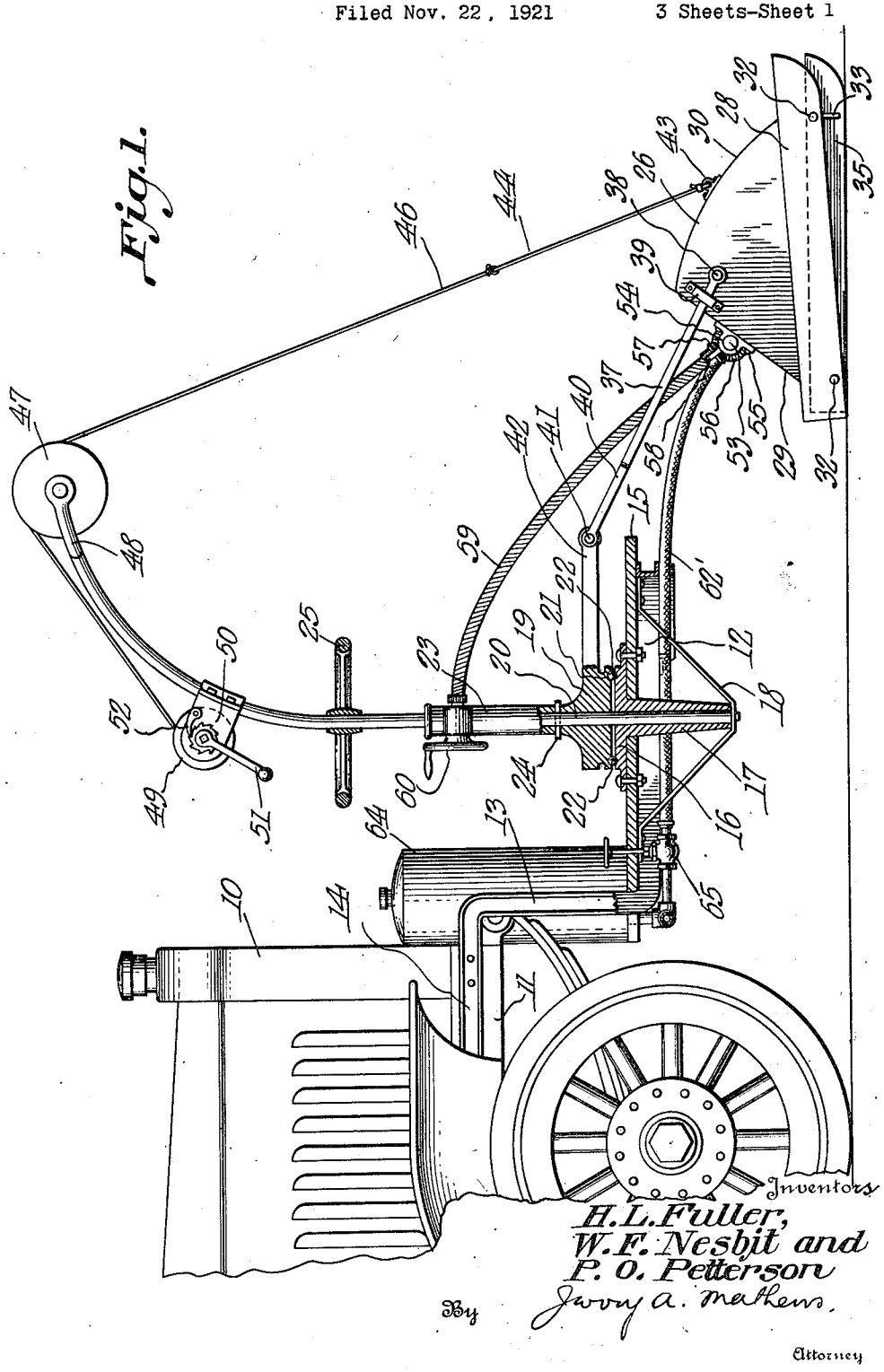
May 1, 1923. 1,453,552

H. L. FULLER ET AL

MACHINE TO MELT SNOW AND ICE

Filed Nov. 22, 1921 3 Sheets-Sheet 1

Fig. 1.



