

J. B. D'HOMERGUE.
 APPARATUS FOR MELTING SNOW.
 APPLICATION FILED SEPT. 9, 1908.

933,837.

Patented Sept. 14, 1909.

2 SHEETS—SHEET 1.

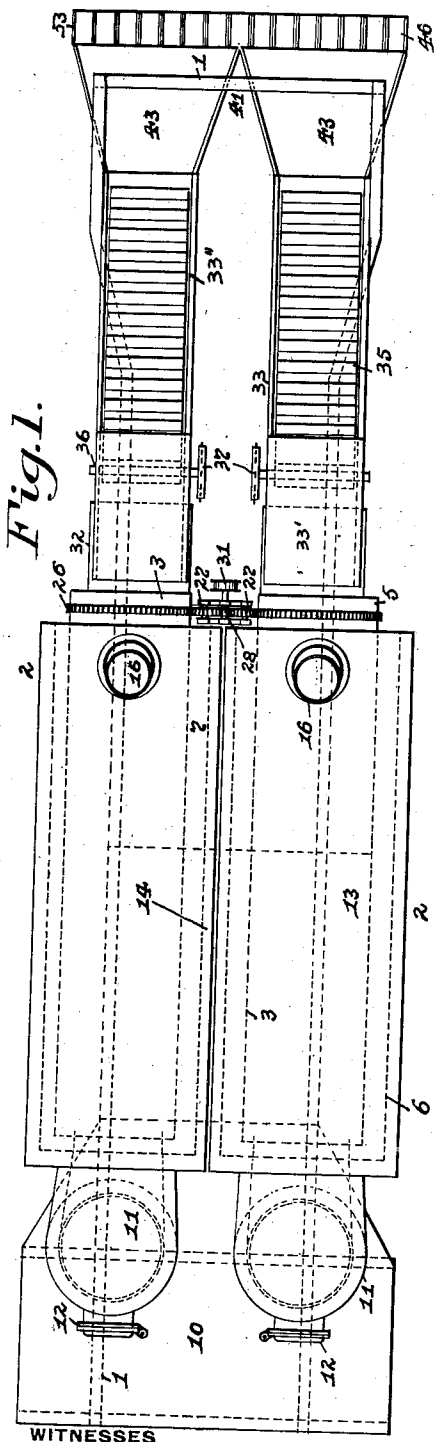


Fig. 1.

