

No. 680,075.

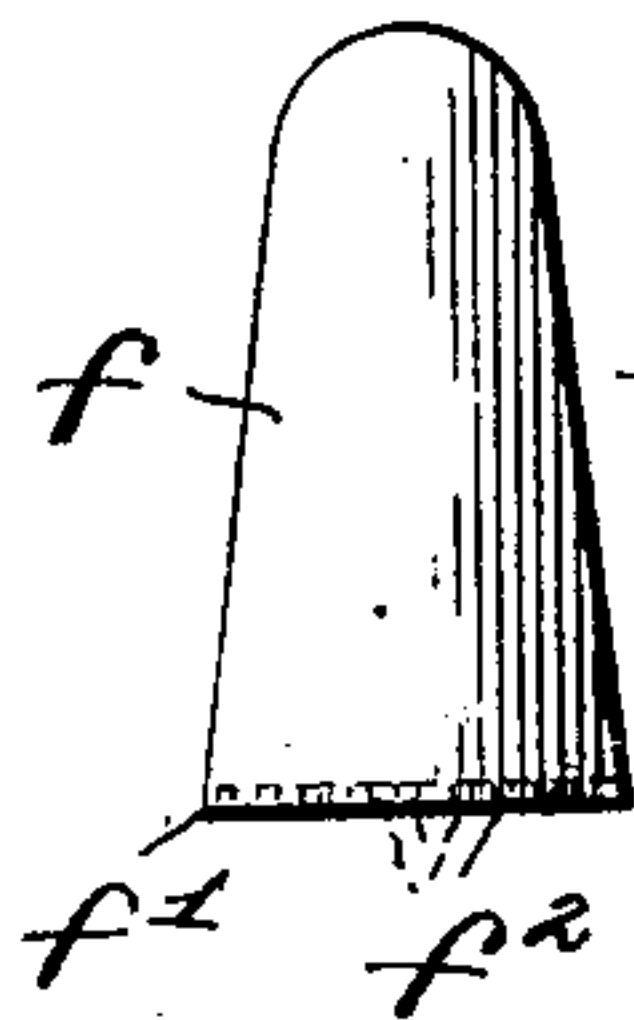