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MACHINE TO MELT SNOW AND ICE

Filed Nov. 22, 1921 3 Sheets-Sheet 2

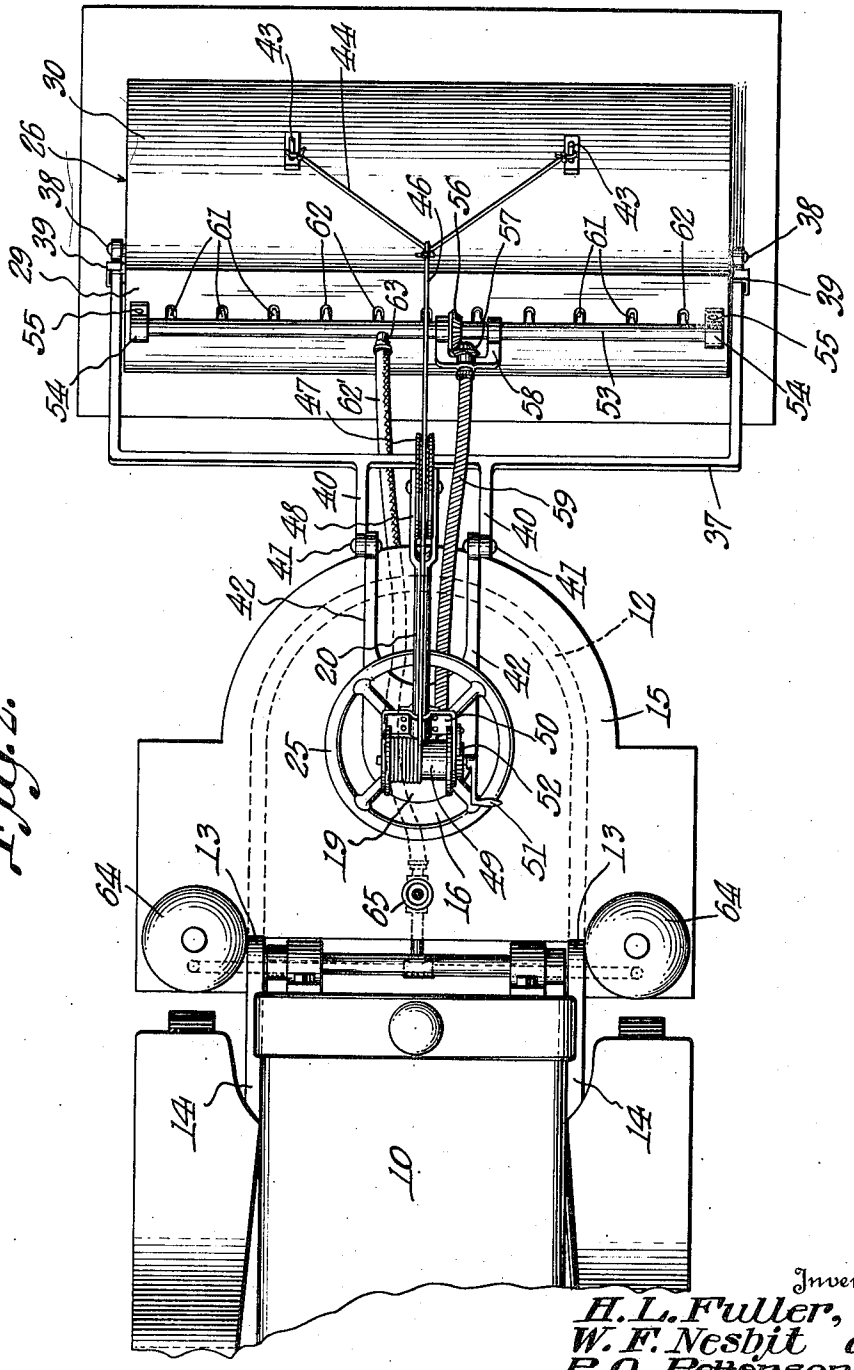


Fig. 2.

