(No Model.) 3 Sheets—Sheet 1.

S. H. ST. JOHN & F. A. JENNINGS.

ADVERTISING BULLETIN AND TRAIN ANNUNCIATOR.

No. 451,282. Patented Apr. 28, 1891.

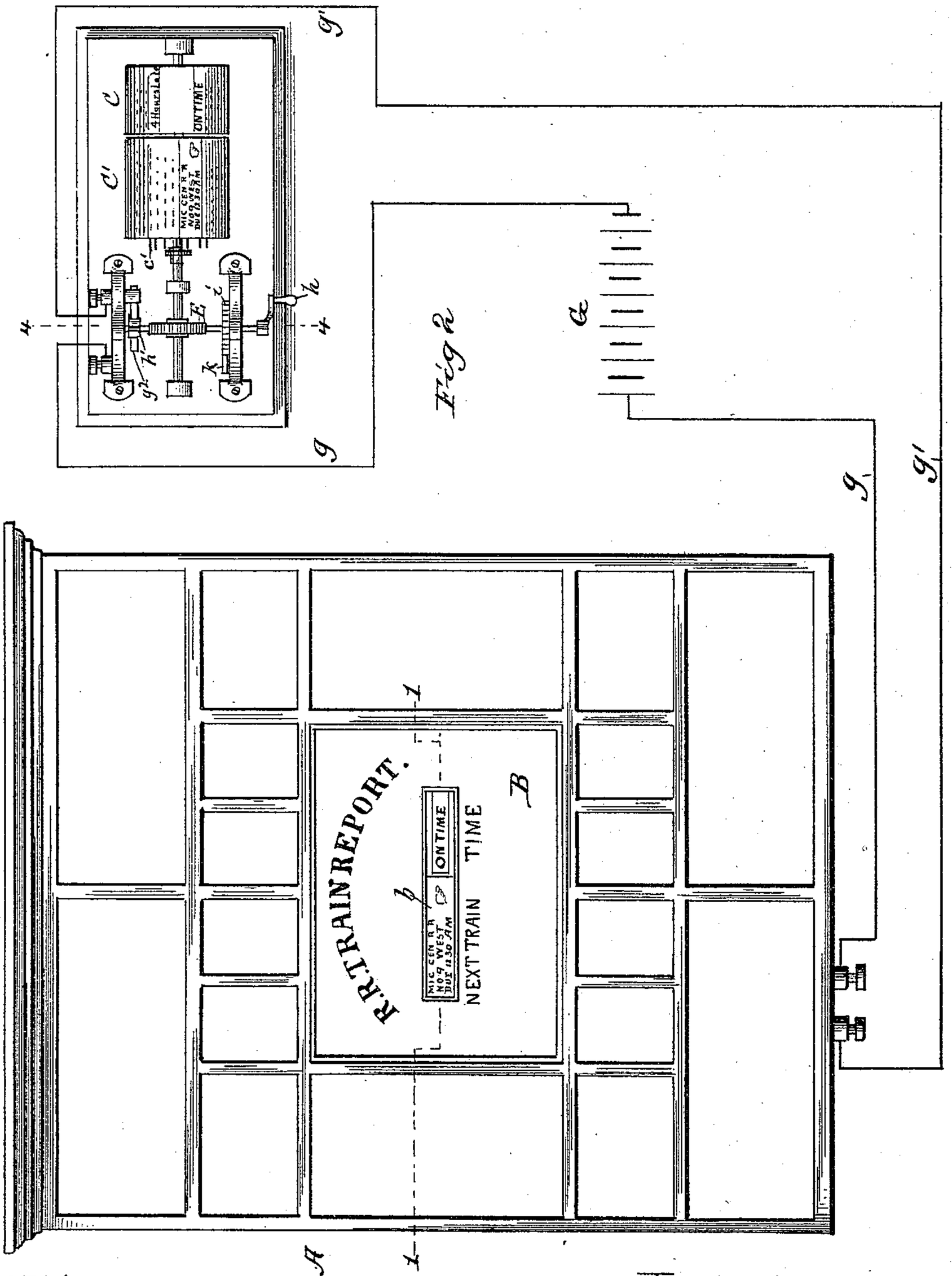

