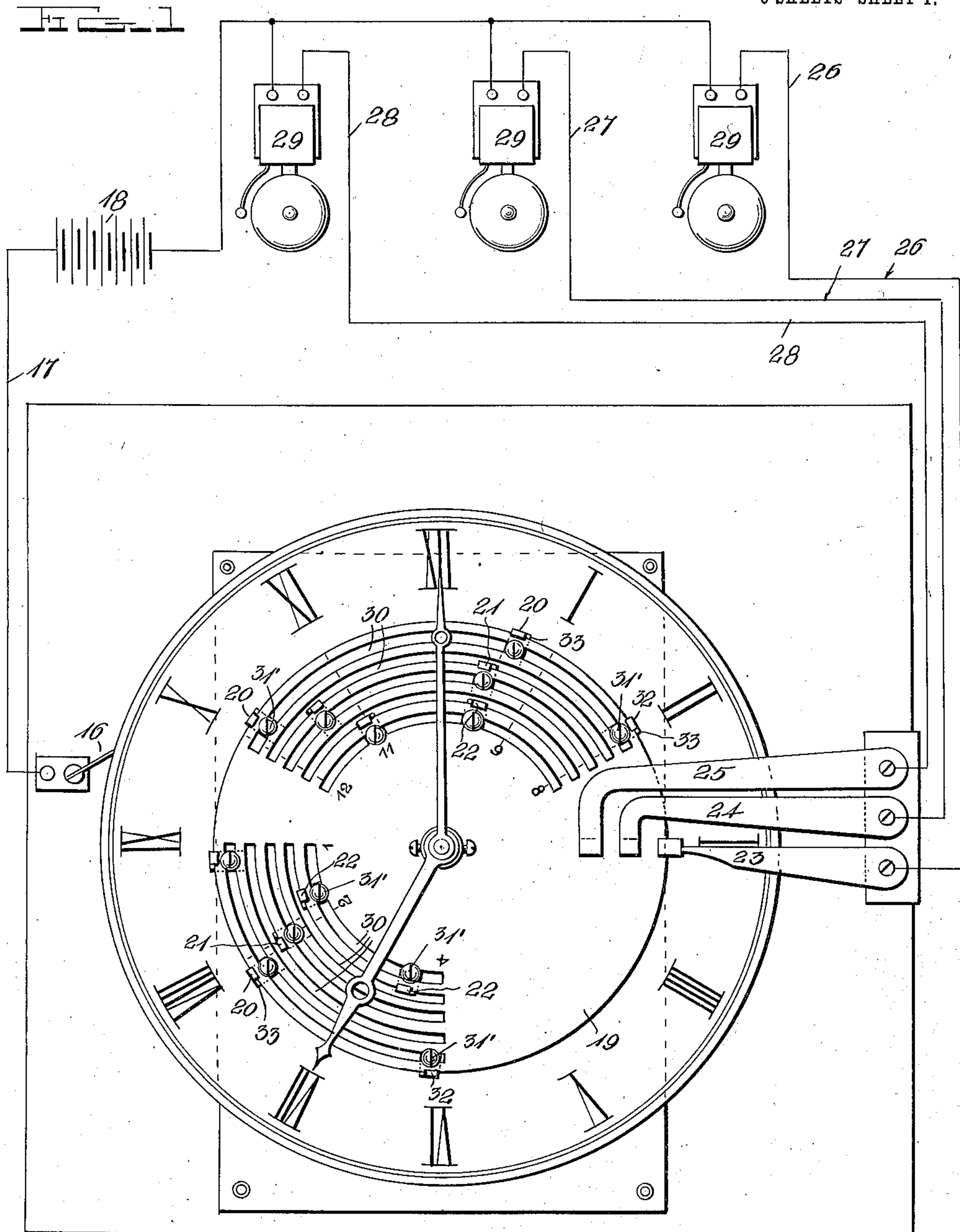


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 PROGRAM ATTACHMENT FOR CLOCKS.  
 APPLICATION FILED FEB. 28, 1908.

900,529.

Patented Oct. 6, 1908.

3 SHEETS—SHEET 1.



Witnesses

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3 SHEETS—SHEET 2.

