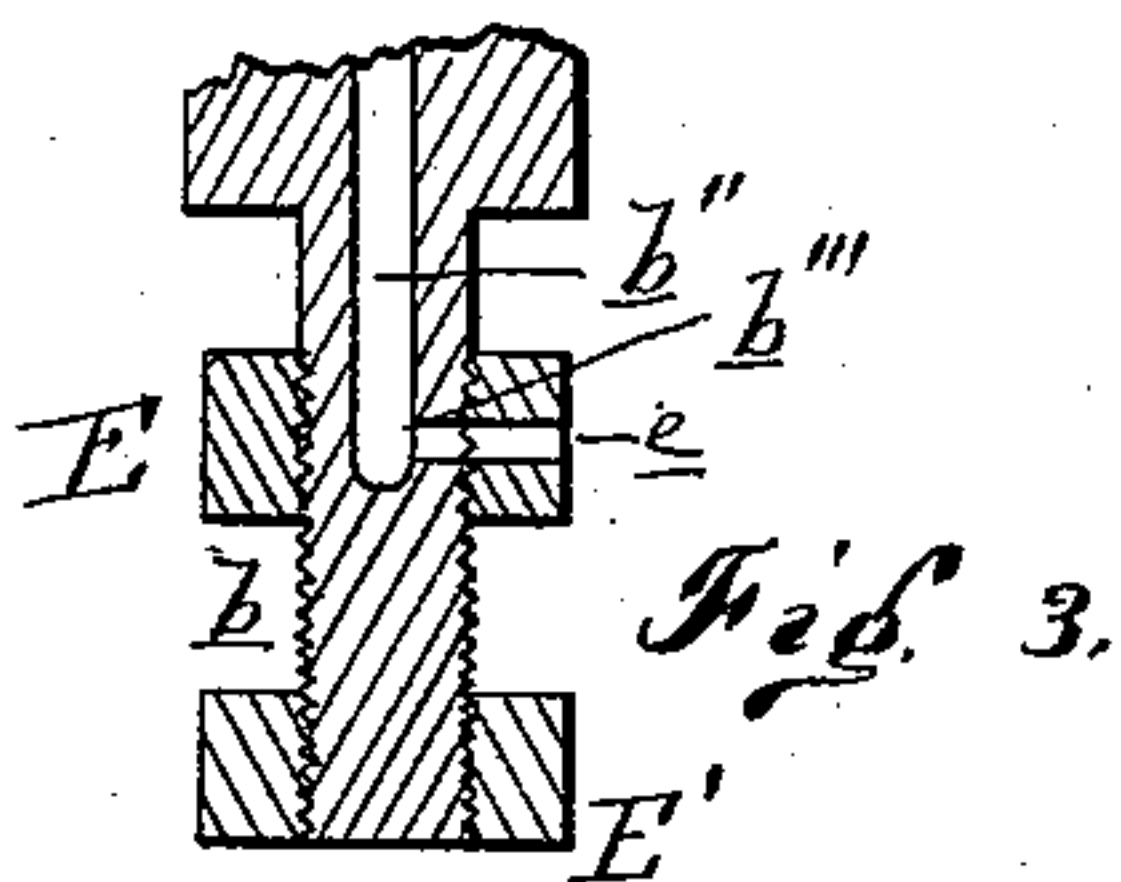
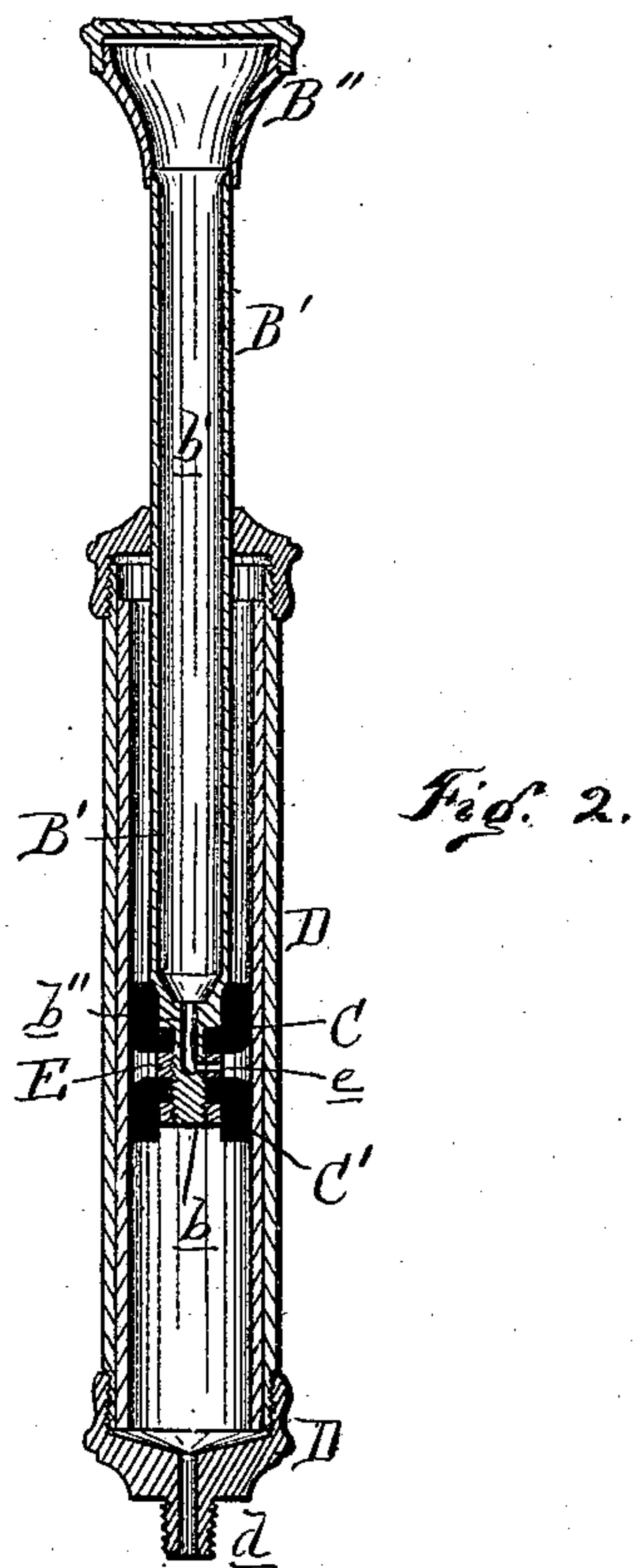
