

G. F. HOLMES.
Railway Train Indicator.

No. 230,417.

Patented July 27, 1880.

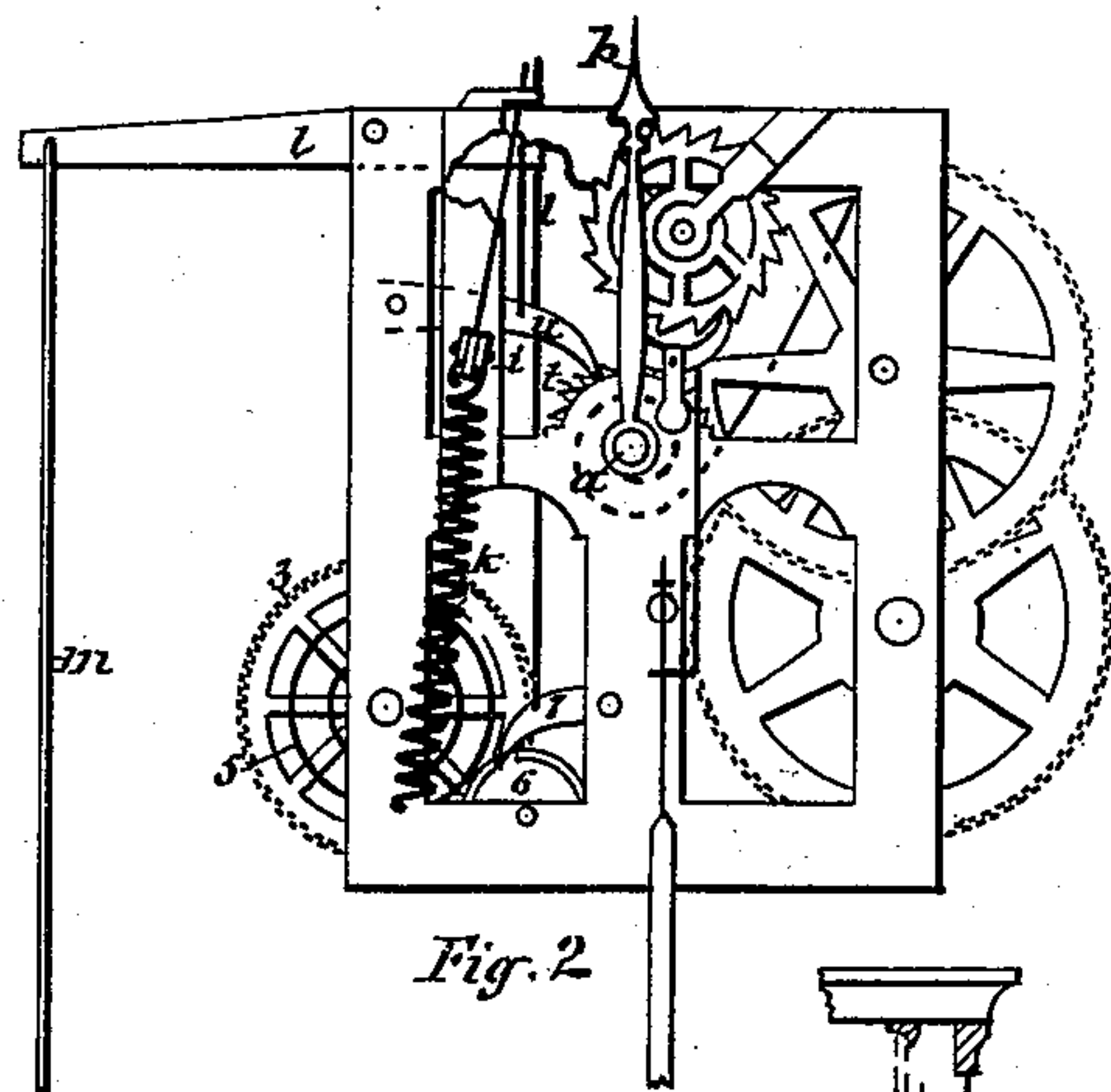


Fig. 2

