

No. 628,678.

Patented July 11, 1899.

E. H. SCHILD.

PROGRAM CLOCK.

(Application filed Aug. 6, 1898.)

(No Model.)

Fig. 1.

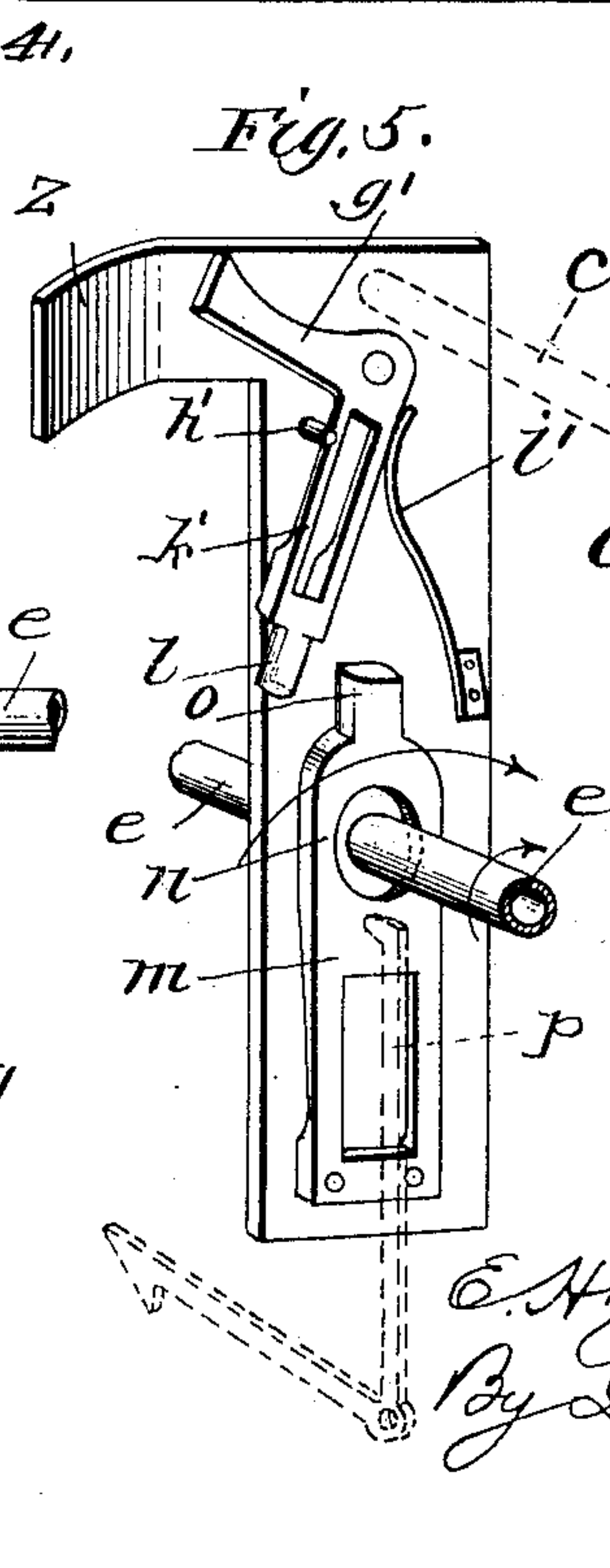
