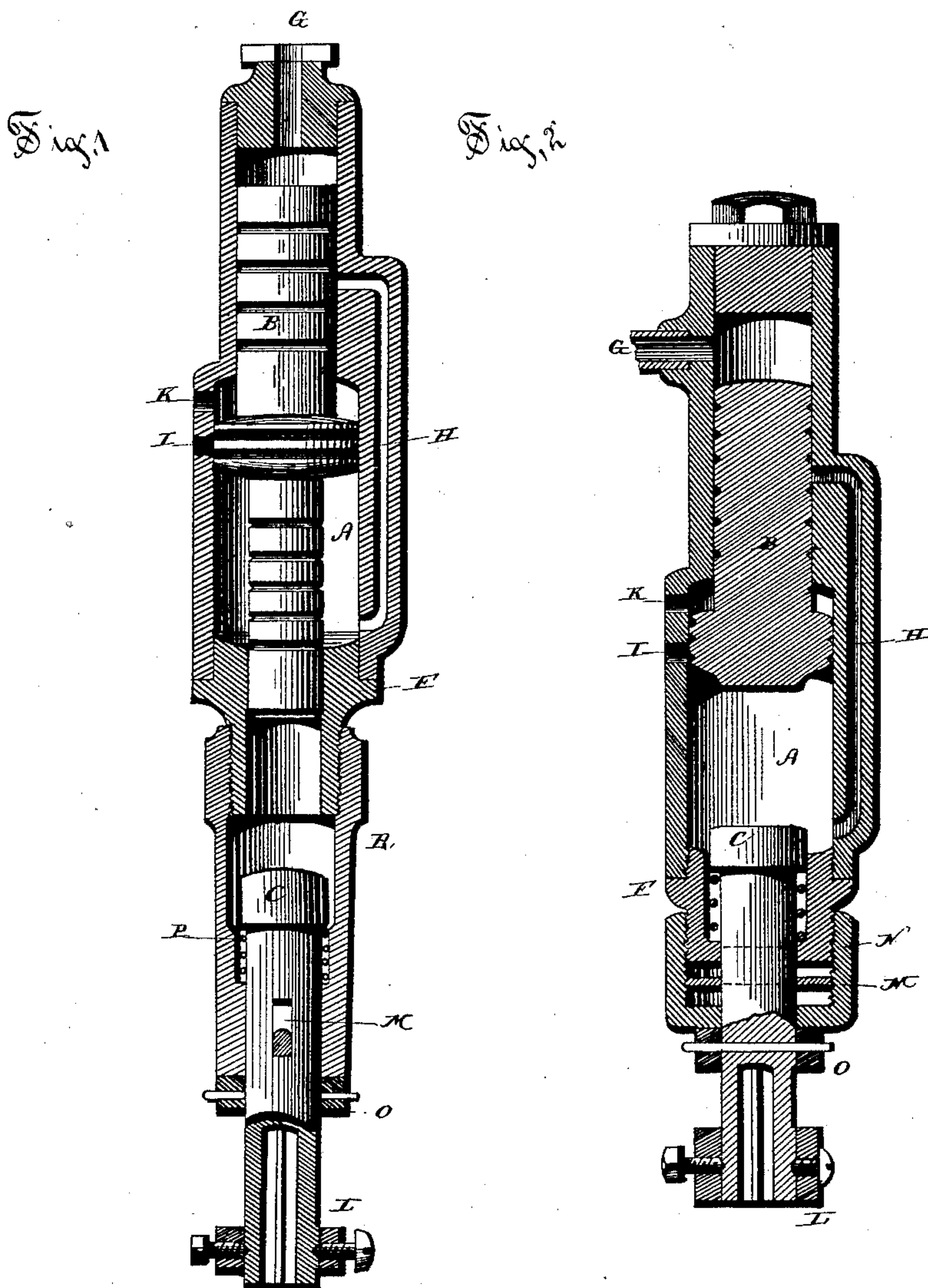


(No Model.)

E. N. TRUMP.
PNEUMATIC HAMMER.

No. 348,870.

Patented Sept. 7, 1886.



WITNESSES

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UNITED STATES PATENT OFFICE.

