

(Model.)

2 Sheets—Sheet 1.

C. W. BULLARD.

DOOR BELL.

No. 347,226.

Patented Aug. 10, 1886.

FIG. 1.

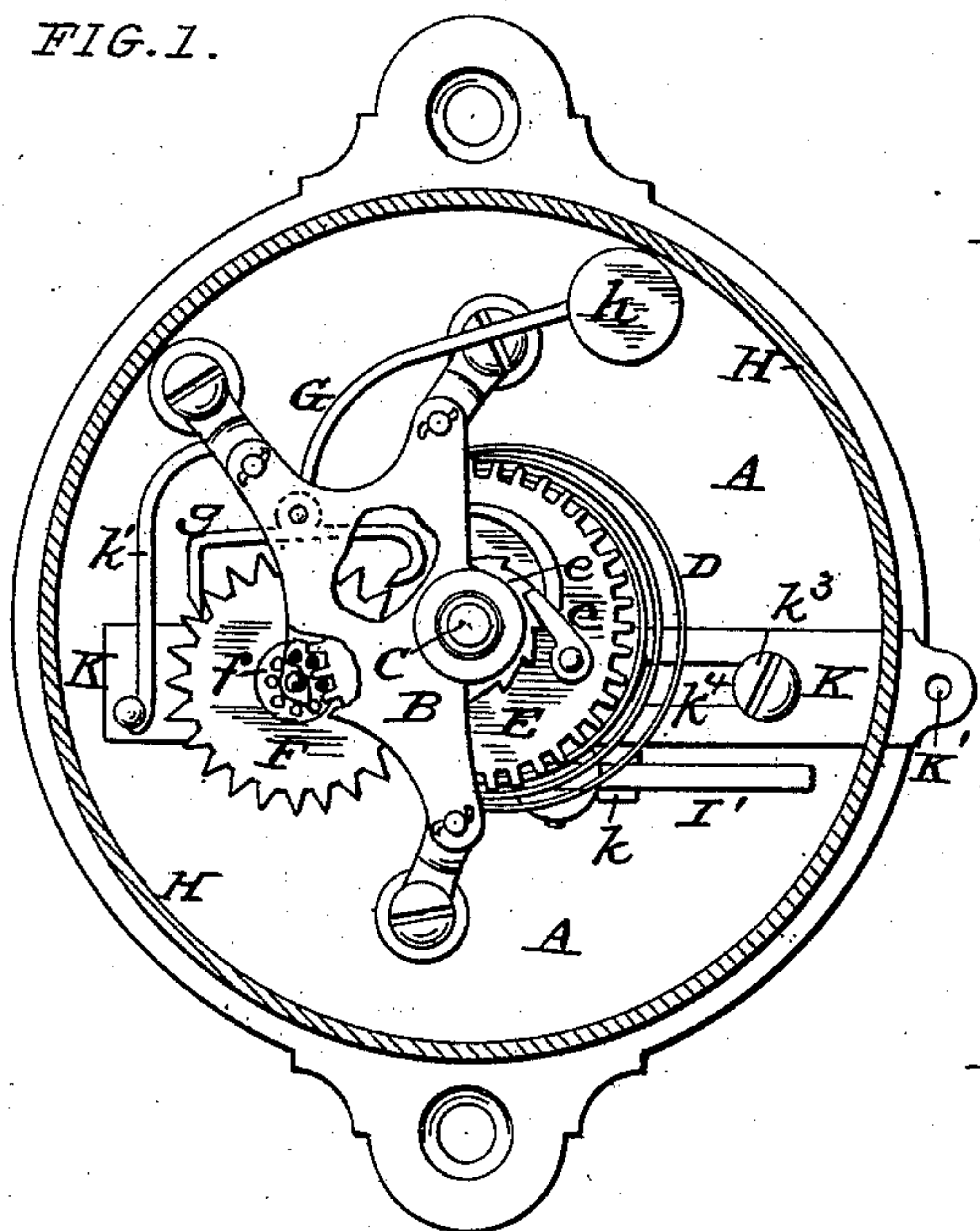


FIG. 2.

