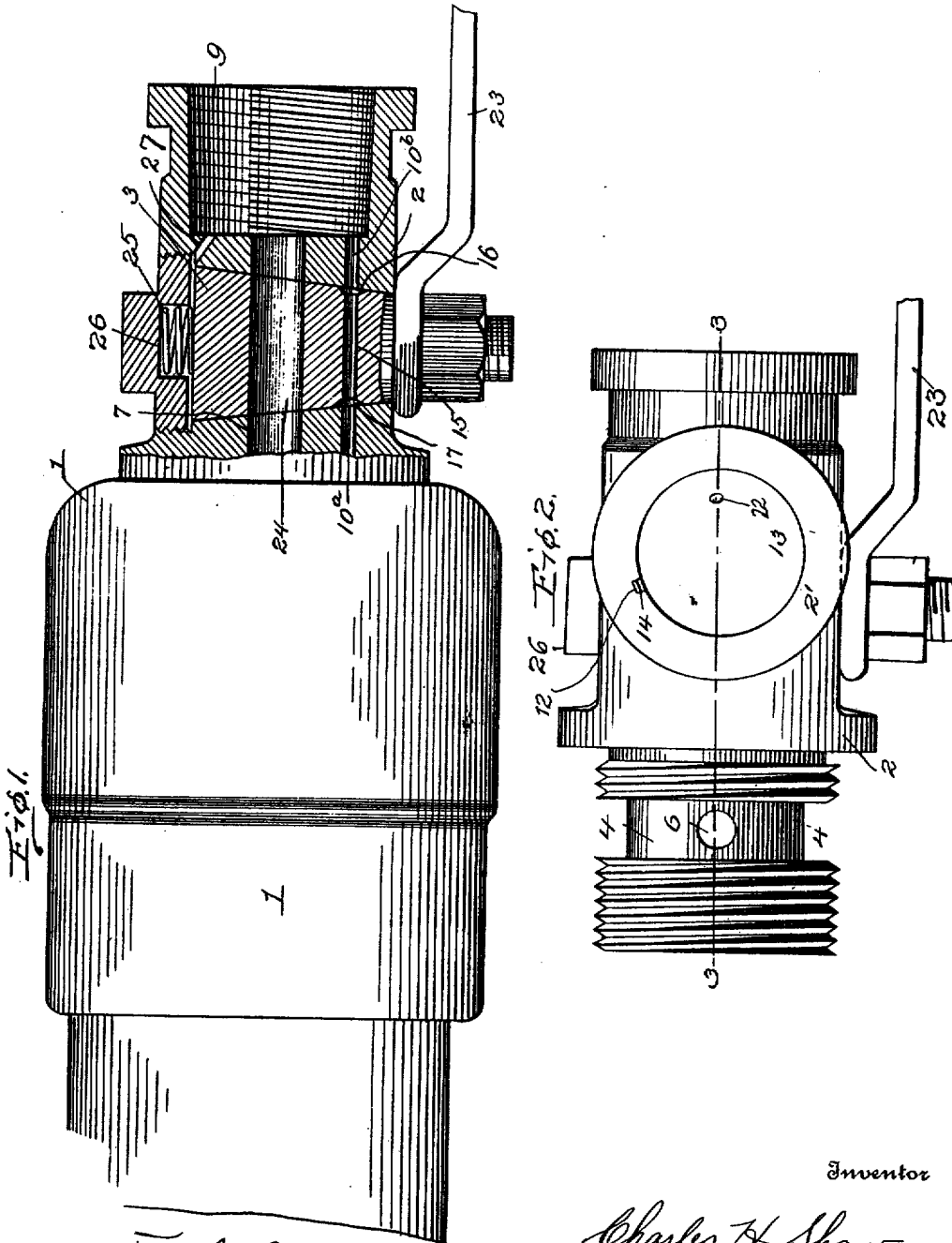


C. H. SHAW.
 AUTOMATIC TOOL OILER.
 APPLICATION FILED AUG. 5, 1909.

1,006,300.

Patented Oct. 17, 1911.

2 SHEETS—SHEET 1.



Towler & Co.

