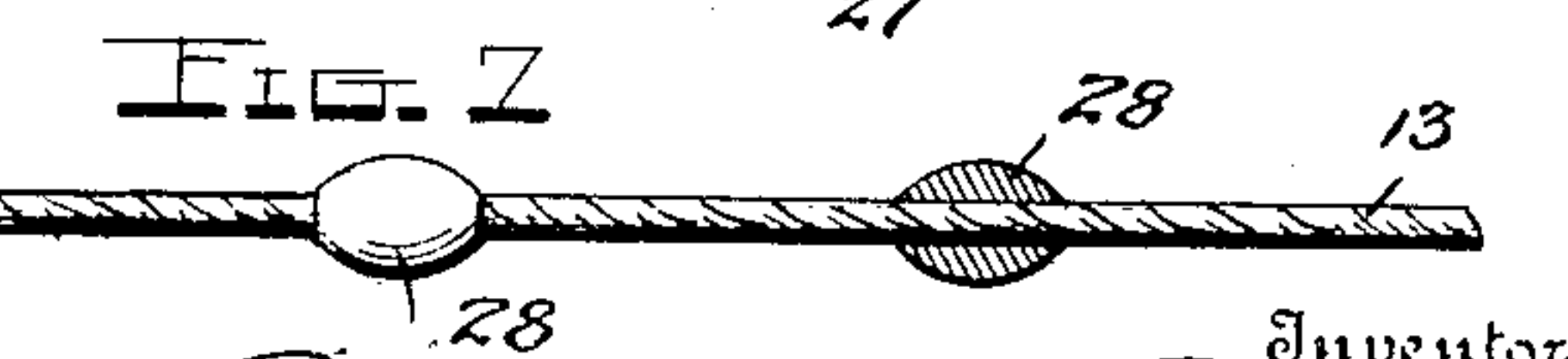
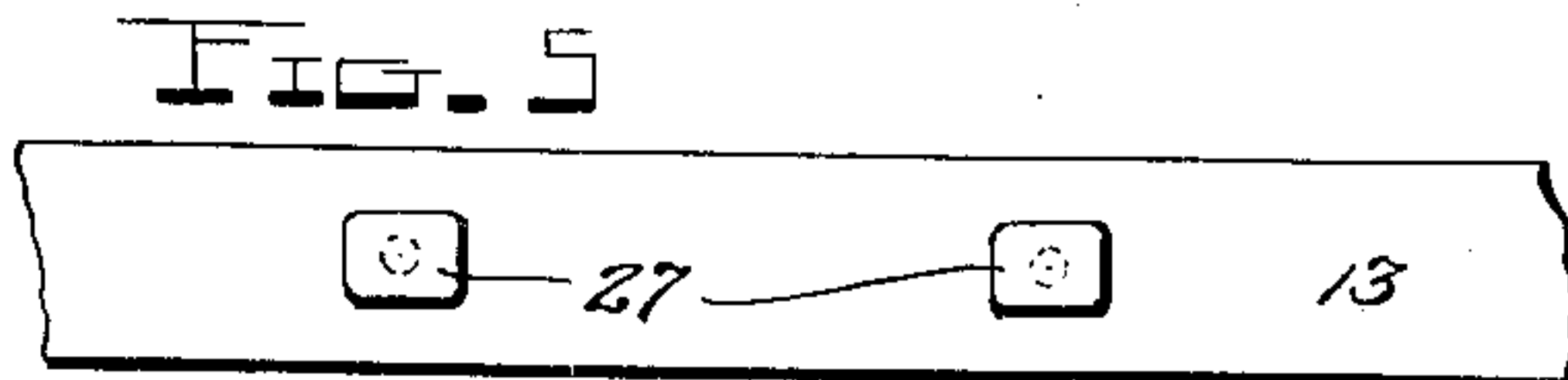