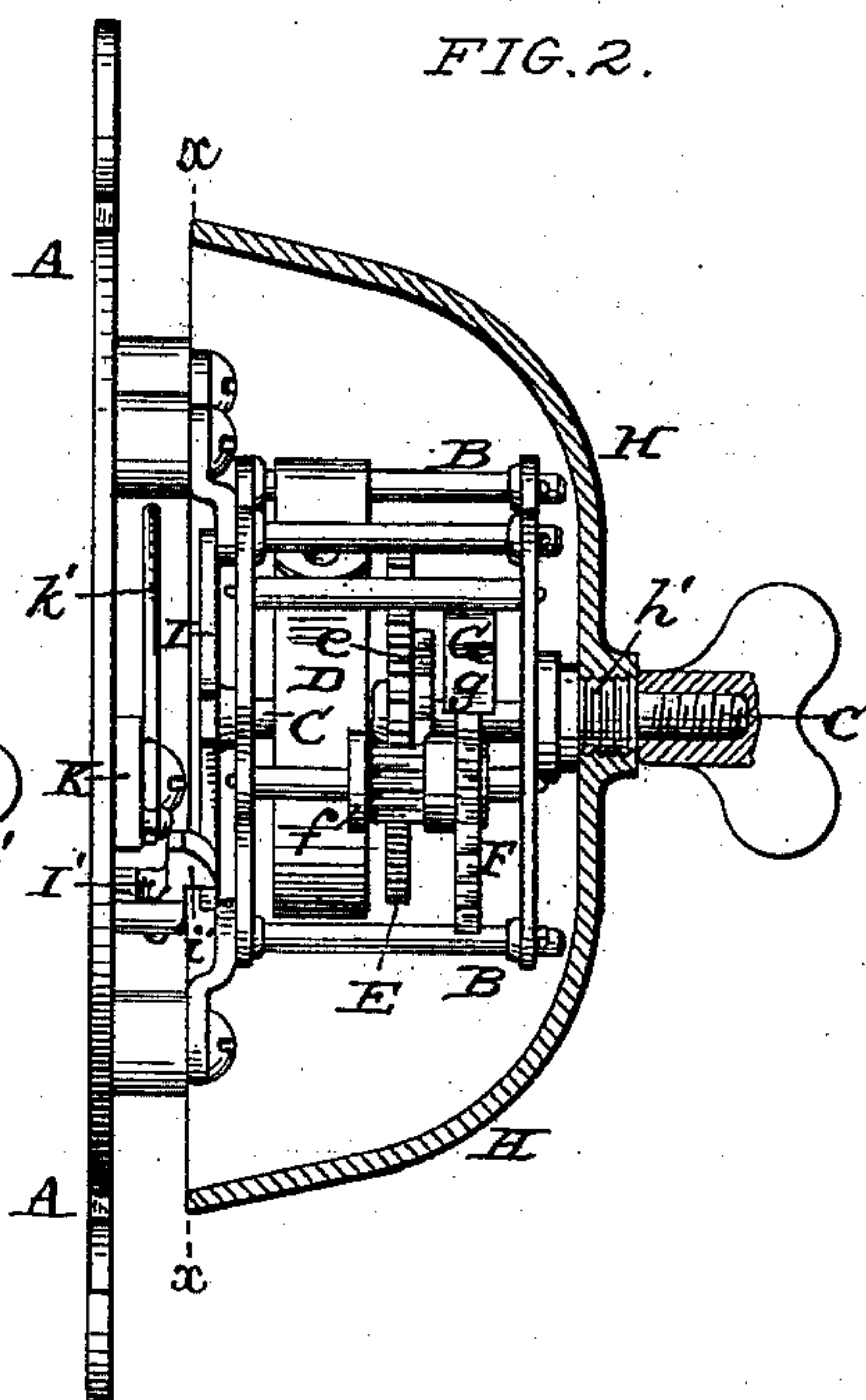


FIG. 3.

