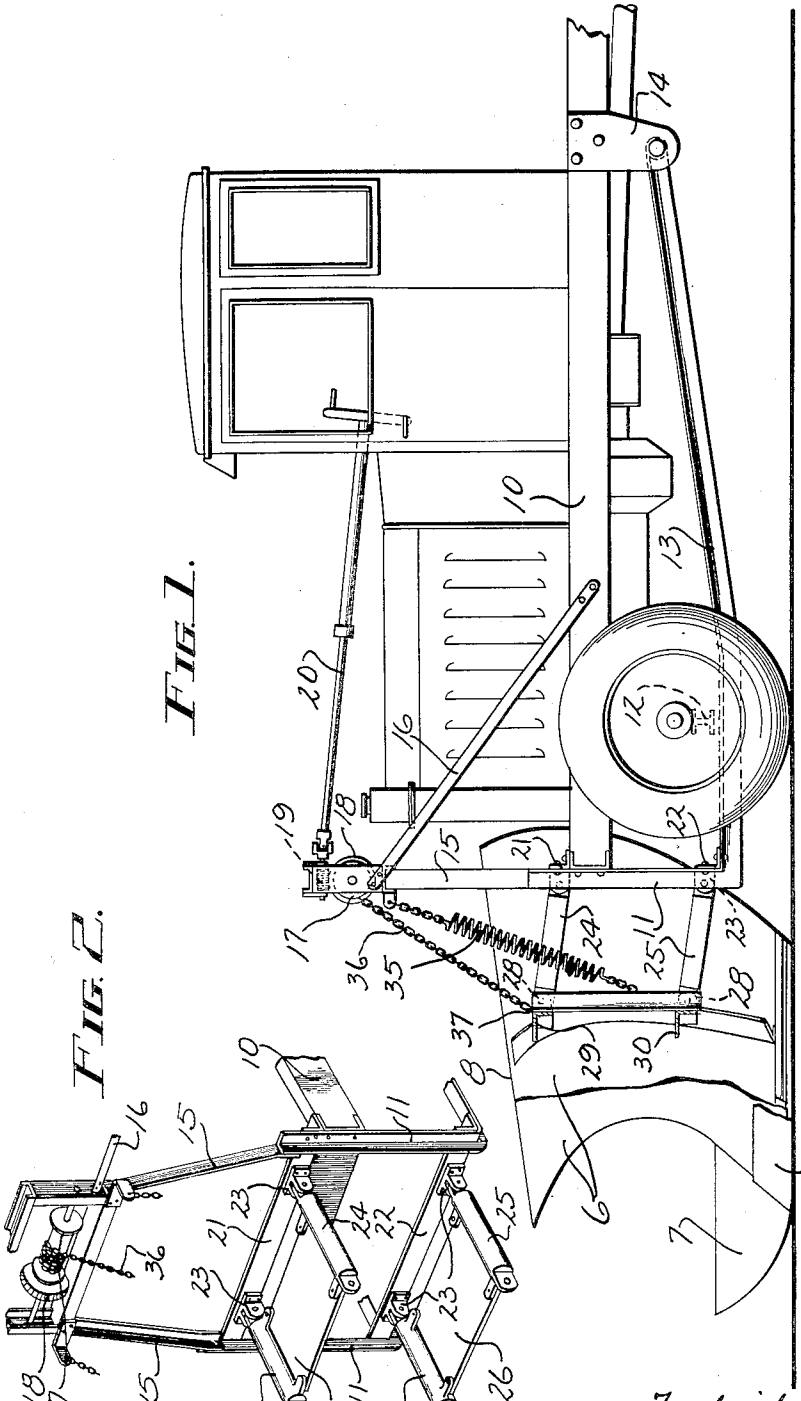


FIG. 2.

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FIG. 3.

