Dec. 8, 1925. 1,564,799

R. A. THORNTON

DISPENSING APPARATUS

Filed Sept. 13, 1924

Fig. 1.

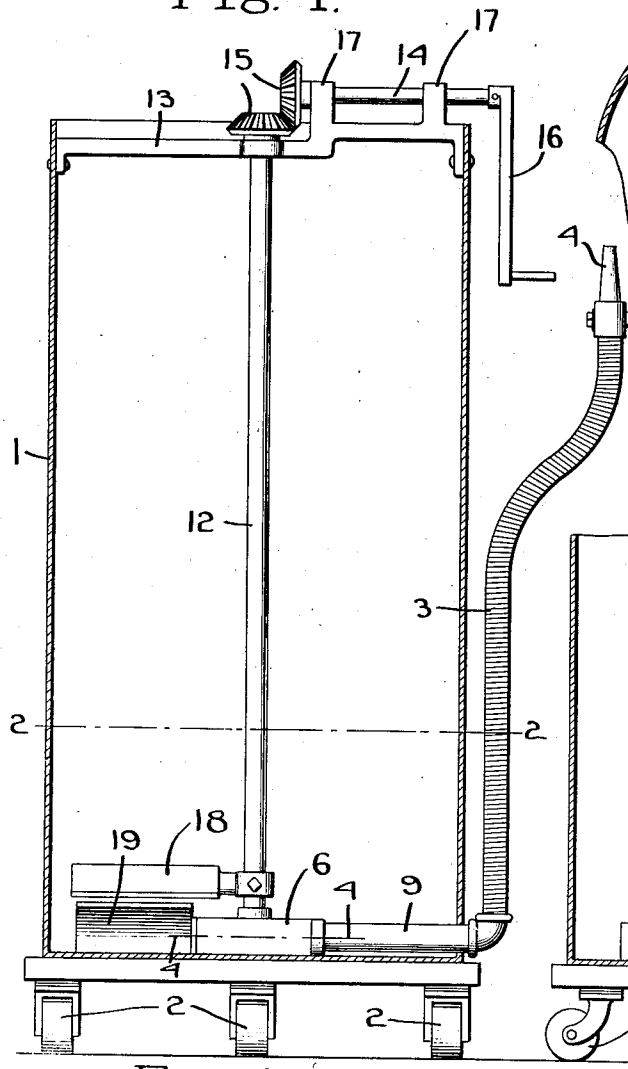


Fig. 2.

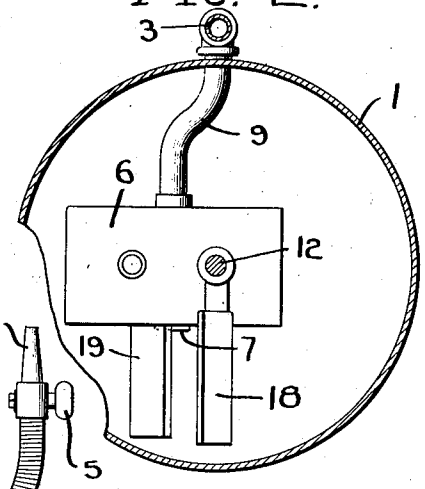


Fig. 3.

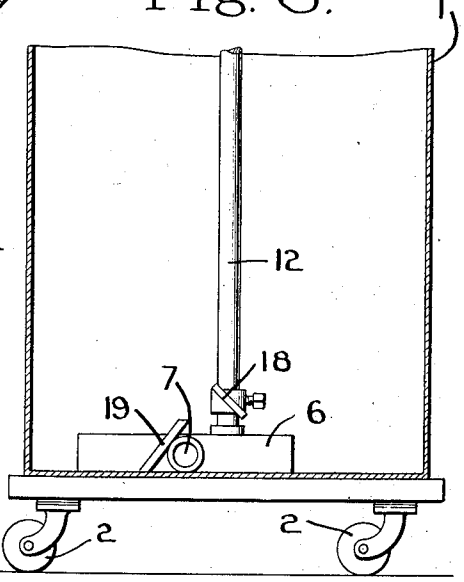
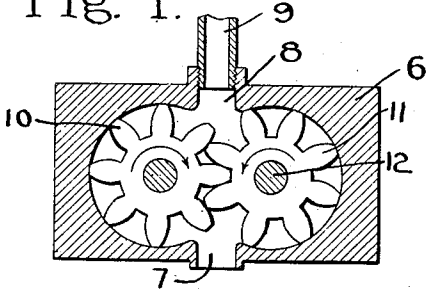


Fig. 4.



