

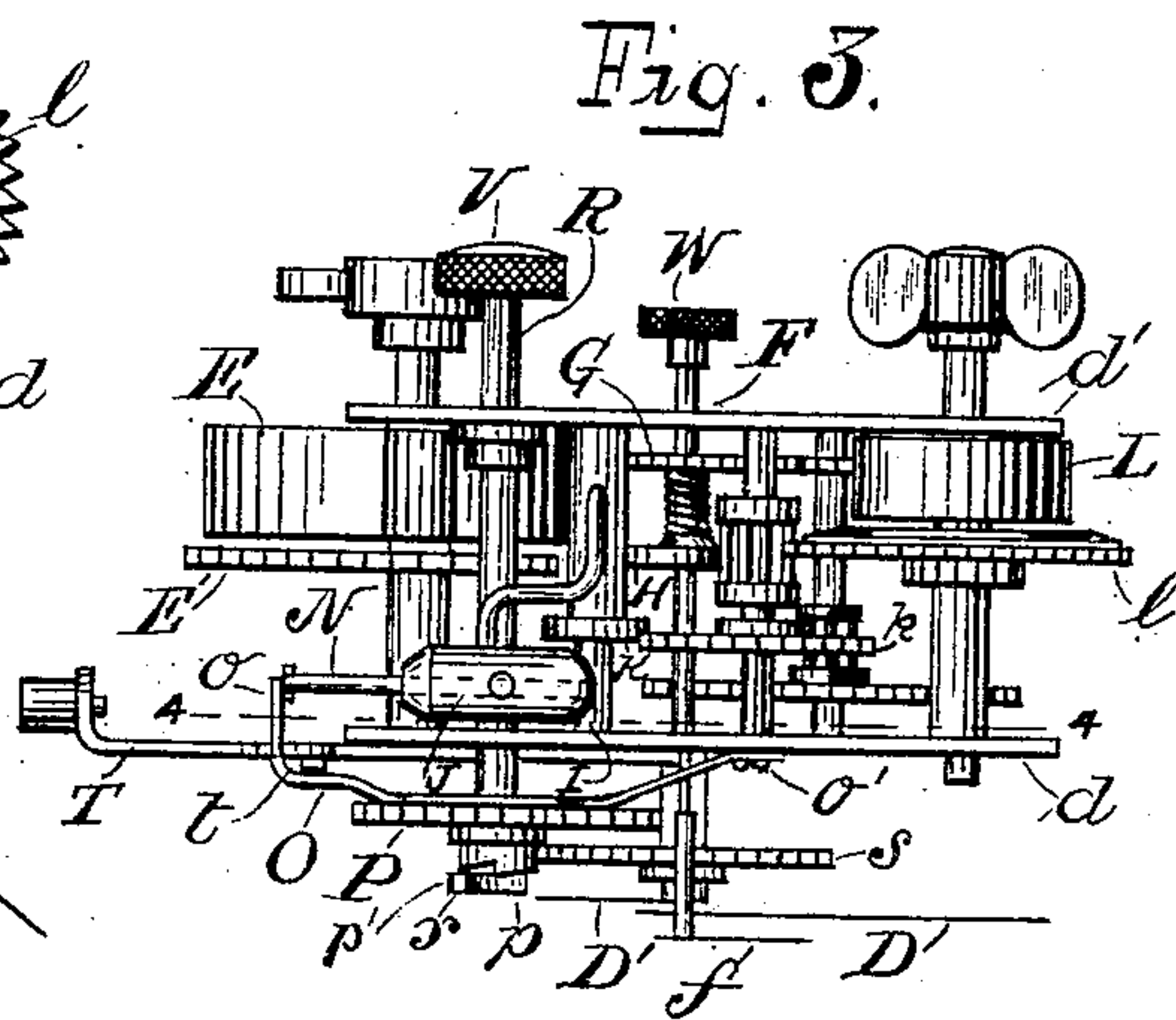
