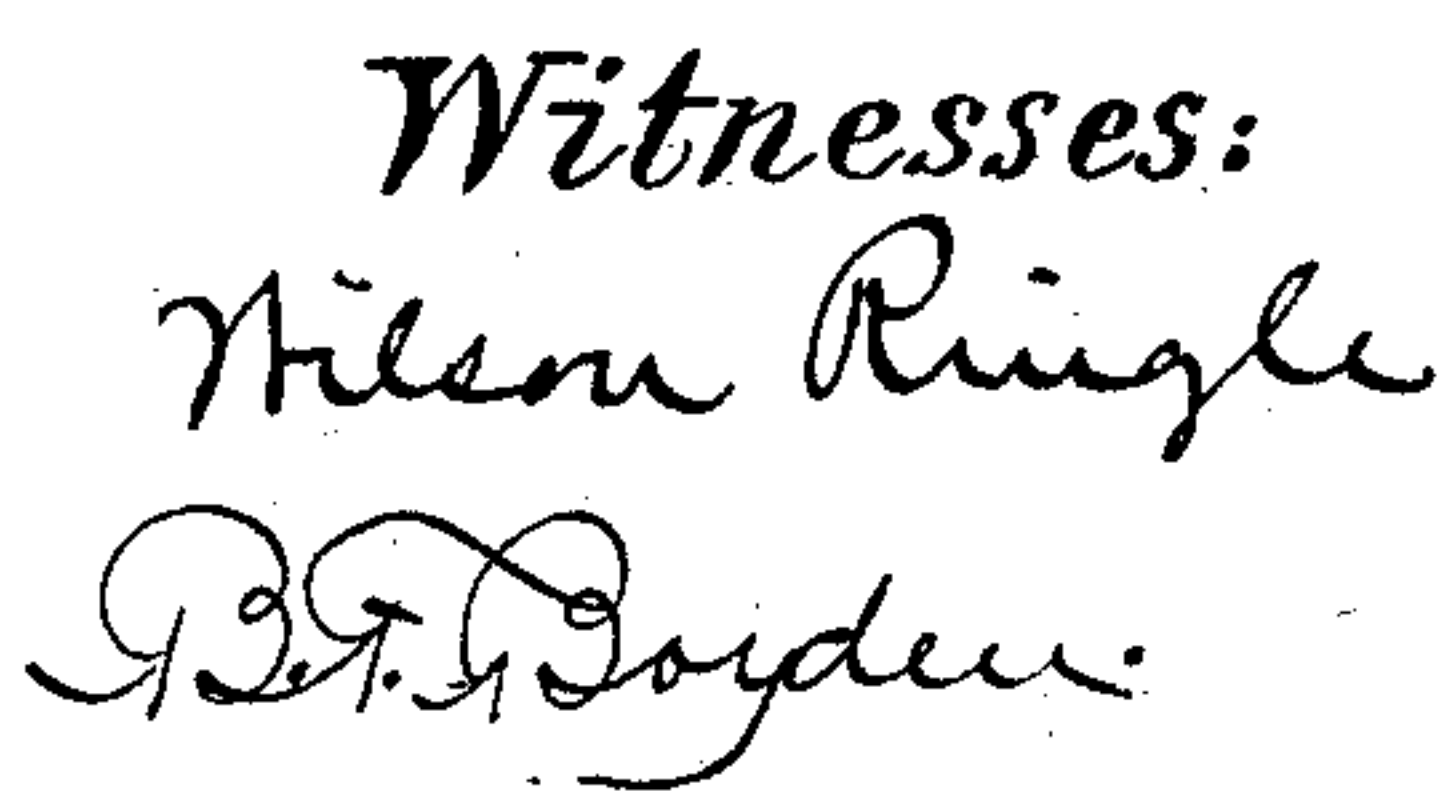


3 Sheets—Sheet 1.

No. 336,659.

Patented Feb. 23, 1886.



Inventor:

David M. Moore
By E. H. Boyden Atty.

(No Model.)

3 Sheets—Sheet 2.

D. M. MONROE.
CAN SOLDERING MACHINE.

No. 336,659.

Patented Feb. 23, 1886.

