

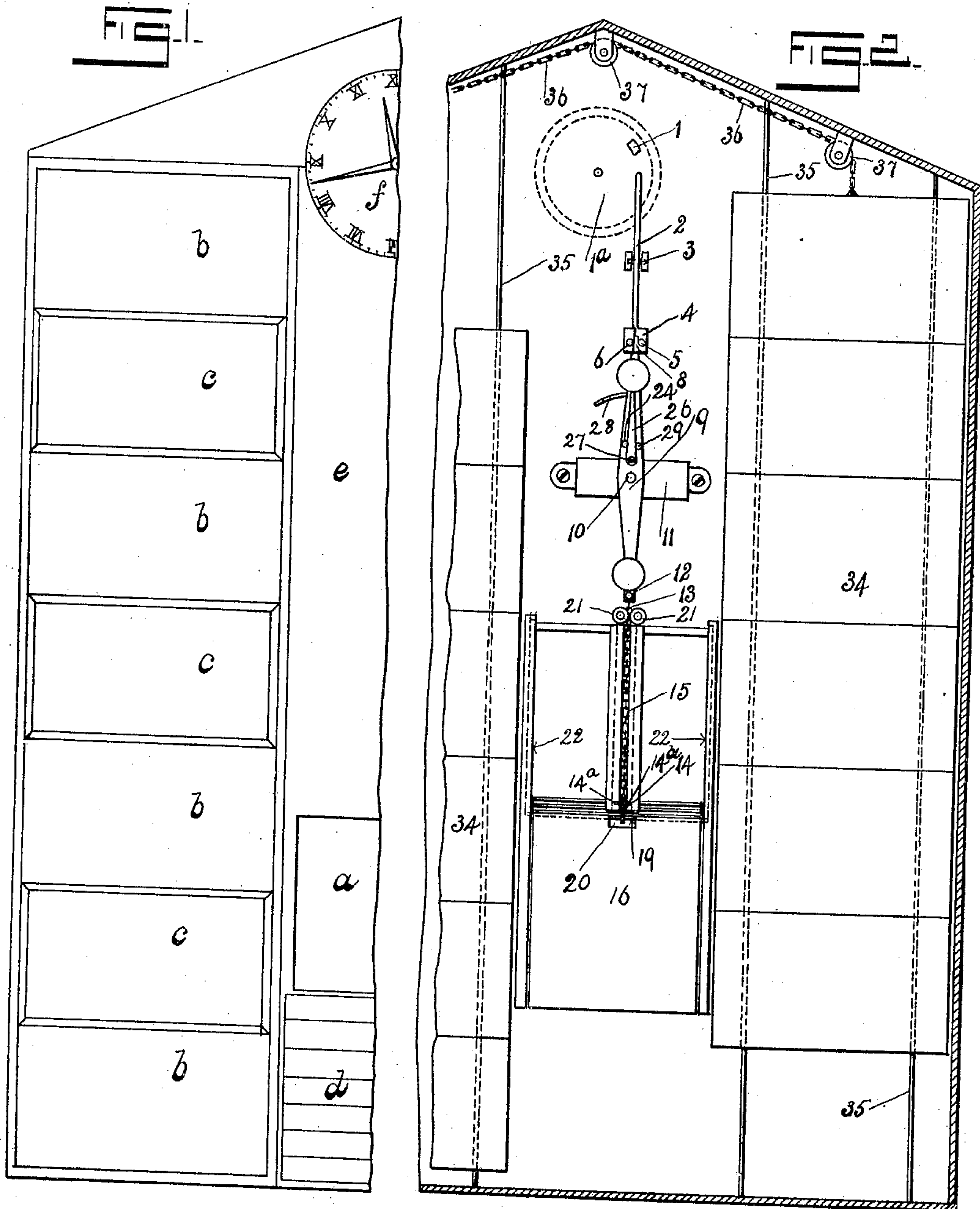
No. 829,816.

PATENTED AUG. 28, 1906.

F. J. WALTON & L. V. ROGERS.  
AUTOMATIC TIME TABLE AND ADVERTISING DEVICE.

APPLICATION FILED JAN. 17, 1905.