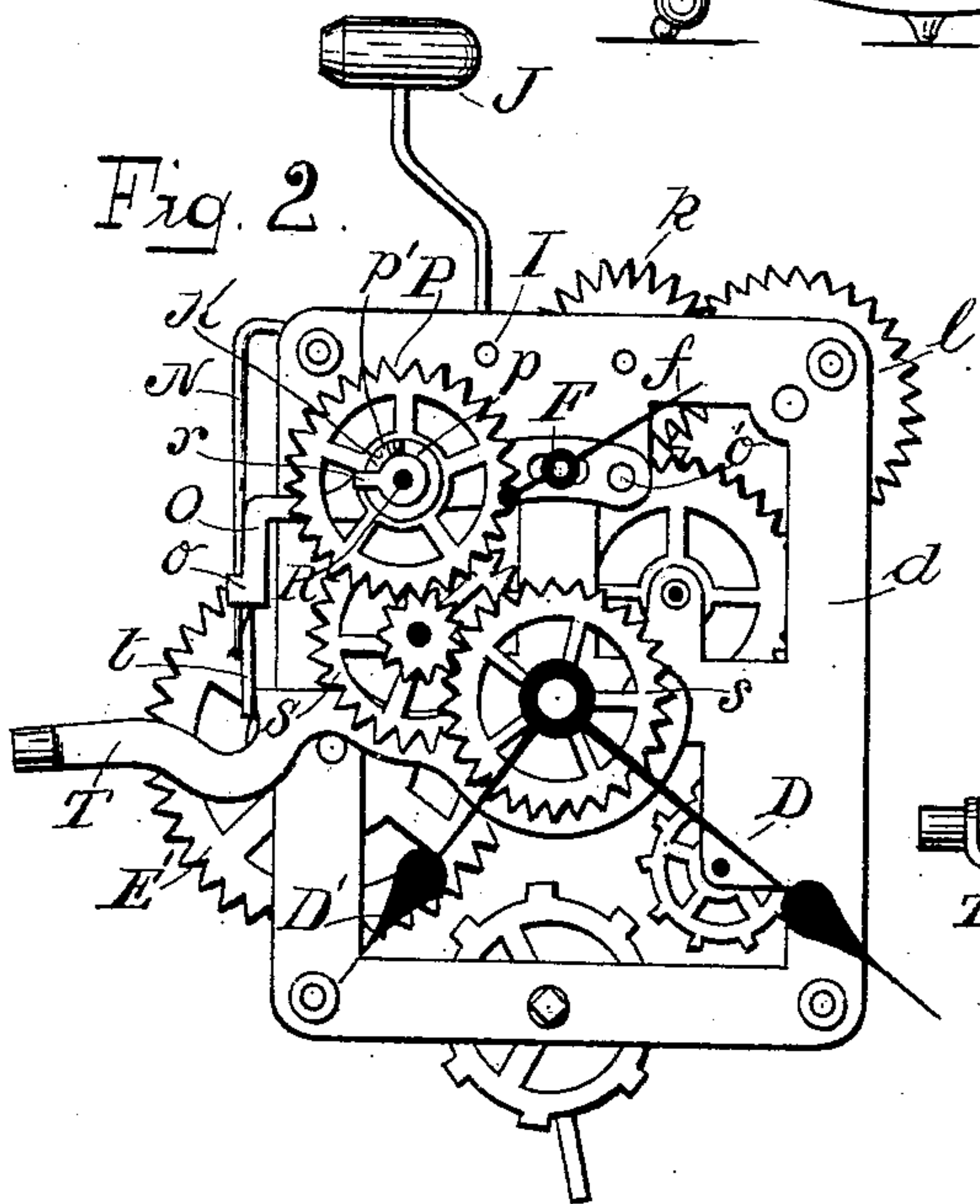
