

(No Model.)

J. T. A. TODD.
ELECTRIC TIME SIGNALING APPARATUS.

Patented Nov. 19, 1895.

No. 550,205.

Fig. 1.

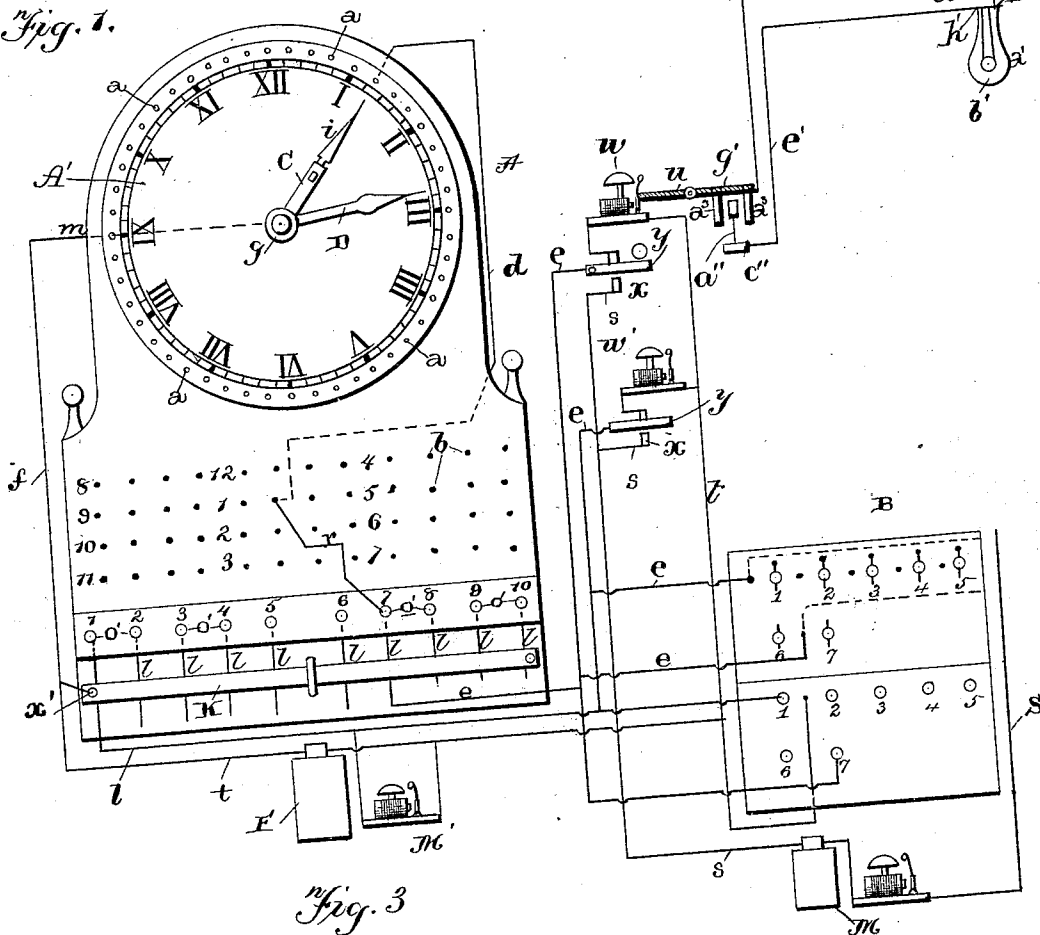


Fig. 3.

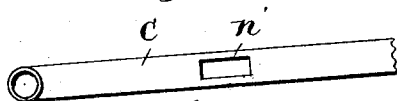


Fig. 4.

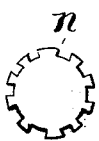


Fig. 5.

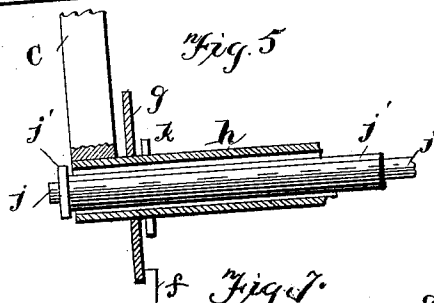
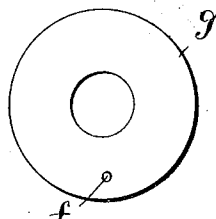


Fig. 6.