Fig 1

Fig 2

Witnesses
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Fig 3

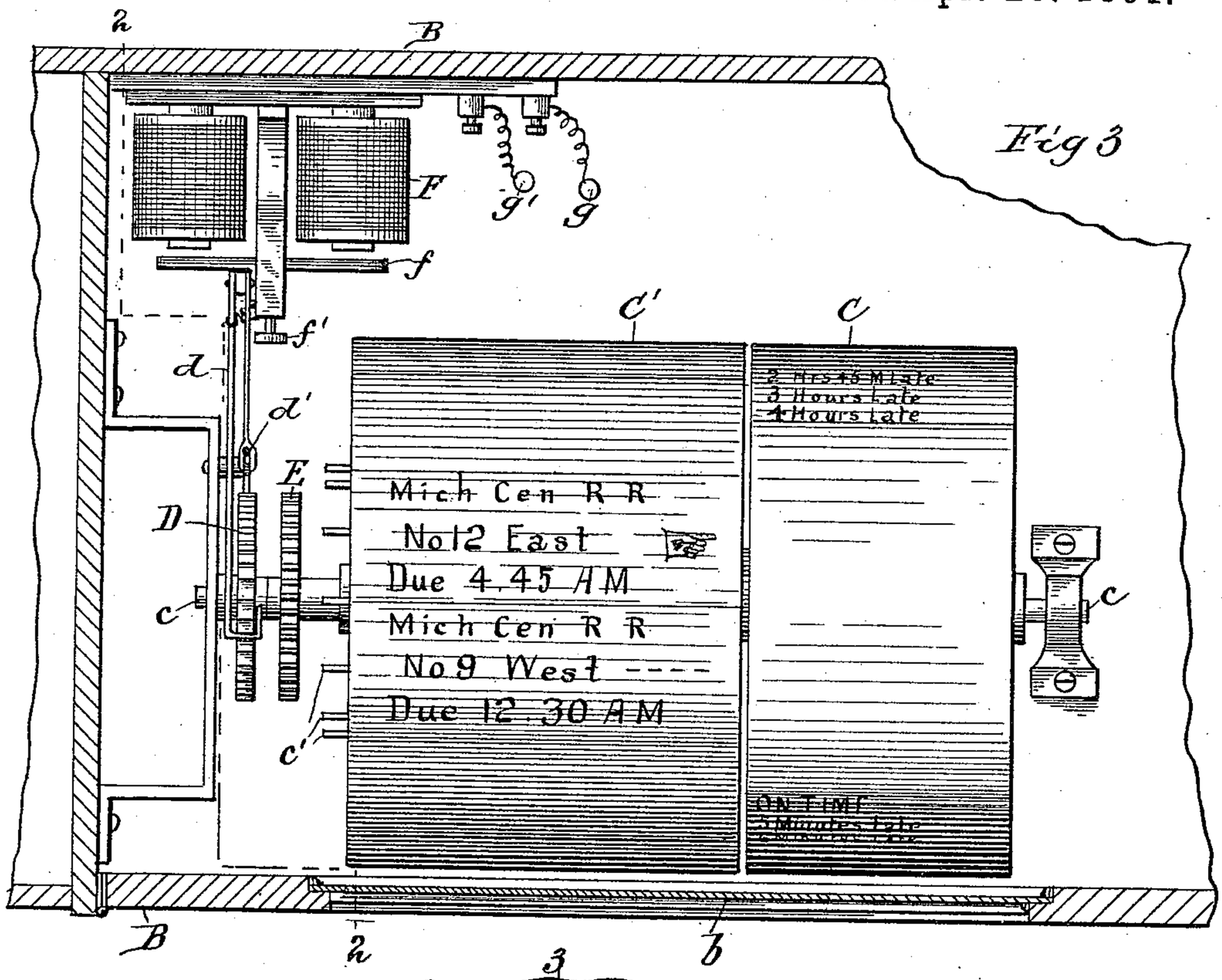

Fig 4

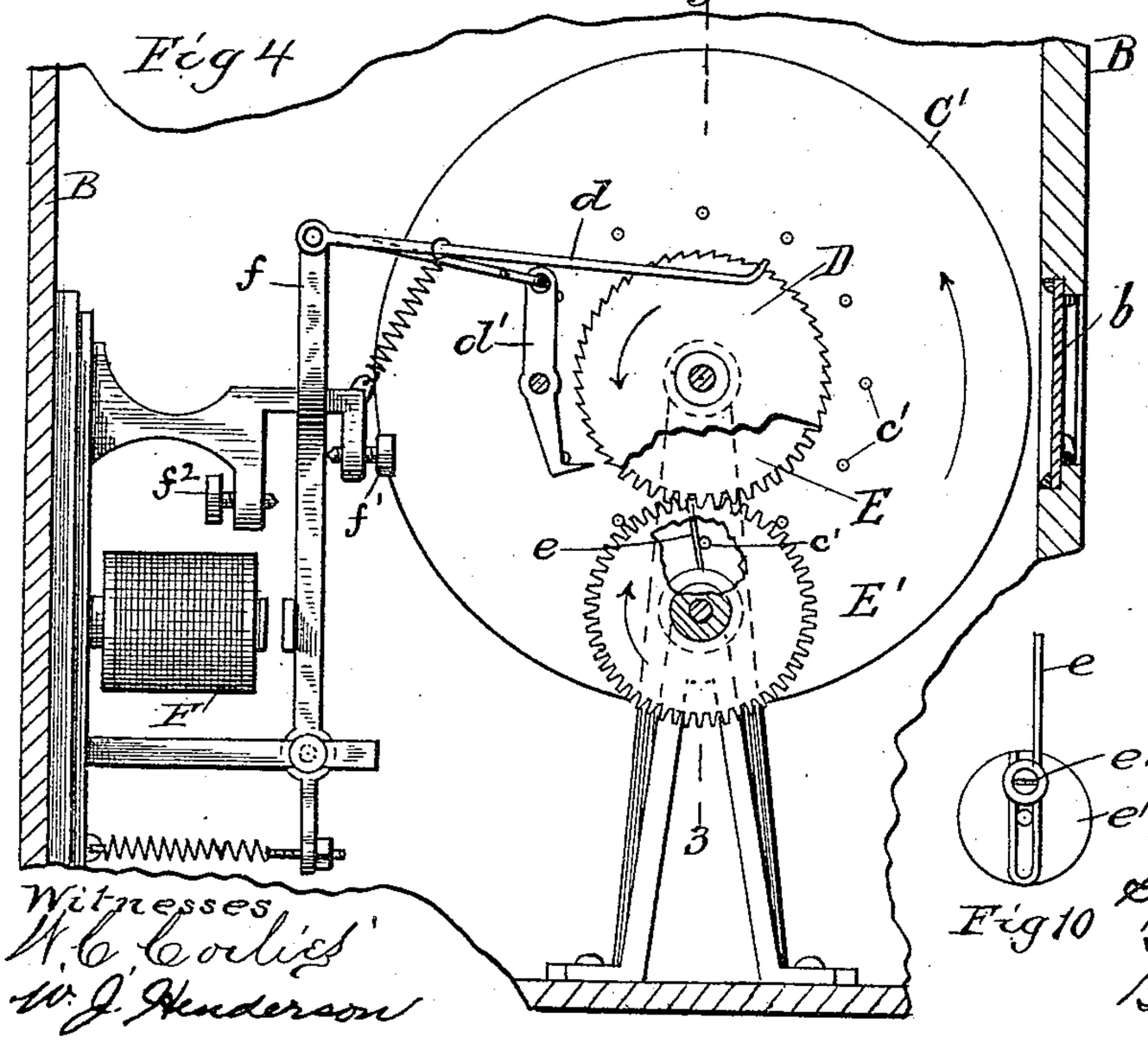

