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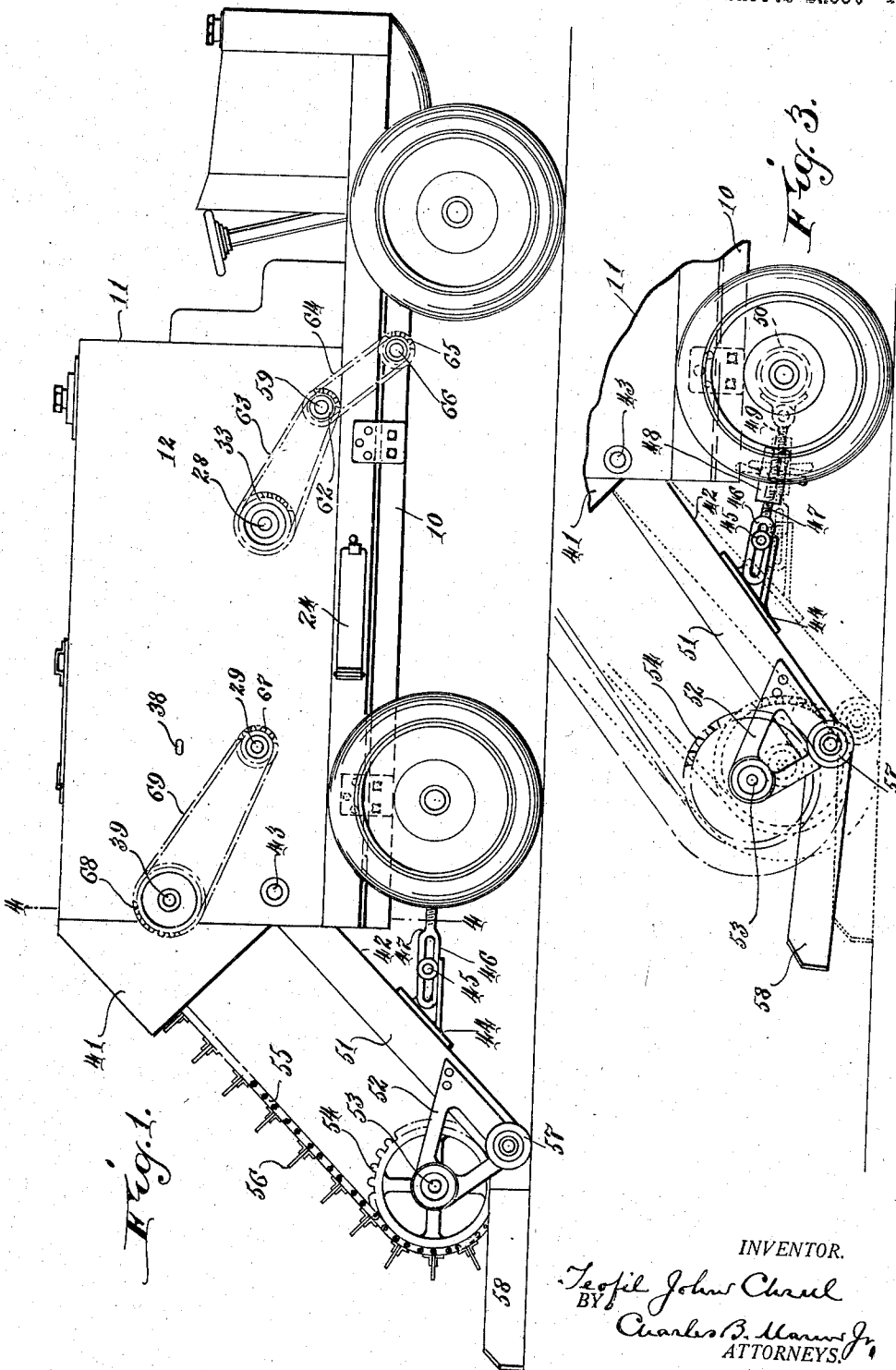
T. J. CHRUL

1,746,417

SNOW COLLECTING AND MELTING MACHINE

Filed May 15, 1926

3 Sheets-Sheet 1



INVENTOR.