FIG. 2

FIG. 3

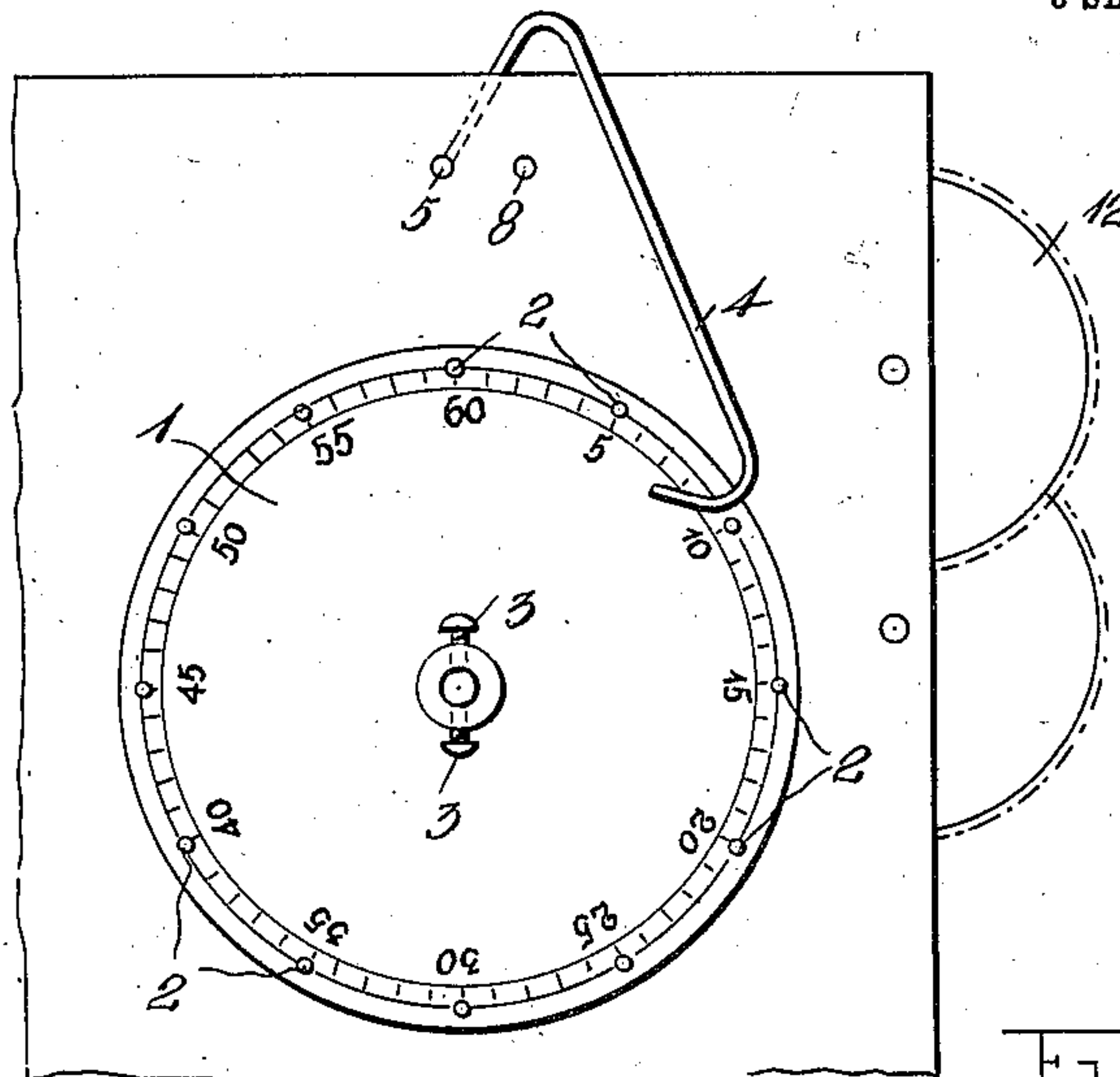