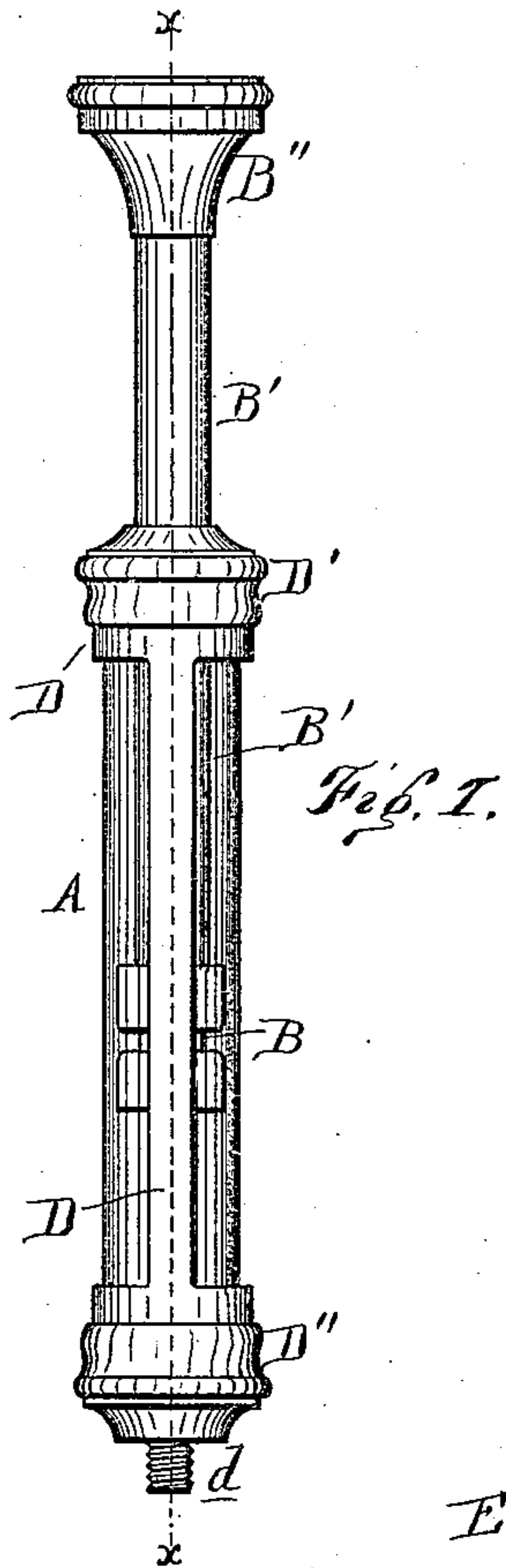