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3 Sheets-Sheet 2

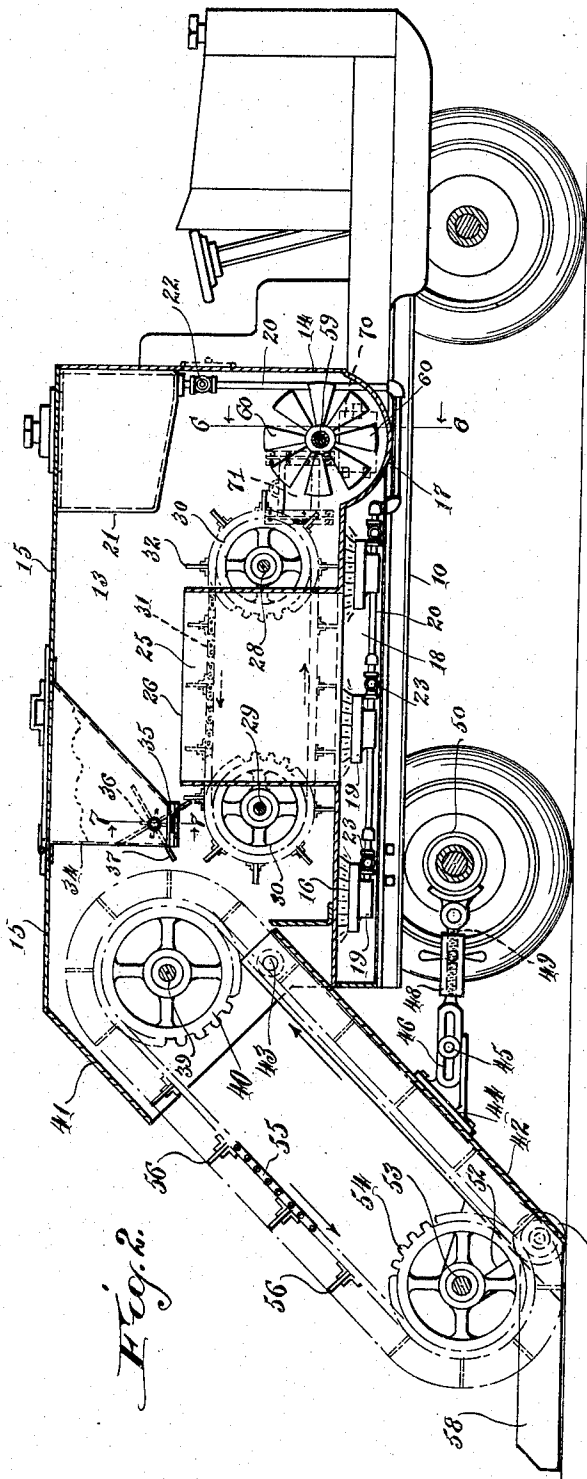


Fig. 2.

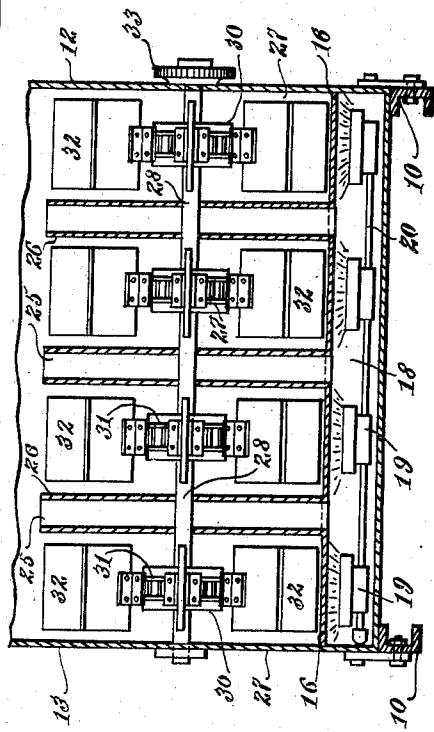


Fig. A.