Fig 5

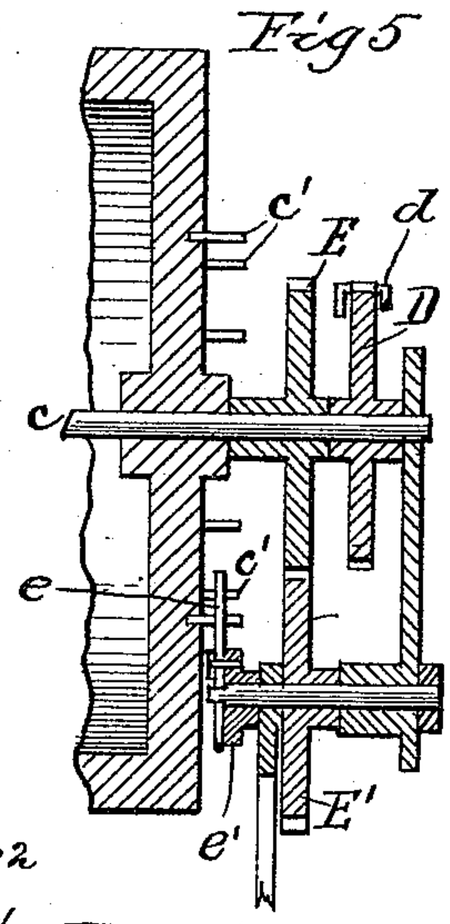

Fig 10

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ADVERTISING BULLETIN AND TRAIN ANNUNCIATOR.

