

J. E. PILLIONNEL & L. CHERPIT.

SNOW PLOW.

APPLICATION FILED MAY 16, 1910.

990,002.

Patented Apr. 18, 1911.

2 SHEETS—SHEET 1.

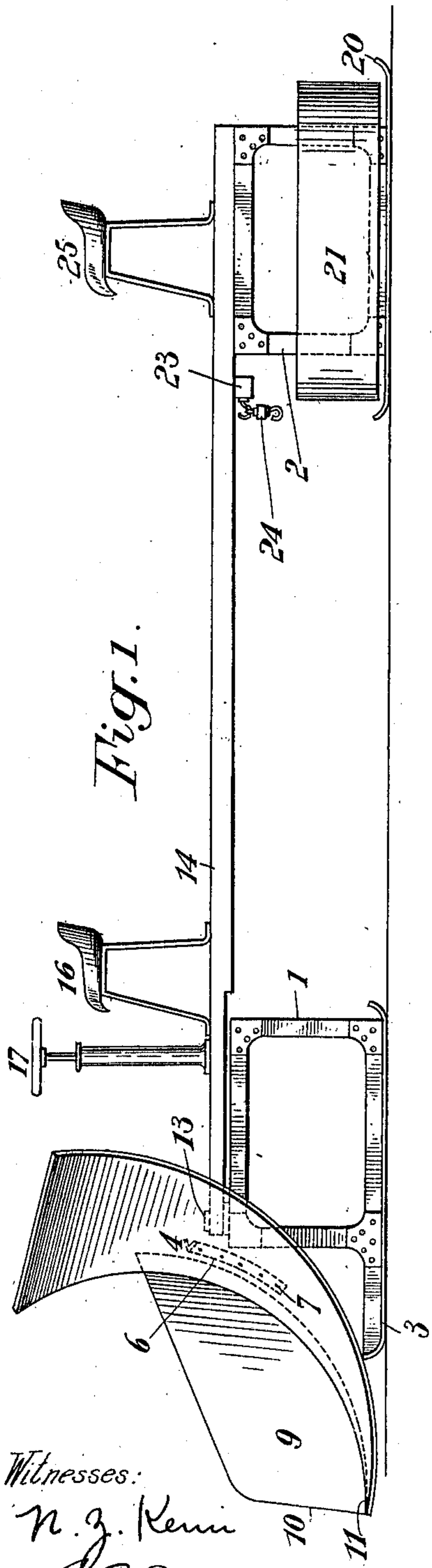


Fig. 1.