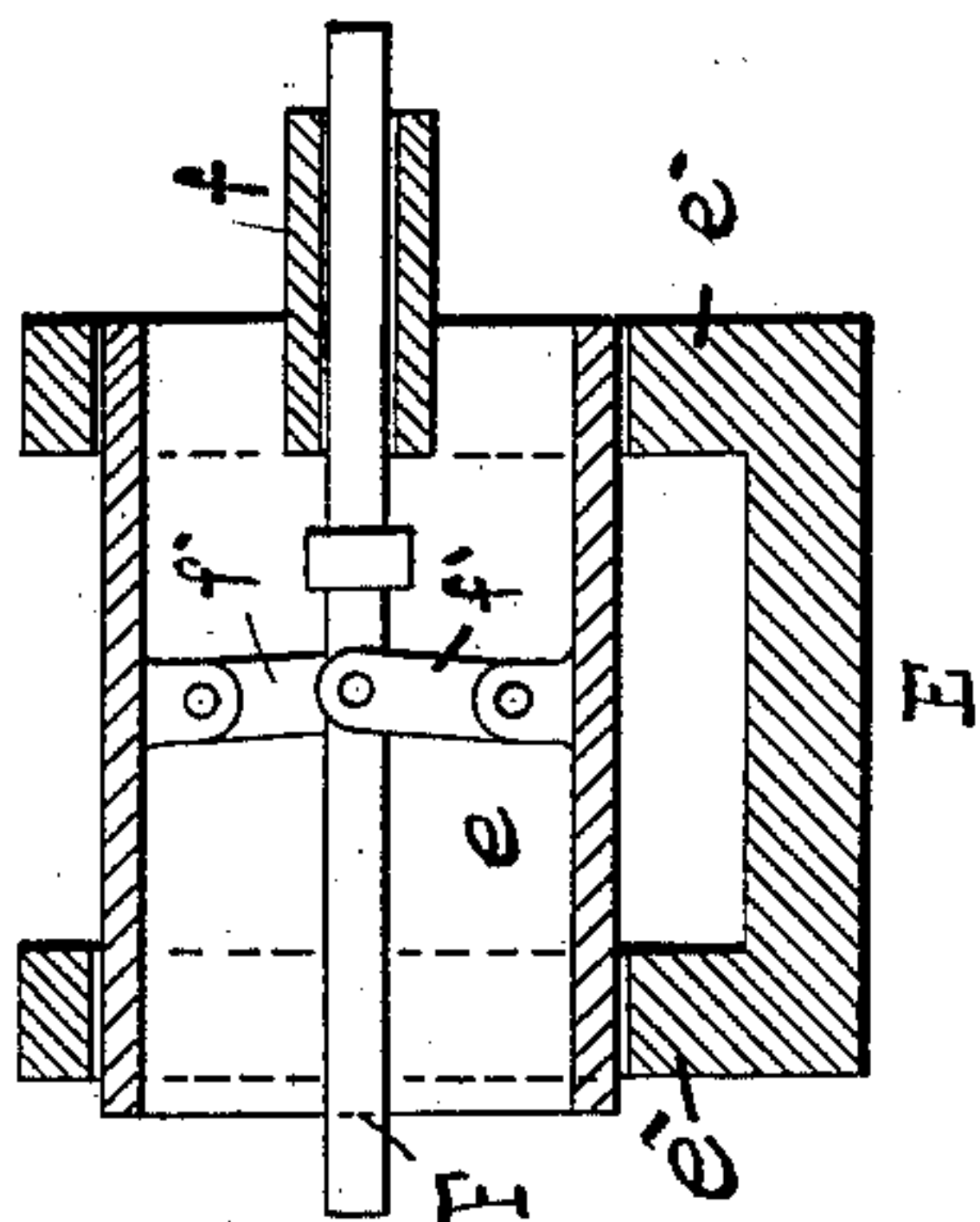


Fig. 5.