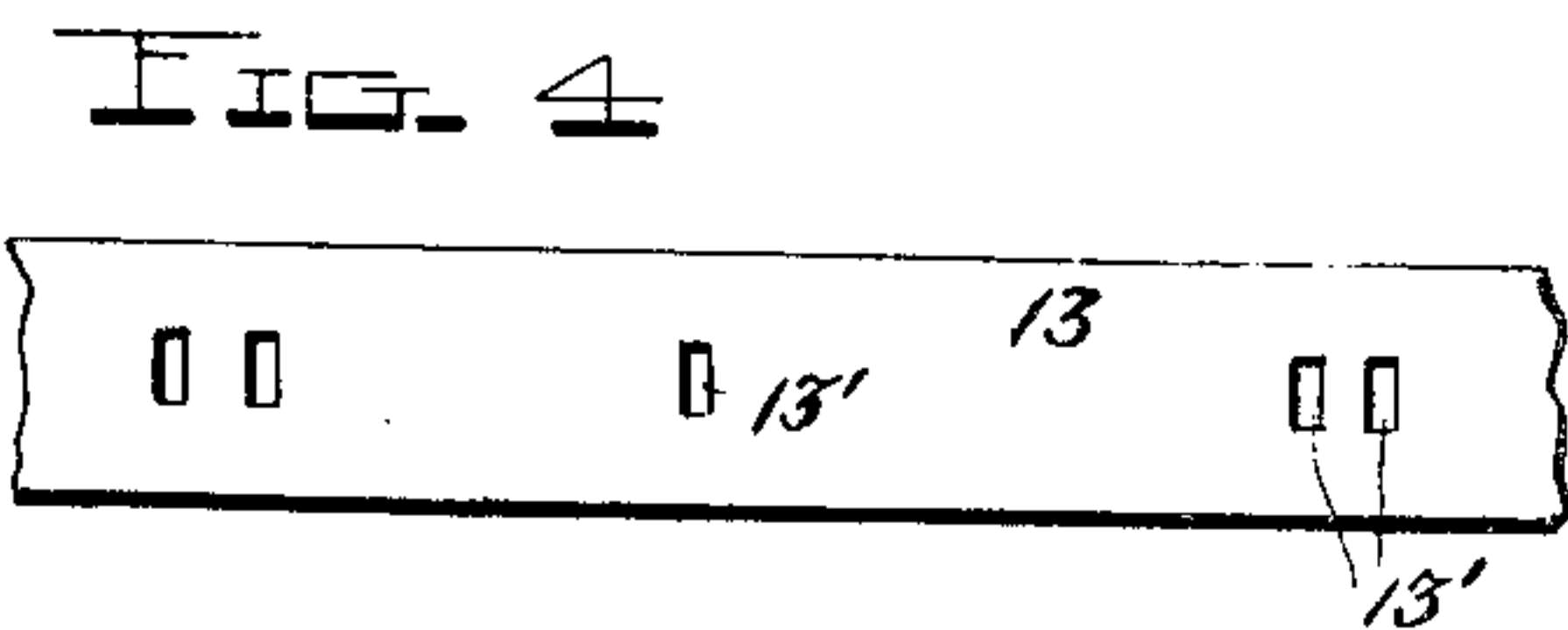
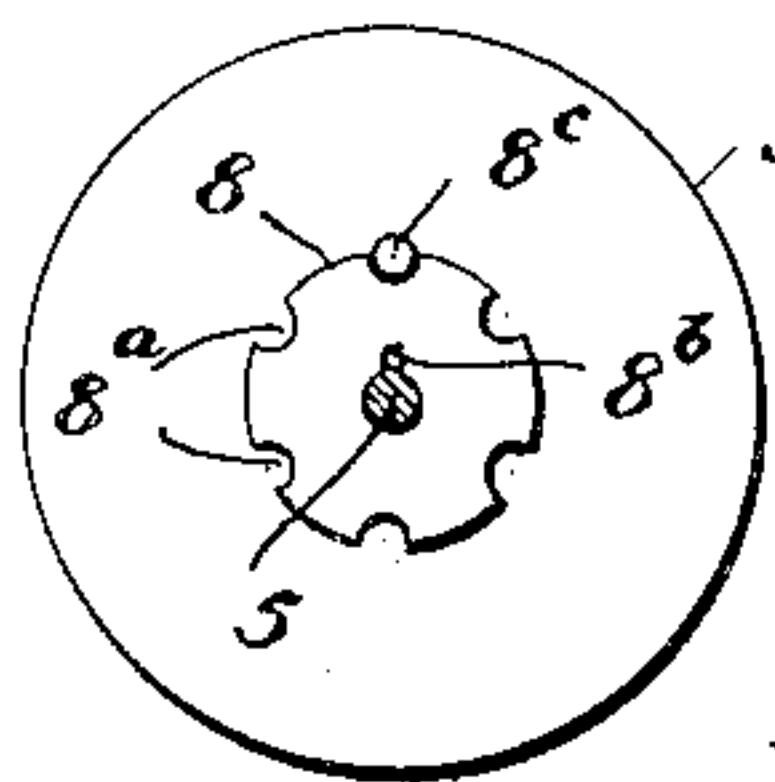