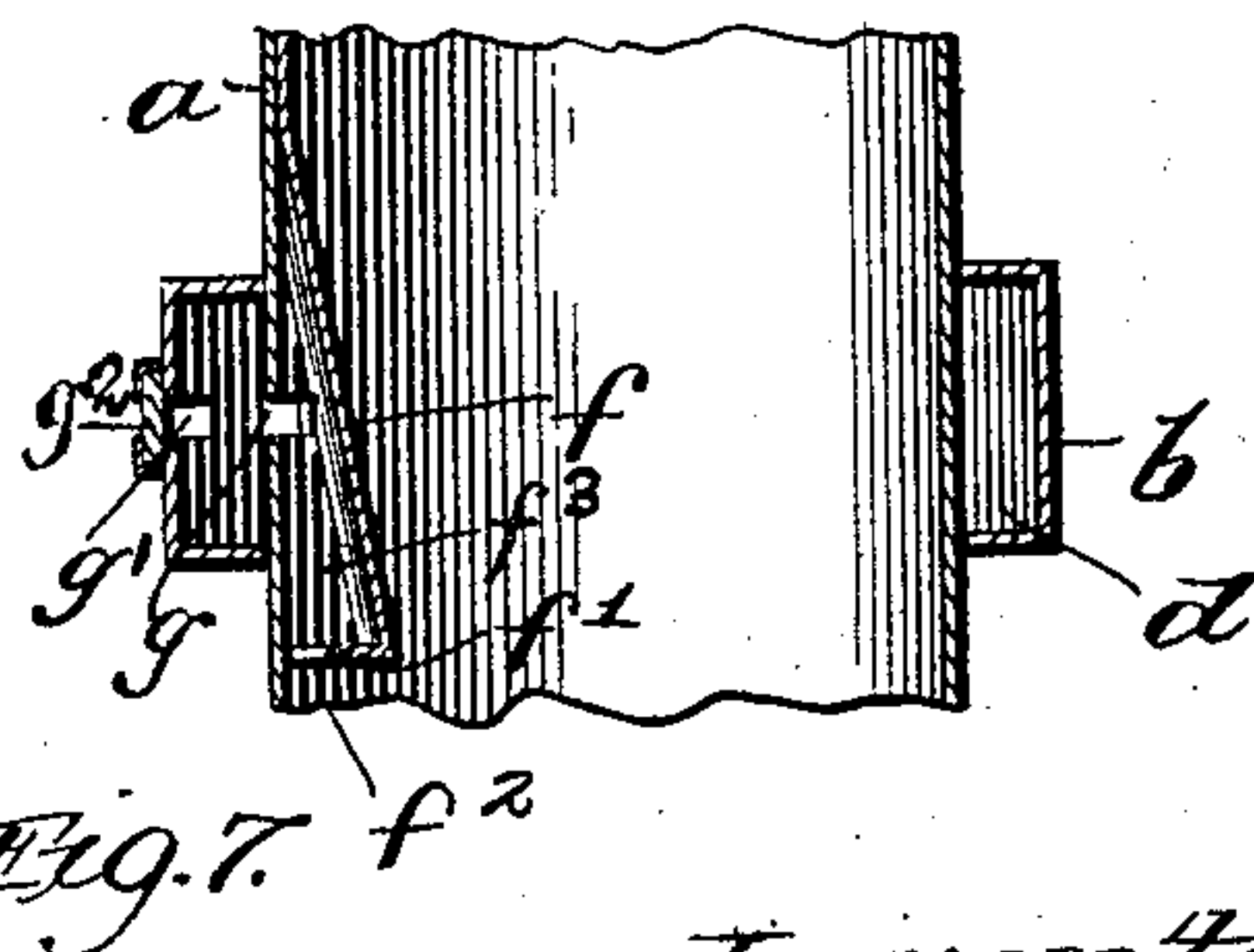
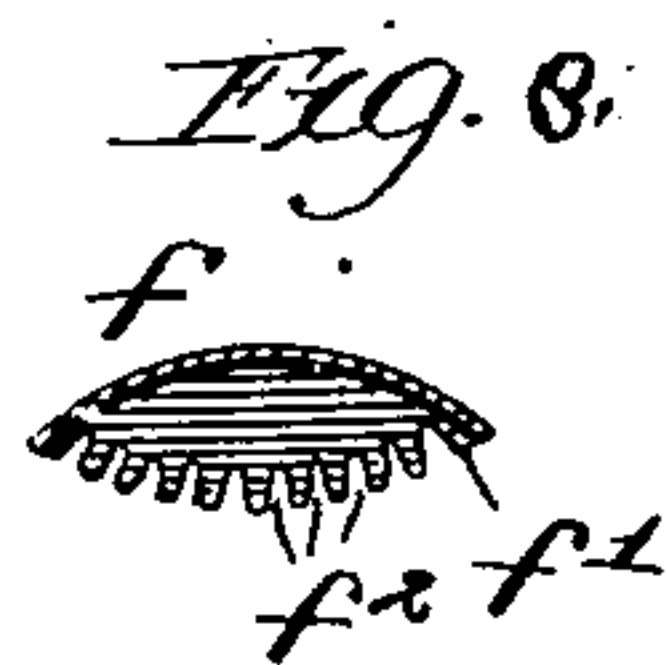
