

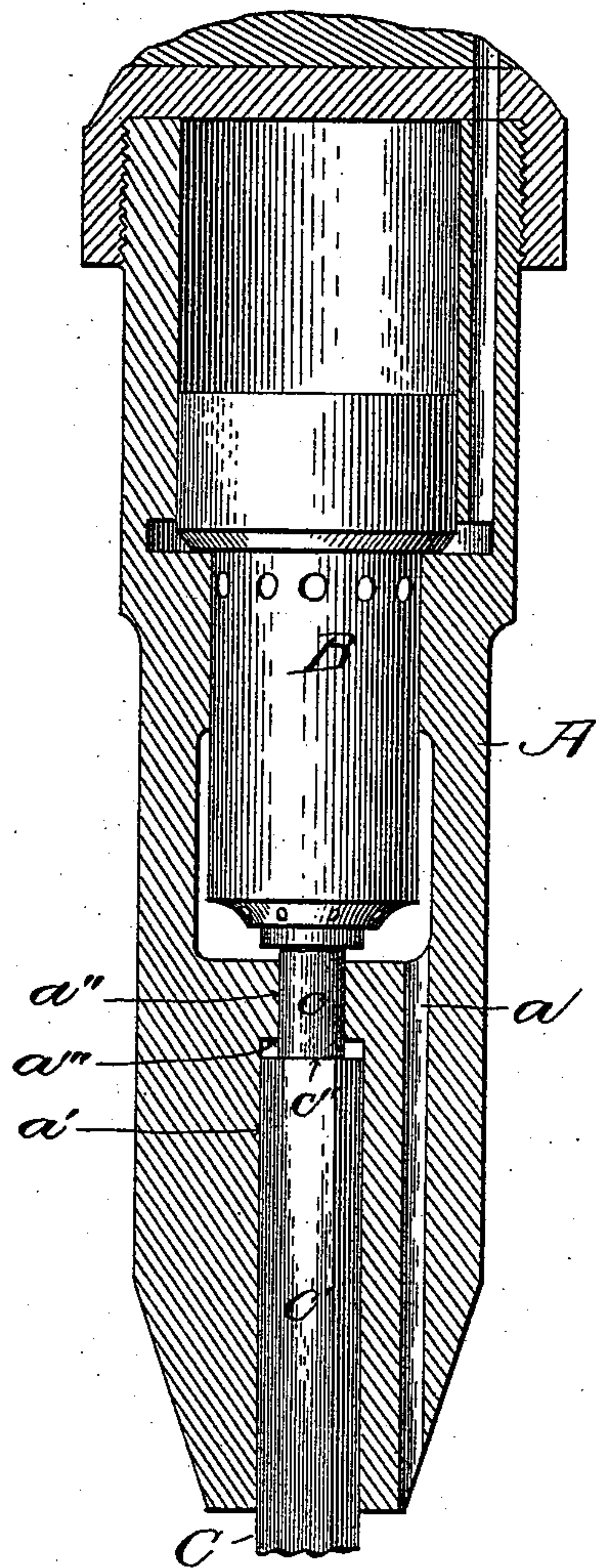
(No Model.)

P. CHOUTEAU.  
ATTACHMENT FOR ENGINES.

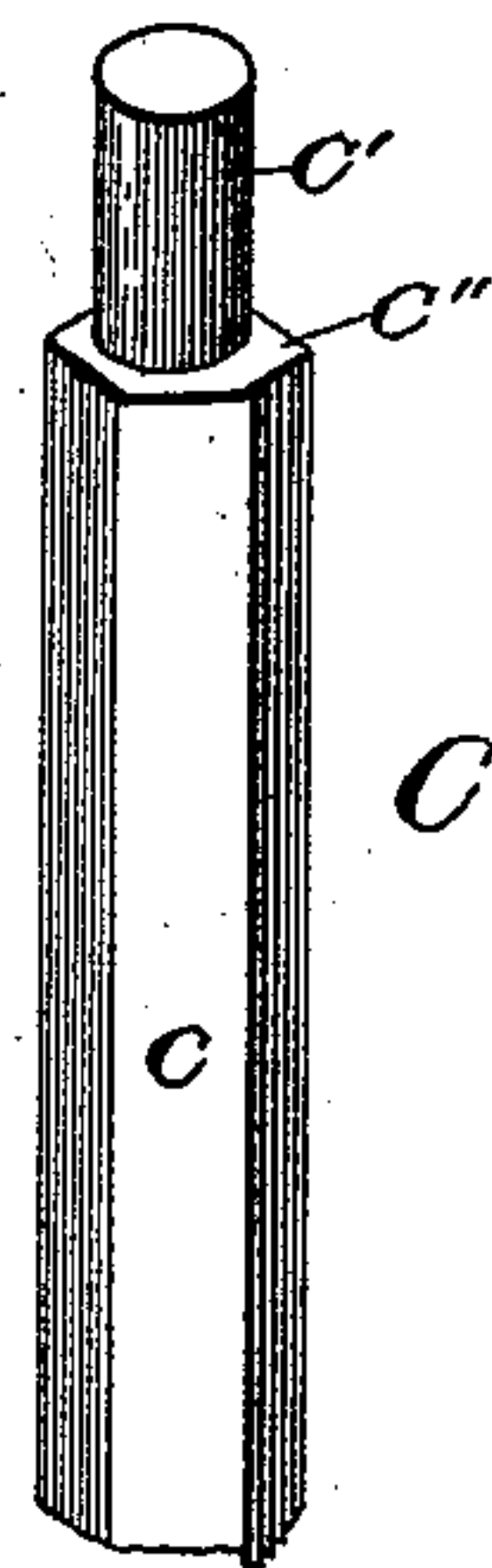
No. 528,530.

