

(No Model.)

G. H. GASKINS.
MECHANICAL DETECTOR.

No. 348,120.

Patented Aug. 24, 1886.

Fig. 1.



Fig. 5.

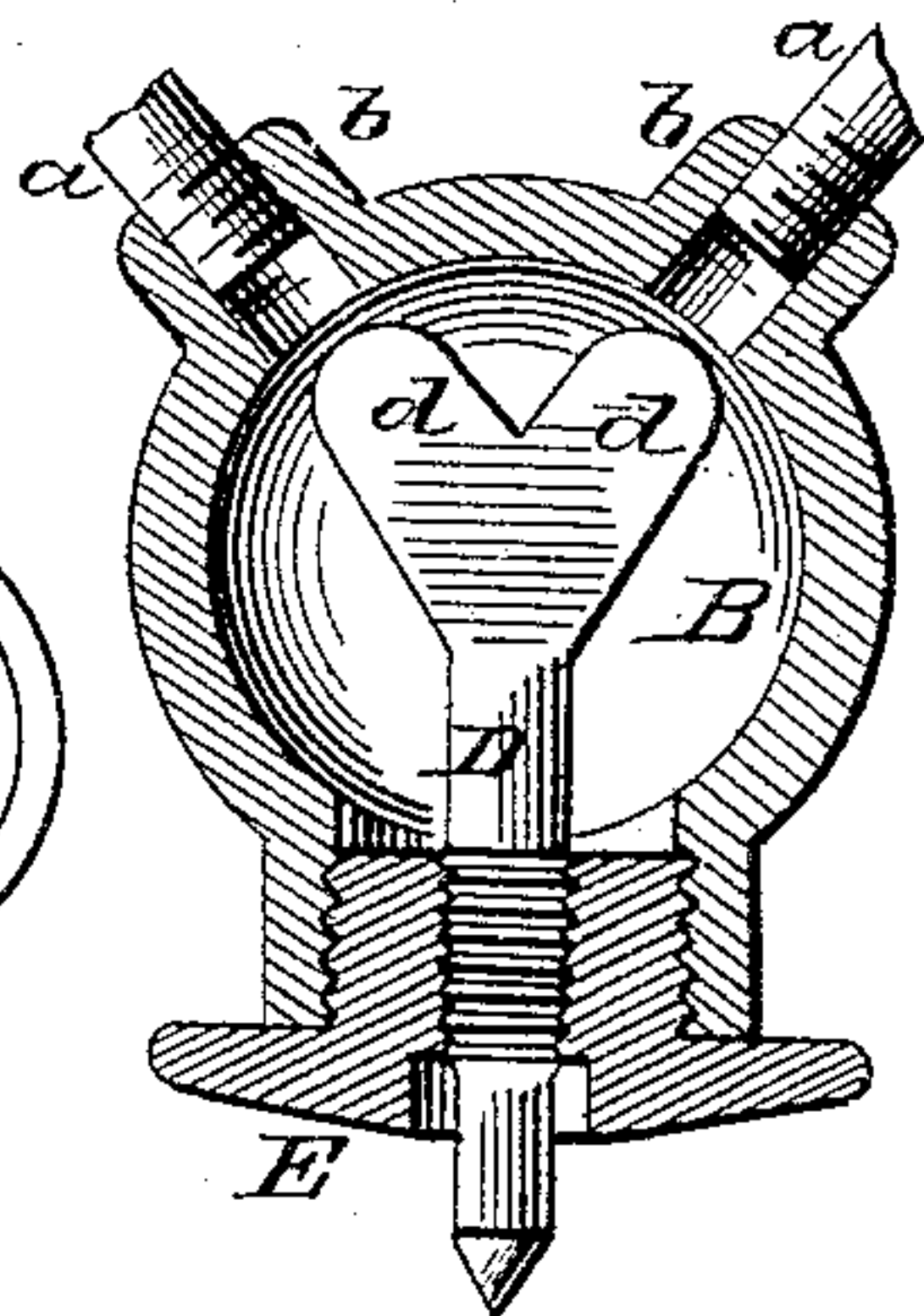


Fig. 2.