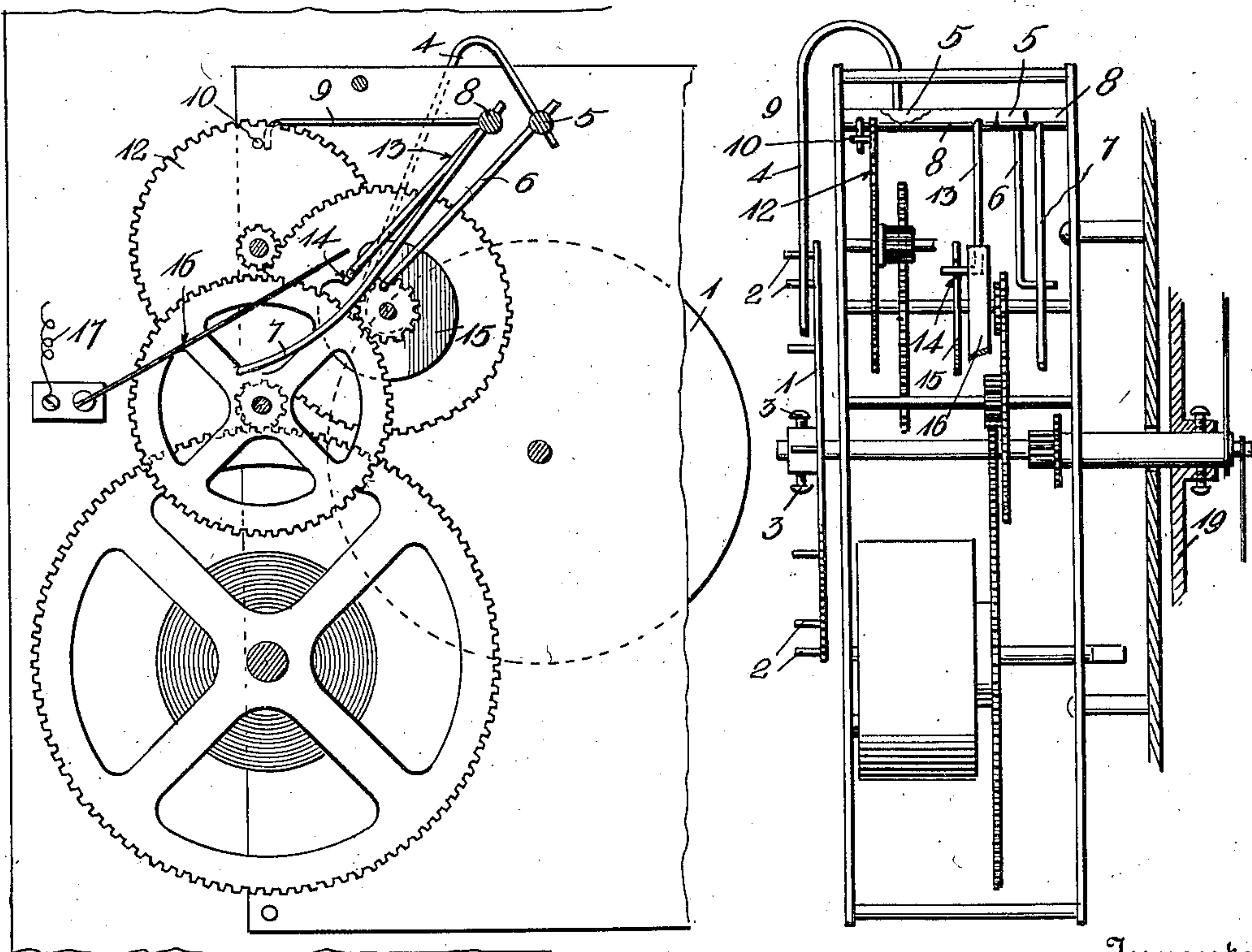


