

(No Model.)

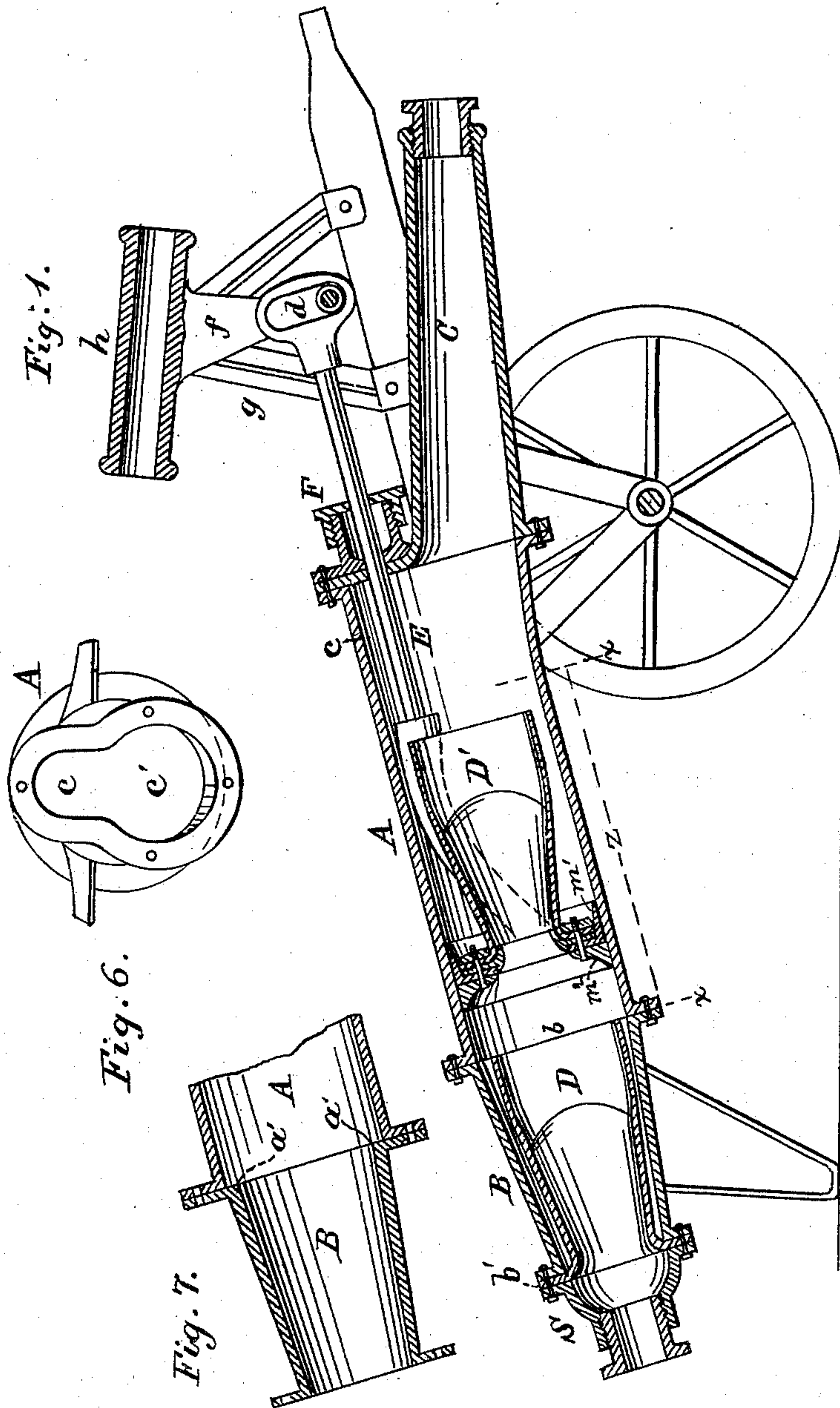
2 Sheets—Sheet 1.

H. A. NOBLE.

PUMP.

No. 370,556.

Patented Sept. 27, 1887.



Witnesses:

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Julius Solger

Inventor:

H. A. Noble  
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Attorney.

(No Model.)

2 Sheets—Sheet 2.

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Fig. 2.