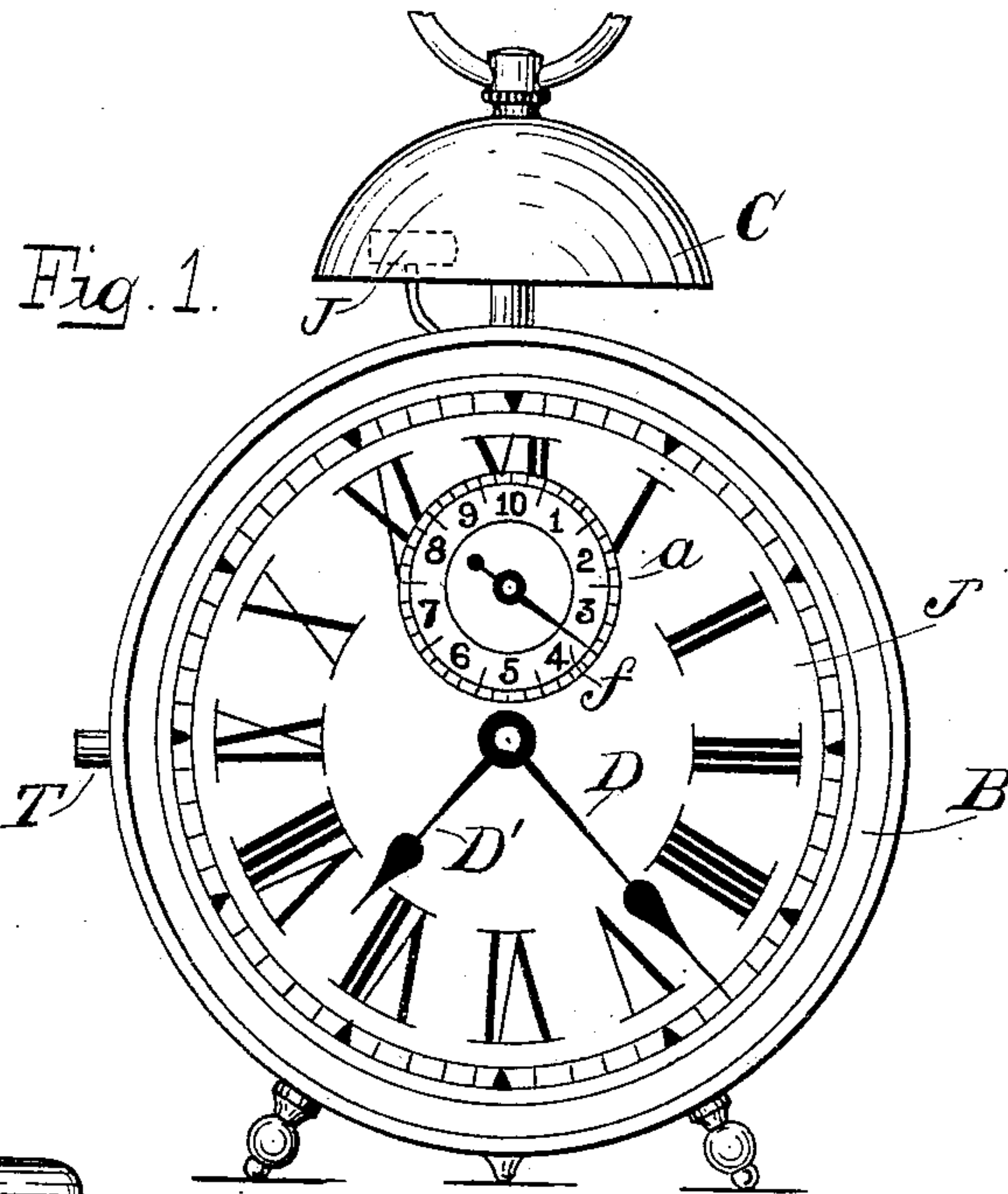
No. 825,347.