FIG. 4



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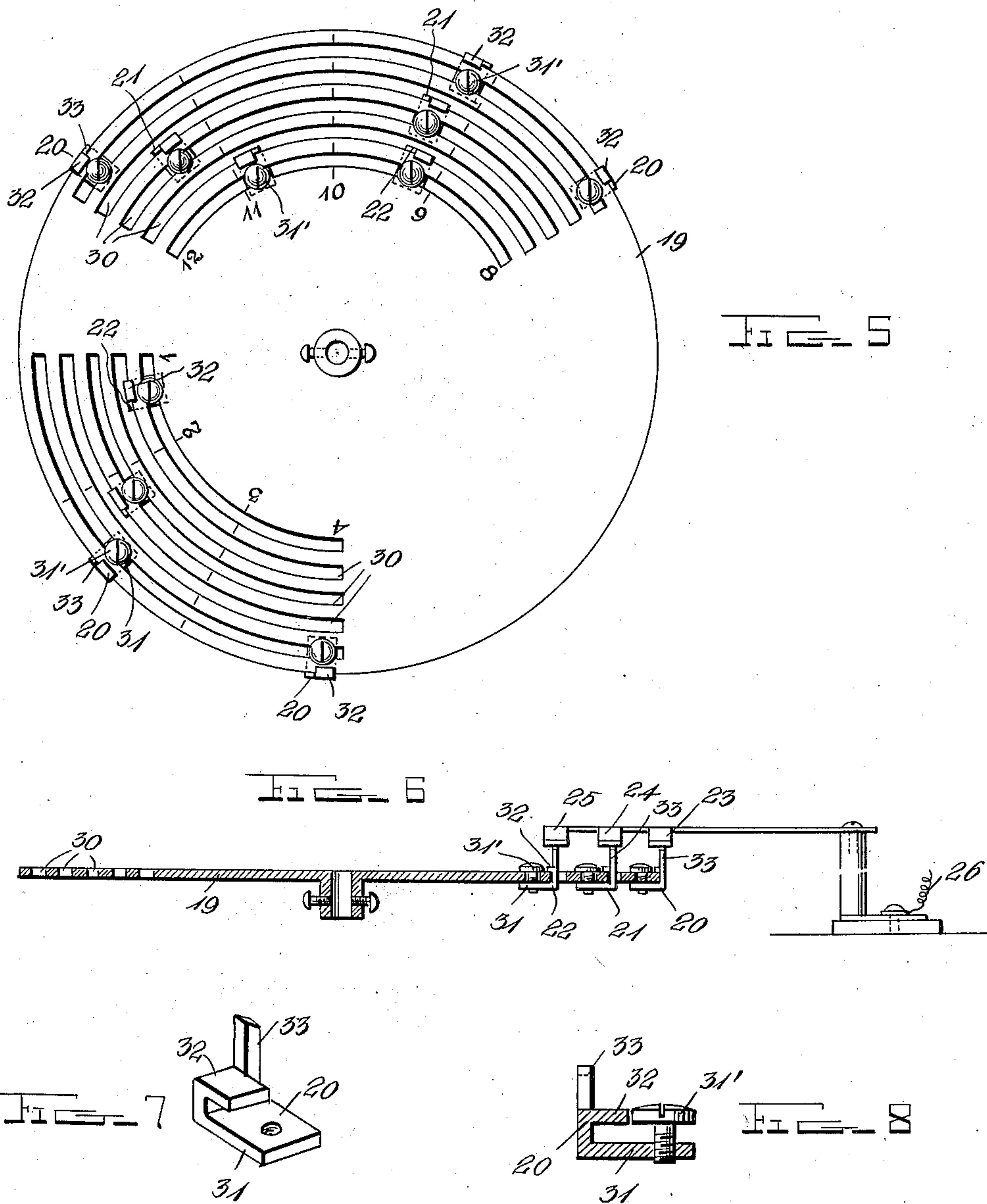
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3 SHEETS—SHEET 3.



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# UNITED STATES PATENT OFFICE.

JULIUS W. HANSEN, OF PRINCETON, INDIANA.

## PROGRAM ATTACHMENT FOR CLOCKS.

No. 900,529.

Specification of Letters Patent.

Patented Oct. 6, 1908.

Application filed February 28, 1908. Serial No. 418,339.

*To all whom it may concern:*

Be it known that I, JULIUS W. HANSEN, a citizen of the United States, residing at Princeton, in the county of Gibson and State of Indiana, have invented certain new and useful Improvements in Program Attachments for Clocks; and I 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.

This invention relates to program attachments for clocks.

The object of the invention is to provide an attachment of this character whereby one or more bells may be rung or other signals sounded when arranged in the same or different locations.

