

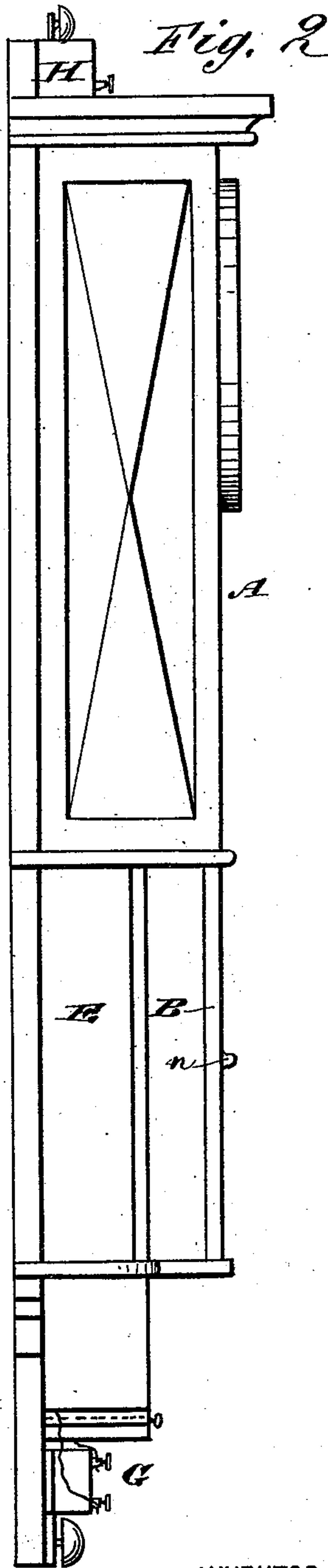
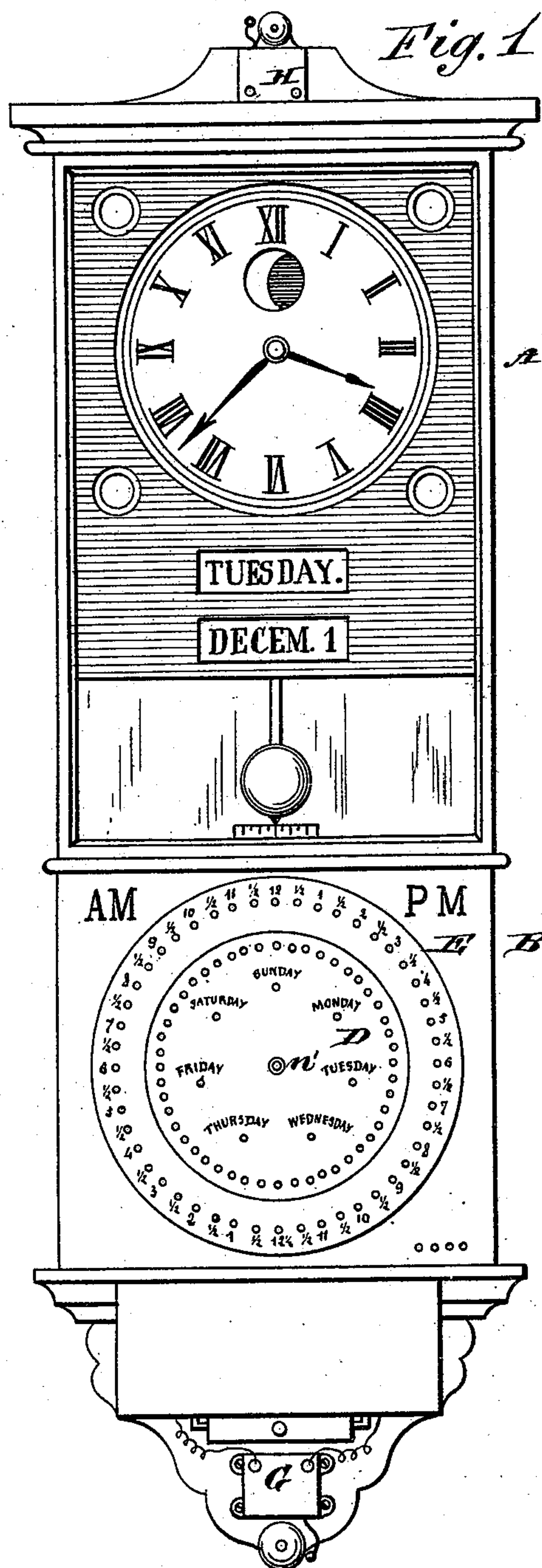
(No Model.)