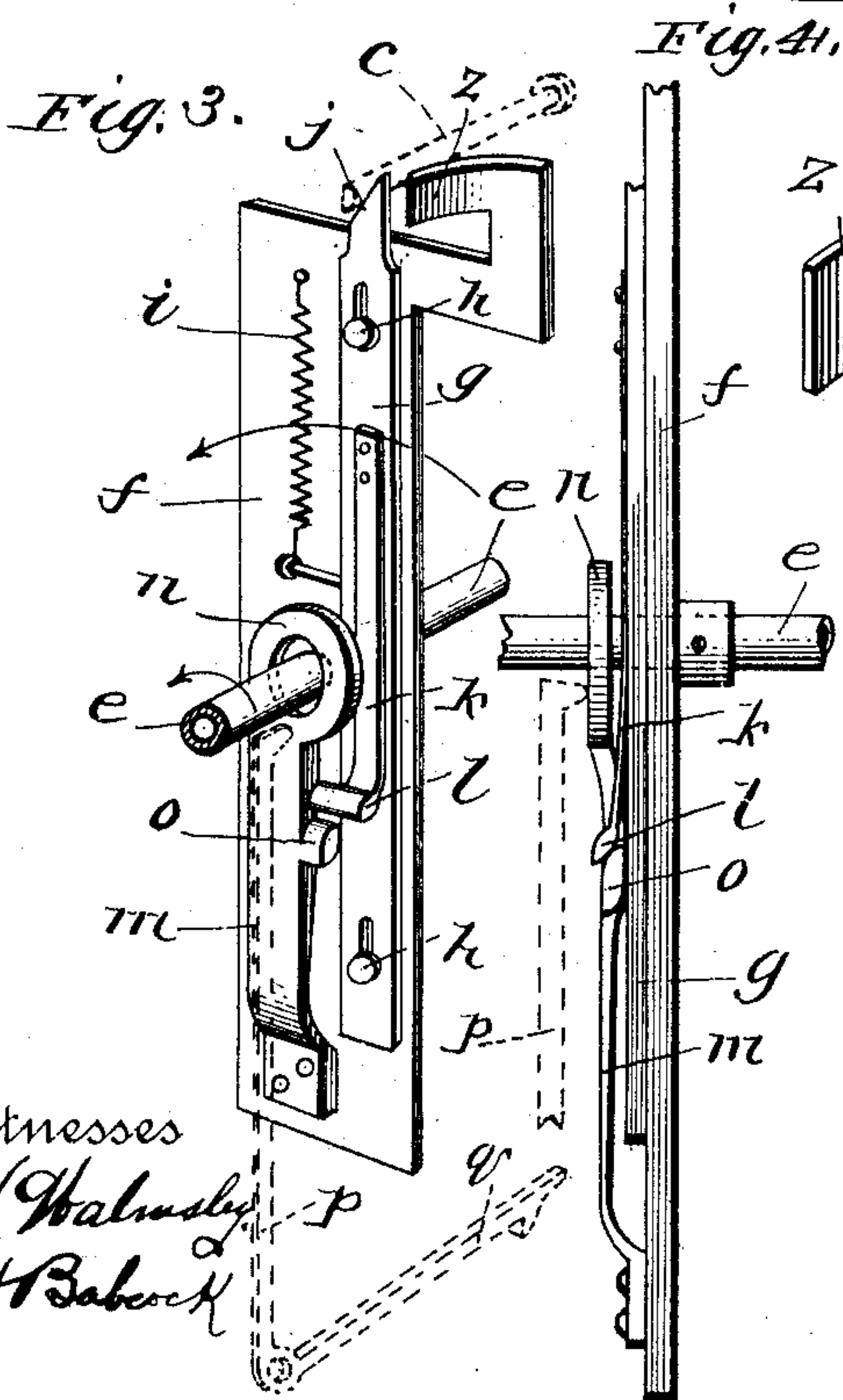
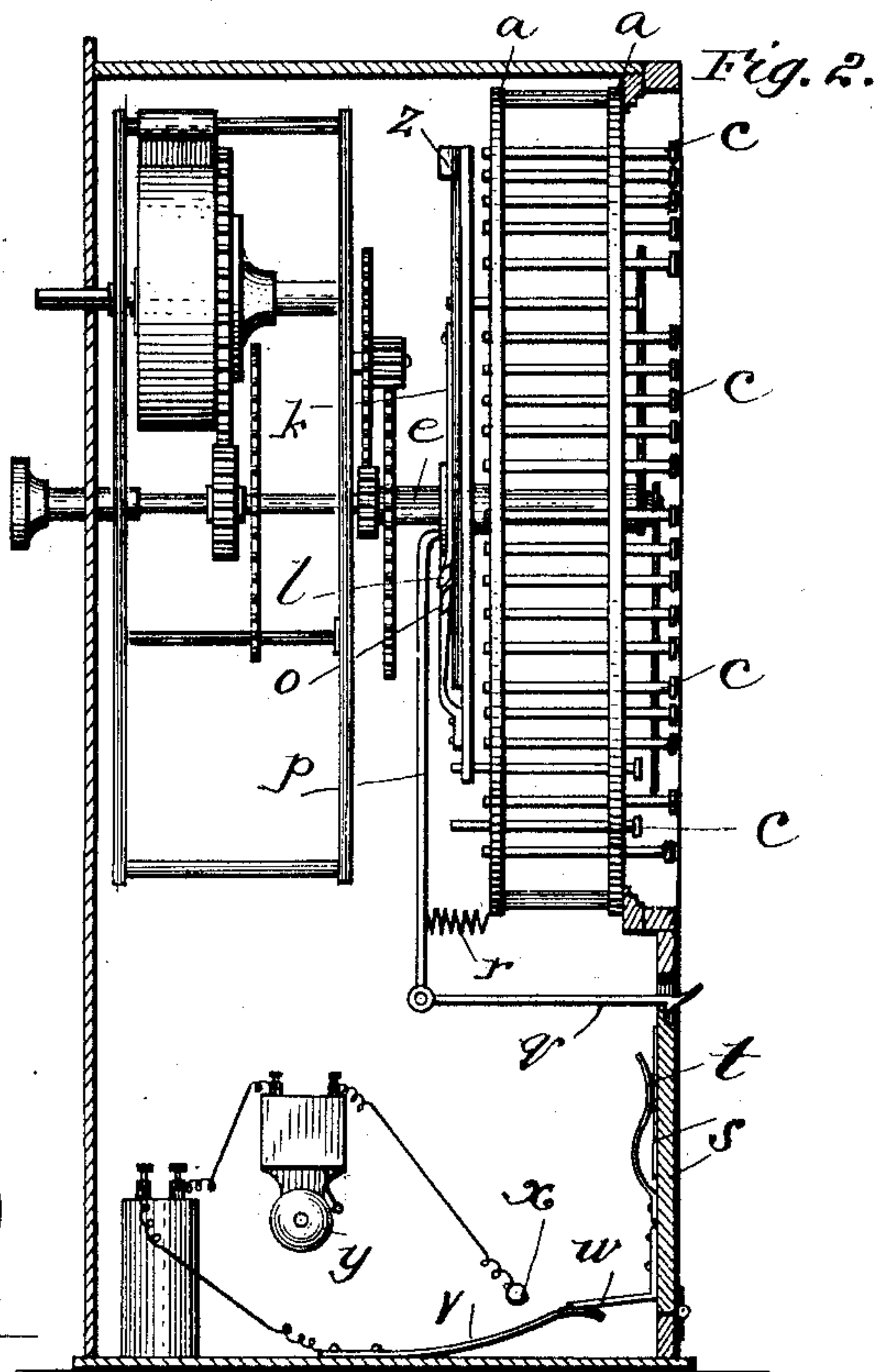
