

May 7, 1935.

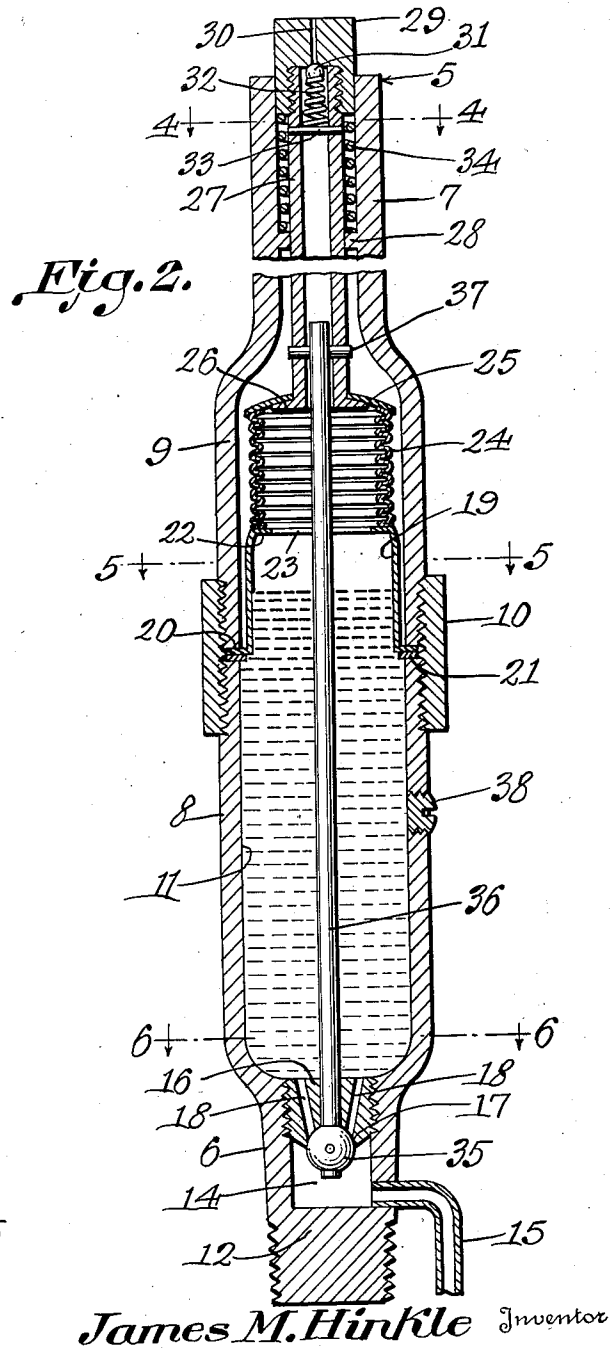
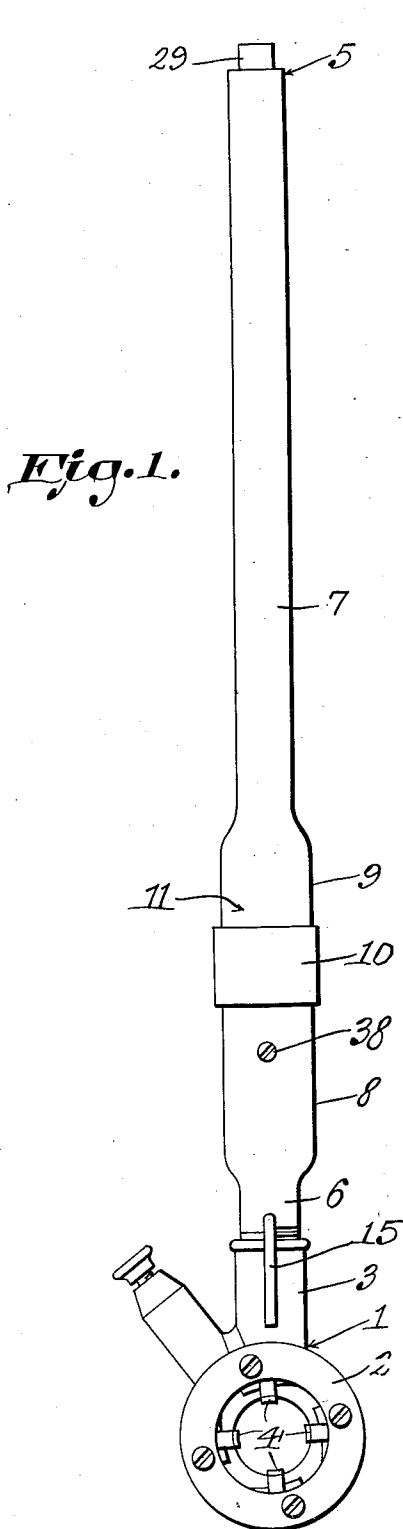
J. M. HINKLE

