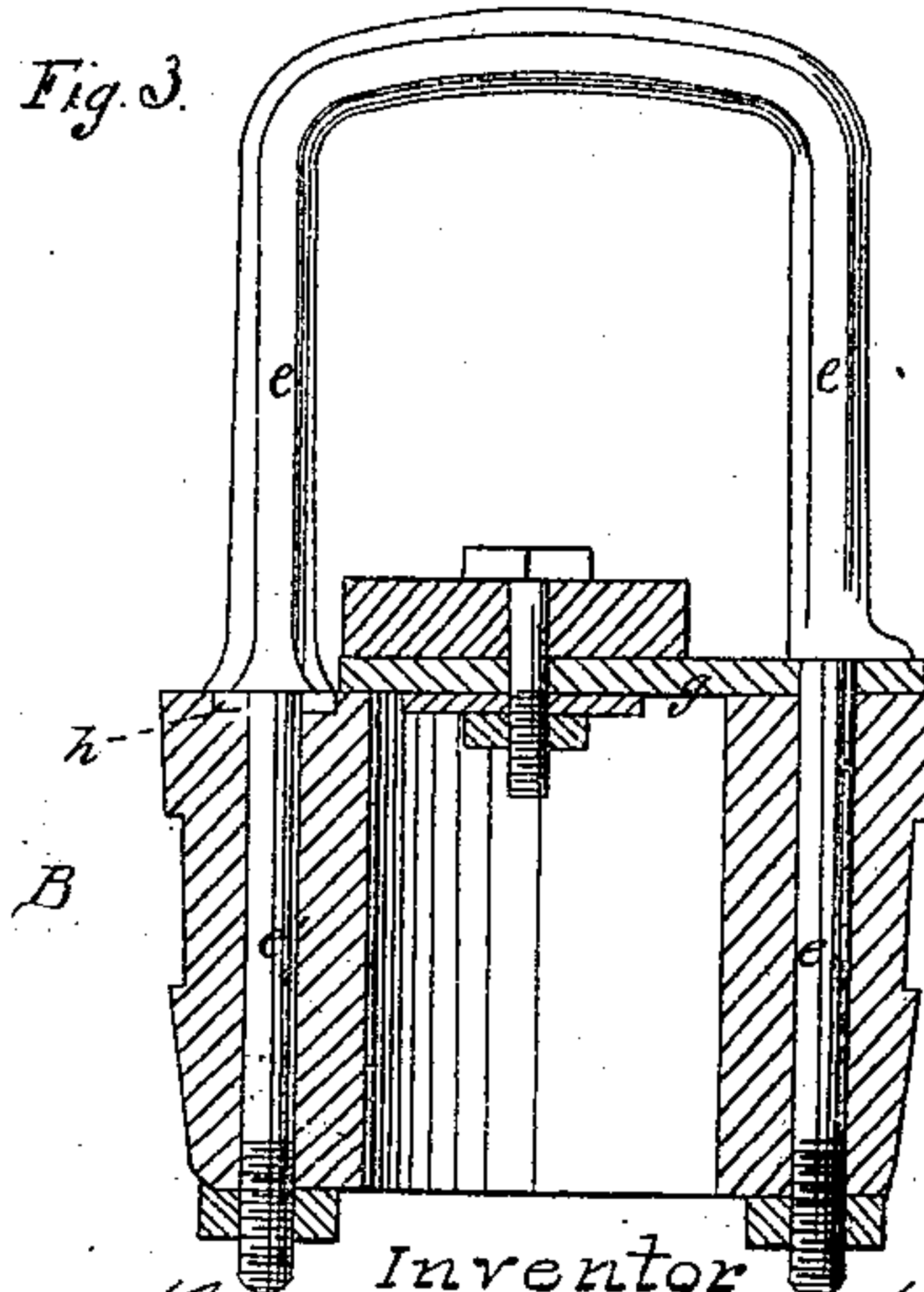
