

(No Model.)

3 Sheets—Sheet 1.

D. M. MONROE.
DEVICE FOR APPLYING SOLDERING FLUX.

No. 529,336.

Patented Nov. 13, 1894.

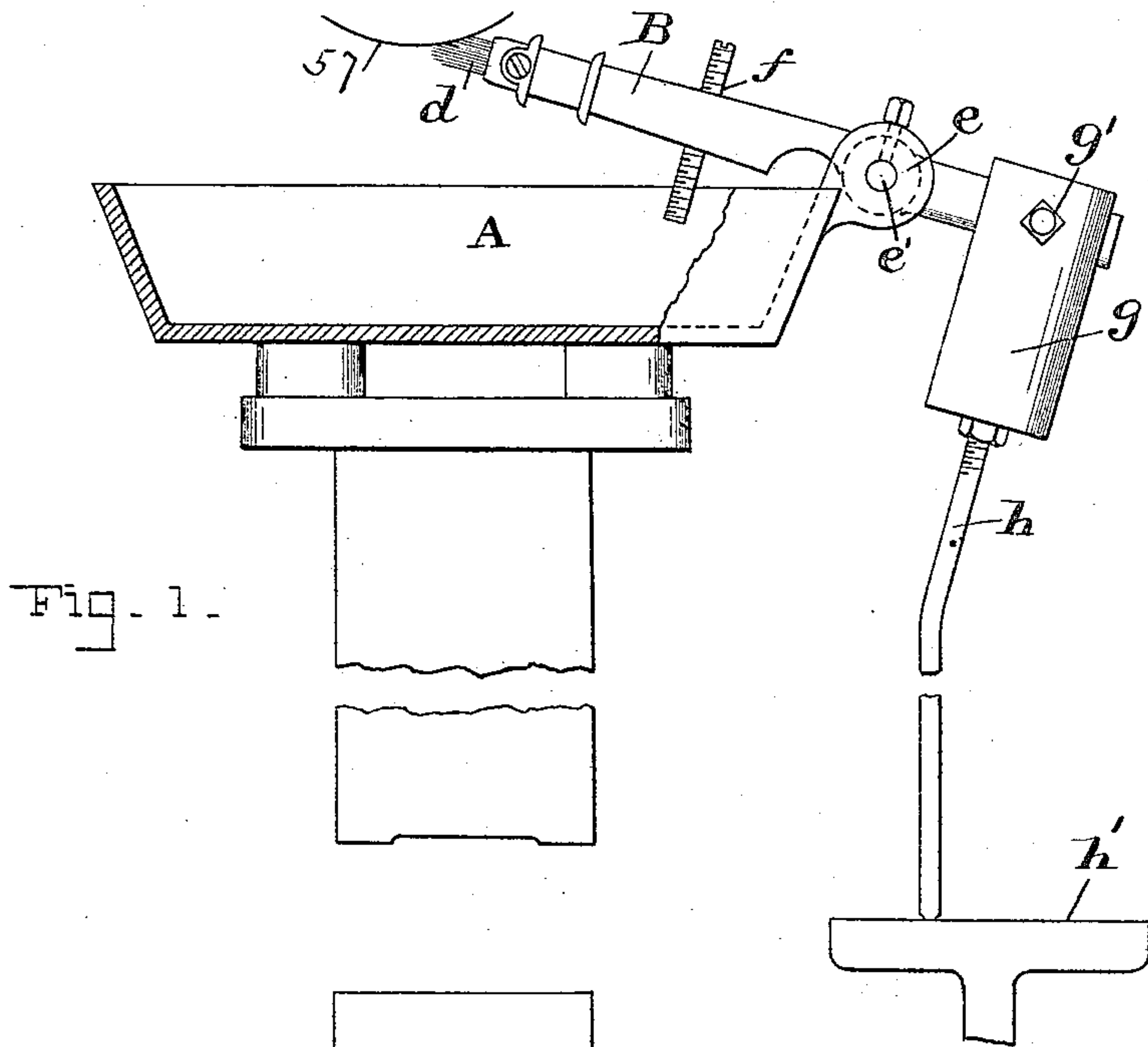


Fig. 1.