3 SHEETS—SHEET 1.



Witnesses  
Vincent Hughes  
[Signature]

Inventors  
FREDERICK J. WALTON  
LONGINUS V. ROGERS  
By [Signature]  
[Signature]

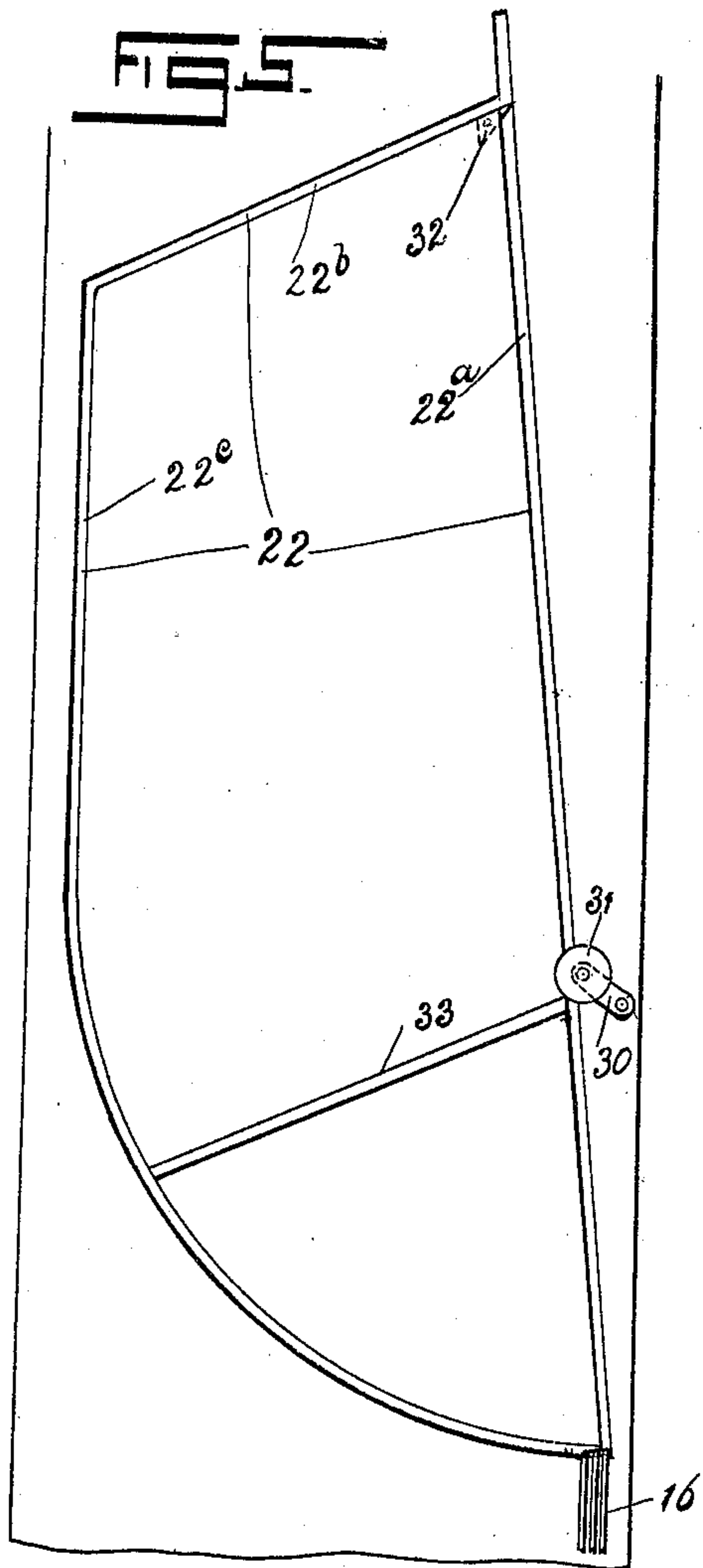
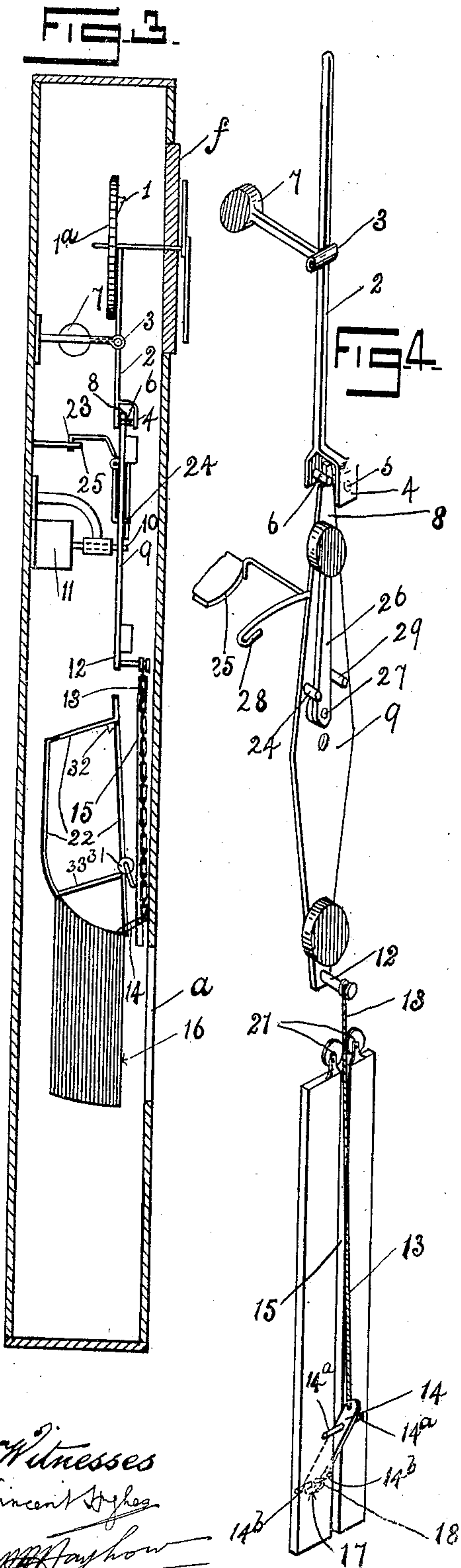
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3 SHEETS—SHEET 2.