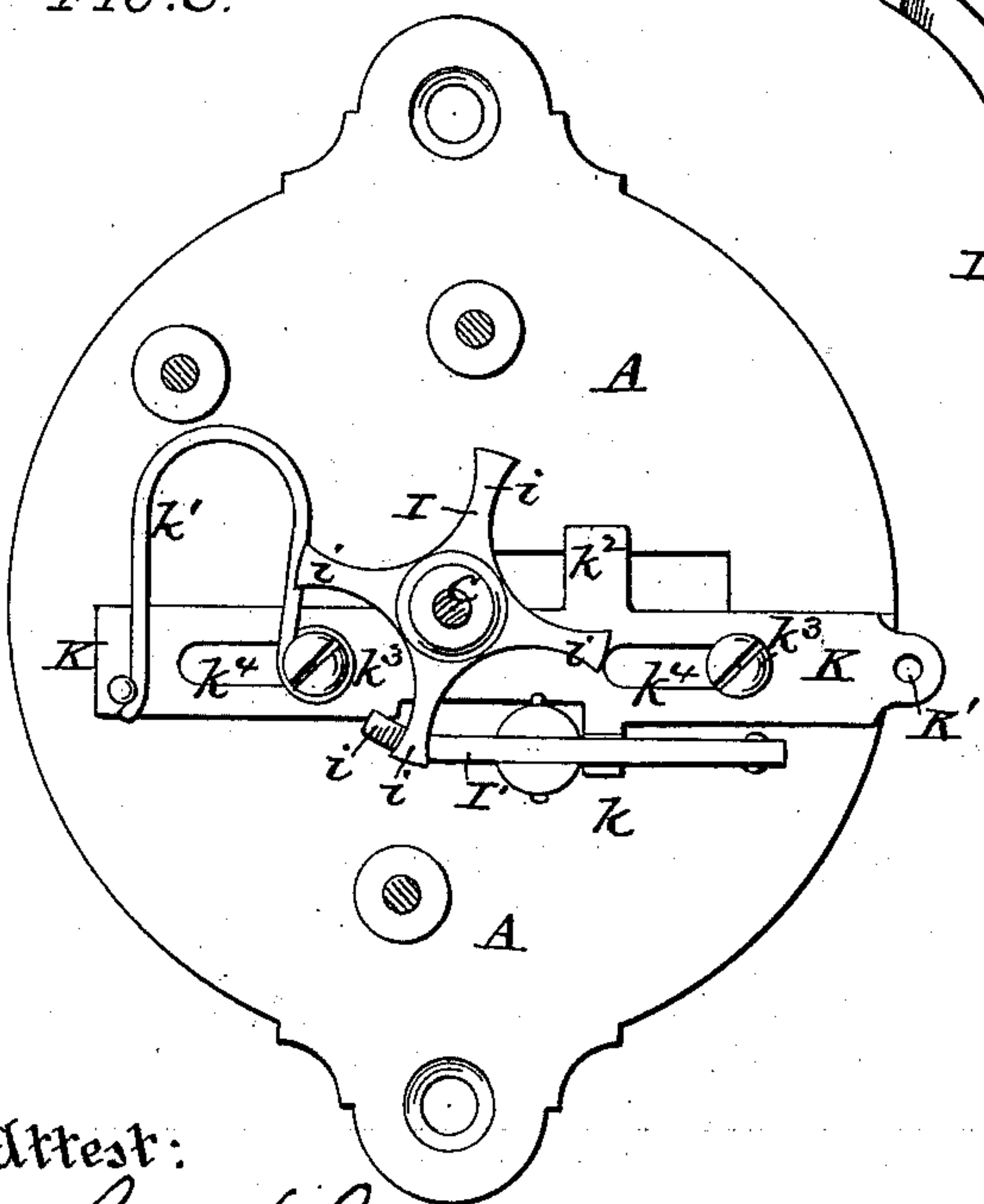