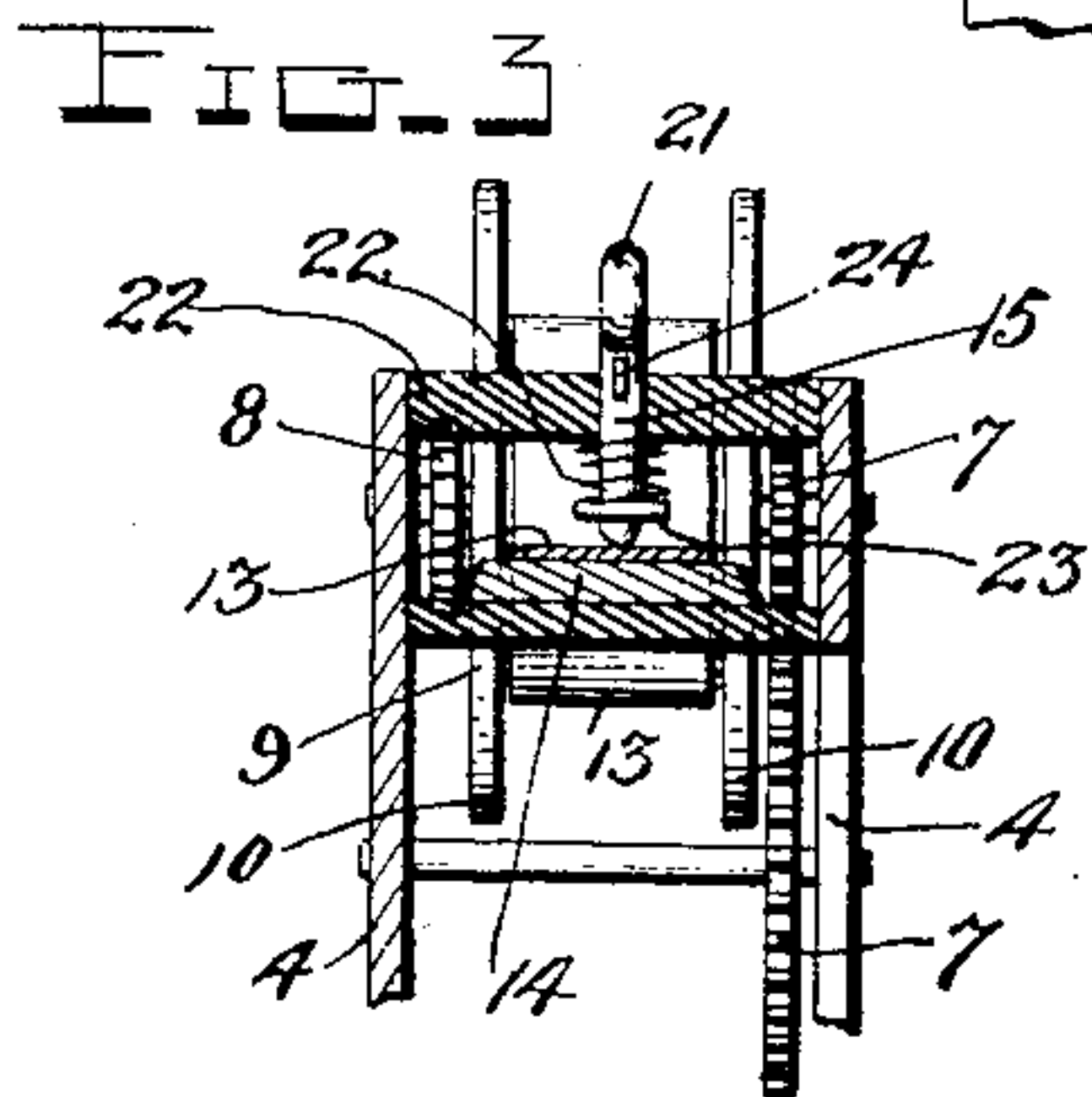