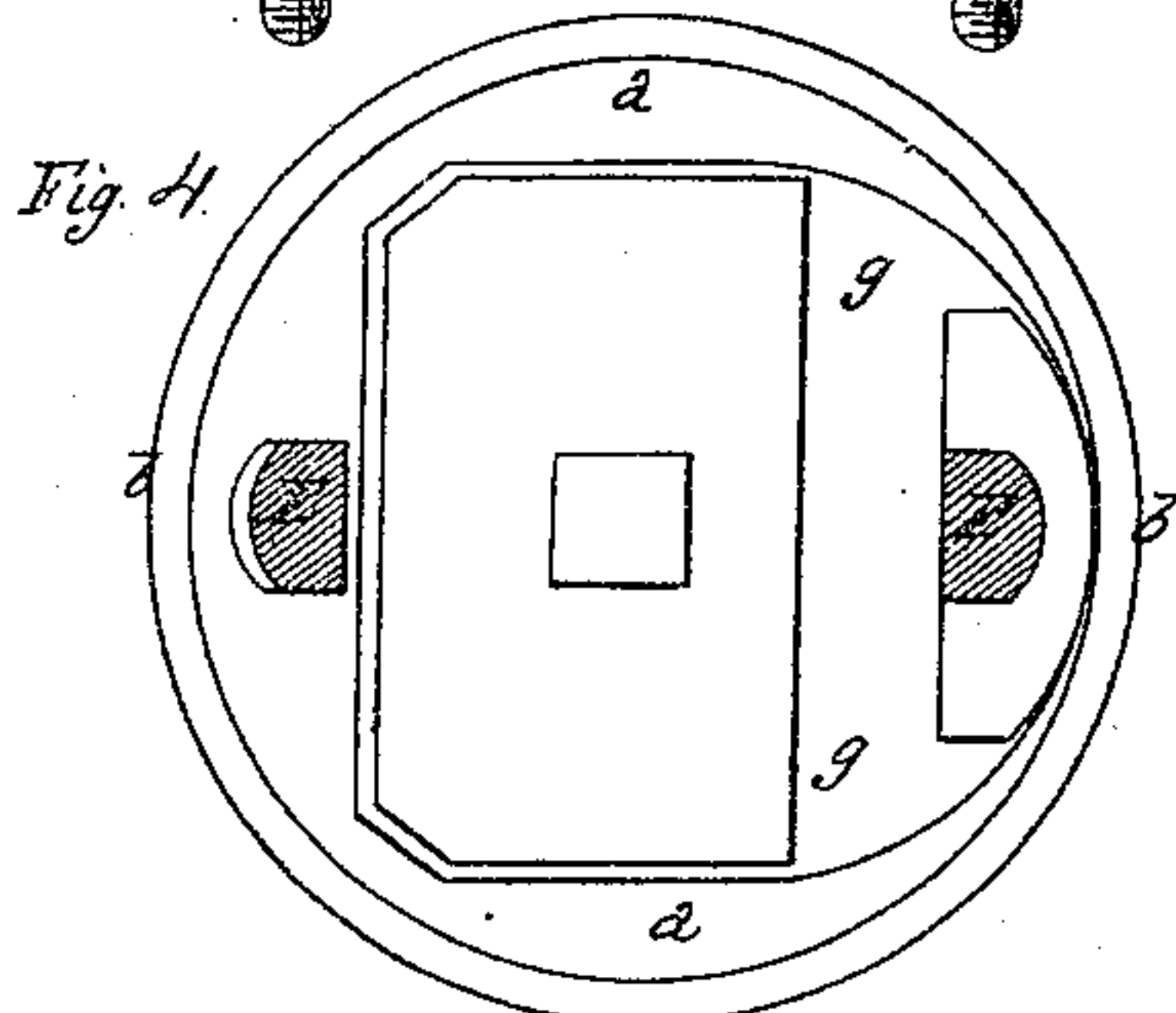
