

(Model.)

W. E. COUNTER.
CLOCK STRIKING MECHANISM.

No. 376,074.

Patented Jan. 10, 1888.

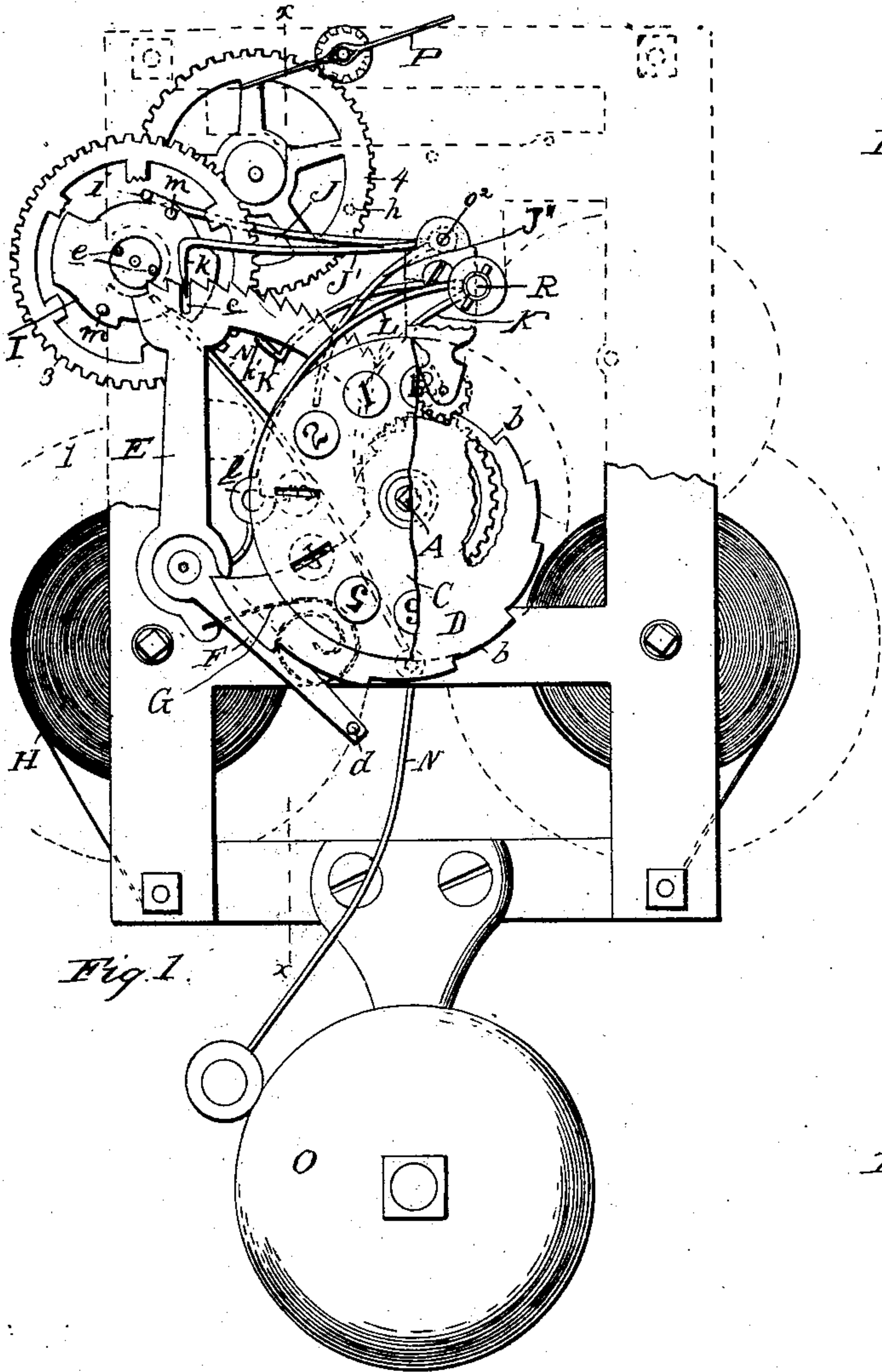


Fig. 1.