A further object of the invention is to provide a simple and efficient apparatus of this character adapted to be applied to the hour-shaft and striking-mechanism of an ordinary striking clock to make and break one or more electric circuits, whereby one or more bells in each of said circuits are rung at any desired time.

With these and other objects in view, the invention consists of certain novel features of construction, combination and arrangement of parts as will be described and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a front view of a clock showing a diagrammatic arrangement of the invention connected thereto; Fig. 2 is a rear view of the same; Fig. 3 is a front view of the clock works with parts broken away to more clearly disclose the connection of the invention thereto; Fig. 4 is a side view of the same, with parts broken away; Fig. 5 is a plan view of the hour dial; Fig. 6 is a detail sectional view of the same, showing the arrangement of the contact brushes for engaging the contact pins thereon; Fig. 7 is a detail perspective view of one of the contact pins of the hour dial; and Fig. 8 is a sectional view of the same.

This invention is adapted to be applied to the works of an ordinary striking clock and consists, primarily, of two dials, which, for convenience of reference, I will term "minute and hour dials." The minute dial, 1, consists of a circular disk of metal or other suitable material, on the outer side of which, near its edge, the same is divided into sixty minute divisions, and opposite certain of

said divisions are arranged trip pins, 2, said pins being shown in the present instance as arranged opposite each five minute division. These pins, however, may be arranged at any of the divisions on the dial.

The dial, 1 is preferably arranged on the rear side of the clock works, and is secured to the minute hand of the shaft of the clock, said shaft being extended beyond the rear side of the works to receive said dial, the latter being rigidly connected to said projecting end of the shaft by set-screws, or other suitable fastening devices.

The trip pins, 2, are adapted to be brought into successive engagement with a lifting rod, 4, which is similar to and corresponds with the ordinary lifting rod of the striking mechanism of a clock. The rod, 4, is connected to a tripping shaft, 5, which is pivotally mounted in the frame of the clock work and is here shown as being bent over the upper edge of said frame and thence downwardly in rear of the same in position to be engaged by the pins, 2. The shaft, 5, has secured thereto, near its opposite end, a trip rod, 6, the lower end of which is adapted to engage a second trip rod, 7, which is fixed to and projects from a second trip shaft, 8, to which is also secured a stop arm, 9, the outer right-angularly bent end of which is normally in the path of movement of a stop pin, 10, which projects laterally from one of the gears, 12, of the striking train, thereby holding the striking mechanism against movement until released by the upward movement of the stop arm, 9, which movement is effected through the engagement of the trip pins, 2, with the lifting rod, 4, and the parts operated thereby, as hereinbefore described. To the trip shaft, 8, is also secured a contact rod, 13, the lower end of which is bent at right-angles and is adapted to drop into engagement with a notch, 14, formed in the commutator disk, 15, which is fixedly mounted on the shaft of one of the gears of the striking train to revolve therewith. When the trip shaft, 8, is turned through the mechanism operated by the trip pins, 2, to start the striking mechanism, the contact rod, 13, will be lifted out of engagement with the notch, 14, and will rest on and be held up by the outer edge or periphery of the commutator disk while the latter is revolving and until the notch, 14, is again brought opposite to the right-angularly bent end of the rod, at which time said rod will



again drop into the notch, and at which time, the stop arm, 9, will also drop into the path of movement of and be engaged by the stop pin, 10, on the gear 12, of the striking train, thus stopping the movement of the latter. When the contact rod, 13, has been lifted in the manner hereinbefore described, the same will be brought into engagement with the contact brush, 16, which is arranged in the path of upward movement of said rod, and is secured to the clock frame or casing in any suitable manner. To the brush, 16, is connected one end of an electric contact wire, 17, which extends to the batteries, 18, and forms part of an electric circuit. During the time the contact rod is held up by its engagement with the periphery of the commutator disk, said rod is held in engagement with the contact brush, 6, thus completing the circuit at this end of the wire. This engagement of the contact rod with the contact brush occurs every five minutes or each time one of the trip pins, 2, comes into engagement with the lifting rod, 4, as hereinbefore described.