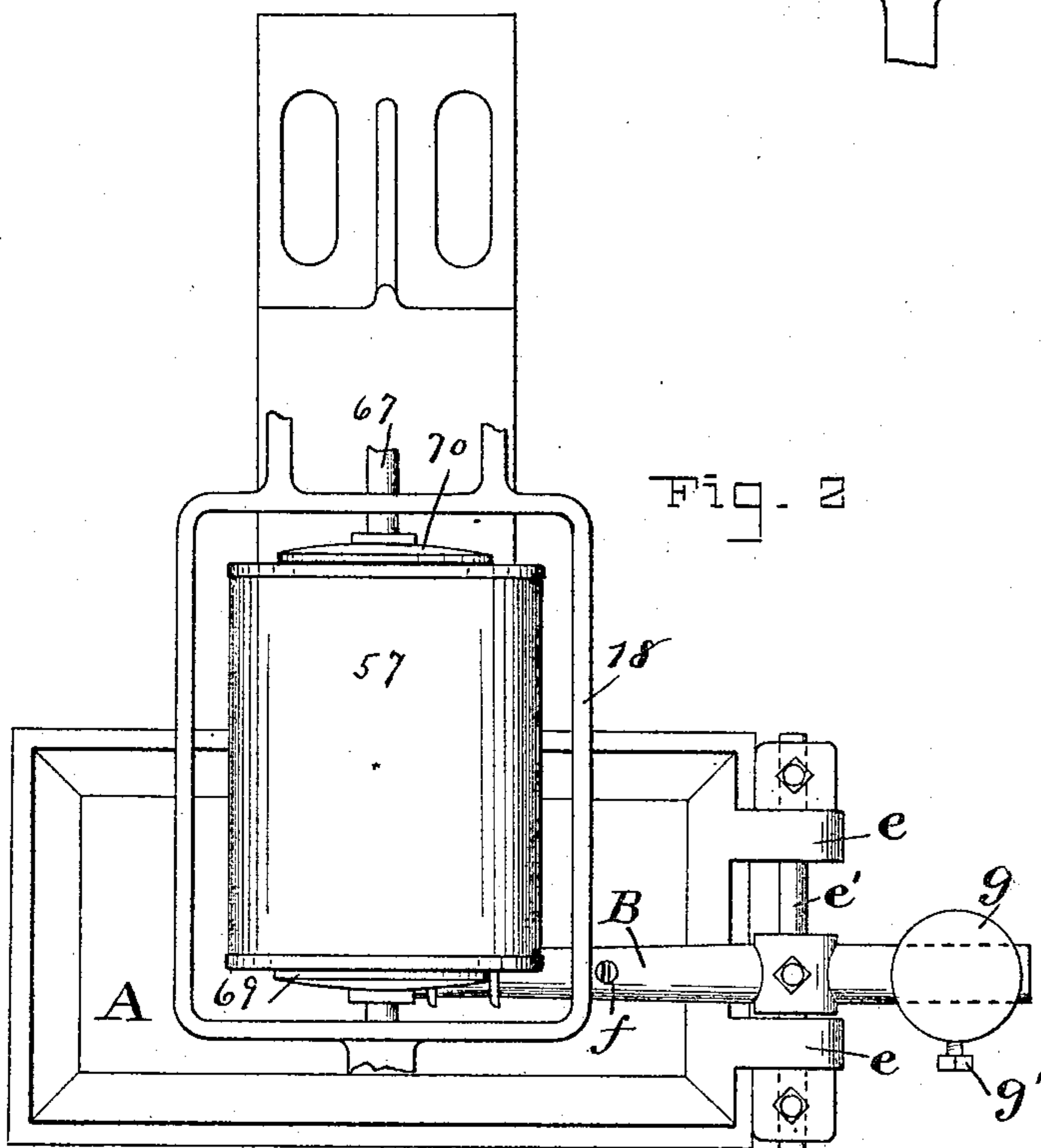


Fig. 2.

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Charles B. Mann Jr.

INVENTOR:—

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By Chas B. Mann

ATTORNEY:—

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Fig. 3.

