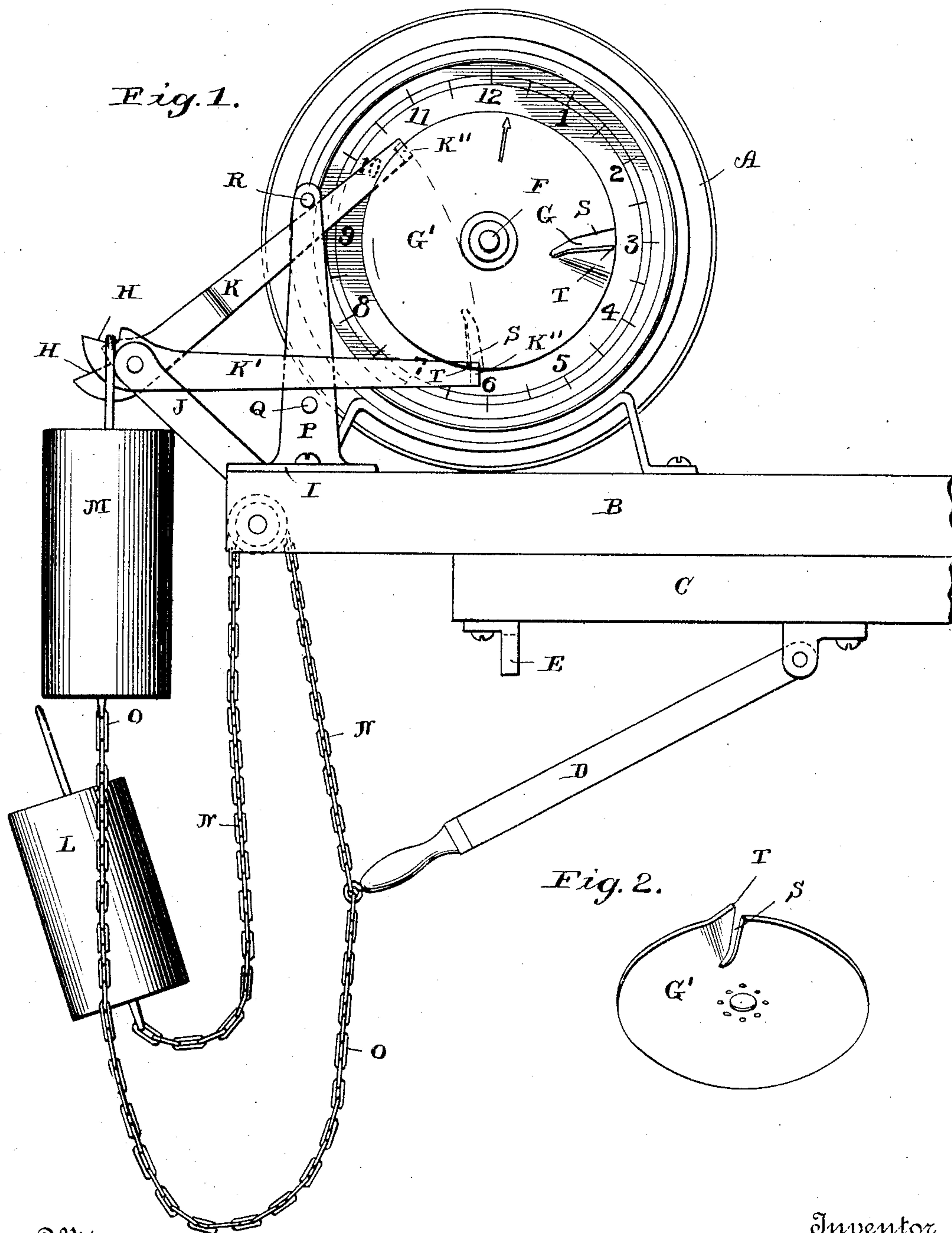


No. 785,863.

PATENTED MAR. 28, 1905.

W. B. COULTER.
ELECTRIC TIME SWITCH.
APPLICATION FILED NOV. 11, 1904.

2 SHEETS—SHEET 1.



Witnesses

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2 SHEETS—SHEET 2.

Fig. 3.