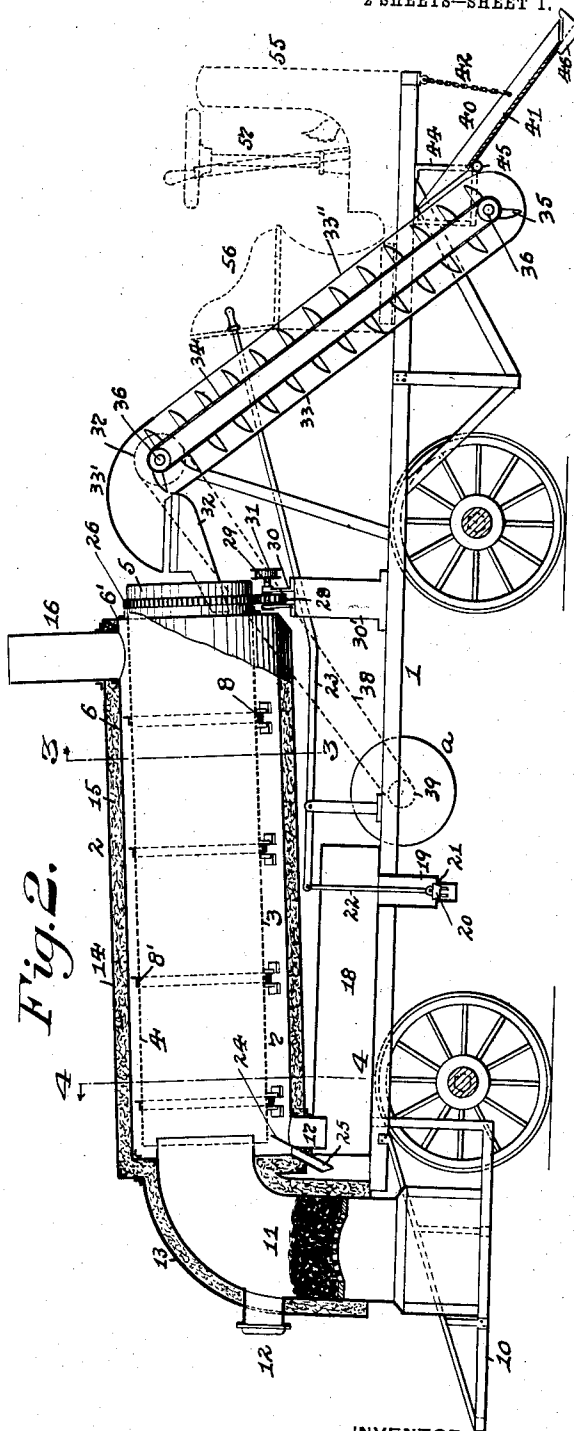


Fig. 2.

WITNESSES

W. L. Thompson,
James E. Wehr

INVENTOR

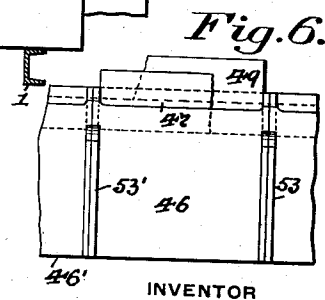
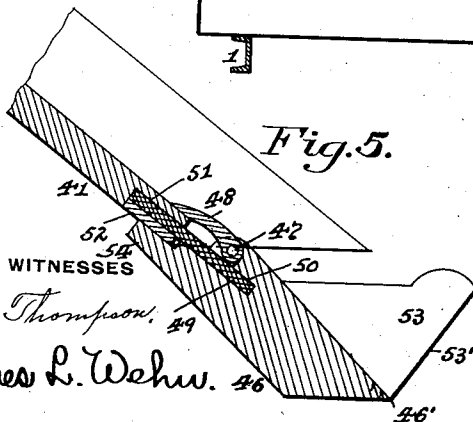
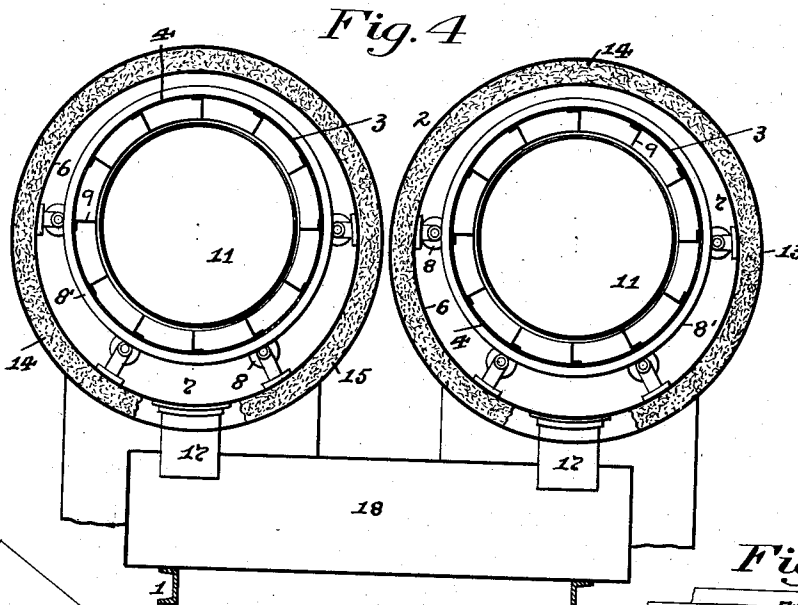
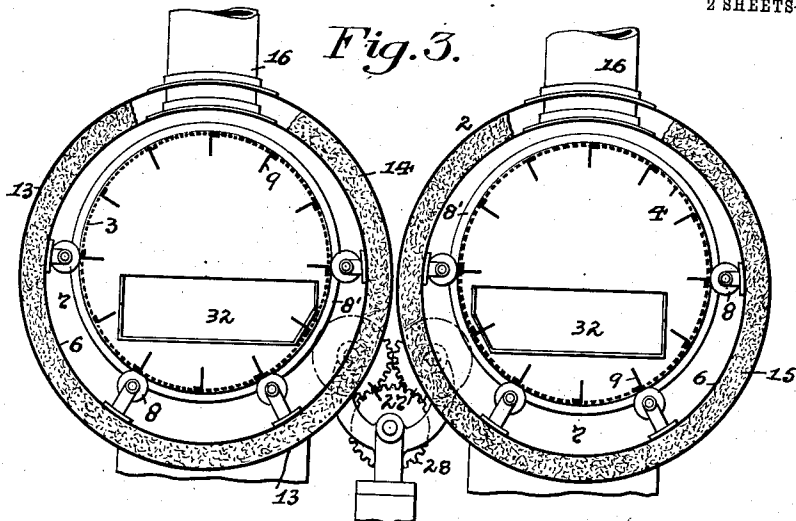
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By J. M. Booke,
Attorney.