Witnesses:

Geo. Eschsch, Jr.
Geo. H. Snyder

Inventor.

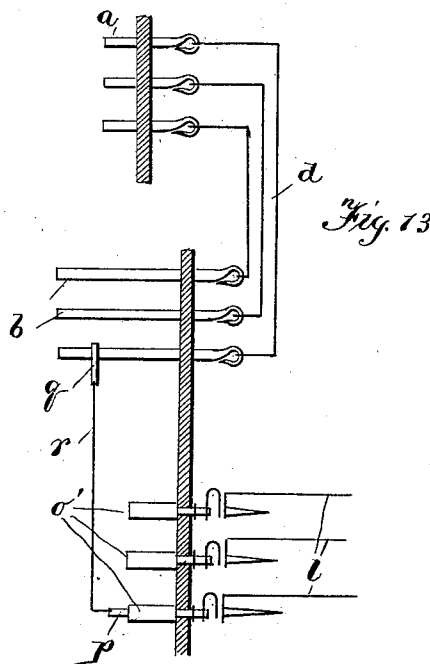
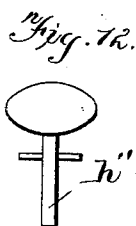
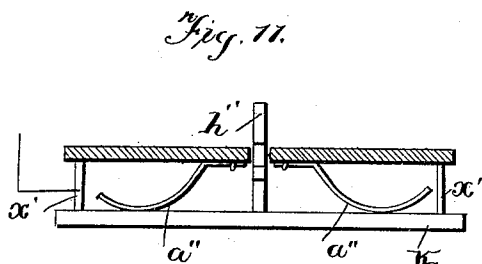
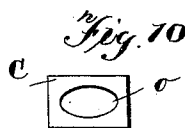
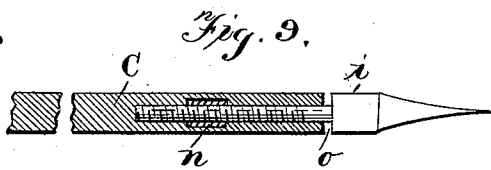
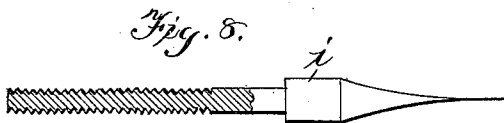
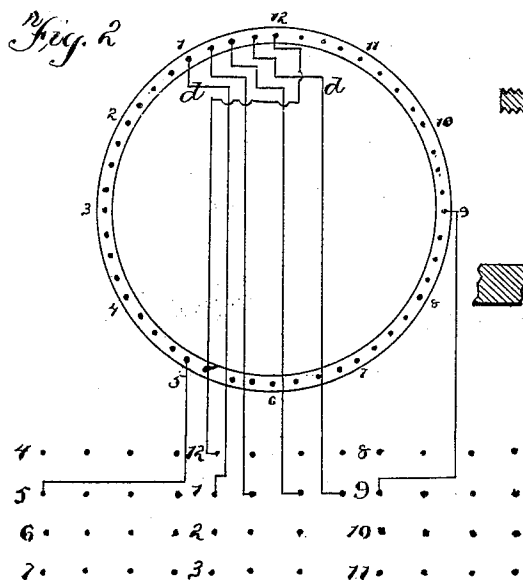
James T. A. Todd,
per
A. L. Jackson,
Attorney.

J. T. A. TODD.

ELECTRIC TIME SIGNALING APPARATUS.

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Witnesses:

Geo. C. French
Geo. N. Snyder

Inventor.
James T. A. Todd,
per A. L. Jackson,
Attorney.

UNITED STATES PATENT OFFICE.

JAMES T. A. TODD, OF FORT WORTH, TEXAS.

ELECTRIC TIME-SIGNALING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 550,205, dated November 19, 1895.

Application filed February 11, 1895. Serial No. 538,015. (No model.)

To all whom it may concern:

Be it known that I, JAMES T. A. TODD, a citizen of the United States, residing at Fort Worth, county of Tarrant, and State of Texas, have invented certain new and useful Improvements in Time Electric Signaling and Lighting Apparatus, of which the following is a specification.