Witnesses  
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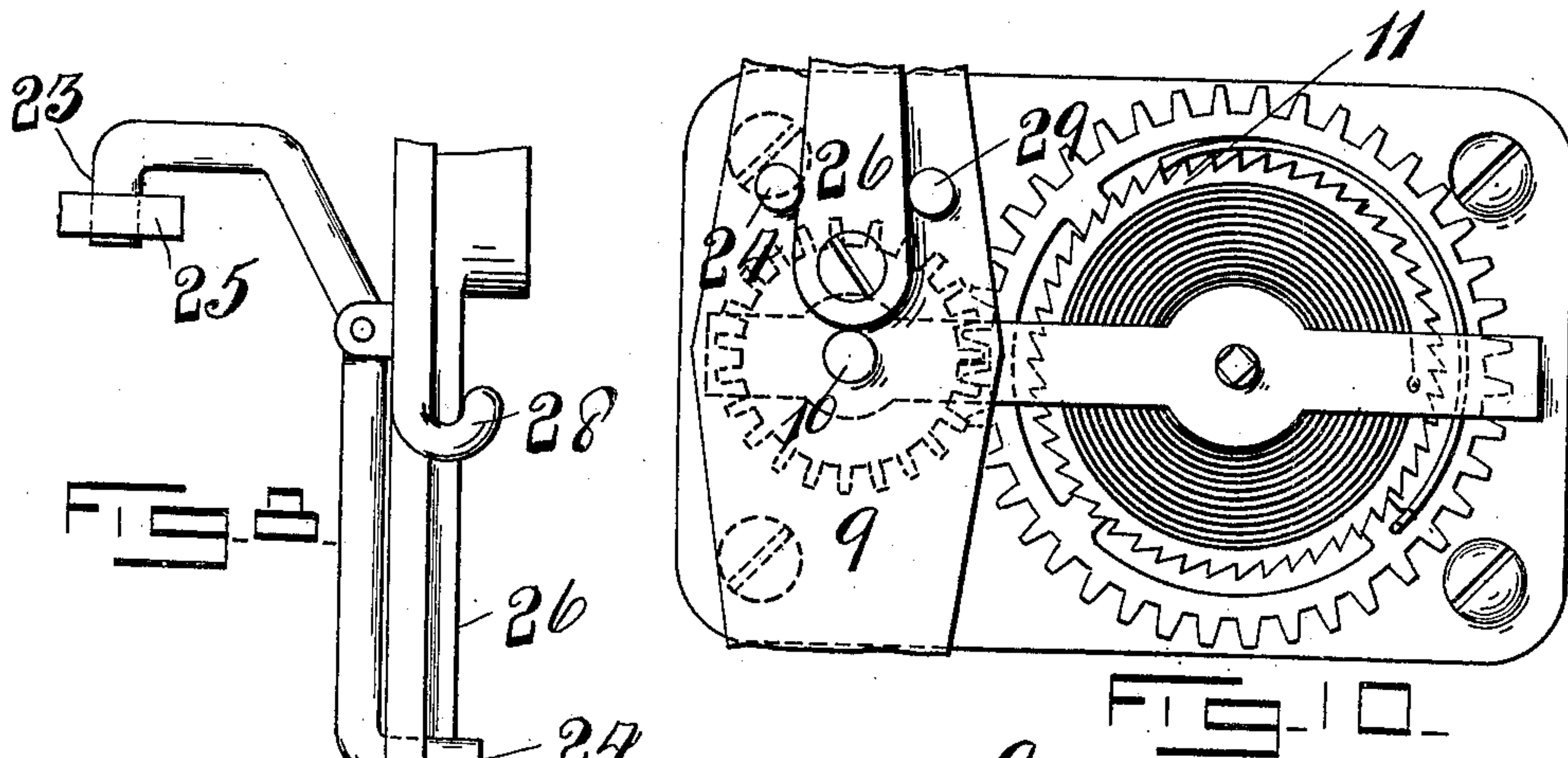
