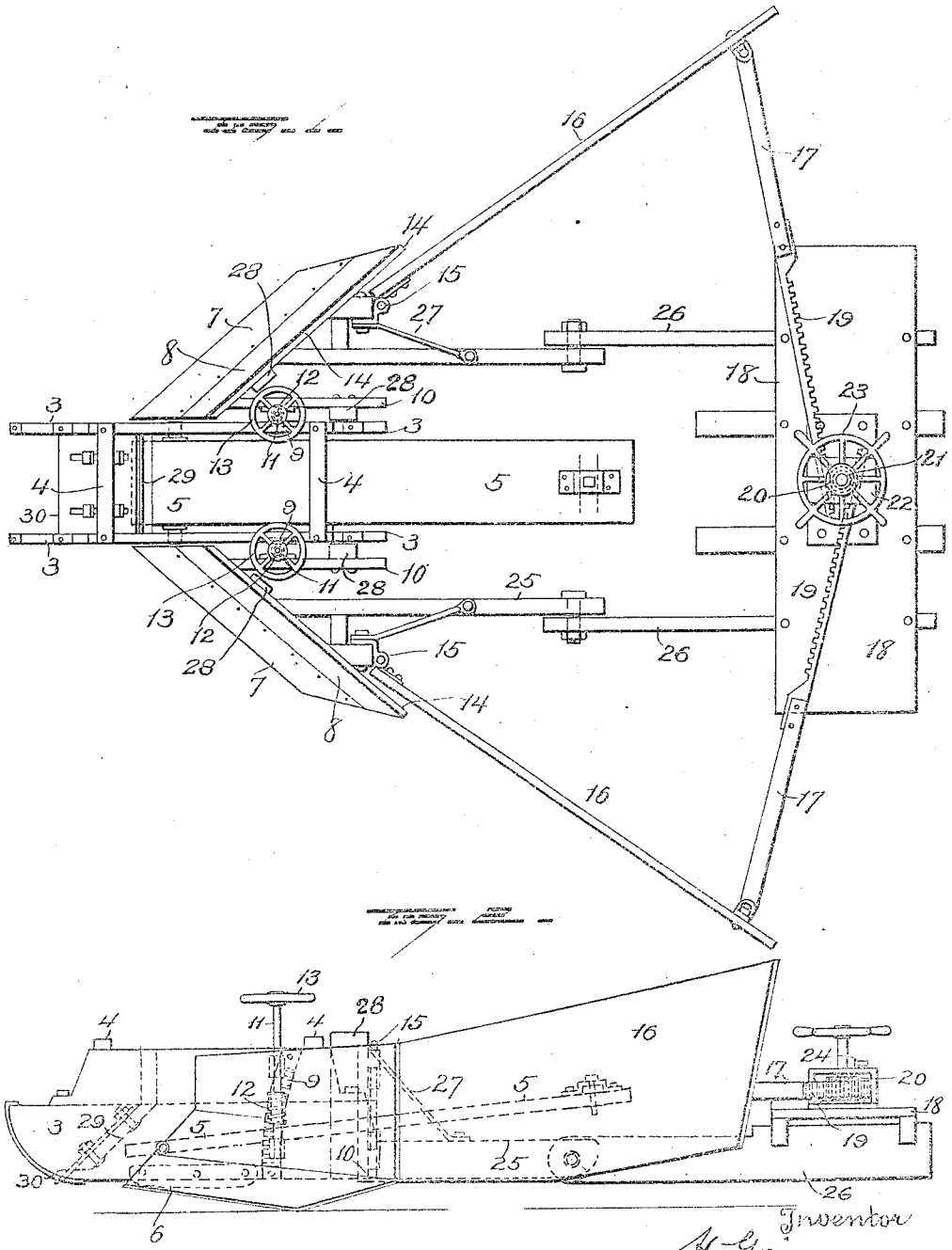
Sept. 16, 1924. 1,508,786

H. GRIMES

APPARATUS FOR REMOVING SNOW FROM ROADS AND STREETS

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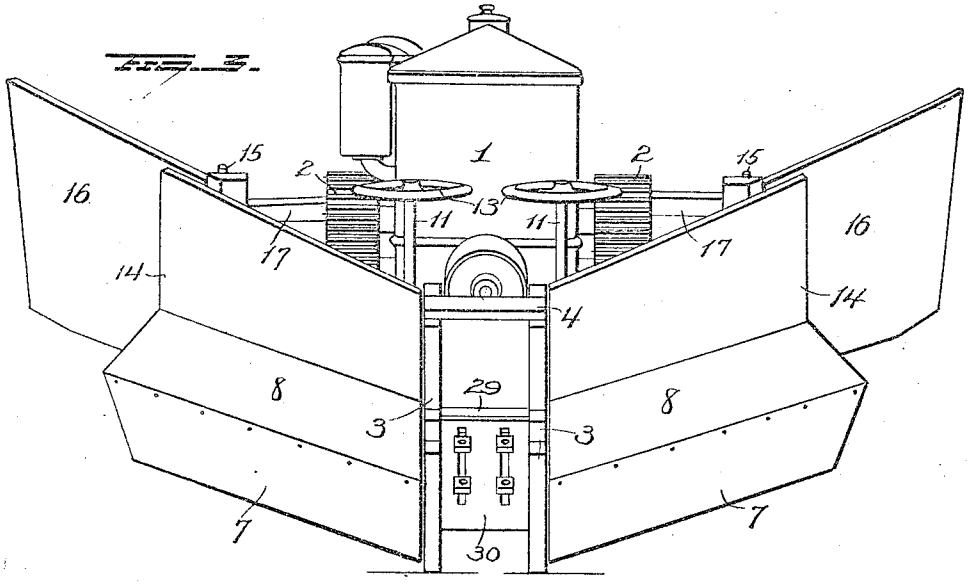
Inventor
H. Grimes
By Seymour & Bright
Attorneys

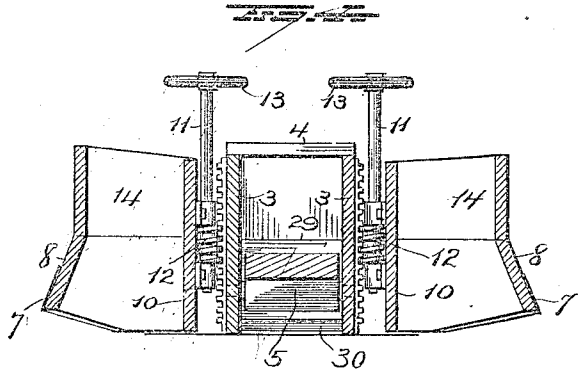
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UNITED STATES PATENT OFFICE.

HOWARD GRIMES, OF TICONDEROGA, NEW YORK.

APPARATUS FOR REMOVING SNOW FROM ROADS AND STREETS.

Application filed April 18, 1923. Serial No. 632,904.

To all whom it may concern:

Be it known that I, HOWARD GRIMES, a citizen of the United States, and resident of Ticonderoga, in the county of Essex and State of New York, have invented certain new and useful Improvements in Apparatus for Removing Snow from Roads and Streets; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to apparatus for removing snow from roads and streets and has for its object the provision of a snow plow which may be coupled to a tractor or motor vehicle and pushed over a road in advance of the propelling vehicle. The invention seeks to provide a snow plow which will not easily skid or turn aside from a prescribed path but will follow a course determined by the steering of the motor vehicle. The invention also comprehends means for vertically adjusting the plow and reducing or increasing the spread of the same to meet varying conditions. The invention is illustrated in the accompanying drawings and will be hereinafter fully set forth.

In the drawings, Figure 1 is a plan view of a motor-driven snow plow embodying the invention;

Figure 2 is a side elevation, the tractor being omitted;

Figure 3 is a front end view showing the tractor in place;

Figure 4 is a sectional view through the raising mechanism.