Patented Nov. 6, 1894.

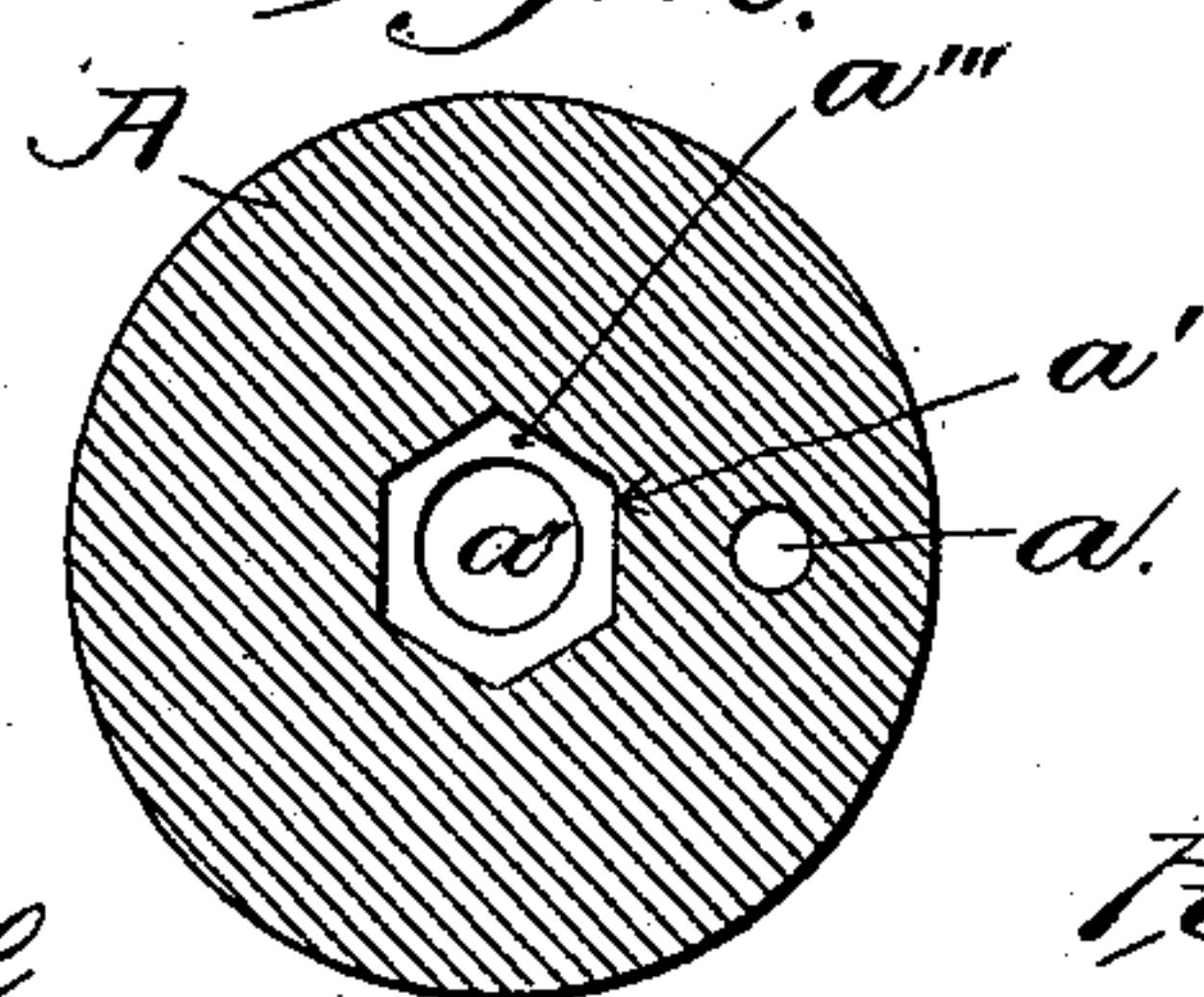
*Fig. 1.*



*Fig. 3.*



*Fig. 2.*



Witnesses  
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# UNITED STATES PATENT OFFICE.