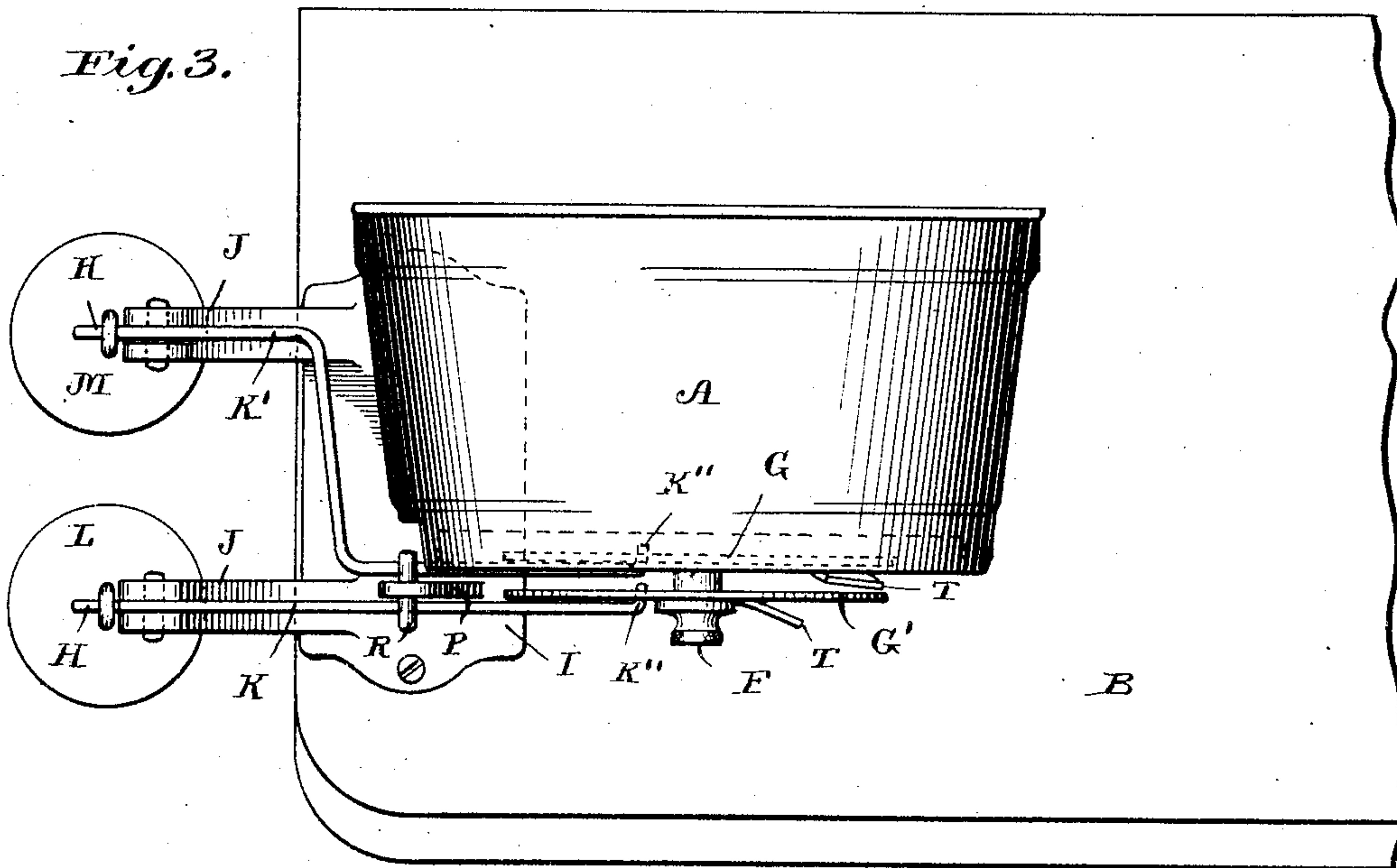


Fig. 4.