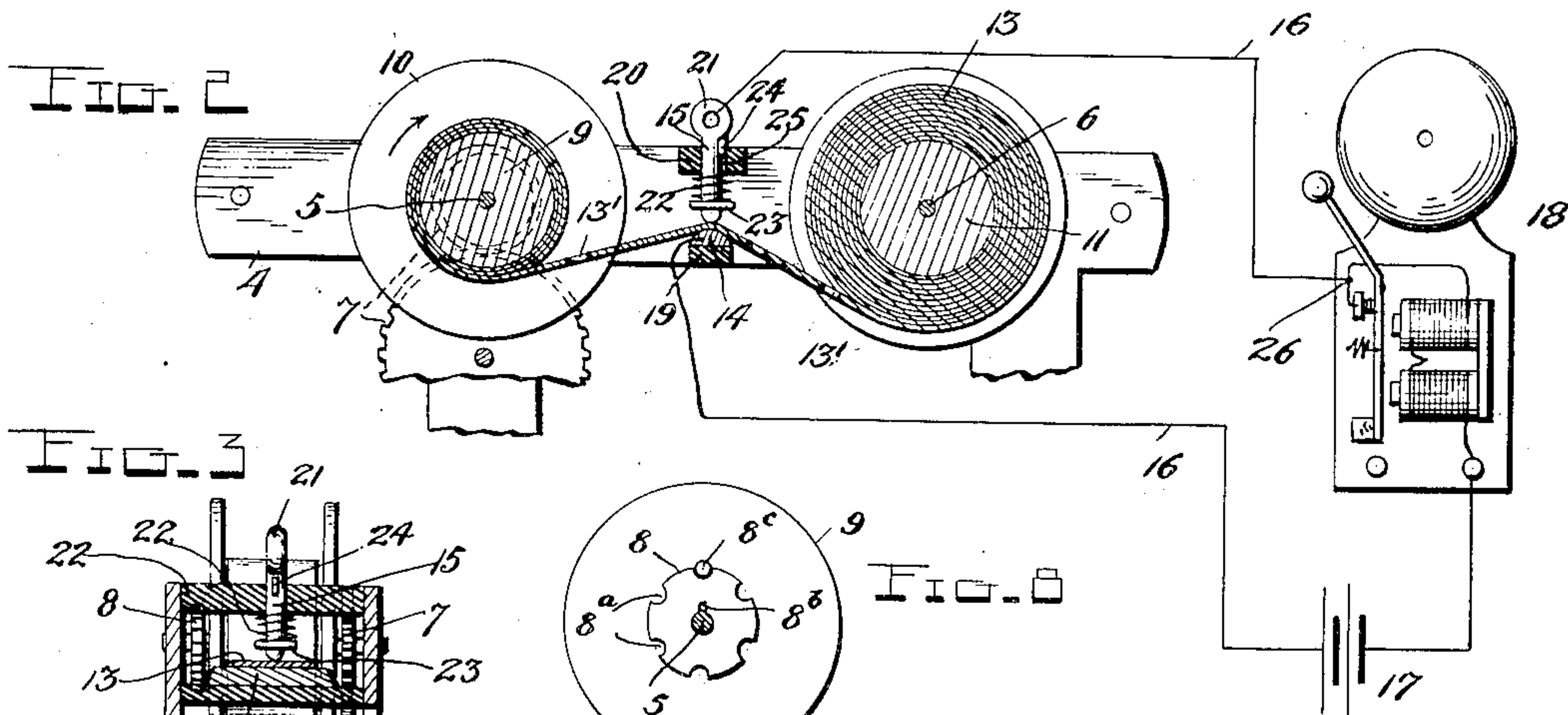
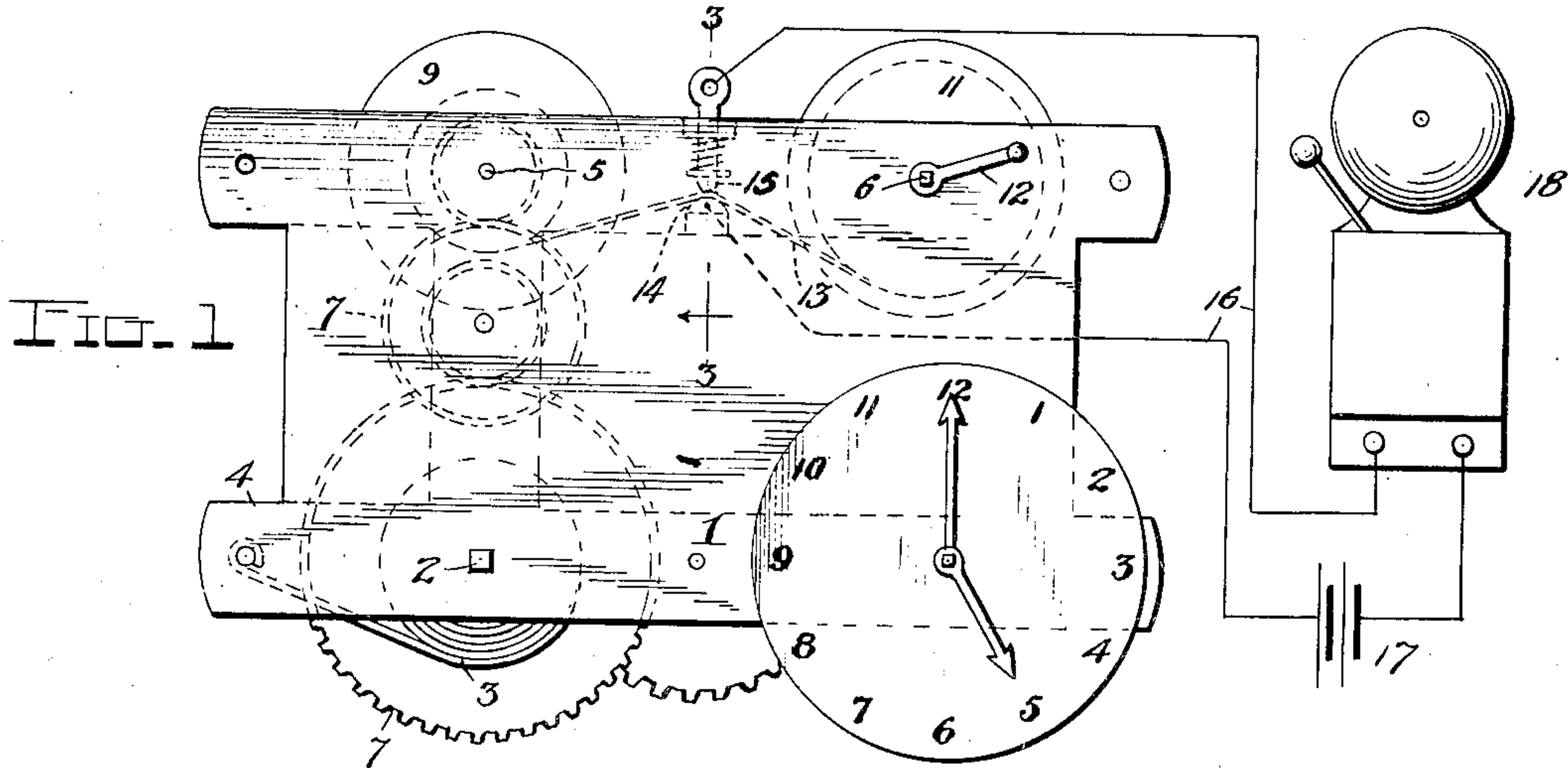


