

(No Model.)

P. CHOUTEAU & W. F. SCHMIDT.
HANDLE FOR DIRECT ACTING ENGINES.

No. 540,234.

Patented June 4, 1895.

Fig. 1.

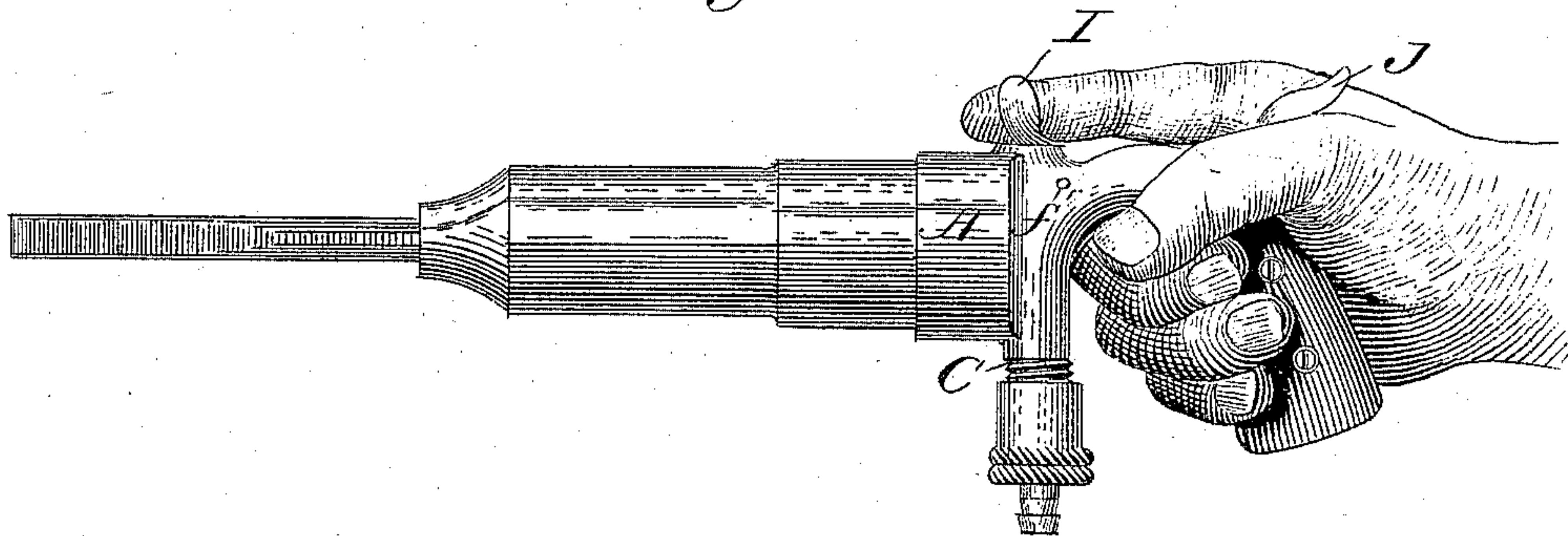


Fig. 2.