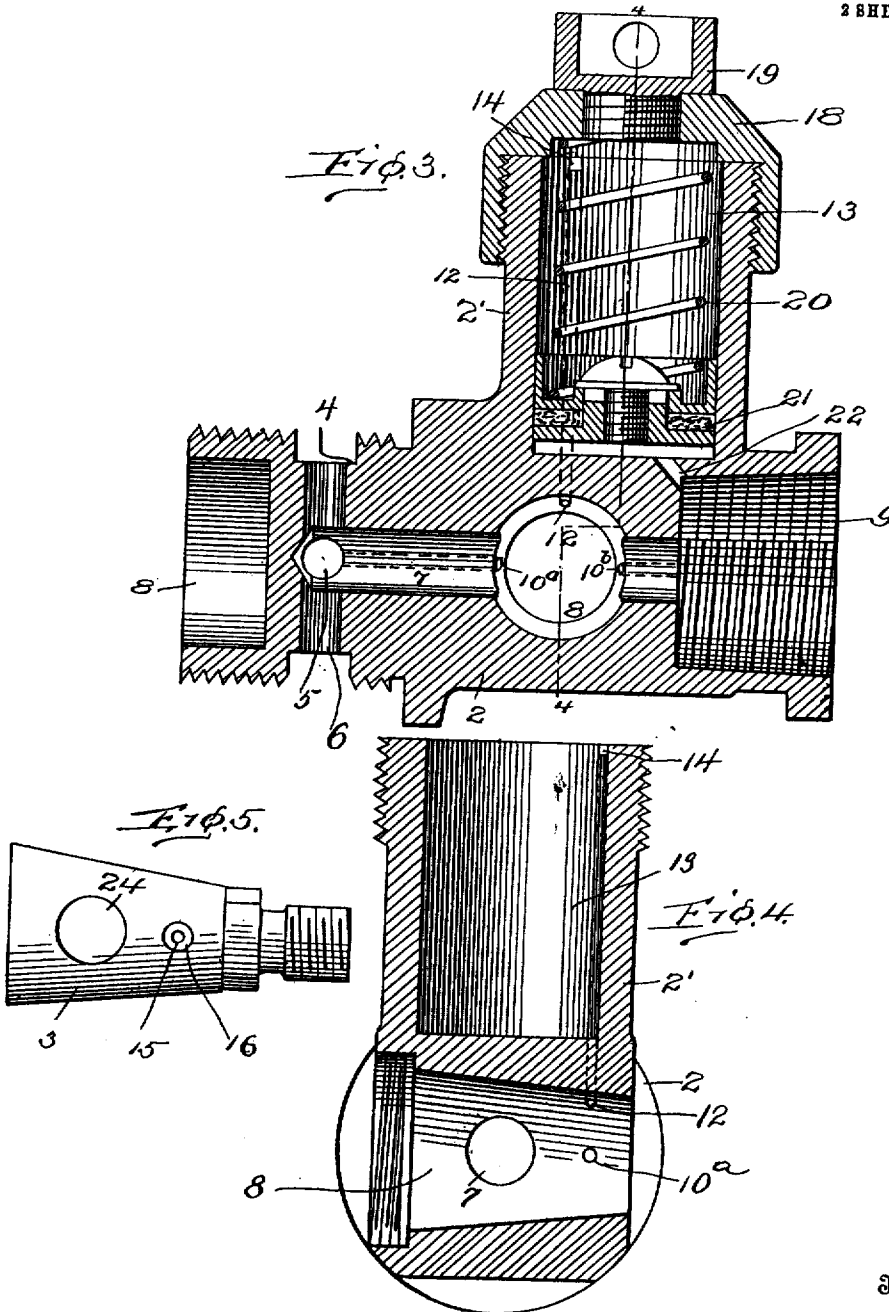
Inventor
 Charles H. Shaw
 By *Messrs. Finck & Lawrence*
 his Attorneys

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UNITED STATES PATENT OFFICE.

CHARLES H. SHAW, OF DENVER, COLORADO

AUTOMATIC TOOL-OILER.

1,006,300.

Specification of Letters Patent.

Patented Oct. 17, 1911.

Application filed August 5, 1909. Serial No. 511,400.

To all whom it may concern:

Be it known that I, CHARLES H. SHAW, a citizen of the United States, residing at Denver, in the county of Denver and State of Colorado, have invented certain new and useful Improvements in Automatic Tool-Oilers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in oiling devices, and particularly to automatic oilers for pneumatic tools.

The object in view is the arrangement of an oiler for pneumatic tools that will automatically feed the proper quantity of oil to the operating parts of the tool as the tool is manipulated.

Another object of the invention is the arrangement of an automatic oiler designed to constitute a connection between the tool proper and the pneumatic feed, and arranged so that the pneumatic feed may force oil into the operating part of the tool when the tool is in operation.

A further object of the invention is the arrangement of an automatic oiler formed with means for controlling the flow of air or other tool operating medium, and arranged to intermittently feed predetermined quantities of oil with the air into the moving parts of the tool.

With these and other objects in view the invention comprises certain novel constructions, combinations and arrangements of parts as will be hereinafter more fully described and claimed.