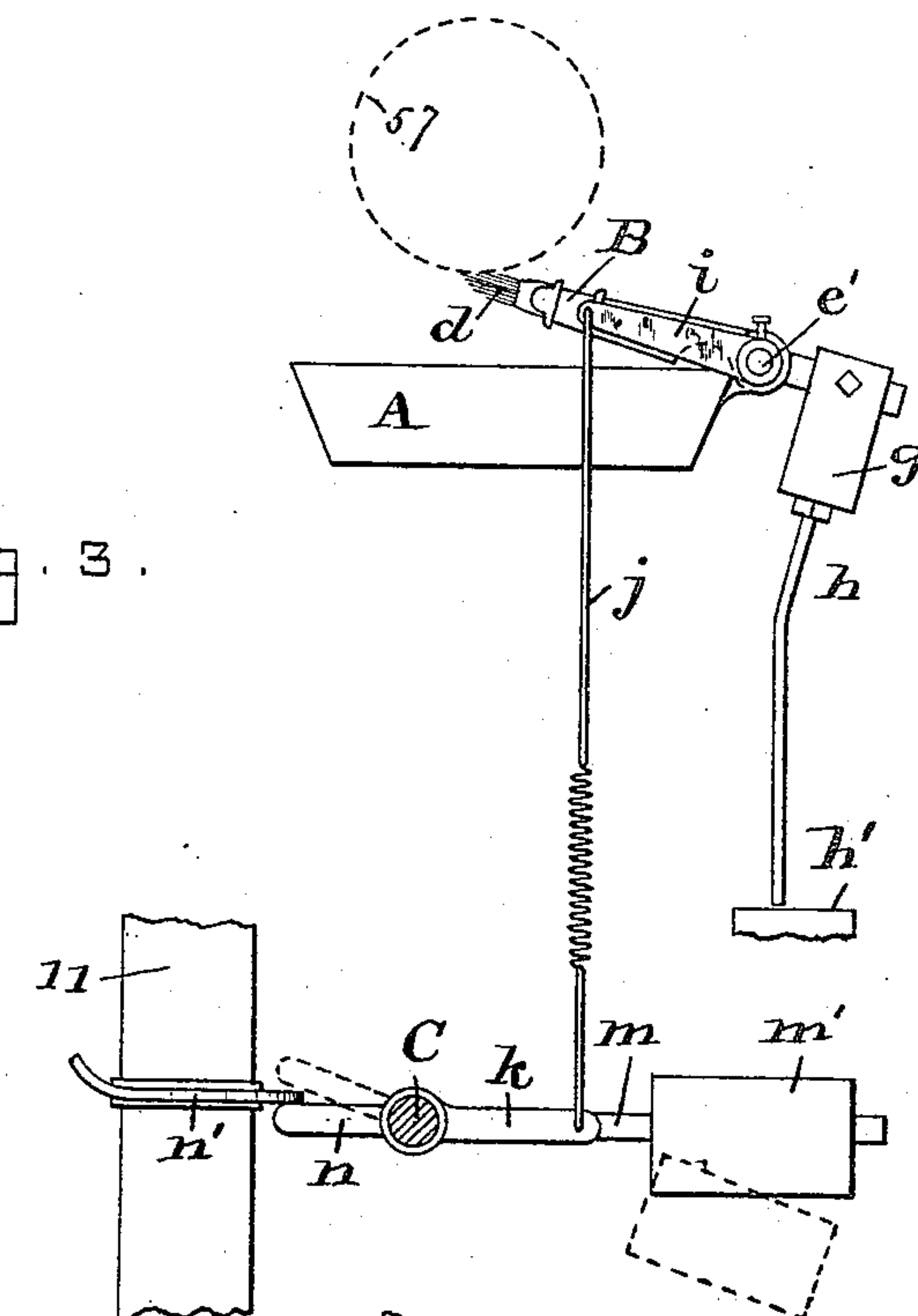


Fig. 4.