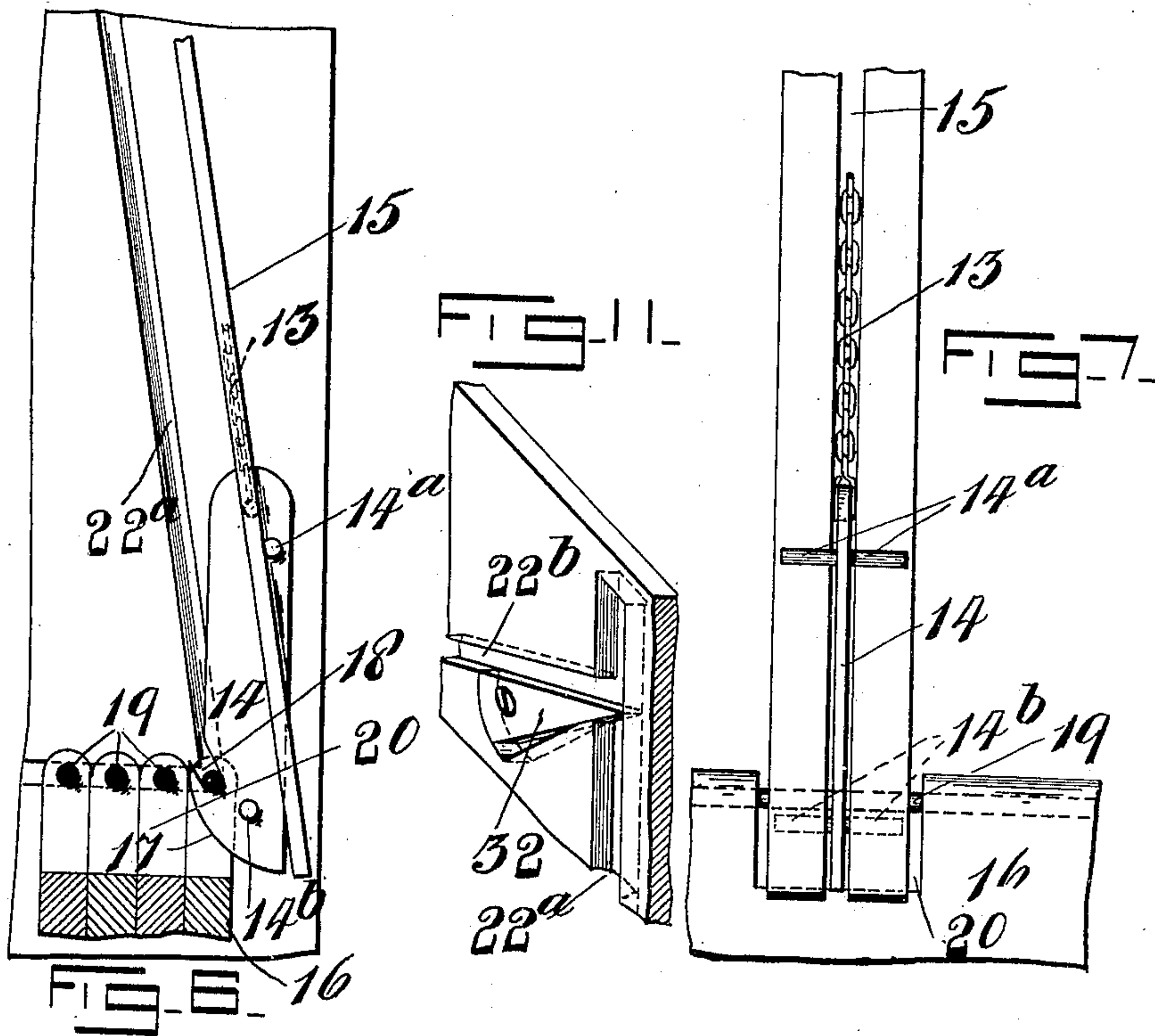
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