March 18, 1930. H. H. STRIETMANN 1,751,452

ASPHALTUM HEATER APPARATUS

Filed May 9, 1925 2 Sheets-Sheet 1

Fig. 1.

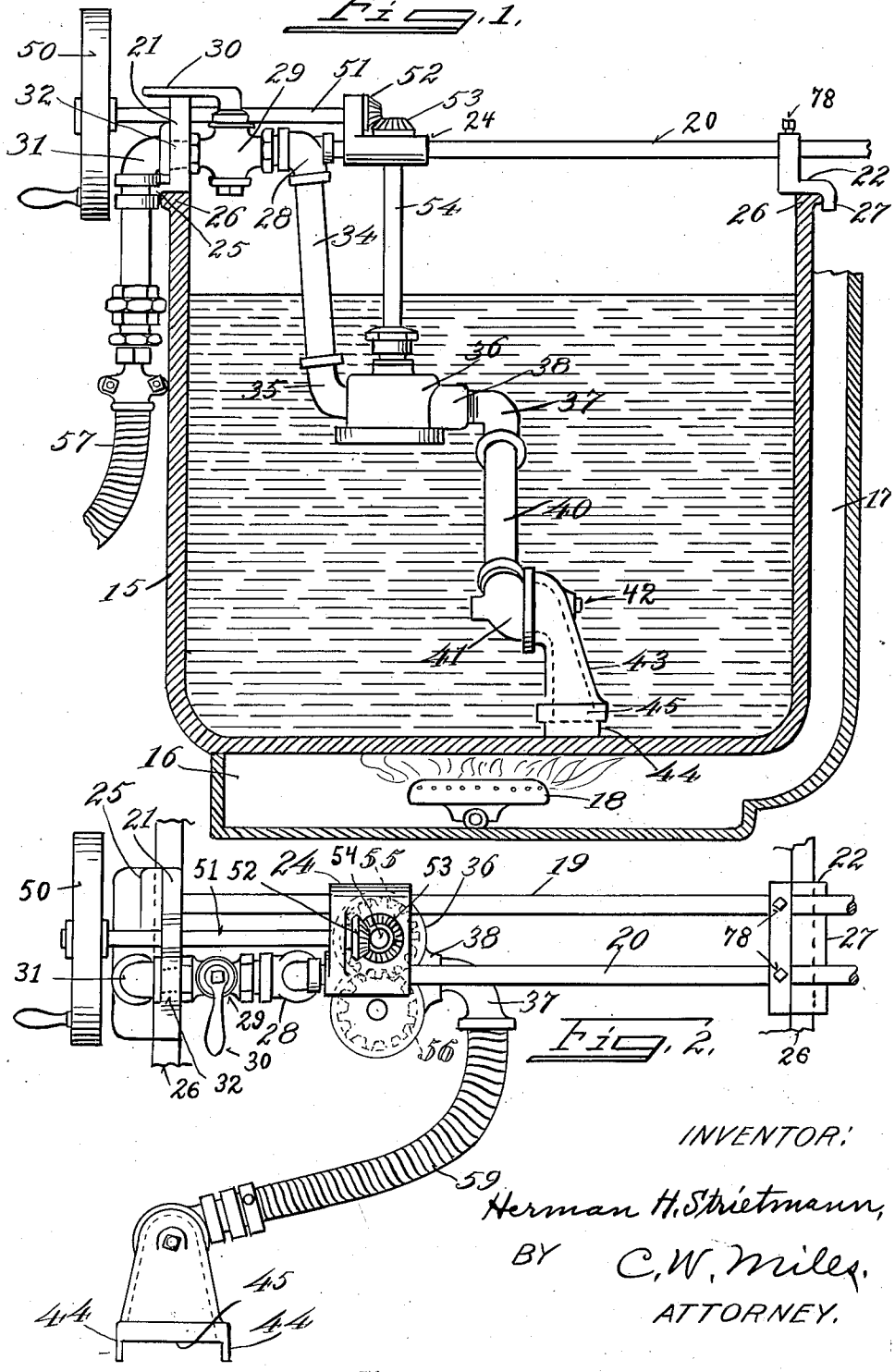

Fig. 2.