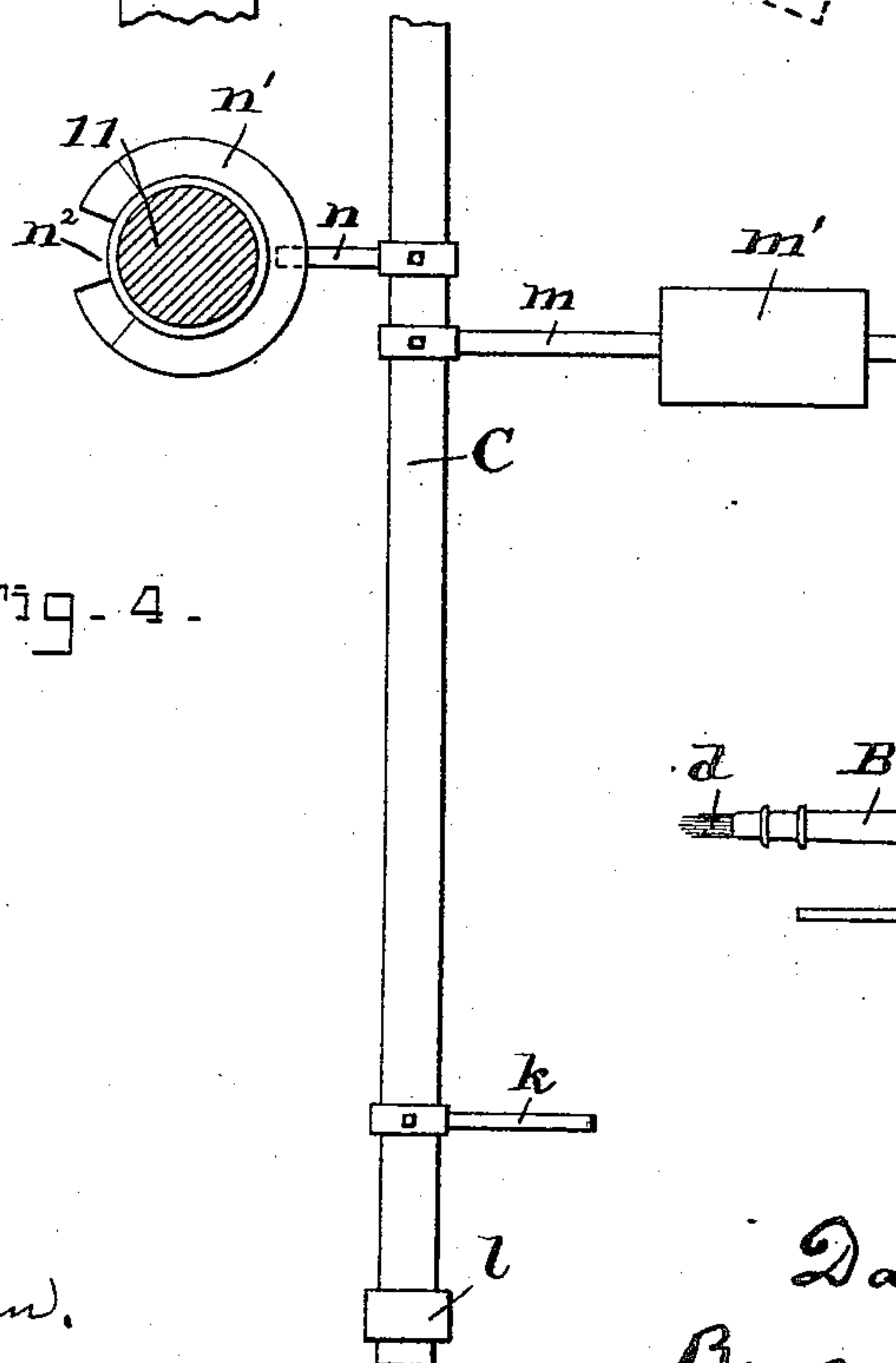
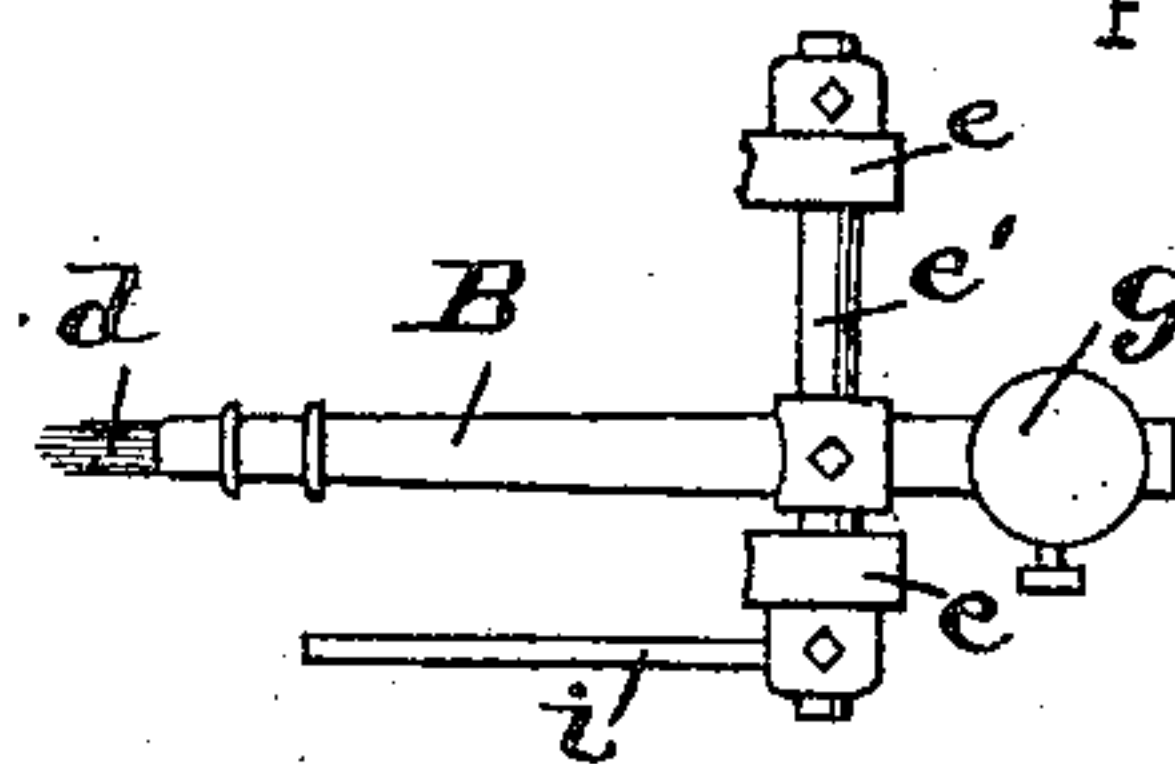


