Jan. 13, 1931. A. O. LILE ET AL 1,788,879

SNOWPLOW

Filed April 5, 1930 3 Sheets-Sheet 1

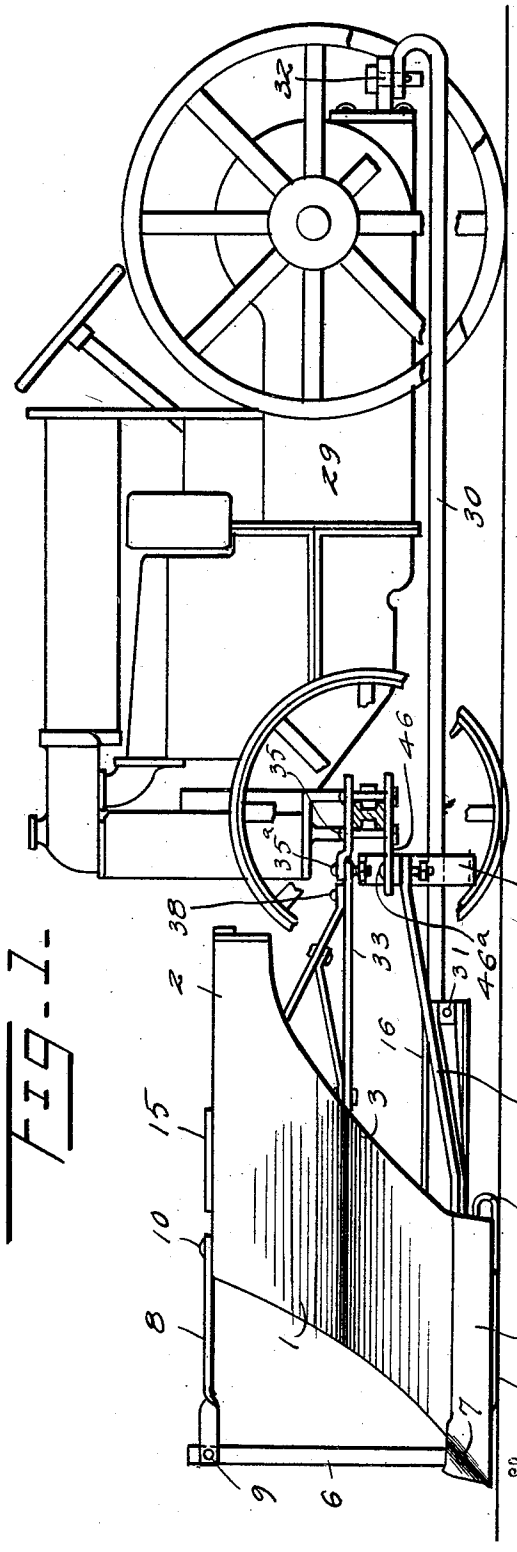


FIG. 1.

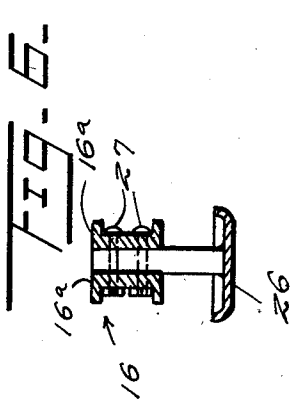


FIG. 6.

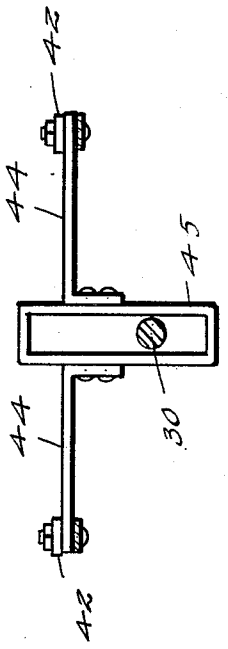


FIG. 5.