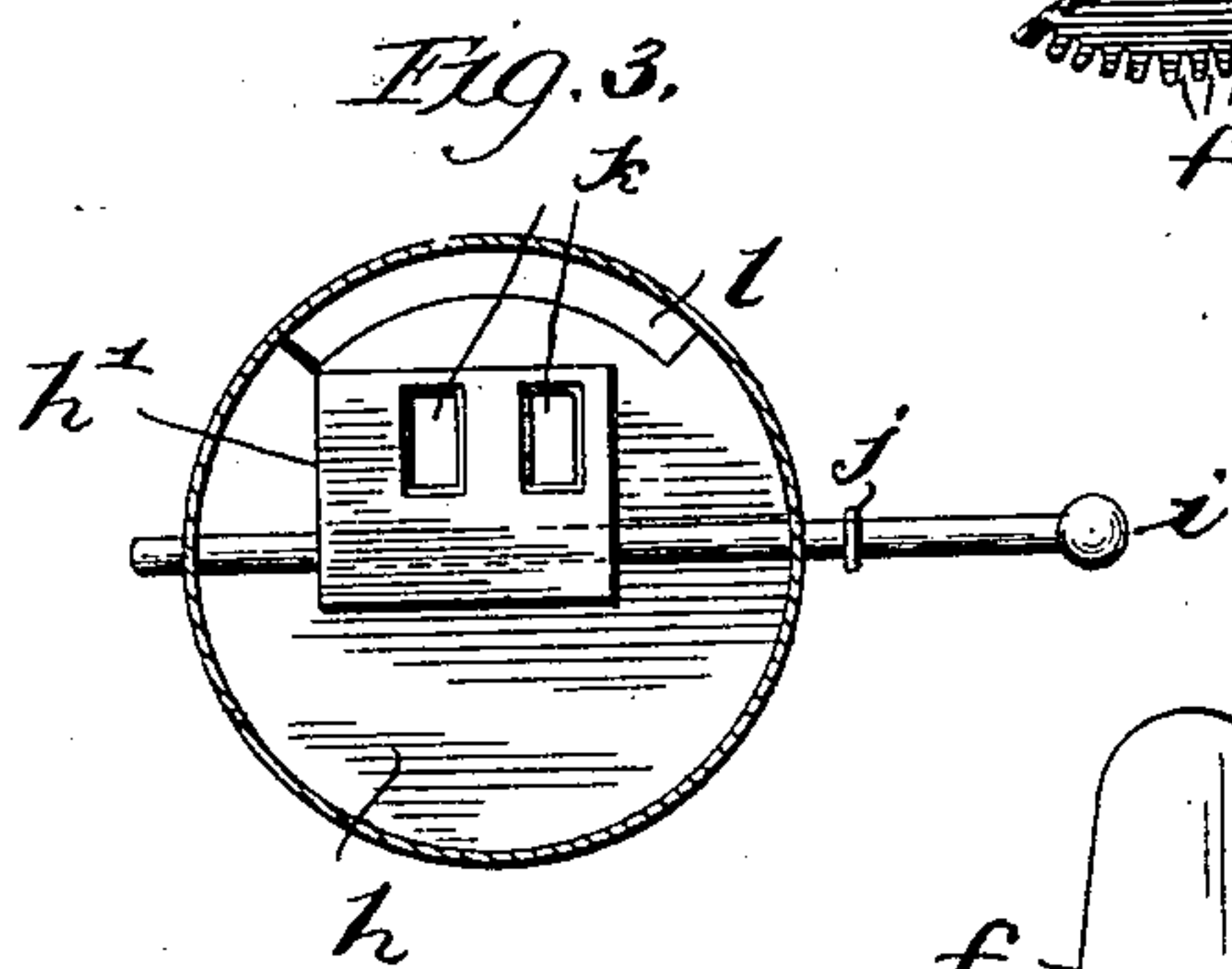
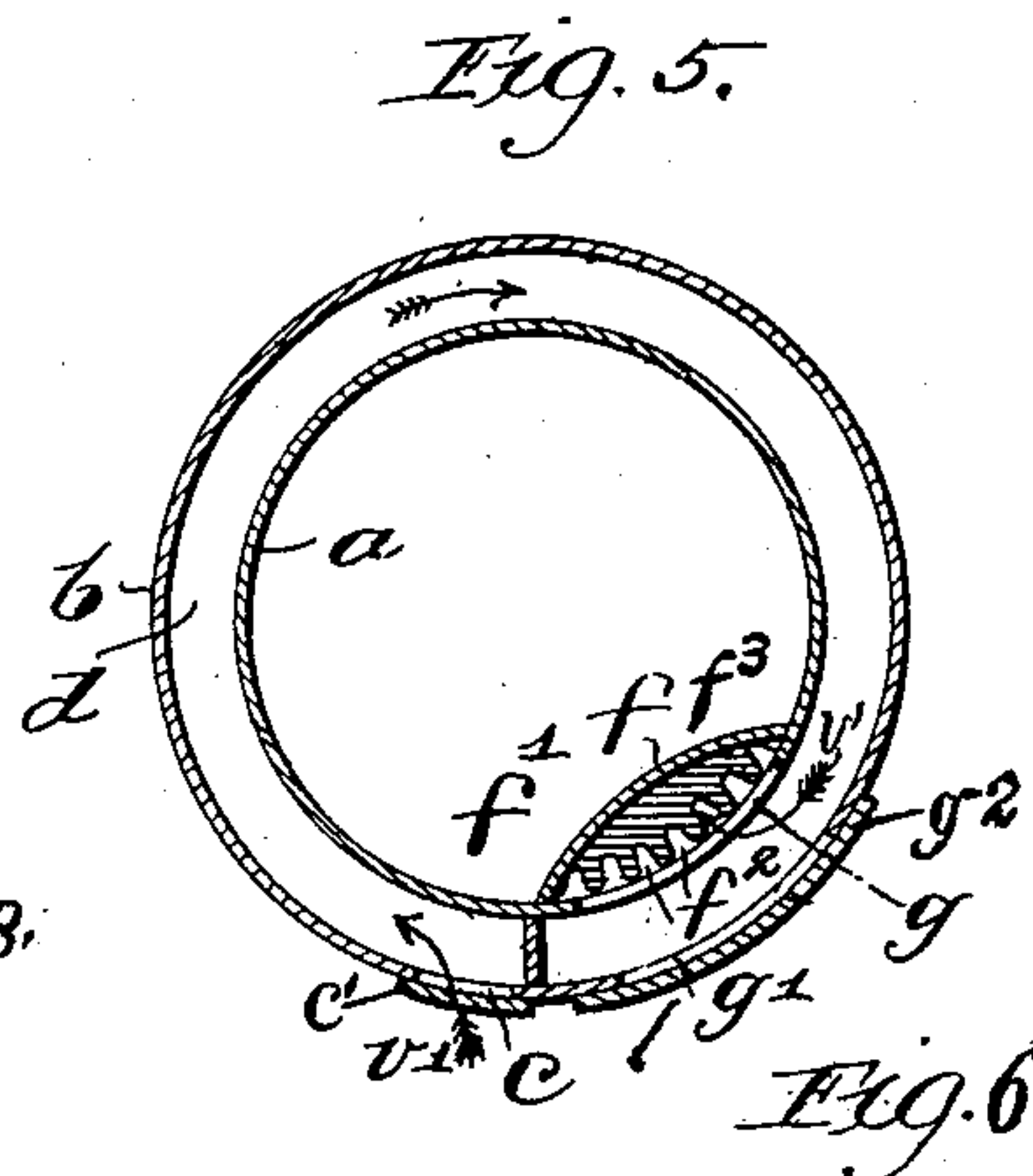
