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D. BOORMAN, A. P. SHARP & J. O'NEIL.

APPARATUS FOR REMOVING SNOW.

(No Model.) (Application filed Nov. 2, 1897.)

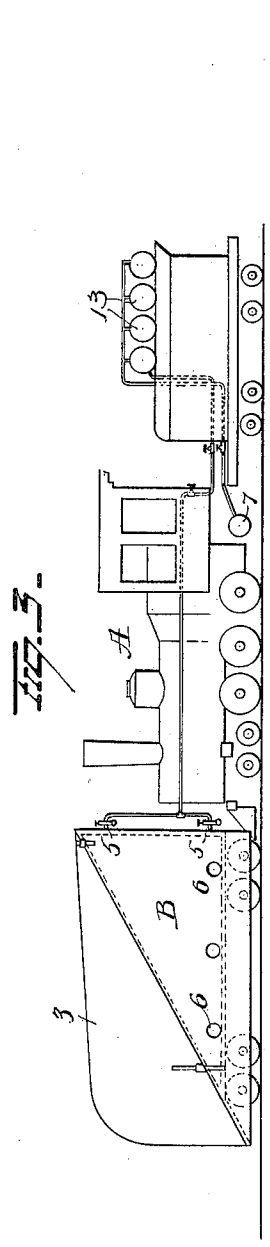


Fig. 3.

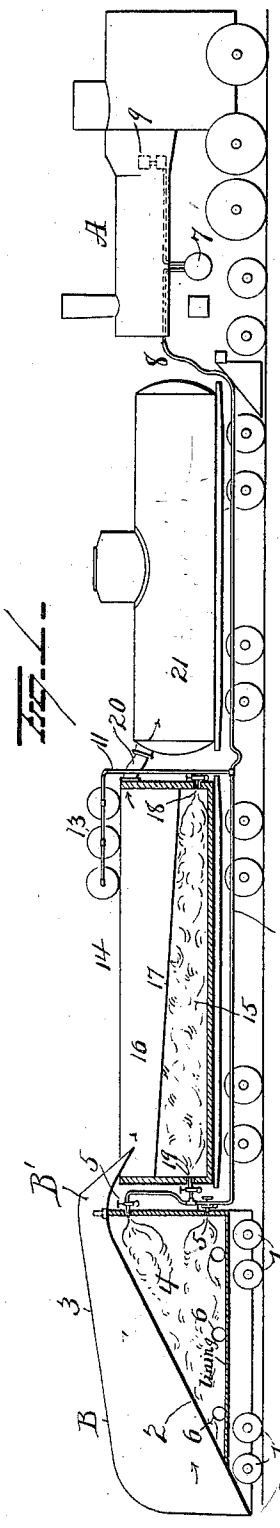


Fig. 1.

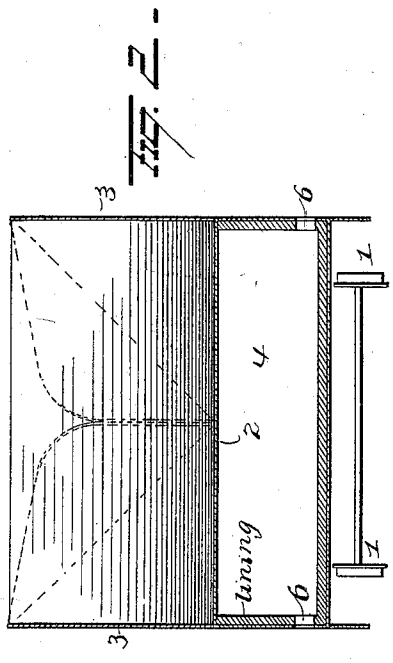


Fig. 2.

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UNITED STATES PATENT OFFICE.

DAVID BOORMAN, ALBERT P. SHARP, AND JOHN O'NEIL, OF ALTOONA, PENNSYLVANIA.

APPARATUS FOR REMOVING SNOW.

SPECIFICATION forming part of Letters Patent No. 608,827, dated August 9, 1898.

Application filed November 2, 1897. Serial No. 657,224. (No model.)

To all whom it may concern:

Be it known that we, DAVID BOORMAN, ALBERT P. SHARP, and JOHN O'NEIL, residents of Altoona, in the county of Blair and State of Pennsylvania, have invented certain new and useful Improvements in Apparatus for Removing Snow; and we 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.

Our invention relates to an improvement in apparatus for removing snow, the objects of the invention being to provide simple and efficient means whereby to remove snow from railroad-tracks or other places and at the same time destroy the snow—viz., convert it into water—and also to provide means whereby the water can be carried away.

With these objects in view the invention consists in certain novel features of construction and combinations and arrangements of parts, as hereinafter set forth, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view illustrating our invention. Fig. 2 is a cross-section on the line *x x* of Fig. 1. Fig. 3 is a view of a modification.

In the accompanying drawings we have shown our improvements as applied to a steam-railroad train and adapted to remove snow from cuts in the road or to remove drifts of snow; but it will be understood that our invention is equally as adaptable for use in removing snow from street-railroads and cars propelled by horse, electric, or other power, and also to remove snow from streets or roadways, and, in fact, by slight modifications as to size, trucks, &c., to remove snow from sidewalks or other places where snow may accumulate.