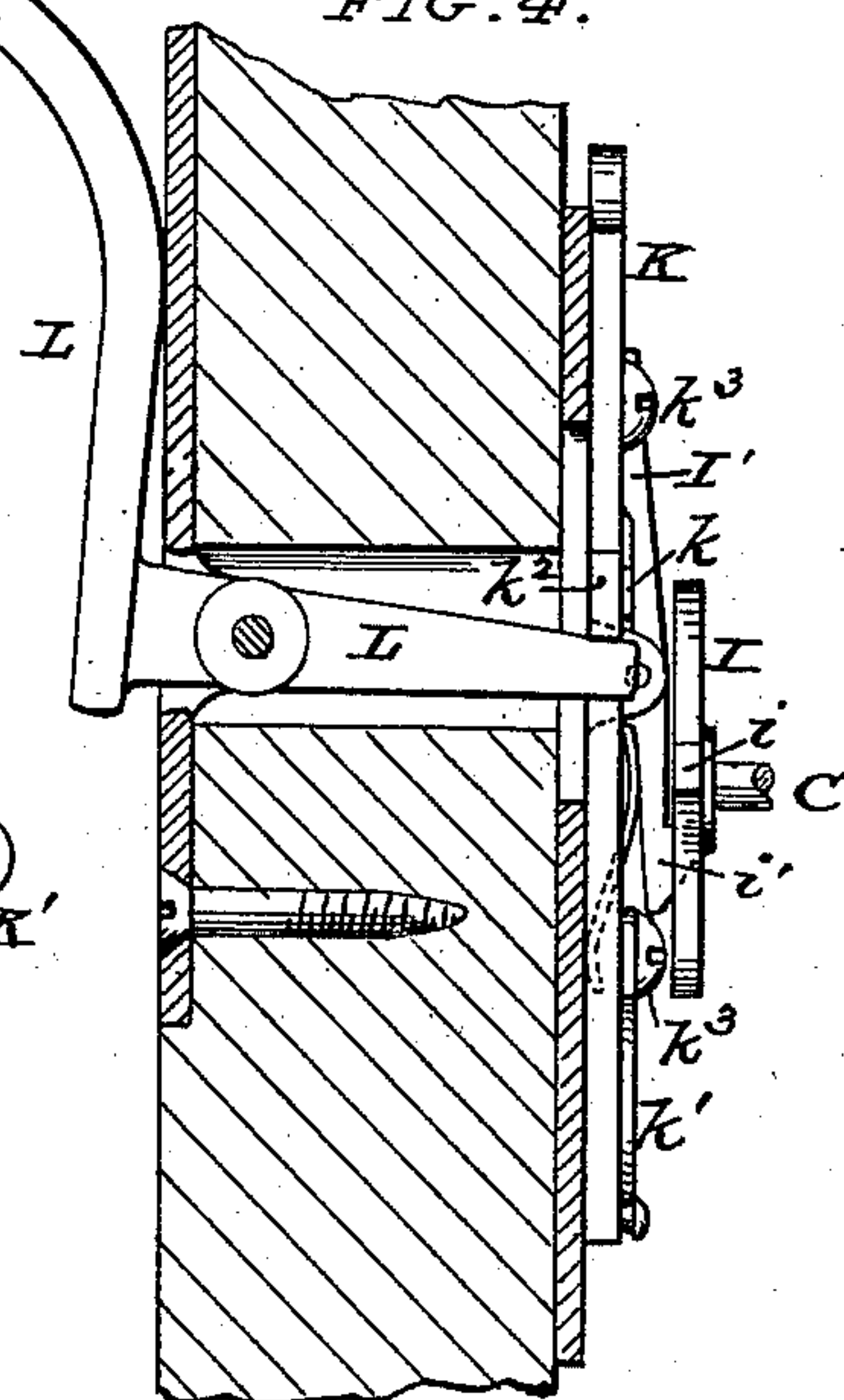