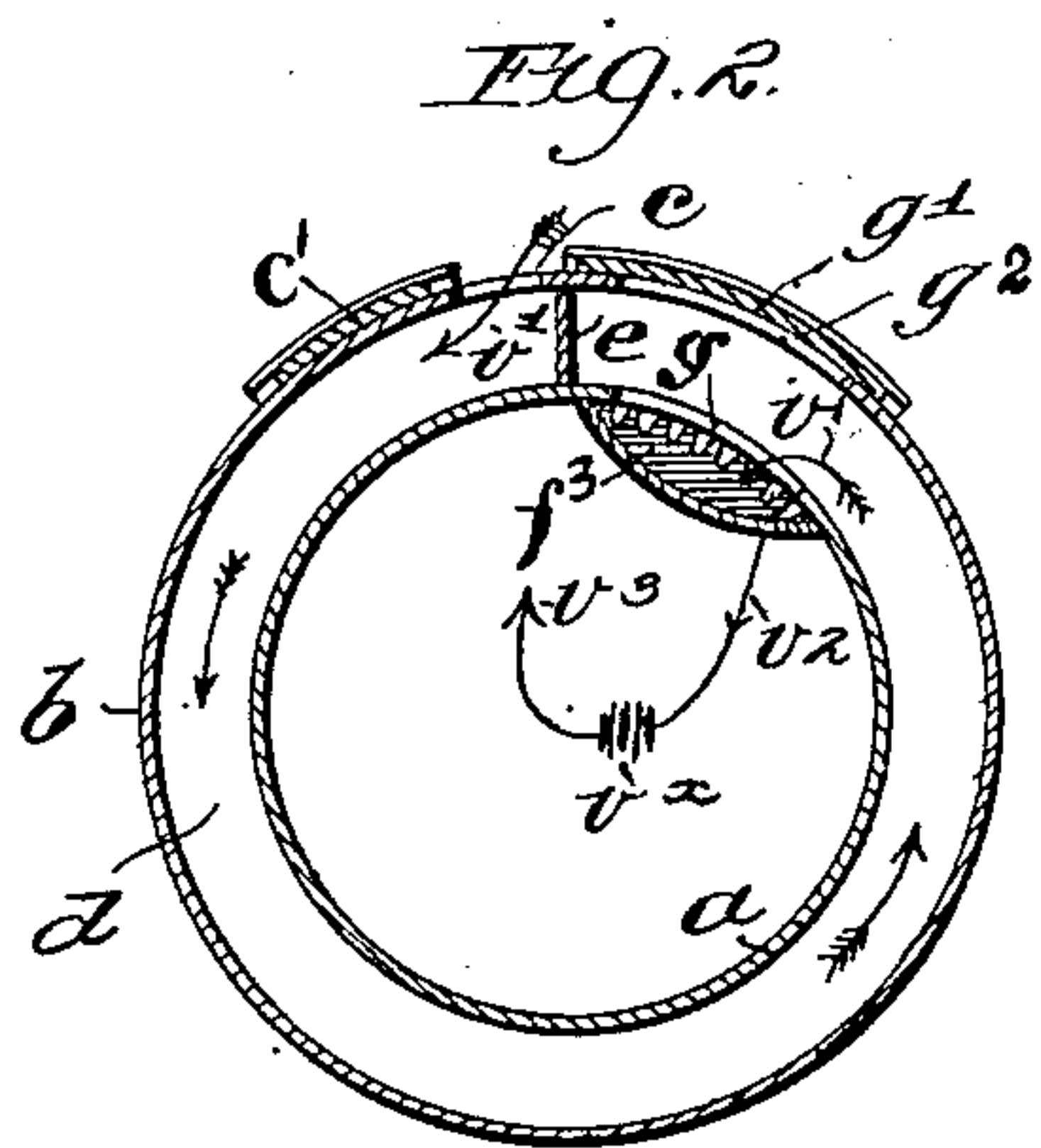
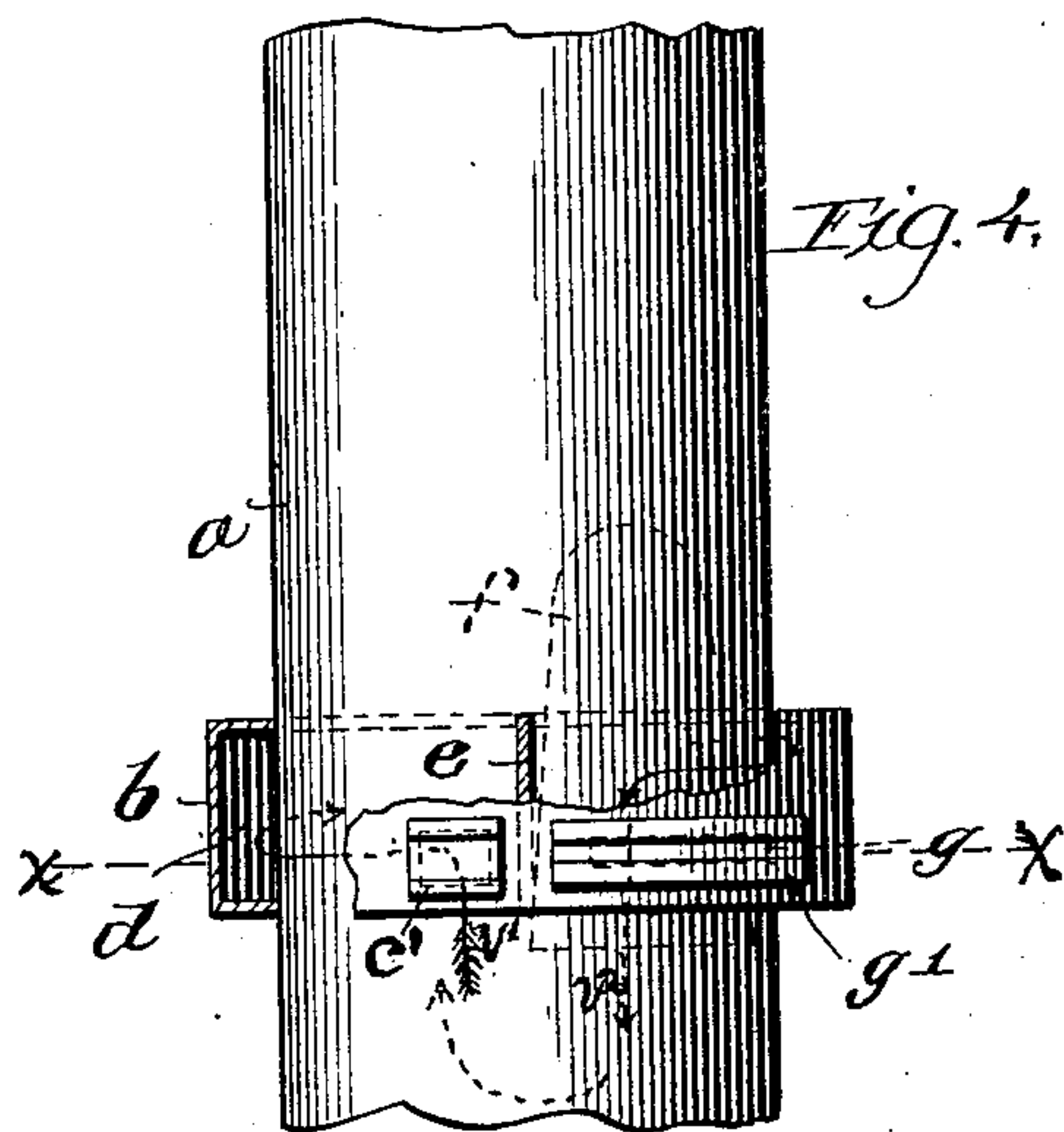