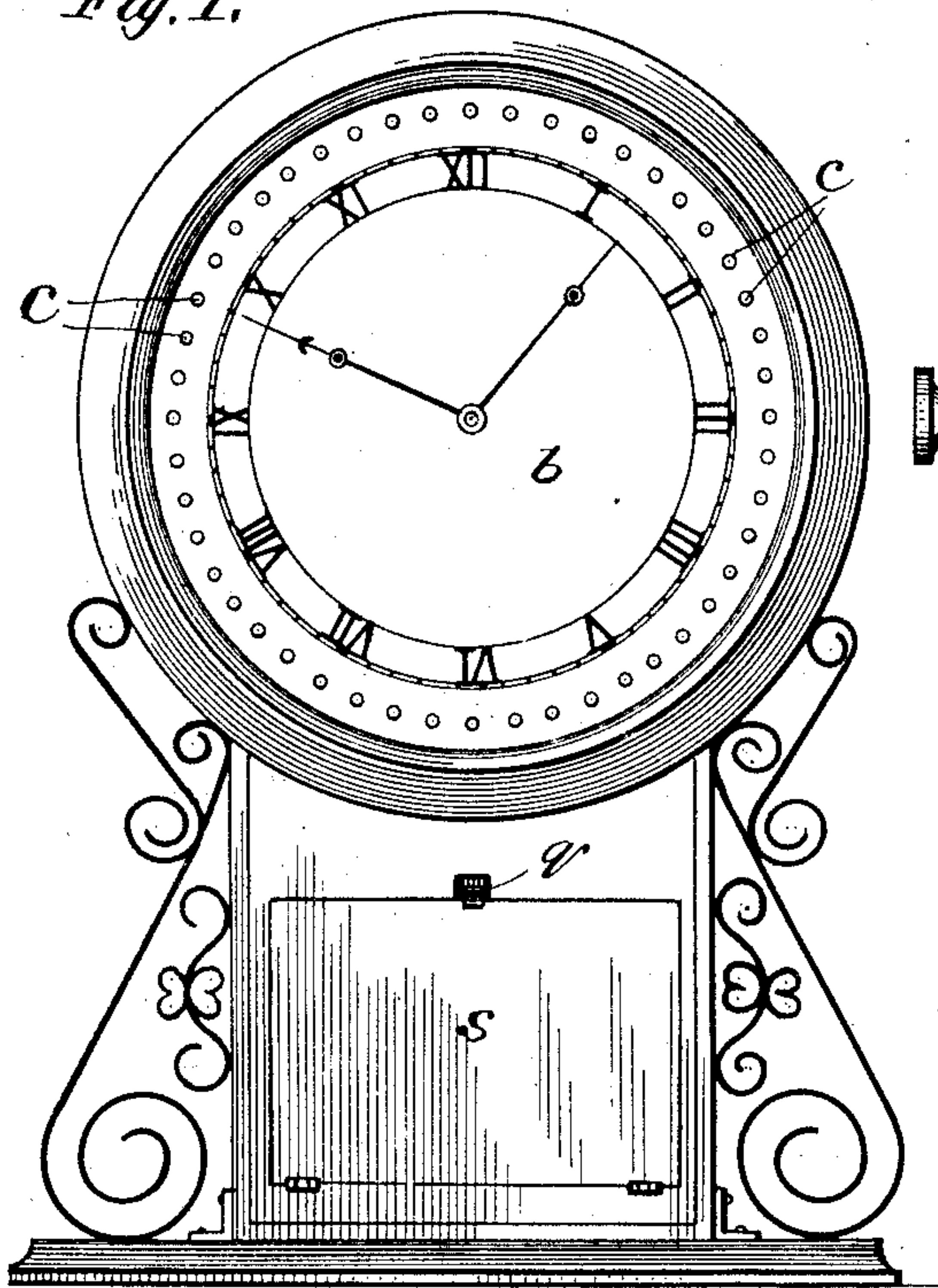
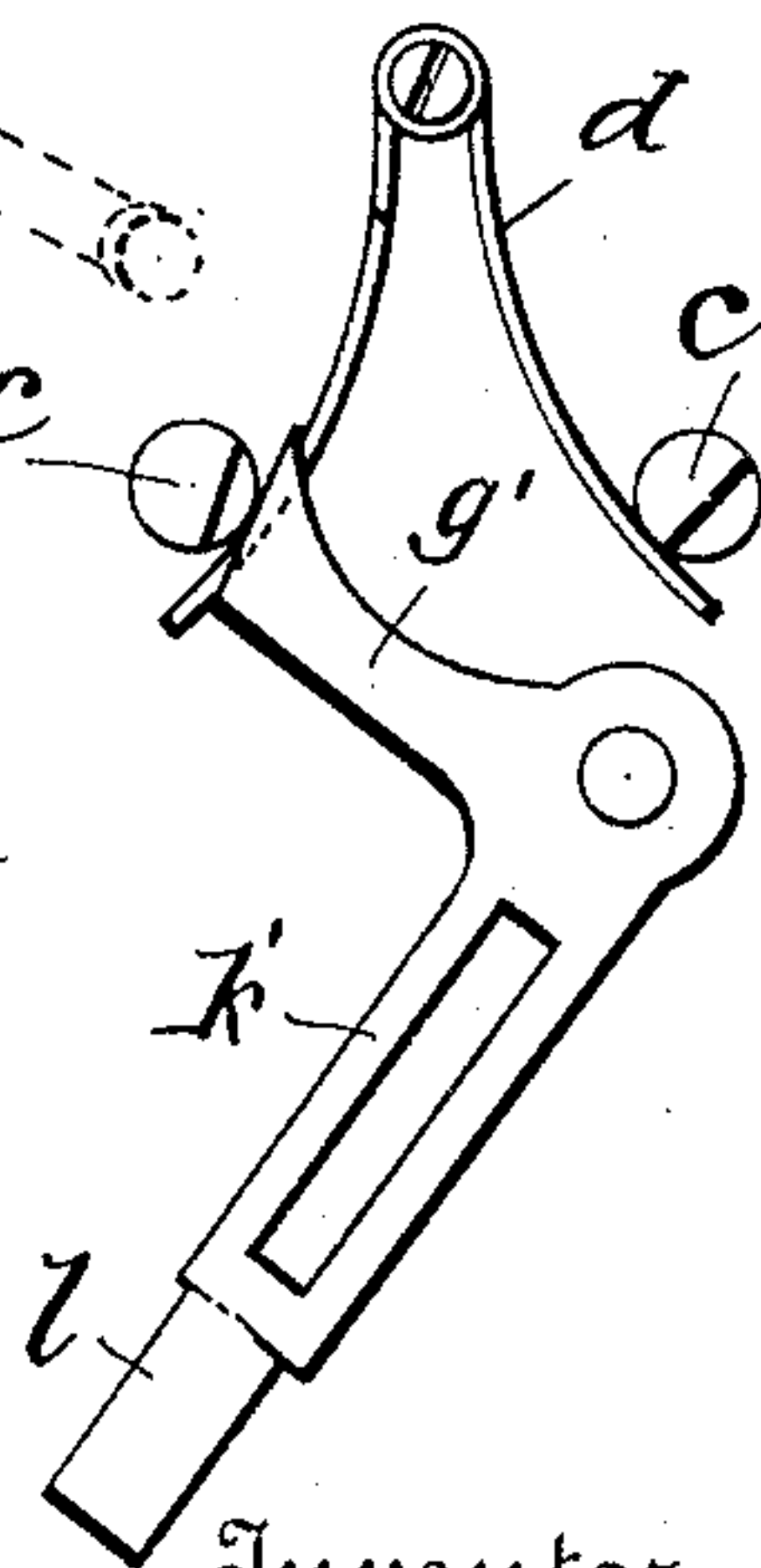