Inventor.
Roy A. Thornton
by Heard Smith & Tennant.
Attys.

Patented Dec. 8, 1925. 1,564,799

UNITED STATES PATENT OFFICE.

ROY A. THORNTON, OF NORTH WEYMOUTH, MASSACHUSETTS.

DISPENSING APPARATUS.

Application filed September 13, 1924. Serial No. 737,551.

To all whom it may concern:

Be it known that I, ROY A. THORNTON, a citizen of the United States, residing at North Weymouth, county of Norfolk, State of Massachusetts, have invented an Improvement in Dispensing Apparatus, of which the following description, in connection with the accompanying drawing, is a specification, like characters on the drawing representing like parts.

This invention relates to dispensing apparatus which is specially designed for dispensing semi-solid material such for instance as gear grease that is used in the lubrication of automobiles and other machinery.

The device comprises a container for containing the material to be dispensed, a delivery pipe through which the material is delivered, a pump or feed mechanism by which the material is forced through the delivery pipe and means for maintaining at all times a quantity of the non-fluid semi-solid material at the pump inlet so that the pump will at all times be operative.

In the dispensing of semi-solid material which will not flow it is, of course, important that the material should be constantly fed to the inlet of the pump or other forcing mechanism for if this is not done the pump will feed the material directly adjacent the inlet and will then simply run idle or possibly suck air.

My invention provides means, preferably associated with the pump, which operates to feed the material to the pump inlet and to maintain the supply at this point so that the pump will at all times function properly.

In order to give an understanding of the invention I have illustrated in the drawings a selected embodiment thereof which will now be described after which the novel features will be pointed out in the appended claims.

In the drawings:

Fig. 1 is a vertical sectional view of an apparatus embodying my invention;

Fig. 2 is a section on the line 2—2, Fig. 1;

Fig. 3 is a vertical section through the lower end of the device taken at right angles to Fig. 1;

Fig. 4 is a section through the pump on substantially the line 4—4, Fig. 1.

1 indicates a container adapted to contain gear grease or other semi-solid material. This container is shown as mounted on wheels 2 so that it can be readily moved from place to place, this being a convenient arrangement when the device is used for dispensing cup grease because it provides for readily transporting the container to the automobile or other machine to which the grease is to be delivered.

In the construction herein shown the container is provided with a delivery pipe 3 having a delivery nozzle 4 at its end. This pipe is exterior to the container and is preferably a flexible pipe so that the delivery nozzle 4 may be readily placed at the location where the grease is to be delivered. This nozzle 4 is shown as being controlled by a valve or stop cock 5,

Situated within the container is a forcing device adapted to force the material through the delivery pipe. This forcing device is herein illustrated as in the form of a gear pump, although any desirable forcing device may be used.

This gear pump is of the ordinary type and comprises a casing 6 having an inlet 7 and an outlet 8 which is connected to the delivery pipe 3 by means of a pipe connection 9. Situated within the casing are intermeshing elements 10 and 11. During the rotation of the gear elements in the direction of the arrows shown in Fig. 4 the space between the teeth becomes filled with the material and is carried around from the inlet port to the delivery port whence it is forced through the delivery pipe 3 all as usual in pumps of this character.

One of the gear elements (the gear element 11 in this construction) is fast on a drive shaft 12 which extends vertically through the container to the upper side thereof and the upper end of which is journalled in a spider or support 13. For operating the shaft 12 I have shown a crank shaft 14, which is also geared to the shaft 12 by bevelled gears 15, said crank shaft having a crank handle 16 thereon by which it may be turned. The crank shaft 14 is shown as journalled in bearings 17 carried by the bracket or support 13.