The object of my invention is to provide an alarm apparatus specially designed for the use of persons in hotels or elsewhere desiring to be reminded of an engagement or duties to be attended to during the day or night, whereby the bells in the rooms and the bell in the office will be automatically rung at a predetermined time, and whereby an electric light can be produced simultaneously with the ringing of the bells; also, to provide a means for turning on alarms in all the rooms at the same time.

I am aware that electric lights have been automatically produced by electric time-signal apparatus, but do not know of the production of an electric light by the means which I use.

If the current of an incandescent electric-light system was electrically connected with a time-circuit, it would destroy the whole mechanism of the time-circuit. I connect the poles of an incandescent-light globe by means of mechanical motion produced by the time-circuit.

Other objects and advantages will be fully understood from the following description and claims, when taken in connection with the annexed drawings.

The ordinary bells and push-buttons for rooms and the office, the annunciator-bells, individual annunciator-drops, and the wire systems connecting same can be applied to my invention.

My invention consists in the construction and combination of parts, as hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures and characters of reference indicate corresponding parts in all the views.

Figure 1 is a diagrammatic view of my invention, showing entire electric circuit. Fig. 2 is a rear view of a portion of my invention,

showing electrical connection of dial-posts and time-connecting posts. Fig. 3 is a plan view of radial arm C and showing aperture for a nut. Fig. 4 is an end view of a milled nut. Fig. 5 is a detail view taken through the sleeve *h*. Fig. 6 is a view of a washer. Fig. 7 shows a flexible cord having a plug and clasp attached. Fig. 8 is a top of the trailer. Fig. 9 is a sectional view of the radial arm, and showing trailer and nut in place. Fig. 10 is an end view of the radial arm. Fig. 11 is a view of the mechanism for giving a general alarm. Fig. 12 shows a key. Fig. 13 is a detail view showing how the dial-posts, the time-connecting posts, and the room-tubes are to be connected.

The tubes *o'* have solid rear extensions through a false back of a clock and are held in place by small washers. These tubes have small leaf-springs attached to their rear ends. These springs press on brass tacks, to which are attached the wires 1.

A is the frame of a clock and other mechanism.

B is an annunciator. I will not describe the push-button board and annunciator in detail, because any practical push-button board and annunciator can be used.

C is the radial arm or hour-hand.

A' is the clock. The hour-hand can be dispensed with and the radial arm be used instead of an hour-hand. The trailer *i* is carried by the radial arm C.

D is the minute-hand of a clock.

a is a series of forty-eight metallic posts called "dial-posts," located outside of the clock dial-piece in a wooden frame A. There might be more or less of these posts, if desired. By the arrangement shown, signals can be given at intervals of fifteen minutes.

b is a system of metallic posts, equal in number to the dial-posts, located at any convenient place. These may be called "time-connecting" posts.

Fig. 1 shows the time-connecting posts *b* placed in a false back of the clock, arranged by fours—that is, four for each hour. After "12" in the same figure are four dots, representing four metallic posts; after "1," four posts, &c.

Fig. 2 shows how the rear ends of the dial-posts and the time-posts are connected. They

are connected by insulated wires *d*. There is one time-post for each dial-post. Time-post marked "12" is connected with dial-post opposite "II." Time-post marked "12:15" is connected to the dial-post next to the right of dial-post opposite "II," &c. There is a post for every fifteen minutes. The dial-posts are inserted in a wooden frame surrounding the dial-piece of the clock, so that they will be insulated, and they project far enough to the front so that the trailer *i* can touch them as it is revolved about the dial-piece. The dial-posts might project through the dial-piece if they were insulated from the dial-piece. The time-posts *b* are inserted in a wooden board or in the wooden casing of the clock-frame at any convenient place, so that their rear ends may be connected by insulated wires *d* to the rear ends of the dial-posts *a*. The time-posts may project in front three, four, or five inches, or any length that may be required. They should be reasonably long, so that a number of clasps may be attached to them.

o' is a system of metallic tubes, about one-sixteenth of an inch in diameter, inserted in a wooden board or in the wooden casing, and projecting about one-fourth of an inch to the front. These tubes can be placed in the lower part of the clock-casing. From the rear ends of these tubes and connected to the tubes are insulated wires *l*, which are connected to wires from the annunciators above the annunciator. There is a tube from each room. An insulated wire runs from each tube through an annunciator-wire to each room. The tube is given a number to correspond with the room-number and the number on the push-button board and annunciator. The number is placed by or below each tube in any suitable way. There is no definite number of tubes that may be arranged inside of the clock-frame. The number may be from one to six or seven hundred, according to the number of rooms.