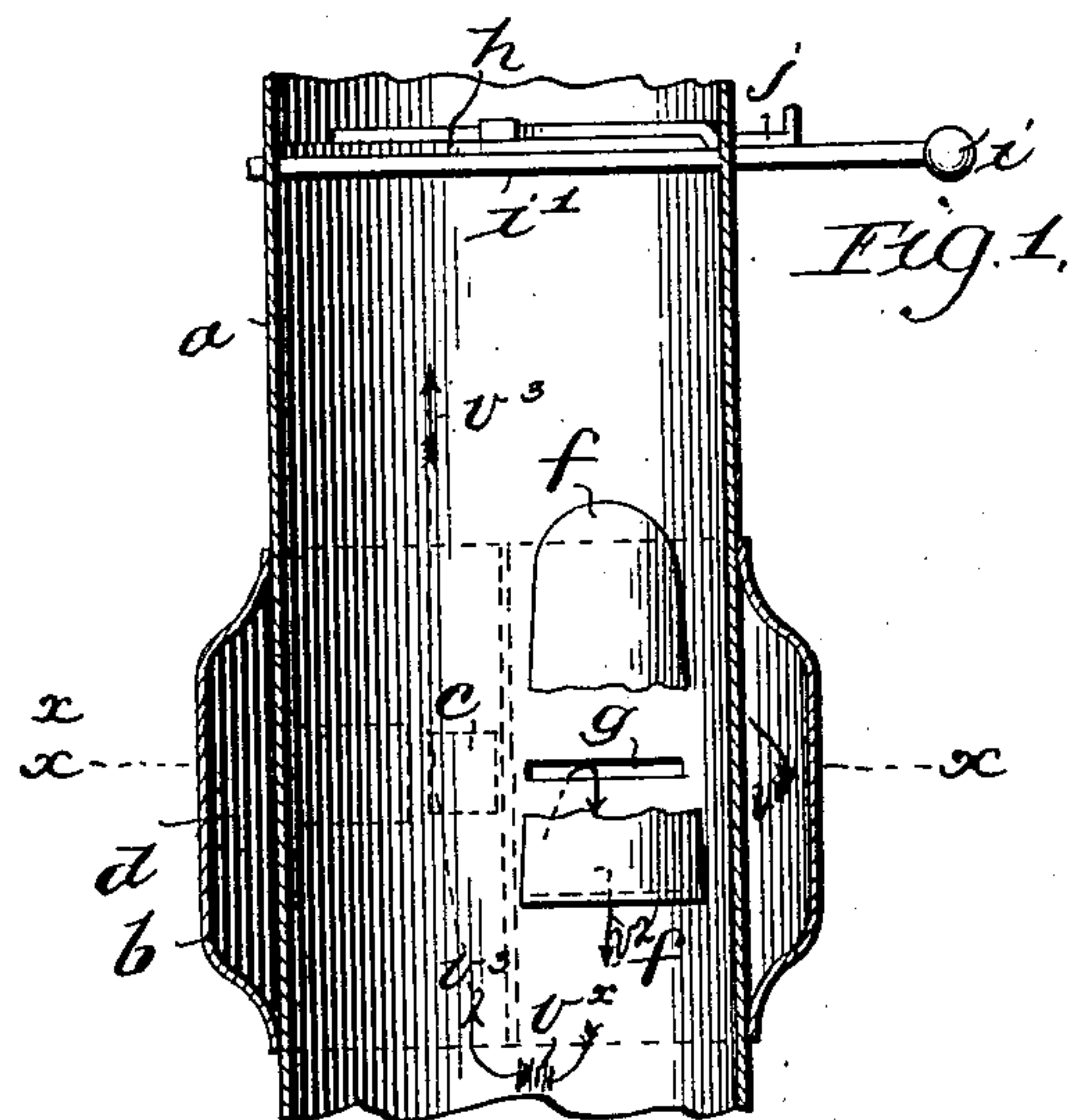
Patented Aug. 6, 1901.

