Mar. 6, 1923. 1,447,948

W. F. GUERIN

SNOW REMOVAL SYSTEM

Filed Mar. 25, 1922 2 sheets-sheet 1

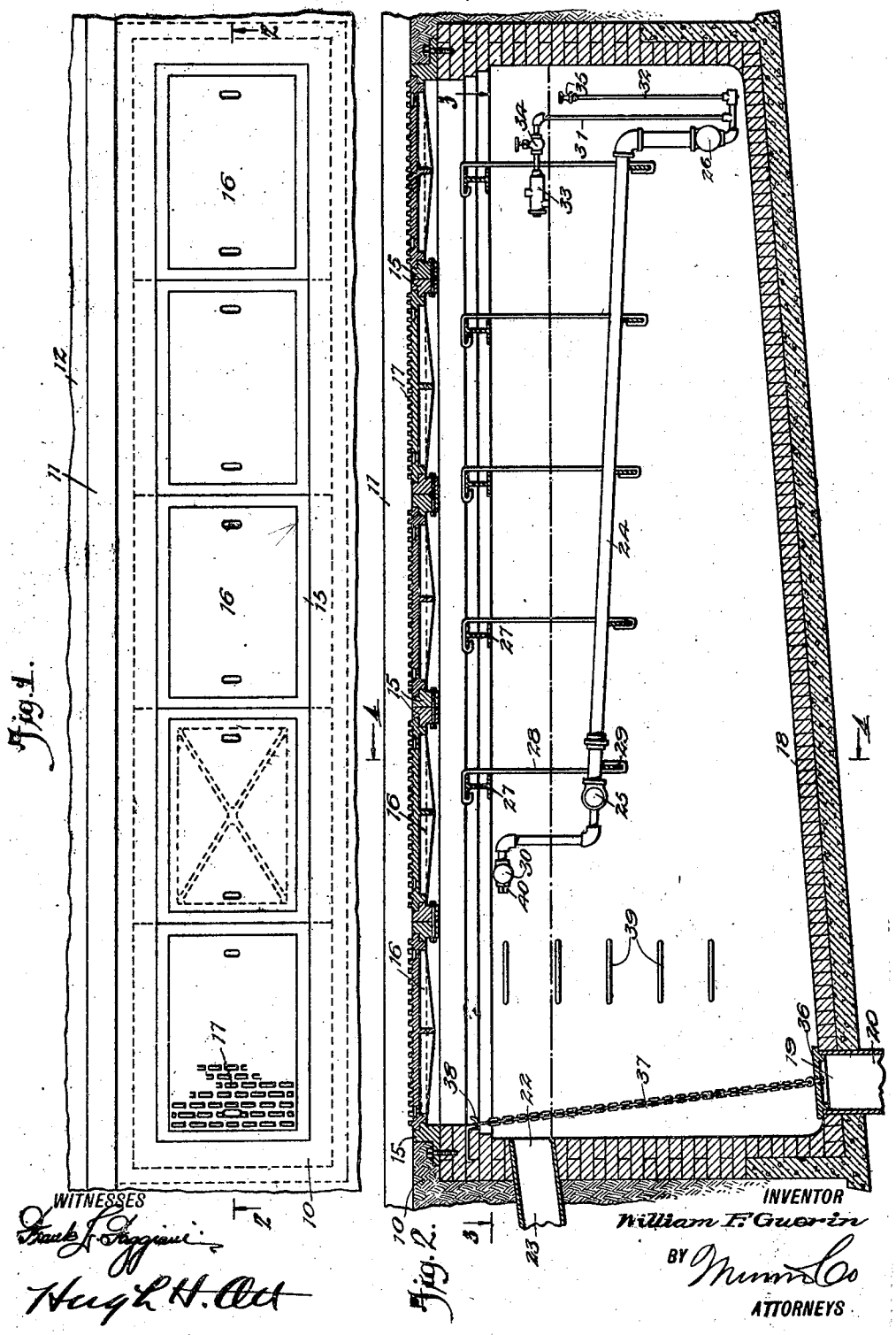


Fig. 1.

Fig. 2.