2 Sheets—Sheet 1.

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ELECTRIC PROGRAM CLOCK.

No. 496,258.

Patented Apr. 25, 1893.



WITNESSES:

*C. Neveu*  
*Co. Bedgwick*

INVENTOR

*H. C. Hain*  
BY *Munn & Co*

ATTORNEYS.

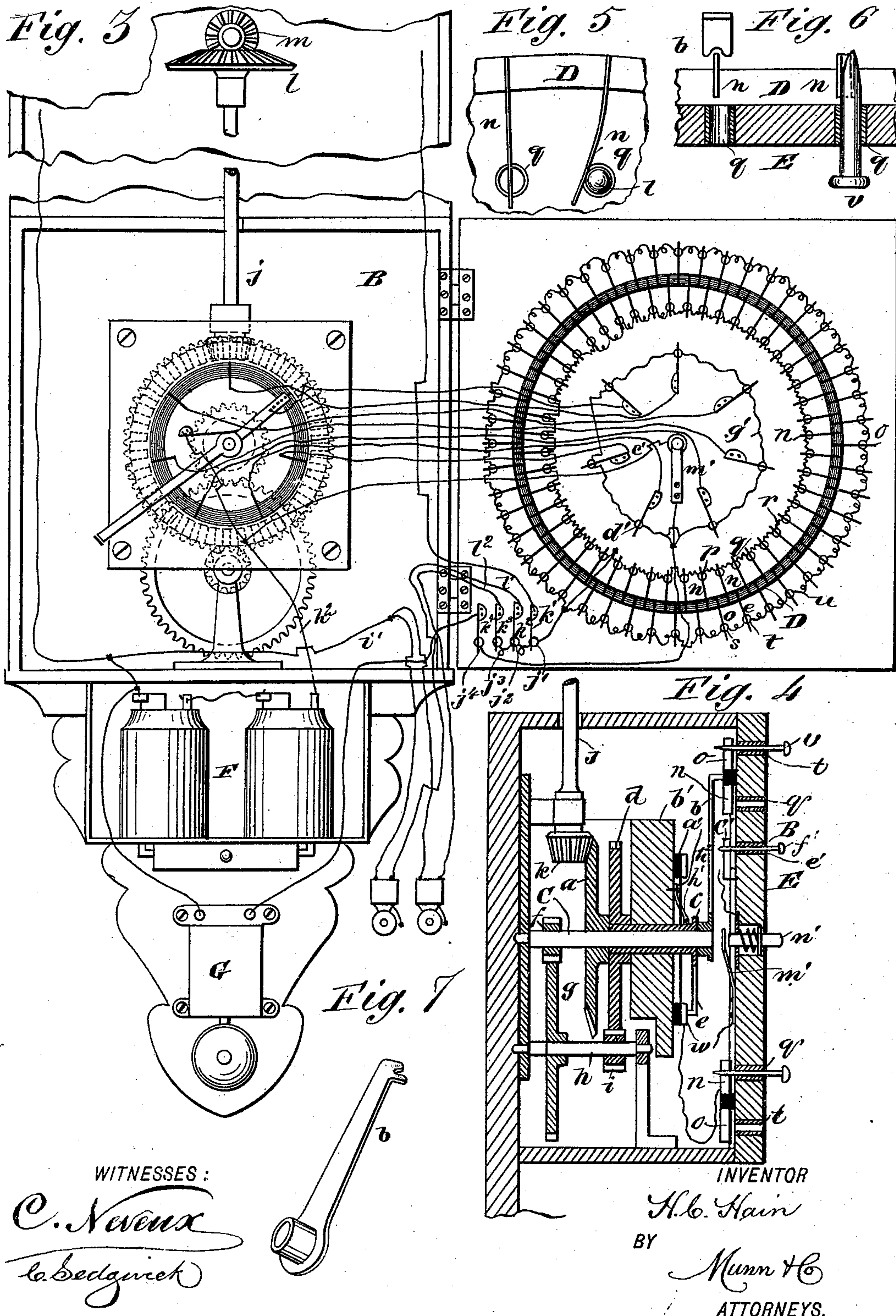
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# UNITED STATES PATENT OFFICE.

HENRY C. HAIN, OF BOONEVILLE, MISSOURI.

## ELECTRIC PROGRAM-CLOCK.

SPECIFICATION forming part of Letters Patent No. 496,258, dated April 25, 1893.