C. A. RAGGIO & L. MALATESTA.
DRAFT REGULATOR FOR FURNACES OR STOVES.

(Application filed Mar. 21, 1901.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses

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DRAFT REGULATOR FOR FURNACES OR STOVES.

(Application filed Mar. 21, 1901.)

(No Model.)

2 Sheets—Sheet 2.

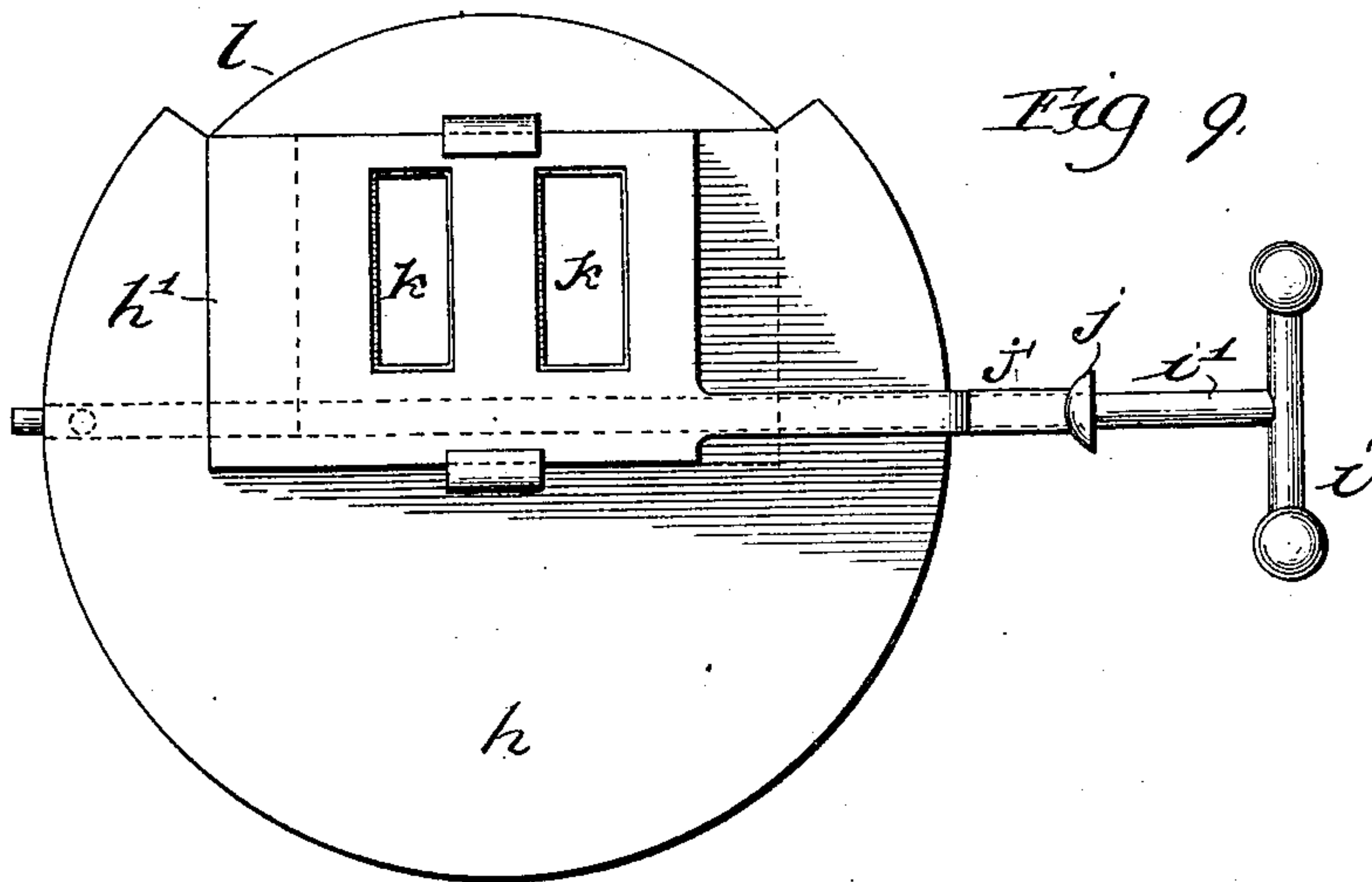


Fig. 9.

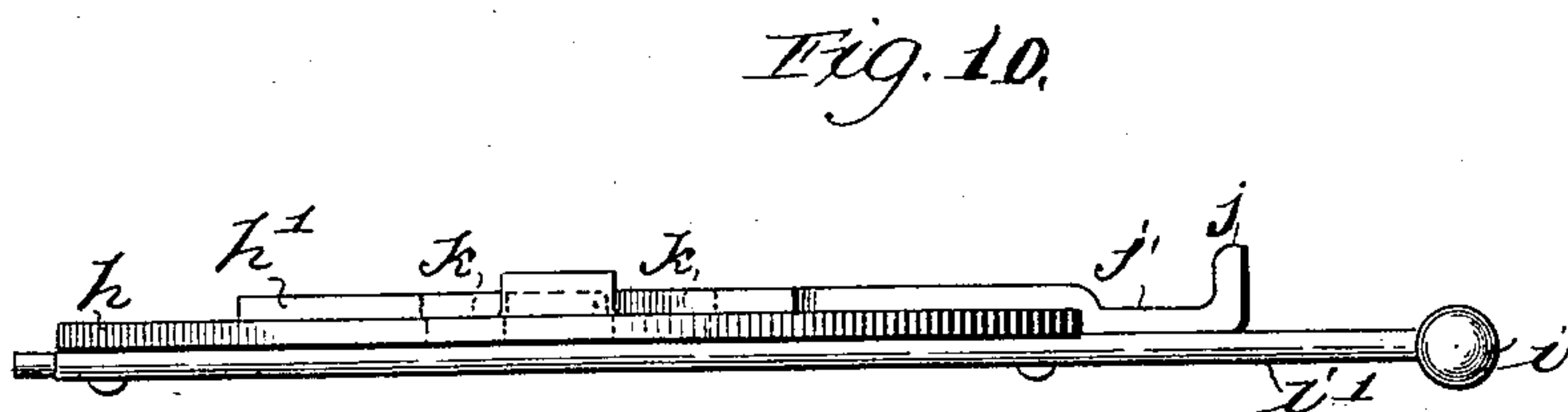


Fig. 10.