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MACHINE TO MELT SNOW AND ICE

Filed Nov. 22, 1921 3 Sheets-Sheet 3

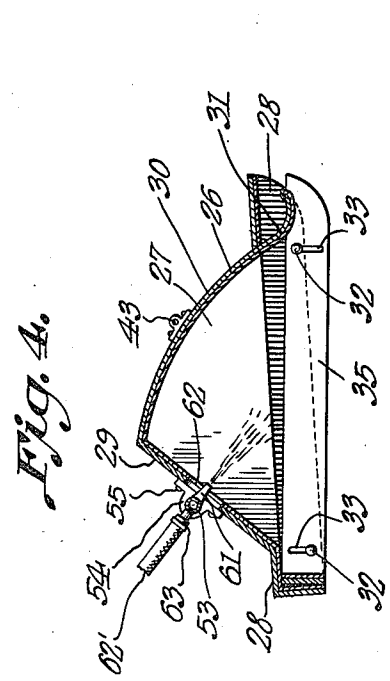


Fig. 4.

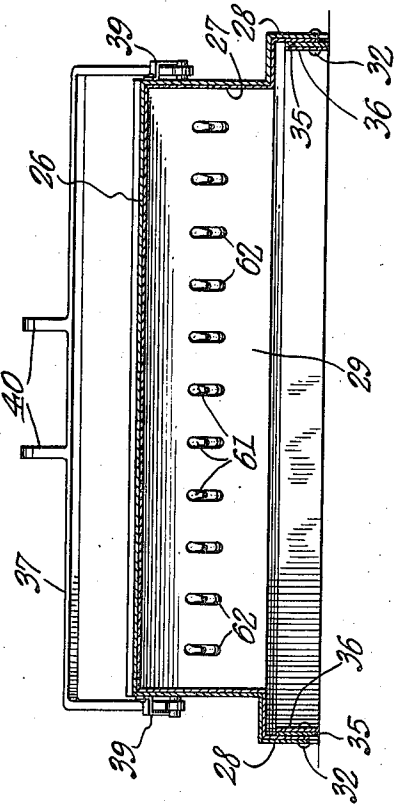


Fig. 5.

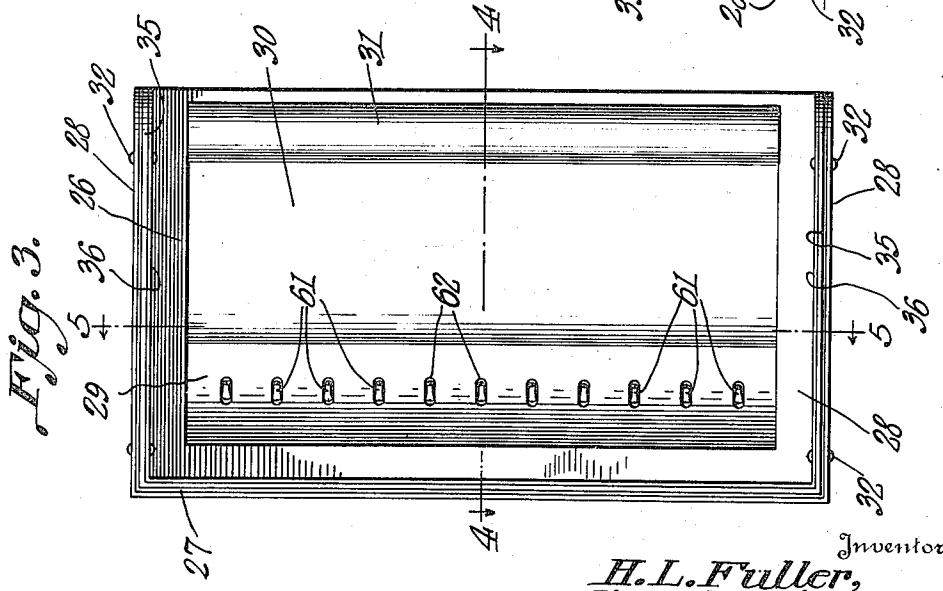


Fig. 3.

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UNITED STATES PATENT OFFICE.

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MACHINE TO MELT SNOW AND ICE.