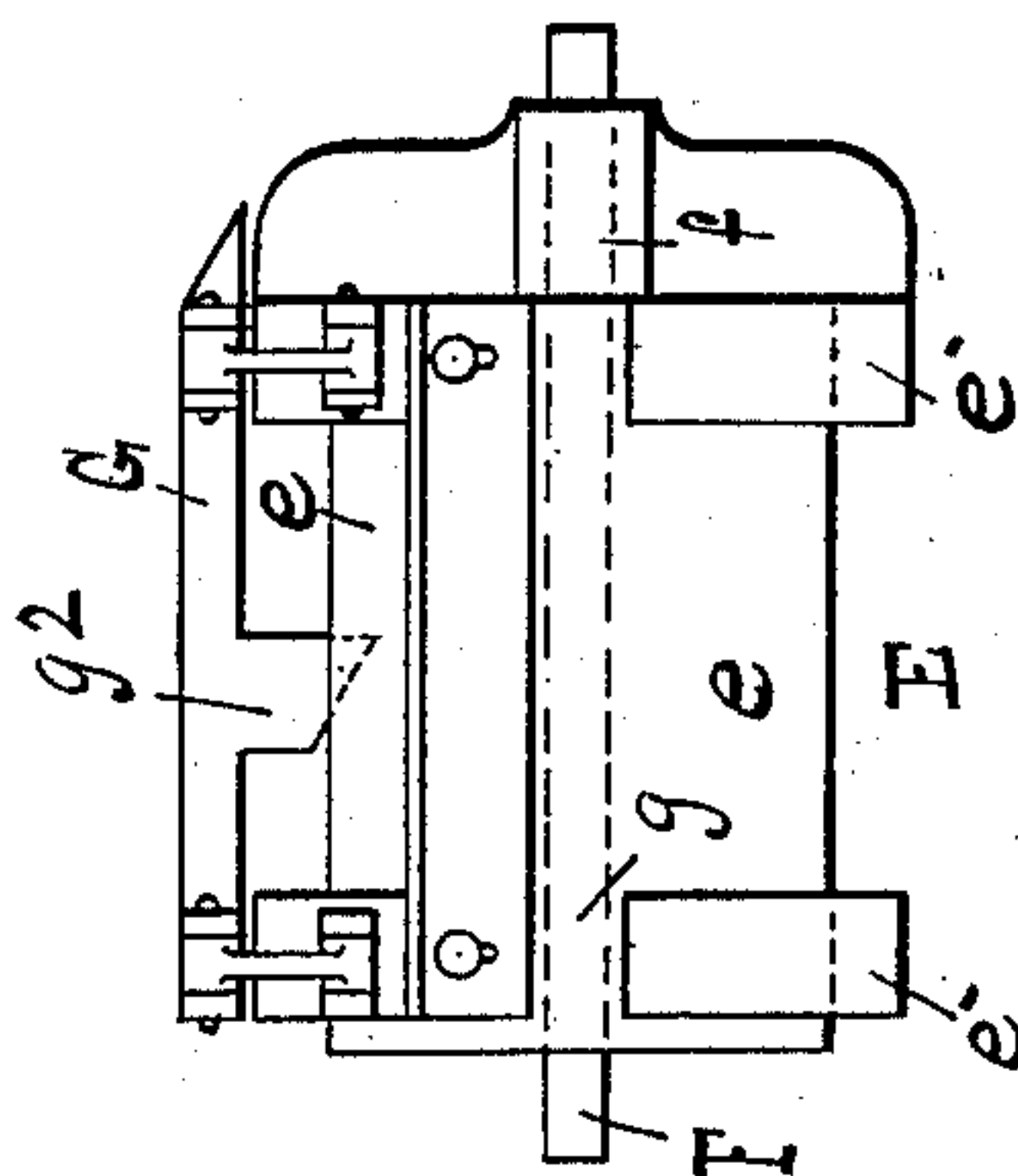


Fig. 8.

