

Jan. 20, 1931.

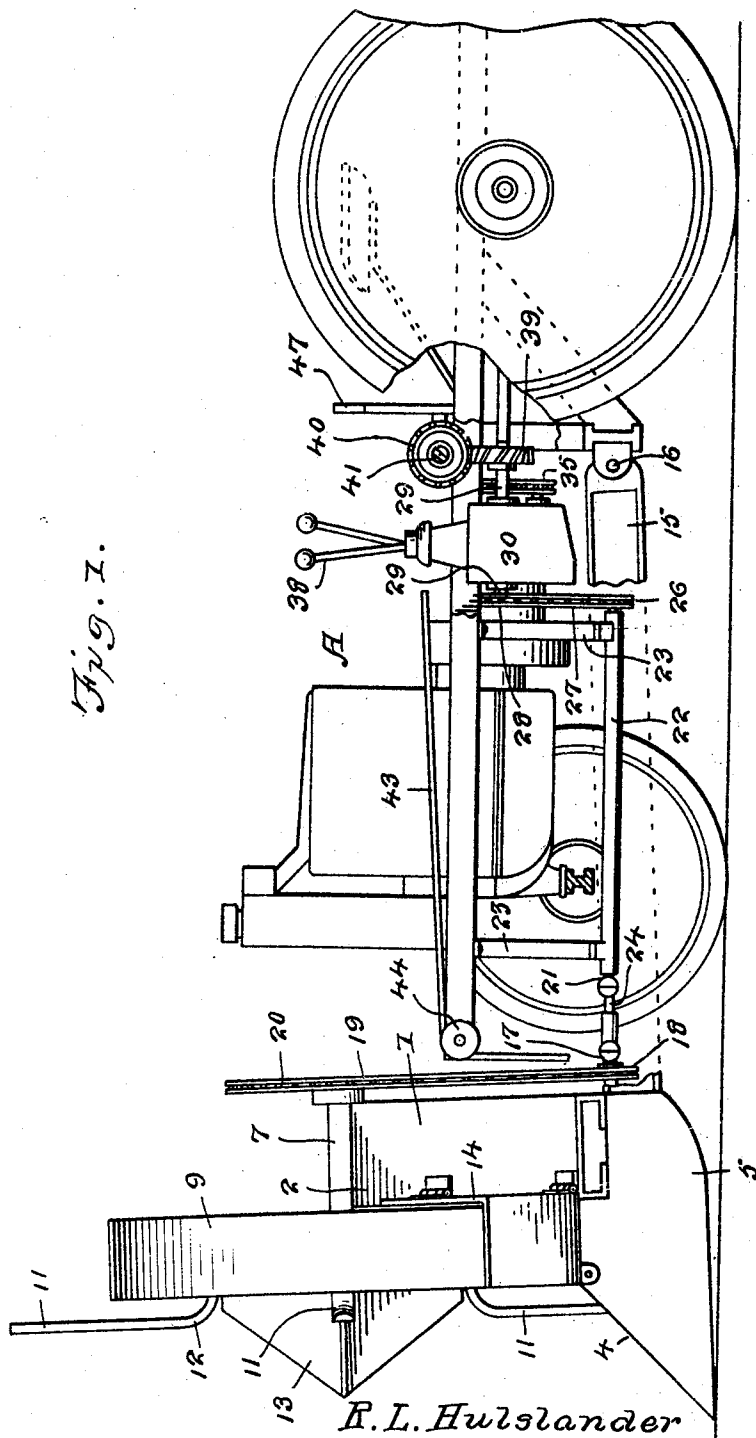
R. L. HULSLANDER

1,789,753

SNOWPLOW

Filed Dec. 13, 1929

4 Sheets-Sheet 1



R. L. Hulslander

INVENTOR

BY

Victor J. Evans

ATTORNEY

Jan. 20, 1931.