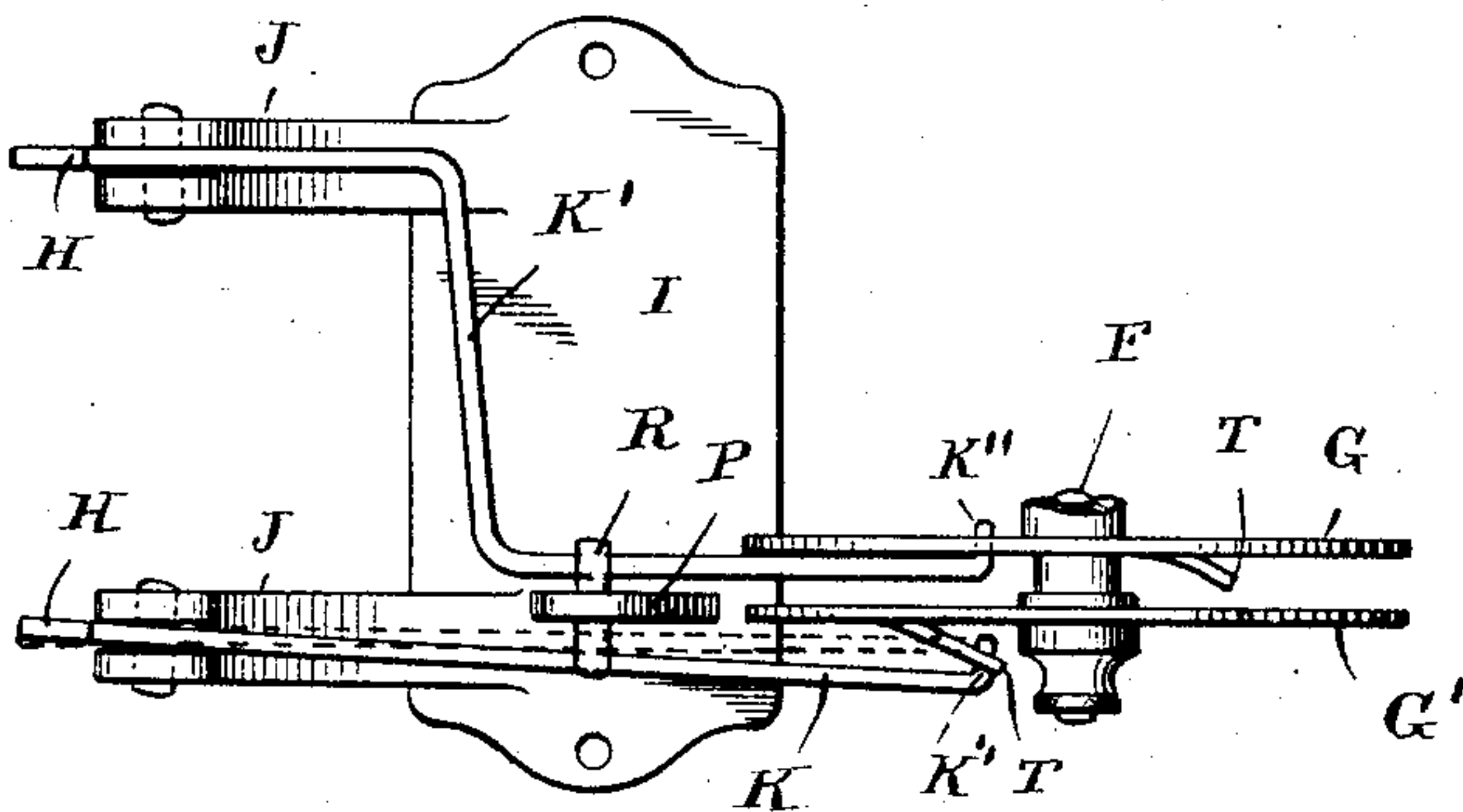
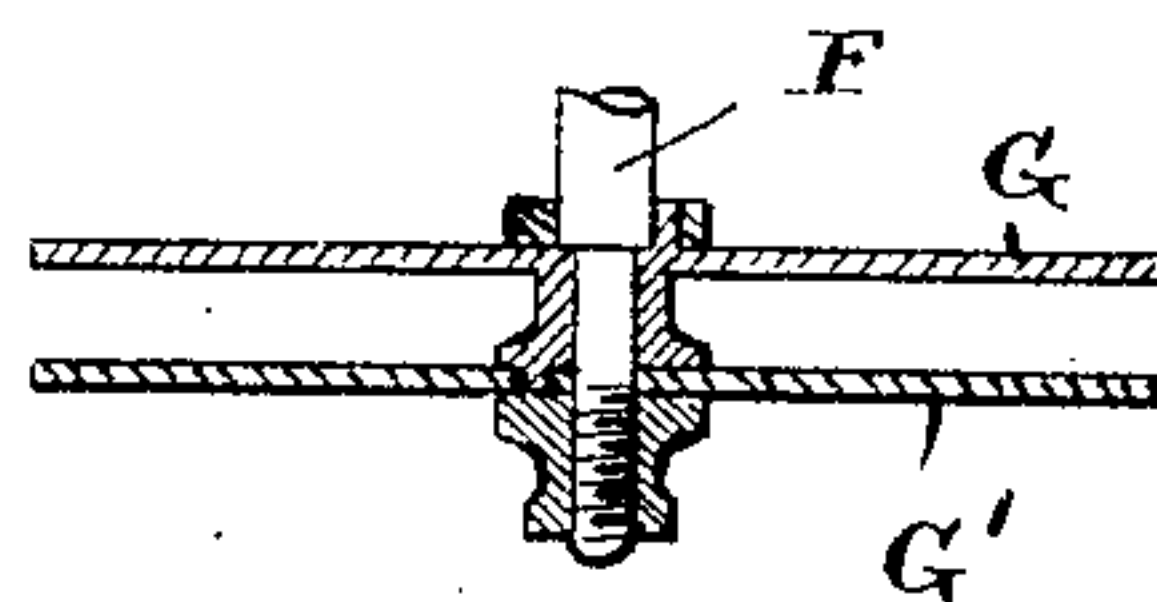