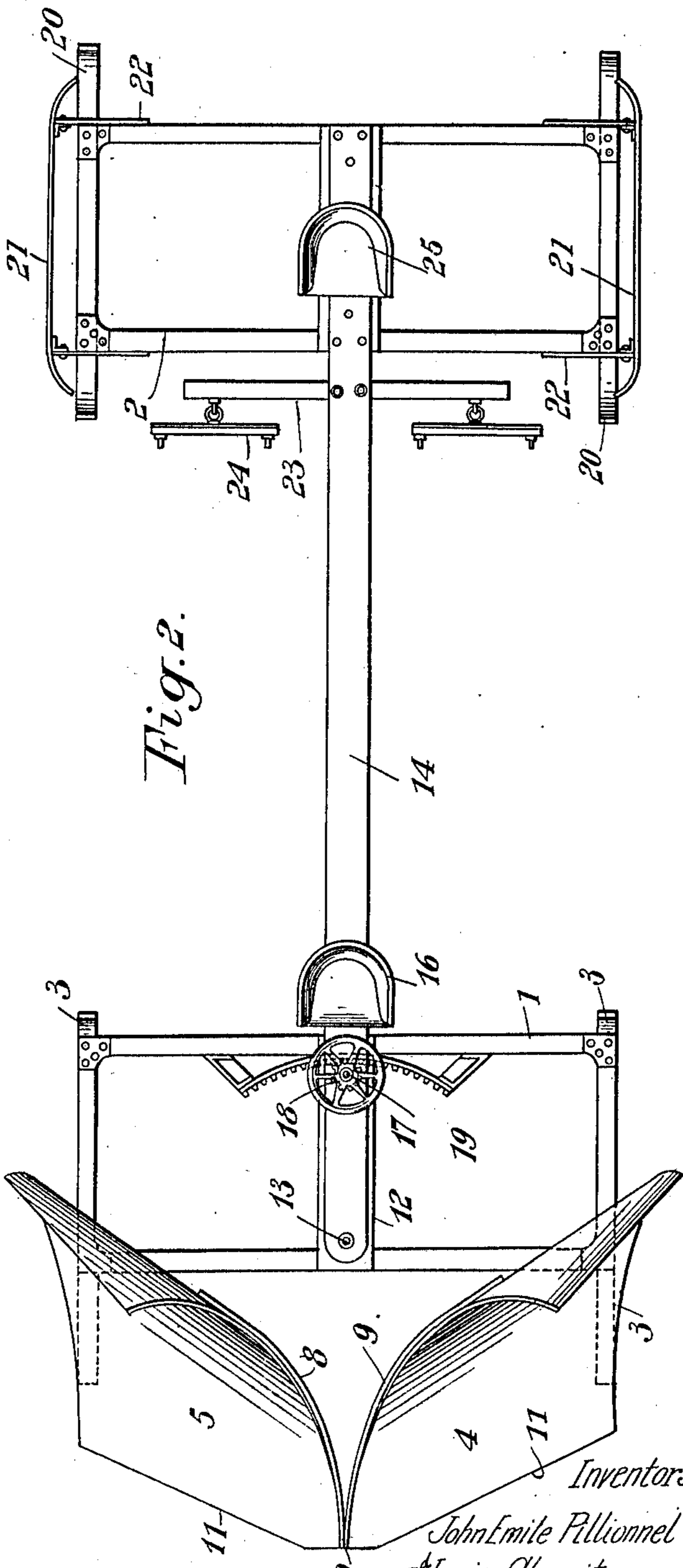


Fig. 2.

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2 SHEETS—SHEET 2.

Fig. 4.