FIG. 4.



Attest:

*James H. Gormley*  
*Robert B. Brown*

Inventor:

*Charles W. Bullard*

(Model.)

2 Sheets—Sheet 2.

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FIG. 6.

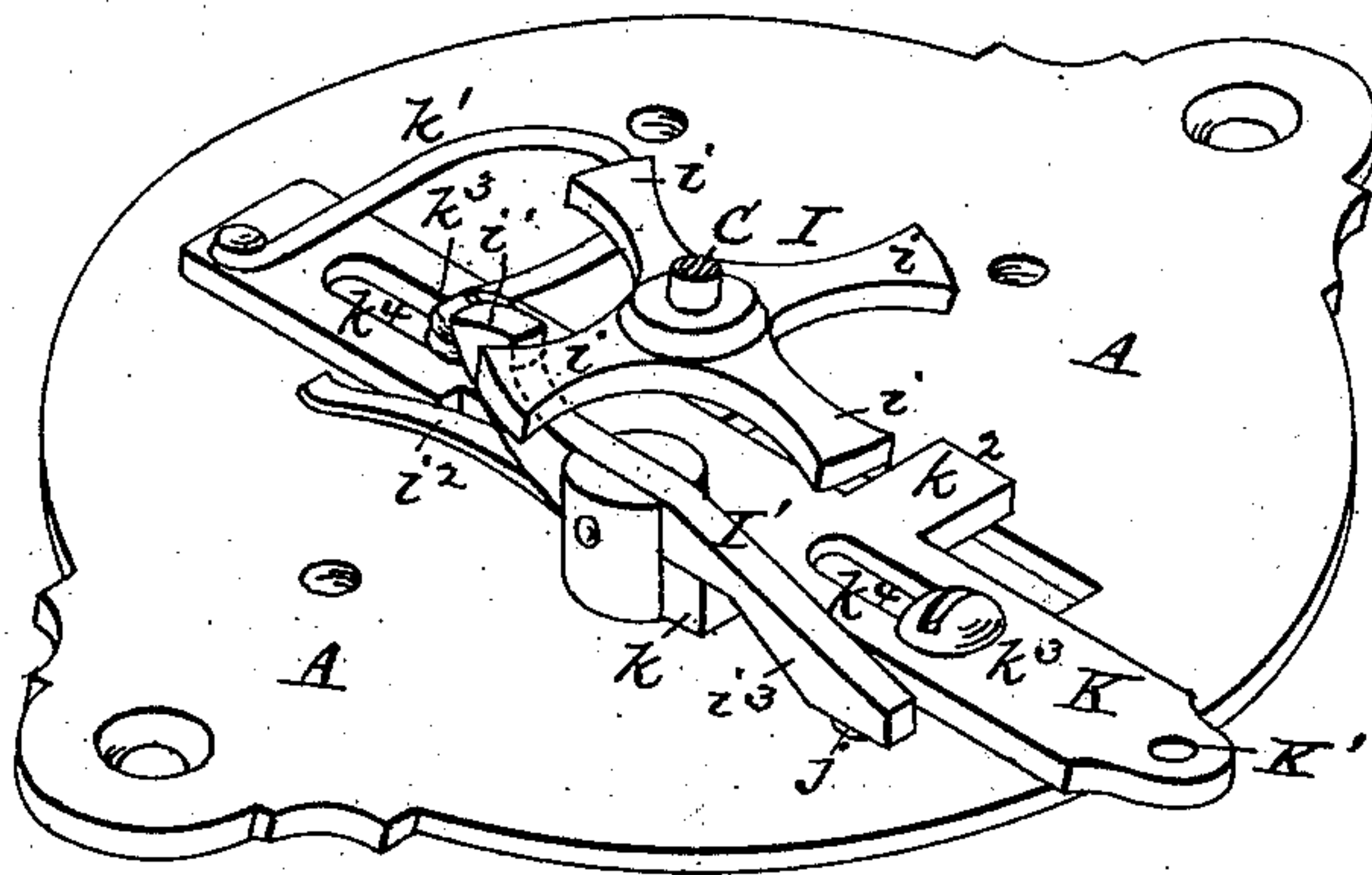


FIG. 5.