Fig. 5.



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UNITED STATES PATENT OFFICE.

WILLIAM B. COULTER, OF WATERBURY, CONNECTICUT.

ELECTRIC TIME-SWITCH.

SPECIFICATION forming part of Letters Patent No. 785,863, dated March 28, 1905.

Application filed November 11, 1904. Serial No. 232,275.

To all whom it may concern:

Be it known that I, WILLIAM B. COULTER, a citizen of the United States, and a resident of Waterbury, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Electric Time-Switches, of which the following is a specification.

My invention relates to improvements in electric time-switches—such, for instance, as is shown and described in my former patent of October 14, 1902, No. 711,198.

My former construction in part included a clock-movement carrying external disks, with which weighted levers engage, and in a way to release the levers at predetermined times to operate a switch with which they were connected. The weights as supported in said construction were liable to drop from the levers by accident, such as the shaking of the base upon which the device was mounted, and thus operate the switch at an undesired time.

The purpose of this invention, therefore, is to improve on my former device in a manner to make it more reliable and prevent it from operating accidentally or at a time other than that for which it may have been set.

With the above object in view I have devised the novel construction and arrangement of parts shown upon the accompanying two sheets of drawings forming a part of this specification, upon which similar characters of reference denote like or corresponding parts throughout the several figures, and of which—

Figure 1 shows a front elevation of my improved device complete in the act of operating to turn on the switch. Fig. 2 is a detail perspective view of one of my improved disks mounted on the movement to release the levers that support the weights. Fig. 3 is a plan view of the device complete, both weights being in position. Fig. 4 is a detail plan view of the lever and disk mechanism detached, and Fig. 5 is a detail sectional view through the two disks and the arbor upon which they are adjustably mounted.

Referring in detail to the reference characters marked upon the drawings, A indicates a case that incloses a clock-movement. (Not shown.) This case is secured to a suitable

base B, to the under side of which is attached an electric switch C of the usual or any preferred construction and comprising in part a lever D, adapted to contact with posts E in the usual way.

F indicates an arbor extending through the dial of the case from the movement and upon which are adjustably mounted disks G and G' of special construction, which obviously are rotated thereby.

A bracket I secured to the base contains two posts J J, in which the levers K and K' are loosely mounted. The inner ends of these levers contain a transverse projection K'', which engages the under edge of the disks G and G', as is clearly shown in Figs. 3 and 4. The outer or short end of each lever contains a shoulder H to support the weights L and M, which in turn are respectively connected by chains N and O to the lever D of the switch in a way to operate the same, the fall of the weight L serving to close the switch while the fall of the weight M acts to open it. The shoulder H of the short end of the lever is produced by forming a notch in the lever, the lower edge of which is inclined with respect to the length of the lever in a way to insure the holding of the weight thereon when suspended from the lever in its normal or horizontal position, thus positively preventing the weight from accidentally moving off.