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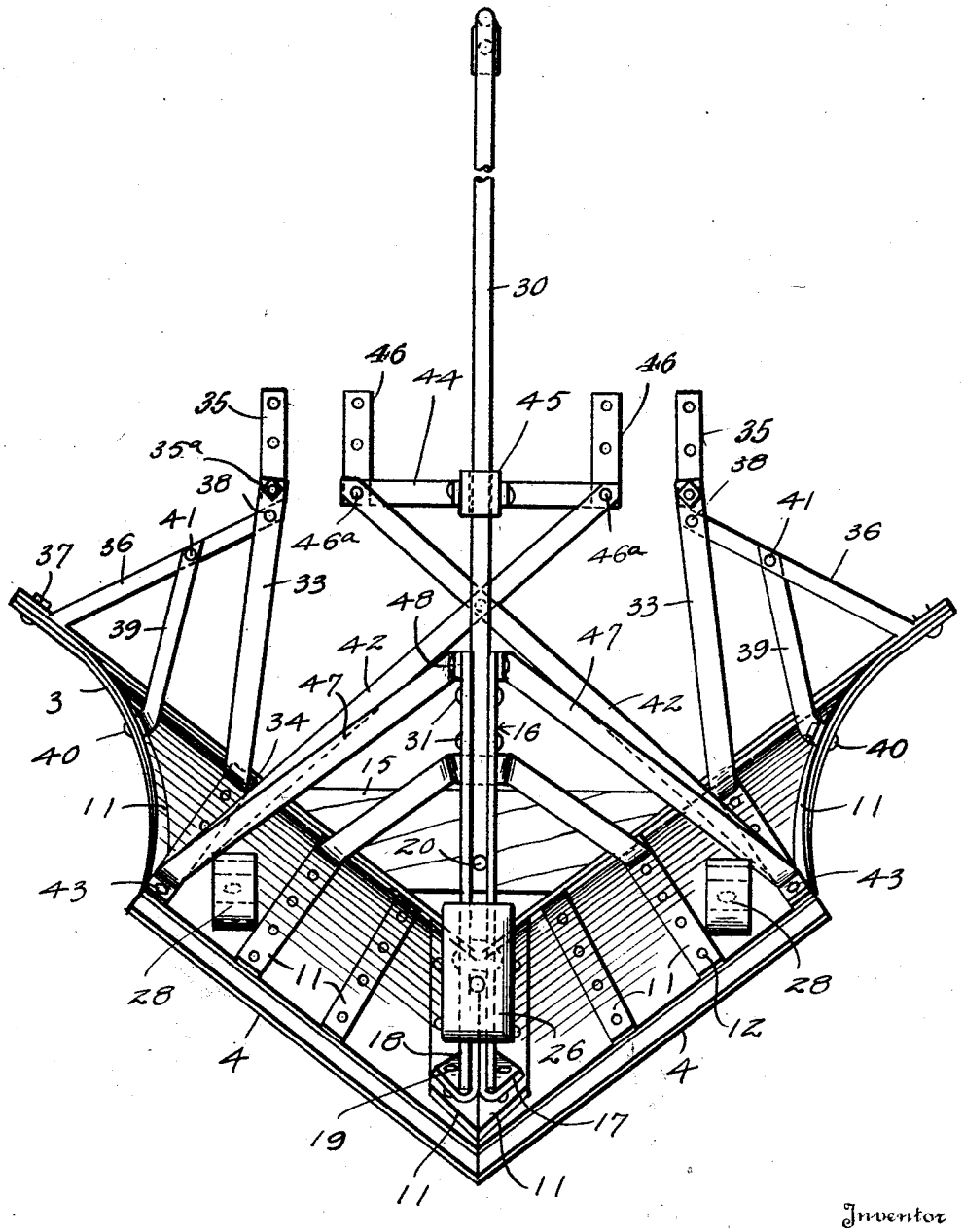
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SNOWPLOW

Filed April 5, 1930 3 Sheets-Sheet 2

Fig. 2.



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SNOWPLOW

Filed April 5, 1930 3 Sheets-Sheet 3

Fig. 3.