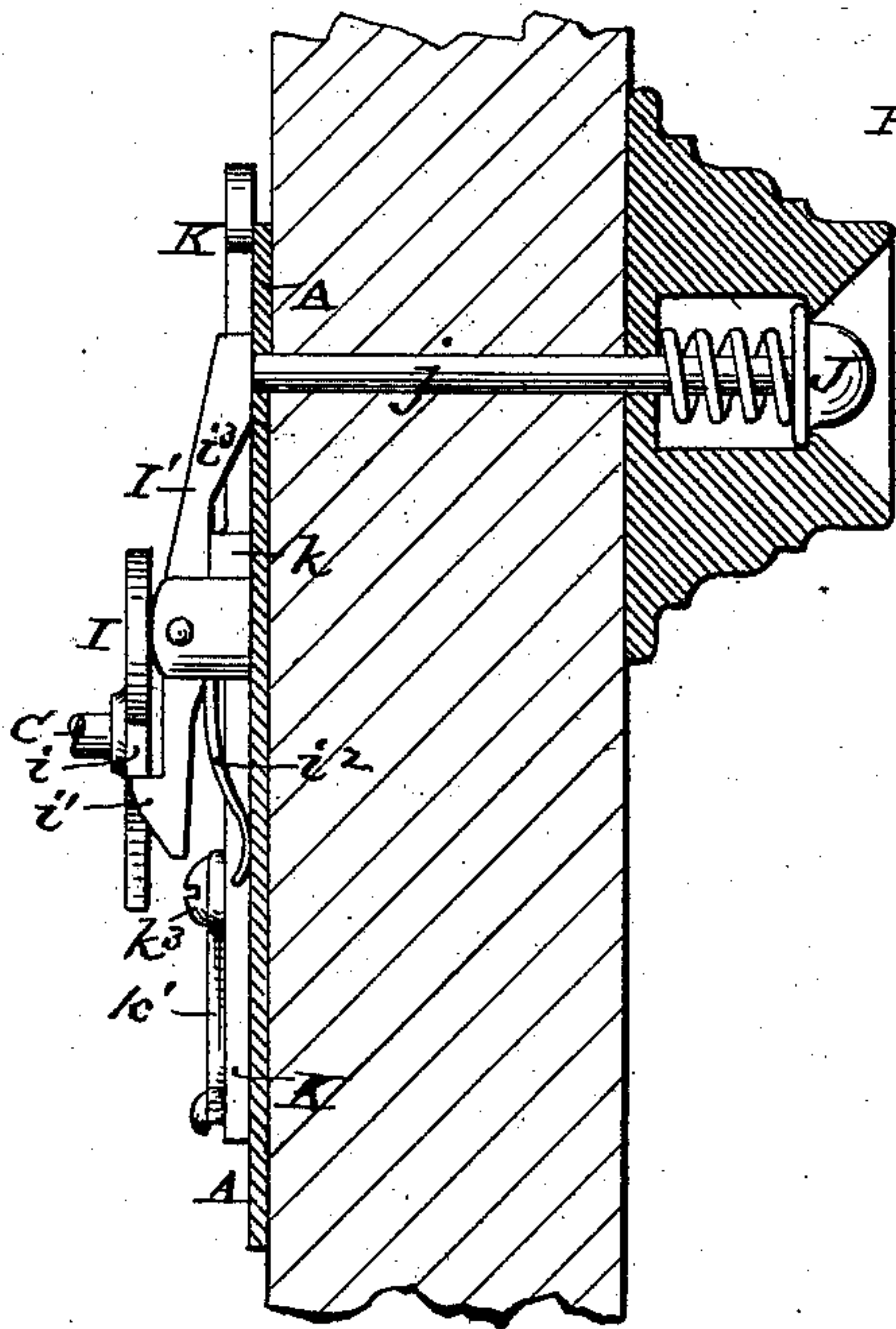
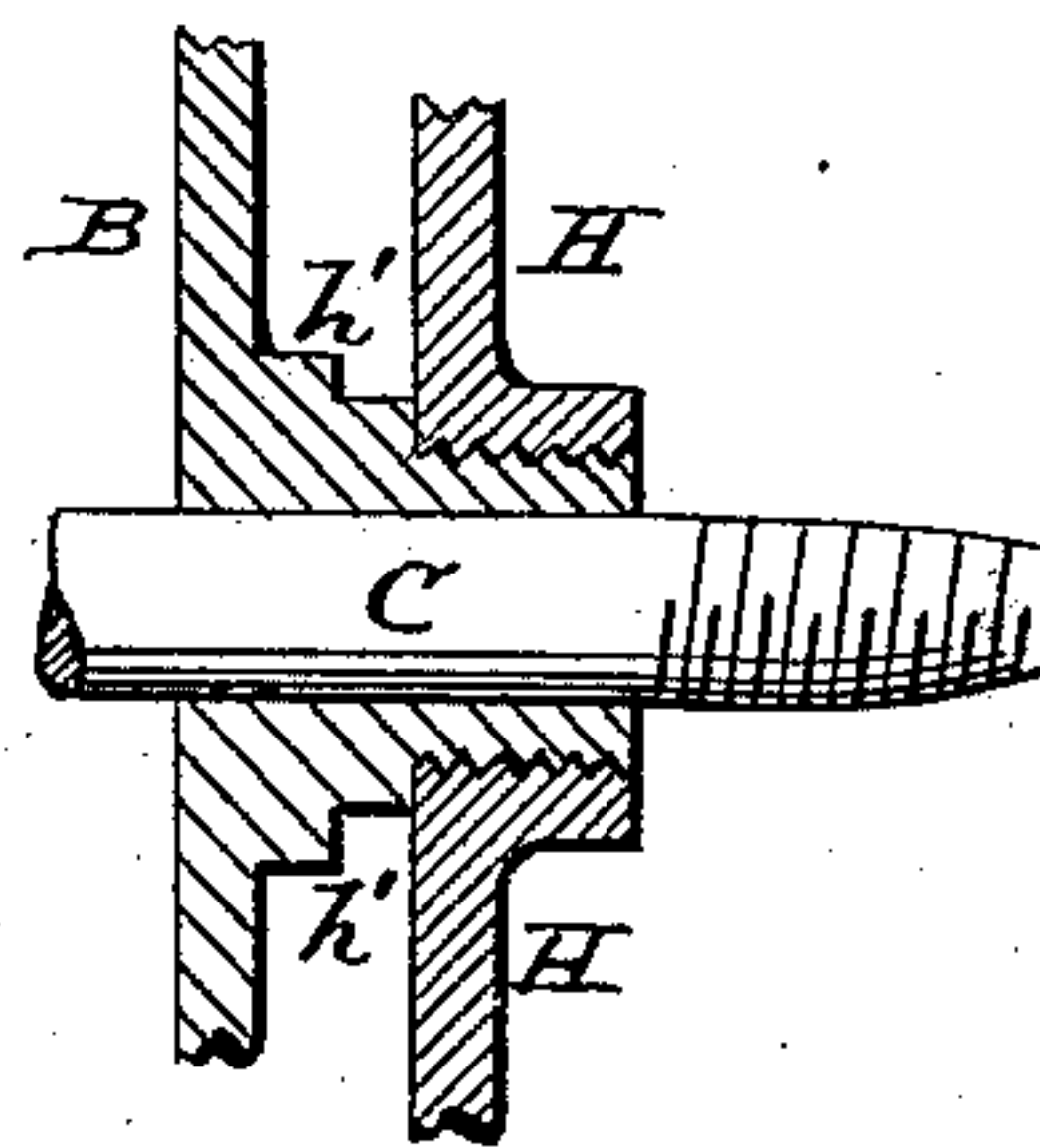