Application filed November 22, 1921. Serial No. 517,042.

To all whom it may concern:

Be it known that we, HERVEY L. FULLER, WALTER F. NESBIT, and PER OTTO PETTERSON, citizens of the United States, residing at Galesburg, in the county of Knox and State of Illinois, have invented certain new and useful Improvements in Machines to Melt Snow and Ice, of which the following is a specification.

Our invention relates to a machine designed primarily to melt snow and ice upon a roadway or the like, while adapted for other uses, such as the burning of weeds or the like.

An important object of the invention is to provide an apparatus of the above mentioned character which may be installed upon a vehicle, such as an automobile truck, a railway car or the like, and may be operated to direct a hot flame or heated gases upon the ice or snow, to melt the same quickly and conveniently.

A further object of the invention is to provide means whereby the apparatus may be operated safely without liability of injury to persons or animals standing nearby.

A further object of the invention is to provide a device of the above mentioned character, which has a large and varied range of adjustment, to suit different conditions.

Other objects and advantages of the invention will be apparent during the course of the following description.

In the accompanying drawings forming a part of this specification, and in which like numerals are employed to designate like parts throughout the same,

Fig. 1 is a side elevation of apparatus embodying our invention, parts being shown in central vertical section,

Fig. 2 is a plan view of the same,

Fig. 3 is a bottom plan view of the ice or snow melting hood or casing,

Fig. 4 is a vertical transverse section taken on line 4—4 of Fig. 3, and,

Fig. 5 is a longitudinal section taken on line 5—5 of Fig. 3.

In the drawings, wherein for the purpose of illustration is shown a preferred embodiment of our invention, the numeral 10 designates an automobile truck as a whole, having a frame or chassis 11.

Our apparatus embodies a supporting frame 12, which may be formed of a channel-bar. This frame is horizontally arranged and is approximately U-shaped. At the rear end of the frame, the channel-bar is preferably bent upwardly, forming arms 13, carrying horizontal portions 14, bolted or otherwise rigidly secured to the chassis 11. The numeral 15 designates a platform secured to the frame 12, as shown.

Rigidly mounted upon the central portion of the platform 15 is a stationary base 16, carrying a depending sleeve 17, which may be connected with the platform by diagonal braces 18, if desired. Arranged above the base 16 is a rotatable table 19, having a shaft or rod 20 extending therethrough. This rod extends through the sleeve 17 and is rotatable therein. The faces of the bases 16 and the table 19 are provided with annular grooves or runways 21, receiving balls 22, as shown. The rod 20 extends through a sleeve 23, integral with the table 19, and may be held therein against turning movement by means of a transverse pin 24 or the like. The rod 20 extends above the sleeve 23 and is preferably bent forwardly, as shown. Any suitable means may be employed to turn the table 19, and for the sake of illustration we have shown a hand wheel 25 rigidly mounted upon the rod above the sleeve 23.

The numeral 26 designates a flame hood or casing, which is preferably formed of sheet metal and preferably lined with heat-resisting material 27, such as asbestos. This hood is provided along its edges with a hollow rectangular flange 28. The hood has a rear inclined side 29, and a forward curved or downwardly inclined side 30, which continues in the form of a lip 31. The end flanges 28, Fig. 4, are provided with headed studs or bolts 32, slidable within transverse slots 33, arranged in end strips 35, preferably covered upon their inner sides by strips of asbestos 36 or the like. These end strips 35 are adapted to partake of restricted ver-

tical movement with respect to the hood 26, particularly when the hood is angularly adjusted, and such strips remain in contact with the roadway, when the hood is raised, thereby preventing access to the interior of the hood from the ends thereof.

The numeral 37 designates an approximately U-shaped frame, or yoke, the forward ends of which are pivoted to the ends of the hood 26, at 38. This yoke operates within the brackets 39, secured to the ends of the hood. The yoke 37 carries arms 40, rigidly secured thereto, and spaced from each other, near the center of the yoke. The arms 40 are pivotally connected by bolts 41, with arms 42, which are rigidly connected with the table 19. The arms 40 and the yoke 37 are adapted to swing in a vertical plane.