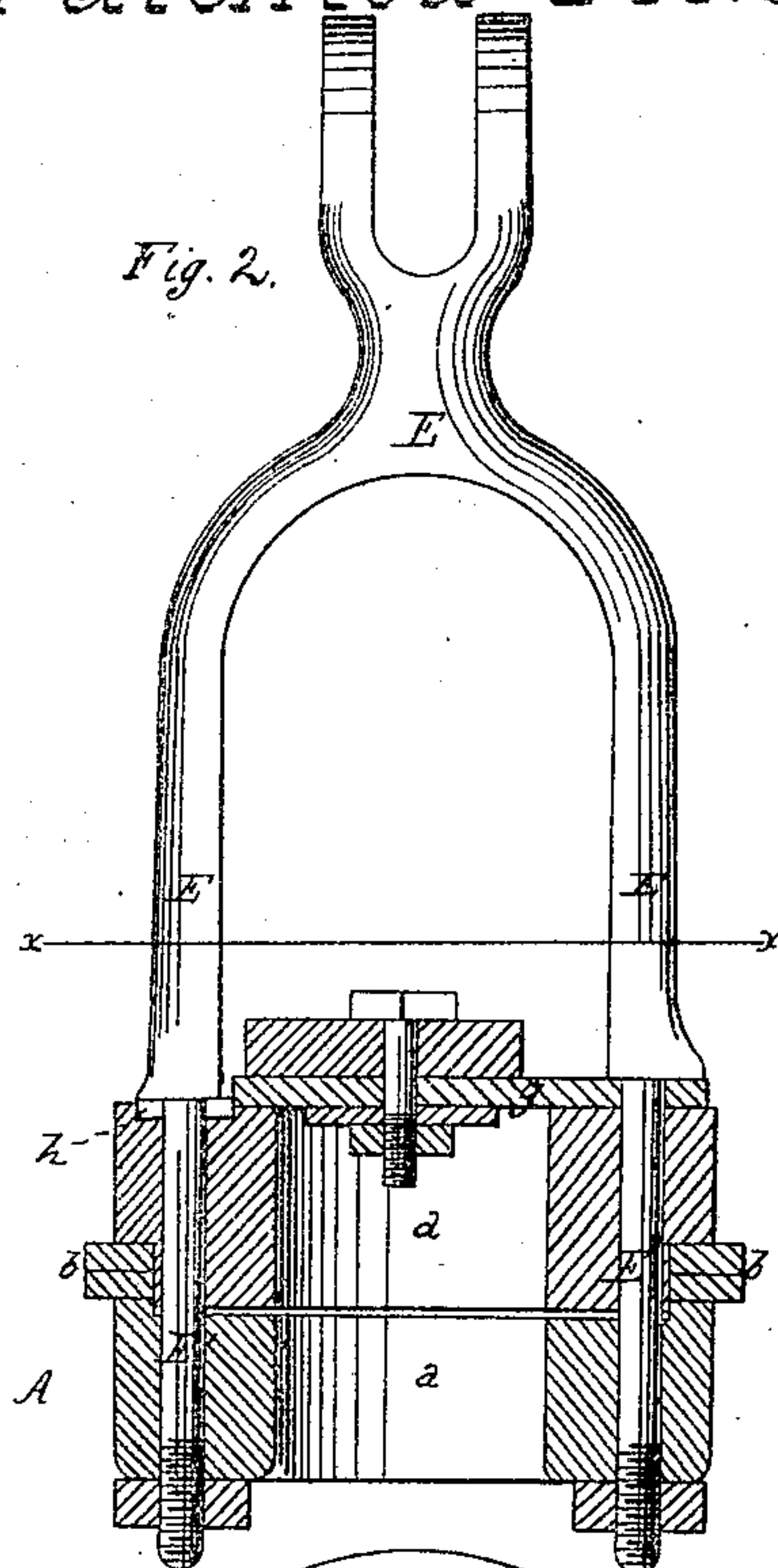