WITNESSES

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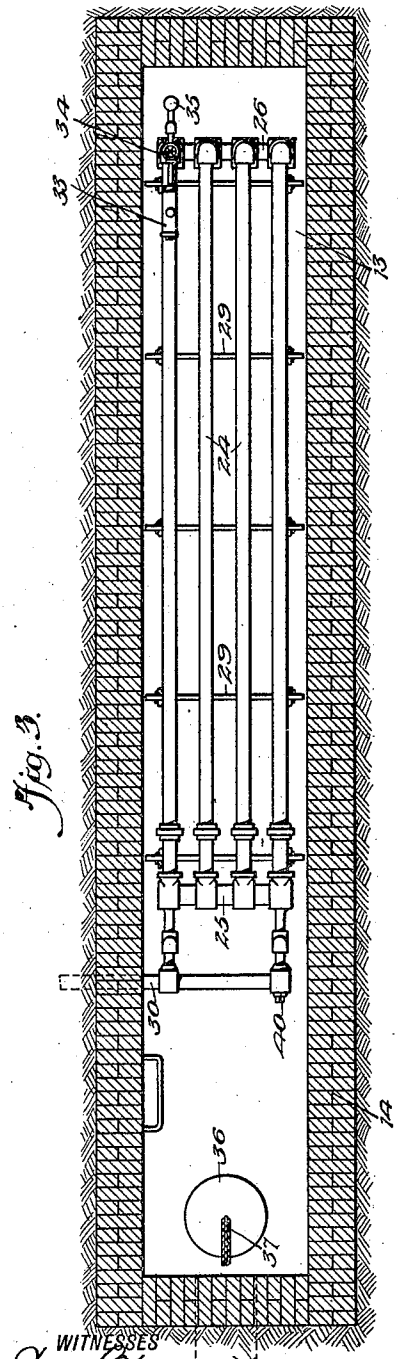


Fig. 3.

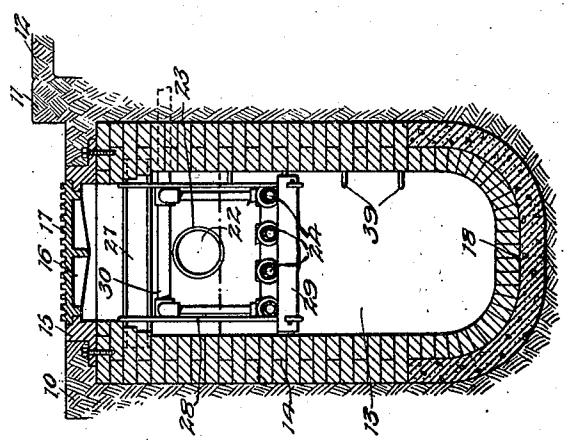


Fig. 4.

WITNESSES

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Patented Mar. 6, 1923. 1,447,948

UNITED STATES PATENT OFFICE.

WILLIAM F. GUERIN, OF BROOKLYN, NEW YORK.

SNOW-REMOVAL SYSTEM.

Application filed March 25, 1922. Serial No. 546,714.

To all whom it may concern:

Be it known that I, WILLIAM F. GUERIN, a citizen of the United States, and a resident of the city of New York, borough of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Snow-Removal System, of which the following is a full, clear, and exact description.

This invention has relation to means for effecting the removal of snow, the same being designed as an improvement over a similar device granted to me under Letters Patent of the United States No. 1,350,968, issued August 24, 1920.

The invention contemplates a snow removal system which includes trenches located adjacent the gutter of a street in which heating pipes are arranged for maintaining a predetermined supply of water at a sufficient temperature to immediately melt the snow introduced to the trenches.

The invention seeks as one of its principal objects a system of snow removal which affords means for expeditiously freeing streets and side walks of heavy snow falls at a minimum expense to the city or town.

As a further object the invention contemplates in a system of snow removal, trenches located adjacent the gutter or streets which are normally closed by removable covers, and which are provided with overflow and clean-out conduits communicating with the sewerage system of the street.

As a further object the heating pipes arranged in the trenches are designed as a means for furnishing a heating agent for thawing out fire hydrants in extremely cold weather and for other similar purposes of this character.

With the above recited and other objects in view, the invention resides in the novel construction set forth in the following specification, particularly pointed out in the appended claims and illustrated in the accompanying drawings, it being understood that the right is reserved to embodiments other than those actually illustrated herein to the full extent indicated by the general meaning of the terms in which the claims are expressed.

In the drawings—

Figure 1 is a fragmentary plan view illustrating the gutter of a street equipped with snow removal trenches constructed in accordance with the invention.

Fig. 2 is a fragmentary longitudinal sectional view therethrough taken approximately on the line 2—2 of Fig. 1.

Fig. 3 is a horizontal sectional plan view taken approximately on the line 3—3 of Fig. 2.