Upon the bracket I is provided a post P, which extends up intermediate of the two levers K and K' and provided with transverse pins Q and R, the former to limit the downward movement of the levers and the latter to limit the upward throw. In this connection it will be noted that the distance of the throw of these levers is materially increased over the old construction, which is obviously necessary in order to properly release the weights when the levers trip, as will next be referred to.

The periphery of the disks G and G' beforementioned are each provided with a radial slit S to form an end T that is deflected to one side, so that the lever will become disengaged therefrom and move far enough to drop their weights. The levers obviously run off from the edge of the disks at such times as when

the disks have been rotated sufficiently to bring their ends T past the shoulders K'' of the levers, releasing the said engagement and allowing the weights attached to the opposite
 5 end to act and quickly throw the lever to the position indicated by the lever K in Fig. 1, thus releasing the weight and allowing it to drop from its shoulder with the effect of throw-
 10 ing the lever of the switch into or out of engagement according to the particular weight that is acting.

Immediately upon the releasement of the weight from the lever, as indicated in Fig. 1, the said lever will drop upon the pin Q, where
 15 it lies inactive until the device is again set for operation. The action of the two sets of weights, levers, and disks are alike in all respects, one serving to close the switch and the other to open it. It will be further ob-
 20 vious that the disks upon the arbor may be adjusted with relation to the movement and likewise with respect to each other to cause the operation by either disk at any predeter-
 25 mined time. The relative location of the disks, as indicated in Fig. 1, would serve to turn the lights on at six o'clock and turn them off at nine, the two points of releasing the disks being located just three hours apart.

In the operation of my device the disks are
 30 first set or adjusted to locate their ends to operate the levers at the predetermined time desired. The weights L and M would be hung upon the short ends of the levers K and K', respectively, thus bringing the shoulders K''
 35 of such levers into engagement with the peripheral edges of the disks G and G'. With the gradual rotation of the disks by the clock-movement within the case the end T of the inner disk G would first be brought past the
 40 shouldered end of the lever K in a way to first draw the lever out from under the disk and then release it from the free end, leaving its weight free to further operate the lever, throwing it to the position shown in Fig. 1,
 45 which would allow the weight to slip off from the shoulder and by the sudden fall throw the arm D of the switch into engagement. The current would thus be turned on and become operative until the second disk G' upon the
 50 arbor of the movement had rotated sufficiently to also bring its free end past the shouldered

end K'' of the lever, whereupon said lever would likewise become disengaged and operate in a manner to withdraw the lever of the switch, thus disconnecting the circuit. 55

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

1. In an electric time-switch, the combination with a movement bearing an arbor, of
 60 disks mounted on such arbor each having a peripheral engaging edge with an end thereof deflected to one side of the disk, levers for engagement with said engaging edge adapted to be released from the free end and become
 65 entirely disengaged from the disk, weights detachably connected to the opposite end of the levers in a manner to hold them in engagement with the disks, a switch and connections intermediate of the switch and weights where-
 70 by said switch is automatically operated by the drop of the weights.

2. In an electric time-switch, the combination with a time-movement, of rotary disks
 75 carried thereby bearing peripheral engaging edges having ends disposed to one side of the disks, loosely-pivoted levers adapted to engage the edge of the disks in a manner to be shifted out of alinement with the disks and be
 80 entirely released from engagement therewith, weights to hang upon the opposite ends of the levers with connections with the switch whereby the latter is closed by the fall of one weight and opened by the drop of the other.

3. An electric time-switch comprising a
 85 movement carrying disks bearing engaging edges having ends disposed to one side of the disks, loosely-pivoted levers the forward ends of which are bent to form a shoulder to engage the edges of the disks and the outer ends
 90 having a shoulder therein, weights to suspend from the short ends of the levers and connections therefrom to the weights whereby they serve to close and open the switch.

Signed at Waterbury, in the county of New
 95 Haven and State of Connecticut, this 1st day of November, A. D. 1904.

WILLIAM B. COULTER.

Witnesses:

C. M. NEWMAN,
 W. E. MINOR.