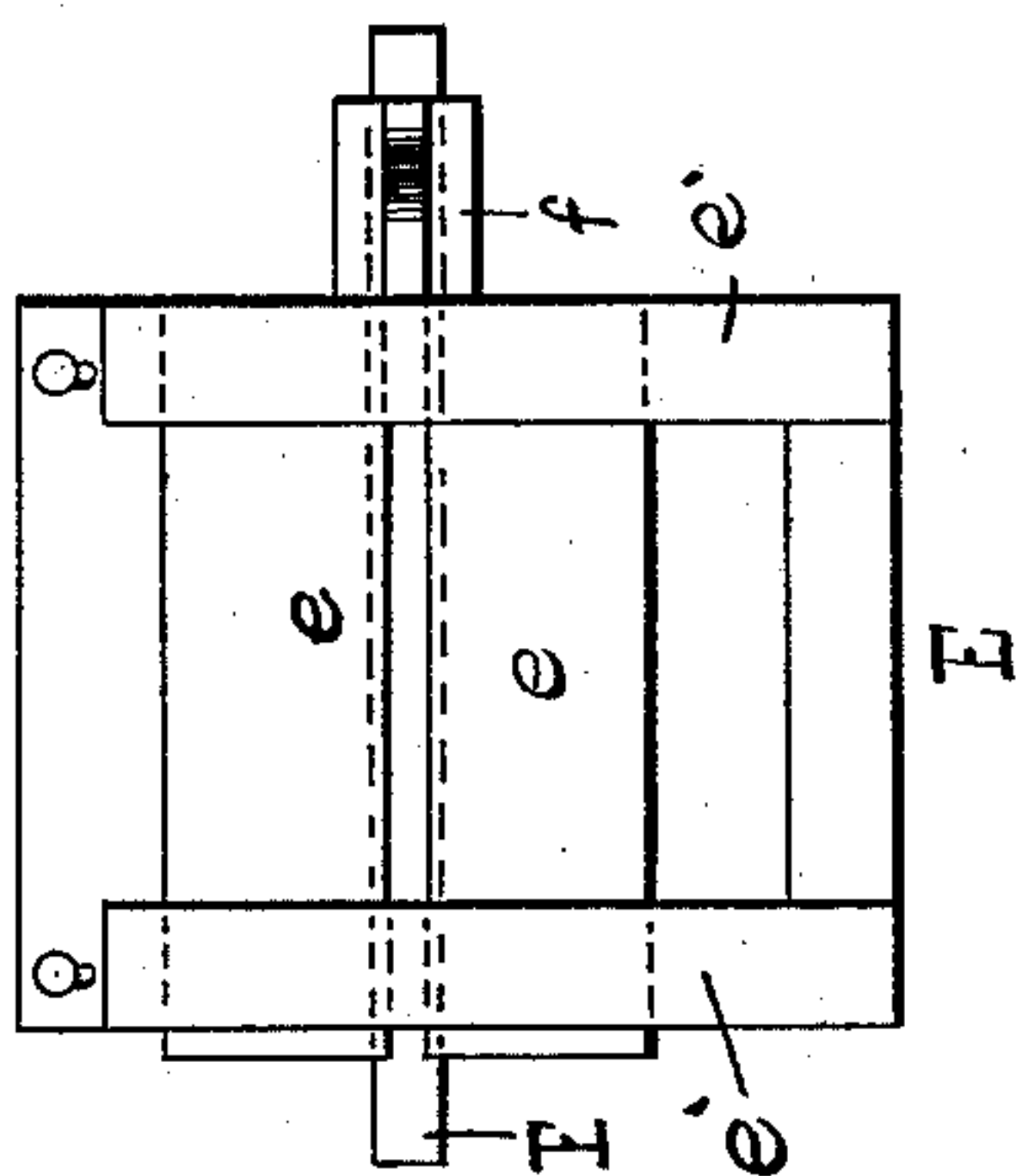


Fig. 4.

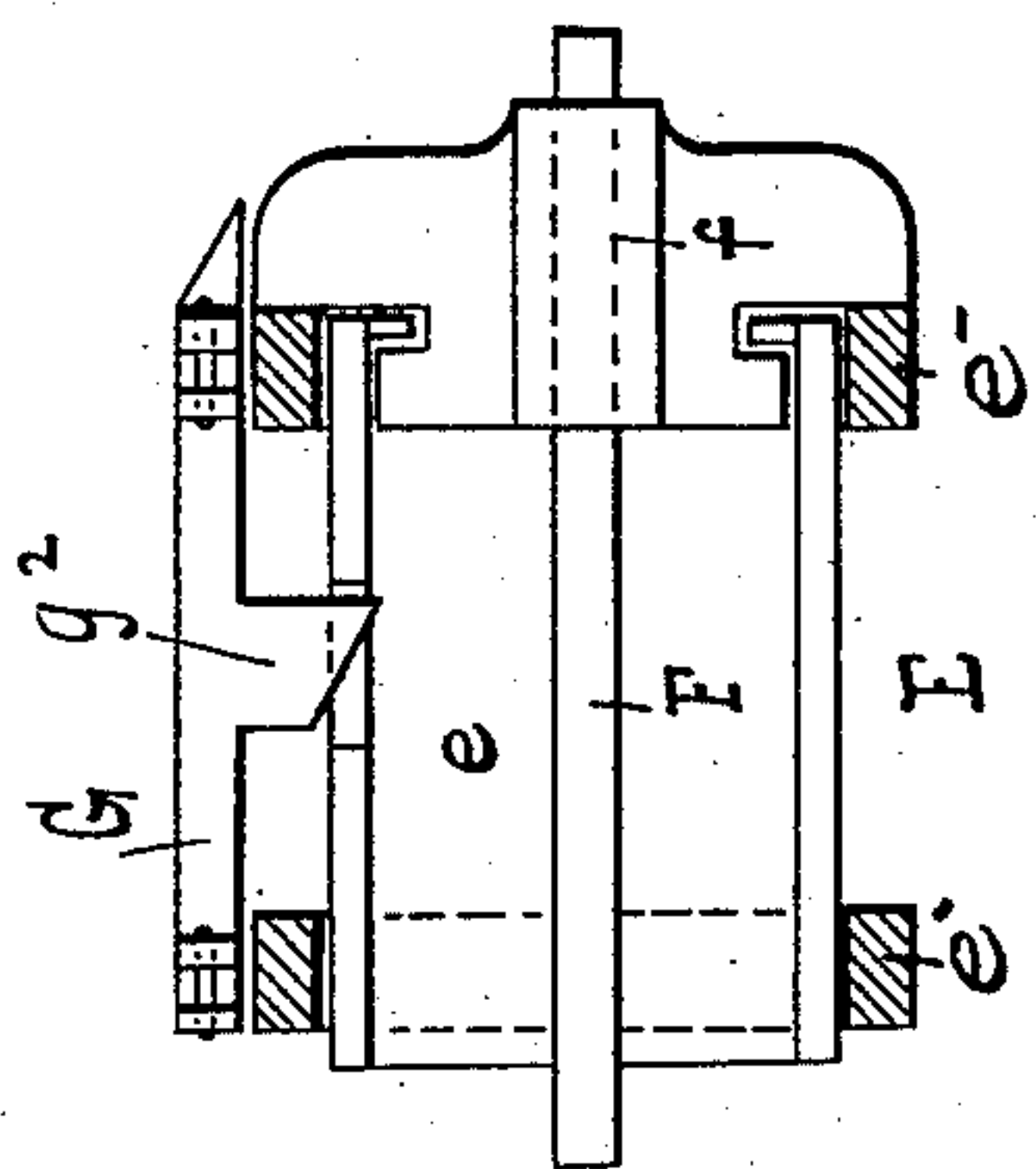


Fig. 7.