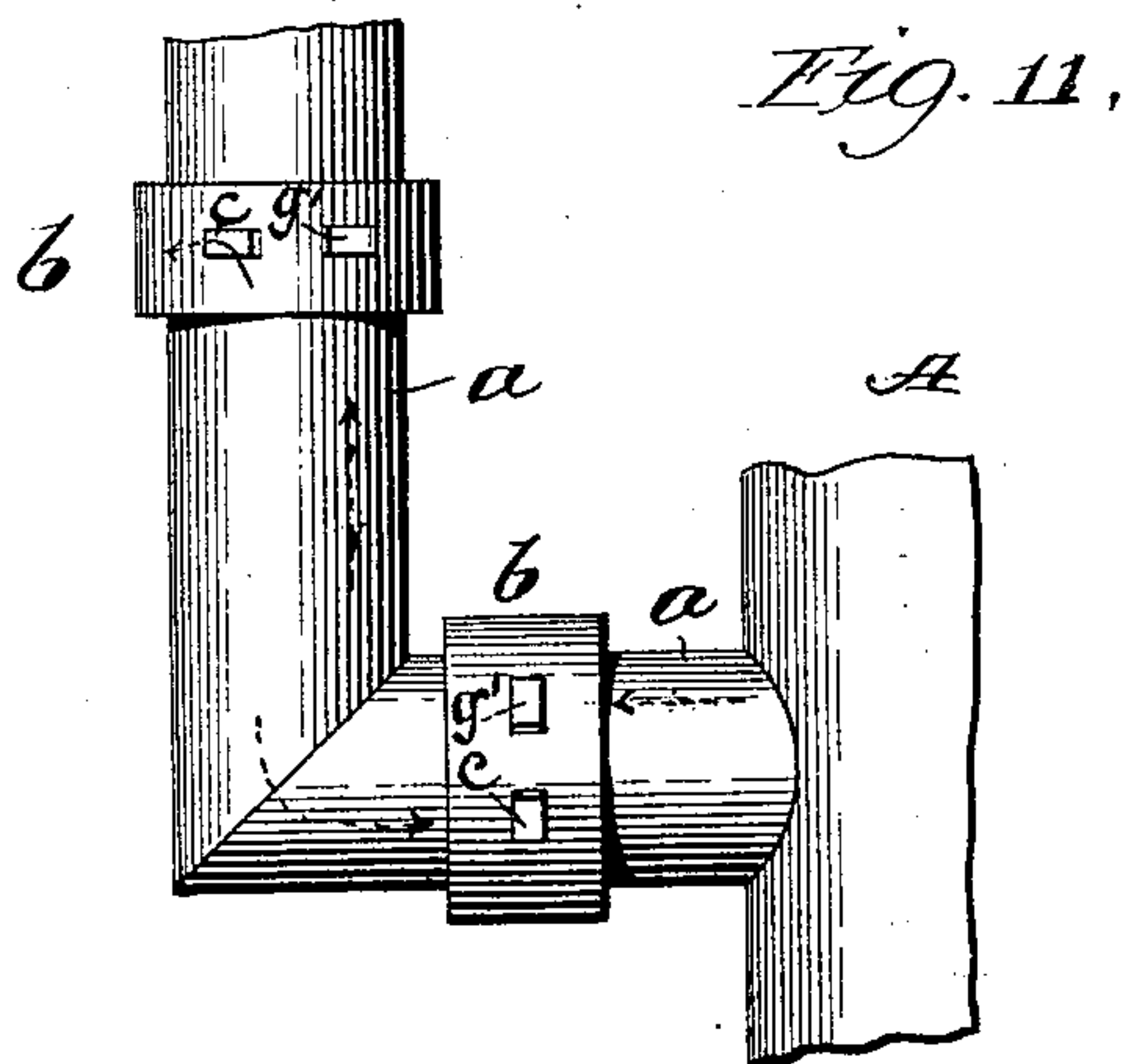


Fig. 11.

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UNITED STATES PATENT OFFICE.

CHARLES A. RAGGIO AND LOUIS MALATESTA, OF CHICAGO, ILLINOIS.

DRAFT-REGULATOR FOR FURNACES OR STOVES.

SPECIFICATION forming part of Letters Patent No. 680,075, dated August 6, 1901.

Application filed March 21, 1901. Serial No. 52,122. (No model.)