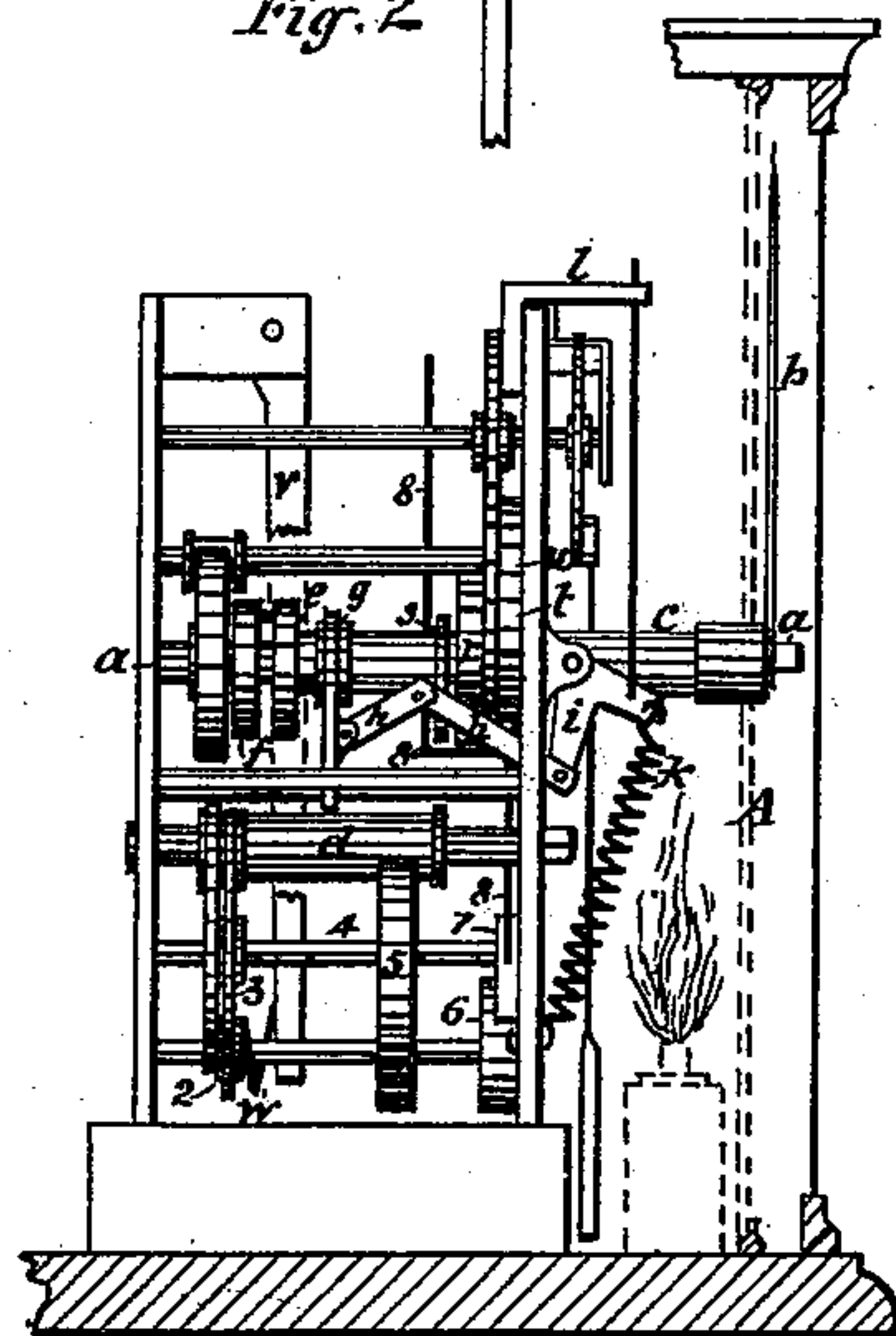


Fig. 3

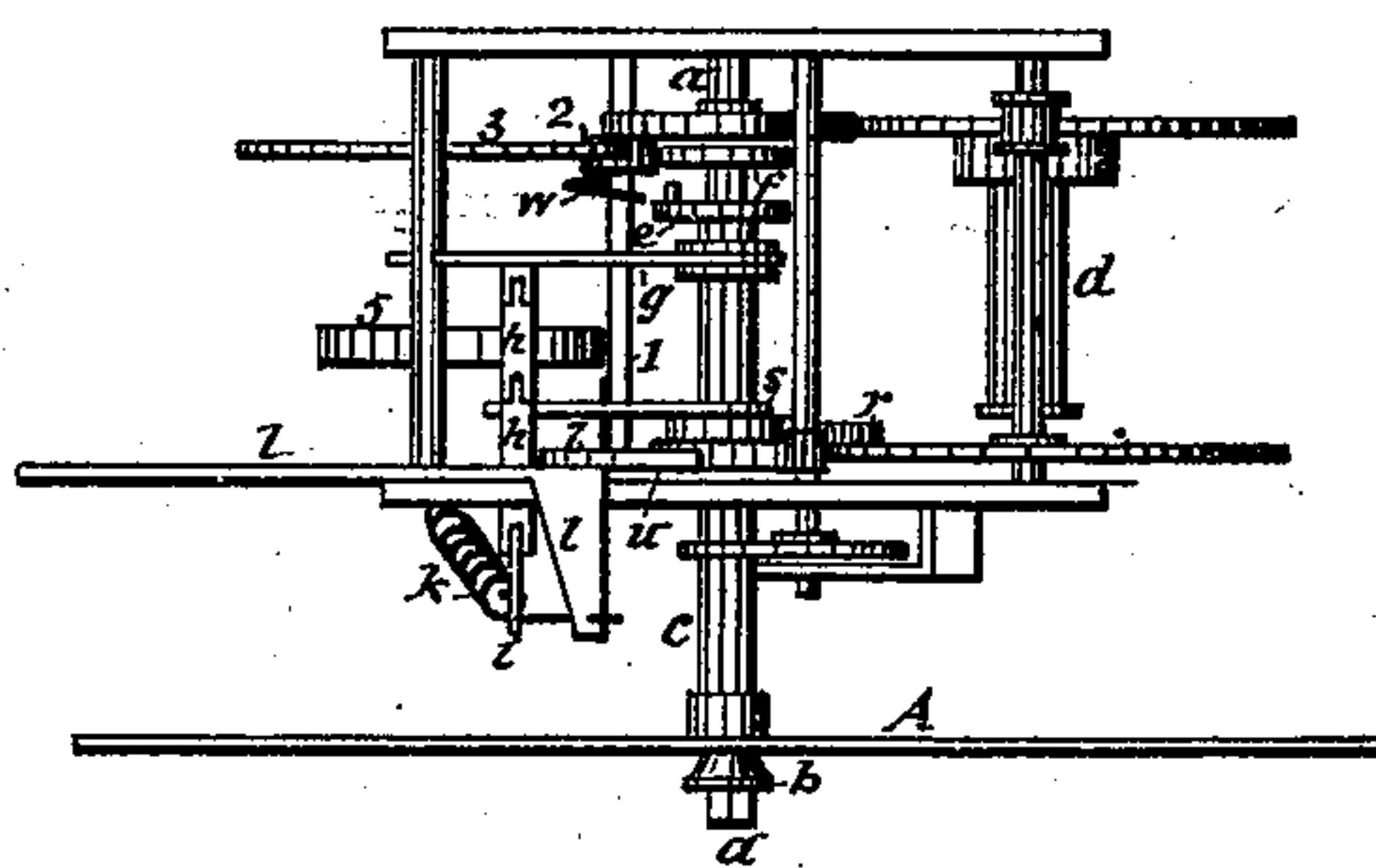


Fig. 4

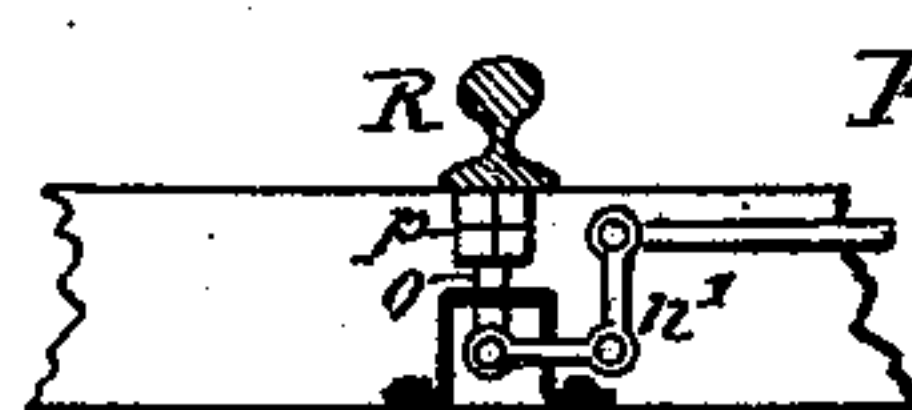