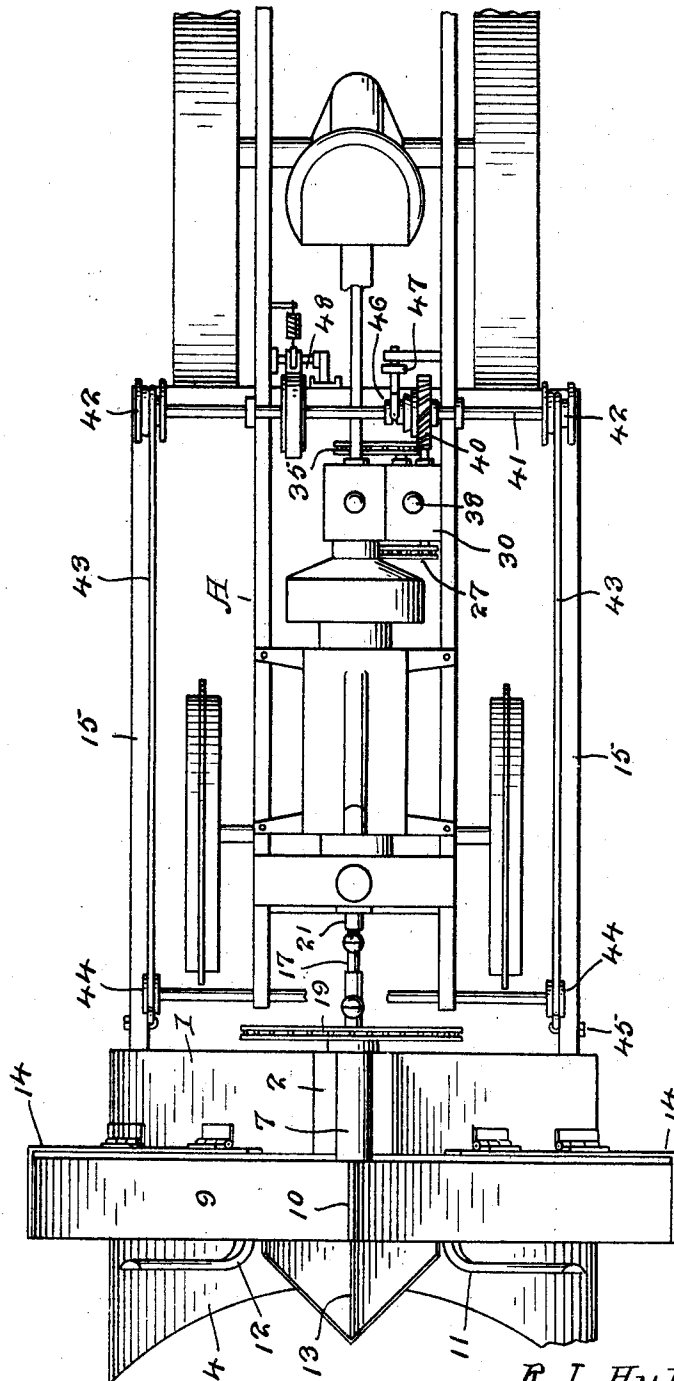
R. L. HULSLANDER

1,789,753

SNOWFLOW

Filed Dec. 13, 1929

4 Sheets-Sheet 2



R. L. Hulslander
INVENTOR

INVENTOR

BY *Victor J. Evans*

ATTORNEY

Jan. 20, 1931.

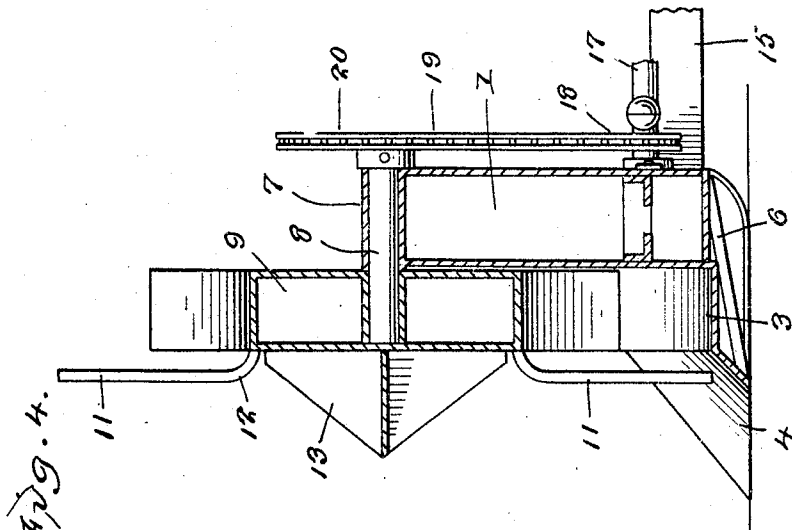
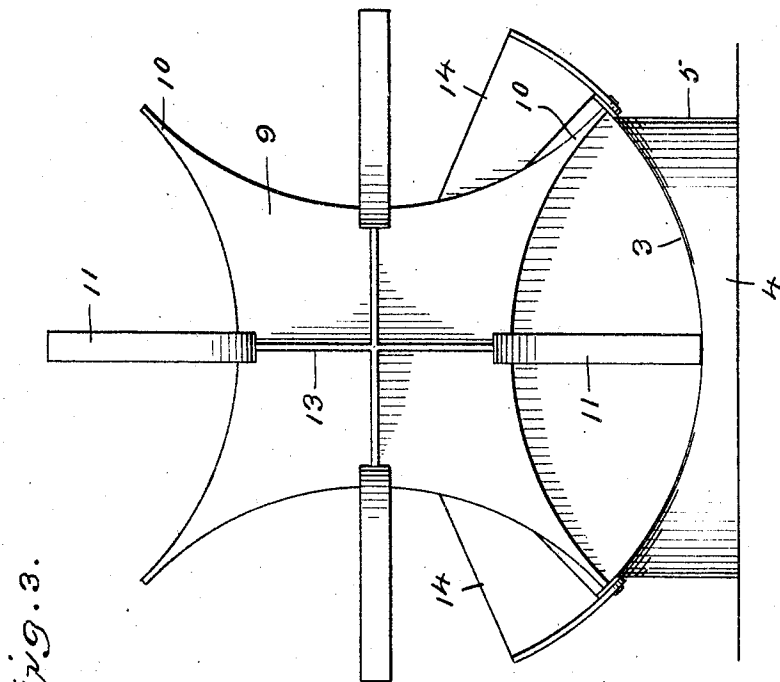
R. L. HULSLANDER

