

No. 665,157.

Patented Jan. 1, 1901.

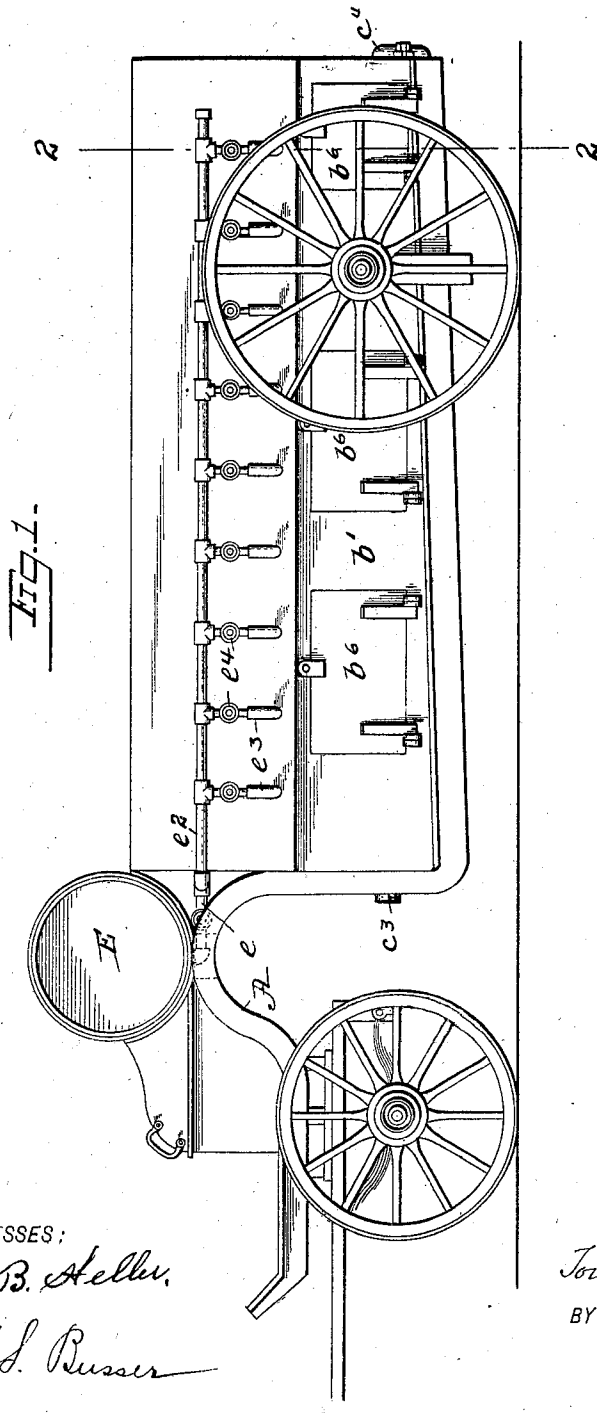
T. ZETELLE.

PORTABLE APPARATUS FOR MELTING SNOW.

(Application filed Mar. 8, 1899.)

(No Model.)