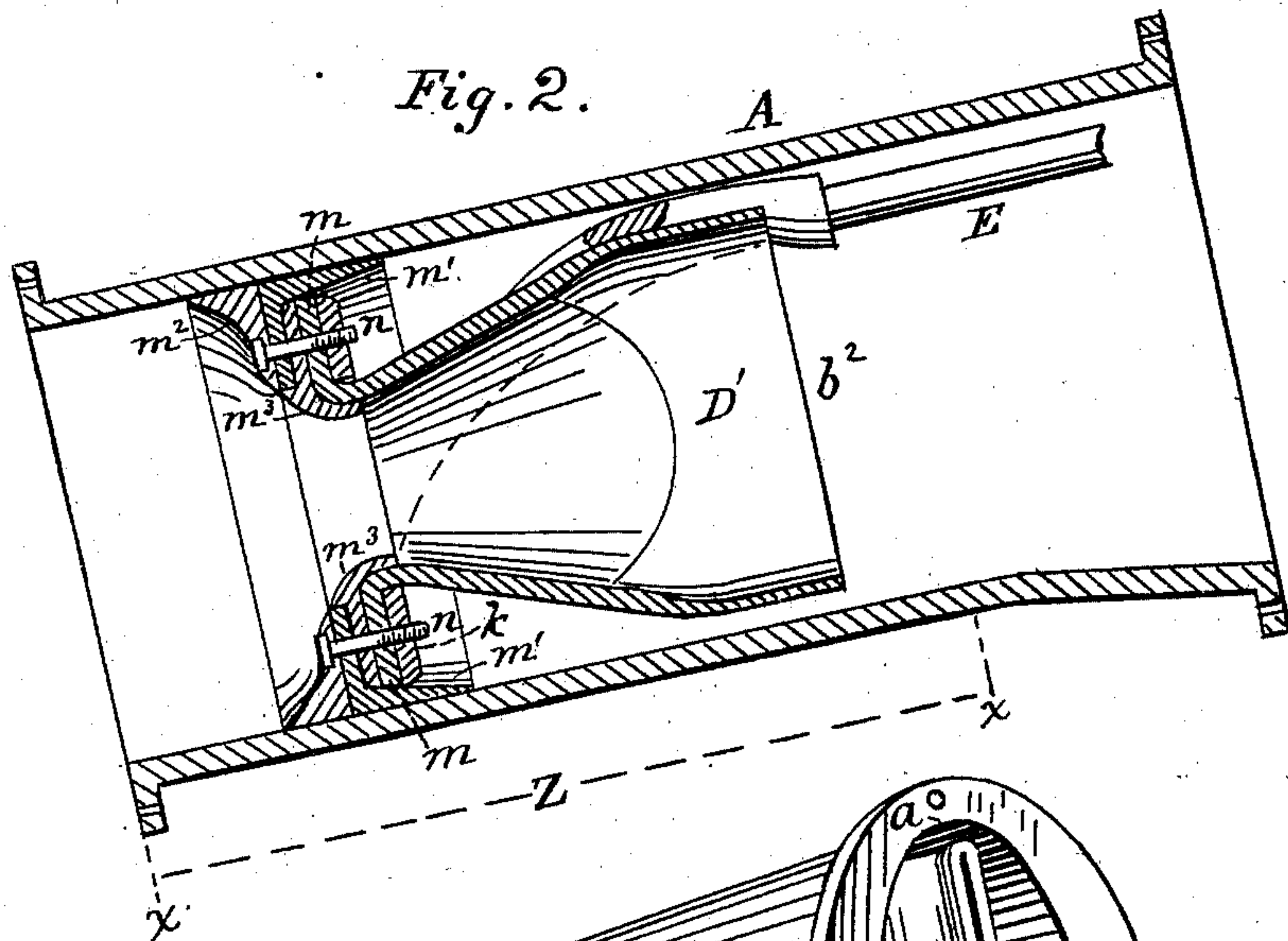


Fig. 3.