No. 451,282. Patented Apr. 28, 1891.

Fig 6

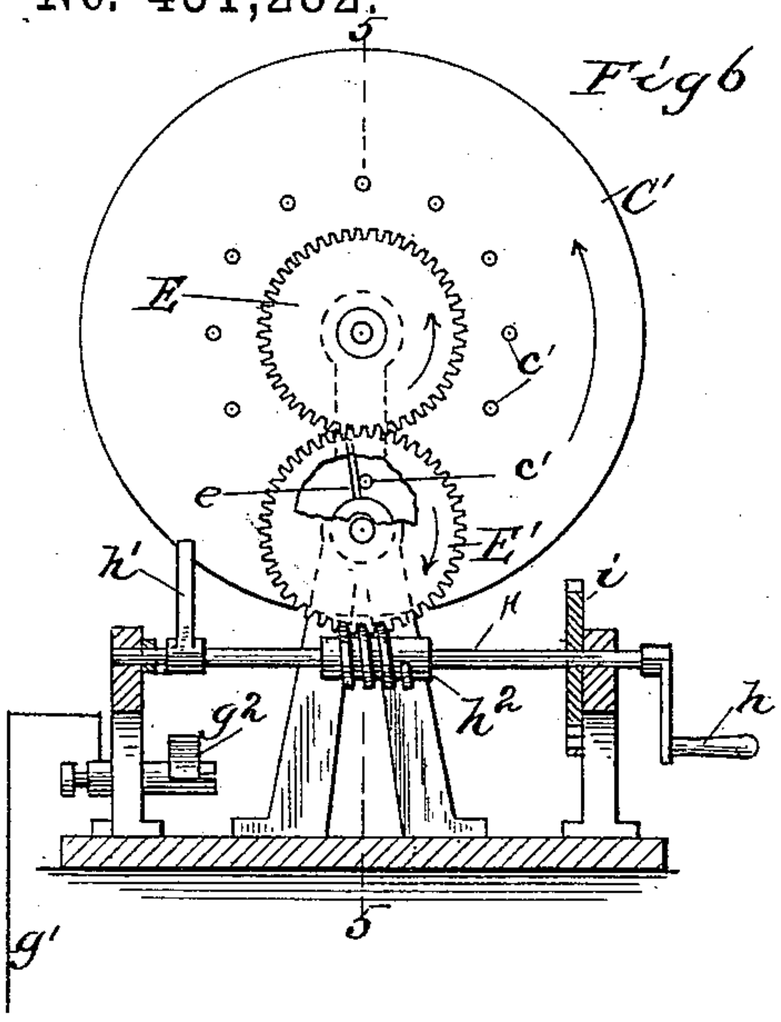

Fig 7

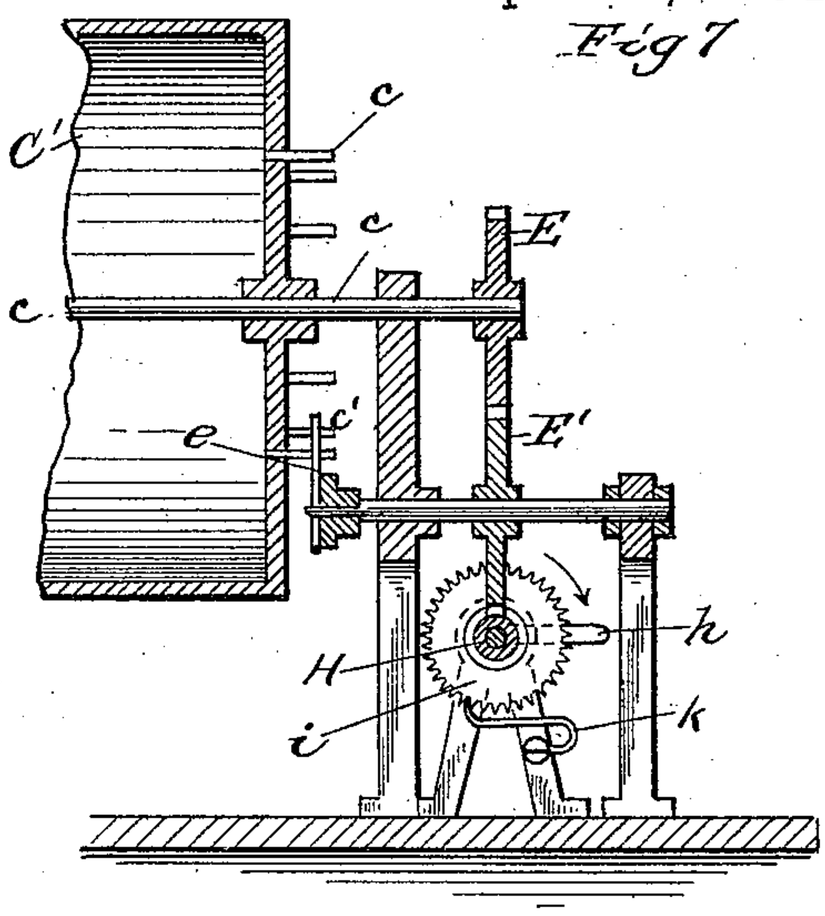

Fig 8

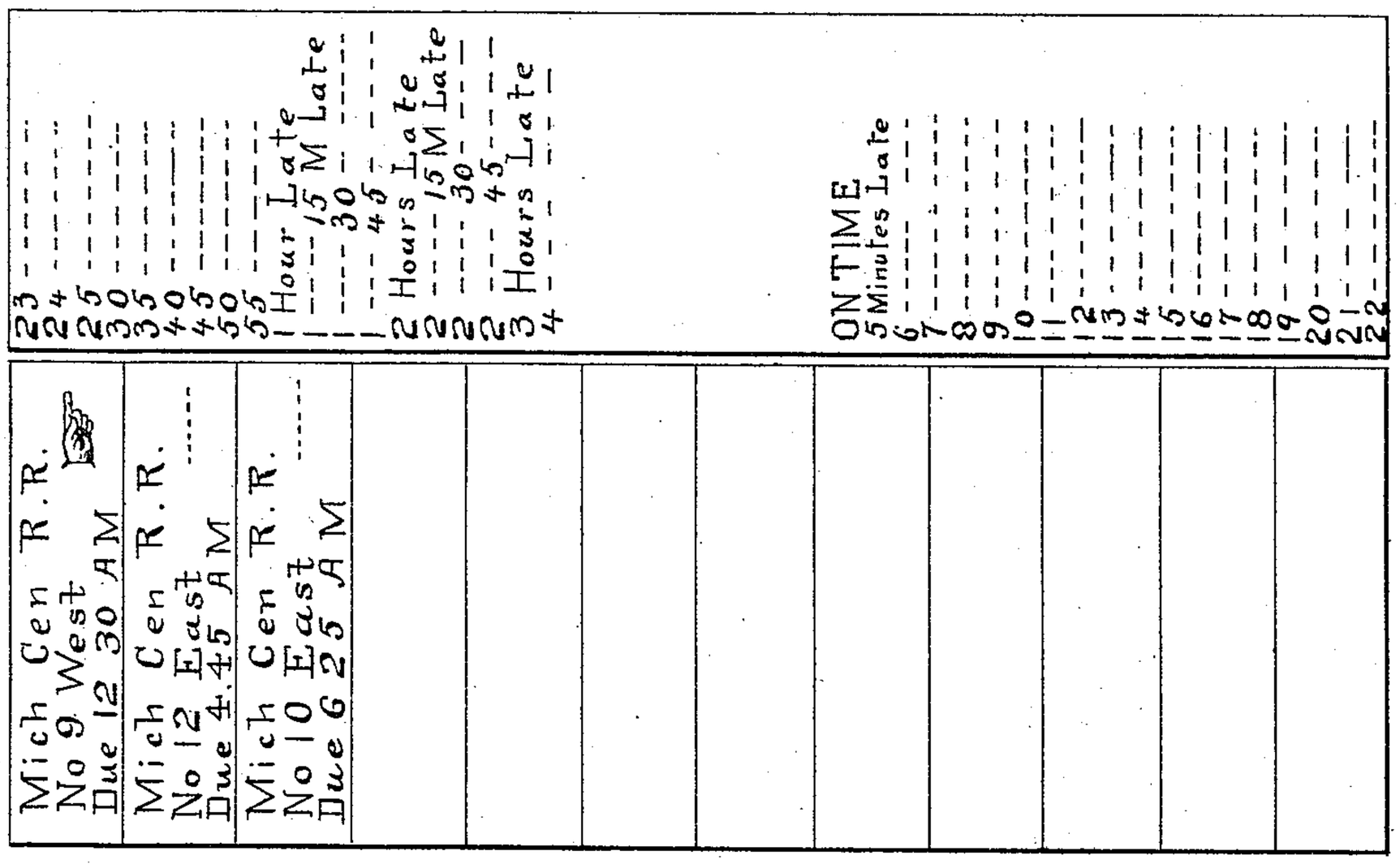

Fig 9

Witnesses
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UNITED STATES PATENT OFFICE.

SPENCER H. ST. JOHN AND FRANKLIN A. JENNINGS, OF CHICAGO, ILLINOIS, ASSIGNORS, BY DIRECT AND MESNE ASSIGNMENTS, TO THE ELECTRIC BULLETIN COMPANY, OF ILLINOIS.

ADVERTISING-BULLETIN AND TRAIN-ANNUNCIATOR.

SPECIFICATION forming part of Letters Patent No. 451,282, dated April 28, 1891.

Application filed May 9, 1890. Serial No. 351 158. (No model.)

To all whom it may concern:

Be it known that we, SPENCER H. ST. JOHN and FRANKLIN A. JENNINGS, citizens of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Combined Advertising-Bulletins and Railway-Train Annunciators; and we do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

Our invention relates to improvements in combined advertising bulletin-boards and railway-train annunciators; and it consists of a bulletin-board adapted to be attached to a wall and having secured to it, as a means of attracting attention, a train-annunciator electrically controlled.

In the accompanying drawings, Figure 1 shows a front elevation of the bulletin-board; Fig. 2, a plan view of the mechanism for operating the annunciator, the electrical connection between the two being shown. Fig. 3 shows a top view of the mechanism of the annunciator. Fig. 4 is an end view of this mechanism on the line 2 