Fig. 5.



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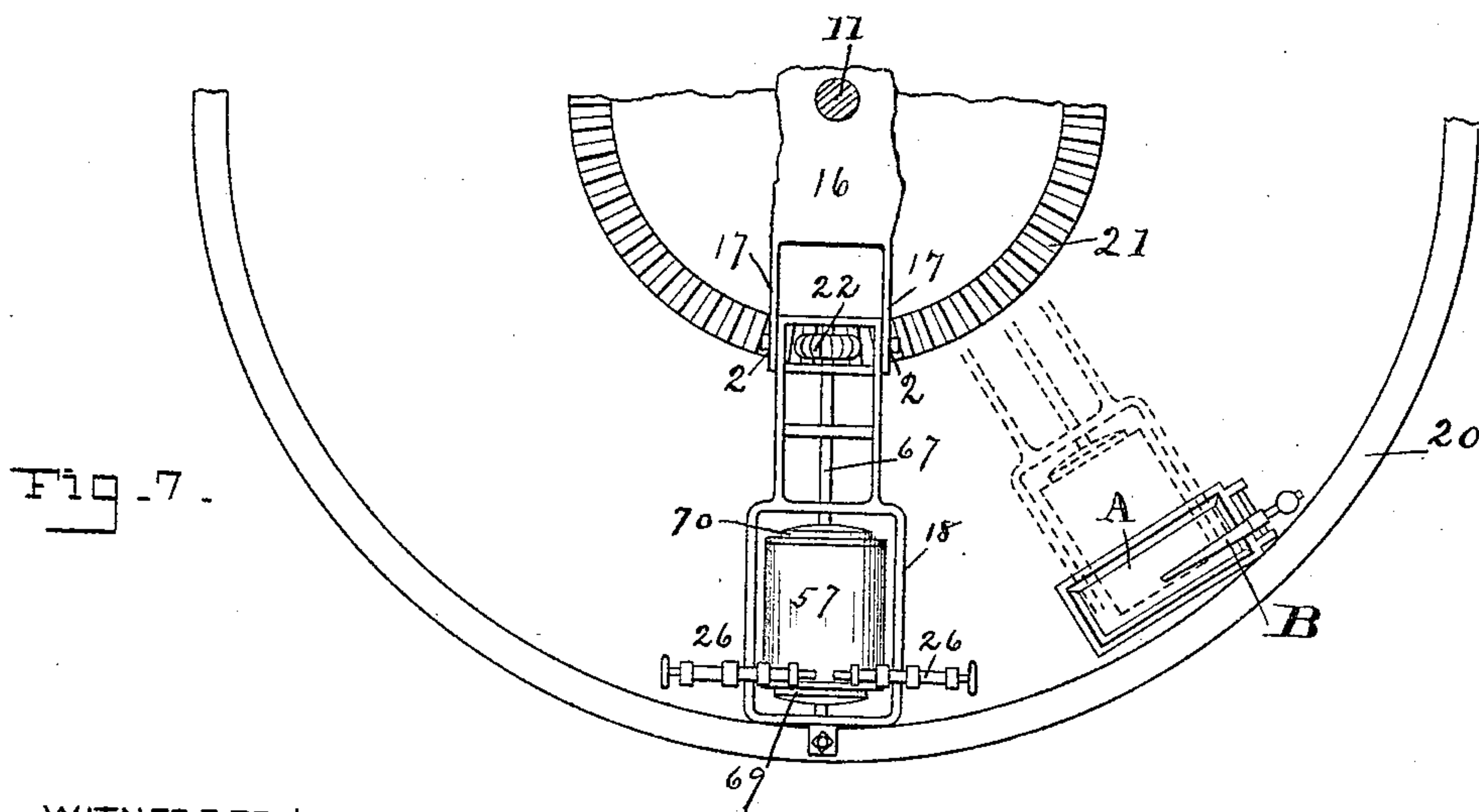