PATENTED JULY 10, 1906.

W. E. PORTER.
ALARM CLOCK.

APPLICATION FILED DEC. 4, 1902.

2 SHEETS—SHEET 1.



WITNESSES:
J. f. Coleman
M. Olive Williams

INVENTOR
William E. Porter
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ATTORNEYS.

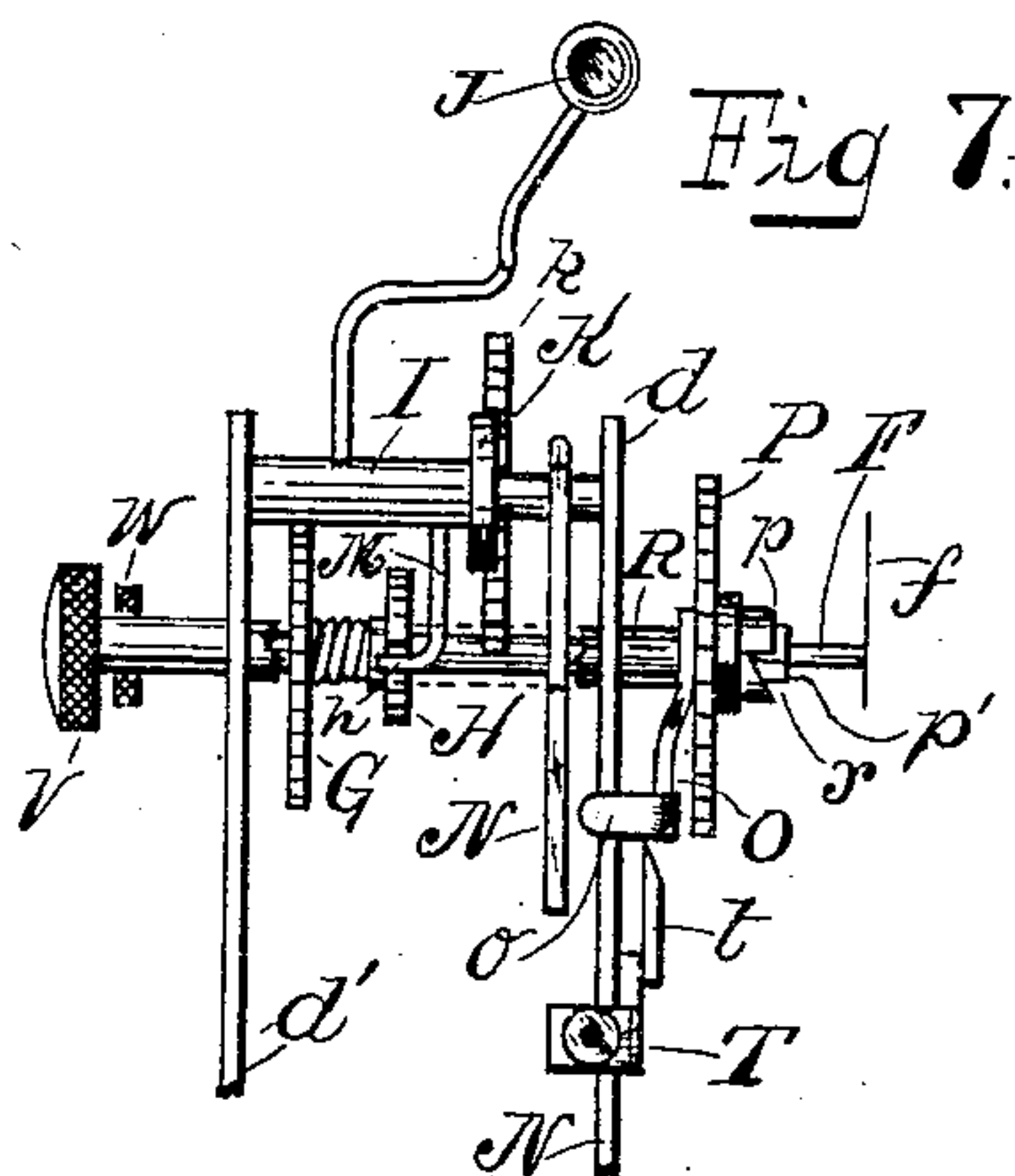
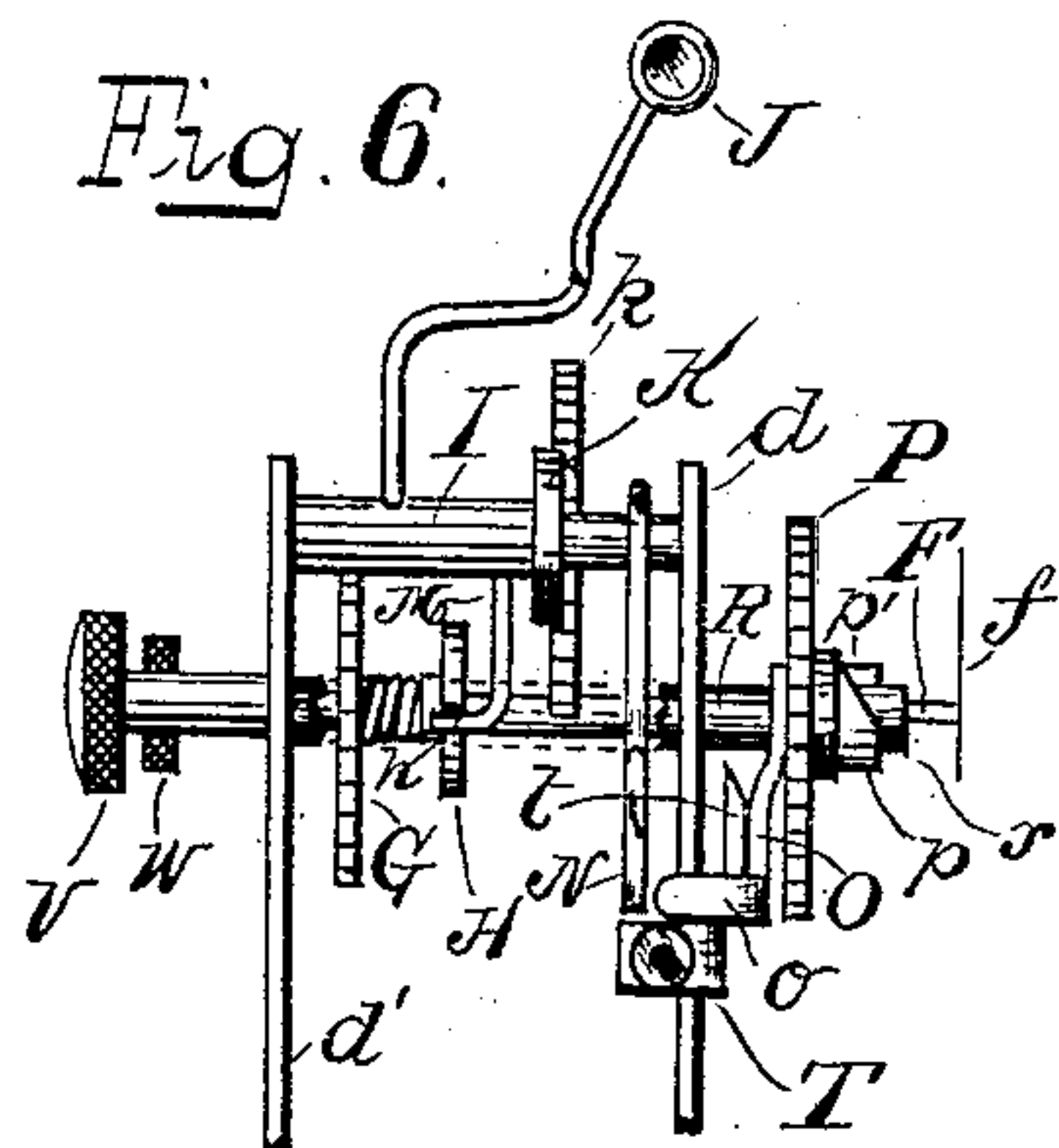