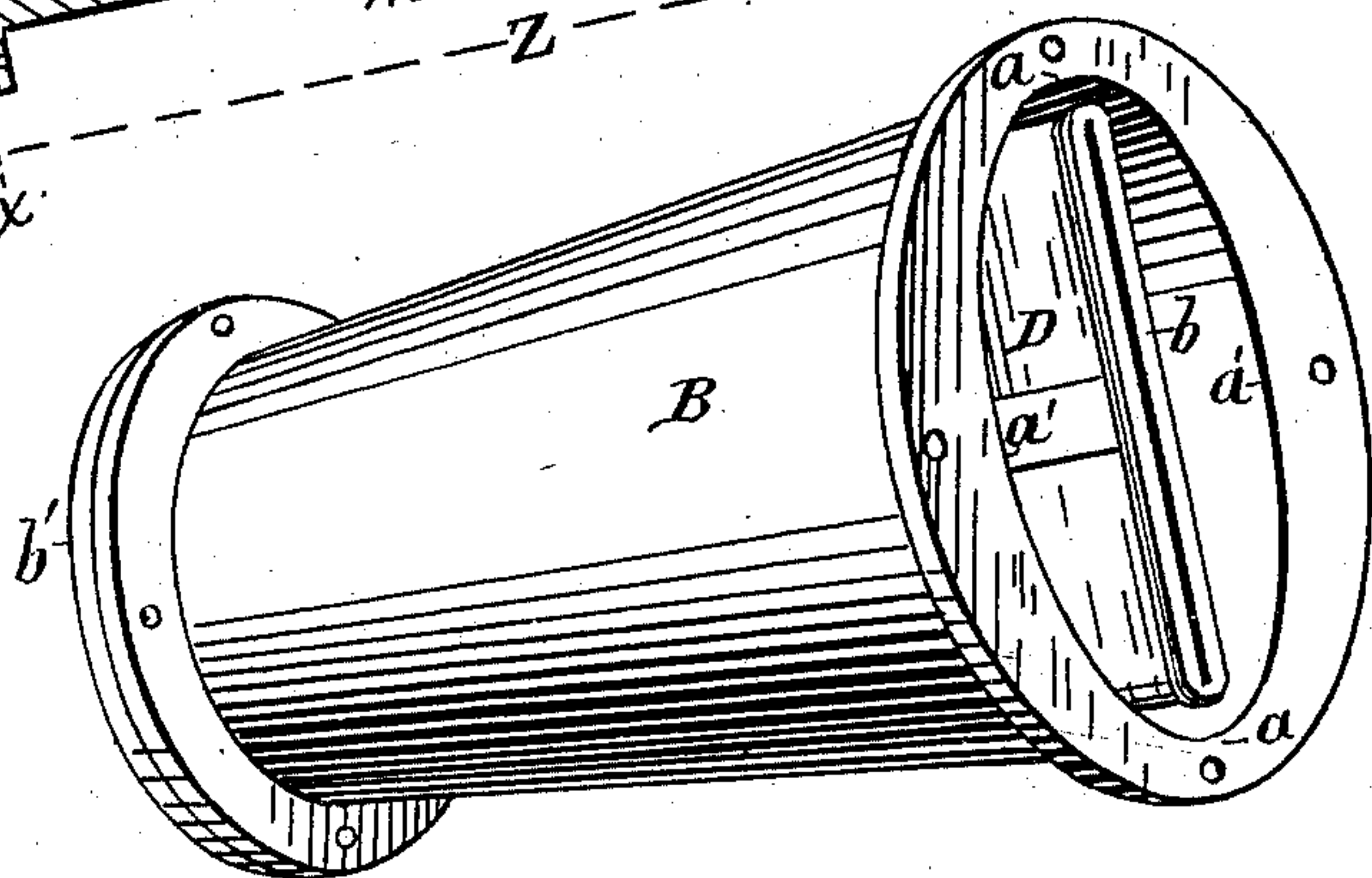


Fig. 4.