The method of completing the entire circuit to ring one or more bells at the desired time will now be described: The completing of the entire circuit is accomplished by means of the hour-dial, 19, which consists of a circular disk formed of metal having suitable conducting qualities, said disk being firmly secured to the tubular hour hand of the shaft of the works by means of set-screws or other suitable fastening devices. The outer face of the dial is provided with twelve hour divisions, each of which is subdivided into twelve five minute divisions, or, if desired, the hour divisions may be subdivided into minute divisions. On the hour dial is arranged one or more series of adjustable contact pins, which, in the present instance, are shown as consisting of an outer series of pins, 20, and two inner series of pins, 21, 22. The pins, 20, of the outer series are adapted to be brought into engagement with a contact brush, 23, while the inner series, 21, 22, are adapted to be brought into engagement with contact brushes, 24 and 25, said brushes being connected to electric conducting wires, 26, 27 and 28, which are in turn connected to one or more electric bells, 29, which are arranged in the circuit of the conducting wire, 17, from the brush, 16, which makes connection with the contact rod operated by the minute dial so that when one of the contact pins in any or all of the series comes into engagement with the contact brushes, the entire circuit will be completed, through the dial, 19, and the works of the clock, thereby ringing one or all of the bells in the circuit.

The contact pins of the hour-dial may be adjustably secured thereto in any suitable manner, but are here shown and are prefer-

ably secured in a series of concentric segmental slots, 30, formed in the dial, said pins consisting of a base plate, 31, which is adapted to be engaged with the underside of the dial, and adjustably secured thereto by set-screws 31, which are passed through said slots and engage threaded apertures in said base plates. The plates, 31, have one end bent upwardly and inwardly to form a hook-shaped flange, 32, which is adapted to be engaged with the edges of the slots or with the outer edge of the dial as shown. At the outer end of the base plate, 31, adjacent to the flange, 32, are formed upwardly projecting contact fingers, 33, which project outwardly beyond the face of the dial in position to engage their respective brushes when brought opposite thereto by the movement of the dial. The fingers, 33, on some of the pins are arranged on one side of the flange, 32, while on other pins said fingers are arranged on the opposite side of the flange so that when more than one of the pins are arranged in a series, said fingers may be brought closer together, thus making it possible to complete the electrical circuit at very short intervals. There may be any number of pins arranged in each of the series, so that the bell or bells controlled by each series may be sounded as frequently as desired. In the present instance, the slots for adjustably holding the pins on the dial are arranged between the hours of eight and twelve and one and four, thus making it possible to sound the bells at any time between or during these hours. It is obvious, however, that the slots may be formed in the dial to permit the setting of the pins to ring the bells at any hour or fraction thereof.

In the operation of the device, assuming that it is desired to sound the bell or bells controlled by the outer series of contact pins at eight o'clock, one of the pins in the outer series or slot of the dial will be set opposite to the division eight on the dial. As the hour of eight approaches, the pin opposite this division will be brought into engagement with the brush, 23, thus completing the circuit controlled thereby, the opposite end of the circuit being completed through the brush, 16, by its contact with the rod, 13, which is engaged therewith every five minutes through the mechanism operated by the trip pins on the minute dial. In the same manner, one or more of the pins on the hour-dial may be adjusted to the hour when it is desired to ring the bells in the other series, thus making it possible to ring the bells of all the series at the same time, or at different times. It will be understood that the bells of the different series may be arranged in different rooms or that several bells may be arranged in each series, and located in different rooms or places where it is desired to sound the signals.



A program clock constructed as herein shown and described is especially adapted for use in connection with the class or recitation rooms of school buildings, but it is obvious that the same may be employed for many other purposes, and that, while bells have been herein described as the form of signal sounded by the device, it is obvious that any other form of electrically-controlled signal may be operated by the clock.

Having thus described my invention, what I claim as new and desire to secure by Letters-Patent, is:

1. In an attachment of the character described, a clock having a striking mechanism, a minute dial operatively connected to said clock, a series of trip pins on said dial, a lifting rod adapted to be engaged by said pins to start said striking mechanism, a contact brush, means actuated by said striking mechanism to engage said brush and thereby close an electrical circuit at any desired time, substantially as described.