EDWARD N. TRUMP, OF SYRACUSE, NEW YORK.

PNEUMATIC HAMMER.

SPECIFICATION forming part of Letters Patent No. 348,870, dated September 7, 1886.

Application filed December 10, 1885. Serial No. 185,213. (No model.)

To all whom it may concern:

Be it known that I, EDWARD N. TRUMP, a citizen of the United States, residing at Syracuse, in the county of Onondaga and State of New York, have invented certain new and useful Improvements in Pneumatic Hammers; 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, reference being had to the accompanying drawings.

The object of my invention is to provide an improved form of percussion-tool or pneumatic hammer, in which the combined piston and hammer strikes upon the anvil-head of a tool-holder either within or outside of the cylinder, the tool-holder transmitting the blow to the bit or tool connected therewith, and being retracted to position for receiving other blows by spring coiled around the holder under the anvil-head by hand pressure against the bit used, or by other suitable means. The implement thus formed being adapted to the cutting of stone and metals, carving wood, and other materials, and for riveting, chipping, and calking iron, steel, &c., combines in simple form and in one tool the means for effectively performing a wide range of work. Compressed air or other elastic medium can be used as motive force.

In the drawings, Figures 1 and 2 represent longitudinal sections of different forms of my device.

Like letters indicate corresponding parts.

Two communicating chambers of unequal diameters form the cylinder A. Hammer-piston B is fitted to the cylinder, which is provided with inlet G, transmission-port H, and exhaust-port I. The piston opening and closing the transmission and exhaust ports, no valves are required. An air-port, K, is provided, through which air is admitted and discharged from space back of enlargement of piston. This port is placed slightly below the end of enlarged cylinder, so as to confine a little air to cushion the reverse movement of the piston. The lower end of the cylinder is closed by a head, F, perforated through its center.

In Fig. 1 the piston is provided with an

elongated hammer end *e*, which passes through this head and strikes the anvil-head C of tool-holder C L, carried in external case, R.

In Fig. 2 the tool-holder C L is carried in the cylinder-head, the anvil C receiving the blows of the hammer-piston within the main cylinder-chamber.

The tool-holder C L is provided with chuck or other suitable device for holding bits to be used, and a spring, P, is coiled around the stem below the anvil-head C, to return it to position for receiving other blows of the piston after it has been driven forward, or the spring may be dispensed with and the anvil returned by pressure on the tool.

A keyway is cut longitudinally through the tool-holder and casing, as shown in cross-section in Fig. 1, and a narrow key, M, inserted to keep the tool from turning. A screw-collar, N', engaging with collar O on the shank of the tool-holder, serves to regulate the force of the blow by drawing the anvil C more or less away from the hammer.

The action of the device is as follows: Compressed air being admitted through inlet G, the piston B is driven down and delivers its blow. After the piston has passed induction-port H, the compressed air passes through and enters the larger part of the cylinder, when, by reason of the greater area of that end of the piston, the piston is forced back until it uncovers the exhaust-port I, when the air escapes and a repetition of the action occurs. On the direct forward movement of the piston the smaller end receives the full pressure of the motive force. On the reverse movement the motive force works expansively. The blows are delivered on the anvil-head C of the tool-holder, which is set to receive them, with greater or less force, as required, by means of the screw-collar or other equivalent device, and the tool is guided by the hand of the operator.

In Patent No. 226,539, April 13, 1880, rock-drills, to W. L. Neill, is shown a cylinder of same construction, and I do not claim this form, broadly; but,

Having described my invention, what I do claim as new, and desire to secure by Letters Patent, is—

In a pneumatic hammer, two communicat-

ing chambers of unequal diameters provided
with inlet, transmission, exhaust, and air ports,
and hammer-piston fitted to the chambers
and adapted to control the ports and free to
5 move longitudinally therein, said hammer-
piston adapted to receive the motive fluid in
full force on its smaller or driving end, and
expansively on the larger or reversing end, in
combination with anvil-headed tool-holder
10 adapted to receive blows from said hammer,

and traversing a case formed in head of larger
chamber or attached thereto, substantially as
shown and described.

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

EDWARD N. TRUMP.

Witnesses:

A. R. GILLIS,

FRANK STRAHL.