In Fig. 1, *f* is an insulated wire connecting the battery *F* to the washer *g*, Fig. 5, on the sleeve *h*, also Fig. 5. The wire *f* enters the back of the clock at *m*. The sleeve *h* is attached to the radial arm *C*, which carries the trailer *i*. This sleeve revolves on the arbor *j* of the clock, but is insulated from it and the other parts of the clock by the washer *g* and radial arm *C*. Washer *g* is held in place by a shoulder *K* on the sleeve. Figs. 3, 4, 5, 8, and 9 show the trailer *i* and means for regulating same. The arm *C* may be rectangular. The outer end is hollow, as shown in Fig. 10. It may have an oval or square or rectangular opening to receive the end of the trailer. The inner end of the trailer has threads and enters the nut *n*. The nut *n* is milled on the outer edge and is placed in an opening *n'* in the arm *C*. The opening is just large enough to receive the nut *n* and prevents it from oscillating lengthwise. By turning the nut *n* the trailer *i* can be made

longer or shorter, in order to make the alarm-bell ring as long as desired. The end of arm *C* fits the trailer closely at *o* to prevent the trailer from vibrating. The trailer is made of steel and is made tapering at one end, so that it will be thin and elastic at the end as it brushes the dial-posts. The current starts in battery *F*, goes through wire *f* to washer *g*, then to sleeve *h*, through sleeve *h* to arm *C*, through nut *n*, and trailer *i*.

The tubes *o'* are connected to the time-posts *b* by means of small flexible insulated cords *r*, which have metallic plugs *p* on one end and metallic clasps *q* on the other end. (Shown in Fig. 7.) When it is desired to wake a person in a room, one of these cords *r* is used. The plug *p* is inserted in one of the tubes *o'*, and the clasp *q* is put on the time-post *b*, which represents the hour at which the person is to be waked. The bell *M'* is connected to one end of the tubes *o'* and to the trunk-line *t*. The tube to which the bell is connected is not to be used as a room-signal tube, but is to be connected by means of one of the cords *r* to the post *b*, which corresponds with the time at which the signal is to be given. For instance, if room 5 is to be signaled at four o'clock, a plug of a cord *r* is inserted in the tube *o'* No. 5, and the clasp *q* is hung on time-post indicating four o'clock. Another cord is taken and its plug is inserted in the tube *o'* to which the bell *M'* is connected, and then the clasp on the cord is hung on the same post *b* that indicates four o'clock. When the trailer *i* touches the corresponding dial-post *a*, the bell in the room is rung and the electric light is turned on. Any number of guests can be waked at the same hour by connecting all the tubes *o'*, representing as many rooms, with one of the time-posts *b*. If enough clasps are attached to one post to take the whole length of the post, then the clasps of other cords can be attached to the shanks of those clasps already attached. In this way any number of people can be waked at one time, or some can be waked at one time and some at another time. In case of fire all the guests can be waked at one time by turning key *h''* one-fourth around and pressing bar *K* on the wires *l*. This will complete the circuit to all the rooms and all the bells will be rung. The key *h''* is attached to bar *K* and when not in use holds the bar away from the wires *l*. Two leaf-springs *a'' a''* are attached to the rear side of the false casing, and when the key *h''* is turned press the bar *K* against the wire *l*. Two metallic posts *x' x'* are inserted in the casing and in the ends of the bar *K*. A wire connects one of these posts with battery-wire *f*. From the rear end of each tube *o'* a wire runs to a wire leading from the corresponding number on the annunciator, then to each room. The push-button board is connected to the time-battery, and has wires *l'* attached to the corresponding room-wires of the time-circuit. Each push-button stands

connected with the room-wire, and when pressed connects with time-battery F and signals a room.

When a guest in a room wishes to signal the office, all he has to do is to press the button, Fig. 1, in the room. This completes a circuit through trunk-line *s* to indicator-battery M, through wire *S* to indicator, thence through wire *e* to contact *y*. When the circuit is complete the office-bell rings and the indicator-drop falls.