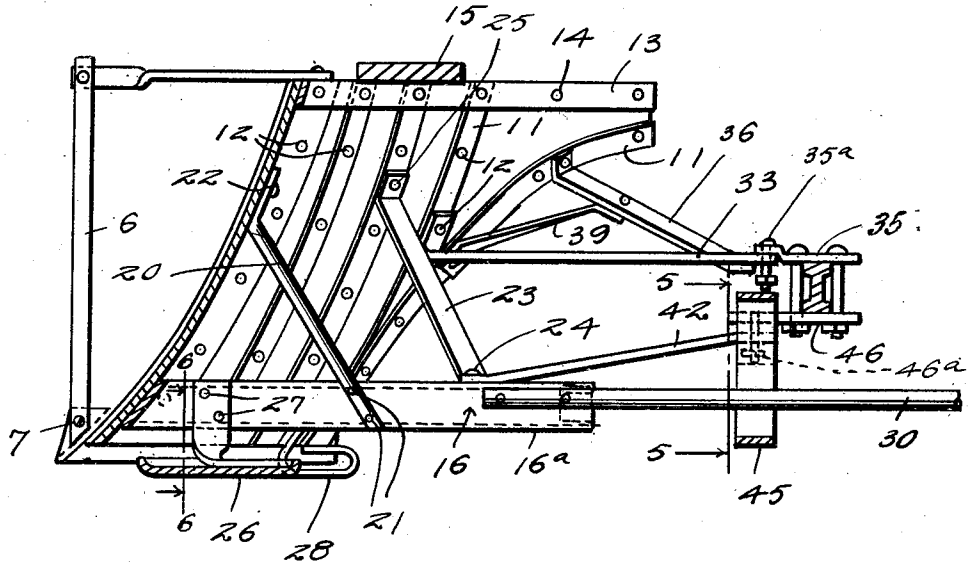
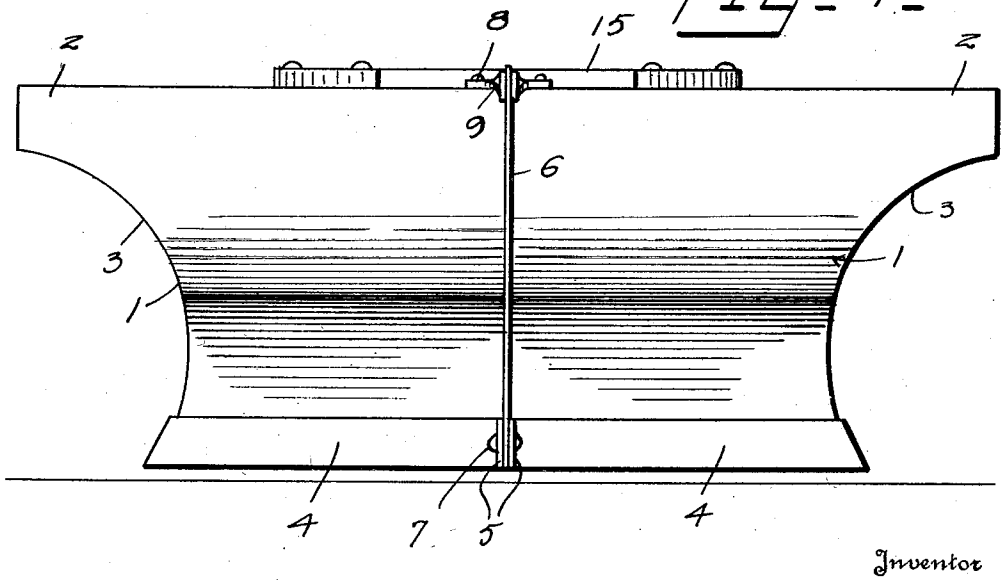


Fig. 4.



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UNITED STATES PATENT OFFICE

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SNOWPLOW

Application filed April 5, 1930. Serial No. 441,891.

This invention relates to snow plows of the double sweep or mould board type and adapted to be arranged in front of a tractor and hitched to the rear end thereof.

The invention has for one of its objects to provide a snow plow of the character stated which shall embody knives or shares adapted to prevent it from moving up out of the snow, and which shall embody mould boards adapted to throw instead of pushing the snow outwardly.

The invention has for a further object to provide a snow plow of the character stated which shall embody a bracing structure adapted to permit the mould boards to be made of comparatively light sheet metal.

The invention has for a further object to provide a snow plow of the character stated which shall embody a push bar fixed to and extending rearwardly from the inner side of the center of the meeting edges of the mould boards and arranged above the lower edges of the knives or shares, and wherein the connection between the push bar and the mould boards shall be reinforced by the bracing structure.