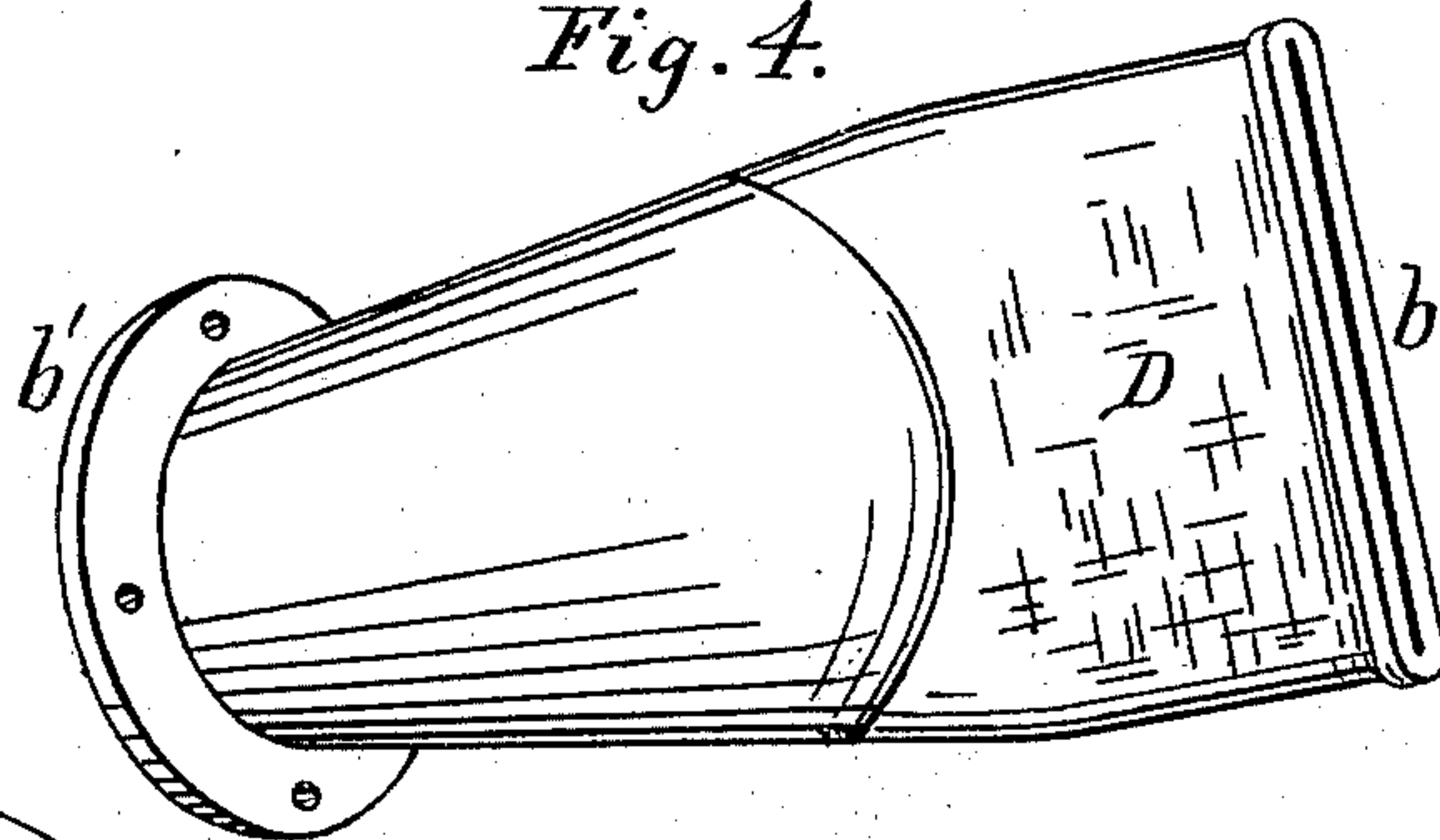