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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

JOHN B. D'HOMERGUE, OF PITTSBURG, PENNSYLVANIA.

APPARATUS FOR MELTING SNOW.

933,837.

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To all whom it may concern:

Be it known that I, JOHN B. D'HOMERGUE, a resident of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Apparatus for Melting Snow; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to apparatus for melting snow and has special reference to such an apparatus for use in melting the snow as collected from streets, highways, etc.

The main object of my invention is to provide a cheap, simple and efficient apparatus for melting snow as it is collected, so that the snow can be easily and rapidly melted, and the water converted therefrom can be collected and afterward discharged from the apparatus at the place desired.

A further object of the invention is to provide means for gathering and feeding the snow to the melting apparatus in an easy, rapid and convenient manner and if desired, during the movement of a vehicle for carrying these devices.

My invention consists, generally stated, in the novel construction, arrangement and combination of parts, as hereinafter more specifically set forth and described and particularly pointed out in the claims.

To enable others skilled in the art to which my invention appertains to construct and use my improved apparatus for melting snow, I will describe the same more fully, referring to the accompanying drawings, in which—

Figure 1 is a plan view of my improved apparatus for melting snow. Fig. 2 is a longitudinal section of the same and showing some of the parts in full lines. Fig. 3 is an enlarged cross-section on the line 3—3 Fig. 2, looking in the direction of the arrow. Fig. 4 is a like view on the line 4—4 Fig. 2, looking in the direction of the arrow. Fig. 5 is a detail section of the scraper employed. Fig. 6 is an end view of a portion of the scraper.

Like symbols of reference herein indicate like parts in each of the figures of the drawings.

As illustrated in the drawings, my improved apparatus for melting snow is shown as applied to a motor vehicle by being mounted upon the frame 1 of the same and formed of the melter 2, which consists of two revolving members 3, each set at an incline, and substantially on a horizontal

plane to and parallel with each other. The members 3 are cylindrical in shape and each formed of a screen 4, and each of said members is revolubly mounted within an inclosing shell 6, which is set at the same incline as its contained member 3, and is adapted to form a chamber 7 between its members 3 and said shell. The members 3 are supported within the chambers 7 by means of rollers 8 mounted in said chambers and are adapted to engage with angle shaped bands or tracks 8' formed around said members. Within the members 3 are a series of shelves 9 which are preferably in the form of angle bars for projecting toward the center of said members and run parallel with the length of the same.

Connected to the rear end of the shell 6 and leading up to the same from a platform 10 hung from the frame 1, are the two furnaces 11, each of which opens into a member 3 and is provided with a charging door 12 at its rear. The shell 6 and furnace 11 are incased by an outer shell 13 for forming an inclosing chamber 14, within which any suitable non-conducting material 15 is placed, and connecting with the chamber 7 and at the forward end of the same is the stack 16 which extends through said shells 6 and 13 and permits the products of combustion from the furnace 11 to escape from said chamber into the open air.