1,789,753

SNOWPLOW

Filed Dec. 13, 1929

4 Sheets-Sheet 3



R. L. Hulslander
INVENTOR

BY Victor J. Evans
ATTORNEY

Jan. 20, 1931.

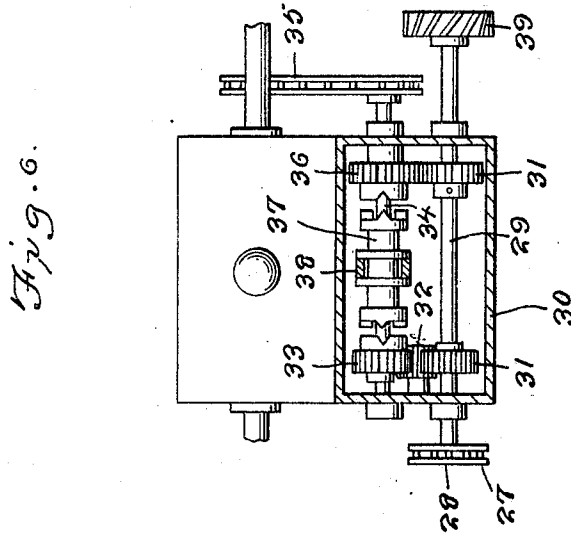
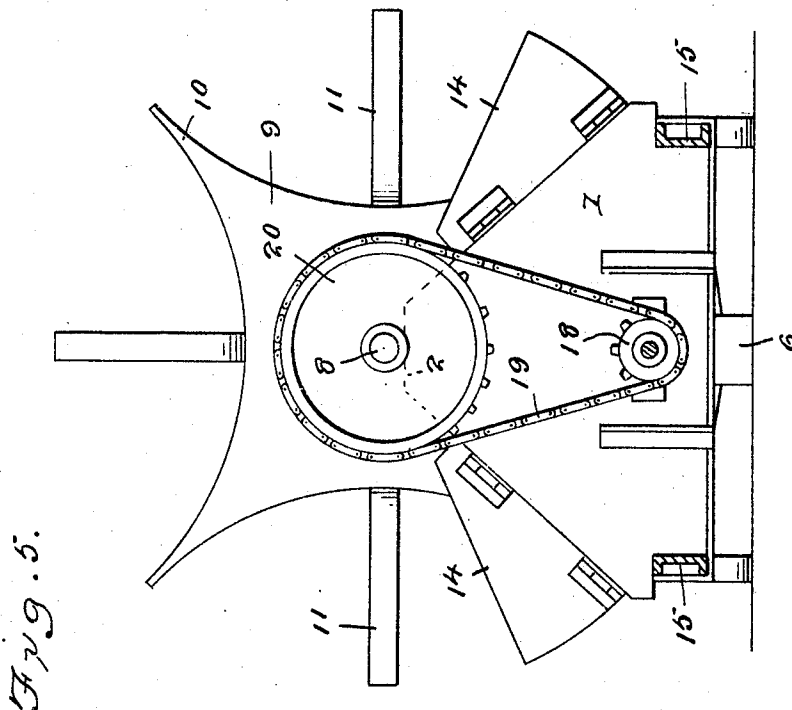
R. L. HULSLANDER

1,789,753

SNOWPLOW

Filed Dec. 13, 1929

4 Sheets-Sheet 4



R. L. Hulslander

INVENTOR

BY *Victor J. Evans*

ATTORNEY

UNITED STATES PATENT OFFICE

RAYMOND LEE HULSLANDER, OF WORTHINGTON, MINNESOTA

SNOWPLOW

Application filed December 13, 1929. Serial No. 413,846.