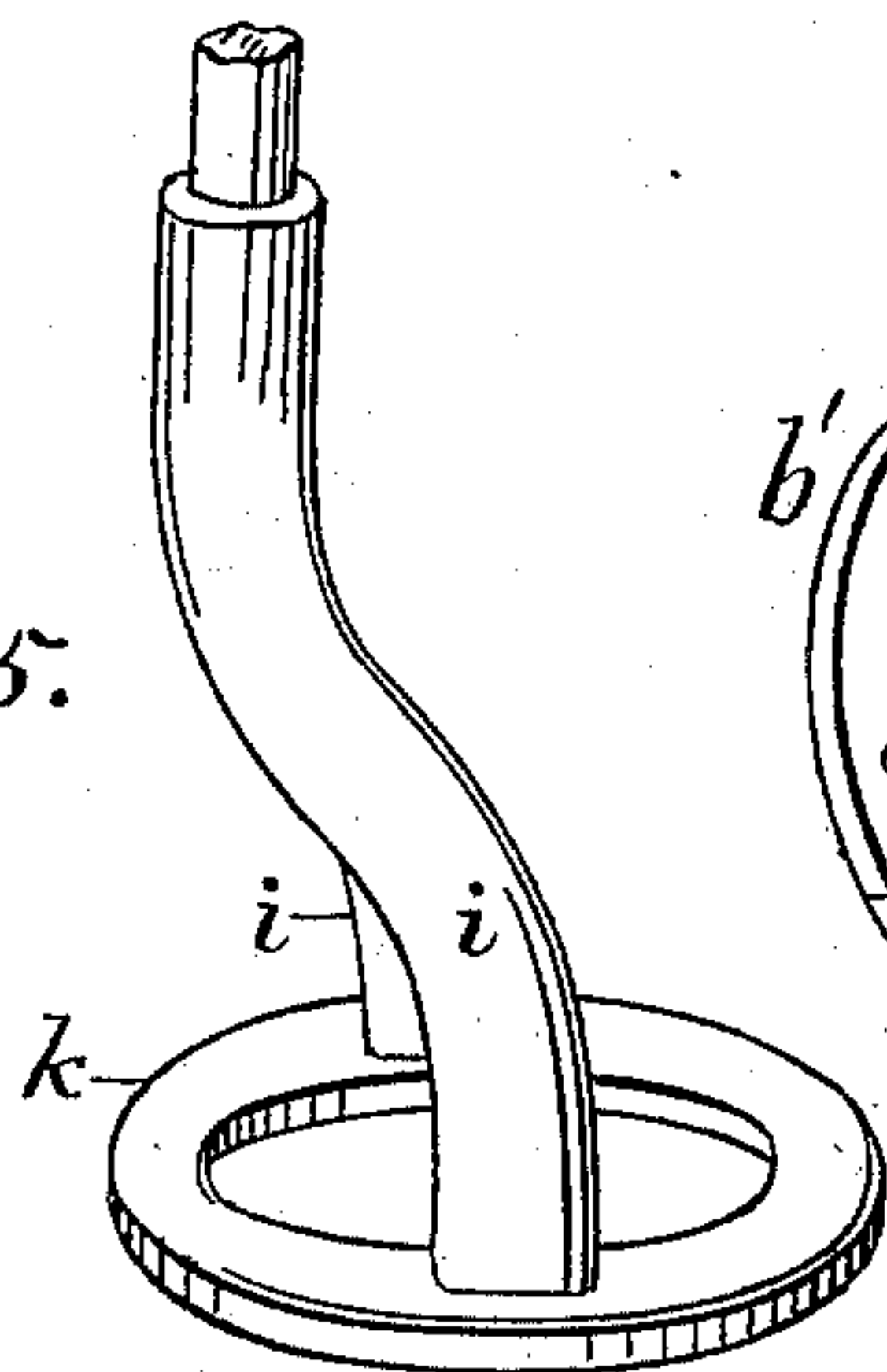