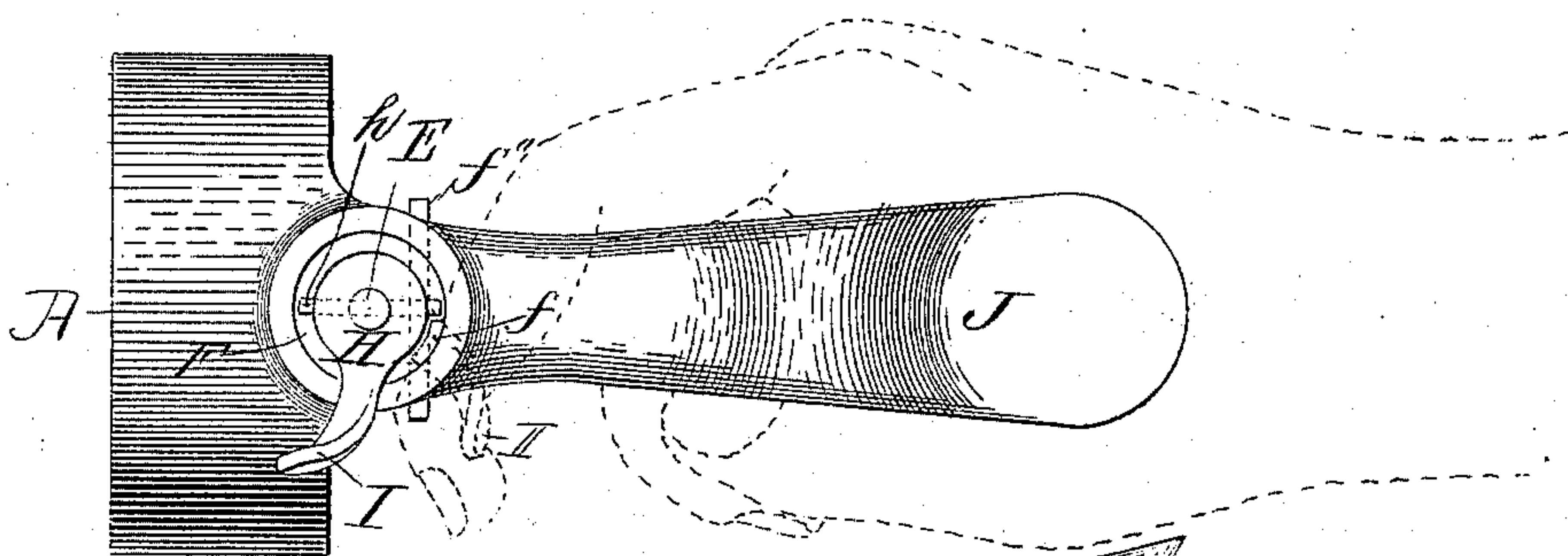


Fig. 3.

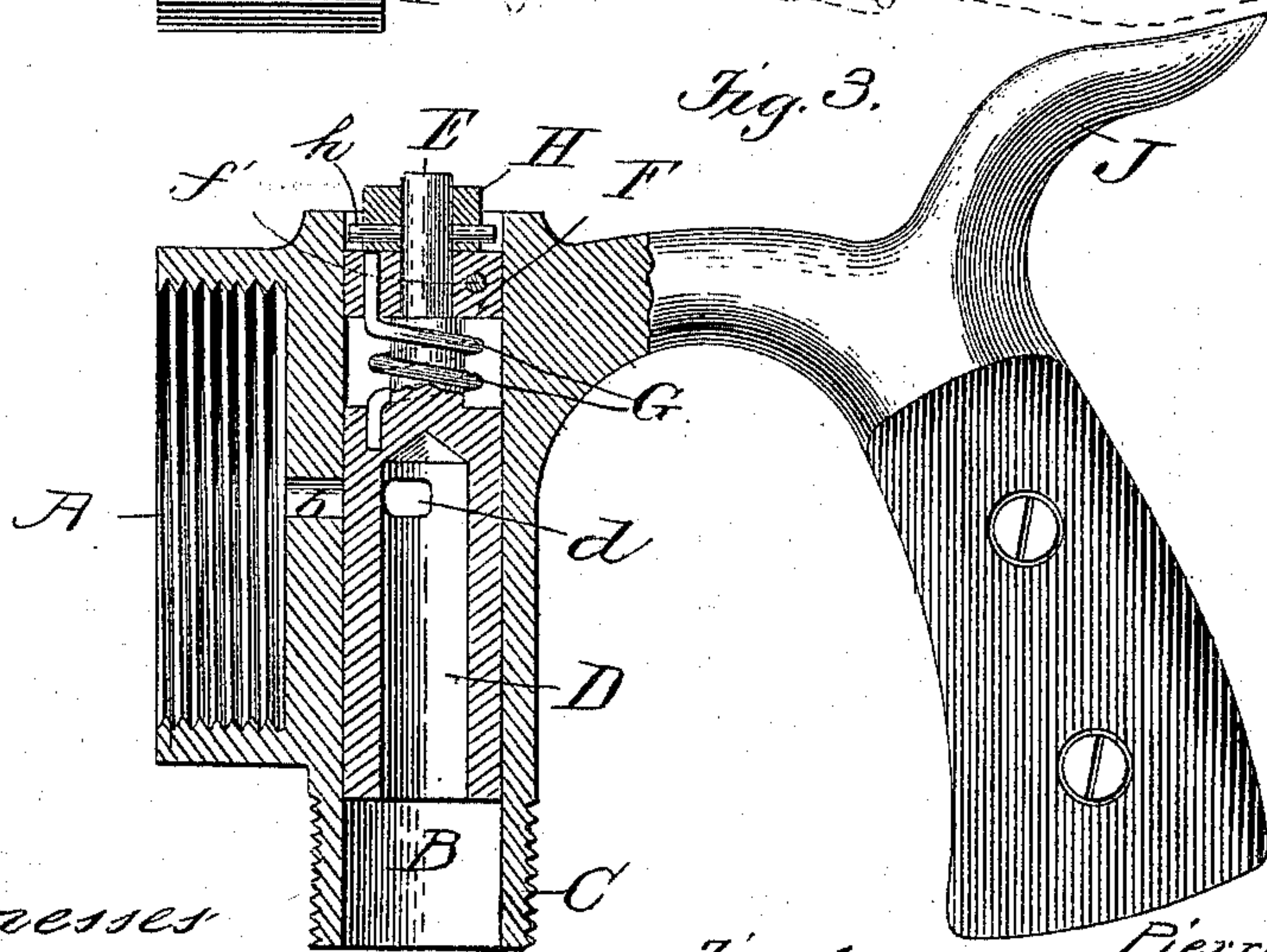
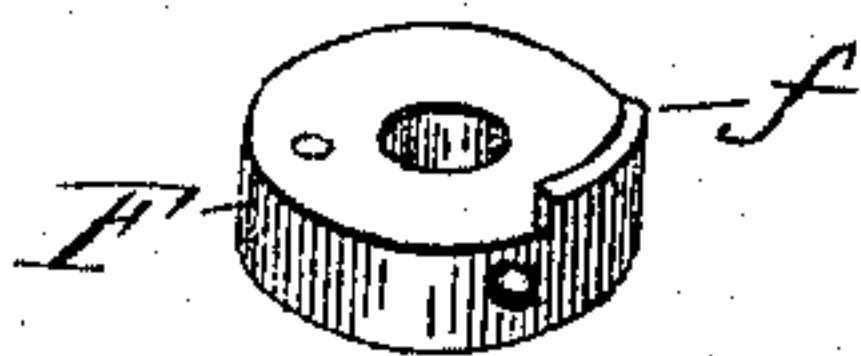