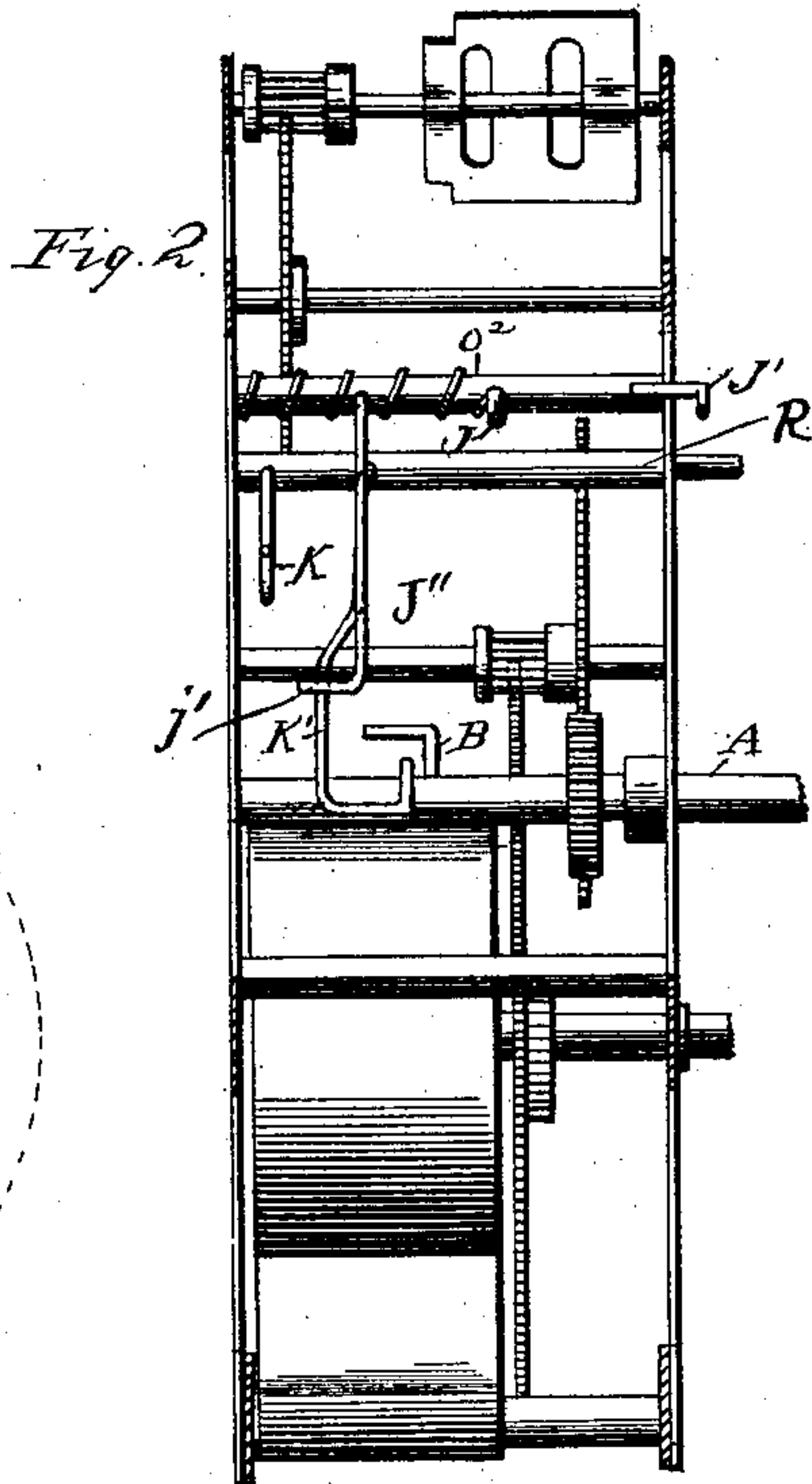


Fig. 2.

