Mar. 20, 1923. 1,449,259

M. BELTRAMI

SNOW REMOVING DEVICE

Filed Apr. 2, 1921 3 sheets-sheet 1

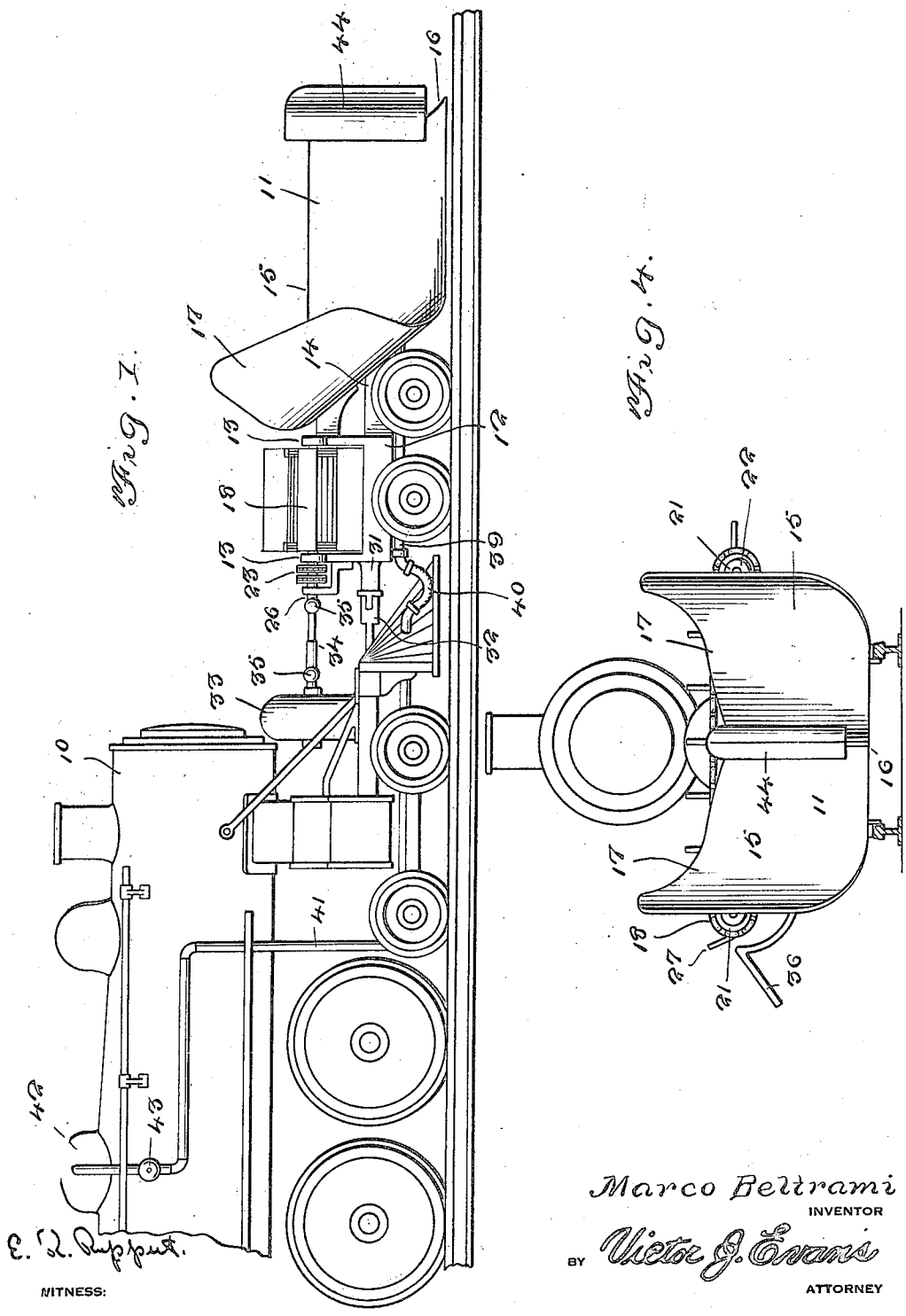


Fig. 1.

Fig. 4.