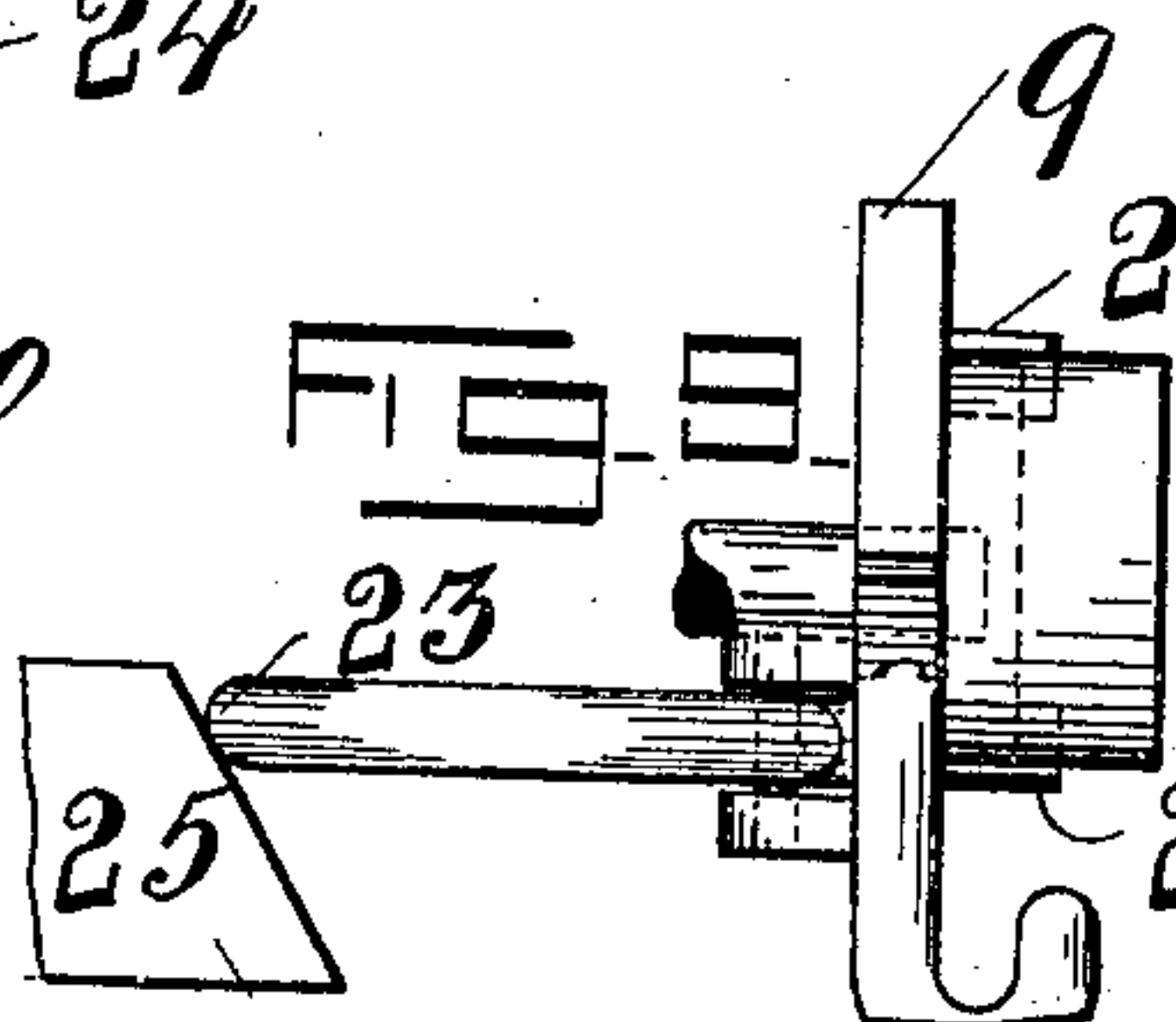
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APPLICATION FILED JAN. 17, 1905.