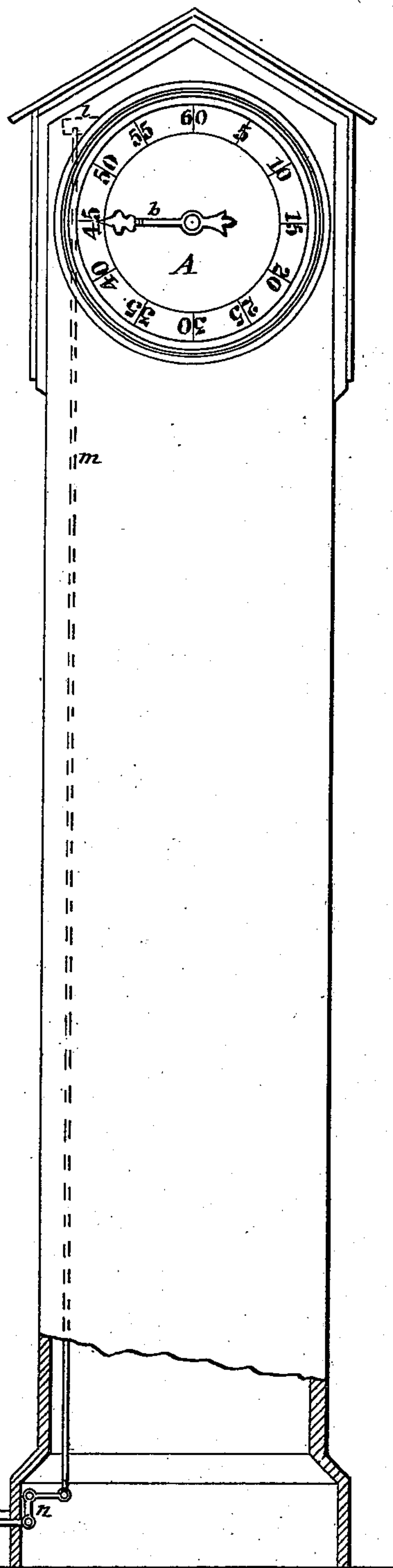


Fig. 1



ATTEST:

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UNITED STATES PATENT OFFICE.

GEORGE F. HOLMES, OF FONDA, NEW YORK.

RAILWAY-TRAIN INDICATOR.

SPECIFICATION forming part of Letters Patent No. 230,417, dated July 27, 1880.