(No Model.)

E. SCHIRMER.  
SYRINGE.

No. 446,125.

Patented Feb. 10, 1891.



Witnesses  
C. J. Cross.  
H. N. Johnson

Inventor  
Eduard Schirmer  
By His Attorneys  
O'Brien & Co.

# UNITED STATES PATENT OFFICE.

EDWARD SCHIRMER, OF CLEVELAND, OHIO.

## SYRINGE.

SPECIFICATION forming part of Letters Patent No. 446,125, dated February 10, 1891.

Application filed March 26, 1890. Serial No. 345,446. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD SCHIRMER, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Pistons, of which the following, with the accompanying drawings, is a specification.

My invention relates to pistons used in syringes, pumps, and other apparatus where solid pistons are used, and which is especially adapted to hypodermic and other surgical syringes.

Its object is to provide a self-lubricating piston, and thereby avoid removing the piston from the barrel of the cylinder to oil the same.

My invention consists in the construction and combination of parts described herein, and pointed out in the claim.

Figure 1 is a side view of a hypodermic syringe without the point or nozzle embodying my invention. Fig. 2 is a longitudinal section of Fig. 1 on the line  $xx$ . Fig. 3 is an enlarged detail section of the piston with the packing-rings removed.

In the different figures of the drawings, A is a glass barrel. B is the piston. B' is the piston-rod. B'' is a cap which closes the piston-reservoir, and D is a metallic frame which embraces and protects the barrel and provides for closing the ends thereof with the screw-caps D' and D''.

In the syringe illustrated the piston B' has a chamber  $b'$ , which forms the reservoir. The cap B'' screws on and off the rod, so that it may be removed to fill the reservoir with oil. When the reservoir is filled, the cap B'' is screwed on, which prevents the oil from spilling, protects it from dirt, and makes a convenient hold for the hand in reciprocating the piston. The lower end of the piston-rod has a reduced extension  $b$ , which has a bore

$b''$  through part of its length. At or near the bottom of the said bore  $b''$  is made one or more lateral holes  $b'''$ , opening into it. Said reduced extension  $b$  carries two expansible packing-rings C C'. A central nut E is screwed upon the reduced extension of the piston-rod, said nut having lateral holes  $e$ , corresponding with the lateral holes  $b'''$  of said rod. A second nut E' is screwed upon said rod below the lower packing-ring C'.

$d$  is a threaded stud for attaching a syringe point or nozzle.

In the operation of my invention the oil in the reservoir  $b'$  feeds through the bore  $b''$  and the holes  $e$  in the nut E.

In the drawings and in the description my invention is shown and described as applied to a hypodermic syringe.

The particular construction of reservoir and piston are applicable to syringes generally.

With such modifications as will readily suggest themselves to persons skilled in the art my invention may be adapted to other uses where it is desired to lubricate the piston.

What I claim as my invention is—

In a syringe, the combination of a hollow piston-rod B', provided at its inner end with a reduced extension  $b$ , having a central bore  $b''$  communicating with lateral openings  $b'''$ , two expansible packing-rings C C', a central nut E between said packing-rings and provided with holes communicating with the openings  $b'''$ , and a retaining-nut E', the parts being constructed and arranged in the manner and for the purpose set forth.

In testimony whereof I affix my signature, in presence of two witnesses, this 4th day of March, 1890.

EDWARD SCHIRMER.

Witnesses:

J. A. OSBORNE,  
H. S. SPRAGUE.