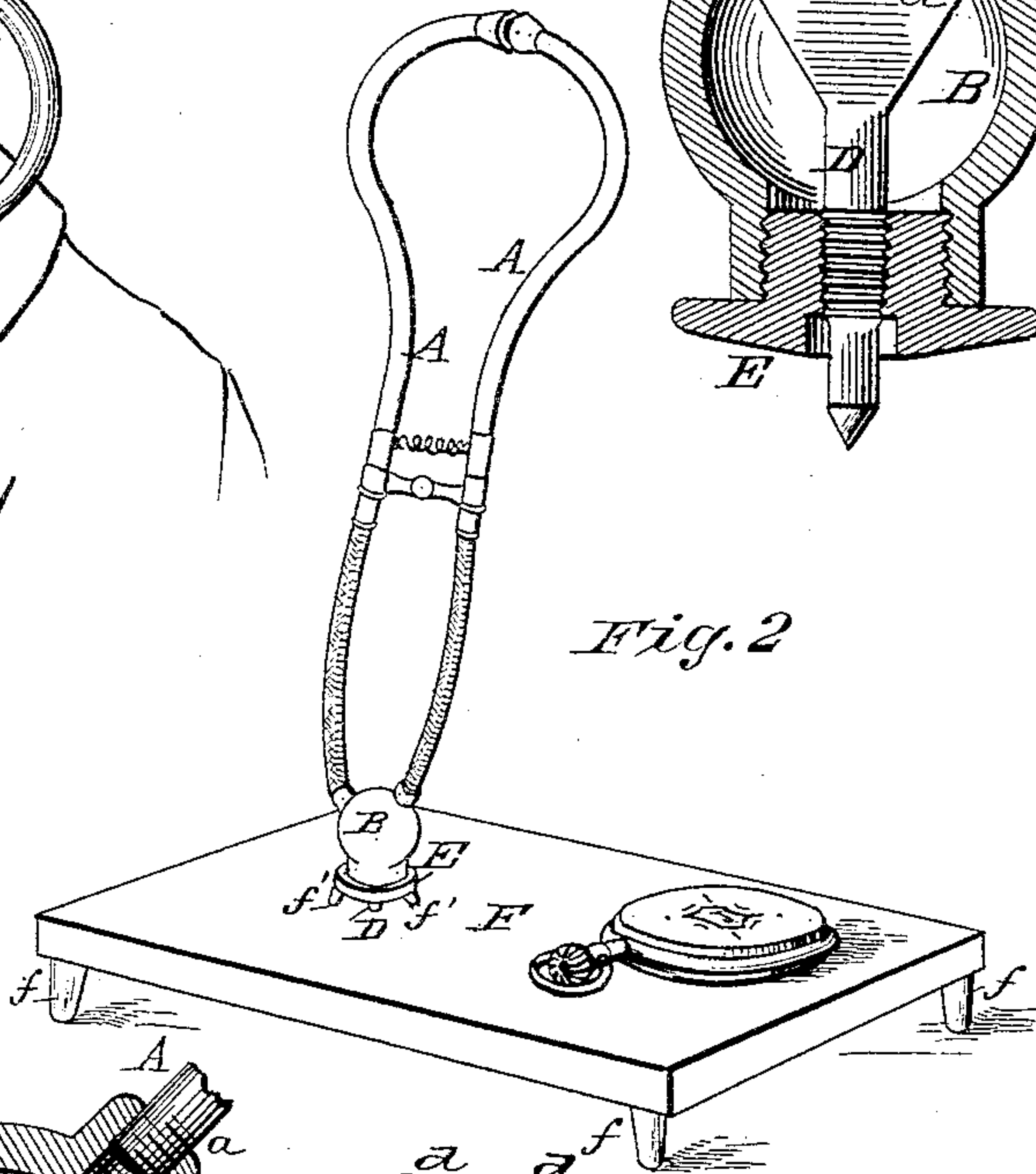


Fig. 3.