The invention has for a further object to provide a snow plow of the character stated which shall be adapted to be supported from the ground by slides or runners fixed to the mould boards and the push bar.

The invention has for a further object to provide a snow plow of the character stated which shall embody a hitch bar connected at its front end to the push bar and adapted to be connected at its rear end to the rear end of a tractor.

The invention has for a further object to provide a snow plow of the character stated which shall embody a crust cutter arranged in a vertical position forwardly of the meeting edges of the mould boards and firmly secured thereto.

The invention has for a still further object to provide a snow plow of the character stated wherein the bracing structure shall be adapted to be secured to the front end of a tractor.

The invention is hereinafter fully described and claimed, and illustrated in the accompanying drawings, wherein:

Figure 1 is a view partly in side elevation and partly in vertical section illustrating the application of the snow plow to a tractor;

Figure 2 is a bottom plan view of the snow plow;

Figure 3 is a sectional view taken on a vertical plane extending centrally and longitudinally through the snow plow;

Figure 4 is a view in front elevation of the snow plow;

Figure 5 is a sectional view taken on the vertical plane indicated by the line 5—5 of Figure 3, and

Figure 6 is a sectional view taken on a vertical plane indicated by the line 6—6 of Figure 3.

The snow plow comprises rearwardly diverging mould boards 1 which are made of comparatively light sheet metal and may have their front or meeting edges welded or secured together in any other suitable manner. The mould boards 1 incline upwardly and rearwardly, and are of arcuate formation in vertical section with their concave sides foremost. The upper and shallower portions of the mould boards 1 extend outwardly and rearwardly beyond their lower and deeper portions, as at 2, and the lower edges of these extensions and the rear edges of said lower portions are curved, as at 3. Knives or shares 4 are welded or otherwise secured to the front sides of the mould boards 1 and extend below the lower edges of the mould boards. The knives or shares 4 incline downwardly and forwardly, and their inner end portions are directed forwardly to provide attaching flanges 5. A crust cutting blade 6 is arranged in a vertical position directly in front of the united edges of the mould boards 1. The lower end of the blade 6 is arranged between the flanges 5 and secured thereto, as at 7. Rearwardly diverging braces 8 have their front ends arranged at opposite sides of the upper end portion of the blade 6 and secured thereto, as at 9. The rear ends of the braces 8 are secured to the upper edges of the mould boards 1, as at 10.

Due to the formation of the mould boards 1, the plow will throw and not push the

snow outwardly; due to the downward and forward inclinations of the knives or shares 4, the plow will not move up out of the snow; and due to the location and vertical arrangement of the blade 6, the plow will readily pass through ice encrusted snow.

The plow is reinforced by bars 11 which are secured, as at 12, to the rear sides of the mould boards and extend from the upper to their lower edges of the mould boards. The mould boards 1 are also strengthened and reinforced by bars 13 which are secured, as at 14, to their rear sides near their upper edges and extend from their inner to their outer edges. A board 15 is arranged upon and extends across the plow and is secured at its ends to the mould board 1.

A push bar 16 is fixed to the inner sides of the front edges of the mould boards 1 and extends rearwardly therefrom. The push bar 16 is made up of two channel bars 16*a*, and brackets 17 secured thereto and to the innermost of the reinforcing bars 11, serve to secure the push bar to the plow, the brackets being secured, as at 18, to the push bar and, as at 19, to said reinforcing bars. A reinforcing bar 20 is secured, as at 21, to the push bar 16 and as at 22, to the innermost reinforcing bars 11. Braces 23 are secured, as at 24, to the push bar 16 and as at 25 to certain of the side reinforcing bars 11. The braces 20 and 23 incline upwardly and forwardly from the push bar 16 to the mould boards, and serve to establish a firm and rigid connection between such bar and distribute the propelling force equally over the plow.

The plow is supported by a central runner 26 which is secured, as at 27, to the push bar 16, and by side runners 28 which are secured to the mould boards 1. The runner 26 is arranged forwardly of the runners 28, and all of the runners extend below the knives or shares 4 to maintain their lower edges out of contact with the ground. The plow is adapted to be arranged in front of a tractor of the caterpillar type or the type shown in Figure 1 and designated generally by the reference character 29.