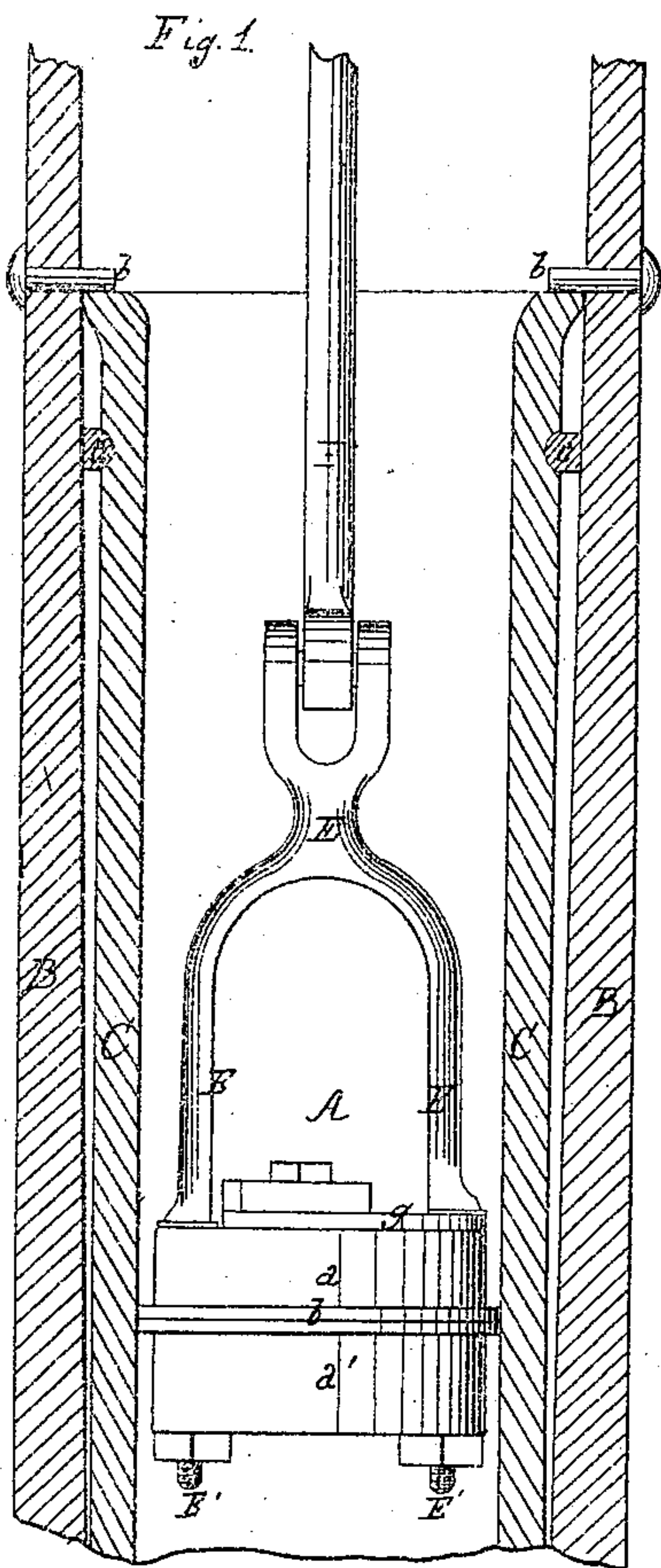