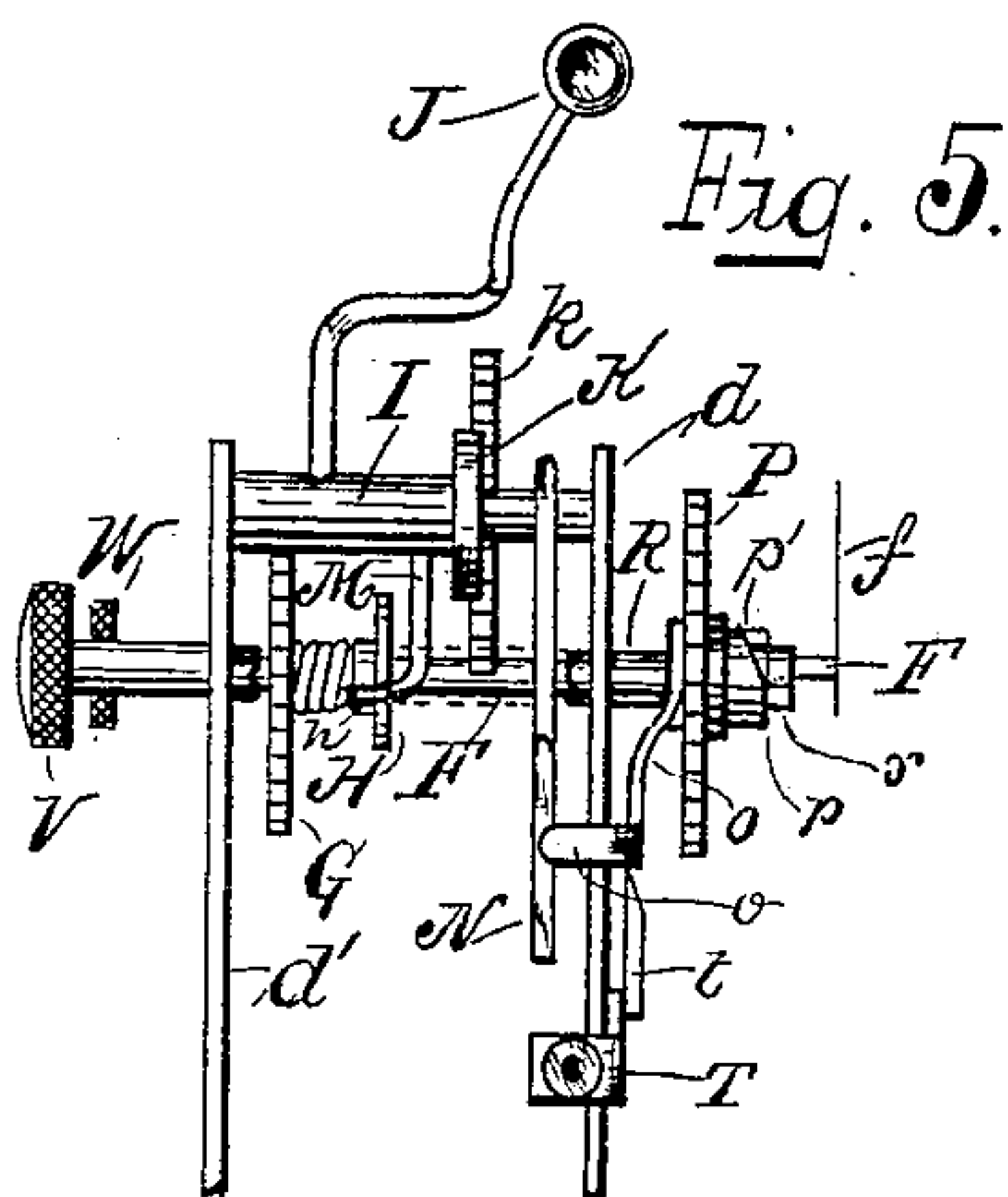
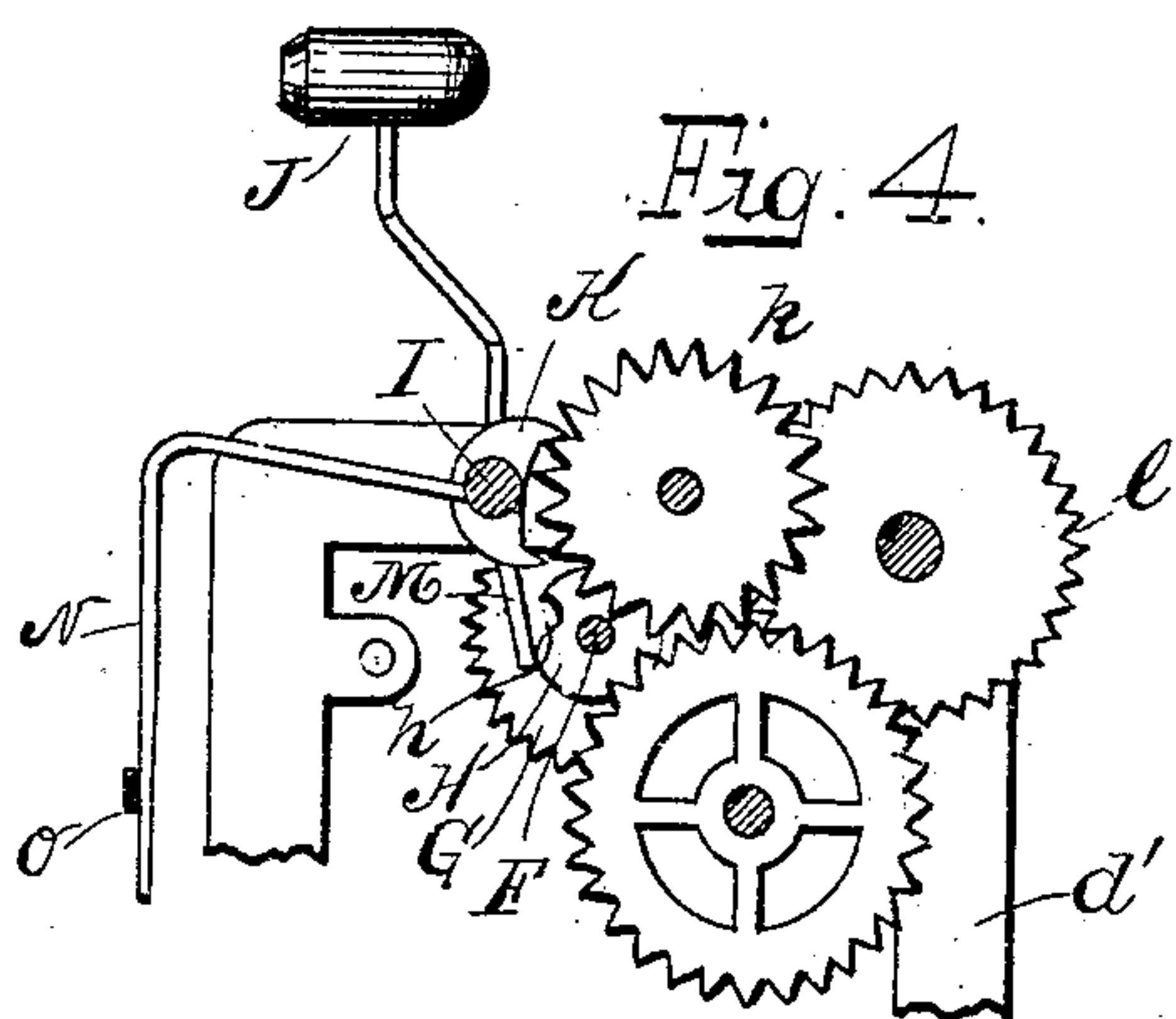
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2 SHEETS—SHEET 2.