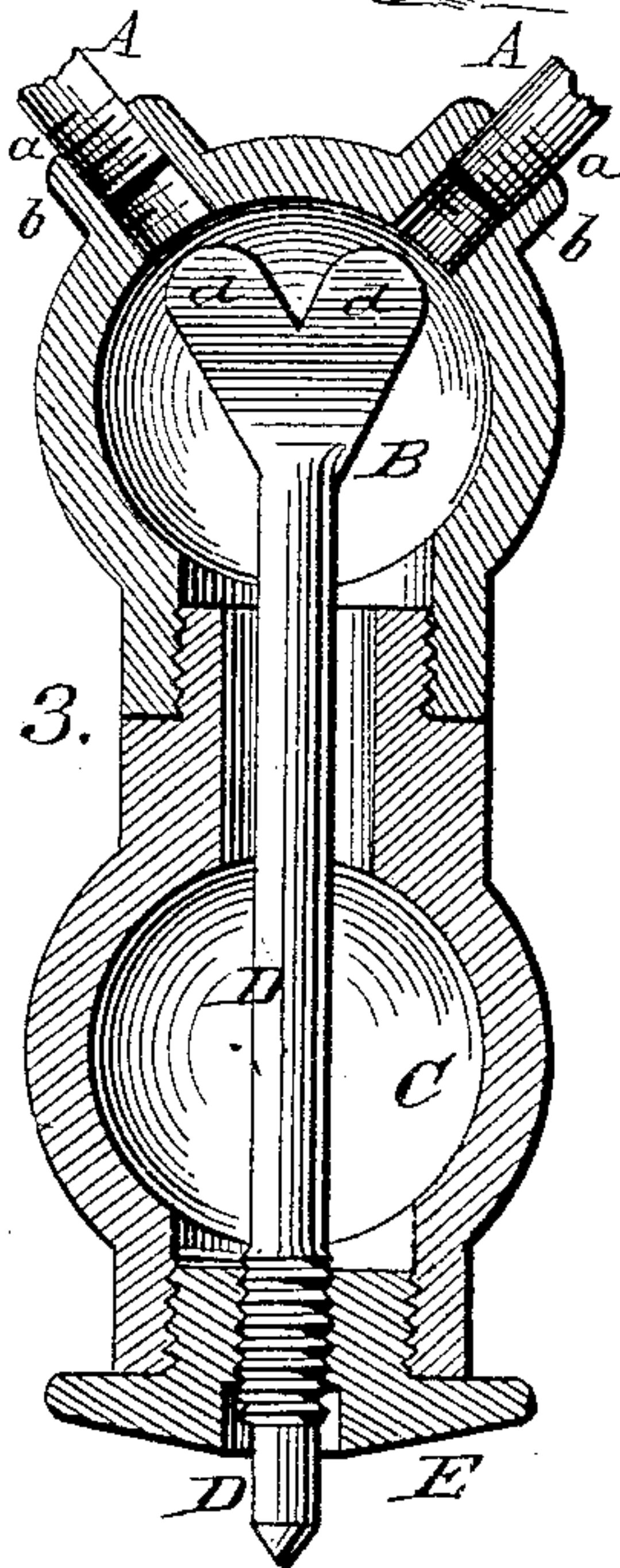
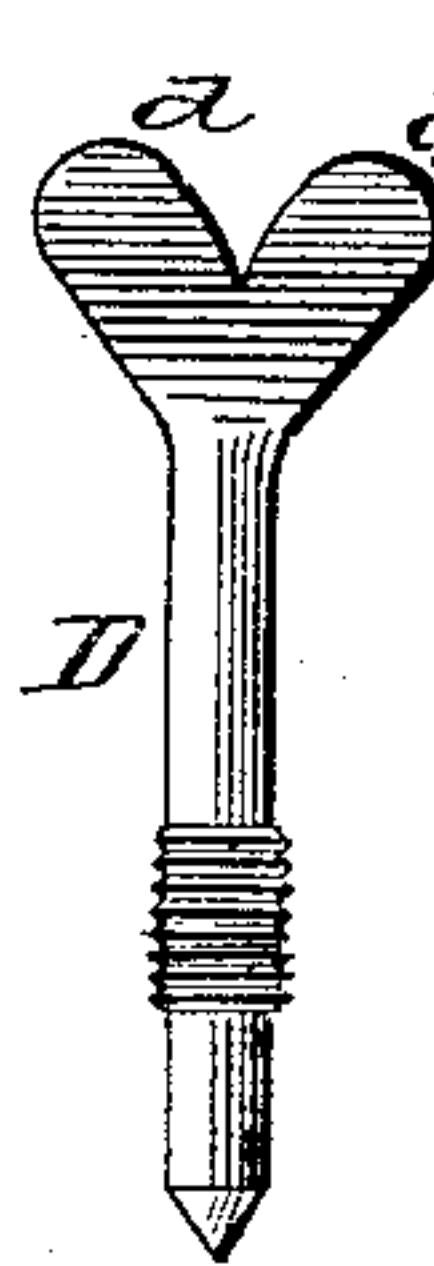


Fig. 4.



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GEORGE H. GASKINS, OF PANTEGO, NORTH CAROLINA.

MECHANICAL DETECTOR.

SPECIFICATION forming part of Letters Patent No. 348,120, dated August 24, 1886.

Application filed June 18, 1886. Serial No. 205,547. (No model.)

