

T. C. THOMSEN & A. KIRKHAM.
FORCE FEED LUBRICATOR.
APPLICATION FILED JULY 17, 1911.

1,047,857.

Patented Dec. 17, 1912.

2 SHEETS-SHEET 1

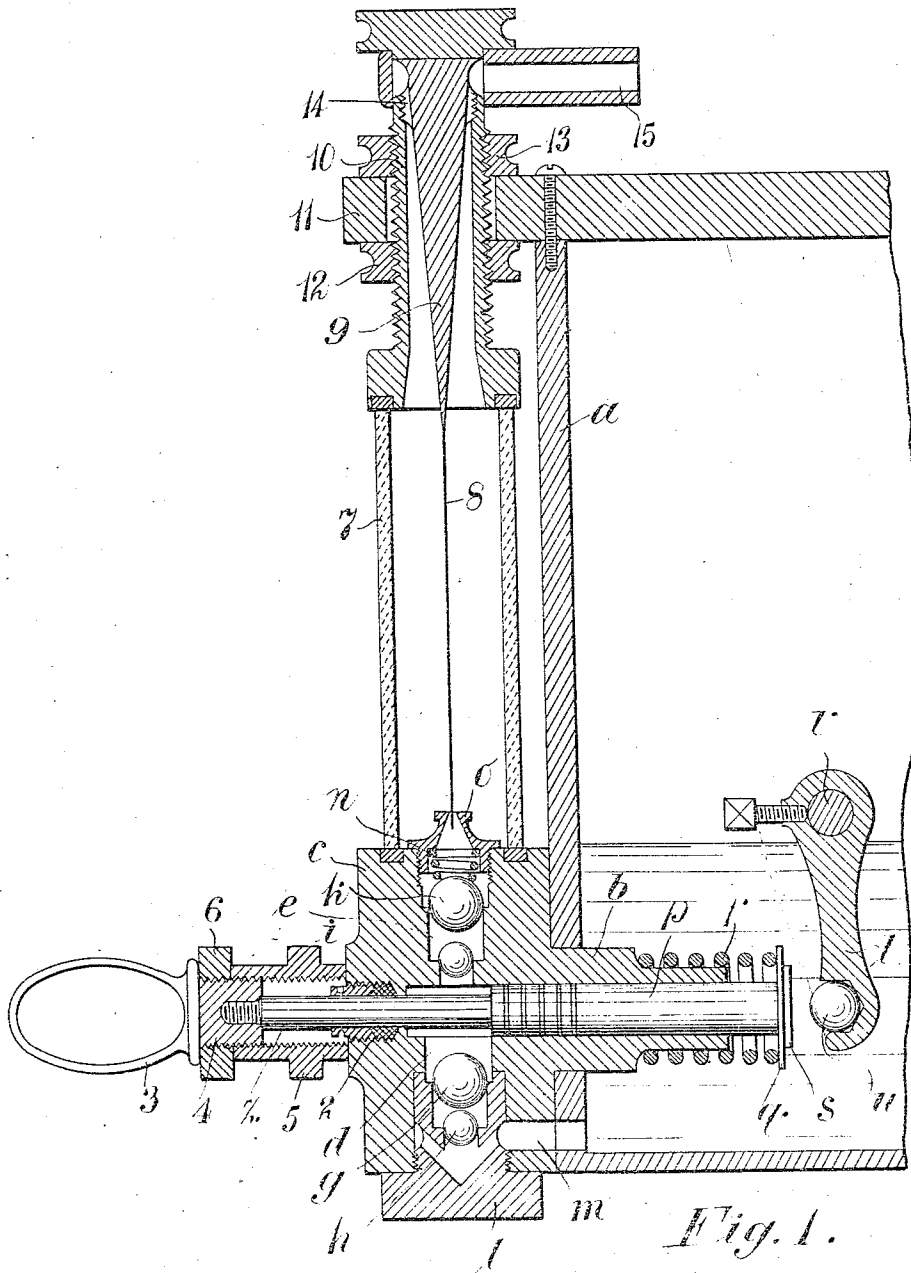


Fig. 1.

Witness:
Corinne Myers.
Vera Parkes.