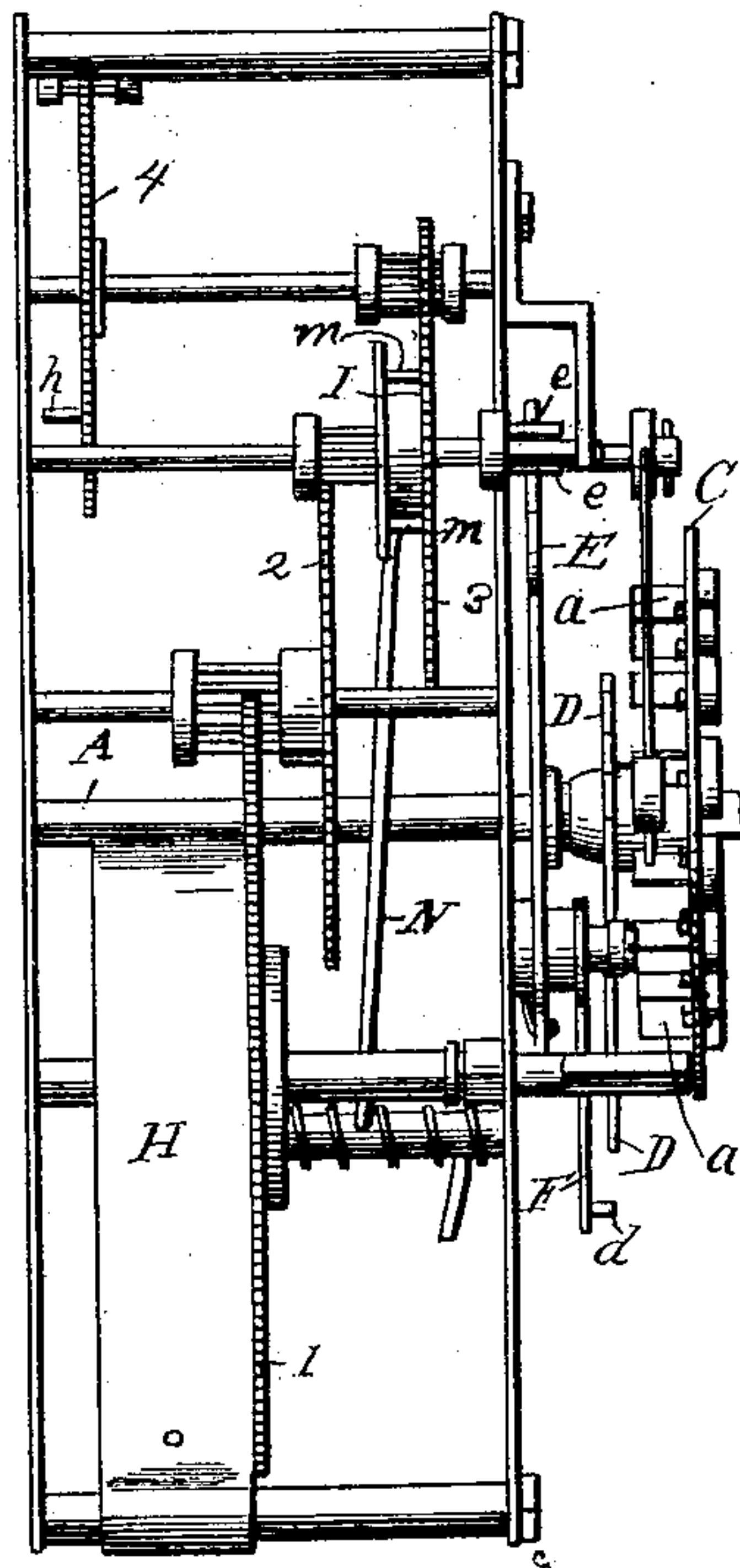


Fig. 3.