Fig. 4.



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UNITED STATES PATENT OFFICE.

PIERRE CHOUTEAU AND WILLIAM F. SCHMIDT, OF ST. LOUIS, MISSOURI; SAID
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HANDLE FOR DIRECT-ACTING ENGINES.

SPECIFICATION forming part of Letters Patent No. 540,234, dated June 4, 1895.

Application filed April 2, 1894. Serial No. 506,030. (No model.)

To all whom it may concern:

Be it known that we, PIERRE CHOUTEAU and WILLIAM F. SCHMIDT, citizens of the United States, residing at the city of St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Throttle-Valves and Handles for Direct-Acting Engines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of the entire tool, showing a relaxed position of one of the operator's hands. Fig. 2 is a top plan view of the handle and motive-fluid-controlling valve, illustrating in dotted lines the position the operator's hand assumes when the motive fluid is being admitted to the engine. Fig. 3 is a longitudinal vertical section through part of the handle and valve. Fig. 4 is a detail of the collar which is introduced in the valve-bore to retain the valve in place.

This invention relates to a new and useful improvement in throttle-valves and handles for direct-acting engines, or hand-tools, as they are sometimes called, and consists, generally stated, in the location of a rotary controlling valve at the base of the handle, said handle being so formed that the hand of the operator can readily grasp the same firmly in order to guide and manipulate the tool, and, at the same time, operate the valve located in the base of the handle to control and regulate the admission of the motive fluid to the engine. There have been devices of this description applied to hand-tools, but in each case such devices have either proved to be too complicated and expensive to make, or there was no provision made to regulate the flow of the motive fluid to the engine; also, it has been found by practical experiment that many handles of tools of this description lack, in many essentials, features which afford ease of manipulation of the tool by the operator, at the same time permitting a firm, steady grasp which will not slip, and, also, afford a control over the motive fluid controlling valve whereby the same may be regulated to admit any desired amount of motive fluid to the engine, or turn the same full on or completely off, as the case may be, the operator during these regulations losing no time for nicety of ad-

justments and not raising the tool from its work. We accomplish these objects by the construction illustrated in the accompanying drawings, wherein—

A indicates the base of the handle which is preferably formed with a screw-thread for connection with the cylinder of the engine. This base is bored transversely, as at B, and is also formed with a communicating opening *b* leading from the interior of the base to the bore B. A boss C is formed as a lateral extension of the base, through which the bore B passes, and by which suitable connection is made with a source of supply of the motive fluid. Mounted in this bore B, in the base of the handle which forms a casing, is a rotary valve D, preferably hollowed out longitudinally, as shown, and formed with a cross-port *d*, which is normally out of line with the opening *b*, but which, when the valve is turned, registers with said opening and establishes communication between the source of supply of the motive fluid and the live fluid chamber of the engine. A stem E extends from the valve D, which stem is formed with a shoulder fitting against a collar F, pinned by a pin *f'* in the bore B.