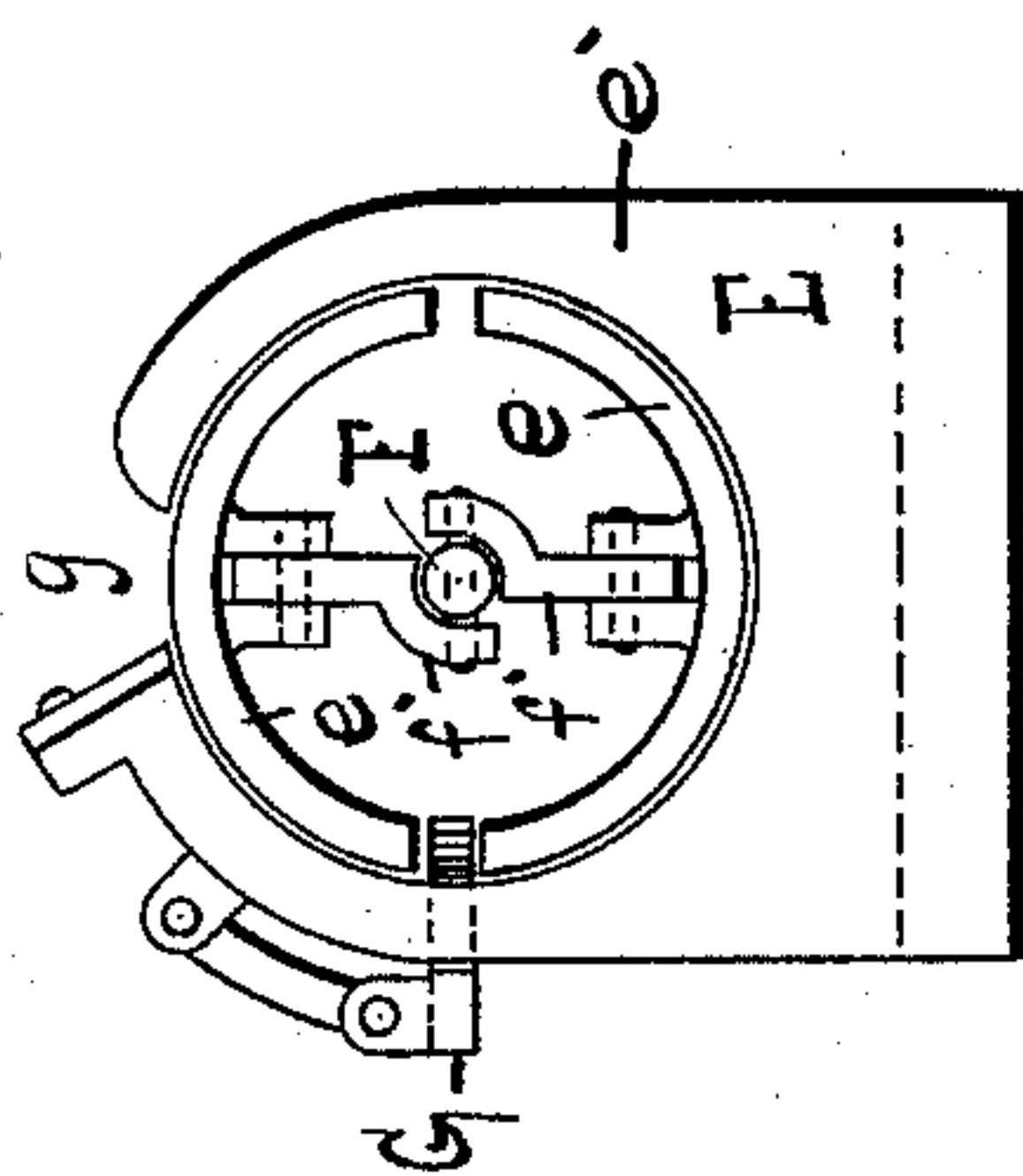


Fig. 3.