2,000,482

DIE OILER

Filed Jan. 30, 1934

2 Sheets-Sheet 1



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Fig. 3.

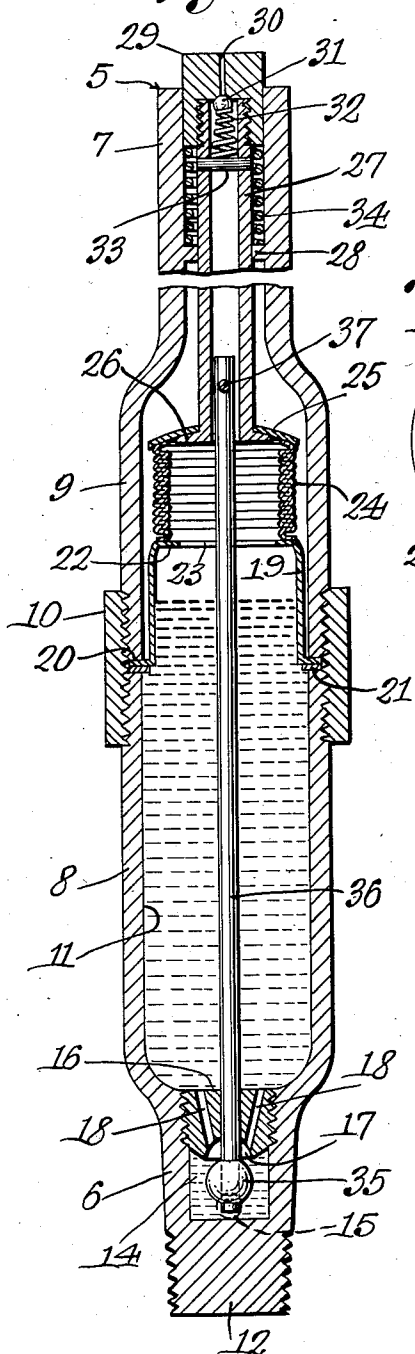


Fig. 4.

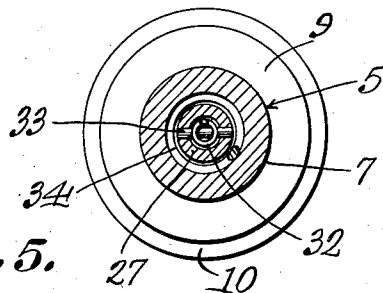


Fig. 5.

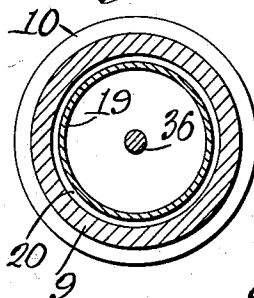


Fig. 6.

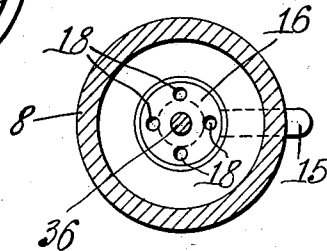
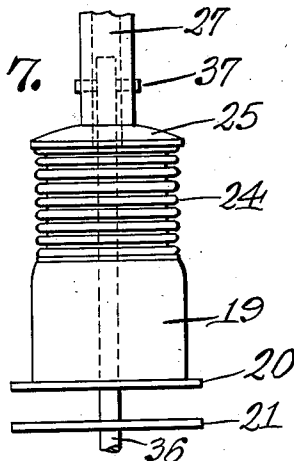


Fig. 7.