Marco Beltrami
INVENTOR

BY Victor J. Evans
ATTORNEY

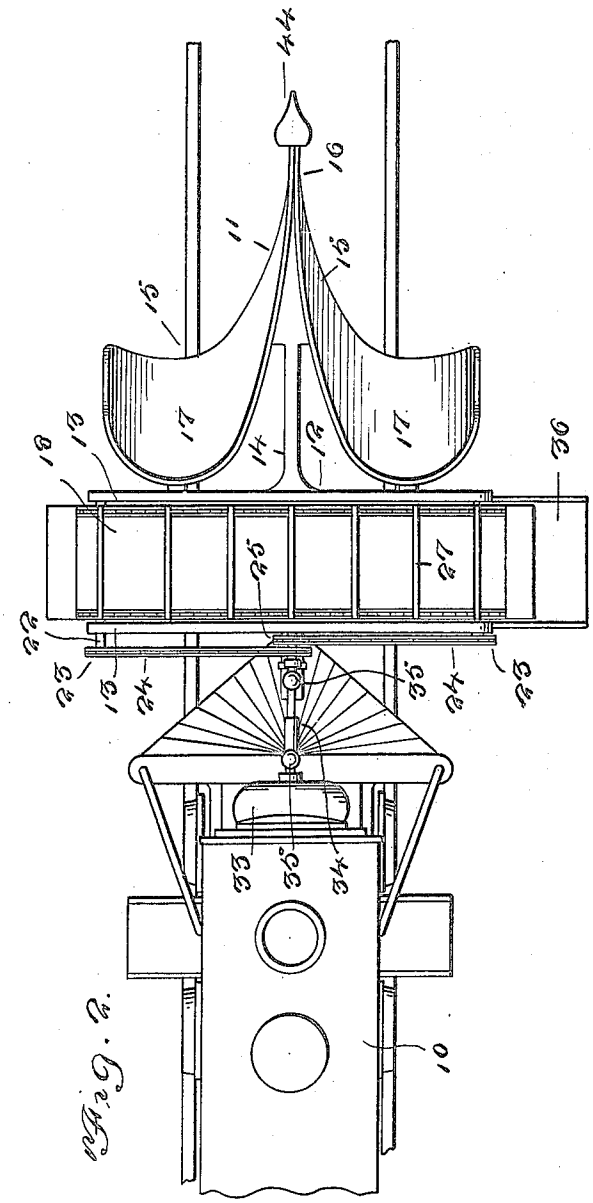
WITNESS:

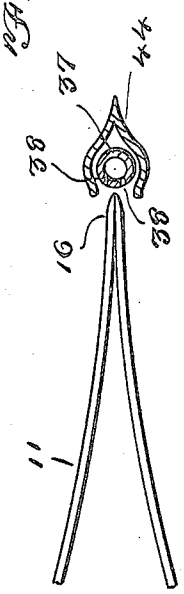
Mar. 20, 1923. 1,449,259

M. BELTRAMI

SNOW REMOVING DEVICE

Filed Apr. 2, 1921 3 sheets-sheet 2





E. R. Ruppert.

WITNESS:

Marco Beltrami

INVENTOR

BY Victor J. Evans

ATTORNEY

Mar. 20, 1923. 1,449,259

M. BELTRAMI

SNOW REMOVING DEVICE

Filed Apr. 2, 1921 3 sheets-sheet 3

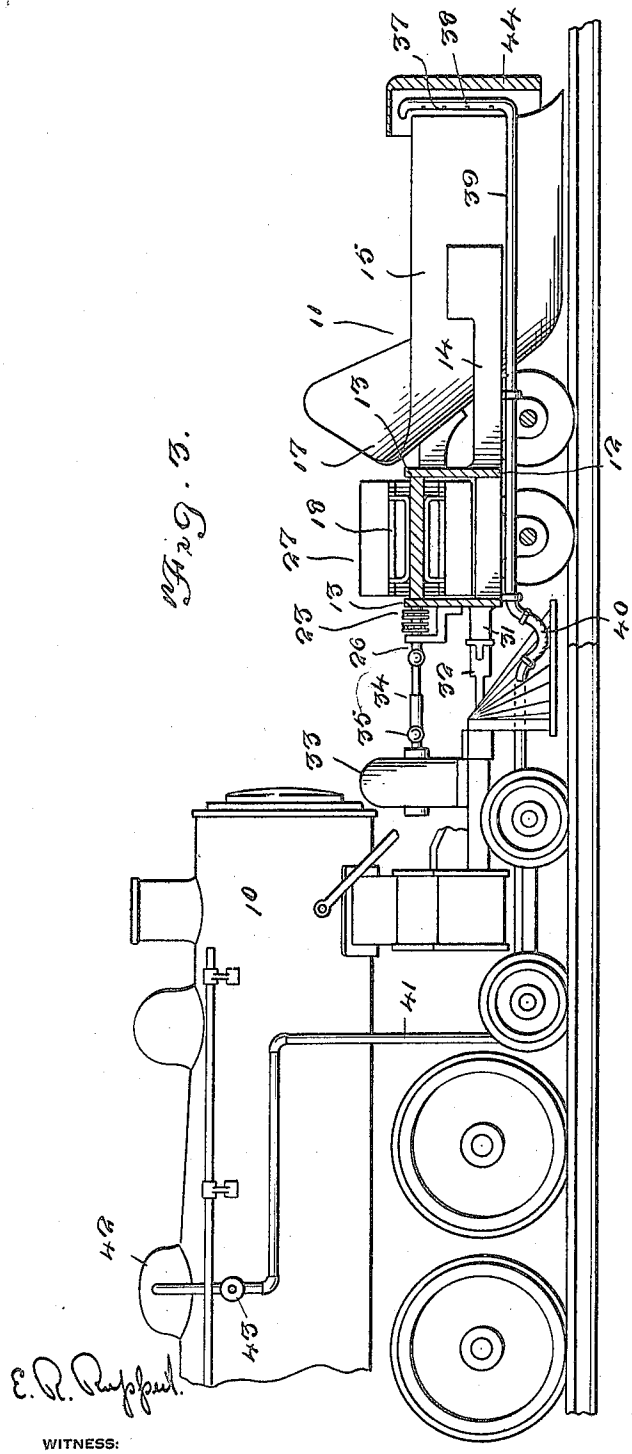


Fig. 5.

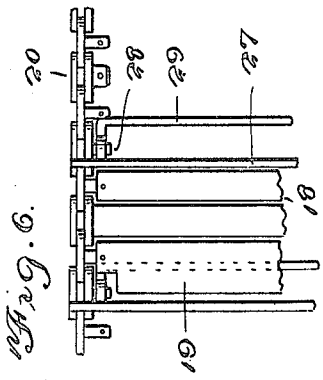


Fig. 6.

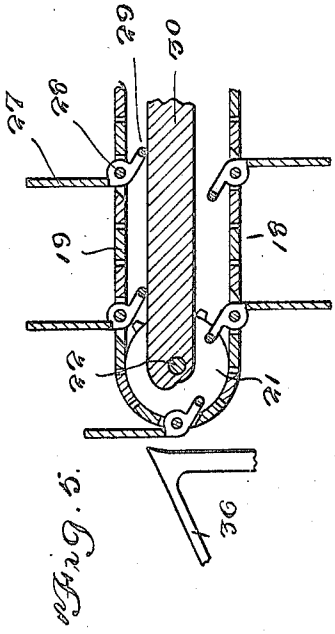


Fig. 5.

E. R. Ruppert

WITNESS:

Marco Beltrami

INVENTOR

BY Victor J. Evans

ATTORNEY

Patented Mar. 20, 1923. 1,449,259

UNITED STATES PATENT OFFICE.

MARCO BELTRAMI, OF FRAMINGHAM, MASSACHUSETTS.

SNOW-REMOVING DEVICE.

Application filed April 2, 1921. Serial No. 458,001.

To all whom it may concern:

Be it known that I, MARCO BELTRAMI, a citizen of the United States, residing at Framingham, in the county of Middlesex and State of Massachusetts, have invented new and useful Improvements in Snow-Removing Devices, of which the following is a specification.

This invention relates to snow plows adapted to be positioned in front of a locomotive for the purpose of removing the snow from the tracks and depositing it upon one side thereof.

Another object of the invention is the provision of a snow plow of this character in which steam from the locomotive is utilized for the purpose of softening and breaking up the snow and ice, to facilitate its removal from the track.

Other objects and advantages of the invention will appear as the following description is read in connection with the accompanying drawings.

In the drawings:—

Figure 1 is a side elevation of a portion of a locomotive showing the application of the invention.

Figure 2 is a top plan view of the same.

Figure 3 is a view similar to Figure 1 with the plow shown in section.

Figure 4 is a front elevation.

Figure 5 is a fragmentary section taken longitudinally of the conveyor.

Figure 6 is a fragmentary plan view of the conveyor.

Figure 7 is a fragmentary plan view of the forward portion of the plow showing the steam nozzle and its protecting shoe in horizontal section.