2 Sheets—Sheet 1.



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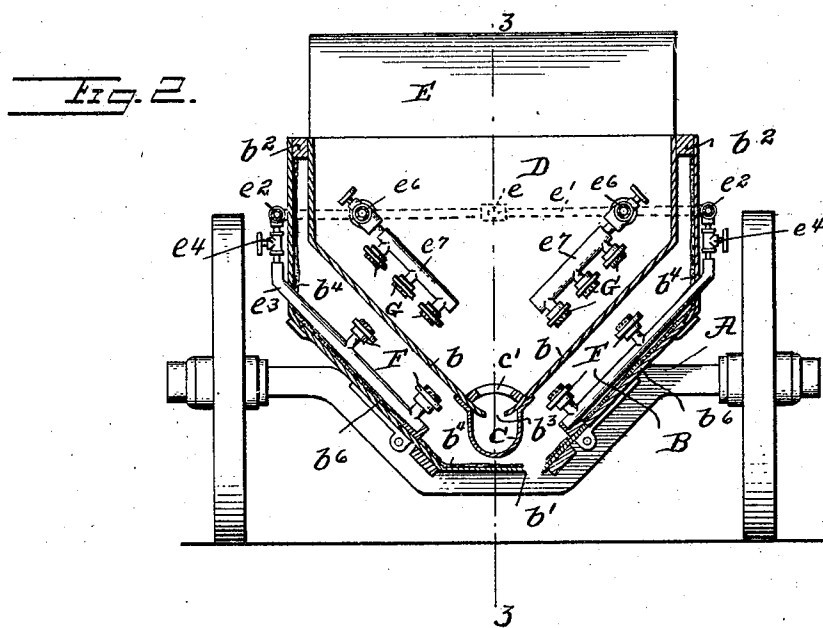
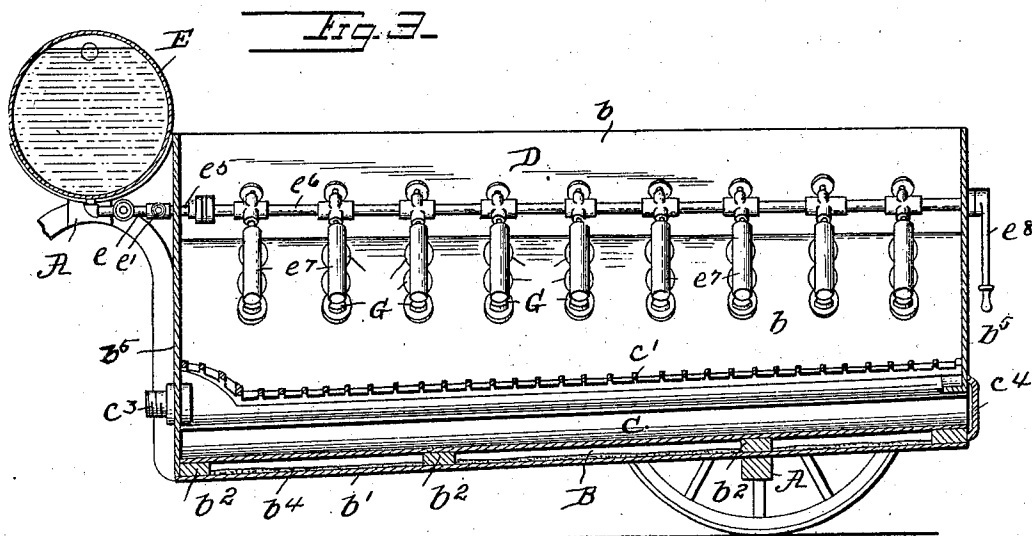
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(Application filed Mar. 8, 1899.)

(No Model.)

2 Sheets—Sheet 2.



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PORTABLE APPARATUS FOR MELTING SNOW.

SPECIFICATION forming part of Letters Patent No. 665,157, dated January 1, 1901.

Application filed March 8, 1899. Serial No. 708,177. (No model.)

To all whom it may concern:

Be it known that I, TONY ZETELLE, a citizen of the United States, residing at Philadelphia, county of Philadelphia, and State of Pennsylvania, have invented a new and useful Improvement in Portable Apparatus for Melting Snow, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to portable apparatus for melting snow, and has for its object the provision of means whereby snow may be expeditiously and economically removed from the thoroughfares of cities.

It consists of an apparatus upon wheels and provided with a fire-box, the cover of which forms a receptacle for snow. The fire-box contains burners connected by a system of pipes with a supply of burning fluid and which are arranged to throw jets of flame against the fire-box cover to highly heat the same. The receptacle for snow is also provided with burners adapted to direct jets of flame directly into the body of snow in the receptacle. The apparatus in which I carry out my invention is also provided with a trough for the melted snow or water, a water-exit therefrom at one end, and a door closing the other end by which access may be had to the trough for cleaning out accumulations of mud and other solid matter. The apparatus is also provided with a removable cover or grate-bar for the trough and with means whereby the jets of flame in the snow-receptacle may be directed against the snow at any angle to the fire-box cover that may be desired. Other details of construction will be pointed out in the specification.

In the drawings, Figure 1 is a side elevation of the portable apparatus; Fig. 2, a transverse section on line 2 2, Fig. 1; Fig. 3, a longitudinal section on line 3 3, Fig. 2.

A is the supporting truck or frame mounted on the wheels.

B is the fire-box, composed of the longitudinally-extending plates b and b' and closed at the ends by the end plates b^5 of the wagon. Plate b' is secured to longitudinal and transverse beams on the car-truck frame, and plates b are secured to plate b' by means of the bar b^2 . The plates b , besides forming a

cover for the fire-box, also form the bottom of the receptacle D in which the snow is thrown and melted. There are two plates b , (one on each side of the wagon,) and they extend toward each other in a general oblique direction, there being a space between the contiguous lower ends, forming a slotted orifice b^3 for the exit of the melted snow. The exterior plate b' is preferably provided on the inner side with an asbestos covering b^4 , so as to minimize the dissipation of heat outwardly.