2, Fig. 3. Fig. 5 is a sectional view on the line 3 3, Fig. 4. Fig. 6 is an end view of the operating mechanism. Fig. 7 is a sectional view of the same on the line 5 5, Fig. 6. Fig. 8 represents the printed slip which is to show the status of a train. Fig. 9 represents a similar slip used to designate a train, and Fig. 10 is a detail of the spur *e* and its attachments.

Advertising bulletin-boards have become so common that they are of small value, except as they are provided with some device of general interest for the purpose of attracting attention.

Our invention provides a practical and reliable means of announcing the status of the railway-train next due and utilizes the device as a means of attracting attention to the advertising-bulletin.

The bulletin-board A is of ordinary form, except that it is provided with a box B, preferably centrally located, which contains the mechanism for announcing the trains. In the front of the box B is a transverse aperture *b*, within which is fitted a piece of transparent glass. A suitable inscription is placed upon the box to explain the purpose of the device. Within the box and immediately behind the aperture *b* revolve two cylinders C and C′, supported by suitable brackets attached to the box. These cylinders are carried by a shaft common to both, the cylinder C being fixed to it and C′ revolving freely upon it. The printed slips or bulletins of paper or card-board (shown in Figs. 8 and 9) are placed, respectively, upon the peripheries of the cylinders C and C′, their