Application filed April 18, 1892. Serial No. 429,582. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY C. HAIN, of Booneville, in the county of Cooper and State of Missouri, have invented a new and Improved Electric Program-Clock, of which the following is a specification, reference being had to the annexed drawings, forming a part thereof, in which—

Figure 1 is a front elevation of my improved electric reminder. Fig. 2 is a side elevation. Fig. 3 is an enlarged partial front elevation showing the apparatus with the door open. Fig. 4 is a vertical transverse section of the contact mechanism. Fig. 5 is an enlarged detail rear elevation of a portion of the contact dial. Fig. 6 is a transverse section of the same; and Fig. 7 is a detail view of one of the contact arms.

Similar letters of reference indicate corresponding parts in all the views.

The object of my invention is to construct an electrical attachment for a clock, for giving calls at different times in the day and different days in the week, as a reminder of engagements, &c.

The invention will be first described and then pointed out in the claims.

The clock A, is of ordinary construction and will therefore require no particular description.

To the lower end of the clock case is attached an auxiliary case B, in which is journaled a shaft C, carrying a bevel wheel *a*, and a contact arm *b*. Between the said bevel wheel *a* and contact arm *b*, and upon the shaft C, is placed a sleeve *c*, to which is secured a spur wheel *d* and a contact arm *e*. To the said shaft C, is also attached a pinion *f*, which engages a spur wheel *g* on the shaft *h*, journaled in the auxiliary casing B, and carrying the pinion *i*. The said pinion *i* engages the spur wheel *d*.

In the clock case and in the auxiliary case B, is journaled a shaft *j*, provided at its lower end with a bevel pinion *k*, which engages the bevel wheel *a* on the shaft C. The upper end of the shaft *j* is provided with a bevel wheel *l*, which is engaged by a bevel pinion *m* on the minute hand arbor of the clock A. The gearing just described is proportioned so that

the shaft C makes a revolution once in twenty-four hours, while the sleeve *c* makes a revolution once in seven days.

The end of the arm *b* is angled and notched, as shown in Fig. 7, and in the path of the said notched end of the arm *b*, are arranged contact springs *n*, *o*, which alternate with each other and are inserted on radial lines in an insulating annular support D, secured to the back of the dial E. The inwardly-projecting contact springs *n* project over apertures *p* formed in the dial E, and bushed with metallic bushings *q*, the entire series of bushings *q* in the said apertures being connected together in series by a wire *r*. In a similar manner the springs *o*, which project outwardly from the insulating support D, project over apertures *s*, in which are inserted bushings *t*, and the said bushings *t* are all connected together in series by a wire *u*. Pins *v*, having pointed ends, are fitted to the bushings *q*, *t*, so that when a pin is inserted in one of the bushings, it touches one of the springs *n* or *o*, and makes an electrical connection between the said spring and the bushing. The notched end of the contact arm *b* makes two contacts with each spring before passing to the next in order, thereby giving two alarms as will presently be described.

The arm *e* is angled at its free end, and is arranged to touch the contacts *w* inserted in the angled insulating support *a'*, secured to the plate *b'* which supports the sleeve *c*. There are seven contact bars *w*, corresponding to the seven days of the week, and each of the said contact bars is connected with a spring *c'* on the back of the dial E. The said springs *c'* project over apertures *d'*, in which are inserted metallic bushings *e'*, to which are fitted pointed pins *f'*. The bushings *e'* are connected in series by the wire *g'*. The bushings *e'* represent the days of the week upon the dial E. A spring *h'*, attached to the plate *b'*, presses on the sleeve *c*, and is connected by a wire *h<sup>2</sup>* with one pole of the battery F, placed in the lower compartment of the case B, the other pole of the said battery being connected with the bell G, below the said auxiliary casing, and another bell H at the top of the clock casing, also with a wire *i'*,



extending in the present case to two distant bells.

In the front of the auxiliary casing B, are inserted metallic bushings  $j^1, j^2, j^3, j^4$ , over which extend springs  $k^1, k^2, k^3, k^4$ , the spring  $k^1$  being connected electrically with the bell H at the top of the clock, the spring  $k^4$  being connected electrically with the bell G, and wires  $l^1, l^2$  extend from the springs  $k^2, k^3$  to the distant bells which are connected with the wire  $i^1$ . The bushings  $j^1, j^2, j^3$  are connected together and with the wires  $u, r$ . The bushing  $j^4$  is connected electrically with the wire  $g^1$  and with the spring  $m^1$  of the push button  $n^1$  at the center of the dial.