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UNITED STATES PATENT OFFICE

2,000,482

DIE OILER

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4 Claims. (Cl. 10—126)

The device forming the subject matter of this application is a means for oiling dies of the kind used for cutting threads, and for similar purposes. The invention aims to provide novel means for carrying the oil, and for expelling the oil at the proper place, at the will of an operator. The invention aims, further, to provide a die oiler which will exercise its function properly, even though the handle of the die holder may not be in a vertical position.

It is within the province of the disclosure to improve generally and to enhance the utility of devices of that type to which the invention appertains.

With the above and other objects in view, which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed, may be made within the scope of what is claimed, without departing from the spirit of the invention.

In the accompanying drawings:—

Fig. 1 shows in elevation, a device constructed in accordance with the invention;

Fig. 2 is a longitudinal section, wherein parts are broken away, the device being in oil-retaining condition;

Fig. 3 is a view similar to Fig. 2, but showing the parts as they will appear whilst the oil is being discharged;

Fig. 4 is a cross section on the line 4—4 of Fig. 2;

Fig. 5 is a cross section on the line 5—5 of Fig. 2;

Fig. 6 is a cross section on the line 6—6 of Fig. 2.

Fig. 7 shows in elevation the oil expeller.

In Fig. 1 of the drawings, the numeral 1 marks a die holder, including a head 2 provided with a stem 3, the head 2 carrying dies 4, of the kind used for cutting threads, and for similar purposes.

The numeral 5 designates, generally, a handle for the die holder 1. The handle 5 embodies an inner member 6 and an outer member 7. The inner member 6 has an enlarged portion 8, and the outer member 7 has an enlarged portion 9. The parts 8 and 9 are joined together by a threaded coupling 10, to form an oil reservoir, designated generally by the numeral 11.

Figs. 3 and 2 show that the inner member 6 of the handle 5 has a solid inner end 12 which is threaded into the stem 3 of the die holder 1.

In the inner member 6 there is a reduced chamber 14, communicating with the part 8 of the oil reservoir 11. The oil reservoir 11 is provided with a filling plug, marked by the numeral 38. An outlet for the oil reservoir 11 is supplied, and preferably is in the form of an angular spout 15, mounted in the inner member 6 of the handle 5 and communicating with the chamber 14. The outlet 15 is adapted to discharge downwardly or inwardly, between the front and rear surfaces of the head 2, upon the dies 4, and upon the work that is being cut by the dies. A valve seat 16 is threaded or mounted otherwise in the inner member 6 of the handle, at the outer end of the chamber 14. In its inner end, the valve seat 16 has a recess 17, shown best in Fig. 3. The valve seat 16 is provided with any desired number of inwardly converging oil passages 18, communicating with the recess 17, and arranged around the axis of the valve seat 16, as Fig. 6 will show, when compared with Figs. 3 and 2.

The numeral 19 marks an inverted cup-shaped cap, disposed in the reservoir 11, and, specifically, in the member 9 of the reservoir. At its inner end, the cap 19 has an outwardly extended flange 20, which, with a gasket 21, is bound between the ends of the reservoir parts 8 and 9, within the coupling 10. At its outer end, the cap 19 is provided with an inwardly extended flange 22, forming an opening 23 in the outer end of the cap 19.

The numeral 24 marks an oil expeller, located in the part 9 of the reservoir 11, and preferably in the form of a tubular, resilient, metal bellows, connected at its outer end to a concaved plate 25 secured to an outstanding flange 26 on a tubular plunger 27 disposed within the outer member 7 of the handle 5. The tubular plunger 27 slides in an annular guide rib and abutment, which is carried by the outer member 7 of the handle 5, the guide rib and abutment being designated by the numeral 28.

A push button 29 is slidably mounted in the outer end of the part 7 of the handle, and has an axial vent port 30, in communication with the tubular plunger 27. The vent port 30 is controlled by an outwardly closing check valve 31, seated by a compression spring 32 in the outer end of the plunger 27, the inner end of the compression spring finding an abutment upon a cross pin 33 carried by the plunger 27. A compression spring 34 is located within the outer member 7 of the handle 5. The outer end of the spring 34 abuts against the push button 29, and the inner end of the said spring engages the abutment 28.