Fig. 5.



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# UNITED STATES PATENT OFFICE.

HENRY A. NOBLE, OF PHILADELPHIA, PENNSYLVANIA.

## PUMP.

SPECIFICATION forming part of Letters Patent No. 370,556, dated September 27, 1887.

Application filed August 4, 1883. Serial No. 102,788. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY A. NOBLE, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Pumps; 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, and to letters or figures of reference marked thereon, which form a part of this specification.

This invention relates to that class of pumps used for pumping out cesspools; and it consists in certain improvements in the construction of such and other pumps to which the improvements are applicable, as hereinafter described and claimed.

In the accompanying drawings, Figure 1 represents a longitudinal vertical section of a pump having my improvements. Fig. 2 represents in longitudinal section the main pump cylinder and piston. Fig. 3 is a perspective view of that part which forms the suction end of the pump. Fig. 4 is a perspective view of one of the valves. Fig. 5 is a perspective view of the yoke, which forms a part of the piston. Fig. 6 is an end view showing the forward end of the main pump-cylinder. Fig. 7 is a section of lower part of pump, showing the shoulders  $a'$ , herein referred to.

A designates the main cylinder of the pump, to the rear end of which is bolted the section B, which is the suction end, the discharge-end section, C, being bolted to the forward end of the cylinder as shown. The section B is so constructed that its opening at the end which joins cylinder A is elliptical in form, and when said section is bolted to the cylinder its inner surface at the upper and lower points (indicated by  $a$  in Fig. 3) is in line with the inner surface of the cylinder; but along the sides  $a'$ , the opening being somewhat narrower than the interior of the cylinder, shoulders are formed, which serve as a stop at the bottom of cylinder A for the piston which operates therein. (See Figs. 3 and 7.) The said shoulders  $a'$ , formed by the narrowing of the end section, B, serve in conjunction with the piston to break up

lumps drawn up through the suction end of the pump, thus preventing the clogging or choking of the lower valve.

Within the section B, which tapers downward, as shown, is placed a valve, D, formed of rubber or other similar material. As shown in the drawings, said valve enlarges from its lower end upward, the mouth forming the lips  $b$ , which open and close during operation of the pump. The valve bulges outward a short distance from the lips, conforming to the tapering section B, so as nearly to fit the same. In this construction ample space is allowed for the opening of lips  $b$  for the passage of fluid matter drawn into the pump, little space being left for fluid matter between the outside of valve D and the casing B, and the suction of the pump is very effective. The said valve has at its end a flange,  $b'$ , which forms the packing for the joint between the section B and the union, S attached thereto for the application of hose, the valve being thus secured in proper position.

The cylinder A is contracted at the upper part of its forward end, as seen at  $c$  in Fig. 6, where the piston-rod E passes into the cylinder, while the lower part,  $c'$ , connects in a nearly straight line with discharge-section C, as seen in Fig. 1. The pumping length of the cylinder, or that part in which the piston operates, is indicated by the dotted lines  $x$  in Fig. 1, the length of stroke being indicated by Z.

From the construction of parts A and C, it will be seen that the fluid-passage through said parts is on a slight curve, the section C extending forward in a somewhat diagonal direction from cylinder A, making the proper direction for the intake and discharge.

F is a stuffing-box for the piston-rod E, which is near the upper side of the cylinder and connected by slotted head and bolt  $d$  with a rocking crank,  $f$ , held between brackets  $g$ , which are secured to the frame of the machine. The piston is operated by means of hand-levers inserted in a sleeve,  $h$ , to which the crank is attached.

The piston-rod E is provided with a yoke having bent diverging arms  $i$ , which are connected with an annular plate or ring,  $k$ , to which the other parts of the piston are secured,



as follows: An elastic valve,  $D'$ , having lips  $b^2$ , and in construction similar to valve  $D$ , has its flange  $m$  extended under the ring  $k$ . Below the flange is placed an annular re-enforcement plate,  $m^3$ , the inner edge of which is turned upward and forms a guard for the elastic valve. (See Fig. 2.) Next below the piece  $m^3$  is the cup-leather packing, and below this is a guard-ring,  $m^2$ . The several parts under ring  $k$  are secured thereto by screw-bolts  $n$ , which are passed upward through apertures in the guard-ring, the cup-leather packing, the re-enforcement plate, and the flange  $m$ , and are screwed into the ring  $k$ . By screwing up the bolts the parts are brought together, pressing the elastic flange  $m$  and causing it to expand and force outward the cup-leather packing  $m'$ , thus packing the piston. By this construction the pump is at once packed and adjusted by the same set of bolts which serve to hold the parts forming the piston together. The packing may be readily adjusted by means of bolts  $n$  as may be desired, owing to wear or drying of the leather and shrinkage, the cup-leather packing being forced outward against the inner surface of the cylinder and kept in proper shape and condition for operation.

The improvements described are adaptable not only to pumps for cesspools, but may be applied to various styles of pumps.

I claim--

1. In combination with a pump-cylinder, a piston provided with an elastic valve,  $D'$ , having flange  $m$ , annular plate  $k$ , carried by the piston-rod, re-enforcement plate  $m^3$ , turned upward, as shown, to form a guard for the elastic valve  $D'$ , the cup-leather packing, and guard-ring, the parts being constructed and secured substantially as and for the purposes described.

2. In combination with a pump cylinder and piston, the tapering section  $B$ , which has at its upper end a diameter shorter than the diameter of cylinder  $A$ , whereby shoulders  $a'$  are formed between the parts  $A$  and  $B$ , to serve as a stop for the piston, and elastic valve  $D$ ; conforming to section  $B$  and secured thereto at its lower end, all as herein set forth, for the purpose specified.

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

HENRY A. NOBLE.

Witnesses:

WM. M. McKNIGHT,  
HERMAN KOECHER.