Mounted on the frame 1 and connecting with the lower end of the chambers 7 by the passageways 17 is the water tank 18, and leading from the bottom of said tank is the escape pipe 19, which is opened and closed by a plug 20 engaging with a seat 21 therein, and is operated by means of a rod 22 connected thereto and to a lever 23 extending forward of the apparatus and within reach of the operator's seat, as hereinafter described. Adjacent to the lower end of each of the passageways 17 is an inclined deflecting plate 24, which leads up through the chambers 7 to the lower end of the members 3 and forms part of an inclined chute 25 leading from each of said chambers and through the shells 6 and 13, so that any small stones, pebbles or other foreign matter can pass directly from the said members to the street without being lodged in the tank 18.

The forward ends 5 of the members 3 are imperforate and extend loosely through the forward ends 6 of the shell 6 and each is

provided with a rack 26 around the same, so that the gear-wheels 27 can mesh with the same. Meshing with the gear-wheels 27 is a gear-wheel 28, which is carried on and
 5 by a shaft 29 mounted in bearings 30 on a standard 30' extending up from the frame 1 and is operated from the usual driving engine or motor *a* on the frame 1 for the vehicle, in any suitable manner, such as by
 10 connecting said engine or motor with a pulley 31 on said shaft.

Leading into the front end of each of the members 3 is an inclined chute 32 which extends under the hoods 33' formed on the
 15 casings 33 of the two conveying or elevating devices, consisting of the ordinary form of a conveyer having an endless belt 34 mounted in said casing and provided with buckets 35 extending out from the same.
 20 The conveyers are set at an incline and at a downward and outward angle toward the front of the vehicle, so as to extend below the frame 1 of the same at its lower end, and its belt 34 passes around shafts 36 at the
 25 upper and lower ends of the same. Any suitable means, such as a sprocket wheel 37 can be connected to each of the upper shafts 36 for operating the said conveyers, and these wheels connected through the usual
 30 means with the engine or motor *a*, such as by the chain 38 and sprocket wheel 39, shown in dotted lines in Fig. 1.

Projecting down and hung from the frame 1 is the scraping device 40, which consists
 35 of the inclined trough 41 hung by a chain 42 from the front end of the said frame and provided with the two wedge-shaped side portions 43 thereon. These side portions 43 are pivoted or hinged at their upper rear
 40 ends to a support 44 extending down from the frame 1, as at 45, and such ends open into the open sides 33'' of the conveyer casings 33. A series of scrapers 46 are pivotally
 45 connected to the forward end of the trough 41, as at 47, and a bridge plate 48 is also pivoted on each of said scrapers and on the pivot pins 47 for extending over and bearing
 50 on the lower end of the trough 41. A flexible hinge strip 49, preferably formed of leather or rubber connects each of the
 55 scrapers 46 with the lower end of the trough 41 by fitting within a slot 50 in the said scrapers and in a recess or seat 51 in the lower end of said trough, such strip being
 60 held in place by a plate 52 secured over the same and fitting within said seat. The scrapers 46 are also provided with the flanges 53 extending up from each side of
 65 the same and beyond the scraping edge 46' of said scrapers to form the bevel faces 53' for cutting through the snow and allow the same to slide over any obstructions in the street, as well as allowing the scraping edges 46' on said scrapers to be lifted clear of the
 same. The inner or upper ends of said

scrapers extend under the lower end of the trough 41, as at 54, in order to assist the bridge plates 48 in holding said scrapers in position for operating and provide for any obstructions on the street by the lifting
 70 of said scrapers through the flexible connecting hinge strip 49.