The hood 26 has eyes 43 secured to its forward side 30, and a cable 44 is secured to these eyes, and this cable is connected with a cable 46, extending upwardly and passed over a pulley 47, pivotally supported in the forked end 48 of the rod 20. The cable extends rearwardly beyond the pulley 47 and is wound upon a drum 49, pivoted in a bracket 50, secured to the rod 20. The drum is turned by a crank 51, and is held against turning movement in one direction by pawl and ratchet means 52, thereby preventing unwinding of the cable.

The numeral 53 designates a tube, the ends of which are closed, and are journaled within bearings 54, which are bolted at 55, to the rear side 29. The tube 53 may be turned by any suitable means and we have shown a bevel gear 56 rigidly mounted thereon engaged by a bevel gear 57, supported by a U-shaped bracket 58, pivoted upon the tube 53. The bevel gear 57 is turned by a flexible shaft 59, extending rearwardly, and receiving its turning movement from a hand wheel 60, secured to the upper end of the sleeve 23. The tube 53 carries a plurality of burner tips 61, projecting through slots 62, Fig. 4, to project flames into the hood. The angular position of the burner tips 61 is changed by turning the tube 53, as is obvious. The fuel which may be liquid or gaseous, is supplied through a flexible pipe or hose 62′, connected with the tube 53, at 63 and also connected at its rear end with tanks 64, holding the fuel. A valve 65 is connected in the hose 62′. The invention is in no sense restricted to the particular type of burners employed or to the particular means employed to feed the fuel thereto, as the same may be widely varied, as may be found advantageous.

In the use of the apparatus, the flame hood is brought over or in proximity to the ice and snow to be melted, which may be accomplished by turning the table 19 in either direction, and lowering the hood. By turning the tube 53, the burner tips or nozzles 61 may be arranged to direct the flame downwardly in direct contact with the ice or snow, Fig. 4, or these burner tips may be arranged approximately horizontally, and will then tend to project the flame forwardly in a horizontal direction, and the flame may impinge against the inclined surface of the forward side 30, and will be deflected downwardly thereby.

While the apparatus is particularly well adapted for use in melting ice and snow, it is in no sense restricted to this use, as it may be employed to burn weeds, or for like purposes.

It is to be understood that the form of our invention herewith shown and described, is to be taken as a preferred example of the same, and that various changes in the shape, size, and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the subjoined claims.

Having thus described our invention, we claim:

1. In apparatus for melting snow and ice, the combination with a wheeled vehicle, of a substantially horizontal support carried by the vehicle, a substantially vertical sleeve carried by the support, an upstanding rod pivoted within the sleeve, a horizontally swinging member mounted upon the rod and carrying spaced arms, a flame hood arranged upon one side of said member, a pair of arms connected with the hood and pivotally connected with the first named spaced arms to swing vertically with relation thereto, a pulley secured to the upper portion of the upstanding rod, a flexible element connected with the hood and passed about the pulley, a winding device mounted upon the rod and connected with the flexible element, means for turning the rod within the sleeve, a substantially horizontal pipe pivotally mounted upon the rear side of the hood, burner elements carried by the pipe and projecting into the hood, and means to turn the substantially horizontal pipe including a member mounted upon the upstanding rod.

2. In apparatus for melting snow and ice, the combination with a wheeled vehicle, of a substantially horizontal support carried thereby, an upstanding rod pivotally mounted upon the support to turn upon its longitudinal axis, a horizontally swinging member mounted upon the rod, a flame hood arranged upon one side of said member, a pair of arms having their forward ends pivotally connected with the hood and their rear ends pivotally connected with said member to swing in a substantially vertical plane, a pulley secured to the upper portion of said rod, a winding device mounted upon the rod, a flexible element engaging the winding device and extending about the pul-

ley and connected with the hood, a substantially horizontal pipe pivotally mounted upon the rear side of the hood, burner elements carried by the pipe and projecting into the hood, a gear mounted upon the pipe to turn it, means mounted upon the rod to operate said gear, and a flexible connection between the gear operating means and gear.

In testimony whereof we affix our signatures.

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