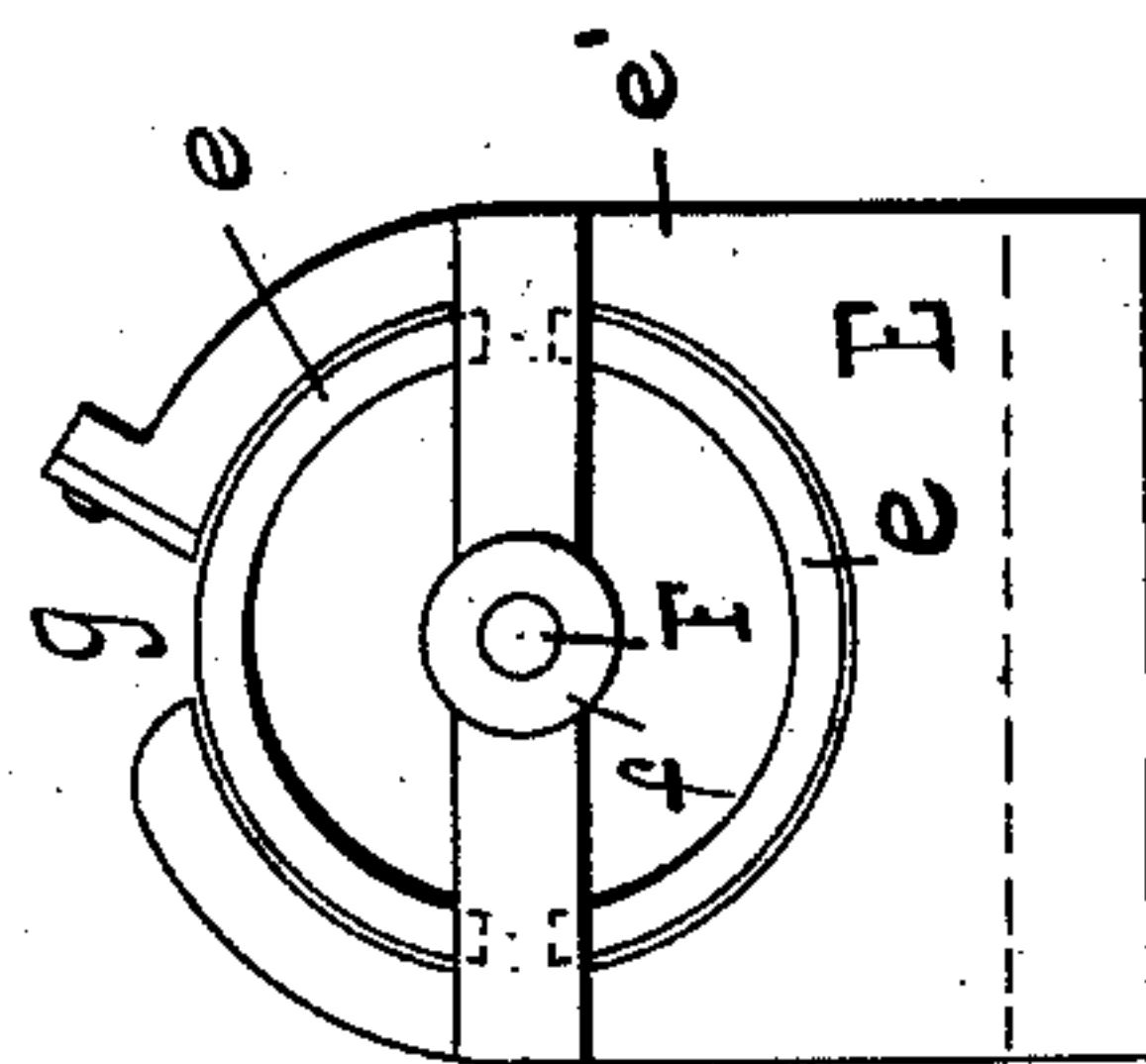


Fig. 6.

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(No Model.)