Application filed September 26, 1879.

To all whom it may concern:

Be it known that I, GEORGE F. HOLMES, of Fonda, in the county of Montgomery, in the State of New York, have invented new and useful Improvements in Railway-Train Indicators, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

The purpose of this invention is to indicate the interval of time between trains passing a station, and thus guard to a great extent against collision of said trains.

The invention consists, essentially, in the combination, with a railway-track, of a clock mechanism provided with an index-dial and a hand or pointer, the latter mounted loose on its spindle and held yieldingly at the unit or zero point of the dial, and connected with and operated by the clock mechanism through the medium of a movable clutch held in connection by a spring or springs, and arranged to be thrown out of connection by means of levers or their mechanical equivalents connected with the track and actuated by passing engines or cars, all as hereinafter more fully described.

In the accompanying drawings, Figure 1 is a general view of my invention and its connection with the railway-track; and Figs. 2, 3, and 4 are enlarged front, side, and top views, respectively, of the clock mechanism and its connection with the indicator.

Similar letters of reference indicate corresponding parts.

The clock mechanism here represented is of the ordinary type, designed to be operated by weights suspended from a cord wound upon a drum, *d*, from which the usual train of gearing transmits motion to the spindle *a*, which carries the hand or pointer *b*. This hand is attached to a sleeve, *c*, which is fitted loosely on the spindle. To the rear end of the sleeve *c* is connected a clutch, *e*, adapted to engage a clutch-collar, *f*, fixed to the spindle *a*.

g is a bifurcated lever, loosely supported at its rear end, and embracing with its bifurcated end a grooved collar connected with the clutch *e*. To the lever *g* are connected toggle-jointed levers *h h*, arranged nearly or quite parallel with the line of the spindle *a*, and connected at the opposite end with one arm of an elbow-

lever, *i*, the other arm of which is connected with a spring, *k*, which imparts to the described levers a rearward thrust, and thus causes the movable clutch to become engaged with the fixed clutch and the hand *b* to be moved by the motion of the clock mechanism. To the frame of the clock mechanism is fulcrumed a lever, *l*, one end of which is connected with the elbow-lever *i* and the opposite end connected with a rod, *m*, which is extended to and connected with a bell-crank lever, *n*, arranged nearly or quite on a level with the track, as illustrated in Fig. 1 of the drawings.

Near the rail *R* of the track is pivoted a bell-crank lever, *n'*, one arm of which is connected with the lever *n*. The other arm supports directly under the rail *R* a vertical rod, *o*, onto the upper end of which is screwed a nut or adjustable head, *p*, in such close proximity to the under side of the rail that a slight deflection of the rail will cause the same to press upon the rod *o*, and thus produce a draft upon the rod *m* by the medium of the levers *n n'* and their connections. The draft upon the rod *m* aforesaid causes the lever *l* to draw upon the lever *i*, which, by its toggle-connection *h h*, throws the clutch *e* out of engagement, and thus releases the hand or pointer *b* from the motion of the clock mechanism. To the sleeve which carries the hand is connected a spring, *r*, arranged to impart a reverse movement to the hand, which movement is limited by a suitable stop terminating the retrogression of the hand at the unit or zero point of the dial *A*.

Since the described effect is produced only by the pressure upon the rail directly over the tripping device, the clutch *e* is immediately thrown into re-engagement by the spring *k* after the passage of the train or engine, and thus the hand *b* is caused to travel around the dial *A* by the movement of the clock mechanism.

The apparatus being designed only to keep trains going in one direction a safe distance apart, it is unnecessary to allow the hand to travel farther than to indicate ample time after the passage of a train. In order to stop the hand at such a time, I arrange back of the shifting-lever *g* an arm, *v*, suspended from above

and bearing with its lower extremity against a cam, *w*, on a shaft, 1, having a pinion, 2, which meshes into a gear-wheel, 3, on a shaft, 4, upon which is wound a spring, 5, imparting to the described gears a motion which causes the cam to throw the arm *v* toward the shifting-lever *g*.