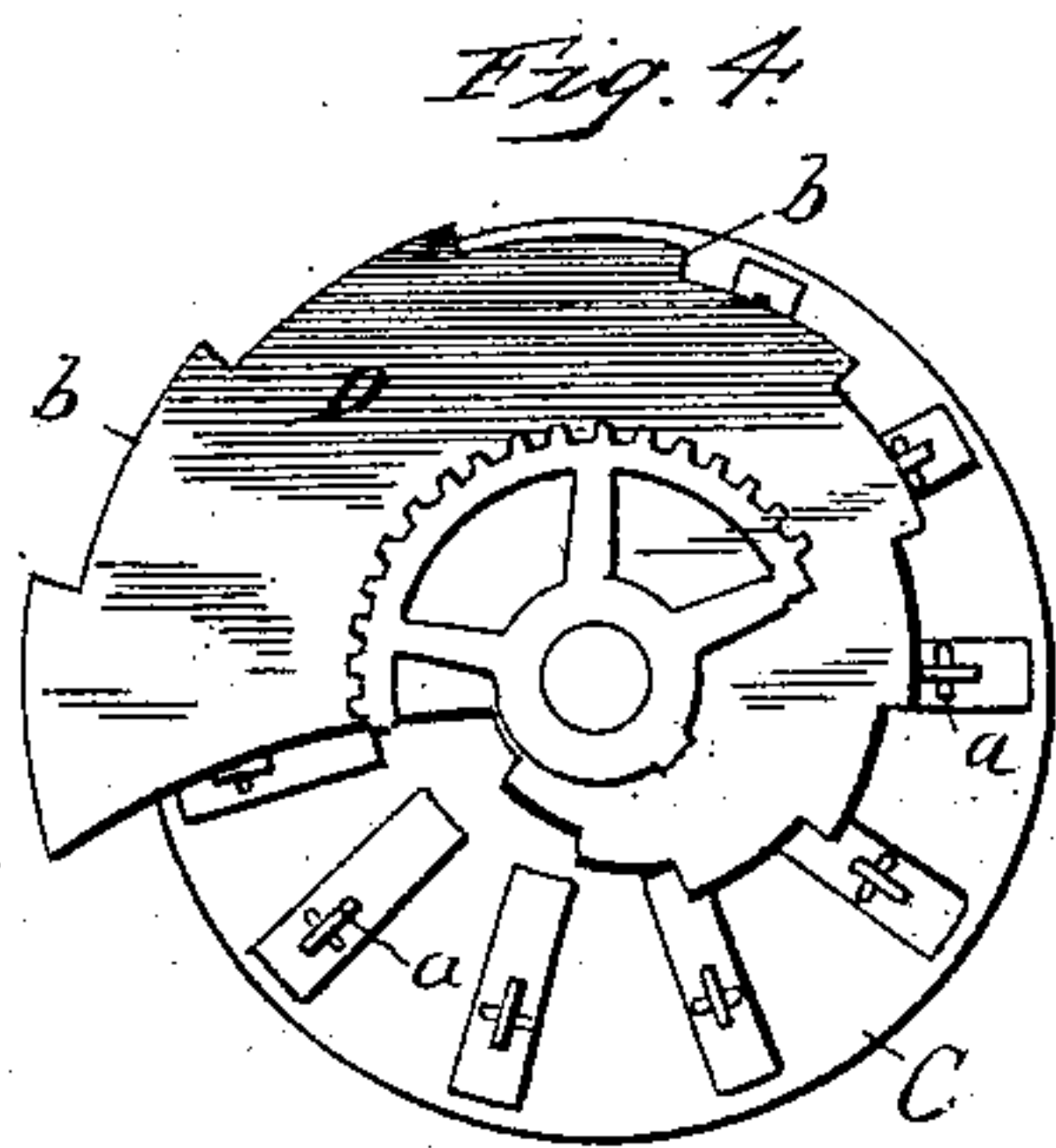


Fig. 4.

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CLOCK STRIKING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 376,074, dated January 10, 1888.

Application filed February 3, 1887. Serial No. 226,380. (M del.)

To all whom it may concern:

Be it known that I, WILLIAM E. COUNTER, of Three Rivers, in the county of St. Joseph and State of Michigan, have invented new and useful Improvements in Striking Mechanism for Clocks; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to certain new and useful improvements in striking attachments for clocks; and it consists in the construction and arrangement of a rack and snail, the arrangement of the engaging and releasing arms of the striking mechanism, and in the peculiar construction, arrangement, and combination of the various parts, all as more fully hereinafter set forth.

Figure 1 is a front elevation of a clock-movement provided with my striking mechanism, with parts broken away to better illustrate the construction and position of other parts. Fig. 2 is a vertical sectional elevation on the line $x x$ of Fig. 1. Fig. 3 is a side elevation. Fig. 4 is a plan of the dial and snail.

In the accompanying drawings, which form a part of this specification, A represents the center post of an ordinary clock-movement, to which the minute-hand is attached, as in the usual manner. To this post A, I secure a laterally-projecting L-shaped pin, B. Upon the hour-sleeve of the hour-wheel, to which the hour-hand is attached, I secure a small dial, C, which is provided with a series of radially-sliding pins, a , numbered from 1 to 12, but arranged in the opposite direction to the hours upon the clock-dial.