The operation of my improved apparatus for melting snow is as follows: With the engine *a* started to propel the vehicle and
 75 with the revolving members 3 and the belts 34 of the conveyers operating from said engine, the snow on the street is scraped up onto the trough 41 by the scrapers 46 engaging
 80 with the same, while said vehicle is moving along, and such snow will then slide up the side portions 43 of said trough and into the casings 33 of said conveyers through the side openings 33'' therein. After the
 85 snow is thus carried into the conveyers, the buckets 35 on the belts 34 therein will carry the same up the conveyers and discharge the same into the front ends of the revolving members 3 of the melter 2, through the inclined
 90 chutes 32, where it is to be melted by the flames from the furnaces 11 at the rear of said members and entering the rear ends of said members. As soon as the snow is thus dumped into the revolving members 3
 95 it is carried up and to nearly a vertical position to support it on said members by the shelves 9 on the interior of the same when it slips off and falls to the bottom of the
 100 members so that in falling it will thus pass through and be brought into contact with the heat from the furnaces 11 in said members and be rapidly melted, and the water formed from said snow by being thus melted,
 105 will pass through the screen 4 on said members and into the chambers 7, after which it will pass from said chambers down through the passageways 17 and into the tank 18 where it is collected. When a sufficient
 110 amount of water has been collected in the tank 18, it can be discharged or emptied therefrom at any time by the operator moving down on the lever 23, which through the rod 22, will raise the plug 20 from its seat
 115 21 and allow the water to pass from said tank through the escape pipe 19 into the sewer or other place desired. At the forward end of the frame 1 and as shown in dotted lines in Fig. 2, the usual parts of
 120 the motor vehicle are provided, such as the radiator 55 and operator's seat 56, adjacent to which are the usual steering and operating devices 57 for the vehicle, and as shown
 125 in said figure, the plug operating lever 23 is placed within easy reach of said seat, as well as the other means, (not shown) for operating the revolving members 3 and snow elevating devices. It will thus be seen that my improved apparatus for melting snow will provide for the rapid melting of the same by the direct heat of a furnace, and the cham- 130

bers and revolving members being on an incline, will rapidly carry the water from the melted snow to the outlet and point of delivery. The snow being delivered at the higher or forward end of the revolving members must in being lifted back of the perpendicular by the shelves therein, descend in falling to a point rearward of that from whence it started, and in this manner work its way toward the furnaces, and will be melting all the time. In case of the snow sliding too much within the revolving members, suitable obstructions can be placed around the periphery of the same and spaced apart in order to act as stops for said snow.

By the collecting and feeding of the snow to the melter through the scraping and conveyor devices, the snow will be fed continuously to the melter, but it is evident that such melter can be used separately from either or both such devices, and without being attached to a motor or other vehicle, by taking the snow direct from wagons or a receiving platform which has been previously supplied with snow in any suitable manner.

Various other modifications and changes in the construction and operation of my improved apparatus for melting snow may be resorted to without departing from the spirit of the invention or sacrificing any of its advantages.

The device can be used in removing and melting snow from steam, electric or other railroads and from streets, pavements or roadways, as well as from side-walks and other places where snow may accumulate, while it is evident that the apparatus may be mounted on any suitable vehicle and propelled by horses or other suitable power. The apparatus will also permit the storage water to be dispensed with, in which case the water resulting from the melting of the snow may be allowed to run into the gutter by the side of the road or street and thus be permitted to run off in the usual manner. By the use of this apparatus in cities, the streets, alleys, pavements, highways, etc., can have the snow removed therefrom and melted in a very short time and without the employment of the great number of men and wagons usually engaged in such work, thereby cheapening the cost very greatly for this kind of work and enabling traffic and comfort to be had rapidly and conveniently.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In an apparatus for melting snow, the combination of a furnace, a chamber, and a revoluble member within said chamber to lift the snow to be melted by the products of combustion from said furnace.

2. In an apparatus for melting snow, the combination of a furnace, a chamber, and a revoluble member within said chamber and opening into said furnace for receiving the

snow to be melted by the products of combustion from said furnace.

3. In an apparatus for melting snow, the combination of a furnace, a chamber, and an inclined revoluble member within said chamber and opening into said furnace for receiving the snow to be melted by the products of combustion from said furnace.