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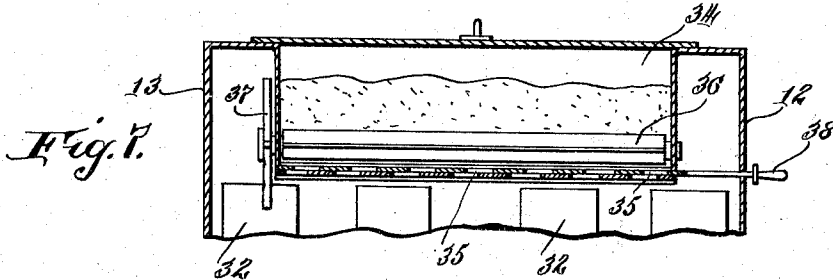
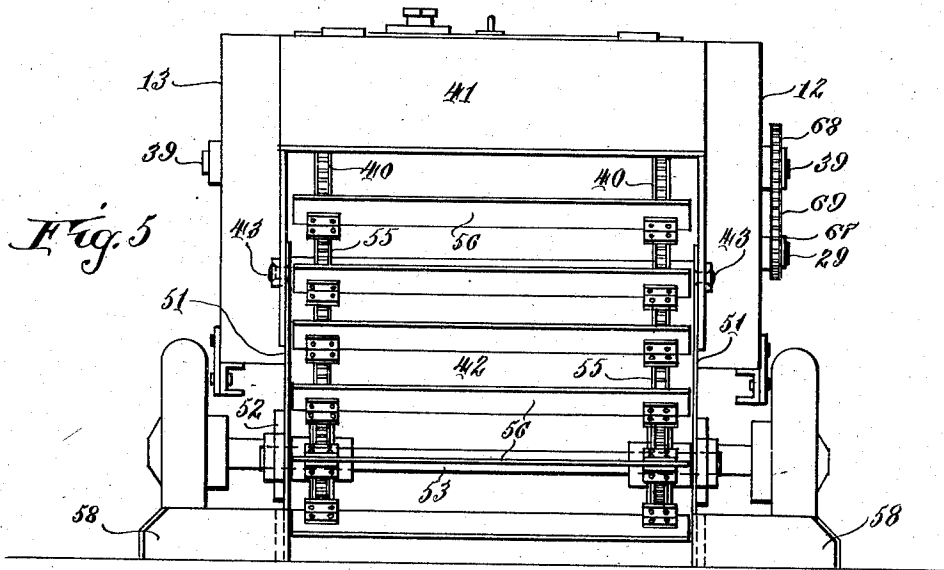
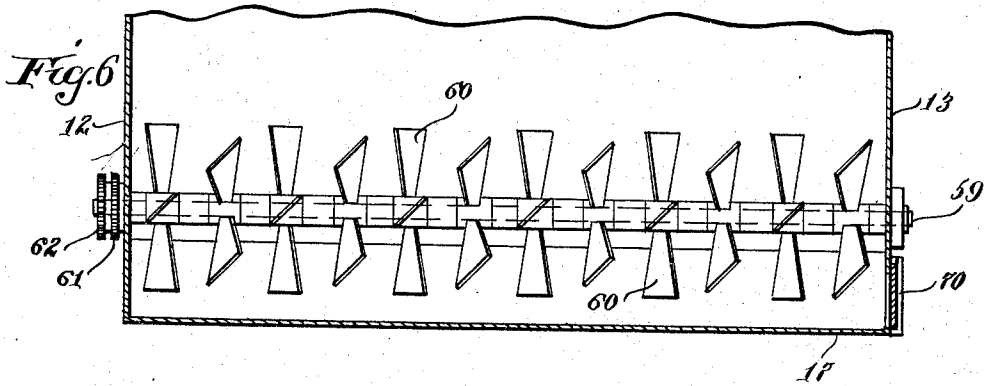
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SNOW COLLECTING AND MELTING MACHINE

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3 Sheets-Sheet 3



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UNITED STATES PATENT OFFICE

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SNOW COLLECTING AND MELTING MACHINE

Application filed May 15, 1926. Serial No. 109,204.

This invention relates to a machine for removing and melting snow.

The object of the invention is to provide an improved machine which may be moved over a street or highway to gather the snow therefrom which snow is then melted and the water run off.

The invention resides in the novel construction, combination and arrangement of elements hereinafter described and particularly pointed out in the claims.

The invention is illustrated in the accompanying drawings, wherein,—

Fig. 1 shows the complete machine in side elevation.

Fig. 2 illustrates the same in vertical longitudinal section.

Fig. 3 shows the lower end of the adjustable snow gatherer and conveyer,—the same being in the elevated position as when not in actual use.

Fig. 4 illustrates a vertical sectional detail through the machine showing the same as it would appear if viewed on the line 4—4 of Fig. 1.

Fig. 5 shows the machine in end elevation.

Fig. 6 illustrates a vertical sectional detail through the agitator device,—the section being taken on the line 6—6 of Fig. 2, and

Fig. 7 shows a sectional detail through the salt feed and agitator device as viewed on the line 7—7 of Fig. 2.