The outer row of bushings  $t$  of the dial represents the hours and half hours, and the inner row of bushings  $q$ , the quarter hours or the intermediate half hours. A call for any day of the week is insured by the insertion of a pin  $f^1$  in the bushing  $e^1$  located under the name of the day; a call for any hour, half hour or quarter hour in the twenty-four is insured by the insertion of a pin in one of the bushings  $q$  or  $t$ . By inserting a pin in the bushing  $j^1$ , thus connecting the wires  $u, r$ , electrically with the bell H at the top of the clock, the said bell will ring whenever the contact is made with the hour, half hour, or quarter hour spring which is thrown in the circuit by the insertion of the pin  $f^1$ . When the arm  $e$  makes a contact with one of the contact bars  $w$ , it gives an alarm on the bell G, providing a pin  $f^1$  is in one of the bushings  $e^1$ , and the arm  $b$  closes the electric circuit on the bell H, providing a pin  $v$  is in one of the bushings  $q, t$ , the alarm corresponding with the time represented by the position of the pin  $v$  on the dial. An alarm is insured upon one of the distant bells by the insertion of a pin in one of the bushings  $j^2, j^3$ . When a local call is required, the push button  $n^1$  is used, thereby closing the circuit on the bell G, and giving an alarm. The arm  $b$  which contacts with the spring  $n^1$  by virtue of its notched end makes two contacts with each spring at each revolution, thus causing a double alarm to be given, which insures attention.

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

1. The combination with a clock, of an auxiliary dial provided with a series of openings, a series of equidistant electrical contacts arranged in a circle on the inside of the dial, and opposite the openings thereof, a contact arm adapted to close an electric circuit, mechanism between the clock and arm for operating the latter from the former, and removable pins adapted to be inserted in the openings in the dial, substantially as and for the purpose set forth.

2. The combination with a clock, of an auxiliary case provided with a dial having open-

ings therein, a series of contact springs representing the fractions of a day, a series of contact springs representing the days of a week, said contact springs being within the auxiliary case, mechanism between the clock and arms for operating the latter from the former, and removable pins adapted to be inserted in the openings of the dial to engage the said contact springs, substantially as described.

3. The combination with a clock, and electric alarm bells, of an auxiliary case provided with a dial having openings, said openings being provided with metal bushings connected together, a series of contact springs representing the fractions of a day, a series of contact springs representing the days of a week, said contact springs being within the said case, contact arms, mechanism between the said arms and clock for operating the former from the latter, and pins adapted to be inserted in the openings of the dial to engage the contact springs, substantially as herein shown and described.

4. The combination with a clock provided with an auxiliary case having a dial provided with metal lined apertures connected together, of a series of contact springs representing the fractions of a day, a series of contact springs representing the days of the week, contact arms mounted in the auxiliary case, mechanism for operating the said arms from the clock, said mechanism causing one arm to make a revolution once in twenty-four hours and the other to make a revolution once a week, and pins adapted to be inserted in the apertures of the dial and engage the said contact springs, substantially as described.

5. The combination with a clock provided with an auxiliary case having a dial provided with metal lined apertures connected in series, and electric bells, of contact springs  $n^1$  on the dial and projecting over some of the apertures of the said dial, contact bars  $w$  secured to a support in the auxiliary case, contact springs  $c^1$  on the dial projecting over some of the apertures thereof and connected with the bars  $w$ , contact arms  $b, c$  in the auxiliary case, mechanism operated by the clock for causing one arm to make a revolution once in twenty-four hours and the other to make a revolution once a week, and pins adapted to be inserted in the apertures of the said dial, substantially as herein shown and described.

6. The combination, with a series of bushings connected electrically with each other and with the battery and call bell, of a series of contact springs extending over the bushings, and conically pointed pins for insertion in the bushings for completing the electric circuit between the contact springs and the bushings, substantially as specified.

7. The combination, with a clock, of an aux-



iliary movement provided with two arms, one  
arranged to make a revolution once in twenty-  
four hours the other being arranged to make  
a revolution once in a week, series of elec-  
5 tric contacts arranged to be touched by the  
arms, removable circuit closing pins for en-  
gaging said contacts electric alarm bells, and

the electric connections, substantially as speci-  
fied.

HENRY C. HAIN.

Witnesses:

L. H. LEVENS,  
A. H. STEPHENS.