No. 854,726.

PATENTED MAY 28, 1907.

P. W. EAMES.  
TIME CONTROLLING MECHANISM.  
APPLICATION FILED DEC. 12, 1906.



Witnesses  
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By  
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# UNITED STATES PATENT OFFICE.

PRESCOTT W. EAMES, OF DELPHOS, KANSAS.

## TIME-CONTROLLING MECHANISM.

No. 854,726.

Specification of Letters Patent.

Patented May 28, 1907.

Application filed December 12, 1906. Serial No. 347,497.

*To all whom it may concern:*

Be it known that I, PRESCOTT W. EAMES, a citizen of the United States, residing at Delphos, in the county of Ottawa and State of Kansas, have invented certain new and useful Improvements in Time-Controlling Mechanisms, of which the following is a specification, reference being had therein to the accompanying drawing.

My invention relates to improvements in time-controlling mechanisms, and more particularly to those adapted for use in schools, factories, mills, offices, hotels, residences and other places where an alarm or alarms are to be sounded at predetermined intervals.

The object of the invention is to provide a simple and practical mechanism of this character which may be readily adjusted and regulated and when once started will be entirely automatic in its operation.

Further objects and advantages of the invention, as well as the structural features by means of which these objects are attained, will be made clear by an examination of the following specification, taken in connection with the accompanying drawings, in which,

Figure 1 is a side elevation of the works of a clock, illustrating the application of my invention thereto, and showing the electric circuit diagrammatically; Fig. 2 is a detail section through certain of the parts shown in Fig. 1. Fig. 3 is a detail section taken on the plane indicated by the line 3—3 in Fig. 1; Fig. 4 is a view of a portion of the apertured band by means of which the alarm circuit is made and broken; Fig. 5 is a similar view of a modified form of the circuit controlling band; Fig. 6 is an edge view partly in section of the band shown in Fig. 5; Fig. 7 is a view partly in elevation and partly in section of still another modified form of the circuit controlling element; and Fig. 8 is a detail view of one end of one of the drums showing the clutch for locking the drum to its shaft.