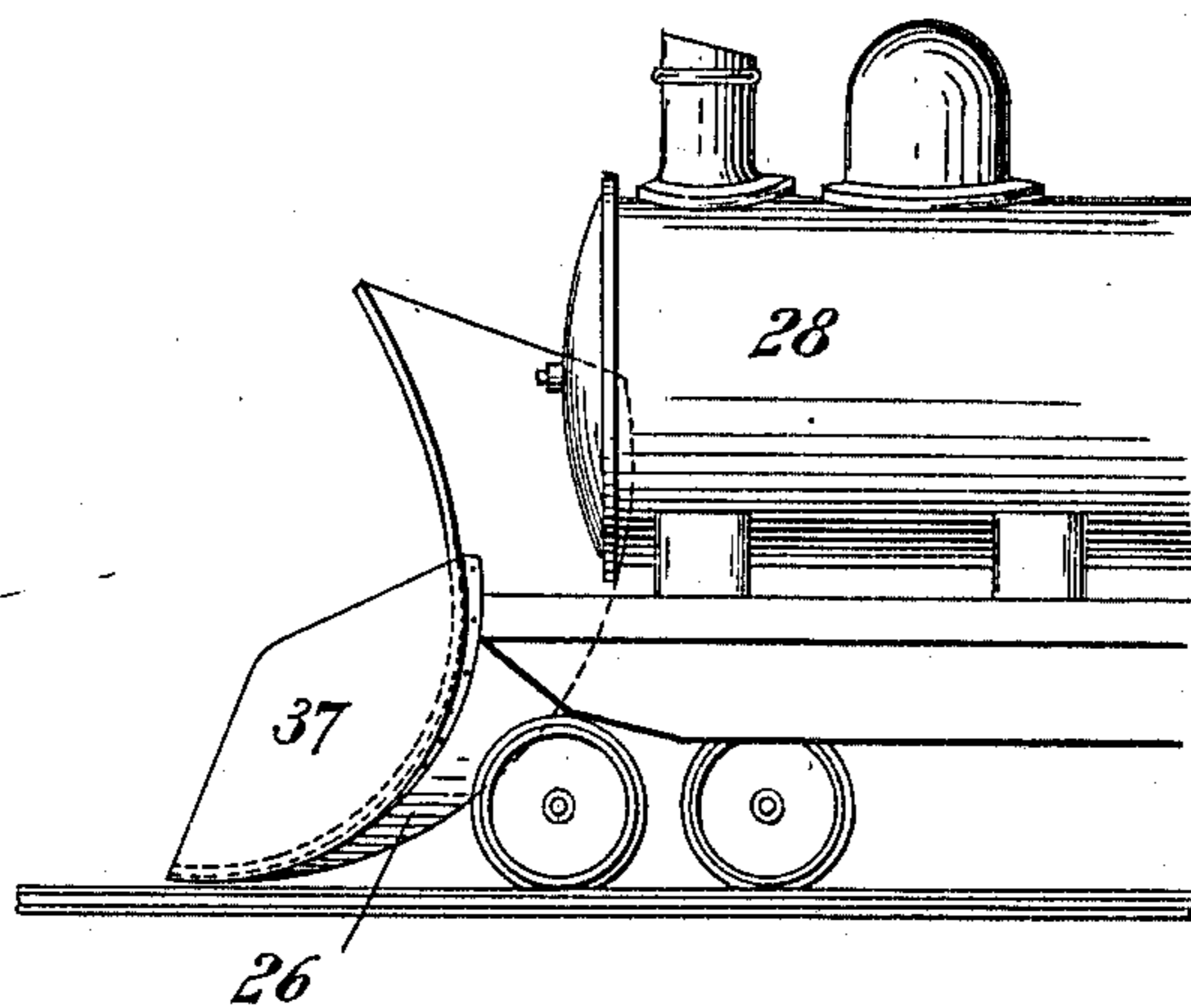


Fig. 3.