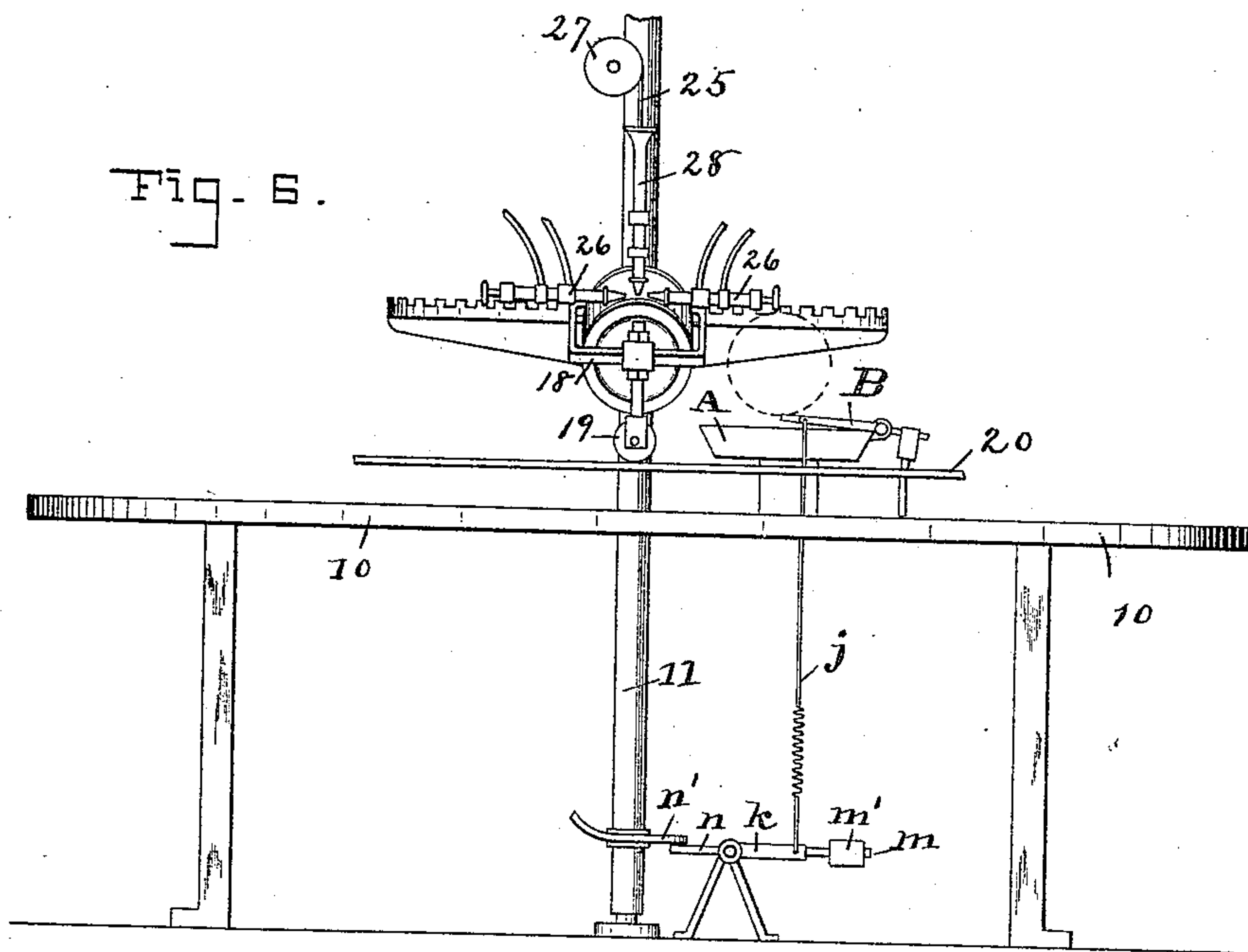
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UNITED STATES PATENT OFFICE.

