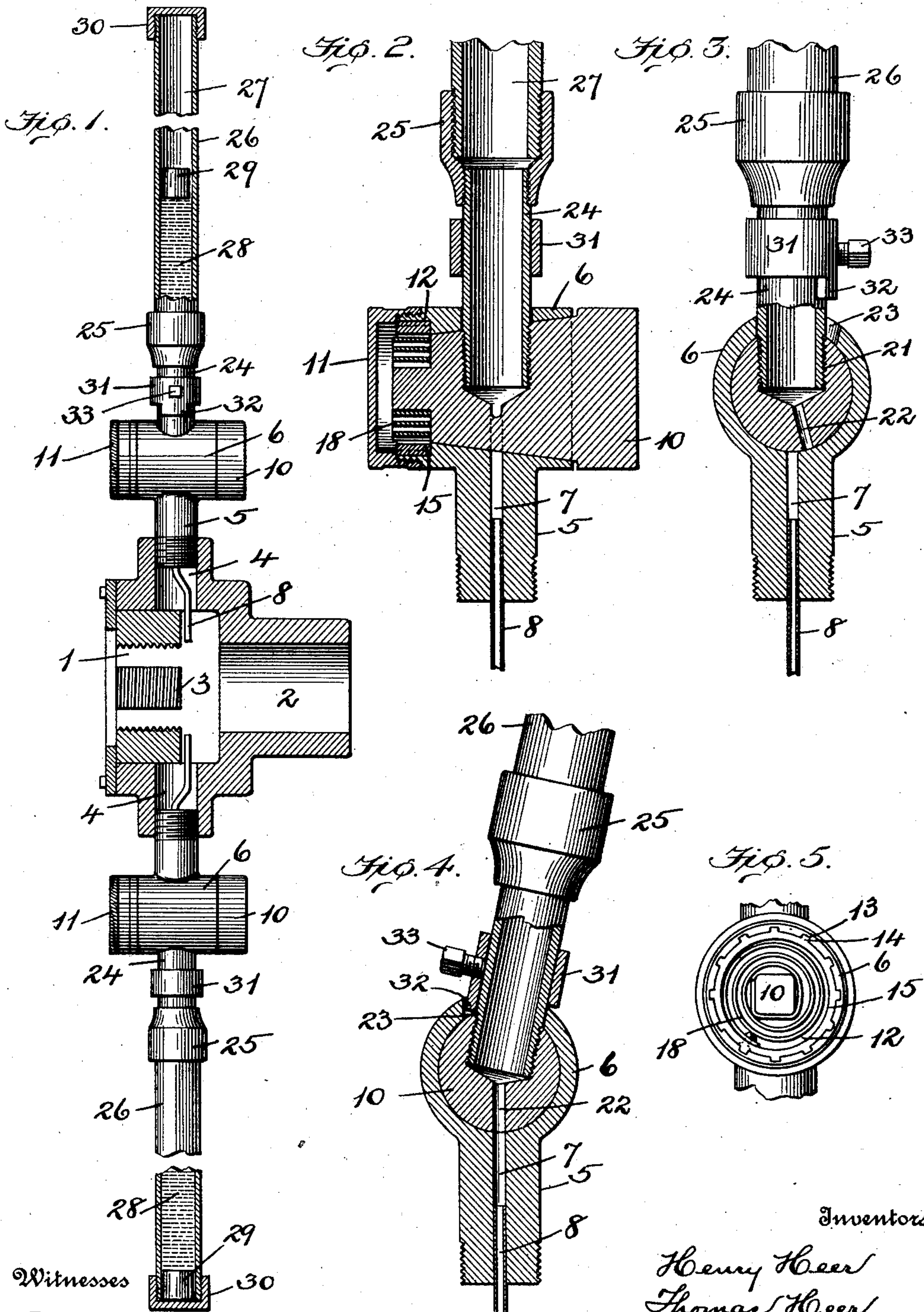


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 AUTOMATIC OIL FEED FOR DIE STOCKS.
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998,338.

Patented July 18, 1911.