To all whom it may concern:

Be it known that we, CHARLES A. RAGGIO and LOUIS MALATESTA, citizens of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Draft-Regulators for Furnaces or Stoves, which are fully set forth in the following specification, reference being had to the accompanying drawings, forming a part hereof, and in which—

Figure 1 shows our said new furnace and stove draft-regulator in central longitudinal section with the central part of the part *f* broken away and some of the hidden elements indicated in broken outlines. Fig. 2 shows a section on the plane *xx* of Fig. 1 of an entire device. Fig. 3 shows a top view of Fig. 1 of an entire device, showing the damper closed. Fig. 4 shows in elevation a side view of a pipe provided with our device, the latter being partly broken away and partly in section and the draft-holes brought to the front and some of the other elements transposed. Fig. 5 shows Fig. 4 in transverse section on the plane *xx* of Fig. 4. Fig. 6 shows the complete parts *b* and *f* cut by an axial plane passing through the longitudinal center of the part *f*. Fig. 7 shows the shield or part *f* as seen from the axis of *a*. Fig. 8 shows the shield in section below the cutting-plane *xx* of Figs. 1 and 4. Fig. 9 shows the closed damper as seen from the top. Fig. 10 shows the same closed damper in elevation. Fig. 11 shows a fragment of a furnace *A* provided with a smoke-pipe *a*, having two of our draft devices *b* attached thereto.

Like reference-letters denote like parts in all the figures.

The object of our invention is to regulate the air-draft to heating furnaces and stoves and to temper or heat the air before it reaches the fuel and to provide means whereby the draft will be more regular and uniform and perform its work better than where the draft enters the fire-pot at other places than the smoke-pipe as we show it.

To attain said desirable ends, we construct our said device in substantially the following manner, namely: We establish an air-draft into the furnace through the smoke-pipe, and we close up all other means for draft from

other places as heretofore applied. We put a shell *b* around the smoke-pipe *a*, on either the horizontal or vertical part thereof, and we may use either or even both at once, if desired, as indicated in Fig. 11. Said shell or drum forms an annular chamber *d*, of which the pipe *a* forms its inner wall. The outer part may have any variety of forms, as indicated in Figs. 1, 4, 6, and 11, and it also has a partition *e*, and on one side thereof is an opening *c*, which lets air into the chamber *d* on one side of the wall *e*, and on the opposite side of said wall *e* is an opening *g'* in the form of a long narrow slot transverse to the axis of the pipe *a*, about opposite to the thereto parallel slot *g* in the pipe *a*. Said openings have adjustable doors or valves *c'* and *g'*, respectively.

To the inner or concave side of the pipe *a* is secured an inwardly-bulging and slanting plate *f*, whereof the top and the sides thereof touch the pipe *a*, and the bottom thereof holds a horizontal plate *f'*, provided on its edge which contacts with the pipe *a* with a series of openings *f''*. A damper *h* is placed at a suitable distance above or beyond our said tapering chamber *f''*. Said damper is attached to a spindle *i* and provided with a sliding plate *h'*, with holes *k* registering over like holes in the plate *h*, and which slides on said plate by means of a handle *j* on the end of the rod *j'*, attached to said sliding plate *h'*. A notch *l* is cut out of the damper *h* for the purpose of allowing an escape for gases, and said gas-escape may be increased or diminished by said sliding plate *h'*. Said damper is to remain closed after the fire is once well started. After the fire is burning the action of our device is applied and is substantially as follows, namely: The hole *c* is opened. Air will then be drawn in through the chamber *d* by the draft, as shown by the arrow *v'*, and warmed in its passage, after which it will pass through the slot *g* into the hot chamber *f''*, where it will receive additional heat and pass downward through the holes *f''* (shown at *v''*) and pass on toward and into the fuel *v''*, from which the smoke and gases will pass outward on one side (the upper or higher side of the pipe) in a counter-current to the inward or fuel-supplying air. When it is desirable to regulate in any way said currents of air, the

valve g^2 may be entirely open, so that all the air-supply simply passes across the chamber d , or said doors may be so set as to cause any fraction of the full chamber d to discharge
 5 with a correspondingly-modified cross-current through the openings g g' to take place, so that the air which is going to the fuel may be as warm or as cool as may be found desirable and within the range of the capacity of our
 10 device, the result of which will be a more uniform fire, more easily regulated, more economical in fuel and in labor attendance, and much more complete combustion of the fuel. The arrows v' , v^2 , and v^3 indicate the course
 15 of the draft, and v^x the fuel at any usual distance of the fire-pot.

What we claim is—

1. The combination with a stovepipe, of an open-bottomed chamber therein, a chamber
 20 exterior to said pipe provided with an air-inlet and having a passage to said interior chamber, substantially as specified.

2. The combination with a stovepipe having therein an open-bottomed chamber, of a
 25 chamber exterior to said pipe having an inlet to said interior chamber and an inlet into said exterior chamber, substantially as specified.

3. The combination with a stovepipe having
 30 therein an open-bottomed chamber, of an

exterior and partitioned chamber having an opening on one side of said partition and another opening into said interior chamber on the other side of said partition, substantially
 35 as specified.

4. The combination with a stovepipe having therein an open-bottomed chamber, of an annular and partitioned exterior chamber having an exterior and valved inlet on each
 40 side of said partition and an inlet into said interior chamber, substantially as specified.

5. The combination with a stovepipe having therein an open-bottomed chamber, and an exterior chamber to said pipe and valved
 45 passages connecting said chambers, of a damper axially beyond said chambers, substantially as specified.

6. The combination with a stovepipe having therein an open-bottomed chamber, of a
 50 vertically-partitioned chamber exterior to said pipe having valved inlets on each side of said partition and a passage near said partition into said interior chamber, substantially as specified.

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