FIG. 7.



Attest:

*Geo H Gornley*  
*Robert Burns*

Inventor:

*Charles W. Bullard*



# UNITED STATES PATENT OFFICE.

CHARLES W. BULLARD, OF CHICAGO, ILLINOIS.

## DOOR-BELL.

SPECIFICATION forming part of Letters Patent No. 347,226, dated August 10, 1886.

Application filed April 25, 1885. Serial No. 163,465. (Model.)

*To all whom it may concern:*

Be it known that I, CHARLES W. BULLARD, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Mechanical Door Bells and Alarms; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification.

This invention relates to that class of door bells or alarms in which is employed a train of alarm mechanism that is released to ring an alarm-bell when the door pull or push, as the case may be, is manipulated from the outside; and the objects of my improvement are, first, to provide, in connection with a mechanical door-bell that is rung by a train of gearing, a stop mechanism operated by a push-button (or other similar device capable of operation by hand) at the outside of the door, so that by the depression of the push-button the alarm mechanism will be released to give an alarm, and which, after the push-button is released, such stop mechanism will engage and stop the alarm mechanism after a predetermined number of strokes have been given to the bell; second, to afford means whereby the stop-wheel of the alarm mechanism and its stop pawl or catch are adapted to be released by either a push, pull, or bell-crank lever at the outside of the door, or by a cord extending to a suitable burglar-alarm device that is operated by the unauthorized opening of a door or window. I attain such objects by the construction and arrangement of parts illustrated in the accompanying drawings, in which—

Figure 1 is a front elevation, with parts broken away, of the alarm mechanism, the rim of the bell being shown in section; Fig. 2, an end elevation of the same with the alarm-bell in section; Fig. 3, a sectional elevation at line *x x*, Fig. 2. Fig. 4 is a detail sectional elevation of the same, showing as an operating device for the stop or escapement wheel and catch of the train of alarm mechanism a bell-crank lever or pull having its fulcrum in a plate at the outside of the door; Fig. 5, a similar view illustrating as an operating device to

release the stop or escapement wheel and catch a push-button at the outside of the door. Fig. 6 is a detail perspective view of the parts illustrated in Fig. 3, and Fig. 7 an enlarged detail section through the post to which the bell is secured, illustrating the position and arrangement of the winding-spindle of the alarm mechanism.

Similar letters of reference indicate like parts in the several views.