This invention relates to a snow plow, the general object of the invention being to provide a scoop for scooping up the snow as the plow is pushed into the snow, with a concave part for receiving the snow from the scoop and a wheel having blades thereon which pass over the concave part when the wheel is being rotated so as to throw the snow to one side of the road or the other, according to the direction of rotation of the wheel so that the snow is not banked in the road, but is thrown to one side of the road.

Another object of the invention is to provide cutting blades on the wheel which extend forwardly of the other blades and act to cut and loosen the snow before it is operated on by said other blades.

Another object of the invention is to provide hinged wings for increasing the length of the concave when the plow is working in deep snow and to provide a pointed device on the hub of the wheel for preventing deep snow from pressing against the front face of the wheel.

This invention also consists in certain other features of construction and in the combination and arrangement of the several parts, to be hereinafter fully described, illustrated in the accompanying drawings and specifically pointed out in the appended claims.

In describing the invention in detail, reference will be had to the accompanying drawings wherein like characters denote like or corresponding parts throughout the several views, and in which:—

Figure 1 is an elevation, with parts in section, showing the plow attached to a tractor.

Figure 2 is a top plan view of Figure 1.

Figure 3 is a front view of the plow.

Figure 4 is a vertical sectional view through the plow.

Figure 5 is a rear view of the plow.

Figure 6 is a sectional detail view showing the means for driving the wheel of the plow from the tractor.

In these views, the numeral 1 indicates a housing having its sides sloping upwardly and inwardly to its flat top 2 and the numeral 3 indicates a concave part attached to the

front of the housing at its lower end, and 4 indicates a scoop attached to the front edge of the concave and adapted to scoop up snow as the device is moved along so that the snow will enter the concave. Side pieces 5 are connected with the sides of the housing and the ends of the concave and scoop and form ground engaging shoes. A brace 6 extends from the bottom of the housing under the concave and scoop and acts to brace the parts. A horizontally arranged bearing member 7 is fastened to the top of the housing and rotatably supports a shaft 8 to which the hollow hub of a wheel 9 is fastened, the hub portion having its corners tapered to form the blades 10. The wheel is arranged above the concave in such a manner that its blades will pass over the same as the wheel is rotated. Flat blades 11 are fastened to the wheel between the blades 10 and these blades are bent, as at 12, where they join the wheel, so that the major portions of the blades 11 are in advance of the wheel. Each blade is sharpened or beveled on each edge. A pointed member 13 is connected with the front face of the hub and is composed of substantially triangular shaped parts connected together at their inner ends, with their small ends arranged adjacent the point of connection of the blades 11 with the wheel.

A substantially L-shaped wing 14 is hinged to the front of the housing, at each side thereof, these wings forming extensions of the concave when they are swung forwardly and when swung rearwardly, they will rest on the sides of the housing so that the concave will be of less length than when the wings are in forward position.

A pair of beams 15 have their front ends connected with the housing and their rear ends are adapted to be pivotally connected with a part of a tractor A, as shown at 16, and a shaft 17 has its front end journaled to the rear face of the housing and carries a sprocket 18 over which passes a chain 19 which also passes over a large sprocket 20 on the rear end of the shaft 8 which carries the wheel 9. A shaft 21 is rotatably arranged in a housing 22 supported by the hangers 23 from the tractor, and this shaft 21 is connect-

ed by the couplings, shown generally at 24, with the shaft 17, so that the plow can have movement in relation to the tractor without affecting the driving connection between the shafts 17 and 21. A sprocket 26 is connected with the rear end of the shaft 17 and a chain 27 passes over this sprocket and over a sprocket 28 on a shaft 29 arranged in a housing 30. A pair of gears 31 is fastened to the shaft 29 within the housing and one of these gears meshes with an idle gear 32 in the housing, which in turn meshes with a gear 33 loosely arranged on a shaft 34 in the housing, this shaft 34 being driven from one of the drive shafts of the power plant of the motor by the chain and sprockets, shown generally at 35. A gear 36 is loosely arranged on the shaft 34 and meshes with the other gear 31. A double clutch arrangement 37 is slidably mounted on the shaft 34 and is adapted to be moved from a neutral position into engagement with either of the gears 33 or 36, so as to drive the shaft 29 in one direction or the other. This clutch is manipulated by a shift lever 38.