PIERRE CHOUTEAU, OF ST. LOUIS, MISSOURI.

## ATTACHMENT FOR ENGINES.

SPECIFICATION forming part of Letters Patent No. 528,530, dated November 6, 1894.

Application filed April 27, 1894. Serial No. 509,201. (No model.)

*To all whom it may concern:*

Be it known that I, PIERRE CHOUTEAU, a citizen of the United States, residing at the city of St. Louis, State of Missouri, have invented a certain new and useful Improvement in Attachments for Engines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, wherein—

Figure 1 is a sectional view through an engine casing or cylinder, showing my improvement. Fig. 2 is a cross-sectional view through the lower end of the cylinder, and Fig. 3 is a detail of the tool or chisel with which the engine co-operates.

My invention relates to a new and useful improvement in attachments to engines, and particularly to that class of engines shown and described in United States Letters Patent No. 434,976, dated August 26, 1890, or one in which a chisel or like tool is mounted in the end of the cylinder, with which chisel or tool the piston of the engine is adapted to co-operate by delivering impacting blows thereupon.

The form of engine shown in the accompanying drawings operates in substantially the same way as that shown and described in the before mentioned patent, *i. e.*, the motive fluid is conducted by a flexible connection to a suitable source of supply and is admitted above and below the piston B by a controlling valve (not shown) which is carried by the piston, and the exhaust passes out through a port *a* in the lower end of the cylinder A. The lower end of the cylinder A is substantially solid and is bored at *a'* and *a''* for the reception of a tool rod or shank C.

The bore *a'* is non-circular in cross-section, as shown in Fig. 2, and the bore *a''* may be either circular or non-circular as desired, the only purpose of making the tool rod opening of two diameters being to form a shoulder *a'''* against which a projection on the tool rod may abut to prevent said rod following the piston on its up-stroke.

The tool rod C is formed non-circular in cross-section as at *c*, to fit in the recess *a'*, and with a reduced end portion *c'* which ex-

tends through the opening *a''* and upon which the hammer head on the lower end of the piston is adapted to deliver an impacting blow, as shown in Fig. 1. A shoulder *c''* is formed at the junction of the two portions *c* and *c'* of the tool rod, which shoulder by coming in contact with the shoulder *a'''* in the end of the casing prevents the tool rod from following the piston on its up-stroke, which following feature of the rod is caused by the same being forced to its work, and if permitted to lie in close contact with the piston at all times, which would be the case were it not for the presence of the shoulders *a'''* and *c''*, the impacting blow would not be delivered upon the tool rod, and the tool as an entirety would not be so efficient as it is when the impacting blows are delivered.

The advantages of introducing a non-circular tool rod loosely into a similarly shaped opening formed in the end of the cylinder, and in forming abutting shoulders in the respective parts, may be summed up as follows: The tool rod will not turn in its opening but delivers a straight blow with the cutting edge always at a definite relation to the engine. The tool rod is permitted to follow the stroke of the piston but part of the way, the means for limiting its inward movement being located within the cylinder, thus protecting the shoulder from dirt or dust which it would otherwise collect and prevent its full inward movement, at the same time, by locating the point of contact between the shoulder and cylinder, within the cylinder, there is no liability of the shoulder catching and pinching the operator's fingers during the operation of the tool. The tool rod is independent of the engine, and may be removed and another tool inserted at will. Finally, there is nothing to get out of order and the parts are simple, strong and easily made, requiring but little accuracy in fitting, and no trouble in assembling.

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

The combination with an engine cylinder whose end is formed with a tool-rod opening of two different diameters, one portion of

which opening is non-circular in cross-section, and a tool rod formed with a shoulder which is adapted to be received in said opening, thereby locating the point of abutment  
5 of the shoulder against the cylinder, within the cylinder, thus preventing said shoulder from collecting dirt or from pinching the operator's finger, substantially as described.

In testimony whereof I hereunto affix my signature, in presence of two witnesses, this 10  
19th day of April, 1894.

PIERRE CHOUTEAU.

Witnesses:

F. R. CORNWALL,  
HUGH K. WAGNER.