

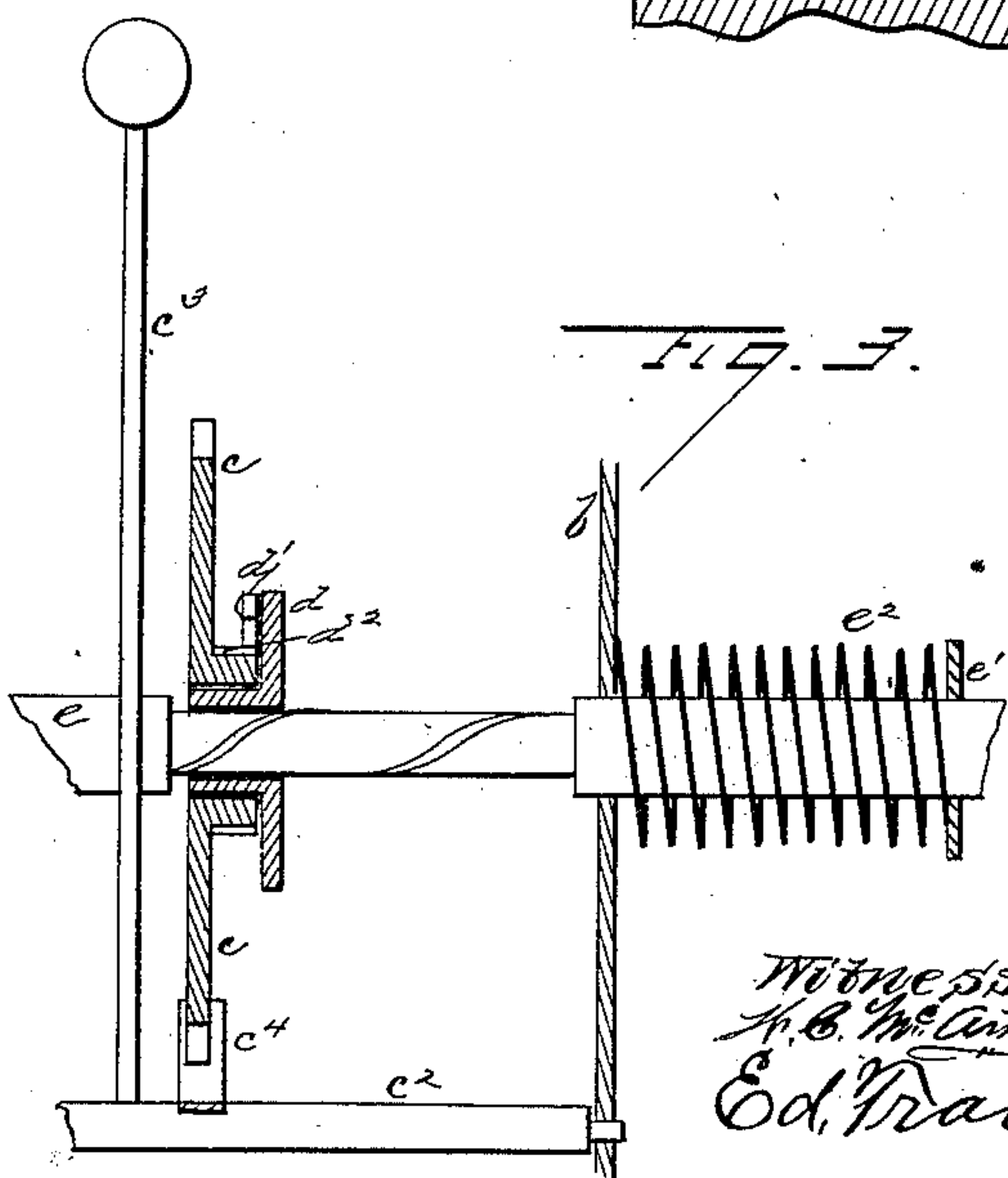
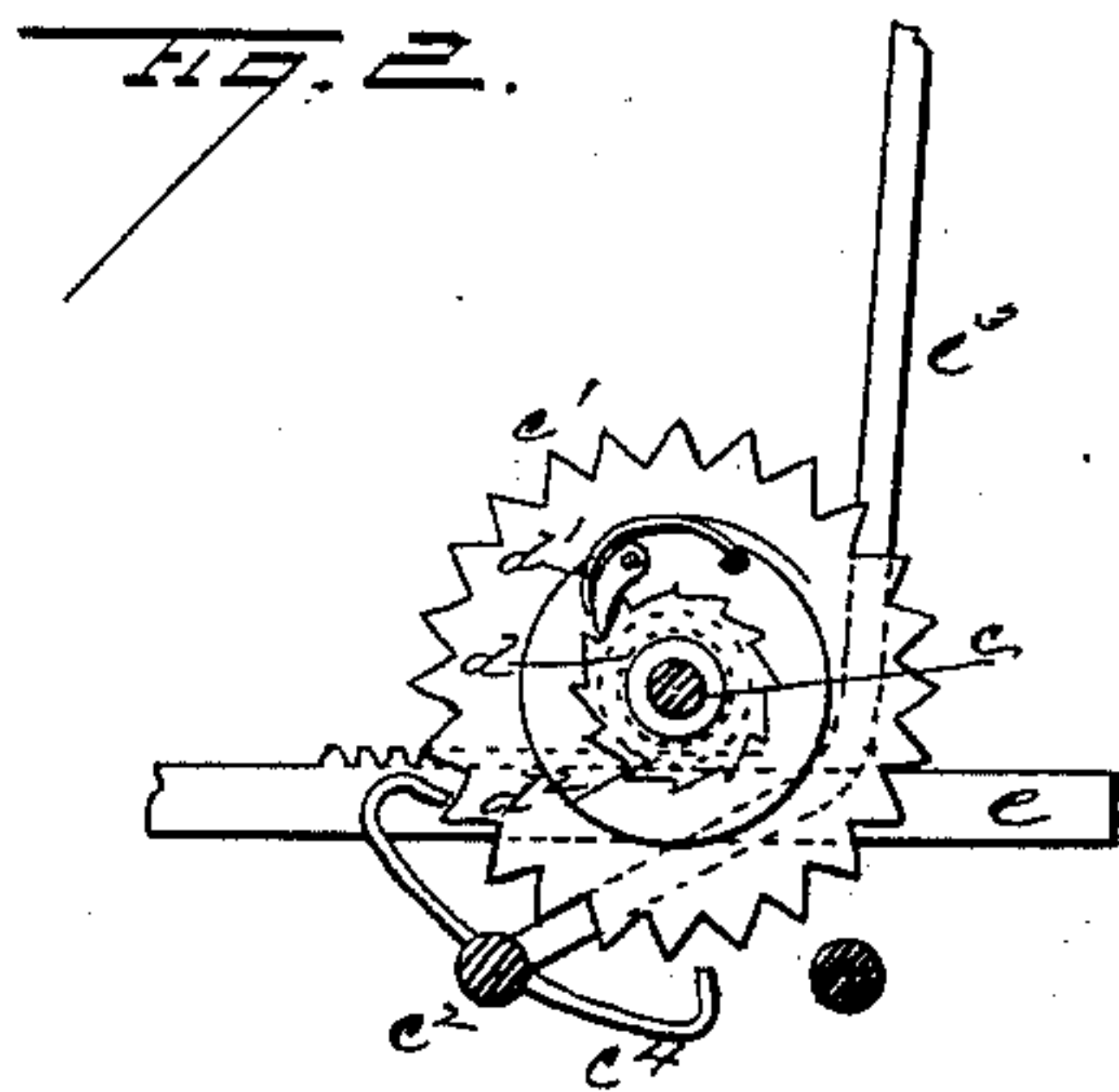