DAVID M. MONROE, OF BALTIMORE, MARYLAND, ASSIGNOR TO R. TYNES SMITH, OF SAME PLACE.

DEVICE FOR APPLYING SOLDERING-FLUX.

SPECIFICATION forming part of Letters Patent No. 529,336, dated November 13, 1894.

Application filed March 13, 1894. Serial No. 503,411. (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 Devices for Applying Soldering-Flux, of which the following is a specification.

This invention relates to new and improved means for applying flux to cans, or other tin-plate vessels, preparatory to soldering them.

The object of the invention is to provide a mechanical device which will have the action of a brush or swab and apply flux to a moving can or other vessel.

For the purpose of illustrating my invention I have shown in the accompanying drawings my improved flux brush or swab applied to and combined with various co-acting parts of a can-soldering machine for which Letters Patent of the United States were granted me September 27, 1892, No. 483,234.

Referring to the drawings herewith,—Figure 1 is a side elevation, a part being in section, of my flux-applying device. Fig. 2 is a top or plan view of the same showing also a can-holder supporting a can in position above the flux-applying device. Fig. 3 is an elevation showing the flux-applying device and means to actuate it. Fig. 4 is a plan view of the actuating means shown in Fig. 3. Fig. 5 is a top or plan view of the flux brush or swab, as seen in Fig. 3. Fig. 6 is an elevation showing parts of a can-soldering machine as illustrated in my United States Patent No. 483,234, and also showing my flux-applying device. Fig. 7 is a top or plan view of the parts shown in Fig. 6.

All the parts of the can-soldering machine illustrated in my Patent No. 483,234, which are shown in these drawings, are here designated by the same numerals as they are in the patent referred to. All the other parts, being those that relate to my flux-applying device, are here designated by letters and figures of reference.

The letter, A, designates a pan or receptacle to contain the flux. The brush or swab, *d*, is attached to an arm, B, which is pivoted so as to tilt in a vertical plane and first dip the brush, *d*, into the pan, A, where the brush

becomes charged with flux, and then raise it to a position where it may come in contact with the seam of a can and apply the flux to such seam. The brush-arm B, is here shown as pivoted to the side of the pan. The pan has at its side two ears, *e*, and a pivot-pin, *e'*, passes through the arm and also through the ears. The pivoted arm is provided with a vertical screw, *f*, which is adjustable up and down so as to have its lower end project more or less below the arm. Then the brush, *d*, dips into the pan the lower end of the screw will strike against the bottom of the pan. This screw serves as a stop to limit the down-tilt or dip of the brush into the flux. The outer or short end of the pivoted arm is provided with a weight, *g*, which has a set screw, *g'*, and is adjustable along the arm. This weight serves as a counterbalance. A stop is also provided to limit the raise or up-tilt of the brush-end of the arm. This stop consists of a pendent rod, *h*, whose upper end is screw-threaded and attached to the weight, *g*. The lower end of the stop-rod, *h*, when the brush is raised, comes in contact with a stationary bar, *h'*.

In Figs. 1 and 2, no mechanical means are shown for actuating or tilting the pivoted brush-arm, B, and the same might be done manually, but in Figs. 3, 4, and 5 means are illustrated to cause the brush-arm to tilt automatically. The pivot-pin, *e'*, has an attached lever, *i*, and a rod, *j*, connects this lever with a lateral arm, *k*, fixed rigidly on a horizontal rock-shaft, C, which is mounted in bearings, *l*. To cause this shaft, C, to rock first one way and then the other and thereby actuate the tilting brush-arm, B, the rock-shaft has an arm, *m*, rigidly attached and projecting at one side, and a weight, *m'*, is on this arm. At the opposite side is a cam-arm, *n*, which co-acts with a cam, *n'*, fixed on the vertical shaft, 11. The cam, *n'*, has an opening, *n²*, at one side which allows the cam-arm, *n*, to tip up at the time the weight, *m'*, tilts down, but when, by the rotation of the vertical shaft, 11, the other side of the cam comes on top of the cam-arm, *n*, as in Fig. 3, the said arm is depressed and then the weight, *m'*, tilts up. Thus the weight rocks the shaft, C, one way,

and the cam, n' , and arm, n , rocks it the other way, and the rocking of the shaft actuates the brush-arm, B.