3 SHEETS—SHEET 3.



Witnesses  
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Inventors  
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their Attorney



# UNITED STATES PATENT OFFICE.

FREDERICK JOHN WALTON AND LONGINUS VIVIAN ROGERS, OF  
FINCHLEY, LONDON, ENGLAND.

## AUTOMATIC TIME-TABLE AND ADVERTISING DEVICE.

No. 829,816.

Specification of Letters Patent.

Patented Aug. 28, 1906.

Application filed January 17, 1905. Serial No. 241,497.

*To all whom it may concern:*

Be it known that we, FREDERICK JOHN WALTON and LONGINUS VIVIAN ROGERS, subjects of the King of Great Britain, residing at Finchley, in the county of London, England, have invented a new and useful Improvement in Automatic Time-Tables and Advertising Devices, of which the following is a specification.

10 This invention relates to an automatic time-table and improved method of displaying advertisements, public announcements, and the like, and has for its object to provide an automatically-operating advertising device in which an essential feature consists of a railway or other time-table centrally arranged which always exposes the times of all the trains which will start within a certain period—say one hour—such time-table being flanked on either side by vertically-arranged advertisements, some of which are stationary and permanent and others which are exhibited alternately—say every three minutes. In order to effect this object, we provide twenty-four cards, upon which the times of the trains are printed or displayed, and we provide mechanism for removing the front card at the expiration of every hour and replacing it at the back. By this means the cards are changed every hour through the day and night, and the correct time-table for every hour is for that hour displayed and at the expiration of the hour removed. We also provide independent mechanism for alternately displaying the moving advertisements.

15 In order that our invention may be more readily understood and carried into effect, reference is hereby made to the accompanying sheets of illustrative drawings, wherein—

Figure 1 is a front elevational view of the apparatus. Fig. 2 is a similar view with the front of the apparatus removed to show the interior mechanism. Fig. 3 is a vertical sectional view of the apparatus. Fig. 4 is a perspective view of a pivoted lever and its connections which operates the time-table, while Fig. 5 is a face view of the guide-slots along which the time-table cards slide. Fig. 6 is a side sectional view, to an enlarged scale, illustrating the gravity-hook utilized for automatically engaging the front time-table card. Fig. 7 is a front elevational view thereof. Figs. 8, 9, and 10 are side eleva-

tional, front elevational, and plan views, respectively, illustrating a detail of our invention; and Fig. 11 is a view illustrating another detail.

Referring to the drawings, wherein like letters and figures of reference indicate corresponding parts wherever occurring, *a*, Fig. 1, represents the central space behind which the time-table cards are displayed.

*b* represents permanent advertisement-spaces.

*c* represents orifices through which moving advertisements are alternately displayed.

The space *d* may conveniently be arranged for the display of weekly announcements, while the space *e* may be occupied by a complete time-table.

*f* is the clock which regulates, but does not perform, the operation of the automatic time-table.

Referring particularly to the mechanism for operating the time-table, a projection or catch 1 is arranged upon the minute-wheel 1<sup>a</sup> of the clock *f* or upon any wheel which rotates once in an hour and is so located that at every hour it engages with the upper end of a lever 2, pivoted at 3. The lower end of this lever 2 is provided with a forwardly-projecting bridge 4, arranged to one side and carrying an inwardly-projecting pin or projection 5, while an outwardly-projecting pin or projection 6 is arranged to the other side of the lower end of this lever 2.

A balance-weight 7 is arranged in connection with this lever 2, by means of which the pin 6 is kept normally in engagement with the upper end 8 of a lever 9, which is fulcrumed upon the spindle 10 of spring-motor mechanism 11 of ordinary form. The lower end 12 of this lever has attached to it the upper end of a chain or other inextensible flexible connection 13, the lower end of which chain carries a hook 14, adapted to slide in a slightly rearwardly inclined slot 15, arranged in the front of the machine immediately above the center of the front time-table card 16.