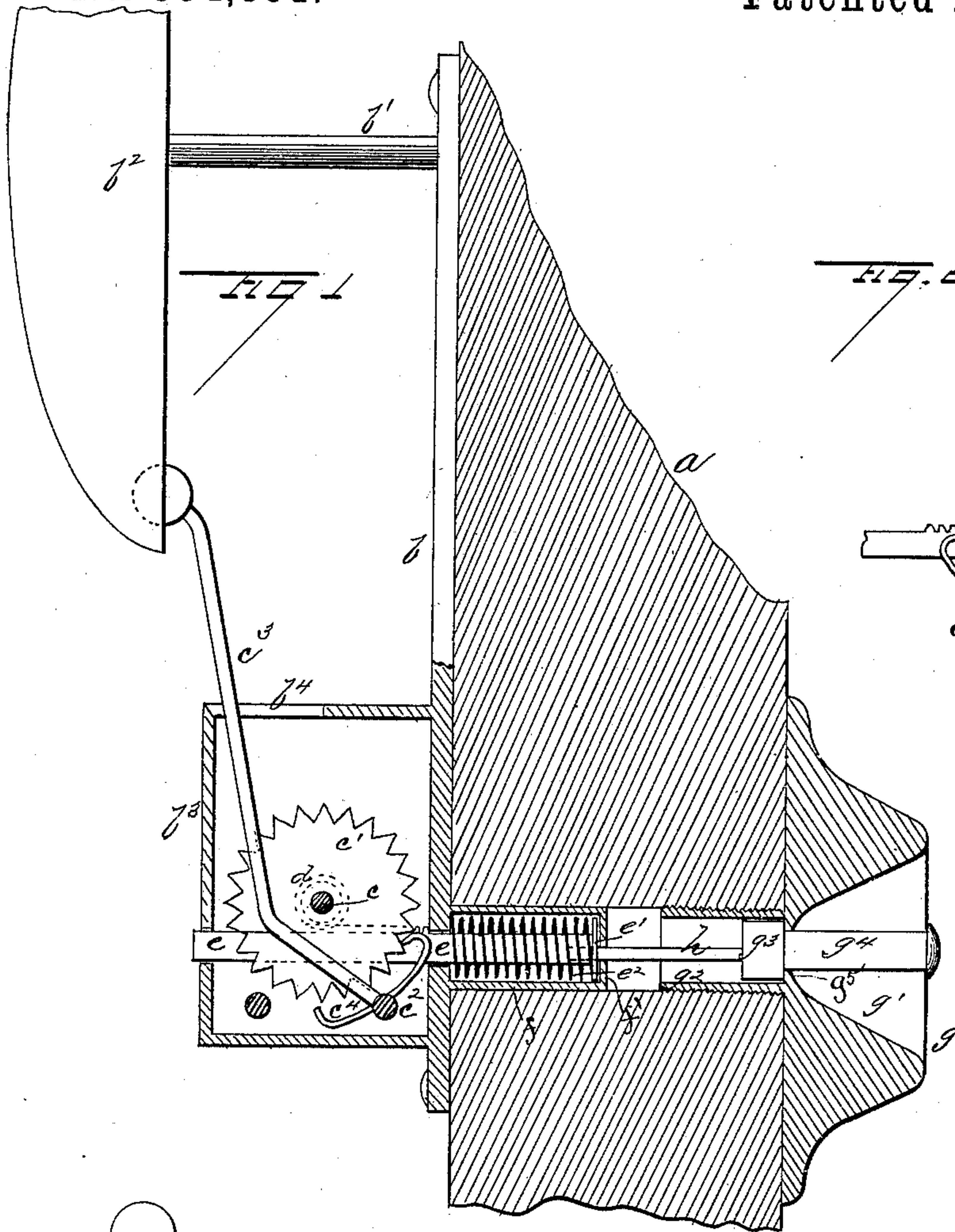
(No Model.)