The can-holder or can-carrier, 18, is a suitable frame having within it at one end a disk, 69, which is mounted on a short spindle and is free to rotate. At the other end of the frame is a spindle, 67, carrying within the frame a disk, 70, and the spindle has a pinion, 22. The vessel or can, 57, which is to be fluxed and soldered is held or clamped between the two disks when it is revolved. The spindle, 67, by means of a feather on it, has an endwise movement through the pinion, 22, as shown and described in my former patent. This endwise movement allows the disk, 70, to move away from the other disk, 69, and enables a can to be placed in position between them. The can carrier is pivoted at, 2, to jaws, 17, attached to a plate, 16, which is mounted loosely on the vertical shaft, 11, so that the said shaft may rotate without necessarily rotating the plate. In my Patent No. 483,234, previously referred to, this plate, 16, and the can-carriers, 18, which are pivoted to it, have an intermittent rotary movement in a horizontal plane, and I would prefer to use this construction in connection with the pivoted flux-brush.

A crown gear wheel, 21, is mounted rigidly on the vertical shaft, 11, and has a continuous rotary motion. The pinion, 22, gears with this crown wheel and thereby a revoluble motion is imparted to the disk, 70, and to the can, 57.

A table, 10, supports the machine parts and a circular track, 20, is employed on which a roller, 19, travels, this roller being on the outer or free end of the can-carrier, 18.

The soldering apparatus in the present instance comprises briefly, a reel, 27, on which the wire solder, 25, is wound. This wire passes from the reel down through a guide-tube, 28, the nozzle of which is in proximity to the can. Blow-pipes or burners, 26, are located so as to melt the wire solder and also heat the can. In the present instance these parts are shown in the position for soldering the seam at one end of a can.

It is to be understood that a machine of this character would have a number of can-carriers, 18, and that one end or both ends of a can may be fluxed and soldered before removal of the can.

The operation of the fluxing device is as follows: A can being suitably mounted above the flux pan and revolved, and flux being in the pan, it is only necessary to first tilt down the arm, B, and dip the brush in the flux, and then to tilt up the arm so as to apply the flux brush in contact with the can.

In the machine, where mechanism is employed to actuate the tilting brush-arm, the action of the latter in applying flux is the same.

In a machine where the can which is fluxed is also soldered, see Figs. 6 and 7, the can pauses above the flux-applying brush-arm, B, where one seam is fluxed, and then by the next movement the can is carried to the guide-tube, 28, where the wire solder is melted and applied to the seam just fluxed.

It is obvious that my improved pivoted flux brush may be applied to machines of very different construction from that shown in the accompanying drawings.

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

1. In a device for applying flux, the combination of a pan to contain flux; a movable holder above the flux pan and adapted to carry the vessel that is to be fluxed; an arm having at one end a brush or swab and pivoted to tilt in a vertical plane and dip the brush or swab in the flux and then raise and apply said brush or swab to the vessel in the holder; and an adjustable stop device attached to the pivoted arm and adapted to limit the extent of the dip of the brush or swab into the flux.

2. In a device for applying flux to vessels which are to be soldered, the combination of a flux-pan; a pivoted brush or swab to dip into the flux and then apply it to the vessel; and an adjustable counterbalance on the pivoted brush.

3. In a device for applying flux, the combination of a pan to contain flux; a movable holder above the flux-pan and adapted to carry the vessel that is to be fluxed; an arm having at one end a brush or swab and pivoted to tilt in a vertical plane and dip the brush or swab in the flux and then raise and apply said brush or swab to the vessel in the holder; and an adjustable pendent stop device attached to the pivoted arm and adapted to limit the raise or up-tilt of said arm.

4. In a machine for fluxing and soldering the end seams of cylindrical vessels, the combination of a device for applying solder to the end seams of a vessel; a stationary pan to contain flux; an arm having at one end a brush or swab and pivoted to tilt in a vertical plane and dip the brush or swab into the flux and then raise and apply the flux to the seams of the vessel; a revoluble holder adapted to carry the vessel that is to be fluxed and soldered; and means to impart to said holder movement in a horizontal plane and thereby carry the vessel from the flux brush to the said soldering device.

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

DAVID M. MONROE.

Witnesses:

CHAS. B. MANN, Jr.,
L. ISMY VAN HORN.