Referring in detail to the drawings, wherein like characters of reference denote corresponding parts, the reference character 10 indicates a portion of a locomotive to which the plow 11 is shown as attached.

This plow includes a body 12 which comprises spaced parallel members or beams 13, which are suitably connected together and through which extends a forwardly projecting arm 14 which is designed to support a pair of forwardly extending wings 15. These wings are connected together at their forward ends as at 16 and are curved rearwardly and outwardly so as to provide an upwardly and rearwardly extending trough 17.

Located at the rear of this trough and extending transversely of the plow in front of the locomotive is an endless conveyor 18. This conveyor is formed of a plurality of plates or bars 19 which are connected at each end to chains 20, the latter passing over sprockets 21. The sprockets 21 are mounted upon shafts 22, which also have secured thereon sprockets 23, the latter being connected by means of chains 24 to sprockets 25, which are mounted upon a central shaft 26, so that an operation of this last mentioned shaft will operate the conveyor. The conveyor is divided into trough-like compartments through the medium of blades 27, the latter being pivotally mounted as shown at 28 and provided with inwardly extending arms 29, which bear upon and travel over a member 30 arranged within the conveyor and mounted upon the shafts 22. By this means the blades 27 are held in vertical position during the travel along the upper flight of the conveyor, the arms 29 being so disposed as to resist pivotal movement in a direction opposite to the direction of travel.

The plow is connected to the locomotive through the medium of a coupling member 31, which is adapted for connection to a coupling member 32 usually provided at the front of a locomotive.

In order to provide for the operation of the conveyor, the locomotive carries a motor 33 which may be driven by any suitable power, such as electricity or through the medium of steam supplied from the boiler. The shaft of this motor is connected to the shaft 26 through a slip joint 34, while at each end of the slip joint there is provided a universal joint 35, so that relative movement of the locomotive and plow will be compensated for.

In the operation of the plow, the snow upon the track will be forced upward along the troughs 17 and deposited upon the conveyor within the trough-like compartments provided between the blades 27, whereupon the conveyor will move the snow to one side of the plow and direct it through a chute 36 to one side of the track, the mounting of the blades permitting the latter to readily pass downward between the end of the conveyor and the adjacent end of the chute.

For the purpose of more readily breaking up the snow and ice in the event of the same being tightly packed, the invention

provides means for supplying steam to the front end of the plow to act upon the snow and ice. To accomplish this there is provided a nozzle 37 which is disposed vertically in front of the wings 15 and is provided with spaced openings 38 for directing jets of steam upon opposite sides of the point 16 of the wings. This nozzle is located at one end of a steam pipe 39 which has a flexible connection 40 with a pipe 41. This last mentioned pipe is connected to the steam supply at any desired point, for example, the steam dome 42 of the locomotive and is provided with a valve 43 by means of which the supply of steam may be regulated. At the forward extremity of the plow there is provided a shoe 44 which encloses the nozzle 37 so as to protect the latter.

The invention is susceptible of various changes in its form, proportions and minor details of construction and the right is herein reserved to make such changes as properly fall within the scope of the appended claims.

Having described the invention what is claimed is:—

1. A snow plow comprising a forwardly extending arm terminating in a wedge-shaped portion, a pair of wing-plates secured to opposite sides of the wedge-shaped portions, the forward ends of said plates converging together to form a point and the rear ends of the plates being curved to provide upwardly inclined troughs, and a conveyor positioned adjacent the rear ends of the troughs to receive the snow discharged therefrom.

2. A snow plow comprising a plow member presenting a vertically disposed cutting edge, a vertically disposed nozzle mounted directly in front of and parallel to said cutting edge, said nozzle being formed with a vertical series of openings, and means for supplying steam thereto.

3. A device as recited in claim 2 including a protecting shoe fitting over the said nozzle.

4. A device as recited in claim 3 including a protecting shoe fitting over said nozzle and provided with a forwardly directed cutting edge.

5. In combination, a locomotive, a transversely extending wheeled frame positioned in front of the locomotive and coupled thereto, an arm projecting forwardly from the frame, a pair of oppositely disposed wing-plates carried by the arm, the forward ends of the plates converging together to form a point and the rearwardly diverging ends of the plates being shaped to afford upwardly inclining troughs, a conveyor mounted on the frame adjacent the upper ends of the troughs, a motor carried by the locomotive, and a drive connection between the motor and the conveyor including universal and slip joints arranged to permit necessary relative movement of the parts connected thereby.

In testimony whereof I affix my signature.

MARCO BELTRAMI.