4. In an apparatus for melting snow, the combination of a furnace, a chamber, and a revoluble member supported by rollers within said chamber and opening into said furnace for receiving the snow to be melted by the products of combustion from said furnace.

5. In an apparatus for melting snow, the combination of a furnace, a chamber, and a revoluble member formed of a cylindrical screen within said chamber and opening into said furnace for receiving the snow to be melted by the products of combustion from said furnace.

6. In an apparatus for melting snow, the combination of a furnace, a chamber, a revoluble member within said chamber and opening into said furnace for receiving the snow to be melted by the products of combustion, and means within said chamber for permitting the discharge of articles from said member.

7. In an apparatus for melting snow, the combination of a furnace, a chamber, a revoluble cylindrical screen within said chamber and opening into said furnace for receiving the snow to be melted by the products of combustion from said furnace, and a chute in said chamber and at the end of said screen for permitting the discharge of articles therefrom.

8. In an apparatus for melting snow, the combination of a furnace, a chamber, a revoluble member within said chamber and opening into said furnace for receiving the snow to be melted by the products of combustion from said furnace, and means connected to said member for revolving the same.

9. In an apparatus for melting snow, the combination of a furnace, a chamber, a revoluble member within said chamber and opening into said furnace for receiving the snow to be melted by the products of combustion from said furnace, and gearing mechanism connected to said member for revolving the same.

10. In an apparatus for melting snow, the combination of a furnace, a chamber, a revoluble member within said chamber and opening into said furnace for receiving the snow to be melted by the products of combustion from said furnace and having one end extending through said chamber, and means connected to said end for revolving said member.

11. In an apparatus for melting snow, the

combination of a furnace, a chamber, a revoluble member within said chamber and opening into said furnace for receiving the snow to be melted by the products of combustion from said furnace and having one end extending through said chamber, and gearing mechanism connected to said end for revolving said member.

12. In an apparatus for melting snow, the combination of a furnace, a chamber, a revoluble member within said chamber and opening into said furnace for receiving the snow to be melted by the products of combustion from said furnace, and means for feeding the snow to said member.

13. In an apparatus for melting snow, the combination of a furnace, a chamber, a revoluble member within said chamber and opening into said furnace for receiving the snow to be melted by the products of combustion from said furnace, and an endless conveyer for feeding the snow to said member.

14. In an apparatus for melting snow, the combination of a furnace, a chamber, a revoluble member within said chamber and opening into said furnace for receiving the snow to be melted by the products of combustion from said furnace, means for feeding the snow to said member, and means for collecting the snow for said feeding means.

15. In an apparatus for melting snow, the combination of a furnace, a chamber, a revoluble member within said chamber and opening into said furnace for receiving the snow to be melted by the products of combustion from said furnace, and a scraping means for collecting the snow for said feeding means.

16. In an apparatus for melting snow, the combination with a vehicle or other frame, of a furnace and chamber on said frame, a revoluble member in said chamber and opening into said furnace for receiving the snow to be melted by the products of combustion from said furnace, and a tank on said frame for receiving the melted snow water from said chamber.

17. In an apparatus for melting snow, the combination with a vehicle or other frame, of a furnace and chamber on said frame, a revoluble member in said chamber and opening into said furnace for receiving the snow to be melted by the products of combustion from said furnace, a tank on said frame for receiving the melted snow water from said chamber, and a plug in said tank having a rod connected thereto and to a lever for operating the same to discharge the water from said tank.

18. In an apparatus for melting snow, the combination with a vehicle or other frame, a furnace and a chamber on said frame, a revoluble member in said chamber and opening into said furnace for receiving the snow to

be melted by the products of combustion from said furnace, and means on said frame and connected to said member for revolving the same.

19. In an apparatus for melting snow, the combination with a vehicle or other frame, a furnace and a chamber on said frame, a revoluble member in said chamber and opening into said furnace for receiving the snow to be melted by the products of combustion from said furnace, and gearing mechanism on said frame and connected to said member for revolving the same.