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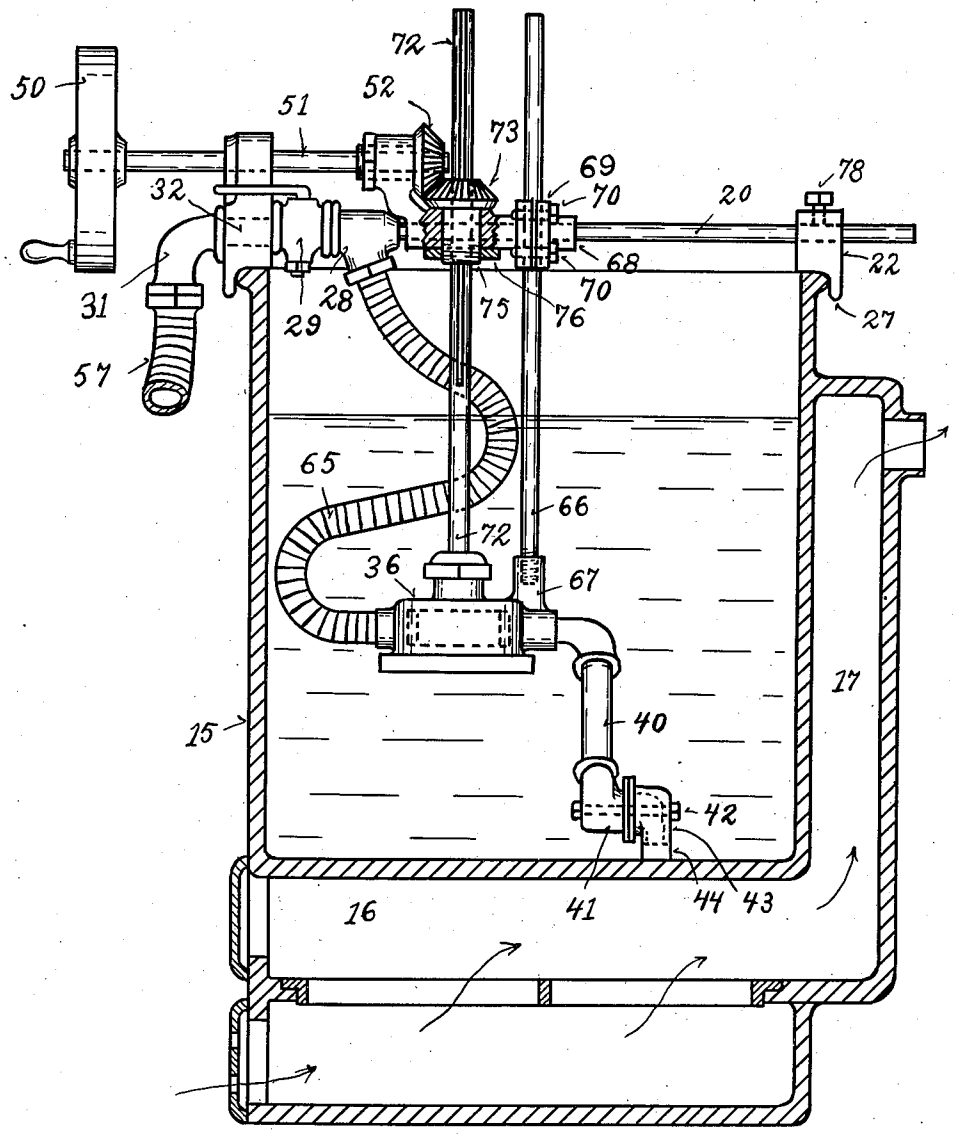

Fig. 3.

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Patented Mar. 18, 1930 1,751,452

UNITED STATES PATENT OFFICE

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ASPHALTUM-HEATER APPARATUS

Application filed May 9, 1925. Serial No. 29,242.

