

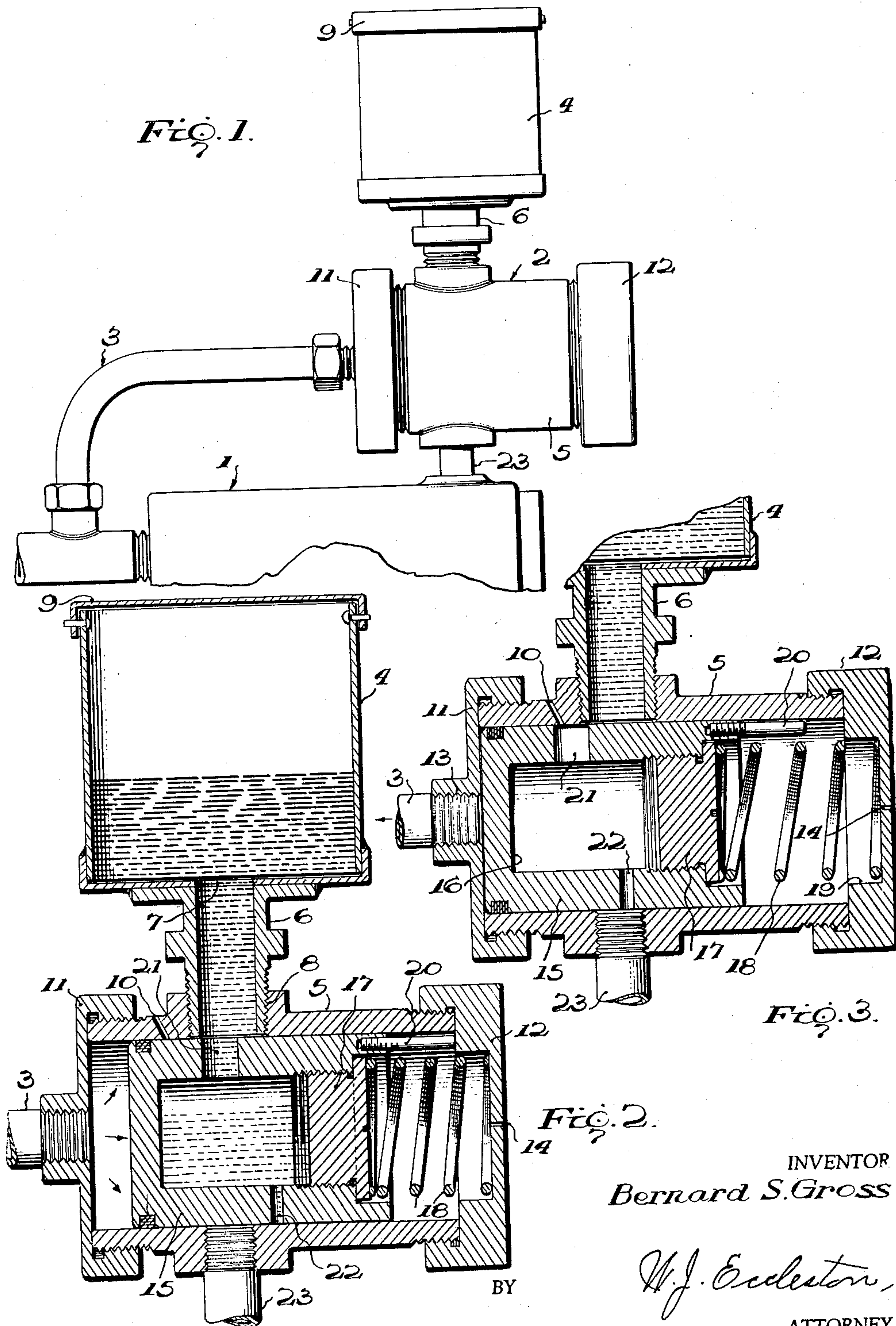
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INTERMITTENT LUBRICATOR

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## INTERMITTENT LUBRICATOR

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2 Claims. (Cl. 184-79)

(Granted under Title 35, U.S. Code (1952), sec. 266)

The invention described herein, if patented, may be manufactured and used by or for the Government for governmental purposes, without the payment to me of any royalty thereon.

This invention relates to lubricators for mechanisms such as pumps and the like in which pressures are caused to rise and fall during the operation of the mechanism, and one of the primary objects of the invention resides in the provision of a lubricator which is caused to automatically feed lubricant to the mechanism when the pressure drops and to automatically cut off the feed when the pressure is restored.

Another object of the invention consists in the provision of a simplified yet extremely reliable lubricator, which will automatically feed the lubricant to the mechanism by gravity in measured quantities upon the occurrence of the above-mentioned variations in pressures.

Other objects and advantages of the invention will be apparent from the following description taken in connection with the accompanying drawings, in which:

FIG. 1 is a side elevational view of the intermittent lubricator in combination with the mechanism to be lubricated;

FIG. 2 is a vertical sectional view through the lubricator with pressure applied to the measuring piston so that its interior is filled by gravity from the superimposed reservoir; and

FIG. 3 is a similar fragmentary view showing the measuring piston in its opposed position wherein the measured amount of lubricant has been discharged into the mechanism being lubricated.