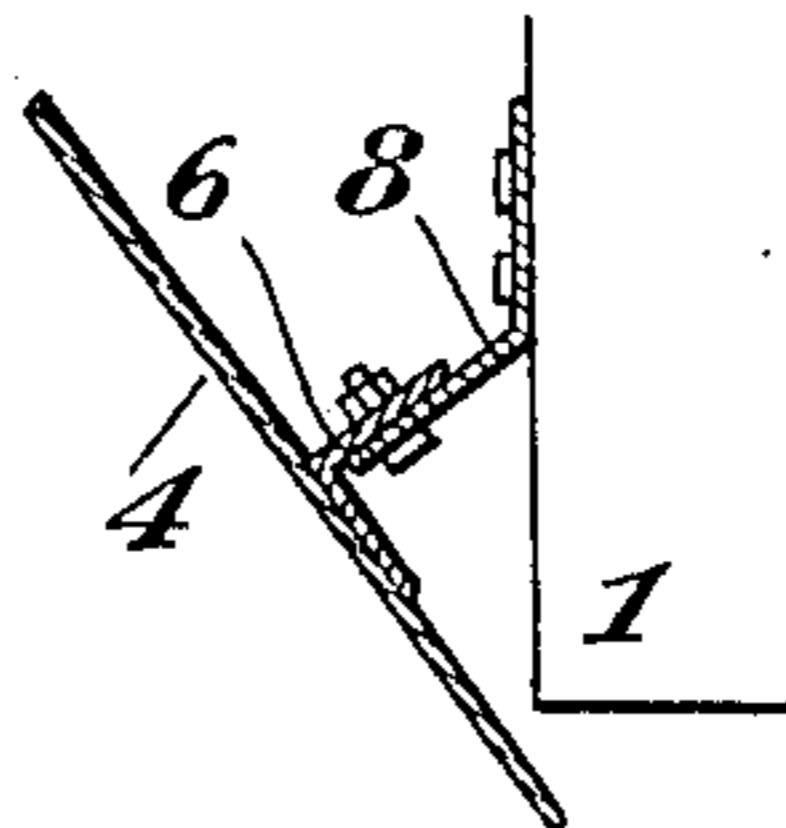
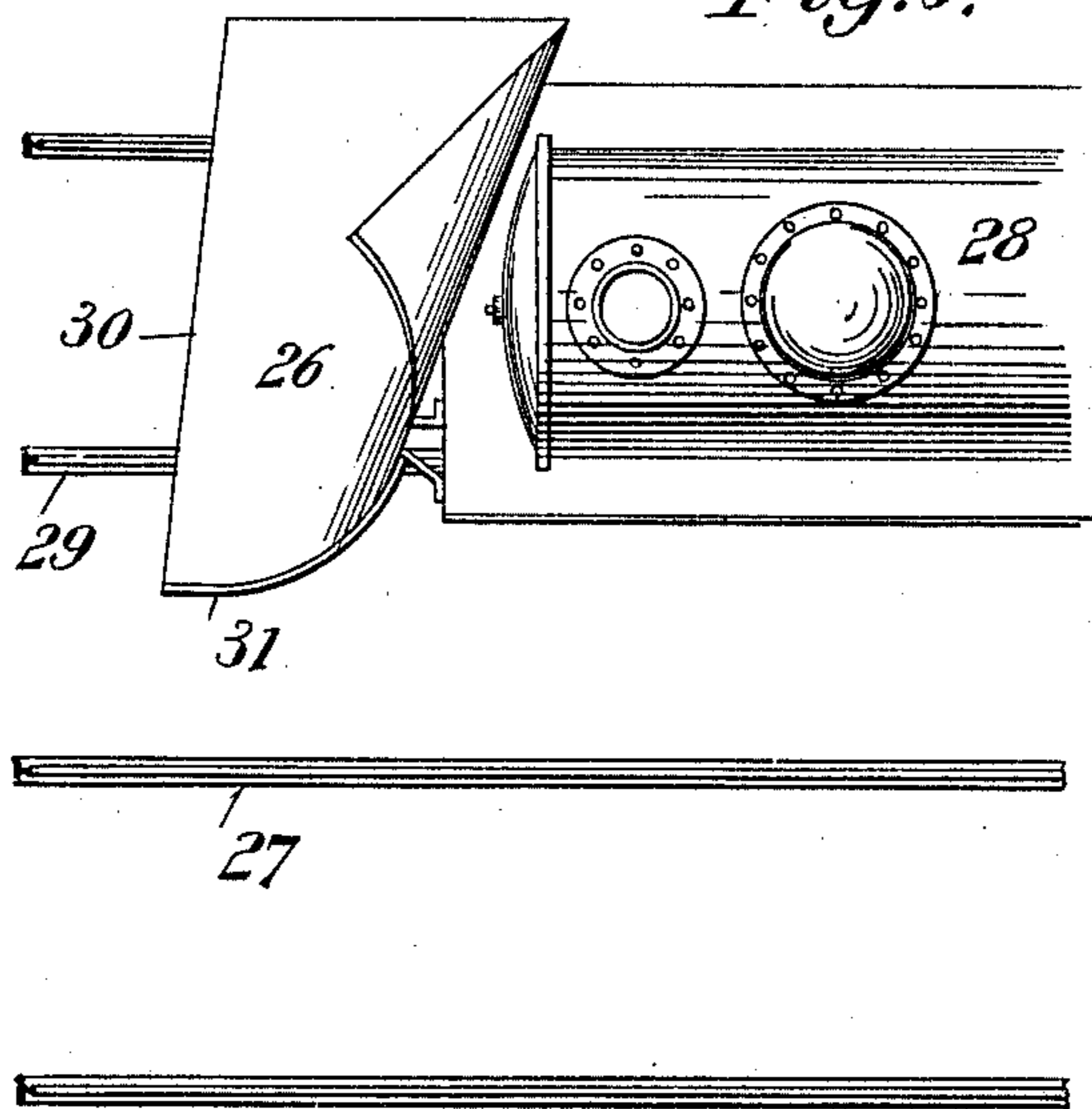


Fig. 5.



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UNITED STATES PATENT OFFICE.

JOHN EMILE PILLIONNEL, OF LA CHAUX DE FONDS, AND LOUIS CHERPIT, OF NYON, SWITZERLAND.

SNOW-PLOW.

990,002.

Specification of Letters Patent.