WITNESSES:

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UNITED STATES PATENT OFFICE.

WILSON E. PORTER, OF NEW HAVEN, CONNECTICUT, ASSIGNOR TO THE
NEW HAVEN CLOCK COMPANY, OF NEW HAVEN, CONNECTICUT, A
CORPORATION OF CONNECTICUT.

ALARM-CLOCK.

No. 825,347.

Specification of Letters Patent.

Patented July 10, 1906.

Application filed December 4, 1902. Serial No. 133,922.

To all whom it may concern:

Be it known that I, WILSON E. PORTER, of the city and county of New Haven, State of Connecticut, have invented new and useful
5 Improvements in Alarm-Clocks, of which the following is a full, clear, and exact description when taken in connection with the accompanying drawings, which form a part thereof, and in which—

10 Figure 1 represents a front elevation of a clock embodying my invention; Fig. 2, a similar view of the movement, the dial, bell, and case having been removed; Fig. 3, a top view of the parts shown in Fig. 2; Fig. 4, a
15 sectional view taken on line 4 4 of Fig. 3; and Figs. 5, 6, and 7, side elevations of certain of the parts in various positions, more fully described hereinafter.

20 In all figures similar letters of reference represent like parts.

This invention relates to alarm-clocks, and more particularly to that class of movements known as "reminder-strike" clocks, in which
25 an alarm may be struck periodically at pre-determined intervals.

This invention consists in a movement wherein a single alarm is utilized for the reminder-strike and the regular alarm of the clock, in which either the regular-alarm
30 mechanism or the reminder-strike mechanism may be put into operation at will, and in which may be found present certain other improvements and combinations of parts, more particularly described and claimed hereinafter.

35 Referring to the drawings for a more particular description, the parts designated by the letter A represent the dial of a clock, B the case, and C the bell.

40 D and D' represent the minute and hour hands, respectively, which are driven by the usual clock-movement, a portion of which is shown, and which is actuated by the main-spring E and its associated gear E'. The
45 movement is mounted on the usual movement-plates d and d'.

50 F is a rotary shaft carrying the reminder-strike hand or indicator f and which is rotated by the gear G, frictionally mounted thereon and receiving motion from the time-train. The shaft F also carries a cam H, rigidly mounted thereon and which, as more

particularly shown in Fig. 4, is provided with an indentation or groove h on its periphery.

I is a rotary shaft carrying a hammer J, 55 adapted to strike the bell C.

K is the escapement of the alarm, the pallets of which engage the teeth of a ratchet-wheel k, connected with the alarm-train of the clock driven by the alarm-spring L and
60 its associated gear l. Rigidly connected to the shaft I are two checking-levers M and N, one of which, M, has its end normally bearing on the periphery of the cam H, mounted on the reminder-hand shaft F, and except when
65 the end of the lever M is opposite the indentation or groove h the shaft I is prevented from rotation. The other checking-lever N is adapted to be engaged by the end o of the spring-plate O, as more fully shown in Figs. 70

5, 6, and 7. The spring-plate O is secured to the front movement-plate d at the point o' and passed beneath the wheel P, mounted on the alarm-setting shaft R, which carries at its forward end a lateral finger r, adapted to
75 slide on the outer edge of a cam p, rigidly mounted on the wheel P. The cam p is provided with a groove p', having one face perpendicular to its outer edge and the other inclined diagonally thereto. The wheel P is
80 rotated by the gear S, driven by the dial-wheel s. When the finger r rides on the outer edge of the cam P, the spring-plate O is forced inward, so that its end o engages the checking-lever N, as shown more particularly
85 in Figs. 3, 4, and 5, thus preventing the movement of the shaft I, carrying the hammer J. The end o may, however, be positively disengaged from the checking-lever N by means of a release-lever T, pivoted on the
90 front movement-plate d and provided with a wedge-shaped cam t, which may upon the upward movement of the lever T, as shown more particularly in Fig. 6, force the end of the spring-plate O outward to disengage the
95 checking-lever N. Furthermore, when upon the rotation of the cam p on the wheel P the groove p' is brought opposite the present position of the finger r on the shaft R, as shown more particularly in Fig. 7, the wheel P may
100 be forced outward by the spring-plate O and the end o of the spring-plate disengage itself from the checking-lever N. When the checking-lever N is disengaged from the end

o of the spring-plate O, the shaft I may be rocked and the hammer J struck against the bell C, provided the other checking-lever M is opposite the groove or indentation *h* of the cam H.

The alarm-setting shaft R is provided at its rear with a knurled thumb-nut V, whereby the shaft may be rotated and the finger *r* pointed in any suitable direction. The reminder-strike shaft F is similarly provided with a knurled head W, by which it may be rotated to set the reminder-hand at a desired point on the reminder-dial *a*. The shaft F is rotated independently of the time-train by means of the frictional connection between the shaft and its gear G meshing with one of the pinions of the time-train.