The time-circuit is as follows: When the trailer *i* touches a dial-post *a*, which is connected to a time-post *b*, the circuit is completed. Starting in battery F, it goes through line *f* to washer *g*, to sleeve *h*, to arm C, to nut *n*, to trailer *i*, to post *a*, through cord *d* to post *b*, through cord *r* to tube *o'*, through line *l*, through line *e* to contact *y*, to bell *w*, through trunk-line *t* to battery F. Connected to the clapper of bell *w* is a non-conducting rod *u*, which serves to prevent the two systems of electricity from coming together and to operate the metallic rod *g'*, secured to its inner end. To the under side of this rod *g'* are secured two depending pieces or rods of metal *a³*, which extend down in close proximity to the spring *a''*, provided with a suitable head that extends up between them. When the bell *w* begins to ring, its clapper vibrates the rods *u g'* with great rapidity, and the rods *a³* alternately strike the upper end of the spring *a''*, and through it and its metallic base *c''* the wires *e' c' f'* convey the current to the carbon *b'* and produce practically a continuous light. The wire *f* connects with the one *c'* at any suitable point. When the bell stops ringing the light ceases.

c' is one of the conducting-wires of an electric-light system and is permanently connected at K' with the carbon *b'* in the incandescent electric globe *a'*.

e' is permanently connected with the socket at *h'*, which socket is connected with the carbon *b'*. When rod *g'* is pushed in contact with the wire *e'*, the carbon *b'* is lighted. The wire *f'* connects the incandescent wire *b'* of an ordinary incandescent globe *a'* with the metallic rod *g'*. The disconnected pole of the electric globe is electrically connected as follows: Wire *f'* is connected to wire *d'*, and rod *g' e'* is connected to the socket from which wire *d'* is disconnected and is also connected to bar *c'*, which holds spring *a''*. The rod *u* must necessarily be a non-conductor to prevent the current from the incandescent globe entering the time-circuit. In the mechanism described the circuit in the globe will be broken by each stroke of the bell-clapper; but the strokes will be so rapid that the light will not be extinguished. The light will be extinguished as soon as the bell stops ringing. Permanent connection of the circuit could be more easily accomplished than the temporary connection.

Figs. 1 and 13 show the electrical connection of the time mechanism. Fig. 1 shows one of the connecting-wires *d* in a dotted line

running from one of the posts *b* to one of the dial-posts *a*, located in the clock-casing just outside of the dial. Fig. 13 shows three of these wires connected to three of the posts *a* and three of posts *b*. Fig. 13 shows, also, one of the connecting-cords *r* with its plug *p* inserted in one of the tubes *o'* and the clasp *q* attached to one of the posts *b*. It will be understood how any number of clasps can be attached to one of the posts *b* and thus make electrical connection of the time mechanism with any number of rooms. In Fig. 1 the wire *f* is shown in a dotted line connecting the battery F with the washer *g* on the sleeve *h*. Fig. 5 shows the sleeve *h* attached to the radial arm C. The sleeve may be insulated by putting some kind of fiber on the inside, leaving an opening for the arbor *j*, (or the insulating fiber may be wrapped on arbor *j*), as shown in Fig. 5. The sleeve is shown in section and a fiber-tube *j'* is shown in this sectional view. The fiber-tube may have a shoulder to insulate it from the minute-hand, or a washer of fiber could be used.

In the illustrations used a push-button is disconnected from the annunciator-circuit and connected with the time-circuit. The push-buttons could have been put in the clock along with the room-tubes.

M' is a bell to notify the office-clerk that the room-alarm has been given. It is connected to the battery F and to be connected to one of the posts *b* corresponding to dial-post indicating the hour at which signal is to be given.

In the drawings only a few illustrations of tubes, push-buttons, and indicator-drops are shown. Only two room-bells and one electric-light globe are illustrated, with the wires connecting them, and only one room-alarm bell, with one incandescent globe, is shown. I think that these are sufficient illustrations.

Various features in my invention may be changed in many ways without departing from the invention.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A switching mechanism for an electric time signaling circuit consisting of metallic tubes *o'*, having solid rear extensions located in a wooden board and having springs attached to said rear extensions for making connection with wires *l*, leading to rooms, said tubes to be connected to metallic time-connecting posts *b*, by insulated cords *r*, having metallic plugs *p*, on one end for inserting in said tubes and metallic clasps *q*, for clamping said time connecting posts, whereby any number of said tubes can be connected to a single time-connecting post.