Patented Apr. 18, 1911.

Application filed May 16, 1910. Serial No. 561,589.

To all whom it may concern:

Be it known that we, JOHN EMILE PILLIONNEL and LOUIS CHERPIT, both citizens of the Swiss Republic, and residents of La Chaux de Fonds and Nyon, Switzerland, respectively, have invented certain new and useful Improvements in Snow-Plows, of which the following is a specification.

This invention relates to a snow plow the snow removing member of which is formed by a helical surface removing the snow from the bottom and throwing it sidewise by causing it to deviate gradually without any shock.

The invention has more especially for its object the application of this member to a vehicle drawn by animal force and intended to remove the snow from the highways and the streets, another object being the application to locomotives and tramway carriages for cleaning railways or tramway tracks.

In the first case, use is made of two snow removing members rejecting the snow to the right and to the left of the vehicle and mounted on the front part of a directing sleigh which is connected by means of a beam with a second sleigh positioned at a certain distance from the first one so as to leave on either side of the said beam the necessary place for the horses used for causing the vehicle to advance. It will be easily understood that owing to this arrangement the horses walk on a soil wherefrom the snow has already been removed, while in the actually employed snow plows in which the horses were attached to the front of the vehicle, and were obliged to walk in the snow to be removed and which may have such a height that it interferes with and sometimes entirely prevents the motions of the horses.

When the snow-plow, which forms the subject matter of this invention is intended to be used for sweeping the snow from railway or tramway tracks, only one helical surface adapted to throw the snow sidewise and this on the side opposite to the second track, is applied to the front of the locomotive or the tramway carriage. As a matter of fact if two helical surfaces were used, the snow would be thrown on the second track which could be a serious drawback. For single track lines one may make use of the

snow plow with two helical surfaces rejecting the snow on either side of the track. 55

The accompanying drawings given by way of example show two forms of embodiment of this snow plow and in these drawings: Figure 1 shows a side elevation view of a snow plow such as used for sweeping the snow from highways and streets. Fig. 2 is the top plan view of same. Fig. 3 shows a detail; Fig. 4 shows the snow plow mounted on a locomotive so as to be able to serve to sweep the double track railroads. Fig. 5 is the top plan view of a part of a two track railroad on one of the tracks of which runs a locomotive provided with the snow plow. 60 65

In the form of embodiment shown by Figs. 1 and 2 the snow plow is composed of two sleighs 1 and 2 of equal height and comprising each a framework made preferably of angle irons connected together by means of flat corner members. The front sleigh 1 which is mounted on runners 3 carries at its front part two helical surfaces 4 and 5 which are arranged in such a manner that their lower front edge be contained in a horizontal plane which is parallel to the soil, the helical surface rising gradually in front of the sleigh stopping at a suitable height. The two surfaces carry each on their rear side an angle iron 6, the projecting flange of which is pierced with holes 7 through which pass the securing bolts which pass on the other hand through corresponding holes provided in an iron plate 8 secured to the front sleigh. In this manner by passing the securing bolts through different holes of the angle iron, one may raise or lower the front edge of the helical surfaces so as to leave on the street or way a layer of snow having the desired thickness. Each of said helical surfaces carries at its lower inner edge a vertical sheet metal plate 8 and 9 respectively, these plates uniting at the front so as to form a knife 10. 70 75 80 85 90 95

As shown more especially by Fig. 2, the front edge of each helical surface is not at right angles to the longitudinal axis of the snow plow, but is directed obliquely backward. This arrangement has for its object to reduce the weight of the snow resting on the outer angle of the lower part of the helical surfaces and which would have a tend- 100 105

ency to lower too much this part which must freely project on a relatively large distance as the carriers of the wings of the snow plow can only be arranged usefully at certain distance behind the edge 11. A central axial cross beam 12 secured to the front sleigh carries hingedly secured to it by means of the vertical working pin 13 which is positioned near the front edge of the sleigh, the front end of the beam 14 the rear end of which is rigidly mounted on the rear sleigh 2 in any desirable manner. The beam carries a little behind the front sleigh a seat 16 intended to receive the driver of the snow plow. In front of this seat and at a suitable distance therefrom a vertical shaft 17 carrying a hand wheel is rotatorily mounted in the beam, the lower end of this shaft being made integral with a pinion 18 meshing with an arc shaped toothed rack 19 which is secured to the rear cross beam of the front sleigh.