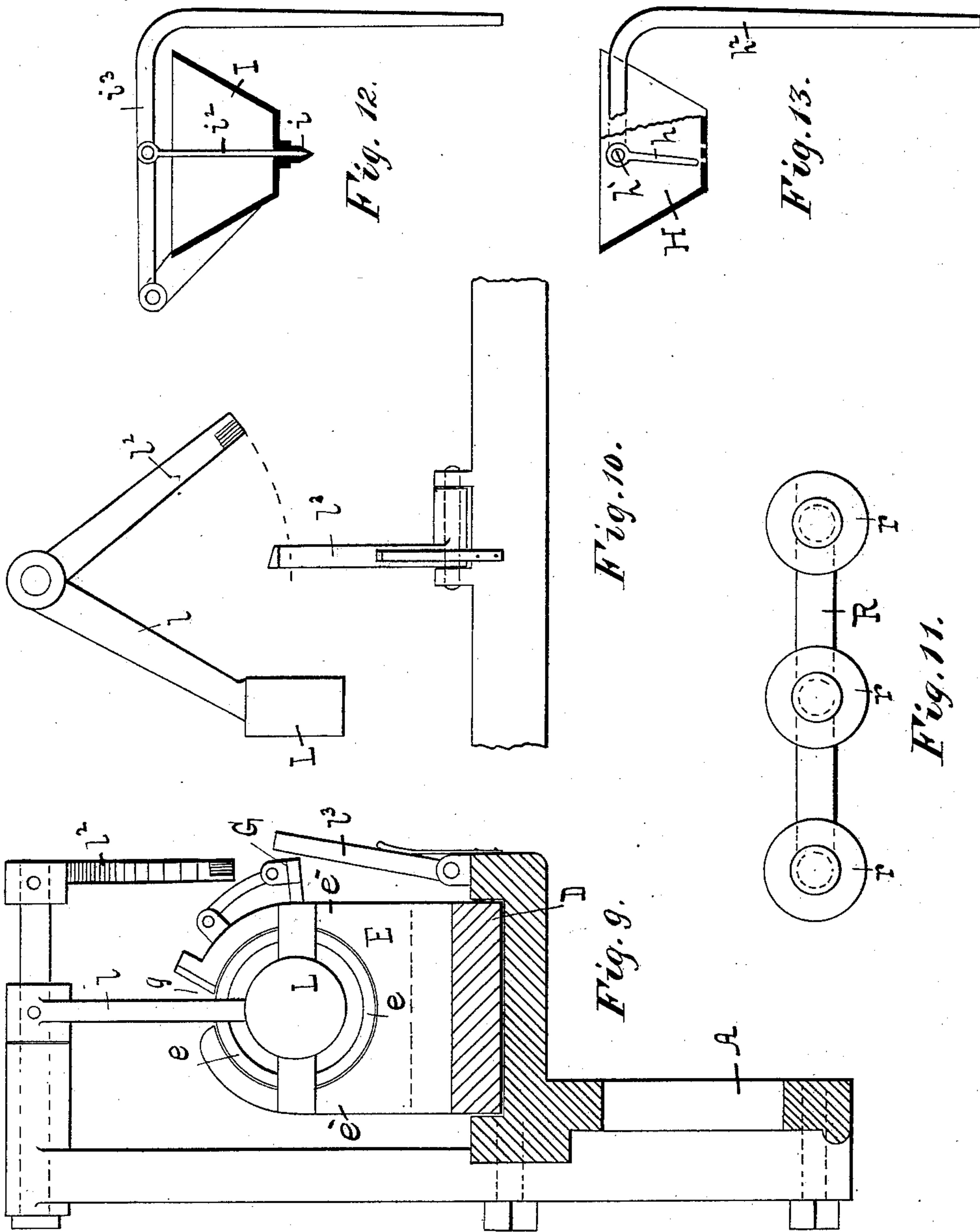
3 Sheets—Sheet 3.

D. M. MONROE.

CAN SOLDERING MACHINE.

No. 336,659.

Patented Feb. 23, 1886.



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Inventor:
David M. Monroe
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UNITED STATES PATENT OFFICE.

DAVID M. MONROE, OF BALTIMORE, MARYLAND.

CAN-SOLDERING MACHINE.

SPECIFICATION forming part of Letters Patent No. 336,659, dated February 23, 1886.

Application filed December 3, 1885. Serial No. 184,643. (No model.)

To all whom it may concern:

Be it known that I, DAVID M. MONROE, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Can-Soldering Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to improvements in can-soldering machines, in which the side or body seams of sheet-metal cans are soldered, as illustrated in the accompanying drawings, in which—

Figure 1 is a top view. Fig. 2 is a side view of the machine; Fig. 3, a rear end view of the gaging device; Fig. 4, a side view of the gaging device; Fig. 5, a vertical section of the gaging device; Fig. 6, a front end view of the gaging device; Fig. 7, a horizontal sectional view of the gaging device; Fig. 8, a top view of the gaging device. Fig. 9 is a sectional view of the rail, showing the weight-releasing mechanism and an end view of the gaging device. Fig. 10 is a side view of the weight mechanism. Fig. 11 is a front view of the soldering-rollers. Fig. 12 is a sectional view of the solder-receptacle. Fig. 13 is a sectional view of the flux-receptacle.

Similar letters refer to similar parts throughout the several views.

This machine is constructed to have a continuous motion by which the can-gaging device is continually moving at the time the different operations are being performed; and it consists of a frame, A, supported on suitable legs, B, provided with two wheels, C—one being arranged at each end of the machine—around which travels a chain consisting of a suitable number of links, D, secured together in any suitable manner, in this instance being pivoted. On this chain are arranged the gaging devices E, which consist of a split cylinder, *e*, and the standards *e'*, provided with circular holes in which the said cylinder is placed, and which is expanded by the sliding rod F, supported in the bearing *f*, and secured to the cylinder by means of the pivoted bars *f'*, which are pivoted to both the rod and cylinder, thereby forming a toggle-joint, which, when the rod is moved to the left, expands the cylinders, and when moved in the oppo-

site direction contracts the same, which permits the rolled sheet-metal blank to be placed in position. This is then gaged by expanding the cylinder and forcing it against the standards *e'*, and is there held in the gaged position until soldered. The upper part of the standards *e'* are cut away to form the opening *g*, at which point the seam of the can-body is placed, by which the soldering operation can be performed.