To all whom it may concern:

Be it known that I, GEORGE H. GASKINS, a citizen of the United States, residing at Pantego, in the county of Beaufort and State of North Carolina, have invented a new and useful Improvement in Mechanical Detectors, of which the following is a description.

My invention is what may be called a "mechanical detector," and has for an object to provide a simple construction by which to determine or detect when a valve is grinding, or otherwise out of order; also, to determine when a watch sounds properly, and to determine by ear whether working mechanical parts are in proper order.

The invention consists, broadly, in a contact rod or bar and a conductor for conveying the vibration of said contact part to the ear.

It consists, further, in certain features of construction and novel combinations of parts, as will be described.

In the drawings, Figure 1 is a view of the device as ready for use in testing steam-valves and the like. Fig. 2 shows the apparatus for testing the sound of a watch. Fig. 3 is a sectional view of a part of the construction shown in Fig. 1, and showing the long rod. Fig. 4 shows the short rod, as will be described, and Fig. 5 is a detailed sectional view.

The ear-tubes A A may be formed similar to those of an ordinary surgical stethoscope, and their flexible portions unite at *a* with a receiver or bell-like case, B, and preferably with nipples *b*, formed thereon. These ear-tubes form conductors to convey the sound to the ear.

In the construction shown in Fig. 1, a carrier-bell or case, C, is threaded into connection with the receiver, and is adapted to support the contact rod or bar D. This rod is formed of metal, and in the construction shown is threaded through a cap, E, which in turn is threaded into the bell C. The lower end of the rod D extends below the bell, while its upper end is forked, forming arms *d d*, one extending to or slightly into the opening or bore of each of the nipples *b*. By this construction the vibration of the bar, consequent on its contact with the part being tested, will be transmitted to the air in the ear-tube and will be borne to the ear. It is preferred to use two

tubes, one extended to each ear, as thereby all other noises are shut out; also to use the receiver as a connection between the ear-tubes and the rod or bar D; but manifestly a single tube might be employed, and such tube, which forms a conductor between the contact bar or rod and the ear, be connected directly to the rod or bar; but the receiver is preferred, because it enables a freer vibration of the rod, and also intensifies the said vibrations, as will be readily understood. The construction shown in Fig. 1 is preferred for use around engines and in other arrangements where the rod has at times to be placed down or in between parts of machinery, while that shown in Figs. 2 and 5 is preferred for use in testing watches.

In testing watches, instead of applying the rod or bar directly to the watch, it is preferred to rest such watch on a steel or other conducting-plate, F, which is held by glass legs or other suitable insulating-supports, *f*, and to touch the rod or bar to such plate F, when the sound of the watch will be reproduced to the ear. It is also preferred to interpose insulating-supports *f'* between the receiver and the plate F, as shown.

It is preferred to form the receiver B and the bell C of glass, brass, gutta-percha, or other suitable non-conducting material. The bar D is by preference magnetized, as experience has shown that a magnetized bar or rod conveys the sound of the object being tested with greater clearness and force, avoiding the roaring sound incident to the use of a non-magnetized rod or bar.

The invention will be found useful about engines in locating any disarrangement or defect in the valve system; also in detecting the cause of the thump in engines, and for other purposes where a defect may be determined by the sound.

It will be noticed that a shorter rod or bar is employed in the construction shown in Fig. 2 than in that shown in Fig. 1, and the long and short bars are shown, respectively, in Figs. 3 and 4.

By means of the cap E and bell C the device may be quickly changed for use with a long or short rod.

In use, by placing the contact-rod on a valve-

case or a part of the engine adjacent that thought to be out of order, any defect may be readily determined by the sound transmitted to the ear by means of the conductor or conductors, which may be applied as shown.

The arrangement of parts B, D, and E, as shown in Fig. 5, may be also used around engines, where so desired.

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

1. The combination, in a mechanical detector, of independent conductors adapted to lead one to each ear, and a contact-rod having at its upper end arms registering one with each of such conductors, substantially as set forth.

2. The combination of the receiver, a conductor connected therewith, a contact-rod extended at its upper end into said receiver, and

a connection for joining said rod to the receiver, substantially as set forth.

3. A mechanical detector comprising a receiver, tubular conductors connected therewith, the bell connected with the receiver, the cap secured to the bell, and the contact-rod supported by said cap and having arms registering one with each of the conductors, substantially as set forth.

4. The combination of a plate, as F, having insulating-supports *f*, with the contact rod or bar, and a conductor for conveying the vibrations of said rod or bar to the ear, substantially as set forth.

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