The operation of my device is as follows: Normally the alarm is prevented from sounding by the engagement of the two levers M and N, the first by the cam H and the latter by the end *o* of the spring-plate O. When it is desired to operate the reminder-strike alone, the lever T is pressed forward, so that the wedge *t* will force the end *o* of the spring-plate O from engagement with the checking-lever N, Fig. 6. This releases the alarm as far as lever N is concerned. The strike-shaft I is therefore free to be rocked by the alarm-train when the groove *h* of the cam H of the reminder-shaft comes opposite to the end of the checking-lever M. This takes place upon the rotation of the reminder-shaft F past a predetermined fixed point, (as when the reminder-hand *f* points toward the numeral "10" on the dial *a*.) In order, therefore, to have the reminder-alarm strike after any desired interval, it is only necessary to set the hand *f* at the point from which it will take the desired interval for the time-train to rotate the shaft F to bring the hand *f* up to the numeral 10. For example, supposing that the shaft F completes a rotation in ten minutes, as shown in the drawings, then when the lever N is released it is only necessary to set the hand *f* two numbers from the numeral "10" and the alarm will ring in two minutes after setting. When it is desired to use the regular alarm, the lever T is forced outward and the wedge *t* disengaged from the spring-plate O, so that the end *o* of the plate will engage the checking-lever N, as shown in Fig. 5, when the movement will assume its normal position and the alarm will be held by both checking-levers. The alarm-setting shaft R is rotated so that the finger *r* is at the point desired for the operation of the alarm—as, for example, at seven o'clock. The wheel P is rotated by the dial-wheels until at the desired time the recess *p'* of the cam *p* comes opposite the finger *r*, whereupon the wheel P is pressed outward by the spring-plate O and the end *o* of the plate disengaged from the checking-lever N, as shown in Fig. 7. The alarm-shaft I is

then free to rock as soon as the rotation of the cam H brings its indentation *h* opposite to the checking-lever M, which will take place, as pointed out above, at some predetermined point, (when the hand *f* points to the numeral "10" on the dial *a*,) which will take place at most within ten minutes of the time set for the alarm. Upon the further rotation of the wheel P the finger *r* bears upon the inclined face of the groove *p'*, forcing the wheel P and spring-plate O inward until the end *o* again engages the checking-lever N and prevents a further movement of the alarm-shaft I and hammer J.

It should be noticed that while the alarm-checking lever N is engaged by the end *o* of the spring-plate O the cam H may make any number of revolutions, (say every ten minutes;) but the alarm will not be sounded because the lever N is not disengaged. In other words, the alarm can only be sounded when the lever M is opposite the groove *h* of the cam H and also when the lever N is disengaged from the spring-plate O either by the regular-alarm connection or the positive lever T.

Having now described my invention, (which may vary in its details without departing from the spirit thereof,) what I claim, and desire to secure by Letters Patent, is—

1. The combination with the time-train of a clock-movement; of an alarm-operating train; a plurality of checking devices; a plurality of rotary members operated by the time-train and each actuating an alarm-checking device and one of said rotary members carrying an indicator-hand; and means for releasing one of said checking devices independently of its corresponding actuating member, substantially as described.

2. The combination with the time-train of a clock-movement; of an alarm-operating train; an alarm-checking device; a rotary member separate from said time-train and alarm-train actuating said alarm-checking device adapted to be released upon the rotation of said member past a fixed point, said member being capable of rotation independently of said time-train by which it is normally rotated, substantially as described.

3. The combination with the time-train of a clock-movement; of an alarm-operating train; a plurality of alarm-checking devices; a plurality of rotary members operated by said time-train, each of said members actuating an alarm-checking device, both of said checking devices being released upon the rotation of its actuating member past a fixed point and both of said actuating members being capable of rotation independently of said time-train, substantially as described.

4. The combination with the time-train of a clock-movement; of an alarm-operating train; a plurality of alarm-checking devices;

a plurality of rotary members operated by said time-train, each of said members actuating an alarm-checking device, both of said checking devices being released upon the rotation of its actuating member past a fixed point, and both of said actuating members being capable of rotation independently of said time-train; and means for releasing one of said checking devices independently of its corresponding actuating member, substantially as described.

5. The combination with the time-train of a clock-movement; of an alarm-operating train; a plurality of alarm-checking devices; a rotary member carrying a reminder-alarm indicator, actuated by the time-train and operating one of said alarm-checking devices; a second rotary member operating another of said alarm-checking devices; and a releasing-lever adapted to engage said checking device operated by the last-mentioned rotary member to release the same, substantially as described.

6. The combination with the time-train of a clock-movement; of an alarm-operating train; a plurality of rotary members actuated

by said time-train, but capable of rotary adjustment independent thereof; a plurality of alarm-checking devices, each actuated by one of said rotary members, and a releasing-lever adapted to engage one of said checking devices to release the same independently of said rotary members, substantially as described.

7. The combination with the time-train of a clock-movement; of an alarm-operating train; a plurality of alarm-checking devices; a rotary member carrying a reminder-alarm indicator, actuated by the time-train and operating one of said alarm-checking devices; a spring-plate adapted to engage another of said alarm-checking devices; a rotary member operating said plate; and a releasing-lever adapted to engage said spring-plate to disengage it from said checking device, substantially as described.

In witness whereof I have hereunto set my hand on the 10th day of November, 1902.

WILSON E. PORTER.

Witnesses:

EUGENE CARTIER,
FRED L. BRADLEY.