At 35 there is shown a valve, shaped to fit in

the recess 17 of the seat 16 and controlling the passages 18, the valve being carried by a stem 36 which is mounted for longitudinal sliding movement in the valve seat 16. The stem 36 of the valve 35 extends outwardly through the opening 23 in the cup-shaped cap 19, through the expeller 24, and into the tubular plunger 27, the stem being secured to the plunger by an attaching element 37, or in any other suitable way.

In practical operation, when the push button 29 is slid inwardly by an operator, the check valve 31 closes the vent port 30, under the action of the spring 32, and the spring 34 is compressed. The tubular plunger 27 moves inwardly, along with the push button 29, and the stem 36 moves inwardly also, the valve 35 being spaced from the recess 17 in the valve seat 16, as shown in Fig. 3, and the oil passages 18 of the seat 16 being opened. When the plunger 27 moves inwardly, the expeller 24 is compressed, and the oil is forced from the reservoir 11, through the oil passages 18, into the chamber 14. The oil flows out through the spout 15, into the head 2 of the die holder 1, and lubricates the dies 4, and the work, in a way which will be understood readily by those skilled in the art.

When the push button 29 is released, the parts assume the position of Fig. 2, under the action of the spring 34, and the valve 35 closes the oil passages 18.

The device is simple in construction, but it will be found thoroughly effective for the purposes hereinbefore pointed out, the construction being such that the operator can expel a slug of oil on the dies 4, even though the handle 5 is not in the vertical, upright position of Fig. 1. When the push button 29 moves outwardly, responsive to the spring 34, the check valve 31 can open, to admit air through the port 30, thereby insuring a quick return of the parts from the position of Fig. 3 to the position of Fig. 2.

Having thus described the invention, what is claimed is:—

1. A die oiler comprising a die holder, a handle carried by the die holder and including a reservoir having an outlet discharging into the die holder, a valve controlling the flow of oil from the reservoir to the outlet, a compressible tubular expeller forming the top of the reservoir, a hollow stem connected to the expeller and constituting means for venting the expeller to the atmosphere, a portion of the stem being accessible to an operator, to actuate the expeller and to open the valve, an inwardly opening venting check valve carried by the stem, means extended through the expeller for connecting the stem to the first-specified valve, and return-spring means coacting with the

stem to close the first-specified valve and to effect a return stroke of the expeller.

2. A die oiler comprising a die holder, a handle carried by the die holder and provided with an internal guide, the handle including a reservoir having an outlet discharging into the die holder, a valve controlling the flow of oil from the reservoir to the outlet, a compressible tubular expeller forming the top of the reservoir, a hollow plunger slidable in the guide and connected to the expeller, a push button forming part of the stem and slidable in the end of the handle, the push button having a vent port, the vent port and the plunger constituting means for venting the expeller to the atmosphere, an inwardly opening venting check valve cooperating with the port, spring means supported by the plunger for closing the check valve, means extended through the expeller and connected to the plunger for opening the first specified valve, and a return spring surrounding a portion of the plunger, within the handle, one end of the return spring engaging the push button, and the opposite end of the return spring engaging the guide.

3. A die oiler constructed as set forth in claim 1, and further characterized by the provision of an inverted cup shaped cap supplied at one end with an outstanding flange and having an opening in its opposite end, the expander being a normally-molded bellows-like structure having one end secured to said opposite end of the cap, about the opening, the portion of the handle which forms the reservoir being composed of separable parts, and a coupling joining said parts of the handle, the flange of the cap being bound between said parts of the handle.

4. A die oiler comprising a die holder, a handle carried by the die holder and including a reservoir having an outlet discharging into the die holder, a valve seat mounted in the reservoir adjacent to the outlet, the valve seat being provided in its inner end with a recess and having oil passages extended therethrough and communicating with the recess and with the reservoir, a valve shaped to seat in the recess and controlling the flow of oil from the reservoir through the passages, through the recess, and to the outlet, a compressible expeller forming the top of the reservoir, a hollow plunger connected to the expeller and constituting means for venting the expeller to the atmosphere, an inwardly opening venting check valve carried by the plunger, means extended through the expeller, and having a close sliding fit in the seat, for connecting the plunger to the first specified valve, the said passages of the seat being located about the said means for connecting the plunger to the first specified valve, and return spring means coacting with the plunger.

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