The rear sleigh 2 which rests on runners 20 is provided on each side with a vertical guide runner 21 which is secured to the framework of the sleigh 2 by means of the arms 22 which are provided with holes adapted to receive the securing bolts. These arms 22 are provided each with a plurality of securing holes so as to allow of the front and rear ends of the lateral guide runners being adjusted in the transverse direction of the sleigh 2. The front and rear ends of the lateral guide runners 21 are inwardly bent. The beam 14 carries in front of the rear sleigh 2 a cross tree 23 from the ends of which the swingle trees 24 are suspended in the well known manner, these swingle trees being intended to put the horses to. The rear sleigh carries on its top a seat 25 secured to the beam and intended to receive the horse drivers.

The working of this snow plow, the driving of which only requires two men and two horses, will be easily understood. The snow plow, when advancing under the pulling action of the horses will raise the layer of snow which will present itself in front of the wings of the snow plow and throw it to the right and the left digging in the layer of snow a furrow having more or less vertical walls. The rear sleigh 2 exactly follows this furrow, its vertical guide runners 21 having been adjusted so as to apply themselves against the walls of the furrow. Their inwardly bent ends avoid any sticking into the wall of the furrow during the motion of the vehicle. When for directing purposes the driver seated on seat 16 actuates the hand wheel so as to give the longitudinal axis of the front part of the vehicle the desired direction the vehicle will follow this new direction owing to the fact that the

rear part of the vehicle is prevented by the guide runners 21 bearing against the walls of the furrow from swinging about or from deviating laterally which would occur with certainty, if the guiding of the rear part of the snow plow were not ascertained in such a sure manner.

The snow plow intended for use on railroads and tramways and shown by Figs. 4 and 5 only comprises one snow lifting wing, having a helical surface 26, as already stated above, the incline of this surface being directed toward the embankment and not toward the other track 27. The said wing is mounted on the front part of the locomotive 28 and thus extends as shown by Fig. 5, over the entire width of the track 29. Its front edge 30 is also directed rearwardly so as to avoid the lowering of the outer lower part of the wing 26 under the load of snow which will rest thereupon during the work of the apparatus. The wing 26 is provided at the edge which is neighboring the second track with a vertical cutter 31 the part of which is similar to that played by the cutter 10 of the first form of embodiment described.

It will be easily understood that the wing 26 of the snow plow instead of being secured directly to the front part of the locomotive, which from a practical point of view would perhaps be liable to raise difficulties, may also be carried by a truck preceding the locomotive. It might be useful to state that the helical wings might be mounted also to the front of any vehicle such as locomotive, motor car, carriage, and in general any vehicle provided with wheels or runners, pushed or pulled by hand or by animals or still actuated by one or more motors of any suitable kind.

Having now fully described our said invention, what we claim and desire to secure by Letters Patent, is:—

1. In a snow plow, the combination with a vehicle, of a plurality of snow clearing wings secured thereto, said wings being helically bent and so positioned that a continuous scooping of the snow by said wings will instantaneously and continuously guide the snow outwardly, as set forth.

2. In a snow plow, the combination of a front sleigh, with a rear sleigh, a beam securing said sleighs together, wings secured to the front sleigh, and a vertical guide runner adjustably secured to each side of said rear sleigh, said guide runners being parallel with said beam and having their extremities deflected inwardly, for the purposes herein set forth.

3. In a snow plow, the combination with a vehicle, a plurality of helically bent wings so carried by said vehicle that the snow

scooped up thereby will instantaneously and continuously be carried outwardly clear of the path of the vehicle, and a plurality of vertical plate members carried by said wings
5 and converging forwardly and forming a vertical knife adapted for the purposes herein set forth.

In testimony whereof we have hereunto set our hands in presence of two witnesses.

JOHN EMILE PILLIONNEL.

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Witnesses:

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L. H. MUNIER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents
Washington, D. C."