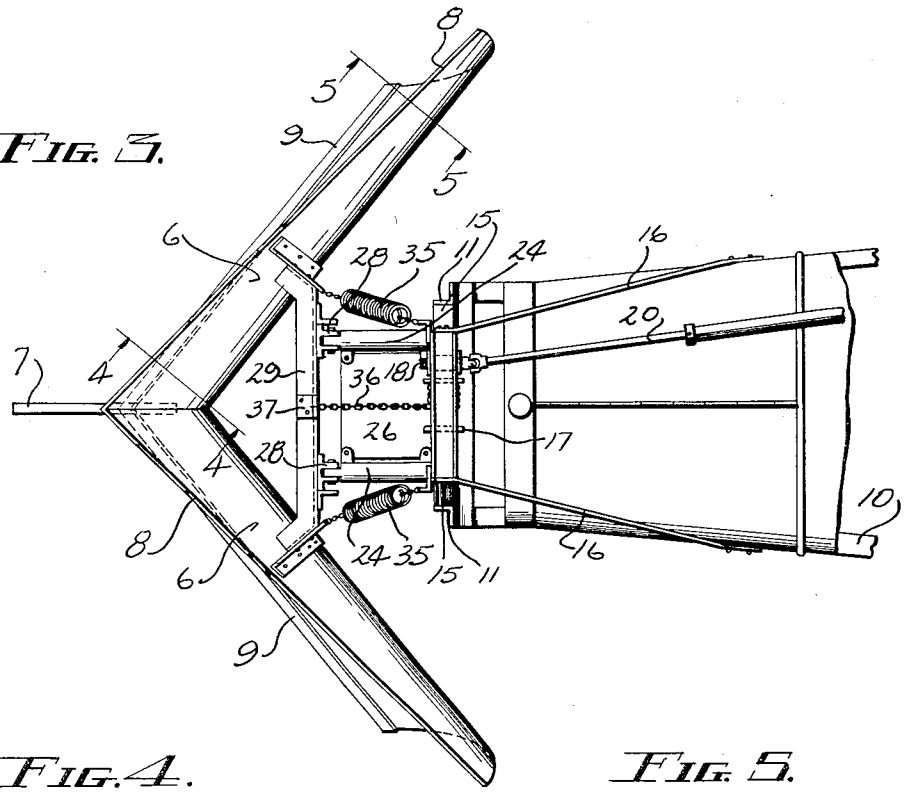


FIG. 4.

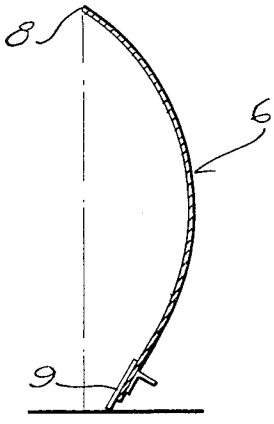
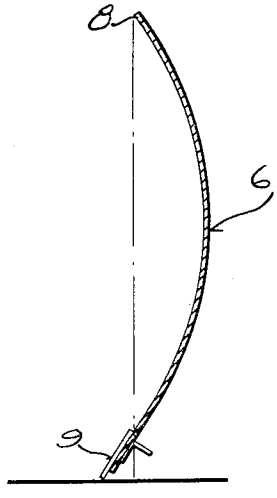


FIG. 5.



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Patented May 8, 1934

1,957,771

UNITED STATES PATENT OFFICE

1,957,771

SNOWPLOW

Fredrick Gettelman, Milwaukee, Wis.

Application May 14, 1931, Serial No. 537,229

9 Claims. (Cl. 37—44)

This invention relates to improvements in snow plows.

It is one of the primary objects of the invention to provide a snow plow adapted for improved delivery of the snow from the path of the plow with a minimum expenditure of energy, and it is a further object of the invention to provide a plow having an improved mounting or means of attachment to a vehicle adapting the plow to surmount obstacles without changing its horizontal position and hence without digging either its front or rear corner margins into the pavement traversed.

Other purposes of the invention will be apparent from the following description.

In the drawings:

Figure 1 is a side elevation of the forward portion of a vehicle and my improved plow mounting device with a plow attached thereto, a portion of the plow and mounting being broken away to expose the construction.

Figure 2 is a fragmentary perspective showing the mounting device separately.

Figure 3 is a plan view of the parts shown in Figure 1.

Figure 4 is an enlarged detail in cross section on the line indicated at 4—4 in Figure 3.

Figure 5 is an enlarged detail in cross section on the line indicated at 5—5 in Figure 3.

Like parts are identified by the same reference characters throughout the several views.

The plow illustrated is a V-shaped plow having blades 6 which are forwardly concave in an unusual manner as best shown in Figures 3, 4 and 5. The blades converge forwardly to each other and are joined upon an interposed runner 7. Adjacent the runner the blades are forwardly inclined with the upper margins 8 overhanging the shoe 9 at their lower margins, as shown in Figure 4.

At the rear end of each blade its upper margin 8 is drawn rearwardly so that a vertical line dropped therefrom will pass at the rear of shoe 9, as shown in Figure 5.

It has been found that one of the difficulties in plow operation is to overcome the inertia of snow, and particularly of wet snow. An entirely separate problem in involved in delivery of the snow from the plow over masses of untouched snow lying at the side of the path of the plow. The forwardly overhanging central portion of the plow is best adapted to initiate movement of the snow to be discharged. The snow tends to rise up along the plow and is thrown forward in an arc corresponding to the concave forward surface of the blade. Frequently where wet snow is involved the plow forms hollow rolls or tubes of the snow due to the forward inclination of its central portions.

The rolls or tubes thus formed roll ahead of the plows and move outwardly because of the angle of the blade. Because they are rolling they offer little resistance to the pressure of the plow upon them. Upon reaching the outside edge of the plow, however, they tend to break, particularly if the path of the plow is bounded by banks of earth or snow. I have found that I can retain much of the advantage of the forward inclination of the blade while at the same time facilitating delivery of the material from the ends of the blades by rearwardly inclining the ends as above described.

The runner 7 effectually prevents the apex of the plow from digging into the surface of the pavement, even without any special mounting device. In a plow of this character, however, the operation of the runner in climbing over a stone or a bump of any kind, tends in the absence of a special mounting device herein disclosed, to tilt the plow upon a transverse axis thereby causing its outer ends to dig into the pavement. My improved mounting includes parallel links upon which the plow is partially counterbalanced for easy adjustment to and from operating position and for automatic upward release parallel to the road if an obstacle is encountered.