Fig. 5.

Fig. 6.



Witnesses
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UNITED STATES PATENT OFFICE.

EDWARD H. SCHILD, OF BALTIMORE, MARYLAND, ASSIGNOR OF ONE-HALF
TO HENRY CASTELBERG, OF SAME PLACE.

PROGRAM-CLOCK.

SPECIFICATION forming part of Letters Patent No. 628,678, dated July 11, 1899.

Application filed August 6, 1898. Serial No. 687,970. (No model.)

To all whom it may concern:

Be it known that I, EDWARD H. SCHILD, a citizen of the United States, residing at the city of Baltimore, in the State of Maryland, have
5 invented certain new and useful Improvements in Reminders and other Attachments for Clocks, of which the following is a specification, reference being had therein to the accompanying drawings, forming part thereof.
10 This invention is designed mainly to provide a simple and reliable attachment to clocks that will enable the owner or user to remind himself of engagements or appointments he desires to make or keep at intervals
15 during the day, the mechanism being automatic in its action after the keys are once set, as more fully hereinafter described.

In the drawings, Figure 1 is a face view of a clock provided with my attachment. Fig. 2
20 is a vertical section thereof; Fig. 3, a perspective view detached, and Fig. 4 a side elevation, of the rotary member carrying the tripping mechanism; Fig. 5, a perspective view of a modified form of the tripping mechanism; Fig. 6, a detail view of a part of the modified tripping device, showing also a spring
25 for holding the time-rods frictionally against endwise movement.

The attachment consists, essentially, of two
30 members, one being stationary and the other rotary. The stationary member consists, essentially, of two plates *a*, separated a suitable distance and fastened rigidly to the clock-casing, over the dial-opening thereof. The
35 outer plate has formed on or attached to it the usual dial *b*, and outside of this dial is arranged a circular series of time-rods *c*, which pass through the two plates *a* and project beyond the rear plate and are endwise movable,
40 suitable springs, as at *d* in Fig. 6, being attached to one of the plates for the purpose of frictionally holding the rods in their adjusted positions. The time-rods are arranged with
45 respect to the time-divisions on the dial, the arrangement in the drawings showing each hour divided into four divisions of fifteen minutes each.