Witnesses

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UNITED STATES PATENT OFFICE

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AUTOMATIC OIL-FEED FOR DIE-STOCKS.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, HENRY HEER and THOMAS HEER, citizens of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Automatic Oil-Feeds for Die-Stocks, of which the following is a specification.

This invention relates to improvements in self-oiling die stocks and has particular reference to a device for automatically feeding oil to the cutting dies of stocks.

One object of the invention is to provide a stock with an improved mechanism that will be automatically actuated during the operation of cutting a thread to feed oil to the work.

Another object of the invention is to provide a construction of device that will automatically cut-off the feed oil during any pause in the rotation of the stock or upon the release of the handles by which the stock is turned.

A further object of the invention is to provide an oil feed device for die stocks which will be actuated to feed oil when lateral strains are put on the handles during the thread-cutting operation and cut-off upon relieving the handles of such strains.

Another object is to provide an oil reservoir in the handle of a die stock and to also provide the handle reservoir with a plunger that will automatically operate as the handles are turned to cause the oil to feed during one direction of travel and to draw the undischarged oil backward during another direction of its movement.

A still further object of the invention is to combine a die-stock proper with an oil reservoir and to interpose a valve between the dies and reservoir in such manner that the oil may be automatically fed when the stock is turning and cut-off when the stock is idle.

With these and other objects in view the accompanying drawing illustrates one form of device for carrying out the invention, wherein—

Figure 1 illustrates the device attached to a die stock the same being shown partly in vertical section and partly a side elevation. Fig. 2, is a sectional view through the inner end of the handle and the valve mechanism that is interposed between the handle and the stock. Fig. 3, is a similar view,—the section however being taken on a line at

right angles to the section of Fig. 2, and shows the valve port in the cut-off position. Fig. 4, is a sectional view similar to that of Fig. 3 with the exception that the handle and valve have been turned to show the port of the latter in the feed position and also shows the locking collar on the lower end of the handle in the position to hold the parts in register, and Fig. 5, is an end view of the valve with the cap removed and shows the spring device thereon to normally keep the valve in the cut-off position.

In illustrating the invention we have deemed it unnecessary to fully illustrate the stock and die and have merely shown such features thereof as will lead to an understanding of the application of the invention. By reference therefore to Fig. 1, the numeral, 1, indicates the stock having a sleeve portion, 2, at one side thereof and with suitable die-members, 3, which by traveling about a rod or pipe will cut a thread on the latter. The stock has a plurality of radial passages, 4, which are usually provided with internal threads, and usually the handles screw directly into these passages so as to form levers by means of which the stock may be rotated about the work. In carrying out our invention however, we use the radial passages, 4, for the purpose of receiving a threaded stem, 5, that projects from a valve casing, 6, and through which a passage, 7, extends. In the present instance a short tube, 8, has one end secured within the passage, 7, and its other projecting end enters the stock and terminates at the side of one of the dies, 3, so that oil passing through the tube may be deposited on the work at the side of the die.

By reference to Fig. 2 it will be seen that in the present instance, the casing, 6, has a conical chamber, 9, therein for the reception of a conical valve plug, 10, and that a screw cap, 11, engages the end of the casing adjacent the smaller end of the valve plug. The capped end of the casing has an annular recess, 12, and the wall of the casing about the recess has a plurality of notches, 13, that receive correspondingly-shaped projections, 14, on the circumference of a collar, 15. The smaller end of the valve plug, 10, is squared and a spring, 18, has its inner end coiled closely about the square end to engage the latter and its outer end is secured by means of a screw, 19, to the collar, 15, whereby to hold the spring in a coiled con-