The lower end of the hook 14 is beveled or inclined, as at 17, so as to insure the hook proper, 18, catching the wire 19, which runs along the top edge of the time-table cards 16, a portion of which cards are cut away, as at 20, to accommodate the lower portion of the hook 14 when such hook has engaged with the wire 19 of the front time-table card 16.



At the top of the slot 15 antifriction rollers or pulleys 21 are mounted for the chain 13 to run upon. The wires 19 of the time-table cards 16 are extended slightly on either side 5 and are arranged to slide in suitable guide-slots 22, arranged upon either side of the time-table in a manner and for a purpose which will hereinafter appear. The lower part of these guide-slots 22 are provided 10 with a suitable curved inclination from the rear to the front of the machine, and the side extension-wires 19 of the twenty-four time-table cards 16—one for every hour—are arranged in these slots, so that the front card 15 is pressed forward slightly by the weights of the rear ones.

The operation of this portion of the apparatus is as follows: Assuming that the time is 12.30 o'clock, the front time-table card will 20 have displayed thereon all the trains, for instance, which start from the station between twelve o'clock and one o'clock; but immediately one o'clock arrives the projection 1 on the minute-wheel 1<sup>a</sup> of the clock *f* will engage 25 with the upper end of the pivoted lever 2, moving it about its pivot 3 and causing the pin 6 to be moved out of engagement with the upper end of the lever 9. This lever 9, which, as aforesaid, is associated with the 30 spring-motor mechanism 11, will start to revolve, and the upper end 23 of a gravity-catch 24, carried upon the back of the lever 9, will contact with an inclination or inclined edge 25, and the catch portion of the gravity- 35 catch, which normally protrudes through a hole in the lever and retains a weighted arm 26, which is pivoted at 27 to the lever 9 in a vertical position, will be withdrawn from its engagement with the weighted arm 26, and 40 such weighted arm will fall onto a hooked bar 28, carried by the lever 9. This falling weight will give an impetus to the lever 9, and with the aid of the spring-motor mechanism 11 will cause said lever to rapidly 45 revolve. When, however, the lever 9 has nearly completed one revolution, its upper end will contact with the projection 5, arranged, as aforesaid, upon a bridge 4, arranged upon the lower end of the lever 2, and 50 its motion will be stopped until the projection 1 on the minute-wheel 1<sup>a</sup> has passed the upper end of the lever 2, when said lever 2 will return to its normal position, and the upper end of the lever 9 will again come into 55 contact with the projection 6. As the lever 9 revolves, the weighted arm 26 is carried with it, and before said weighted arm reaches its normal position the gravity-catch 24 will again have returned to its normal position, 60 with its catch portion protruding through a hole in the lever, and will again engage the weighted arm 26, thus retaining it in its vertical position, such weighted arm being prevented from falling in the other direction by 65 means of a pin 29, fixed upon the lever 9. As

the lower end of the lever 9 revolves it naturally pulls upon the chain 13, and the hook 14 at the lower end of it, upon which the time-table card is engaged, is pulled up the guide-slot 15, and the side extensions of the wire 19 70 of the time-table card 16 are guided up the slightly rearwardly inclined portion 22<sup>a</sup> of the guide-slots 22, raising the pivoted obstructions 30, upon the ends of which rollers 31 are mounted. The card 16, still engaged 75 upon the hook 14, passes the gravity-catches 32, when the lower end of the lever 9 will have completed its upward journey and will begin to descend, and the time-table card will have its lower edge drawn clear of the 80 top edges of the other cards and above the inclined planes 33. The said time-table card will by its own weight seek to run on its lower edge down the planes 33 and on its wire side extensions down the inclined top 85 22<sup>b</sup> of the guide-slot 22. The hook 14, which is retained in the slot 15 by pins 14<sup>a</sup> and 14<sup>b</sup>, will fall away from engagement with the said card 16, and such card will fall, guided 90 by the rear portion 22<sup>c</sup> of the guide-slots 22, at the back of the other twenty-three time-table cards 16, and the hook 14 will fall down the slot 15 and engage with the new front time-table card, which will now be visible 95 through the orifice *a* of the apparatus and upon which will be displayed the time-table from one o'clock to two o'clock.

What we claim, and desire to secure by Letters Patent of the United States, is—

1. In an automatic time-table the combination with a plurality of cards constituting the time-table; of wires upon which said cards are carried; of the guide-slots arranged on either side of said cards in which slots the extremities of said wires travel; and of means 105 for automatically raising the front card and causing it to fall at the back at predetermined intervals, substantially as specified.