The hour-shaft *e* of the clock-works passes through the center of the plates or rings *a*
50 and is provided with the usual hand. The

rotary member is attached to the hour-shaft in close proximity to the rear face of the rear plate *a*; and it consists of a plate *f*, attached rigidly to said hour-shaft and extending radially on either side thereof, this plate being
55 substantially parallel with the inner plate *a* and its ends terminating short of the circular series of time-rods. This main plate *f* carries a sliding rod or plate *g* upon one of its faces, this rod being limited in its longitudinal
60 movement on the main plate by means of suitable pins and slots *h* and being normally drawn endwise by means of a suitable spring *i*, attached at one end to the main plate and at
65 its other end to said sliding rod *g*. This rod *g* has a beveled nose *j*, which normally projects beyond one end of the main plate *f*. Carried by the sliding rod *g* is a flat spring *k*, secured at one end to said rod *g* and being free at the
70 other end, this free end being provided with a laterally-projecting finger *l*, suitably rounded or beveled on its upper and lower faces. This spring *k* is secured to face of rod *g* at a point on one side of the hour-shaft and extends to a point on the other side, and it will also be
75 noted that the finger *l* is slightly raised from the face of rod *g*. A spring *m* is fastened to the main plate *f* near the end opposite the bevel-nose *j* and extends inward toward the hour-shaft, its free end being provided with a
80 ring *n*, which encircles said hour-shaft. The normal tendency of the free end of spring *m* is to spring toward the main plate, and it is provided at a suitable point midway its ends with a lug *o*, which projects laterally and lies
85 in the path of the finger *l*, this lug *o* being beveled or rounded similarly to said finger *l*.

Normally bearing upon the rear face of ring *n* is the upper end of a latch-lever *p*, this lever being connected with the door-latch *q* and
90 being normally held in contact with said ring *n* by a spring *r* or other suitable device. Preferably said lever *p* is pivoted at its lower end to the clock-case at a point below the stationary member, and the latch *q* is simply an
95 angular extension of said lever. The latch *q* engages a door *s* in the front face of the clock-casing, and this door on its inner side is provided with a spring-clamp *t* to hold memoranda of engagements, &c. An upward-ex-
100

tending spring *v* is attached to the bottom of the clock-case and engaged under a bracket *w*, carried by the door, so that the door will be automatically thrown down when released from latch *q*. This spring *v* engages a contact-pin *x*, when the door flies open and completes an electric circuit and rings an electric bell *y*.

The operation of the attachment is as follows: The operator simply pushes in those rods *c* which correspond with the times at which reminding-signals are desired. Then as the rotary member travels around with the hour-shaft the bevel-nose *j* of sliding rod *g* strikes against such of the rods as are set for action and is pushed inward far enough to pass by said rods, and at each endwise movement of said rod *g* the tripping and signal devices are operated. To push out the rods and restore them to position after they have operated the signal devices, I form or secure on the end of main plate *f* an obliquely-set cam *z*, which is directly behind the bevel-nose *j* and is adapted as the plate *f* rotates to engage the inner ends of the rods that are set and automatically return them. As rod *g* is forced inward by each set pin or rod the resiliently-supported finger *l* rides up over lug *o*, as shown in Fig. 4, and drops down behind or beyond the same. Then as the nose *j* passes by the pin it is suddenly projected outward by its spring *i*, and upon this return stroke of the rod the finger *l*, by reason of the bevel-faces of the finger and lug *o*, passes under lug *o* and forces rearward the free end of spring *m*, the action being quick and sure and serving to release the memorandum-carrying door and permit it to be thrown down. In order that the rod *g* may be quickly projected after it passes the set pin or rod, each rod is preferably beveled off or cut away at one side.

It is obvious that the spirit of this invention is broad enough to permit numerous changes in construction, and I therefore do not wish to be confined to the exact construction shown and described. It is also obvious that the construction will permit of the use of a greater number of time-rods if reminders at smaller intervals of time be desired. It is also obvious that any other suitable signal or alarm mechanism may be employed, and in cases where a continuous alarm is not desired the noise alone of the dropping of the door may answer as an alarm to draw the attention of the user, and if an audible alarm be not desired any visual device may be used as a reminding-signal. It is therefore plain that where I use the term "signal" in the claims I mean it to cover any signaling or reminding devices or mechanism whatsoever. It is also obvious that the rotary member may be made to travel on its own axis independently of that of the hour-hand. It may also be geared to the movement so that the revolutions thereof are not the same as the hour-hand. For instance, if it be desired to arrange the re-