My invention relates to improvements in apparatus to handle or pump asphaltum and other similar substances which are normally solid or semi-solid and are adapted to be rendered fluid by the application of heat thereto. One of its objects is to provide improved means adapted to feed the asphaltum or other substance under control through a discharge conduit from the container in which it is heated to another container or directly to the place where it is to be applied. Another object is to provide an improved power feeding apparatus adapted to be detachably or interchangeably applied to asphaltum or similar containers to positively feed the fluid object is to provide an improved positive contents therefrom as required. Another object is to provide an improved positive power feed apparatus which shall be substantially free from leakage and losses due to leakage and available to feed the fluid portion of the contents from a container at will. My invention also comprises certain details of form and combination of components, all of which will be fully set forth in the description of the accompanying drawings, in which:

Fig. 1 is a vertical section through an asphaltum heating container embodying my improvements.

Fig. 2 is a plan view of a portion of the same and illustrating a modification.

Fig. 3 is a view similar to Fig. 1, illustrating a modification.

The accompanying drawings illustrate the preferred embodiments of my invention in which 15 represents an asphaltum container, as for instance an asphaltum tank mounted upon a truck and employed for road construction and repair. The container 15 is provided with a fire box 16 and flue 17 and fuel oil burner 18, or other equivalent means to heat the contents of the container 15.

A supporting frame consisting of the rods 19 and 20, the shoes 21 and 22, and a cross-bar 24, rests detachable by reason of its own weight across the top of the container with the shoes 21 and 22 resting respectively upon opposite sides of the rim 26 of the container. The shoes are also provided with depending projections 25 and 27 outside of the rim 26 to prevent shifting of the supporting frame endwise upon said container. The shoe 22 serves to bind the rods 19 and 20 together at one end while the cross-bar 24 serves to bind said rods together near their opposite ends. The extreme end of rod 19 is attached also to the shoe 21. The end of rod 20 where it projects through a perforation in the cross-bar 24 is threaded into one end of a metal pipe T 28 to serve as a rigid support for said pipe T. A valve or cock 29 is attached to one end of the T 28 and is provided with a hand lever 30 by means of which the cock may be opened or closed. A pipe elbow 31 outside of the shoe 21 is attached to the cock 29 by means of a short pipe nipple 32 passing through a perforation in the shoe 21, whereby the T 28, cock 29, and nipple 32 become in effect an extension of the rod 20 to connect the rod 20 rigidly with the shoe 21.

A pipe section 34 is threaded from below into the T 28, and at its lower end is threadedly connected to an elbow 35 forming part of the frame or casing 36 of a fluid power pump. A pipe elbow 37 is loosely threaded into a boss 38 forming the intake of the pump casing so as to permit the elbow 37 to have a swiveled joint or movement relative to the pump casing. A pipe section 40 is threaded into the elbow 37, and its opposite end is connected to a coupling member 41 which is pivotally attached by means of a bolt 42 to a foot or intake plate 43 which rests by means of short legs or feet 44 upon the bottom of the container 15 and enables the fluid asphaltum near the bottom of the container 15 to enter the intake port 45 of the foot plate and thence to flow through the coupling member 41, pipe section 40 and elbow 37 to the pump casing, and also enables the elbow 37 and the foot plate 43 to swivel so as to automatically adjust themselves to position as the pump is lowered into the container 15, and its supporting frame is brought to rest upon the rim of said container.

A hand wheel 50 and horizontal driving shaft 51 are journaled near one end of said shaft to the shoe 21 and near the opposite end of said shaft to the cross-bar 24. A beveled gear 52 on the shaft 51 meshes with a beveled

gear 53 on a vertical shaft 54. The upper end of the shaft 54 is journaled to the cross-bar 24, and the lower end of said shaft is journaled in the upper end of the pump casing. Any desired type of power pump may be employed. I preferably employ a pump comprising two spur gears 55 and 56, meshing together within a closely fitting chamber in the pump casing, one of said gears being mounted directly upon the lower end of the driving shaft 54. A section of flexible conduit 57 is preferably employed outside of the container 15, and connected directly or indirectly to the elbow 31 either to direct the flow from the pump into other portable containers, or to discharge the fluid asphaltum directly to the point where it is to be applied to the road.