Referring to the drawings and particularly Figs. 1 and 2 thereof, the numeral 10 designates the frame of a motor vehicle on which there is a closed receptacle or body 11 having two side walls 12 and 13; a front wall 14, a top 15 and a bottom 16.

At the juncture between the bottom and front wall, I provide said bottom with a crosswise concavity 17, for a purpose that will presently be explained.

Beneath the bottom 16, there is located a burner-chamber 18 in which there are a series of burners 19, that are operated by a liquid fuel supplied thereto through pipes 20 that communicate with an elevated fuel-tank 21 located in the forward part of the body.

A valve 22, serves to control the flow of liquid fuel from the tank while each burner

may be separately controlled by an independent valve 23.

Access to the burner chamber is had through a door 24 in the side of the frame as can be seen in Fig. 1 of the drawings.

A series of flues 25 formed by spaced vertical walls 26, extend upwardly from the burner-chamber, as shown in Figs. 2 and 4 of the drawing and these flues open at their upper ends directly into the interior of the body or receptacle 11, so the heat from the burner chamber may heat the flue walls 26 as it passes up into and heats the interior of the body.

The flues are so disposed as to form a series of longitudinal passages 27 extending fore and aft in the body.

At the front and rear of the flues and passages, I provide two horizontal cross-shafts 28 and 29 which have bearing in the opposite side walls 12 and 13 and on these shafts there are mounted a plurality of sprocket-wheels 30,—the several wheels being spaced on the shafts in alinement with the said passages 27, and separated from each other by intervening flues 25.

It is therefore to be understood that one sprocket on the front shaft 28 and a sprocket on the rear shaft 29 will be in alinement so that a sprocket-chain 31, may pass around the pair of sprockets and extend through the said passages 27.

Each sprocket chain has a series of flights or blades 32 thereon and these blades when traveling with the lower stretch of the chain will move close to the bottom 16 of the body as shown in both Figs. 2 and 4 of the drawings.

The front shaft 28 extends through the side wall 12 of the body and carries a sprocket wheel 33 thereon by which the same is driven as will presently be explained.

Depending from the top 15 of the body and over the rear sprockets 30, I locate a crosswise hopper 34, having a slide valve-plate 35, in the bottom thereof as shown in Fig. 7 and in this hopper there is an agitator 36 whose shaft extends through one side wall of the hopper and carries a star wheel 37 thereon.

The slide valve-plate 35, has an operating

handle 38, which extends through the side wall 12 of the body where it may be readily operated to adjust the discharge openings in the bottom of the hopper.

5 The hopper 34 is to contain salt which is constantly agitated by the agitator 36 and allowed to escape through the bottom openings and drop into the body at the rear of the flues.

10 The star-wheel 37 at the end of the agitator 36 projects in the path of the flights or blades 32, next to the side wall 13 and as these flights pass from front to rear on the upper stretch of the sprocket chain, they successively engage the star wheel and intermit-

15 tently rotate the latter so that the agitator 36 is given an intermittent movement.
At the rear of the body I provide another horizontal cross-shaft 39 which has bearing in the side walls 12 and 13 and this shaft carries spaced-apart sprockets 40 for a purpose that will presently be explained.

20 The side walls 12 and 13 and top 15, are shaped to form a rearwardly-projecting overhanging shield 41, which extends over and around the cross-shaft 39 and sprockets 40 and at the under side of this shield I provide an inclined table 42 whose upper end is pivotally mounted at 43 so that the lower end

30 may be raised or lowered, also for a purpose that will presently be explained.
The table 42, extends the full width of the interior of the body and at its under side carries a bracket 44, and a cross-pin 45 which

35 latter is engaged by a slotted bar 46.
This bar has a screw-threaded end 47, that screws into one end of a turn-buckle device 48. The opposite end of this turn-buckle is engaged by a pivoted rod 49, extending rear-

40 wardly from the rear-axle housing 50 so that when the turn-buckle is rotated in one direction it will move the slotted bar 46 rearwardly until its rear end engages the under side of the bracket and forces the latter rear-

45 wardly and thereby swing the lower end of the inclined table 42, upwardly as shown in full lines in Fig. 3 of the drawings.
The table 42 has side plates 51 thereon so as to produce a trough-like structure and at

50 their lower ends these side plates carry bearing brackets 52 which sustain a lower horizontal cross-shaft 53 on which are mounted spaced-apart sprockets 54.
Around the lower sprockets 54 and the upper rear sprockets 40 extend endless sprocket-

55 chains 55 which latter carry a series of flights 56.
These chains and their flights therefore travel around the sprockets 54 and 40 with the lower stretch of the chains and the flights thereon moving upwardly over the inclined table 42.