length being equal to the circumference thereof. The slip upon the cylinder C shows the status of the train next due—whether on time, or, if late, how much. The slip upon the cylinder C′ shows a schedule of various trains to be announced during the day. The aperture *b* is of sufficient dimensions to expose to view but a single section of each slip. The mechanism by which these cylinders are operated consists of the ratchet-wheel D, the gear-wheel E, fixed upon the shaft *c*, which carries the cylinders, and the wheel E′, carried upon an independent shaft, a spur *e*, carried by the same shaft and meshing with the studs *c*′, set in a circle upon the end of the cylinder C′, and the pawls *d* and *d*′, co-operating with the ratchet D. The ratchet-wheel and geared pinions have an equal number of teeth. This mechanism is operated by means of an ordinary electro-magnet F, attached to the side of the box B, the pawls *d* and *d*′ being pivotally attached to its armature *f*. The electrical current is supplied by the cell-battery G and carried to the two poles of the magnet F by the wires *g* and *g*′. These wires are also connected with the mechanism for controlling the magnet F, (shown in Fig. 6,) the circuit being normally broken. This controlling mechanism consists of a shaft H, provided with a crank *h* and carrying the cam *h*′. The wire *g*′ is connected with one of the journal-boxes of the shaft H, as shown, or by means of brushes brought directly in contact with the cam *h*′. At each revolution of the