In the modification Fig. 2 I have illustrated a section of flexible conduit 59 to take the place of the rigid pipe section 40 shown in Fig. 1.

The pump casing 36 is designed to be submerged in the more or less heated asphaltum within the container 15, and preferably in the central or upper portion thereof, and to be kept sufficiently heated by reason of such submersion to enable the pump to be readily operated when required, and to automatically seal all the pump joints and to bring the discharge conduit from the pump over the rim of the container, and thereby avoid tapping the container with a discharge conduit below the surface level of the asphaltum in the container, which would permit more or less leakage and waste, and might through accident result in the escape of practically all of the asphaltum from the container. The pump and its support are adapted at any time to be detached from one container and applied to another container, or stored away until again required for use.

As illustrated in Fig. 1 the pump 36 is supported at a uniform distance from its supporting frame by means of the substantially rigid pipe section 34 and this distance can only be changed by changing the length of pipe section 34. In the modification Fig. 3 the discharge end of the pump 36 is connected by means of a flexible or adjustable pipe section 65, which permits the pump to be adjusted vertically to different positions relative to its supporting frame. In this modification the pump is supported from its supporting frame by means of a vertical rod 66, which is threaded into a boss 67 attached to the pump casing, and which is adjustably mounted relative to the cross bar 68, corresponding to the cross bar 24 of Fig. 1 by being clamped in a split sleeve 69 by means of clamping bolts 70 which are adapted to be loosened and the rod adjusted endwise of the sleeve 69 after which the bolts 70 are again clamped tight. In order to permit this vertical adjustment of the pump relative to its supporting frame and the container 15, the upper end of the shaft 72 corresponding to shaft 54 of Fig. 1, is splined and keyed to the beveled gear 73 so as to be adjustable endwise through the gear 73, which gear is journaled to the cross-bar 68 by means of its tubular hub 75, to the lower end of which a nut 76 is threaded. The pump itself is thus adapted to be adjusted vertically relative to its supporting frame and to the container, depending upon the amount of asphaltum contained in the container, and is adapted to use on deep or shallow containers. The shoe 22 in each of the modifications is shown attached to the rods 19 and 20 by means of set screws 78, which enable the shoe 22 to be adjusted along the rods 19 and 20 to different positions to adapt the supporting frame to be used on relatively wide or narrow containers.

My improved apparatus is adapted to be employed to pump soap greases, heavy oils, and other similar substances as well as asphaltum. If desired the members 40, 41, 42, 43 and 44 of Fig. 3 may be omitted.

The apparatus herein shown and described is capable of considerable modification within the scope of the claims without departing from the spirit of my invention.

What I claim is:

1. In an apparatus for pumping asphaltum and similar substances normally semi-solid at atmospheric temperatures, comprising a fluid container, a pump supporting member adapted to be supported upon said container, a fluid pump supported by said pump supporting member within said container in position to be submerged in the contents of said container, a fluid discharge conduit leading from said pump and having a portion extending over the rim of said container, pump actuating means carried by said pump supporting means and adapted to be operated from the exterior of said container, and means for raising the pump without raising the height of the rim portion of said discharge conduit.

2. In an apparatus for pumping asphaltum and similar substances normally semi-solid at atmospheric temperatures, comprising a fluid container, a pump supporting member adapted to be supported upon said container, a fluid pump supported by said pump supporting member within said container in position to be submerged in the contents of said container, a fluid discharge conduit leading from said pump and having a portion extending over the rim of said container, and supported thereby, and pump actuating means carried by said pump supporting means and adapted to be operated from the exterior of said container.

3. In an apparatus for pumping asphaltum and similar substances normally semi-solid at atmospheric temperatures comprising a fluid container, a pump supporting member

adapted to be supported upon said container, a fluid pump supported by said pump supporting member within said container in position to be submerged in the contents of said container, a conduit having one end adapted to rest on the bottom of the container and its other end leading through the contents of the fluid container and connected to said fluid pump, a fluid discharge conduit leading from said pump and having a portion extending over the rim of said container, and pump actuating means carried by said pump supporting means.

In testimony whereof I have affixed my signature.

HERMAN H. STRIETMANN.