minder for a twenty-four-hour system the rotary member may be so geared as to rotate once in every twenty-four hours. It will also be observed that the devices carried by the rotary member for tripping the door may be varied. I have shown in Figs. 5 and 6 one such modification. In this modification the lug *o* is formed on the spring *m* on the opposite side of the hour-shaft instead of at one side edge, and instead of a sliding rod *g* an angle-lever *g'* is employed, this lever being pivoted on the face of plate *f* and having one of its arms normally projected in the path of the set-rods by means of a spring *i'* and having its other arm *h'* made resilient and extended inward toward the hour-shaft and having the finger *l* formed on its inner end, the movement of this angle-lever being restricted by a stop *h'*. It will be observed that as the outer arm of the lever *g* is forced inward by the set-rod the pin *l* will ride over and drop behind lug *o*, and the instant said outer arm passes the time pin or rod the spring *i'* will suddenly restore it to its normal position, causing pin *l* to pass under and lift the lug *o*, thereby releasing the door and exposing the memoranda.

The feature of the memoranda-door is advantageous in that the memoranda are concealed from view, and the door cannot be opened without sounding an alarm. The user simply slips in his memoranda and closes the door and then sets the desired keys or pins, and when the alarm reminds him at the various times he reads the memoranda and again closes the door, to be again reminded later in case he has set any other keys.

It will be obvious that the apparatus is extremely simple in operation. The user need simply to press in one of the time-rods and the clock mechanism will remind him at the proper time, the rod being automatically returned to its place by the cam shown and the alarm continuing to ring until the door is closed. Thus if the user be not at hand when the alarm is first sounded the bell will continue to ring till he comes and closes the door.

It will be seen that the reminder or signal devices are tripped by the releasing of the movable part (part *g* in Fig. 3 and part *g'* in Fig. 5) carried by the rotary member—that is to say, the door-latch is lifted by the release of said movable part from the time-rod by its engagement therewith. This is advantageous by reason of the obvious fact that the moment of lifting the latch (or releasing other reminding or signal devices) can be more accurately fixed than if said latch were lifted during the actual engagement of said movable part with the set time-rod. It is essential, therefore, that the movable part be returned to its normal position with sufficient force to actuate the door-latch or other signal-operating devices. It will be seen that the movable part will be released with sufficient accuracy (if the flattened surfaces on the rods are set at the proper angle)

even though the time-rods may not be exactly equidistant from the center of the circle. This would not be the case if the latch were lifted by the engagement of the movable part with the rod. It is therefore obvious that the opening of the door or the operating of any other signal device can be done with sufficient accuracy without undue accuracy of construction, and this is important, as great accuracy of construction is a drawback to mechanisms of this sort. If the reminding devices were tripped by the direct engagement of the movable part with the rods and the spring actuating the movable part were used simply to return said part to its normal position, it will be observed that when the movable part came in contact with the rod and began to move it would slowly and gradually raise the door-latch until it reached a point high enough to release the door. Now, unless everything works to a great nicety, the release would vary with each rod, owing to the varying amount of side shake, irregularities, &c., which would have to be taken up separately over a movement extending a considerable length of time—possibly ten minutes. With my present construction, however, all the looseness or lost motion is taken up in one quick movement, whereby the inaccuracy due to the inaccurate construction will be reduced to a minimum. It will be observed, further, that by thus operating the door-latch by the release of the tripping devices the latch will be raised just long and high enough to release the door and will then return immediately to its normal position, ready again to engage the door when the same is again closed. In fact, I may use my attachment in connection with any apparatus wherein it is desired to perform a manual operation at predetermined times automatically from the clock mechanism. For instance, the attachment may be used in connection with an advertising apparatus in which it is desired to expose advertisements at predetermined times or in connection with electric apparatus to cut off or shunt the current. It is therefore plain that my invention is not confined to what are ordinarily known as "signaling" devices.

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

1. In combination with a clock mechanism, a signal or other attachment, consisting essentially of two members, means for rotating one of the members, a series of time-rods carried by one of the members and adapted to be moved into actuating position, signal or other devices and means for cooperating with the set time-rods to actuate these devices, and a device for automatically returning the time-rods after they have actuated the signal or other devices.