shaft the cam h' comes in contact with the brush g^2, which is in connection with the wire g, thus closing the circuit while the contact continues. A pair of cylinders C'' and C''', exact duplicates (except that they may be smaller) of those contained in the box B, already described, and provided with a corresponding set of gear-wheels E'' and E''' and a spur e''' and studs c'', are mounted in proximity to the circuit-closing device for the guidance of the operator. These cylinders are driven by the worm h^2, carried upon the shaft H and meshing with the pinion E'.

The operation of the annunciator is as follows: The parts are so adjusted relatively that with the cylinder C' in position to reveal to view at the aperture b one complete section, as shown in Fig. 1, the other cylinder will be in position to show at the aperture the line reading "On time." If the train be less than five minutes late, it is presumed the operator will not deem it important to report the fact, though the annunciator may be adjusted to permit him to do so. If five minutes late, a single revolution of the crank h will report the fact by closing the electric circuit, thereby causing the magnet F to attract the armature f, whereby the pawl d is drawn back, carrying with it the ratchet-wheel D. The movement of the armature is so limited by the ordinary regulating-screws in the magnet-frame (shown at f' and f^2) that the movement of the cylinder C is just sufficient to bring into view the line next below the one last exposed, which reads "Five minutes late." If the train be more than five minutes late, the cylinder C may be still farther revolved by turning the crank h, each turn moving the cylinder sufficiently to expose to view a different line. The spur e (shown in detail at Fig. 10) is adjustable, being formed of a piece of a wire doubled upon itself so as to have one long and one short leg. The loop thus formed is set astride the shaft of the pinion E', and secured by the binding-screw e^2 to the disk c', carried by the same shaft. In adjusting the mechanism this spur is so fixed that it is disengaged from the stud c' when one complete section upon the face of the cylinder C' has been brought into view at the aperture b. The subsequent shifting of the cylinder C does not disturb the cylinder C', therefore, until all the lines recorded upon the former have been brought in succession before the aperture at b, when the spur c engages the next stud c'. Blank space is left upon the face of the cylinder C to allow for a sufficient number of revolutions of the crank h to bring the line reading "On time" again into view, when the next section upon the face of C', giving the title of the next train, is fully exposed.

The operating mechanism, Fig. 2, will ordinarily be controlled by the telegraph-operator at the railway-station, the annunciator being located in any public place, as the office of a hotel. The pair of cylinders connected with the operating mechanism after being adjusted to correspond with those in the annunciator must necessarily continue to indicate to the operator the position of the latter. It will be seen that two or more annunciators may be placed upon the same circuit. The pawl d, as shown, consists of a piece of wire bent at its free end to ride upon the ratchet-wheel. A light spiral spring extending from this pawl to the magnet-frame or other fixed attachment holds it down to the ratchet. The stop-pawl d', rocking upon a pivot-pin in an arm of the bracket supporting the cylinders, is united by a link from one end to the armature, so that its opposite end engages the ratchet D, as shown, or the gear-wheel E immediately one tooth thereof has passed it, so as to stop the forward movement of the cylinder C. The return of the armature releases the pawl from the gear-wheel. To prevent the crank h from being turned backward, a ratchet-wheel i is placed upon the shaft H and a spring-pawl k fixed to engage in it.

It may be found advisable to steady the movement of the cylinders by adjusting light strap-springs to bear against them.

We claim as our invention and desire to protect by Letters Patent—

1. In a railway-train annunciator, the combination of a revolving cylinder bearing an inscription of the titles or designation of the various trains, a second revolving cylinder bearing a succession of notices of the status of a train, and differential gearing connecting the two cylinders with a box for inclosing the cylinders and an aperture in the box for exposing to view a single section of the inscription upon each cylinder, substantially as described, and for the purposes set forth.