The plow is connected to the tractor 29 by a hitch bar 30 which is arranged beneath and extends longitudinally of the tractor, and is connected at its front end, as at 31, to the rear end of the push bar 16, and at its rear end, as at 32, to the rear end of the tractor.

The plow is connected to the front end of the tractor 29 by hitch bars 33 which are arranged above and laterally beyond the push bar 16 and have their front ends secured, as at 34, to the mould boards 1. The hitch bars 33 have their rear ends secured to the tractor 29 by links 35. Brace bars 36 extend from the hitch bars 33 to the mould boards 1, and are secured to the mould boards near the curved edges 3 thereof, as at 37, the brace bars being secured, as at 38, to the hitch bars 33. Braces 39 extend from the brace bars 36 to the mould boards 1 and are secured, as at 40, to the curved edges 3 of the mould boards, the braces being secured to the bars, as at 41. The hitch bars 33 are arranged in a substantially horizontal position, the brace bars 36 incline upwardly and outwardly from the hitch bars, and the braces 39 incline downwardly and forwardly from the brace bars.

Crossed hitch bars 42 are secured at their front ends, as at 43, to the lower rear corners of the mould boards 1 and incline upwardly and rearwardly to points above and rearwardly of the push bar 16. The rear ends of the hitch bars 42 are connected by a bar 44 which is provided at its center with a yoke 45 embracing the hitch bar 30. The yoke 45 is arranged vertically and is considerably greater in length than the diameter of the hitch bar. The united ends of the brace bars 42 and bar 44 are secured by links 46, to the tractor 29.

The links 35 and 46 may be bolted or otherwise secured to the tractor 29. They are connected to the hitch bars 33 and 42 by bolts 35*a* and 46*a*. These bolts establish a loose connection between the links 35 and 36 and the hitch bars 33 and 42 so as to permit the plow 1 and the tractor 29 to have slightly vertical movements with respect to each other. The plow 1 is adapted to be propelled by a tractor of the caterpillar type as well as by a tractor of the type shown in the drawings. When it is to be propelled by a caterpillar tractor, the links 35 and 46 are omitted and the rear ends of the hitch bars 33 and 42 are connected directly to the tractor.

The connection between the push bar 16 and the plow is further reinforced by braces 47 which are secured to the rear ends of the hitch bar, as at 48, and to the lower corners of the mould boards 1 by the elements 43.

It should be understood from the foregoing description, taken in connection with the accompanying drawings, that the plow may be easily and quickly hitched to a tractor, that the hitching structure establishes a firm connection between the plow and tractor and holds the mould boards against distortion and distributes a pushing force of the tractor over the entire plow, that the hitching structure is firmly connected to the plow, and that the mould boards of the plow are so strongly reinforced as to permit them to be made of comparatively light sheet metal.

While we have described the principle of the invention, together with the structure which we now consider the preferred embodiment thereof, it is to be understood that the structure shown is merely illustrative and that such changes may be made, when

desired, as fall within the scope of the invention as claimed.

We claim:—

1. A snow plow having rearwardly diverging mould boards of arcuate formation in vertical section, the mould boards inclining upwardly and rearwardly and having their concave sides foremost, shares secured to the mould boards and inclining upwardly and rearwardly, a crust cutting blade arranged in a vertical position directly in advance of the front edges of the mould boards, the shares extending from the front edges of the mould boards to the rear edges thereof and provided at their front ends with forwardly directed flanges between which the lower end of the blade is arranged, means securing the lower end of the blade to said flanges, and rearwardly diverging braces secured to the upper end of the blade and to the mould boards.

2. A snow plow having rearwardly diverging mould boards, a push bar secured to the mould boards, a hitch bar secured to the push bar, a yoke embracing the hitch bar and provided with arms, and hitch bars extending from the arms to the mould boards.

3. A snow plow having rearwardly diverging mould boards, a push bar secured to the mould boards, a hitch bar secured to the push bar, a yoke embracing the hitch bar and provided with arms, hitch bars extending from the arms to the mould boards, other hitch bars secured to the mould boards, braces extending from said last hitch bars to the rear edges of the mould boards, and attaching links connected to the second and third named hitch bars for movement vertically with respect thereto.

In testimony whereof we hereunto affix our signatures.

ADIEL O. LILE.
THOMAS A. CRANE.