In dispensing semi-solid material, such as gear grease, it is necessary to provide means for maintaining a supply of the material at the pump inlet 7 because otherwise the pump would operate until the material in the immediate vicinity of the inlet 7 was delivered and then would either become bound or would simply suck air.

In order to keep a supply of this semi-

solid material at the pump inlet I have provided herein means associated with the pump which stirs or agitates the material in the general vicinity of the inlet port and in such a way as to maintain a supply at the pump.

In the construction herein shown this is done by means of a blade 18 which is fast on the shaft and is situated directly above the pump casing. The blade is inclined as shown in Figs. 2 and 3 so that as it is rotated through the mass of material it tends to force the latter downwardly. Situated adjacent the inlet 7 is a stationary inclined deflector blade or plate 19 which inclines in the opposite direction from the blade 18. The movement of the blade 18 tends to force the semi-solid material downwardly and as the movable blade 18 passes over the stationary blade 19 the material will be caught by the blade 19 and pressed or carried downwardly to the pump inlet 7. The co-operation of these two blades or plates 18 and 19 serves to maintain a proper supply or quantity of the semi-solid material at the pump inlet so that the latter will function properly and will not become bound.

When the material being dispensed is in the nature of gear grease the blade 18 has the further effect of softening and increasing the fluidity of the material. It is well known that when grease, such as gear grease or cup grease, is stirred its fluid qualities are increased and the blade 18 thus not only helps to feed the material to the pump inlet 7 but also renders the material adjacent the pump more fluid so that the feeding operation is facilitated.

While I have illustrated herein a selected embodiment of my invention I do not wish to be limited to the constructional features shown.

I claim:

1. In a dispensing apparatus for dispensing semi-solid material, the combination with a container, of a delivery pipe through which the material is dispensed, a gear pump in the container for feeding material to the delivery pipe, said pump having an inlet adjacent the bottom of the container, a deflector plate secured to the bottom adjacent said inlet, and a rotatable blade movable in a plane immediately above the deflector plate, said rotatable blade having its front face inclined in a direction to force material downwardly toward the deflector plate, and the deflector plate being inclined in the opposite direction and functioning with the movable blade to maintain a supply of material at the pump inlet.

2. In a device of the class described, the combination with a container, of a delivery pipe leading therefrom, a gear pump in the container for feeding material to the delivery pipe, a shaft for operating the gear pump, said pump having an inlet adjacent the bottom of the container, a blade mounted on said shaft and rotating in a plane directly above the inlet, and a stationary deflector plate secured to the bottom of the container adjacent said inlet, and inclining upwardly from the bottom in a direction opposite to that in which the blade is moving as it passes over said plate, said blade and plate functioning to maintain a supply of material at the pump inlet.

3. In a device of the class described, the combination with a container, of a delivery pipe leading therefrom, a gear pump in the container for feeding material to the delivery pipe, said pump having an inlet, a deflector plate stationarily supported adjacent said inlet and a movable blade co-operating with said plate to maintain a supply of material at the pump inlet.

4. In a device of the class described, the combination with a container, of a delivery pipe leading therefrom; a gear pump in the container for feeding material to the delivery pipe, said pump having an inlet, a shaft by which the pump is operated, a deflector plate stationarily mounted adjacent the pump inlet, and a blade fast on said shaft and co-operating with said deflector plate to maintain a supply of material at the pump inlet.

5. In a device of the class described, the combination with a container, of a delivery pipe leading therefrom, a gear pump in the container for feeding material to the delivery pipe, said pump having an inlet adjacent the bottom of the container, a blade movable in a plane directly above the inlet and a stationarily mounted deflector plate at the side of the inlet, said deflector plate inclining upwardly from the bottom of the container in a direction opposite to that in which the blade moves, whereby a supply of material is maintained at the inlet.

In testimony whereof, I have signed my name to this specification.

ROY A. THORNTON.