2. In an automatic time-table the combination with a plurality of cards constituting 110 the time-table; of wires upon which said cards are carried; of the guide-slots arranged on either side of said cards in which slots the extremities of said wires travel; of a gravity-hook adapted to engage the front time-table 115 card, of a flexible connection to the lower end of which said hook is attached, and of a rearwardly-inclined slot in which said hook travels and is retained, substantially as specified.

3. In an automatic time-table the combination with a plurality of cards constituting 120 the time-table; of wires upon which said cards are carried; of the guide-slots arranged on either side of said cards in which slots the extremities of such wires travel; of a gravity- 125 hook adapted to engage the front time-table card; of a flexible connection to the lower end of which said hook is attached; of a rearwardly-inclined slot in which said hook travels and is retained; of a spring-operated piv- 130



oted lever; a projection upon the lower end of  
said lever to which the end of the flexible  
connection, remote from the gravity-hook, is  
connected; of a weight pivoted upon and  
5 adapted to give impetus to said lever; of a  
fixed pin on said lever; a pivoted gravity-  
catch normally protruding through such le-  
ver, between which fixed pin and gravity-  
catch the pivoted arm carrying the said  
10 weight is normally retained; of a hooked arm  
connected with the spring-operated pivoted  
lever for catching the falling weight, and of  
means for operating the gravity-catch as the  
spring-operated pivoted lever moves, sub-  
15 stantially as specified.

4. In an automatic time-table the combi-  
nation with a plurality of cards constituting  
the time-table; of wires upon which said  
cards are carried; of the guide-slots arranged  
20 on either side of said cards in which slots the  
extremities of such wires travel; of a gravity-  
hook adapted to engage the front time-table  
card; of a flexible connection to the lower end  
of which said hook is attached; of a rear-  
25 wardly-inclined slot in which said hook trav-  
els and is retained; of a spring-operated piv-  
oted lever; a projection upon the lower end of  
said lever to which the end of the flexible  
connection remote from the gravity-hook is  
30 connected; of a weight pivoted upon and  
adapted to give impetus to said lever; of a  
fixed pin on said lever; a pivoted gravity-  
catch normally protruding through such le-  
ver, between which fixed pin and gravity-  
35 catch the pivoted arm carrying the said  
weight is normally retained; of a hooked arm  
connected with the spring-operated pivoted  
lever for catching the falling weight, means  
for operating the gravity-catch as the spring-  
operated pivoted lever moves, of means for  
40 releasing and arresting said spring-operated  
pivoted lever at predetermined intervals,  
substantially as specified.

5. In an automatic time-table the combi-

nation with a plurality of cards constituting 45  
the time-table; of wires upon which said  
cards are carried; of the guide-slots arranged  
on either side of said cards in which slots the  
extremities of such wires travel; of a gravity-  
hook adapted to engage the front time-table 50  
card; of a flexible connection to the lower end  
of which said hook is attached; of a rear-  
wardly-inclined slot in which said hook trav-  
els and is retained; of a spring-operated piv-  
oted lever; a projection upon the lower end of 55  
said lever to which the end of the flexible  
connection remote from the gravity-hook is  
connected; of a weight pivoted upon and  
adapted to give impetus to said lever; of a  
fixed pin on said lever; a pivoted gravity- 60  
catch normally protruding through such le-  
ver, between which fixed pin and gravity-  
catch the pivoted arm carrying the said  
weight is normally retained; of a hooked arm  
connected with the spring-operated pivoted 65  
lever for catching the falling weight, of means  
for operating the gravity-catch as the spring-  
operated pivoted lever moves, of means for  
releasing and arresting said spring-operated  
pivoted lever at predetermined intervals, 70  
said means comprising a pivoted releasing-  
lever, a weight associated with said lever, a  
bridge on the lower end of said lever, a rear-  
wardly-projecting pin on said bridge and a  
forwardly-projecting pin on the lower end of 75  
said lever between which pins the upper end  
of the spring-operated pivoted lever is nor-  
mally held and of means for causing the re-  
leasing-lever to be operated at predetermined  
intervals, substantially as specified. 80

In testimony whereof we have signed our  
names to the foregoing specification in the  
presence of two subscribing witnesses.

FREDERICK JOHN WALTON.  
LONGINUS VIVIAN ROGERS.

Witnesses:

ALFD. A. THORNTON,  
VINCENT HUGHES.