F. SANDERSON.

DOOR BELL.

No. 354,351.

Patented Dec. 14, 1886.



Inventor,

Frederick Sanderson

Witnesses:
H. B. McCutcheon
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per

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Attorney.

UNITED STATES PATENT OFFICE.

FREDERICK SANDERSON, OF CHICAGO, ILLINOIS.

DOOR-BELL.

SPECIFICATION forming part of Letters Patent No. 354,351, dated December 14, 1886.

Application filed September 11, 1885. Serial No. 176,806. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK SANDERSON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Door and Call Bells, of which the following is a specification, to wit:

This invention relates to door and call bells; and it consists in certain peculiarities of the construction and arrangement of the same, substantially as will be hereinafter more fully set forth and claimed, whereby the bell is operated by a push-button in exact imitation of an electric bell in both sound and appearance, and without the use of a winding spring, substantially as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention pertains to make and use the same, I will now proceed to describe its construction and operation, referring to the accompanying drawings, in which—

Figure 1 is a vertical section of a portion of a door having my device in position for use. Fig. 2 is a view of the operating mechanism of my device taken from the opposite side from that shown in Fig. 1, and Fig. 3 is a sectional view of a modified form of the invention.

a represents a door or door-frame, wall, or other place to which it is desirable to apply this invention. Upon the inside of this door *a* is secured a casting, *b*, on one portion of which is a post, *b'*, carrying a bell, *b²*, of suitable form and size. Upon this casting or base-plate is also a small box or case, *b³*, in which is journaled a shaft, *c*, on which is a toothed wheel, *c'*, similar to the escape-wheel of a clock. Upon a second shaft, *c²*, is secured the bell-hammer *c³*, which passes out of the box or case through a slot, *b⁴*, therein, which admits of the requisite movement, and ends in proper position with relation to the bell. Upon the shaft *c²* is also a pallet, *c⁴*, which is engaged and operated by the escape-wheel to give a vibratory movement to the hammer. Upon the shaft *c* is also a small loose pinion, *d*, which is provided with a spring-actuated pawl, *d'*, engaging a ratchet, *d²*, on the shaft, or on the escape-wheel, as may be. A bar, *e*, is arranged to slide through the box or case in close proximity to the pinion, and is provided

with a series of teeth to engage said pinion, as shown.