Referring to the drawings, A represents the main or base plate by which the frame B of the alarm mechanism is secured to the back of the door or any other desired position. The frame B is of the usual form employed for clock-work, being provided with bearings for the main driving-shaft C that carries the driving-spring D, driving spur-wheel E, and winding ratchet *e* and click *c*; also, for the shaft that carries the pinion *f* and ratchet-wheel F, that operates the clapper-carrying lever G, the shaft of which is also pivoted in the frame B. This lever G has at one end the clapper or strike *h* of the alarm-bell H, and the other end the pallet-piece *g*, that engages with and is operated by the ratchet-wheel F of the alarm mechanism. When circumstances require, it is evident that intermediate gear may be introduced between the main driving spur-wheel E and the pinion *f*, so as to increase the capacity of the mechanism.

The bell H is secured in place by being screwed upon or otherwise secured to a hollow post or sleeve, *h'*, upon the frame B, through which passes the main driving-shaft C, which has its projecting end formed to receive the winding-key of the alarm mechanism, as indicated in Figs. 2 and 7.

Upon the inner or lower end of the shaft C is arranged the rimless stop or escapement-wheel I, having a number of arms, *i*, with which the pivoted catch-lever or dog I' engages to lock the parts from movement, the catching-point *i'* of such lever being held in engagement with one of the arms by means of a spring, *i''*. The other end of the arm I' is arranged in line with the spindle *j* of a push-button, J, arranged at the outside of the door, as indicated in Fig. 5, so that when said button is depressed it will move the lever I' to release the arm *i* with which it is engaged, and



allow the alarm mechanism to operate the bell-clapper until the next adjacent arm  $i$  reaches the catch-point  $i'$  of the lever  $I'$ , when any further movement of the alarm mechanism will be stopped, the lever  $I'$  having been seasonably released from the pressure of the push-button or other operating device. It will be seen by reference to the drawings that the stop-wheel  $I$  is placed on the end of the main driving-shaft that carries the operating-spring  $D$ , while the ratcheted clapper-operating wheel  $F$  is arranged on a counter-shaft, receiving an accelerated movement from the main driving-shaft through spur-wheel  $E$  and pinion  $f$ , in consequence of which the movement of said main shaft will be comparatively slow, due to the work performed by the clapper-operating wheel  $F$ . The purpose of this arrangement is to provide ample time to the party operating the push-button to release the same during the turning of the stop-wheel the distance between the arm of said wheel next following the one released, such interval of time being occupied by the clapper-operating wheel in giving the necessary alarm. The lever  $I'$  is also formed with an inclined face,  $i''$ , under which moves an offset or lug,  $k$ , upon a sliding piece,  $K$ , and which is held out of engagement with said lever  $I'$  by a spring,  $k'$ , as indicated in Figs. 3, 4, and 5. The piece or plate  $K$  is also provided with an offset or lug,  $k^2$ , that is adapted to be engaged and operated by the inner end of the bell-crank pull  $L$ , as indicated in Fig. 4.

The piece or plate  $K$  is secured in place and guided by screws  $k^3$ , that pass through elongated slots  $k^4$  in said plate and screw into the base-plate  $A$  of the alarm mechanism.

$K'$  is a hole or stud in or on the plate  $K$ , at

the end opposite to that at which the spring  $k'$  is attached. This hole or stud is intended for the attachment of a cord or chain, that may extend to a pull at a distance or to a burglar-alarm device attached to a door or window of the building.

I am aware that prior to my invention mechanical burglar-alarms have been provided with a train of alarm-gear to operate the clapper of an alarm-bell, and that such train of gearing has been provided with a stop-wheel, which would be released from engagement with a suitable stop to give an alarm through a releasing device (having suitable connections with said stop) that would be operated by the opening of the door or window after the apparatus had been set to give an alarm.

I therefore do not claim such combination, broadly; but

What I do claim as my invention, and desire to secure by Letters Patent, is—

1. In a mechanical door-bell, the combination of an alarm-bell and a train of operating-gearing provided with a stop-wheel,  $I$ , with the catch or stop-lever  $I'$   $i'$   $i''$ , and sliding plate  $K$   $k$ , adapted to be operated either by a bell-crank lever or a pull-cord, substantially as and for the purpose set forth.

2. In a mechanical door-bell, the combination of an alarm-bell and a train of operating-gearing provided with a stop-wheel,  $I$ , with the catch or stop-lever  $I'$ , having catch-point  $i'$ , inclined face  $i''$ , and spring  $i^2$ , and the plate  $K$ , having spring  $k'$  and lugs  $k$   $k^2$ , essentially as and for the purpose described.

CHARLES W. BULLARD.

Witnesses:

ROBERT BURNS,  
JAS. H. GORMLEY,