A represents an ordinary steam-locomotive, and B our improved wedge or plow, preferably mounted on suitable wheels 1, adapted to run on the railroad-tracks. The front inclined portion 2 of the wedge or plow is preferably composed of a sheet or plate of copper, and the space which said sheet or plate incloses constitutes a combustion-chamber 4 for fuel, the rear, side, and bottom of which are preferably lined with asbestos, fire-brick, or similar fireproof material. The wedge B is provided with sides 3, adapted to confine the snow upon the heated plate 2, by which it will be melted, said wedge being pushed gradually into the snow drift or pile which it is desired to remove. In places where the snow is shallow the sides 3 (which are hinged) may be swung to center, so that the apparatus can be used only as a plow without melting the snow.

Our improved wedge may be heated in any desired manner; but we prefer to heat it by means of oil-burners 5, which may be located at the rear end of the combustion-chamber 4, so as to inject the liquid fuel thereinto, as shown in the drawings, or said burners may be located at the sides or bottom of said combustion-chamber, if desired. The combustion-chamber may be provided with holes 6 for the admission of air to assist in supporting combustion, and a suitable amount of air will be mixed with the oil from a suitable air-drum 7, located on the locomotive, as shown in Figs. 1 and 3. The air may be made to pass under pressure through pipes 8 by means of an air-pump 9, located on the locomotive, and said pipes are made to communicate with pipes 11 and 12, through which oil is conducted from suitable oil-reservoirs 13. The oil-reservoirs may be located in any desired position. For instance, they may be located on the tender of the locomotive, as shown in Fig. 3, or they may be located on a specially-constructed car 14 in rear of the wedge B. The car 14 is made in the form of a tank and is divided into two compartments 15 and 16 by a copper plate 17, so disposed as to incline rearwardly. The lower compartment 15 constitutes a combustion-chamber provided at its respective ends with burners 18 19, which communicate with the pipes 11 12.

The upper end of the wedge B is made with a spout B′, adapted to discharge into the upper compartment 16 of the tank, so that snow which has been melted to a greater or less extent in its passage over the hot plate of the wedge will fall into said compartment 16 and be wholly melted by the heat therein. The water resulting from the melted snow in the compartment 16 of the tank will become highly heated, so that as snow is continuously

discharged into said compartment it will be promptly melted. When the compartment 16 becomes filled with water, it will pass off through an overflow-pipe 20, located at its rear end, and flow into a receptacle 21, which, as shown in Fig. 1, may be an ordinary oil-car. If desired, several such cars may be employed, so that the water resulting from the melted snow can be carried off to any desired point and discharged. Instead of thus conveying the water from the place on the road where the snow is removed from the track and melted to a distant point in oil-cars, the tank-car and the oil-car may both be omitted and the water resulting from the melting of the snow by the hot wedge may be allowed to run into the gutter by the side of the road and thus be permitted to run off.

Numerous slight changes might be made in the details of construction to render our improvements adaptable to the particular place where it is desired to use them without departing from the spirit of our invention or limiting its scope, and hence we do not wish to limit ourselves to the precise details herein set forth.

Our improvements are simple in construction, comprise comparatively few parts, and are effectual in all respects in the performance of their functions.

Having fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In an apparatus for removing snow, the combination with a wedge, burners for heating the same and a vehicle, of oil-receptacles carried by the vehicle and communicating with said burners and means also carried by the vehicle for supplying air to the burner, substantially as set forth.

2. In an apparatus for removing snow, the combination with a wedge and means for keeping its upper sloping surface heated, of a receptacle in rear of said wedge and into which said wedge is adapted to discharge and means for heating said receptacle, substantially as set forth.

3. In an apparatus for removing snow, the combination with a wedge, of a receptacle in rear of said wedge and into which said wedge discharges, means for heating said receptacle and a receptacle for water communicating with said heated receptacle, substantially as set forth.

4. In an apparatus for removing snow, the combination with a wedge, of a receptacle in rear of said wedge and divided into an upper and a lower compartment, a spout on said wedge and discharging into the upper compartment, said lower compartment forming a combustion-chamber, and means for supplying said combustion-chamber with fuel, substantially as set forth.

5. In an apparatus for removing snow, the combination with a wedge, of a receptacle in rear of said wedge, said receptacle being divided into two compartments by an inclined plate, said wedge being adapted to communicate with the upper compartment of said receptacle, means for supplying the lower compartment with fuel, and a water-receptacle communicating with said upper compartment, substantially as set forth.

6. In an apparatus for removing snow, the combination with a locomotive, of a water-receptacle in front of the said locomotive, a tank in front of the water-receptacle and having a combustion-chamber therein, the upper portion of said tank communicating with said water-receptacle, a wedge in front of the tank and communicating therewith, a combustion-chamber in said wedge, oil-receptacles, burners communicating with the combustion-chambers of the tank and wedge and with said oil-receptacles, and means for forcing oil to said burners, substantially as set forth.

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

DAVID BOORMAN.
ALBERT P. SHARP.
JOHN O'NEIL.

Witnesses:
JOHN O'TOOLE,
THOS. MOORE.