D is a snail, preferably on the same arbor as the dial C, but merely so in order to secure a simultaneous movement of the two. In the edge of the snail I form a series of steps, b , to admit of a free movement of the rack, as hereinafter described.

Properly adjusted on the front plate of the clock-frame is the rack E, said rack being provided with a deep slot, c , and with the arm F, the latter carrying a pin, d , at its free end. The rack is actuated upon being released from the pawls by means of a spring, G.

H is the actuating-spring of the striking

mechanism which impels the train of geared wheels above numbered, respectively, 1, 2, 3, and 4.

On the same arbor as the wheel 3 is secured a disk, I, and also a two-leafed pinion, e , the latter engaging with the rack E in the operation of the device, as will be hereinafter set forth.

Projecting from the wheel 4 is a pin, h . At o^2 is shown an arbor properly journaled in the frame and carrying three arms, J J' J''. The first, J, is provided with a toe, i , to engage with the cam or disk I, while the arm J' is provided with a toe, k , to engage with the teeth of the rack E. The other arm, J'', is a lifter, and has a toe, j' , which is engaged by an arm, K', that is carried by another arm, R, and is lifted by the pin B on the post A in the ordinary manner. The arbor R also carries the arms K and L, the latter being provided with a boss, l , against which the pins a operate as the dial C rotates, while the former arm, K, has a projecting toe, k' , whose use will be hereinafter explained.

P is the fly-wheel.

$m m$ are pins projecting from the wheel 3 or from the disk I, (see Fig. 3,) within the path of which, in the rotation of the wheel, the upper end of the hammer-rod N projects and causes the hammer to sound the bell O.

The dial C is not stationary, but turns with the hour-sleeve. Pin a engages with the boss of the arm L, throwing arms L and K outward until the toe of the arm K' comes in the path of L-cam B of arbor A, (upon which is mounted the minute-hand.) Then pin B engages with the toe of the arm K', (the boss then leaving pin a ,) lifting the arms L and K still farther upward. Arm K' engages with the toe j' of the arm J'' on the second shaft, lifting arms J J' J'' until toe i of arm J is lifted from first step of disk or cam I, when toe k' on the arm K will be in line with pin h of wheel 4. They now engage as the striking-train rotates, (called the "warning.") Pin B of the harbor A further causes all the arms to move upwardly, lifting toe of arm J out of deep slot c of the rack E. The rack is thrown outwardly by the spring G, and the arm F then carries pin d into contact with one of the steps of the snail D. Now, as the minute-hand arrives at figure 12 on the

clock-dial, the toe of the arm K' drops off the L-cam B of the center arbor, A, and then the striking-train will rotate. Pins *m* of disk I will catch arm N of the hammer, causing it to strike the bell the correct number of strokes.

While in the operation of striking, the highest part of the disk I lifts toe of arm J' out of the teeth of the rack E at the proper time in each revolution of the wheel 3. The boss of the arm L is rounded, so that the hands may be turned backward and not injure the clock, and also that it may be made to repeat its striking.

While all the pins *a* are at the inner circle of the dial C the clock will remain silent, but will strike the number upon any or all of the buttons that may be pushed to the outer circle of the dial C.

What I claim as my invention is—

1. The combination, with the time-movement of a clock, of an hour-striking movement and a series of adjustable pins moving with the time-movement and arranged to make the clock silent or striking, at will, substantially as described.

2. The combination, with a clock provided with an hour-striking movement, of a snail to regulate the number of strokes given by the hammer, and a dial, C, provided with adjustable pins for making the clock striking or silent, at will, substantially as described.

3. The combination, with a clock provided with an hour-striking movement, of a snail moving with the "time-side" of the clock, a plate moving with said snail, and a series of pins corresponding in number with the steps of the snail, arranged to allow of the clock striking or remaining silent when either of the desired steps of the snail is in position for action, substantially as described.

4. In a striking clock, the combination of a rack, E, provided with a slot, *c*, and a supplemental arm, F, a snail, D, dial C, provided with adjusting-pins *a*, said snail and dial being actuated by the arbor of the hour-wheel, with an arm, M, actuated by a pin, B, upon the center part, A, substantially as and for the purpose described.

5. In a clock striking mechanism, the combination of the dial C, snail D, rack E, and arm F with the arms J J', K K', L, and M, adapted to be actuated by a pin upon the center post, A, substantially as and for the purposes specified.

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Witnesses:

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