The base-plate is provided with a sleeve, *f*, which extends a short distance into the door, and in it lies normally the outer end of the rack-bar *e*. At its inner end the sleeve *f* has a perforated end plate, *f'*. The bar *e* is provided with a head or shoulder, *e'*, on its end, and is surrounded by a spring, *e²*, by which it is returned to place after being pushed in.

Upon the outer side of the door or frame is a small button-guard, *g*, of circular or other form, having its front formed with a recess, *g'*, and its rear side provided with a screw-threaded shank, *g²*, which is screwed into the door and retains the guard in place. Where the tubular shank *g²* opens into the recess *g'*, I form a flange, *g³*, which serves as a stop to limit the outward movement of the slide *g³*, hereinafter described. The shank *g²* is hollow, and in it is a slide, *g³*, provided with an arm, *g⁴*, extending through to the front of the guard, which in appearance resembles the ordinary "push-button" used with electric bells and signals. A stiff wire, *h*, is at one end socketed into the rack-bar, and at the other rests against the slide, thus forming a rigid connection between them.

In operation the main casting is secured to one side of a door, with the sleeve extending into one end of a small hole previously formed through it, and the guard is screwed into the opposite end of this hole; the connecting-wire, being cut of the proper length to connect the two, is thus easily fitted to any door or frame, of whatever thickness it may be. Upon pushing in the button the rack-bar and pinion impart motion to the escape-wheel and cause a rapid series of vibrations of the hammer, in exact imitation of that of an electric bell. The release of the pressure allows the spring-actuated rack-bar to return at once to its former position, the ratchet permitting this to be done without striking the bell.

The device is intended for a mechanical imitation of an electric bell, and its great simplicity and cheapness enable any one to put it in place and operate it. As here shown and described it is adapted for use within a short distance of its operating-button; but should it be desired to place it at some distance the de-

vice is simply turned around and an ordinary pull-wire and knob connected to the inner end of the rack-bar, and operated as readily as before.

5 In Fig. 3 is shown a modified form of device, in which instead of a rack-bar is used a bar having a spiral groove or thread around it, and the escape-wheel and ratchet placed upon it, as shown. When this shaft is pushed in, 10 the escape-wheel is turned by the spiral, and the effect is the same as before. This form possesses the advantage of causing the hammer to vibrate across the inner side of the gong, and thus gives it a larger stroke and 15 more compact arrangement.

It is evident that the precise means herein shown for operating the bell by means of a push-button is not material, and may be varied to suit the requirements of the special case.

20 The main idea of my invention is to impart a series of vibrations to the hammer by a single push of the button, and it is evident that the intermediate devices between the button and hammer may be greatly varied to produce 25 this result.

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

30 1. In a door or signal bell, a vibrating hammer and a sliding operating-bar connected therewith by intermediate mechanism, and a retracting-spring therefor, in combination with a push button or slide and a stiff wire

arranged between the bar and slide, socketed in one and bearing against the other, whereby 35 the connection is readily adapted to different distances, substantially as and for the purpose set forth.

2. The combination of the base plate or frame having a sleeve, *f*, provided with a per- 40 forated end plate, *f'*, the bell, the slide-rod connected with said bell and having an extension projected into sleeve *f*, and provided with a head, *e'*, a spring for retracting said slide-rod, the button, and a connection be- 45 tween said button and slide-rod, substantially as set forth.

3. The improvement in bells, substantially as described, consisting of the base plate or frame having a sleeve, *f*, provided with a per- 50 forated end plate, *f'*, the button-guard *g*, having a recess, *g'*, a tubular shank, *g*², and a stop-flange, *g*⁵, the slide *g*³, operating in shank *g*², and provided with an arm or extension, *g*⁴, the bell, the slide-rod connected therewith and ex- 55 tended into the sleeve *f*, a spring for retracting said slide-rod, and a connection between the same and the slide *g*³, all substantially as set forth.

In testimony whereof I affix my signature in 60 presence of two witnesses.

FREDERICK SANDERSON.

Witnesses:

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ED. TRABUE.