Inventors
Thomas Christian Thomsen
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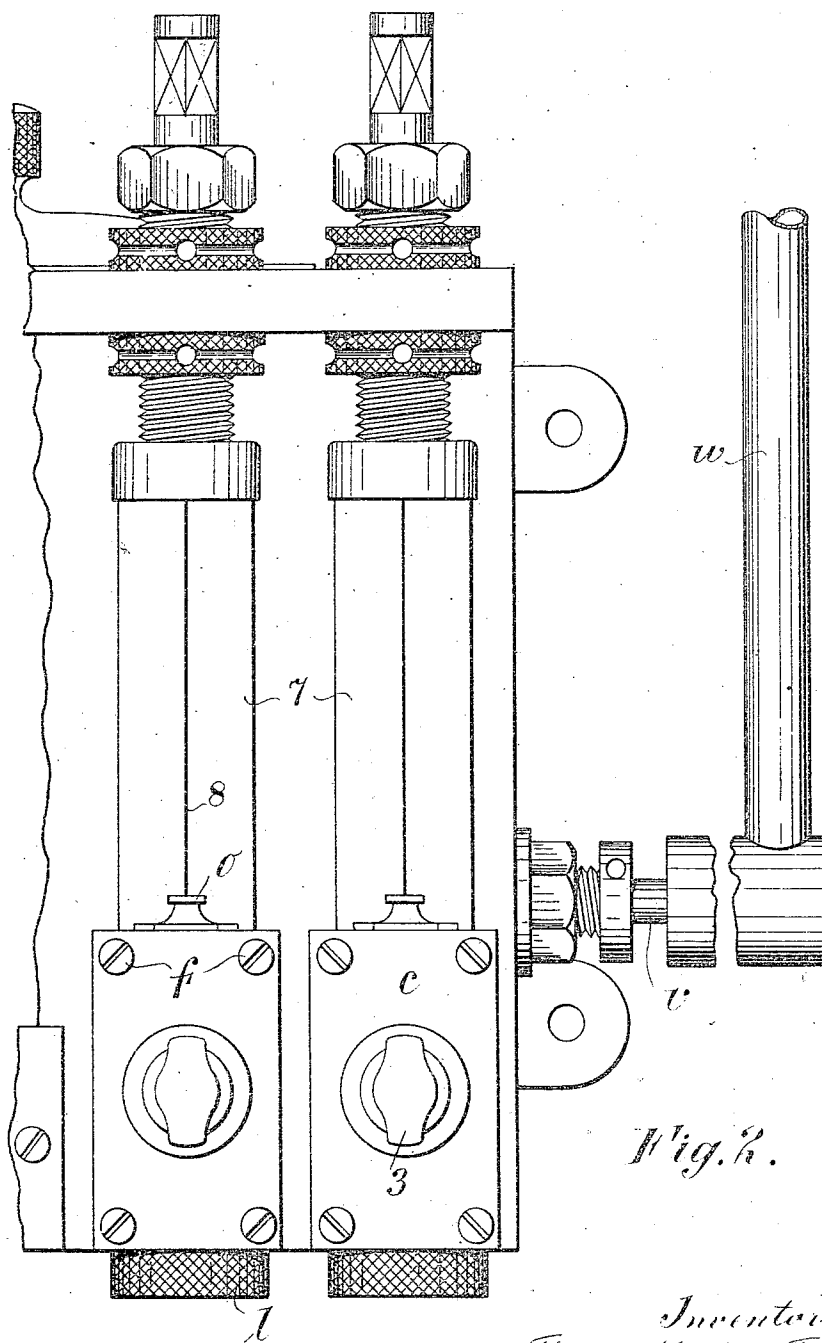


Fig. 2.

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UNITED STATES PATENT OFFICE.

THOMAS CHRISTIAN THOMSEN, OF LONDON, AND ARTHUR KIRKHAM, OF COUNTY OF LANCASTER, ENGLAND.

FORCE-FEED LUBRICATOR.

1,047,857.

Specification of Letters Patent.

Patented Dec. 17, 1912.

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To all whom it may concern:

Be it known that we, THOMAS CHRISTIAN THOMSEN, subject of the King of Sweden, residing at London, England, and ARTHUR KIRKHAM, subject of the King of England, residing at Lancashire, England, have invented certain new and useful Improvements in Force-Feed Lubricators, of which the following is a specification.

This invention relates to improvements in force feed lubricators, one object being to provide a lubricator in which each pump and its operating mechanism is immersed in oil, and the valve box is situated without the oil casing so as to permit of ready inspection and cleaning of the valves of each pump.

Other objects are to provide means by which the plunger of each pump can be operated by hand independently of the main operating mechanism, and means by which the stroke of each plunger can be readily adjusted even during operation, said hand operating means and stroke adjusting means being operable from without the oil casing. The pump plunger is normally reciprocated over a certain stretch of the pump barrel by the operating mechanism within the oil casing, but when a sudden excess or flush of oil is required the plunger is adapted to be reciprocated by hand over a different and preferably longer stretch of the pump barrel. By this means, and in view of the hand operating means being independent of the normal operating mechanism, the stroke adjusting means need not be interfered with after it has once been set accurately to suit normal requirements, the normal stroke being insured after each hand operation without requiring any readjustment.