dition about the plug stem, as seen in Figs. 2 and 5. The conical valve plug has a screw-threaded bore, 21, extending therein from the outer circumferential surface and is also provided with an oil passage, 22, that extends from the said bore through the plug to the opposite circumferential surface of the latter so that it may be made to register with the passage, 7, that conveys oil to the tube, 8. The valve casing, 6, has a perforation, 23, of an elongated shape which, when the plug valve is in the normal position, will register with the bore, 21, in said valve plug so that a short pipe, 24, may be passed through the perforation, 23, and secured into the bore, 21, of the plug, as clearly shown in Figs. 2 and 3. It is to be understood that the perforation, 23, is sufficiently large or is elongated so as to enable the short pipe, 24, that projects from the plug through it, to be rocked back and forth in a direction that would impart an oscillating movement to the plug, 10, so as to move the oil passage, 22, into or out of register with the passage, 7, in the stem, 5, and thereby establish or interrupt the connection from the pipe, 24, at one side of the valve with the pipe, 8, at the other side of the valve. A coupling, 25, is attached to the outer end of the pipe, 24, and serves to connect the latter with a handle, 26, which has an oil-storage chamber, 27, on the inside thereof.

By reference to Fig. 1 it will be seen that the chamber, 27, in the handle, 26, contains oil designated, 28, and it will also be noted that a plunger, 29, is also placed in the handle so as to move from one end of the chamber to the other according to the position the handle may have, and when traveling toward the inner end of the chamber will act to force the oil out at said inner end, but when traveling toward the outer end aids in drawing the oil back into the chamber. The oil reservoir in the handle may be filled in any suitable way but in the present instance we have shown the handle as provided with an end cap, 30, which may be removed for this purpose and then replaced. It will be noted that the collar, 31, encircles the short pipe, 24, and that said collar has a lug, 32, that projects toward the valve casing, 6. This collar also has a set bolt, 33, by means of which its position on the pipe may be altered and then fixed. The object and purpose of this collar will presently be explained.

The parts having been assembled and connected to the stock and the reservoirs, 27, supplied with oil puts the device in condition for operation. The stock will be inserted over the end of the pipe or rod and turned in the usual way until the dies begin cutting the threads. The handles are then grasped in the usual manner to rotate the dies about the work and it will be noted

that when the uppermost handle is grasped and pulled in the direction to turn the stock and dies the pull on the handle will cause the latter to rock from the normal position shown in Fig. 3, to the partly inclined position shown in Fig. 4. This is permitted because of the enlarged perforation, 23, in the valve casing and the result is that the valve plug, 10, is slightly rotated in the casing and the passage, 22, therein is brought into register with passage, 7, in the casing stem, 5. This position of the plug, 10, establishes communication between the oil reservoir, 27, in the handle and the tube, 8, that directs the oil to the work at the side of the dies. The plunger, 29, will move toward the valve casing and thus act as a plunger to force the oil out through the valve to the discharge tube. After the handle passes the horizontal position on its downward movement the plunger, 29, will move toward the outer cap-end of the oil reservoir and by this movement will draw the oil that has not been discharged from the tube, 8, back toward the oil chamber. As soon as the handle is released the spring, 18, at the smaller end of the valve plug will rotate and return the latter and also the handle back to their normal position and thus cut off communication between passages, 7, and 22, and stop the flow of oil. It will thus be seen that as each handle is grasped and pulled in the operation of turning the stock, the valve will be turned so as to let oil flow out and feed to the work at the side of the die and upon release of the handle the oil will be cut off.

In case it is desired to feed oil from one handle only the collar, 31, will be turned on the pipe, 24, while the handle is in its normal position so that the lug, 32, will enter the perforation, 23, at the side of the pipe, 24, as seen in Fig. 3. The lug will then be pushed into said perforation and the set bolt, 33, turned to lock the collar in the adjusted position. Obviously, the lug, 32, when in the position just described, will fill the perforation, 23, and prevent the pipe, 24, valve plug, 10, and handle, 26, from yielding or moving independently of the valve casing, 6, and consequently the passage, 22, will not be moved into register with passage, 7.

In case the passages, 22, or, 7, become clogged and it is desired to pass a wire or other instrument through those passages the handle will be pulled so as to rotate the valve plug and bring passages, 22, and, 7, into register; then the collar, 31, will be turned as shown in Fig. 4, and the lug, 32, inserted in the perforation, 23, whereupon the bolt, 33, will be set to hold the collar in place and the lug will thus lock the parts in position with the passages, 22, and, 7, in register so that a wire can be readily passed through these passages.