2. In a railway-train annunciator, the combination of a revolving cylinder C', bearing an inscription of the titles of the trains, a second cylinder C, bearing a succession of statements of the status of a train, a box for inclosing said cylinder, an aperture in the box for exposing to view a single section of the inscription upon each cylinder, differential gearing connecting the cylinders, whereby the cylinder C' changes from one train-title to the succeeding one at each complete revolution of the cylinder C, a ratchet-wheel fixed upon the shaft of the cylinder C, a pawl engaging said ratchet, and an electro-magnet for actuating the pawl, substantially as described, and for the purpose set forth.

3. In a railway-train annunciator having a cylinder bearing an inscription of the titles of the various trains, a cylinder bearing a succession of statements of the status of a train, differential gearing connecting the cylinders, and an inclosing box having an aperture for exposing to view a single section of the inscription upon each cylinder, the combination, with these parts, of a ratchet rigidly connected with the status-indicating cylinder, a pawl engaging said ratchet, an electro-magnet actuating said pawl, an electric circuit con-

nected with the magnet, a circuit-closing cam, a hand-crank for turning the cam, and a pair of pilot-cylinders, substantial duplicates of the indicating-cylinders and actuated simultaneously therewith by the revolutions of the cam-shaft, substantially as described, and for the purpose set forth.

4. The combination, substantially as described, and for the purposes specified, with an advertising bulletin-board, of a railway-train annunciator comprising a cylinder bearing an inscription of the titles of the various trains, a second cylinder bearing a succession of statements of the status of a train, an apertured box for inclosing said cylinders and exposing to view a single section of the inscription of each, differential gearing connecting the cylinders, and an electrically-actuated ratchet and pawl for operating the cylinders.

5. The combination, substantially as described, and for the purposes specified, with an advertising bulletin-board, of a railway-train annunciator having a pair of cylinders inscribed, respectively, with the titles of the various trains and a succession of statements of the status of a train, differential gearing connecting the cylinders, ratchet and pawl for rotating the cylinders, an electro-magnet and electric circuit for controlling the pawl, a hand-operated circuit-closing device, and a pair of pilot-cylinders, substantial duplicates of the indicating-cylinders and operated by the circuit-closing mechanism.

6. The combination, with an advertising bulletin-board, of a railway-train annunciator comprising a mechanically-controlled series of titles of trains, a mechanically-controlled series of notices of the time status of a train, a case for inclosing said notices, and an aperture in the case for exposing sections of said notices to view, substantially as described, and for the purposes set forth.

7. The combination, with an advertising bulletin-board, of a railway-train annunciator comprising an electrically-controlled series of titles of trains, an electrically-controlled series of notices of the time status of a train, a case for inclosing said notices, and an aperture in the case for exposing sections of said notices to view, substantially as described, and for the purposes set forth.

8. In a railway-train annunciator, the combination, with an inclosing box having a transparent aperture, of revolving cylinders having upon their peripheries bulletins, an electro-magnet, a source of electric energy connected therewith, a circuit-breaker, ratchet-and-pawl connection between the magnet and one of the cylinders, a circular series of studs upon the second cylinder, a revolving spur for engaging these studs in succession, a gear-wheel fixed upon the shaft carrying the spur, and a similar gear-wheel fixed upon the shaft of the first cylinder, the two gears intermeshing, all substantially as described, and for the purpose set forth.

9. In a railway-train annunciator having its train-bulletins exposed to view at the aperture of an inclosing box by means of revolving cylinders controlled by an electro-magnet having ratchet-and-pawl connection therewith, the combination, with these parts, of an electric circuit, a cam circuit-breaker, a crank-shaft carrying the cam, a gear-worm fixed upon the same shaft, and revolving cylinders, duplicates of the indicating-cylinders, propelled by the gear-worm and suitable gear-wheels, substantially as described, and for the purpose set forth.

10. In a railway-train annunciator, the combination of a revolving cylinder carrying a bulletin adapted to show the status of the train and fixed upon a shaft, a ratchet and pawl for rotating the shaft, an electro-magnet having its armature connected with this pawl, and a stop-pawl actuated by the armature, substantially as described, and for the purpose set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

SPENCER H. ST. JOHN.
FRANKLIN A. JENNINGS.

Witnesses:
F. M. HUNTER,
FRANK G. WARD.