The truck frame 10 is provided at its forward end with a special plow supporting frame including upright members 11 which extend downwardly to a point where they can be braced below the truck axle 12 by means of longitudinal bracing members 13 connected well behind the front axle of the truck with special hangers 14 on the truck frame. From frame members 11 supports 15, braced at 16 from the truck frame, carry a windlass 17 which is preferably provided with a worm gear 18 operable by a worm 19 and flexible shaft 20 from the cab of the truck.

The cross members 21 and 22 of the mounting frame have pairs of spaced ears at 23 to which the upper links 24 and the lower links 25 are pivoted. Any type of diagonal bracing such as is provided by the plates 26 may be used to keep the links of each pair parallel to each other.

At their forward ends the several links 24 and 25 are pivotally connected with ears 28 mounted on the upper and lower plow braces 29 and 30 which span the angle between the rear faces of blade 6.

The weight of the plow is partially counter-

balanced by heavy tension springs 35 connecting the blades with upper ends of the windlass supports 15. A chain 36 operating over the windlass engages in anchorage 37 on plow brace 29 in order that the plow may be adjusted to and from the road. The counterbalance springs 35 facilitate the upward adjustment.

It is particularly to be noted that the device is either so designed or is so adjusted by shims that the links 24 and 25 are not only parallel to each other but have an upward inclination in a forward direction from the truck. By virtue of this arrangement the thrust of the truck in opposition to the resistance of the snow had at all times a predetermined upward component of direction and in the event that an obstacle such as a stone or the like is encountered, the plow blades, instead of tilting or becoming wrecked upon the obstacle, will swing freely upwardly upon links 24 and 25 in a perfectly horizontal position to a point where the obstacle is cleared, whereupon the plow will return itself to the road. The return of the plow to the road is facilitated by the rearward inclination of its rear end which tends to cut into and under accumulated masses of snow rather than to rise over them.

I claim:

1. The combination with a plow and a truck attachment, a pair of obliquely disposed blades of concave form having their upper margins joined at a forward apex overhanging the apex of their lower margins, the upper margins of said blades and their rear ends being rearward of their lower margins, and upper and lower links pivoted to the plow and truck attachment, said links having an upward inclination forwardly from the attachment in all positions of the plow.

2. The combination with a plow and truck attachment, a pair of obliquely disposed blades of concave form having their upper margins joined at a forward apex overhanging the apex of their lower margins, the upper margins of said blades and their outer ends being rearward of their lower margin, upper and lower substantially parallel disposed links pivotally connected to the plow and truck attachment, said links extending upwardly from the frame attachment to the plow so that the plow may be moved upwardly without link resistance, and means laterally bracing said links.

3. The combination with a plow, of a mounting device therefor including approximately parallel upper and lower links pivotally mounted and pivotally connected with the plow whereby to permit the vertical movement of the plow in a substantially horizontal position, said links having a predetermined upward inclination toward said plow in the operating thereof.

4. The combination with a plow, of approximately parallel upper and lower links pivoted at their respective ends and in propelling relation to the plow, said links having a predetermined initial upward inclination in the direction of movement of the plow and in the lowermost position thereof.

5. The combination with a plow, of approximately parallel upper and lower links pivoted at their respective ends and in propelling relation to the plow, said links having a predetermined initial upward inclination toward the plow in the lowermost position thereof, and said plow having a portion adapted to act with an upward component of movement upon material encountered thereby, whereby to utilize the weight of such material for the maintenance of the plow in its lowermost position.

6. The combination with a plow and a truck attachment, of upper and lower linkage pivotally connecting the plow and attachment, said linkage having an upward inclination forwardly from the attachment in all positions of the plow.

7. The combination with a plow propelling means including a truck attachment a hoist and a plow connected with said hoist to receive vertical movement therefrom, of upper and lower linkage pivotally connected with said plow and propelling device for transmitting the thrust of said device to said plow while permitting the aforesaid vertical adjustment, said linkage having an upward inclination forwardly of the propelling device in all positions of the plow, said linkage maintaining said plow approximately level both longitudinally and laterally in its several positions of adjustment.

8. The combination with a plow propelling means including a truck attachment having a hoist and a plow connected with said hoist to receive vertical movement therefrom, of linkage pivotally connected with said plow and propelling device for transmitting the thrust of said device to said plow while permitting the aforesaid vertical adjustment, and a means for maintaining said plow approximately level in its several positions of adjustment, said means comprising linkage substantially parallel to said first mentioned linkage and vertically spaced therefrom, said linkage having an upward inclination forwardly from the propelling device in all positions of the plow.

9. A plow mounting device comprising the combination of an upright frame, upper and lower links projecting forwardly in substantial parallelism for pivotal connection to a plow, said linkage having an upward inclination forwardly from the frame in all positions of the plow, means for connecting said frame at an intermediate point to a vehicle and upper and lower braces adapted to connect said frame with said vehicle.

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