In the accompanying drawings: Figure 1 is a fragmentary side view of a drill and oiler connected therewith, the oiler being shown in section to better disclose the construction thereof. Fig. 2 is a side view of the oiler shown in Fig. 1 with the cap and plunger removed. Fig. 3 is a section through Fig. 2, approximately on line 3—3. Fig. 4 is a section through Fig. 3 on line 4—4, with the cap and plunger removed. Fig. 5 is a detail view of the valve or plug.

In constructing an oiler embodying the invention the same may be connected with the drill in any desired manner. The oiler also is arranged with means for causing the positive feed of the oil regardless of the position of the same, or of the position of the drill and automatically oils the moving

parts of the drill when the drill is in operation, and also automatically prevents the flow of oil when the drill is not in operation.

Referring to the drawing by numerals, 1 indicates a drill of any desired kind, preferably of the type shown in my patent issued September 11, 1906, No. 830,744. Connected with the drill 1 is a valve housing 2 having a valve member or plug 3. Housing 2 may be threaded to drill 1 or secured in any other desired manner, and is provided with a groove 4 and passage ways 5 and 6 through which the air passes into the body part of drill 1 for operating the moving parts thereof. Housing 2 is provided with a passage way 7 which is interrupted by an opening 8 into which the plug is fitted. Passage way 7 opens into a threaded passage way 9 into which is secured a pipe from which the operating fluid is supplied. Formed in housing 2 is a passage way divided by opening 8 into parts 10^a and 10^b. Passage way 10^b extends from opening 9 to opening 8, and passage way 10^a extends from opening 8 to passage way 5. Passage ways 10^a and 10^b are arranged in line. Another passage way 12 of the same size as passage ways 10^a and 10^b is provided, but enters opening 8 at an angle preferably of about 90 degrees to the general direction of passage ways 10^a and 10^b. Passage way 12 extends upward through an auxiliary housing 2' and opens into chamber 13 at 14. Chamber 13 is designed to be filled with oil which is forced through passage way 12, and thence into passage way 15 formed in plug 3. Passage way 15 is provided with countersunk or beveled ends 16 and 17 in order to insure the entrance of oil from passage way 12 into passage way 15, and also to insure the discharge of oil from passage way 15 into passage way 10^a when plug 3 has been turned to the position shown in Fig. 1. In Fig. 1 it will be observed that passage ways 10^a, 10^b and 15 are designed to be in line when the valve is open so that any oil in passage way 15 will be forced therefrom by the operating fluid.

Housing 2' is made integral with housing 2, and has formed therein chamber 13. Threaded to the outer end of housing 2' is a cap 18 which in turn has secured thereto an auxiliary cap 19, which may be easily removed for refilling chamber 13 with oil. Positioned in chamber 13 is a spring 20,

which presses against cap 18 and against a piston 21. Connecting chamber 13 and passage way or opening 9 is a port or passage way 22 for permitting operating fluid from passage way 9 to enter freely into chamber 13 below piston 21, and consequently give piston 21 a tendency at all times to move toward cap 18. The movement of piston 21 toward cap 18 will cause oil in chamber 13 to pass out of chamber 13 into passage way 12, and be forced into plug 3 when passage way 15 is registering with passage way 12. After passage way 15 has been filled the further flow of the oil will be prevented.

When plug 3 is in such a position as to cause passage way 15 to register with passage way 12 the valve will be closed. When it is desired to again operate the valve, the handle 23, which is secured to plug 3, is moved for partially rotating plug 3 until passage way 15 has moved into alinement with passage ways 10^a and 10^b, whereupon the operating fluid will force oil in passage way 15 out through passage way 10^a, and through passage ways 5 and 6 to the moving parts of drill 1, the oil mixing with the operating fluid. At the same time that passage ways 15, 10^a and 10^b register, passage way 24 in plug 3 will register with passage way 7 in housing 2, so that an ample supply of operating fluid will be provided for the drill.

In constructing plug 3 the same is preferably made with a flat upper surface positioned at a right angle to the general direction of the plug, and has pressing against the same a spring 25 which is held in position by a plug 26. A passage way 27 also is formed in housing 2 whereby air or other operating fluid may pass through housing 2 to the end of the plug 3 and assist in retaining the plug upon its seat. After the various parts of the mechanism have been assembled and the drill is put into operation, plug 3 will be rotated for opening and closing the valve at short intervals so that an intermittent supply of oil is provided for the moving parts of the drill.