Secured to the adjacent lower ends of the plates b and directly beneath the orifice b^4 is a trough or receptacle C for the melted snow or water.

c' is a removable arched cover or grate-bar for the trough C and rests upon the two plates b . The solid portion of the grate-bar prevents the passage into the trough of waste paper, stones, or any other solid matter of considerable size.

On the front of the wagon-truck is mounted an oil-tank E, from which extends a pipe e to a transverse pipe e' , which is provided with branch pipes $e^2 e^3 e^5 e^6$. The pipes $e^2 e^3$ extend longitudinally along the outside of plate b' , one on each side of the wagon. These pipes are provided with a series of branch pipes e^3 , controlled by valves e^4 , and which extend down alongside of plate b' , project through the same, and thence extend along the inner oblique side of plate b' and are provided with burners F. Pipes $e^5 e^6$ extend directly through the front of the wagon into the interior of receptacle D and are connected, respectively, by universal joints with rotatable pipes $e^6 e^6$, having branches $e^7 e^7$, extending toward each other and provided with burners G. The pipes $e^6 e^6$ extend back through the rear of the wagon, and to their rear ends are secured hand-levers e^8 , by means of which the pipes e^6 may be turned to move the burners toward or away from plate b to cause the flame to impinge at right angles against plate b or obliquely against the same.

The plates, fire-box, and water-trough are inclined from the rear to the front of the wagon, so that the water will quickly run off. At the front of the water-trough is an exit c^3 for the water, which may be connected with hose leading to a gutter or sewer. The exit is raised some distance above the bottom of

the trough, so that the mud and sediment will be deposited in the bottom without draining off. At the opposite end of the trough is door c^4 , by means of which access may be had to the trough to scrape out the deposits. On each side of the wagon are a series of hinged doors b^6 , by means of which access may be had to the interior of the fire-box.

The operation is obvious from the preceding description. The burners F maintain the plates b in a highly-heated state, while the burners G impinge their flame directly into the snow as well as toward and against the plates b . The melted snow is constantly flowing into, through, and out of the water-trough. In practice the burners are ignited before any snow is thrown into the wagon, and as fast as it is thrown in it melts, partly by contact with the highly-heated plates b and partly by coming into direct contact with the flame from the burners G. If the snow melts unequally or is thrown in too rapidly, the burners G may be adjusted as may be desired to expedite the melting.

Having now fully described my invention, what I claim, and desire to protect by Letters Patent, is—

1. In a portable apparatus for melting snow, a main receptacle for the snow, a fire-box arranged on the outside and beneath the same, the fire-box and main receptacle being separated by an inclined plate, a water-trough beneath and communicating with the main receptacle, a series of burners in the fire-box impinging against the bottom of said plate, and a series of burners in the main receptacle adjacent to and directed toward the top of said plate whereby a thin body of snow is acted on by both sets of burners and the liquid passes down said inclined plate to the trough.

2. In a portable apparatus for melting snow, a main receptacle for the snow, a fire-box arranged on the outside and beneath the same, the inner covering-plates of which form inclined bottom walls of the main receptacle, a water-trough beneath and communicating with the main receptacle, a supply-tank for burning fluid, a system of pipes extending into the fire-box and a system of pipes extending into the main receptacle, both systems being connected with the tank, burners connected with the fire-box pipes arranged to impinge the flame against the outer faces of said covering-plates, and burners connected with the pipes in the main receptacle adjacent to and arranged to direct the flame toward the inner faces of said plates, whereby a thin body of snow is acted on by both sets of burners and the liquid passes down said inclined plates to the trough.

3. In a portable apparatus for melting snow, a main receptacle for the snow, a fire-box arranged on the outside and beneath the same, the inner covering-plates of which form an inclined bottom of the main receptacle, a water-trough beneath and communicating with the main receptacle, a supply-tank for burn-

ing fluid, a system of pipes extending into the fire-box and a system of pipes extending into the main receptacle, both systems being connected with the tank, burners connected with the fire-box pipes arranged to impinge the flame against the said covering-plates, and burners connected with the pipes in the main receptacle arranged to impinge the flame directly into the space above the said plates, and means for adjusting the position of the burners in the main receptacle with respect to the covering-plates.