2. In an attachment of the character described, a clock having a striking train, a minute-hand shaft, an hour-hand shaft, a minute dial adapted to be secured to the minute hand shaft of the clock to turn therewith, a series of trip pins arranged on said dial, a lifting rod adapted to be engaged by said pins to start the striking mechanism of the clock, a contact brush, a contact rod operated by said striking mechanism, a minute dial operatively connected brush, thereby closing an electric circuit, and means operated by said hour-hand shaft to complete said electric circuit at any desired time, substantially as described.

3. In an attachment of the character described, a clock having a striking mechanism, a minute hand shaft, an hour hand shaft, a minute dial adapted to be secured to the minute hand shaft of the clock to turn therewith, a series of trip pins arranged on said dial, a lifting rod adapted to be engaged by said pins to start the striking mechanism of the clock, a contact brush, a contact rod operated by said striking mechanism and held in engagement with said brush, thereby closing an electric circuit, an hour-dial adapted to be secured to said hour-hand shaft, contact pins secured to said hour-dial, and a contact brush adapted to be engaged by said contact pins to complete said electric circuit, and thereby sound a signal, substantially as described.

4. In an attachment of the character described, a clock having a striking mechanism, a minute hand shaft, an hour hand shaft, a minute dial adapted to be secured to the minute hand shaft, a series of trip pins arranged on said dial, a lifting rod adapted to be successively engaged by said trip pins to periodically start the striking mechanism of the clock, an electric circuit,

a contact brush in said circuit, a contact rod adapted to be lifted and held in engagement with said brush by the operation of said striking mechanism, an hour dial adapted to be secured to said hour hand shaft, said dial having formed therein segmental slots, series of contact pins adjustably mounted in said slots whereby the same may be set opposite the hour it is desired to sound the signal, and contact brushes arranged in said electric circuit and in the path of movement of said contact pins whereby the latter are brought into engagement with said brushes to complete said electric circuit and sound the signals therein, substantially as described.

5. In an attachment for clocks, a minute hand shaft, an hour hand shaft, a minute dial adapted to be secured to the minute hand shaft of the clock to turn with said shaft, said dial being divided into minute divisions, trip pins secured to said dial opposite to the divisions thereon, a striking mechanism, a lifting rod adapted to be successively engaged by said trip pins to periodically start the striking mechanism of the clock, a notched commutator disk adapted to be revolved by said striking mechanism, a contact rod adapted to normally engage the notch in said commutator disk when in an operative position when said disk is turned by the striking mechanism, an electric circuit, a contact brush in said circuit adapted to be engaged by said contact arm when held up by said commutator disk, an hour dial adapted to be secured to the hour-hand shaft of the clock, a series of contact pins adjustably secured to said dial, contact brushes arranged in said circuit and adapted to be engaged by said contact pins, and a series of bells arranged in said circuit and adapted to be sounded when said circuit is completed by the engagement of said contact pins with said brushes, substantially as described.

6. In a signal sounding attachment for clocks an hour hand shaft, an electric circuit, a circuit closing mechanism adapted to be periodically operated by the clock, a slotted dial adapted to be turned by the hour-hand shaft of the clock, contact pins arranged in said slots, said pins comprising a base plate, a flange at one end of said plate to engage one edge of the slots in said dial, contact fingers on said plates in said slots, and contact brushes in said circuit adapted to be engaged by the fingers of said contact pins to complete said electric circuit, substantially as described.

7. In a signal sounding attachment for clocks, a striking mechanism, a minute hand shaft, an hour hand shaft, a minute dial adapted to be secured to the minute hand shaft, means on said dial to periodically start the striking mechanism of the clock, a circuit closing mechanism adapted to be op-



erated by said striking mechanism, a slotted  
hour-dial adapted to be secured to the hour-  
hand shaft of the clock, contact pins ar-  
ranged on said dial, said pins comprising a  
5 base plate, a flange on one end of said plate  
adapted to engage one edge of the slots in  
said dial, a contact finger on said plate, set  
screws to adjustably secure said pins in the  
slots of the dial, and contact brushes adapt-

ed to be engaged by said pins, substantially 10  
as described.

In testimony whereof I have hereunto set  
my hand in presence of two subscribing wit-  
nesses.

JULIUS W. HANSEN.

Witnesses:

M. W. FIELDS,  
DAVID WALLACE.