2. An electrical time signaling circuit having means for giving a general alarm, office alarm bell M', a push button board, an annunciator, an annunciator bell, and an adjustable regulating trailer *i*, held in a recessed hour hand C, by a nut *n*, having a milled

outer rim and located in a slot in said hour hand.

3. An electrical time signaling circuit, having an adjustable regulating trailer, held in a recessed hour hand by a nut having a milled outer rim and held in a slot in said hour hand; whereby said trailer can be made longer and shorter without being turned in said recessed hour hand.

4. An electrical time signaling circuit having a radial arm C, attached to an insulated sleeve *h*, a washer *g'*, held in place by a shoulder *k*, on said sleeve, an adjustable regulating trailer *i*, having threads on its inner end and having the outer end curved and elastic, held in said recess by a nut *n*, located in a slot in said radial arm, metallic dial posts *a*, inserted in a wooden frame *c*, wires *d*, connecting said dial posts to metallic time connecting posts *b*, said time connecting posts to be connected by flexible cords *r*, having metallic plugs *p*, on one end and metallic clasps *q*, on the other end.

5. In an electric time signaling and lighting apparatus, the combination of an electric time circuit, having an adjustable regulating trailer for automatically closing the circuit, and an incandescent electric globe connected to said time circuit and being made operative by means of mechanical motion transmitted from said time circuit through non-conducting material.

6. An electric time signaling and lighting apparatus having mechanism for automatically closing the circuit in incandescent electric globes of an electric light system at a pre-determined time, said mechanism comprising non-conducting rods attached to bell clappers of a time signal circuit, conducting rods attached to said non-conducting rods, wires connecting said conducting rods to the disconnected poles of incandescent electric globes, wires for connecting the corresponding sockets of said globes to springs which vibrate between projections on said conducting rods when set in motion by said bell clappers, said bell clappers being set in motion by the automatic closing of said time circuit by means of an adjustable regulating trailer held in a recessed hour hand by a milled nut located in a slot in said hour hand.

7. An electric time signaling and lighting apparatus having non-conducting rods for transmitting motion from the clappers of bells of an electric time circuit to conducting rods which connect the poles of incandescent electric light globes, said bell clappers being

set in motion by means of an automatic circuit closer.

8. An electric lighting apparatus consisting of wires *f'*, for connecting the disconnected poles of incandescent electric globes to metallic rods *g'*, wires *e'*, for connecting the corresponding sockets of said globes to springs which vibrate between projections on said metallic rods, and non-conducting rods *u*, for transmitting motion from the clappers of bells of an electric time circuit to said metallic rods, whereby electric lights are turned on at a predetermined time.

9. In an electric time signaling and lighting apparatus, the combination of a clock A', having a recessed hour hand C, attached to an insulated sleeve *h*, washer *g*, on said sleeve, held in place by shoulder *k*, an adjustable trailer *i*, inserted in said hour hand; metallic dial posts *a*, insulated wires *d*, connecting said posts to metallic time-connecting posts *b*, metallic tubes *o'*, to be connected to posts *b*, by flexible cords *r*, having metallic clasps *q*, and plugs *p*, wires *l*, connecting tubes *o'*, to wires *e*, leading from annunciator B, to room button, contact *y*, a push-button-board B', connected to lines *l*, by lines *l'* and to battery F by line *t*; bells *w*, trunk line wire *t*, connected to battery F, line *f*, connecting battery F to washer *g*, trunk line wire *s*, connecting contact X, to battery M, wire *S'* connecting battery M, annunciator B, alarm bell M', and incandescent electric globe *a'*, having connecting wires *e'* and *f'*, and metallic rod *g'*, attached to non-conducting rod *u*.

10. In an electric time signaling and lighting apparatus, the combination of a wire leading from a series of rooms to a battery, a wire connecting said battery to a washer on an insulated sleeve, a time indicator, bearing an adjustable trailer, metallic dial posts inserted in a wooden frame, wires connecting said dial posts to metallic connecting posts, flexible cords to connect said connecting posts to metallic tubes; said tubes corresponding in number to number of rooms, wires leading from said tubes to rooms, contacts, bells having clappers, non-conducting rods attached to metallic rods, said rods being connected to disconnecting poles of the electric globes by means of wires and mechanical motion of said clappers transmitted through said non-conducting rods and said metallic rods.

JAMES T. A. TODD.

Witnesses:

W. P. KRUCKMAN,
G. E. MOFFETT.