From the foregoing explanation it will be seen that the feeding of oil is automatically effected without any thought or special manipulation on the part of the operator and that when the operation is discontinued the feed of oil will be cut-off. It will also be seen that the hollow or reservoir handle is what might be termed pivotally sustained at its inner end so as to rock in a lateral direction and thereby actuate or rock the valve to establish communication from the reservoir to the die.

Having thus described our invention, what we claim and desire to secure by Letters Patent is,—

1. The combination with a die stock, of a valve casing carried by the stock and having a passage leading to the latter; a valve in the casing and also having a passage; a handle having an oil chamber and the inner end of the handle being rigidly secured in the valve so that its outer end will be swung laterally in one direction during the thread-forming operation to rock the valve in the casing and bring the valve and casing passages into register and means for swinging the handle back to its normal position when released by the hand.

2. The combination with a die stock, of a valve casing carried by the stock and having a passage leading to the latter; a valve in the casing and extending crosswise of the passage leading therefrom and said valve also having a passage; a handle having its inner end secured in the circumferential wall of the valve and radiating therefrom and said handle having an oil chamber which communicates with the valve passage and the outer end of the handle being movable in a vertical plane to rock the valve in one direction in the casing as the handle is pulled to turn the die stock and means for rocking the handle to return it and the valve when the handle is released.

3. The combination with a die stock, of a valve casing having a passage that communicates with the stock and also having a perforation; a valve in said casing and having a passage therein and a handle having an oil reservoir,—said handle extending freely through the perforation in the casing so as to have lateral movement therein and connected to the valve whereby the lateral movement of the handle will operate the valve.

4. The combination with a die stock, of a valve casing carried by the stock and having a passage leading to the latter and also having a valve chamber extending crosswise of the said passage; an oscillating valve in said chamber and also having a passage and a hollow handle having its inner end rigidly secured in the side of the oscillating valve and serving as a lever when its outer end is swung with the oscillating valve as a

pivot whereby to rock the valve when lateral strain is brought on the handle to hold the passages of the valve and casing in register.

5. The combination with a die stock, of a valve casing carried by the stock and having a passage leading to the latter and also having a valve chamber that crosses the end of said passage; a plug valve in said chamber and having a passage extending there-through; a handle having an oil reservoir therein and the inner end of the handle being rigidly secured to the plug valve so as to communicate with the said passage therein and said handle also being movable with said plug valve, and a spring engaging the plug valve to normally hold it in a given position.

6. The combination with a die stock, of a casing attached to the stock and having a passage leading to the stock and also having an elongated perforation at one side; an oscillating plug valve in said casing and also provided with a passage; a swinging handle passing through the elongated perforation in the casing and having its inner end pivotally sustained by the plug valve so its outer end may swing laterally,—said handle having an oil reservoir therein and means for yieldingly holding the handle at one end of the elongated perforation in the casing.

7. The combination with a die stock, of a valve casing having a stem at one side with a passage therein and a perforation at another side; a plug valve in said casing and having a passage; means normally holding the plug valve in one position; and a hollow handle having one end freely passing through the perforation in the casing and pivotally sustained by the valve and the outer end of the handle being movable laterally to rock the valve.

8. The combination with a die stock, of a valve casing having a passage leading to the stock; a valve in said casing and also having a passage; a hollow handle having one end connected to the valve so its outer end will swing in a vertical plane,—the interior of the handle being in communication with the passage of the valve, and means coacting between the casing and the handle to lock the handle and valve rigidly to the casing.

9. The combination with a die stock, of a casing having a perforation at one side and a passage for the escape of oil; a valve in the casing; a handle having its inner end extending freely through the perforation in the casing and attached to the valve and means movable into the perforation about the inner end of the handle to lock the latter against movement.

10. The combination with a die stock, of a valve casing having an oil passage at one

side and an elongated opening at another side; a valve in said casing and also having a passage; a hollow handle passing through the elongated opening in the casing and engaging the valve and a collar on the handle to enter the elongated opening in the casing to lock the handle and valve against movement with respect to the casing.

In testimony whereof we affix our signatures in presence of two witnesses.

HENRY HEER.
THOMAS HEER.

Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