B. H. Naves.

Pump-Piston.

Patented Dec. 31, 1867.

N^o 72884



witnesses
E. H. Schaffer
Walter Hinchman

Inventor
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 by his agents
Mason, Hewitt & Hamner

United States Patent Office.

BENJAMIN H. NAVES, OF PHILADELPHIA, PENNSYLVANIA.

Letters Patent No. 72,884, dated December 31, 1867.

IMPROVEMENT IN PUMP-PISTONS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, BENJAMIN H. NAVES, of Philadelphia, in the county of Philadelphia, and State of Pennsylvania, have invented an Improvement in Pumps; and I do declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a vertical central section taken through a pump-stock, showing the construction of the piston and valve-box chamber therein.

Figure 2 is a section taken vertically through the piston or pump-bucket, showing the manner of constructing it, and applying the staple or bail to it.

Figure 3 is a vertical sectional view of the valve-box.

Figure 4 is a section taken in the horizontal plane indicated by line *x x* in fig. 2.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates to certain novel improvements on the construction of the chambers for receiving the valve-box and piston or bucket; and also to a novel mode of constructing and putting together these parts for the purpose of preventing leakage, and the racking and rapid wearing out of the pump and its stock, and to adapt the pump for use in factories where it is required to pump acids and alkalies from one tank to another; also for use in ships carrying coal, sand, ballast, oysters, or any other substance which would rapidly wear out the old forms of pumps, as will be hereinafter explained.

To enable others skilled in the art to understand my invention, I will describe its construction and operation.

In the accompanying drawings, B represents a penstock, which may be made of wood or metal, and which is bored out in the usual manner, with this exception: That portion of the penstock which is to receive the valve-box D and pump-bucket A, is bored so as to have a conical or tapering chamber of proper length to receive a lining, C, within the upper cylindrical portion of which the pump-bucket A works. This lining C, which I shall make of a harder and more durable material than the penstock B, is constructed, as shown in fig. 1, with its lower end tapering inside and outside—inside, for the purpose of having fitted tightly to it the valve-box D, and outside, for the purpose of fitting tightly against the bore of the penstock, thus preventing leakage. This lining C is held down, after having been driven tightly into its seat, by means of pins *b b*, and packed by means of the ring *c*, applied as shown in fig. 1. The valve-box D is constructed with an annular groove in its tapering external surface, into which is fitted a packing, *d*, of some suitable material, which will form a perfectly tight joint when the box is driven down firmly into its seat in the tapering lower end of the casing, as shown in fig. 1. This box is constructed with a hole through its centre for the upward passage of water, which hole is covered by the valve or clapper *g*, opening upward into the interior of the shell or lining C below the pump-bucket A. A staple or bail, *e*, is secured to this valve-box by passing its tangs *e' e'* down through the box, and securing them by means of nuts, as shown in fig. 3. Upon one of the shoulders of this bail *e*, at the junction of one of the tangs *e'* with it, spurs *i i* may be formed, which embed themselves into the clapper *g* and top of the valve-box, and thus prevent this clapper from displacement. It will be seen, by reference to fig. 3, that both tangs *e' e'* of the bail *e* pass through India rubber, or other suitable elastic substance, so that the shoulders of the tangs and bail abut against such substance. The pump-bucket A consists of two hollow cylindrical sections, *a a'*, between the ends of which the packing-rings *b* are confined, as shown in fig. 2. These two sections are confined together by means of the tangs *E' E'* on the ends of the bail E, which tangs pass through these two bucket-sections, and receive nuts upon their lower ends. One of said tangs passes through the clapper-valve *g*, and the shoulder on this tang has spurs upon it, which, when the bail is secured firmly in place, embed themselves into the substance of the clapper, and thus hold it firmly in place, as described for the bail of the stationary valve or clapper-box D. By thus securing the bails E and *e* to their respective boxes, the clapper *g* and the packing-blocks *h* prevent the escape of water through the holes, which are made through these boxes for receiving the tangs of the bails.

The old mode of nailing on the clappers is rendered unnecessary, and the clappers can be renewed at pleasure, with very little labor, by simply removing the bail.

In carrying out my invention, I shall make the lining C, and the pump-bucket A and valve-box D, of lignum-vitæ, which I have found to be very little affected by acids or alkalies, and which, on account of its hardness and closeness of grain, will last for a great length of time.

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

1. The inside lining C, constructed with a tapering base for receiving the clapper or valve-box, and also with a provision at or near its upper end for receiving a packing, *c*, substantially as described.

2. The pump-bucket A, constructed with two parts, *a a'*, with packing, *b*, between said parts, being confined together, and the clapper held in place by means of the tangs on the ends of the bail E, substantially as described.

BENJ. H. NAVES.

Witnesses:

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