2. The combination with a clock mechanism, of an attachment, consisting essentially of two members in proximity to each other,

mechanism for rotating one of the members a signal or other mechanism, a series of time-rods carried by one member and adapted to be moved toward the other member and adapted to operate the signal or other mechanism when set, and a cam carried by one of the members and adapted to engage the rods after they have actuated the signal or other mechanism and restore them.

3. In combination with a clock mechanism, of an attachment consisting essentially of two members, means for rotating one of the members, a series of time-rods carried by one of the members and adapted to be moved toward the other member, signal or other devices adapted to be operated by such of the time-rods as are set, and a device carried by one of the members and adapted to engage the time-rods successively and restore them after they have operated the signal or other devices.

4. In combination with clock mechanism, an attachment, consisting essentially of two members, means for rotating one of the members, a series of time-rods carried by one of the members and adapted to be moved toward the other member, signal or other devices and means for cooperating with the set time-rods to actuate these devices, and a device carried by one of the members for automatically restoring the time-rods after they have actuated the signal or other devices, this latter device being brought into action by the rotation of the rotary member.

5. The combination of a casing, clock mechanism, a memorandum-door movably connected to the casing and adapted to carry memoranda, an alarm device adapted to be operated on the opening of the door, and mechanism operated by the clock mechanism to automatically release the door at predetermined times, as and for the purposes set forth.

6. The combination with clock mechanism, of an attachment consisting of two members supported in proximity, mechanism connected to the clock mechanism for rotating one of the members, a circular row of rods carried by the other member, signal or other mechanism adapted to be operated at predetermined times, a movable part carried by the rotative member and movable independently thereof and adapted to successively coact with such of said time-rods as are set for action, and positively-operated devices adapted to coact with said movable part and actuate automatically the mechanism to be operated at predetermined times.

7. The combination with clock mechanism, of an attachment consisting of two members supported in proximity, one member being rotated by the clock mechanism, a circular series of rods carried by the stationary member, signal or other mechanism, a movable part carried by the rotary member and adapted to successively coact with such of said time-rods as are set for action, said movable

part carrying a resiliently-supported finger, a resiliently-supported lug or part adapted to coact with said finger, and devices connected to said lug and adapted to actuate the signal
5 or other mechanism.

8. The combination with clock mechanism, of an attachment consisting of two members supported in proximity, one of the members being rotated by the clock mechanism and
10 the other member being stationary, a series of time-rods carried by the stationary member, signal or other mechanism, a movable part carried by the rotative member and movable independently thereof and adapted to
15 successively coact with such of said time-rods as are set for action, this movable part carrying a resiliently-supported finger beveled on opposite sides, a spring carried by the rotative member and carrying a lug beveled and
20 adapted to coact with said finger, and devices whereby the action of said lug and finger is made to actuate the signal or other mechanism.

9. The combination with clock mechanism,
25 of an attachment consisting of two members supported in proximity, mechanism connected to the clock mechanism for rotating one of the members, a circular row of time-rods carried by the stationary member, a movable
30 part carried by the rotative member and movable independently thereof and adapted to successively coact with such of said time-rods as are set for action, means for spring-actuating said movable part after each engagement with a set time-rod, and actuating devices adapted to be brought into action by the spring-actuated release of said movable part, whereby the attachment may be caused to automatically operate signal or other apparatus at predetermined times.

able independently thereof and adapted to successively coact with such of said time-rods as are set for action, means for spring-actuating said movable part after each engagement with a set time-rod, and actuating devices adapted to be brought into action by the spring-actuated release of said movable part, whereby the attachment may be caused to automatically operate signal or other apparatus at predetermined times.

10. The combination with clock mechanism, of a reminder attachment consisting of two members supported in proximity, mechanism connected to the clock mechanism for rotating one of the members, a circular row of rods
45 carried by the other member, signal mechanism, a movable part carried by the rotative member and movable independently thereof and adapted to successively coact directly with such of said time-rods as are set for action, and positively-operated devices adapted
50 to coact with said movable part and actuate the signal mechanism.

In testimony whereof I hereunto affix my signature, in the presence of two witnesses, this 26th day of July, 1898.

EDW. H. SCHILD.

Witnesses:

HARRY W. RODGERS,
EDWIN H. BROWNLEY.