Further objects will be evident from the following description with reference to the accompanying drawings in which:

Figure 1, is a side sectional elevation of one form of lubricator according to the invention. Fig. 2, is a front elevation of part of a similar form of lubricator.

The oil casing *a*, is fitted with one or more lubricator pumps each having a barrel *b*, passing through a hole in one side of the casing near the bottom thereof so that the barrels are immersed in oil. Each pump barrel is provided with a valve box which is preferably in the form of a block *c*, integral with each barrel, the block being

bored so as to form a suction passage *d*, and a delivery passage *e*. Each block *c*, is fitted against the outer surface of one side of the oil casing *a*, being secured by suitable means such as screws *f*. The suction and delivery passages are provided with suitable valves such as ball valves. It is preferred to use two suction valves *g*, *h*, and two delivery valves *i*, *k*. The valves *g*, *h*, are preferably mounted in a plug *l*, which is screwed into the suction passage so as to facilitate removal of the said valves for inspection and cleaning. The passages *d*, *e*, are preferably in alinement so that when the plug *l*, is removed both passages can be cleared by means of a wire or the like.

The suction passage *d*, communicates with the oil casing *a*, by means of a lateral passage *m*, formed partly in the block *c*, and partly in the adjacent side of the casing. The delivery valve *k*, is preferably held to its seat during the suction stroke by a spring *n*, which may be arranged conveniently within a nozzle *o*. A plunger *p*, is fitted in each pump barrel and has a head *q*, against which one end of a spring *r*, abuts. The head *q*, preferably has a hardened steel face *s*, against which suitable operating mechanism works to force in the plunger on the delivery stroke, the plunger being moved in the opposite direction by the spring *r*. The operating mechanism may be of any suitable kind such as an oscillating arm *t*, fitted with an impact ball *u*, the arm *t*, being mounted on a shaft *v*, oscillated by a lever *w* as usual in force feed lubricators. The shaft *v*, may be rotated as in some known forms of lubricator in which case it is provided with a cam *x*, (Fig. 3) the cam being preferably grooved and fitted with a loose ring *y*.

In one form the plunger *p*, has an extension *z*, passing through the valve box which is provided with a packed gland 2 (Fig. 1), the extension *z*, having a handle 3, on its end. The shank 4, of the handle 3, is screw threaded and on it is a nut 5, which abuts against the valve box when the plunger *p*, is at the limit of its suction stroke. The nut 5, thereby provides a ready means for adjusting the stroke of the plunger, said nut being adjustable from without the oil casing. A lock nut 6, is preferably provided to prevent the nut 5, moving accidentally. The handle 3, permits of hand operation of the plunger *p*, independently of the main oper-

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ating mechanism for instance, for flushing purposes, and as it reciprocates it also gives a visual indication of the operation and stroke of the plunger. It will be noticed that when the plunger is so operated by hand it moves over a stretch of the barrel different to and preferably longer than the initial stretch over which the normal operating mechanism moves it. In this way free hand operation is possible without interference with the normal stroke adjusting means. When a plurality of pumps are used, as indicated in Fig. 2, each plunger is independently operable by hand.

The oil delivered by each pump escapes through the nozzle *o*. When a sight feed tube 7, is used, the oil is guided in known manner by a wire 8, suspended from a plug 9, screwed into the sleeve 10, which is secured to a bracket 11, by two nuts 12, 13. The plug 9, has passages 14, which conduct the oil to a delivery pipe 15.

We claim:

1. In combination, an oil casing, a lubricator pump barrel passing through one side of said casing, a plunger in said barrel, mechanism within the oil casing for reciprocating said plunger, a valve box for the plunger, situated outside the oil casing, an extension on the plunger passing through the valve box, a handle on the end of said extension said handle having a threaded shank and a nut on said shank substantially as and for the purpose hereinbefore set forth.

2. In combination, an oil casing, a plurality of lubricator pump barrels passing through one side of said casing, a plunger in each barrel, mechanism within the oil casing for reciprocating said plungers, valve boxes for said plungers situated outside the oil casing, extensions on the aforesaid plungers, passing through the valve boxes, and means on each extension for operating each plunger by hand and for adjusting its stroke substantially as hereinbefore set forth.

3. In combination, an oil casing, a lubricator pump having a barrel passing through one side of said casing, a valve box integral with said barrel and situated outside the oil casing, suction and delivery passages in said valve box fitted with suction and delivery ball valves, the suction passage communicating with the interior of the oil casing, a screwed plug in said suction passage said plug forming seats for the suction ball valves, a plunger, mechanism within the oil casing for reciprocating said plunger, and means for adjusting the stroke of said plunger, said adjusting means being operable from without the oil casing.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

THOMAS CHRISTIAN THOMSEN.
ARTHUR KIRKHAM.

Witnesses:

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