Referring to the drawings in greater detail and by reference numerals, the numeral 1 indicates any mechanism to be lubricated, such as a pump or the like, and the numeral 2 indicates the intermittent lubricator connected thereto by means of a pipe 3.

The lubricator consists primarily of a vertically disposed reservoir 4 and a horizontally disposed cylinder 5 connected thereto by means of a pipe 6 which communicates with the interior of the reservoir through an opening 7 and with the cylinder 5 through an opening 8.

The reservoir 4 may be provided with a loosely fitting cover 9 so as to permit the entrance of air to the surface of the lubricant, and the cylinder 5 is provided with a vent 10 for a similar purpose.

The cylinder 5 is closed at its respective ends by means of closures 11 and 12, the closure 11 being provided with a threaded opening 13 into which the pipe 3 is threaded, and the closure 12 being provided with a vent 14 to permit the entrance and exit of air as the piston hereinafter referred to is reciprocated.

The piston reciprocally mounted in the cylinder 5 is indicated by the numeral 15 and is of the sleeve type to provide a measuring cavity 16. The open end of the piston is closed by a screw plug 17 which forms a seat for a spring 18 which normally biases the piston to the left as shown in FIGS. 2 and 3. The opposite end of the spring is seated in a cavity 19 formed in the inner face of the closure 12 and the adjacent end of the piston is provided with a stop pin 20 which is adapted to engage the inner face of closure 12 to limit the movement of the piston 15 to the right as shown in FIGS. 2 and 3.

The side wall of the piston 15 is provided with staggered

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openings 21 and 22, the former adapted to communicate with the pipe 6 and the latter to communicate with a pipe 23 which, in turn, communicates with the interior of the mechanism which is being lubricated.

The operation of the lubricator is fairly obvious by viewing FIGS. 2 and 3. As pressure is created within the mechanism, the same is carried through the pipe 3 so as to force the piston 15 to the right as indicated in FIG. 2 so that the piston opening 21 communicates with the pipe 6 to permit the flow of lubricant by gravity through the pipe 6 and opening 21 into the measuring chamber 16 of the piston, the discharge opening 22 in this position of the piston being such that it is closed with respect to the discharge pipe 23 and hence no lubricant is being charged into the mechanism 1. However, upon the complete reduction of pressure within the mechanism 1 and pipe 3, the spring 18 will force the piston 15 to the left as is shown in FIG. 3, thus aligning the passageway 22 with the pipe 23 so that the measured quantity of lubricant within the chamber 16 will be discharged by gravity through the passageway 22 and pipe 23 to the point of lubrication within the mechanism 1. In the latter position also, the opening 21 is aligned with the vent 10 so as to avoid the formation of a vacuum in the chamber 16 as the lubricant is discharged therefrom.

From the foregoing description taken in connection with the accompanying drawings, it will be noted that I have devised an exceedingly simple and yet durable and reliable intermittent lubricator whereby measured quantities of lubricant may be intermittently forced by gravity to the point of lubrication in a mechanism associated with the lubricator in accordance with the presence or absence of pressure within such a mechanism.

In accordance with the patent statutes, I have described what I now consider to be the preferred form of the lubricator, but it will be understood that various minor changes may be made without departing from the spirit of the invention, and it is intended that all such deviations be included within the scope of the appended claims.

I claim:

1. In combination an automatically operated intermittent lubricator adapted to be controlled by variations in pressure in the mechanism being lubricated comprising a reservoir adapted to contain a lubricant, a horizontally disposed cylinder having an opening in one end and closed at the other end, a pipe communicating with the interior of the reservoir and cylinder, a sleeve type piston closed at each end and reciprocally mounted in the cylinder, a coil spring mounted in the cylinder and engaging the closed end thereof and the adjacent end of the piston, said piston provided with staggered openings adapted to communicate respectively with the reservoir and with the mechanism to be lubricated, a pipe communicating with the end of the cylinder opposite the spring and with said mechanism, whereby variations of pressure in the mechanism will cause movement of the piston to control the flow of lubricant from the reservoir to the mechanism, the side wall of the cylinder provided with a vent passage communicating with the atmosphere and the interior of the piston when the latter is in communication with the mechanism to be lubricated.

2. In combination an automatically operated intermittent lubricator adapted to be controlled by variations in pressure in the mechanism being lubricated, comprising a reservoir adapted to contain a lubricant, a horizontally disposed cylinder having an opening in one end and closed at the other end, a pipe communicating with the interior of the reservoir and the cylinder, a sleeve type piston closed at each end and reciprocally mounted in the cylinder, a coil spring mounted in the cylinder and engaging the closed end thereof and the adjacent end of the piston, said cylinder closed end having an air vent therein and



said piston being provided with staggered openings adapted to communicate respectively with the reservoir and with the mechanism to be lubricated, and a pipe communicating with the end of the cylinder opposite the spring and with said mechanism, whereby variations of pressure in the mechanism will cause movement of the piston to control the flow of lubricant from the reservoir to the mechanism.

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