A worm gear 39 is fastened to the rear end of the shaft 29 and meshes with a worm gear 40 on a shaft 41 transversely arranged on the tractor and having the drums 42 at its ends to which cables 43 are connected. These cables pass forwardly over the pulleys 44 at the front of the tractor and then pass downwardly and are connected with the front ends of the beams 15, as shown at 45.

A clutch 46, including a lever 47, is provided for connecting and disconnecting the gear 40 with the shaft 41. The shaft 41 is also provided with the brake means, shown generally at 48.

From the foregoing it will be seen that the plow can be raised and lowered when the shaft 41 is connected with the shaft 29, so that the plow can be adjusted to pass over obstructions or can be held in raised position when it is being conveyed to and from the point of use and that the wheel of the plow is driven in either direction from the power plant of the tractor, though it will, of course, be understood that a separate motor may be provided for driving the wheel, if desired.

The wheel will remove the snow from the concave and throw it a distance from the road as the blades 10 on the wheel pass through the concave. This will prevent banks of snow being formed on the sides of the road. The blades 11 act to cut the snow in front of the wheel and loosen the same so that the blades 10 can properly operate on the same and the scoop will pick up the snow and cause it to pass into the concave. When the plow is operating in deep snow, either or both wings should be raised to increase the length of the concave, as shown in Figure 3, though these wings are not needed in light

snow. The pointed device 13 also acts in deep snow to cut the snow from in front of the hub of the wheel and prevents this snow from retarding the forward movement of the plow. The rapidly revolving wheel, having its blades passing through the concave, will set up a centrifugal force which acts to throw the snow a considerable distance away from the road.

It is thought from the foregoing description that the advantages and novel features of the invention will be readily apparent.

It is to be understood that changes may be made in the construction and in the combination and arrangement of the several parts, provided that such changes fall within the scope of the appended claims.

What I claim is:—

1. A snow plow comprising a supporting member, a concave at the front thereof, a scoop in front of the concave, a wheel having blades thereon passing through the concave for removing the snow from the concave and throwing it a distance to one side of the road, means for rotating the wheel, other blades on the wheel and arranged in advance of the front face of the wheel for cutting the snow before the wheel reaches the snow and hinged wings on the supporting member for increasing the length of the concave when the wings are swung forwardly.

2. A snow plow comprising a supporting member, a concave at the front thereof, a scoop in front of the concave, a wheel having blades thereon passing through the concave for removing the snow from the concave and throwing it a distance to one side of the road, means for rotating the wheel, other blades on the wheel and arranged in advance of the front face of the wheel for cutting the snow before the wheel reaches the snow, hinged wings on the supporting member for increasing the length of the concave when the wings are swung forwardly and a pointed member on the front face of the hub of the wheel.

3. A snow plow comprising a supporting member, a concave at the front thereof, a scoop connected with the front of the concave, a shaft supported by the supporting member, a wheel having its hub, of substantially rectangular shape and connected with the front end of the shaft, the corners of the hub being extended and tapered to form blades which pass through the concave to throw the snow therefrom, other blades having bent inner ends connected with the hub of the wheel intermediate the other blades, whereby said second set of blades are arranged in front of the wheel and means for rotating the shaft.

4. A snow plow comprising a supporting member, a concave at the front thereof, a scoop connected with the front of the concave, a shaft supported by the supporting

member, a wheel having its hub of substantially rectangular shape and connected with the front end of the shaft, the corners of the hub being extended and tapered to form blades which pass through the concave to
5 throw the snow therefrom, other blades having bent inner ends connected with the hub of the wheel intermediate the other blades, whereby said second set of blades are arranged in front of the wheel, beams having
10 their front ends connected with the supporting member, means for attaching the rear ends of the beams to a tractor, means for rotating the shaft from the power plant of the tractor, such means including means for rotating the wheel in either direction, means
15 for raising and lowering the snow plow from the power plant of the tractor and brake means associated with such means.

20 In testimony whereof I affix my signature.
RAYMOND LEE HULSLANDER.

25

30

35

40

45

50

55

60

65