Operating around the stem E and between the collar F and end of the valve D, is a torsion-spring G whose tendency is to return the valve to the position shown in Fig. 3, or one in which the motive fluid is cut off from the engine. An operating handle or trigger I is secured on the outer extremity of the stem beyond the collar F, through the medium of its hub H and pin *h*. The trigger, as shown, is preferably curved outwardly and upwardly to afford an easy rest for the index finger, as shown in Fig. 1, and when the operator desires to admit fluid to the engine, it is only necessary to crook the index finger slightly to turn the valve by this upwardly and outwardly curved handle, to admit the motive fluid to the engine, to a greater or less degree, as desired, as shown by the dotted lines in Fig. 2.

Projecting from the upper side of the handle, about the junction of the hand-grasp and shank, is a hand-stop J, resembling somewhat a horn, but flattened horizontally, as shown, which hand-stop is adapted to project between

the thumb and index finger, to enable the operator to get a better grip on the stock, which is in shape like a pistol stock, and, at the same time, arrest the hand from slipping down on the shank when the index finger is engaged in manipulating the valve.

By the peculiar formation of the trigger and hand-stop, as above described, it requires little or no exertion on the part of the operator to perform the dual duty of regulating the speed of the engine by crooking his index finger, which adjusts the position of the valve through the medium of the trigger or valve handle, and, at the same time, guide the tool and force it to its work—the thrust being exerted on the stock, which is at an angle to the longitudinal axis of the tool, as shown. When the index finger is in the position shown by the dotted lines in Fig. 2, the muscles are contracted, and meeting with the resistance of the valve-handle I, and the projection J arresting the tendency of the hand to slip forward, which would be a natural result consequent upon the absence of the projection J, the operator can more firmly grasp the tool without the exercise of selecting certain muscles to contract certain fingers, which would leave the index finger in an unnatural position. In other words, by the presence of the projection J and the peculiar shape of the valve-handle I, the hand assumes a natural position when the tool is in operation, permitting the operator to open the valve and grasp the stock as firmly as necessary.

In order to limit the return movement of the valve, so that the torsion spring will hold the same in a closed position firmly and without losing its tension, we provide the collar F with a projection *f*, against which the pin *h* contacts.

The valve, as above described, is simple in its construction and very cheap.

It will be noted that the bore B can be made at a single operation, the valve D being turned down to fit snugly, and bored properly, the torsion spring can be placed on the stem, the collar F fitted in position, and the valve-handle I, through the medium of its hub H and pin *h*, placed in position. The parts can then be introduced in the bore B, and the pin *f*' inserted through the proper openings, when the parts are ready for operation, the parts being so located in the bore B, that the walls

of the bore prevent the displacement of the pin *h*.

We are aware that many minor changes in the construction, arrangement, and combination of the several parts of our invention can be made and substituted for those herein shown and described without in the least departing from the nature and principle of our invention.

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

1. The combination with the handle of a direct-acting engine which is shaped like a pistol-stock, and formed with a projection J, of a valve for regulating the fluid of the engine, located at the base of the handle, and a curved lever I located at the top of the handle for controlling the valve, said lever being arranged on substantially the plane of the projection J, whereby the regulating valve can be controlled by the index finger which operates above the handle while the projection J extends between the index finger and thumb, enabling the operator to grasp the handle tightly while manipulating the valve; substantially as described.

2. The combination with the handle of a direct-acting engine, the base of which is bored to a given diameter transversely, of a valve operating in said bore, said valve comprising the following elements: a rotary hollow valve cylinder; a stem projecting from the cylinder and having a shoulder formed thereon; a collar which is adapted to be secured in the bore, abutting against the shoulder; a torsion spring confined between the collar and valve cylinder; a handle mounted on the valve stem by which the valve may be rotated, said handle also preventing longitudinal movement of the valve; a pin for securing the handle to the stem, and a projection on the collar against which the pin comes in contact to limit the return or closing movement of the valve, substantially as described.

In testimony whereof we hereunto affix our signatures, in presence of two witnesses, this 27th day of March, 1894.

PIERRE CHOUTEAU.
WILLIAM F. SCHMIDT.

Witnesses:

F. B. CORNWALL,
HUGH K. WAGNER.