4. In a portable apparatus for melting snow, a main receptacle for the snow, a fire-box arranged on the outside and beneath the same, the inner covering-plates of which form the bottom of the main receptacle, a water-trough beneath and communicating with the main receptacle, a supply-tank for burning fluid, a system of pipes extending into the fire-box and a system of pipes extending into the main receptacle, both systems being connected with the tank, burners connected with the fire-box pipes arranged to impinge the flame against the said covering-plates, and burners connected with the pipes in the main receptacle arranged to impinge the flame directly into the space above the said plates, the water-trough having an exit for the water, a door whereby access may be had thereto, and a removable grated cover therefor.

5. In a portable apparatus for melting snow, a longitudinally-extending plate mounted on the truck-frame and forming the bottom and outside wall of the fire-box, longitudinally-extending covering-plates supported at the top and forming the inside wall of the fire-box and the bottom of the snow-receptacle, the said covering-plates extending obliquely toward each other and forming a slotted orifice between them, a water-trough suspended from the lower ends of the said covering-plates, a removable grated covering for the water-trough resting upon the lower ends of the said covering-plates directly over the said orifice, and two series of burners suitably connected with a source of oil-supply, arranged respectively in the fire-box and in the main receptacle, the first-mentioned series of burners being arranged to heat the fire-box covering-plates, while the second series of burners are arranged to impinge their flame directly into the space above the covering-plates.

6. In a portable apparatus for melting snow, a longitudinally-extending plate mounted on the truck-frame and forming the bottom and outside wall of the fire-box, longitudinally-extending covering-plates supported at the top and forming the inside wall of the fire-box and the bottom of the snow-receptacle, the said covering-plates extending obliquely toward each other and forming a slotted orifice between them, a water-trough suspended from the lower ends of the said covering-plates, a removable grated covering for the water-trough resting upon the lower ends of the said covering-plates directly over the said

orifice, and two series of burners suitably connected with a source of oil-supply, arranged respectively in the fire-box and in the main receptacle, the first-mentioned series of burners being arranged to heat the fire-box-covering plates, while the second series of burners are arranged to impinge their flame directly into the space above the covering-plates, a longitudinally-extending pipe in the connection between the oil-supply and the last-mentioned series of burners, and means for rotating said pipe so as to change the position of the burners.

7. In a snow-melting apparatus, a snow-receptacle having an inclined bottom plate opening into a water-discharge pipe, a longitudinal pipe within the snow-receptacle, connected with a source of fuel-supply and carrying a series of pipes which are substantially parallel with said inclined bottom plate, burners carried on the bottom of said series of pipes and directed toward the inclined bottom plate, another longitudinal pipe outside said receptacle, carrying a similar series of pipes also substantially parallel with said bottom plate, and burners carried by said last-mentioned series of pipes between the same and the said bottom plate.

8. In a snow-melting apparatus, a snow-receptacle having inclined walls, a water-discharge pipe, and openings between said receptacle and pipe, in combination with a fuel-supply pipe within said receptacle and a fuel-supply pipe outside the same, burners connected with each of said pipes, said burners facing each other the outer burners imping-

ing upon the outer side of the inclined walls of said receptacle, the inner burners being adjacent to the inner side of the inclined walls of said receptacle, and forming with the walls a narrow passage for the snow.

9. In a snow-melting apparatus, a snow-receptacle, a water-discharge pipe, and openings between said receptacle and pipe, in combination with a fuel-supply pipe within said receptacle and a fuel-supply pipe outside the same, burners connected with each of said pipes, said burners facing each other so as to direct their flames toward opposite sides of the walls of said receptacle, and means for adjusting the said inside pipe to vary the position of the burners carried thereby.

10. In a snow-melting apparatus, a snow-receptacle having bottom walls converging downwardly toward the center and there opening into a water-discharge tube, in combination with two series of burners one set carried by pipes within the chamber adjacent to and impinging downwardly toward the inside of the said bottom walls, and the other set carried by pipes outside the chamber and impinging upwardly upon the outside of said bottom walls whereby a thin body of snow is acted upon by both sets of burners.

In testimony of which invention I have hereunto set my hand at Philadelphia, Pennsylvania, on this 3d day of March, 1899.

TONY ZETELLE.

Witnesses:

FRANK S. BUSSEY,
FRANCES ELLIS.