60 Wheels 57 are also carried by the bearing-

65 brackets 52, at the extreme lower ends of the

side plates 51 and these wheels are designed to roll on the ground.

At the lower end of the inclined table 42 and diverging outwardly from the side plates 51 are plates 58 which serve to collect the snow as the vehicle is driven backwardly and deliver it to the lower end of the table where the conveyer flights will carry it up said table.

70 Above the front concavity 17 in the bottom and extending horizontally between the side walls 12 and 13 is a horizontal shaft 59 on which a series of agitator blades 60 are provided,—the blades dipping down into the concavity as they revolve.

75 The shaft 59 extends through the side walls 12 of the body and carries two sprocket-wheels 61 and 62 the latter being engaged by a chain 63 which also passes around sprocket 33 on the shaft 28 and the sprocket 61 being engaged by another chain 64, which passes around a sprocket 65 on a drive shaft 66 so that shafts 59 and 28 may both be driven.

80 The horizontal shaft 29 and the rear horizontal shaft 39 are both provided with sprockets 67 and 68 and a chain 69 passes around the two sprockets so that shaft 29 may drive shaft 39.

85 Shaft 39 also actuates the endless conveyer over the rear inclined table 42 and thus conveys the snow upwardly over the table and deposits it in the rear of the body where the chain 31 and its flights 32 can move it forward over the bottom 16 and between the flues.

90 By reference to Figs. 2 and 6 of the drawings it will be noted that a lower door 70 and an upper door 71 are provided in the side wall 13 of the body adjacent one end of the agitator 60. The upper door being provided for the escape of water produced by the melted snow while the lower door will permit a complete drainage of the water from the body.

95 To collect the snow the table 42 will be lowered until the wheels 57 rest upon the pavement or roadway. The burners 19 will heat the burner-chamber 18 and the bottom 16 while the flues 25 will convey the heat up into and heat the body from front to rear.

100 The driving shaft 66 through sprocket 65 and chain 64 drives sprockets 61 and 62 and the chain 63 will drive the sprocket 33 and its shaft 28. Shaft 28, drives the sprocket chains 31 which will revolve shaft 29 and the sprocket 67 on the end of this shaft drives chain 69 and sprocket 68 so as to turn the shaft 39. Shaft 39 obviously will drive the lifting conveyer 55.

105 The machine is preferably backed into the snow so that the plates 58 will collect the snow where the flights 56 on chain 55 can elevate it by dragging it up the inclined table 42 from the upper end of which it will drop into the body at the rear of the conveyer 31 which latter will then move it forward through the

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heated passages 27 and over the hot bottom which will effect a melting of the snow.

Any particles or lumps of snow that find their way to the front of the body will be caught by the agitator 60 and broken up and melted while the overflow of water will run out over the upper door 71.

While the snow is traveling forward between the flues salt from hopper 36 will be sprinkled thereon and assist in the melting operation.

The overhanging shield 41 at the rear serves to retain the heat in the body by closing the upper end around the conveyer.

When the machine is not in use the lower end of the conveyer will be raised above the street or roadway so as not to drag as the vehicle is propelled forward.

Having described my invention, I claim,—

1. In a machine for melting snow the combination with a wheeled vehicle having a closed body, of a burner chamber directly beneath the bottom with burners therein to direct the heat of their flames against said bottom, a plurality of longitudinally-extending and spaced parallel vertical flues having their elongated lower ends communicating directly with the burner chamber and extending up into the body,—the vertical flat side walls of the adjacent flues forming a plurality of separated longitudinal passages, and conveyer means in each longitudinal passage to convey snow over the heated bottom and past the heated vertical flat side walls of the flues.

2. In a machine for melting snow the combination with a wheeled vehicle having a closed body, of a burner chamber directly beneath the bottom with burners therein to direct the heat of their flames against said bottom, a plurality of longitudinally-extending and spaced parallel vertical flues having their elongated lower ends communicating directly with the burner chamber and extending up into the body, horizontal shafts extending across the interior of the body at opposite ends of the longitudinal flues, driving means on the shafts at opposite ends of the longitudinal flues and conveyers extending along the flat vertical sides of the longitudinal flues to convey snow past the heated vertical flat walls of the flues.

In testimony whereof I affix my signature.

TEOFIL J. CHRUL.

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