20. In an apparatus for melting snow, the combination with a vehicle or other frame, a furnace and chamber on said frame, a revoluble member in said chamber and opening into said furnace for receiving the snow to be melted by the products of combustion from said furnace and having one end extending through said chamber, and means on said frame and connected to said end for revolving said member.

21. In an apparatus for melting snow, the combination with a vehicle or other frame, a furnace and chamber on said frame, a revoluble member in said chamber and opening into said furnace for receiving the snow to be melted by the products of combustion from said furnace and having one end extending through said chamber, and gearing mechanism on said frame and connected to said end for revolving said member.

22. In an apparatus for melting snow, the combination with a vehicle or other frame, a furnace and a chamber on said frame, a revoluble member in said chamber and opening into said furnace for receiving the snow to be melted by the products of combustion from said furnace, means on said frame for revolving said member, and means on said frame for feeding the snow to said member.

23. In an apparatus for melting snow, the combination with a vehicle or other frame, a furnace and a chamber on said frame, a revoluble member in said chamber and opening into said furnace for receiving the snow to be melted by the products of combustion from said furnace, means on said frame for revolving said member, and endless conveyer on said frame for feeding the snow to said member.

24. In an apparatus for melting snow, the combination with a vehicle frame, a furnace and a chamber on said frame, a revoluble member in said chamber and opening into said furnace for receiving the snow to be melted by the products of combustion from said furnace, means on said frame for revolving said member, means on said frame for feeding the snow to said member, and means on said frame for collecting the snow for said feeding means.

25. In an apparatus for melting snow, the combination with a vehicle frame, a furnace

and a chamber on said frame, a revoluble member in said chamber and opening into said furnace for receiving the snow to be melted by the products of combustion from said furnace, means on said frame for revolving said member, means on said frame for feeding the snow to said member, and scraping means on said frame for collecting the snow for said feeding means.

26. In an apparatus for melting snow, the combination with a vehicle frame, a furnace and a chamber on said frame, a revoluble member in said chamber and opening into said furnace for receiving the snow to be melted by the products of combustion from said furnace, means on said frame for revolving said member, means on said frame for feeding the snow to said member, and a pivoted scraping device hung from said frame for delivering the snow to said feeding means.

27. In an apparatus for melting snow, the combination with a vehicle frame, a furnace and a chamber on said frame, a revoluble member in said chamber and opening into said furnace for receiving the snow to be melted by the products of combustion from said furnace, means on said frame for revolving said member, means on said frame for feeding the snow to said member, and a hinged trough hung from said frame and having hinged scrapers connected thereto for delivering the snow to said feeding means.

28. In an apparatus for melting snow, the combination with a vehicle frame, a furnace and a chamber on said frame, a revoluble member in said chamber and opening into

said furnace for receiving the snow to be melted by the products of combustion from said furnace, means on said frame for feeding the snow to said member, and a hinged trough hung from said frame and having hinged scrapers flexibly connected thereto for delivering the snow to said feeding means.

29. In an apparatus for melting snow, the combination with a vehicle frame, a furnace and a chamber on said frame, a revoluble member in said chamber and opening into said furnace for receiving the snow to be melted by the products of combustion from said furnace, means on said frame for feeding the snow to said member, a hinged trough hung from said frame and having hinged scrapers flexibly connected thereto for delivering the snow to said feeding means, and flanges on said scrapers and extending in front of the scraping edges of the same for cutting the snow.

30. A device for streets, etc. consisting of a trough, and a series of hinged scrapers flexibly connected to said trough.

31. A device for scraping streets, etc. consisting of a trough, a series of hinged scrapers flexibly connected to said trough, and cutting flanges on said scrapers and extending in front of the scraping edges of the same.

In testimony whereof, I, the said JOHN B. D'HOMERGUE, have hereunto set my hand.

JOHN B. D'HOMERGUE.

Witnesses:

JAMES L. WEHN,
J. N. COOKE.