As it is important in machines of this class to only apply the solder, flux, &c., when a can-body is on the device on account of keeping the same free thereof, I arrange a device by which this is accomplished. It consists of a bar, G, swung to the standard *e'* by means of suitable links, which permit it to be swung in and out, and it is provided with an incline projection, *g'*, part of which extends into cylinders. When there is no can-body on the same, but when the said body is slipped on the cylinder, its ends come in contact with the incline, which pushes and holds the bar G out, and which is then in a position to operate the solder and flux applying devices; but if the cylinder were minus a body, the said bar would not project far enough out to operate the said devices.

The device that operates the expanding mechanism of the gages E consists of a weight, L, which is secured to a pivoted arm, *l*, attached to the finger *l'*, which holds the weight up by engaging with the spring-arm *l''*, which is pushed to one side by the inclined surfaces on both finger and arm coming in contact with each other when the weight is raised. The finger thus holds the weight up until released by the bar G coming in contact with the arm *l'*, which releases the weight, and it, falling, strikes the end of the rod F and forces it inward, which expands the cylinder and the body placed thereon against the standards *e'*, and holds the same in that position until released, which is accomplished by like weight mechanism P, placed on the other side of the frame A, but arranged to act in an opposite direction to the one L, the weight being elevated by the gages E coming in contact therewith as they pass along, which automatically accomplishes the same.

The fluxing device H is secured to the frame

A, and provided with a series of holes in its bottom, over which vibrate the arms h , secured to the rod h' , which is attached to the arm h^2 , that extends downward and which comes in contact with the bar G as the gage passes under, and thereby operates it, which passes the arms h over the holes and ejects a sufficient quantity of flux on the can-seam immediately below, the flux being pulverized rosin or a similar substance.

The soldering-receptacle I is secured to the frame A and provided with an ejection-orifice, i , in which is placed a cut-off stem, i^2 , attached to the lever i^3 , that is pivoted to the receptacle and projects downward and comes in contact with the bar G as it passes thereunder, thereby lifting the stem i^2 and permitting a fine stream of molten solder to be deposited on the can-body as it passes under, which will either form in a wire or in small pieces thereon, which is sweated into the seam by the irons farther on, the solder being kept in a molten condition by burners suitably arranged, playing continually their flame thereon.

The soldering apparatus consists of a bar, R, centrally pivoted to an arm, which is attached to the frame A, and provided with a series of rollers, r , which are arranged to rotate independently, and which are heated to the desired temperature by means of hydrocarbon-burners arranged to deliver their flame thereagainst, by which the said rollers are always in contact with the flame, and thereby sufficiently heated to fuse and sweat the solder in the seam of the can-body as it passes under them.

The machine is driven from the shaft r' , which is provided with the gear-wheel r^2 , secured to the shaft by means of a groove and feather, so that it can be shifted in or out of gear by means of the handle r^4 , with the wheel r^3 on a vertical shaft which extends up through a bearing in the leg of the machine and communicates with the wheel C, thereby turning the same and also the chain therewith.

In operating the machine the attendant in this instance stands at the left-hand end of the machine and places the rolled unseamed body-blank on the cylinder of the gaging device by placing it in the space between the cylinder e and the surface forming the opening in the standard e' from the rear end, from which it passes to the weight L, which is dropped and thereby expands the cylinder, which then relifts the weight as it passes on, ready for the follower gaging device. The next operation is to apply the flux by the bar G coming in contact with the arm h^2 , which operates the

same and ejects the flux on the can-body, after which it passes to the solder-applying device, which is operated likewise and the solder deposited, whence it passes to the heated irons, which fuse and complete the soldering. The body is then cooled by natural or artificial means as it passes from the irons to the releasing-weight, which falls and moves the rod F to contract the cylinder, which then releases the soldered can-body, and which is removed therefrom by the arm T coming in contact with the edge of the body and pushes it out of the gage into a basket placed to receive the same.

Instead of using the means to apply the solder, flux, &c., they all or in part may be dispensed with and these functions performed by hand.

Having described my invention, I claim and desire to secure by Letters Patent of the United States—

1. In a can-soldering machine, the combination of the frame A, the chain consisting of links D, means to impart thereto a continuous motion, and the gaging device E, placed on the said chain.

2. In a can-soldering machine, the combination of the endless chain, the gaging device E, mounted on the chain, the wheels C C, means to impart to one of the wheels motion, and the soldering-irons arranged to solder the can-body seam as the said body is passing thereby.

3. The combination of the endless chain, the gaging devices E, mounted on the chain, means to impart to the chain motion, a soldering-iron device arranged to solder the seam as the body is passing by, and the solder-applying device I.

4. The combination of the chain, the gages E, mounted on the chain, means to impart motion to the chain, the soldering-irons arranged to solder the seam as it passes by, the solder-applying device I, and the flux-applying device H.

5. The combination of the chain, the gages E, mounted on the chain, the soldering-irons arranged to solder the seam as it passes by the solder-applying device I, and means to operate the gaging devices by which the can-bodies are gaged or released.

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

DAVID M. MONROE.

Witnesses:

BEN. F. BOYDEN,
JNO. T. MADDOX.