The tractor 1 may be of any well-known or preferred type except that, instead of traction wheels, it is equipped with the endless traction treads 2 to facilitate its travel over roads of all conditions. In advance of the tractor, I arrange a pair of runners 3 connected by cross bars 4 and having hinged thereto a push bar 5 which extends rearwardly and is hingedly coupled to the front end of the tractor in any convenient manner. Obviously, the runners will pass over the surface of the road when the tractor is driven and, as the tractor is steered in the usual manner, the runners may be readily caused to take a desired path and follow the road. They are equipped at their lower edges, however, with rudder blades 6 so that they will not turn aside when encountering snow drifts or hard ice, the blades depending below the lower edges of the runners so as to penetrate the surface over which the machine is moving sufficiently to counteract any tendency to skid. A plow is disposed at the outer side of each runner and consists of a blade 7, preferably a steel plate, and a moldboard 8 along the front edge of which the blade is secured. The plow is mounted in such a manner that its rear edge is higher than its front edge and it inclines rearwardly in the direction of its length so that it readily scrapes the snow from the road and turns aside the loose snow thus taken up. On the outer sides of the runners in rear of the plows are vertically disposed racks 9 and extending rearwardly from the plows at the inner ends thereof are beams 10 on which are journaled vertical shafts 11 having worms 12 thereon meshing with the respectively adjacent racks whereby the plows may be adjusted vertically. The shafts 11 are equipped with hand wheels 13 at their upper ends to facilitate their manipulation.

From the rear edges of the mold boards rise deflectors 14 which turn aside the snow scraped up by the plows and prevent it from passing over onto the tractor or any of the parts associated therewith, and thence returning to the roadbed. Vertically disposed pintles 15 are provided at the outer ends of the deflectors and wings 16 are hingedly mounted at their front ends on said pintles, holding bars 17 being pivoted to the inner sides of the wings, near the rear ends thereof, and extending inwardly therefrom over a platform 18 which is disposed in rear of the tractor and is coupled thereto. The inner ends of the holding bars or braces 17 are formed into or provided with rack bars 19 which pass on opposite sides of and mesh with a pinion 20 on the lower end of a vertical shaft 21 mounted in a box 22 on the platform at the center thereof, a hand wheel 23 being provided on the upper end of the shaft, as clearly shown. Rotation of the shaft will obviously shift the holding bars or braces 17 inwardly or outwardly and thereby spread the wings to any desired extent so that the snow will be turned aside to form a path or road of any width. A locking pin 24 is mounted in the box 22 and adapted to engage the pinion 20 to hold the same in a set position and thereby maintain the adjustment of the wings.

Extending rearwardly from the plows at about the centers thereof, are beams or

coupling bars 25 which are pivoted at their rear ends to the front ends of bars 26 which carry the platform 18 and project forwardly therefrom, relative vertical movement of the plows and the platform being thus permitted so that the machine may accommodate itself to possible inequalities in the roadbed. The beams or bars 25 are also connected with plows by obliquely disposed braces 27 so that the machine is reinforced sufficiently to effectually withstand the strain imposed thereon by large drifts or snow banks. Between the beams 10 and the runners 3, blocks 28 are secured on the rear sides of the plows and these blocks are covered with metal. The front end of the tractor lies close to these blocks and, in turning, will bear against them and support the plow and facilitate the turning of the same.

The runners travel ahead of the tractor and independently thereof so that the plows will work smoothly. Should the tractor strike soft snow, it sinks until it reaches a hard surface by the push bar, being hinged at both ends, freely adjusts itself to conditions so that the plow-carrying runners will travel smoothly, the formation of undulations in the road will be avoided, and a smooth bed for traffic will be provided.

To guard against the crowding of snow backwardly between the runners 3, I locate between the forward portions of said runners, a guard board 29 and to this board, a blade 30 is adjustably secured for the purpose of breaking frozen crust and ice.

Having fully described my invention what I claim as new and desire to secure by Letters Patent is:—

1. The combination of runners, means for coupling the runners to a tractor to travel in advance thereof, plows carried by the runners, and blocks adjacent the rear ends of the runners against which the front end of the tractor may abut.

2. The combination of runners, means for coupling the runners to the front of a motor vehicle, plows carried by the runners, a platform to be coupled to the rear of the motor vehicle, and vertically flexible couplings between the plows and the platform.

3. The combination of a pair of runners, a rearwardly and upwardly extending guard secured between the runners, a blade adjustably secured upon the guard, plows secured to the outer sides of the runners, wings hinged to the rear ends of the plows, a platform, vertically-foldable connections between the runners and the platform, means carried by the platform and the wings for laterally adjusting the wings, and means for coupling the runners and the platform to a motor vehicle arranged between them.

In testimony whereof, I have signed this specification in the presence of two subscribing witnesses.

HOWARD GRIMES.

Witnesses:

MARTHA K. HUMPHREY,

ISABEL SHEEHY.