As will be observed, the invention embodies the combined valve or cock for regulating the fluid, which may be any desired fluid as for instance compressed air, and a lubricant for the moving parts of the drill. Upon opening the valve a small quantity of oil is forced, together with the first blast of air, into the moving parts of the drill, after which nothing but air is supplied to the moving parts until the valve is again closed. Upon the second opening of the valve a second supply of oil will be furnished the moving parts of the drill. Upon each closing, and then opening, of the valve, a predetermined amount of oil will be supplied to the moving parts of the drill with the operating fluid so that no oil will be sup-

plied when the machine is not working, but a sufficient supply is provided during all the time the machine is in operation because of the fact that in practical operation of a drill of this nature the operating fluid is turned off and on at short intervals. Even if the practical operation of the drill should not require frequent turning off and on of the operating fluid, the same can easily be turned off and on at any time for the purpose of supplying more oil if necessary, without material interference in the working of the drill.

What I claim is:

1. In an automatic oiler for pneumatic tools, a housing formed with a plurality of passage-ways extending longitudinally thereof, and a single passage-way extending transversely thereof, a plug mounted in said housing formed with a pair of parallel passage-ways registering with the longitudinal passage-ways in said housing, an oil reservoir formed with a passage-way opening into the transverse passage-way of said housing, and a pressure inlet passage-way, and a piston in said oil reservoir designed to be acted on by the operating fluid passing through said pressure passage-way for forcing oil into said plug when one of the passage-ways therein is registering with the passage-way in said oil reservoir.

2. In a pneumatic tool oiler, a housing formed with two air passage ways therein, a rotatable plug mounted in said housing formed with an oil passage way and an air passage way, the air passage way in said plug being designed to register with one air passage way in said housing and the oil passage way in said plug being designed to register with the other air passage way in said housing when the valve is open, a reservoir formed with a passage way designed to register with the oil passage way in said plug when said valve is closed, and means mounted in said reservoir continuously actuated by the operating fluid of said tool for causing oil to pass through the passage way of said reservoir into the oil passage way of said plug.

3. In an automatic oiler for tools, a housing provided with a principal air passage-way and an auxiliary air passage-way, and an oil passage-way, an oil reservoir formed with an oil passage-way extending therefrom, said oil reservoir being in free communication with said auxiliary air passage-way, a plug formed with an air passage-way and an oil passage-way, said oil passage-way being arranged to communicate with the oil passage-way extending from said reservoir when the plug is in a closed position, and to communicate with the oil passage-way in said housing when the plug is in an open position, a piston for forcing oil from said reservoir through the oil pas-

sage-way extending therefrom into the oil passage-way in said plug when said plug is in a closed position, said oil in said oil passage-way in said plug being designed to be forced through the oil passage-way in said housing when said plug is in an open position, and a spring for opposing the motion of said piston in one direction, said piston being forced against the action of said spring by air from said auxiliary air passage-way.

4. In an automatic oiler for pneumatic tools, a housing formed with two air passage ways therein, a plug formed with an oil passage way, and an air passage way, all of said passage ways being adapted to register when said plug is in an open position, an oil receptacle formed with a passage way designed to register with the oil passage way in said plug when said plug is in a closed position, and an air actuated piston for forcing oil from said receptacle into the oil passage way in said plug when the plug is in a closed position regardless of the position of the housing, said oil in said oil passage way in said plug being designed to be forced by the operating fluid into the tool when the plug has been turned to an open position, said last mentioned means comprising a piston and a spring, said piston being in free communication with the fluid pressure operating said drill, whereby the piston is forced in one direction by said fluid pressure and forced in the opposite direction by said spring when the fluid pressure has been removed.

5. In an automatic oiler for pneumatic tools, an oil reservoir, a piston mounted in said reservoir, a housing formed with a pair of passageways, one of which is designed to admit compressed fluid into said oil reservoir for acting on said piston, the other of said passageways acting as a discharge port for the oil in said reservoir, and a plug formed with parallel passageways for controlling the oil and operating fluid entering said tool, said housing being formed with parallel passageways registering with the parallel passageways in said plug when said tool is in operation.

6. In an automatic oiler for pneumatic tools, an oil reservoir, a piston mounted in said reservoir, means for normally resisting the movement of said piston, a housing formed with a pair of passageways, one of which is designed to admit compressed fluid into said reservoir, for acting on said piston, and the other of said passageways acting as a discharge port for the oil in said reservoir, and a plug formed with parallel passageways extending from one side to the other for controlling the operating fluid and oil entering said tool, said housing being formed with parallel passageways for registering with the parallel passageways in said plug when said tool is in operation.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES H. SHAW.

Witnesses:

CARLE WHITEHEAD,
ALBERT L. VOGL.