Fig. 4 is a transverse sectional view taken approximately on the line 4—4 of Fig. 2.

Referring to the drawings by characters of reference, 10 designates the paving of a street, 11 the curb, and 12 the sidewalk. The invention consists of providing in the paving at the gutter, a plurality of trenches 13 the side, end and bottom walls of which are constructed of brickwork, cement, or any other suitable material 14, said trenches having at the upper open end a metal framework 15 designed to receive the movable covers 16 provided on their upper surfaces with dentals 17 to preclude the possibility of slipping. The trenches are provided with inclined bottom walls 18 having an outlet opening 19 at the lower end from which a drain pipe 20 extends to the sewerage system. The trench is further provided in one of its end walls with an overflow outlet opening 22 adjacent the top of the trench from which an overflow pipe 23 extends to the sewerage system. In each trench a battery of heating pipes 24 connected at their opposite extremities by an intake manifold or header 25 and a discharge manifold or header 26 is supported from transverse I-beams 27 by means of the depending rods 28 and crossbars 29. The heating pipes 24 are inclined downwardly from the intake manifold or header 25 to the discharge header or manifold 26 and are disposed below the plane of the overflow opening 22. Steam is supplied to the intake manifold or header 25 by a steam supply pipe 30 which extends through the wall of the trench adjacent the curb. The discharge manifold 26 has connected thereto a pair of discharge pipes 31 and 32, the former having at its terminal a steam trap 33 and a controlling valve 34, and the latter a relief valve 35. Use is made of a closure plug 36 for the outlet opening 19 which is preferably connected by a flexible element 37 to a hook 38 adjacent the upper edge of one end of the trench.

In practice when it is desired to effect the removal of an accumulation of snow at the gutters, the covers 16 are removed and steam is admitted through the supply pipe 30 to the steam pipe batteries 24. The plug 36 is arranged in the outlet opening 19 and an initial quantity of snow is shoveled into the trench. When the snow in the trench is melted by the action of the steam pipes 24, the water resulting therefrom is allowed to become heated to a high temperature. The snow is then shoveled into the heated water and is rapidly melted thereby, said water being maintained at a constant level by the overflow opening 22 through which the melted snow escapes to the sewer. The water of condensation from the steam supply is automatically discharged by the steam trap 33 and excess pressure is let off by means of the relief valve 35 disposed under the level of the water within the trench. When the removal of the snow has been effected, the chain or flexible element 37 is employed to remove the plug 36 to permit the remaining water to be drained through the drain pipe 30 to the sewer. A ladder consisting of rungs 39 embedded in the inner wall of the trench permits of access of men to the trench for cleansing the same. The steam supply pipe 30 is provided with a removable outlet plug 40 by means of which a hose may be connected thereto for the purpose of thawing out fire hydrants or the like.

I claim:

1. A system for effecting and facilitating the removal of snow from city streets, comprising a trench formed in the street, an overflow outlet at the upper end of the trench for maintaining a predetermined water level therein, heating elements arranged in said trench and disposed below the water level for heating the water to provide an agency for receiving and melting the snow introduced to the trench, said overflow outlet serving to discharge the melted snow, a drain outlet at the bottom of the trench, and means for closing said drain outlet when the trench is in active use.

2. A system for effecting and facilitating the removal of snow from city streets, comprising a series of trenches formed therein adjacent the gutters of the street, removable covers therefor, an overflow outlet adjacent the top of each trench having communication with the ordinary sewerage system for maintaining a predetermined quantity of water in said trenches, heating elements arranged in said trenches and submerged within said water for heating the same to provide an agency for receiving and melting snow introduced into the trenches when the covers are removed, said overflow outlet serving to convey said snow to the regular sewerage system, a drain outlet in the bottom of said trenches having communication with the sewerage system, and means for closing said drain outlet when the trenches are in active use.

3. A system for effecting and facilitating the removal of snow from city streets comprising a series of trenches formed therein adjacent the gutters thereof, an overflow outlet adjacent the top of each trench having communication with the regular sewerage system and constituting means for maintaining a predetermined supply of water within the trenches, a battery of steam heated pipes located in each trench and connected with a source of steam supply, said pipe battery being submerged within the water for heating the same to provide an agency for receiving and melting snow introduced into the trenches, said overflow outlet serving to convey said melted snow into the regular sewerage system, said trenches being provided with inclined bottom walls having a drain outlet at the lowermost end communicating with the sewerage system, and a removable closure therefor adapted to normally close said drain outlet when the system is in active use.

WILLIAM F. GUERIN.