Upon the shaft 1 is a ratchet-wheel, 6, engaged by a dog, 7, which prevents the rotation of the shaft 1. To the dog 7 is connected a rod, 8, which is extended upward and provided with an offset or shoulder in the vicinity of the toggles *h h*, so as to simultaneously with same come in contact with the arm *s* during the rotation of the latter. The said arm first trips the toggles, as illustrated in Fig. 2 of the drawings, and then, by its collision with the rod 8, lifts the dog 7 out of the ratchet 6. The shaft 1, being thus released, is at once rotated by the action of the spring 5, and by the cam *w* forces the arm *v* against the shifting-lever, and thus throws the clutch out of connection. The hand thus released from the clock mechanism is prevented from returning to the unit or zero point of the dial, as before described, by means of a ratchet, *t*, connected with the sleeve *c*, and a dog, *u*, engaging same. The hand thus held stationary is released by the lever *l*, which is connected with the dog *u*, and raises the same out of the ratchet when actuated by a passing train, as before described.

It is obvious that the connection between the clock mechanism and track can be constructed in various ways, and I therefore do not limit myself in that respect.

The dial A is represented in the drawings as graduated for a minute-hand, from forty-five to sixty minutes being deemed ample time between two trains.

By illuminating the dial the indicator is rendered serviceable at night as well as in day-time.

Having thus described my invention, what I claim is—

1. In combination with a railway-track, a clock mechanism provided with an index-dial, an index hand or pointer mounted loose upon its spindle and held yieldingly at the unit or zero point of the dial, a clutch adapted to connect the hand with the movement of the clock

mechanism, a spring arranged to force the clutch in connection, and a shifting-lever adapted to throw the clutch out of connection and arranged to be actuated by contact with a passing engine or train, substantially as and for the purpose set forth.

2. The combination, with a clock mechanism, of the sleeve *c*, fitted loose to the spindle *a*, and provided with fixed hand *b* and movable clutch *e*, the clutch-collar *f*, fixed to the spindle *a*, shifting-lever *g*, toggle *h h*, elbow-lever *i*, and spring *k*, substantially as described and shown.

3. The combination, with a clock mechanism, of the sleeve *c*, provided with the hand *b* and clutch *e*, the clutch-collar *f*, fixed to the spindle *a*, the shifting-lever *g*, toggle *h h*, elbow-lever *i*, spring *k*, and lever *l*, substantially as and for the purpose set forth and shown.

4. In combination with the sleeve *c*, provided with the hand *b* and clutch *e*, the shifting-lever *g*, toggle *h h*, and tripping-arm *s*, arranged to operate in the manner specified.

5. In combination with the sleeve *c*, provided with the hand *b* and clutch *e*, arranged to be thrown in and out of connection with the clock mechanism, the spring *r*, arranged to impart a reversed motion to the sleeve, and a stop for limiting the retrograde movement of the sleeve, as and for the purpose set forth.

6. The combination of the sleeve *c*, provided with the hand *b*, clutch *e*, arm *s*, spring *r*, and ratchet *t*, the clutch-collar *f*, fixed to spindle *a*, the shifting-lever *g*, toggles *h h*, elbow-lever *i*, spring *k*, lever *l*, and dog *u*, all arranged to operate substantially as described.

7. In combination with the shifting-lever *g* and arm *s*, the arm *v*, cam *w*, gears 2 3, spring 5, ratchet 6, dog 7, and the rod 8, all constructed and combined to operate substantially in the manner set forth and described.

In testimony whereof I have hereunto signed my name, in the presence of two attesting witnesses, at Syracuse, in the county of Onondaga and State of New York, this 27th day of May, 1879.

GEORGE F. HOLMES.

Witnesses:

C. BENDIXEN,
E. LAASS.