Referring to the drawings by numeral 1 denotes the clock mechanism which may be of any suitable form and construction and, as hereshown, comprise a main winding shaft 2 to which is connected the inner end of the main spring 3, the outer end of the latter being connected to the frame 4, as shown in Fig. 1.

In the practice of my invention, I mount in the frame 4 or any other suitable support, two shafts 5, 6, one of which (as shown the one numbered 5) is connected by a train of gears 7 to the main drive shaft 2. Loosely

mounted on the shaft 5 is a winding drum 9 which is adapted to be fixed to said shaft for rotation therewith by means of a disk 8 formed in its edge or periphery with notches 8<sup>a</sup> and keyed, as at 8<sup>b</sup>, upon the shaft 5. The key 8<sup>b</sup> causes the disk 8 to rotate with the shaft, but permits it to slide longitudinally thereon so that it may be moved toward and from one end of the drum 9 from which end projects a pin or stud 8<sup>c</sup> adapted to engage any one of the notches 8<sup>a</sup> for the purpose of locking the drum to the disk and hence to the shaft. Any other suitable clutch device may be substituted for the one just described. The drum 9 is provided at its ends with annular flanges 10. A similar flanged drum 11 is fixed upon the other shaft 6, one end of which latter is provided with a crank, handle or the like 12 by means of which said shaft, and hence the drum may be rotated. The drums 9, 11 are provided for the reception of a flexible circuit closing element 13 preferably in the form of a band of paper or other material which is a non-conductor of electricity. This band 13 has one of its ends secured to and wound upon the drum or reel 11, and its other end similarly attached to and wound in the opposite direction upon the other drum 9, as clearly shown in Fig. 2. This circuit controlling band is adapted to travel between two contacts 14, 15 of an electrical alarm or signal circuit 16 which includes a battery or other source of current supply 17 and an electric bell or other alarm or signal device 18. The contact 14 is in the form of a bar suitably mounted upon a non-conducting support 19 arranged in the frame 4 or other support and having a curved upper surface over which the band 13 travels, as seen in Fig. 2. The other contact 15 is in the form of a pin mounted for sliding movement in a support 20 of non-conducting material. The contact pin 15 has an eye or finger piece 21 at its upper end and a curved or rounded lower end adapted to bear upon the band 13 at the point it passes over the curved upper surface of the contact 14, so that as the apertures 13' in said band pass the contacts, they will be permitted to engage each other and thus complete the electric alarm or signal circuit. The contact pin 15 is pressed downwardly upon the band 13 by a coil spring 22 which surrounds it and is confined between the support 20 and the collar 23 fixed upon said pin adjacent to its lower end. The pin



15 slides vertically in the support 20 and is provided upon one side with a short, radially projecting rib or stud 24 adapted to slide in a groove 25 formed in the support 20, as shown in Fig. 2. The rib or projection 24 is comparatively short so that by grasping the finger piece 21 of the pin 15 and pulling the latter upwardly, the projection 24 may be removed from the groove 25 and by giving the pin a slight turn said projection may be moved out of alinement with said groove so that the pin will be held in an elevated position with its rounded end out of contact with the band 13. This construction is provided for the purpose of enabling the band to be re-wound upon the drum 11. When it is desired to have the bell 18 ring continuously during the time the contacts 14, 15 are engaged with each other, said bell is connected up, as shown in Fig. 1, but when it is desired to have the bell strike but once, one of the conductors of the circuit 16 is connected at 26, as shown in Fig. 2, so that the circuit breaking mechanism of the bell is cut out and the armature of the bell will be attracted to its magnet but once, hence sounding the bell but a single time.

Instead of employing an apertured band for controlling the electric circuit, I may use the band shown in Fig. 5, which, instead of having apertures through which the contact 15 projects is provided at intervals with metal rivets or the like 27 through which the circuit is completed, as will be readily understood. In Fig. 7 is shown still another form of circuit controlling element. The latter comprises a cord or the like of non-conducting material upon which are secured, adjustably or otherwise, metallic buttons 28 which serve as the circuit closing mediums. When this form of element is employed, a groove may be provided in the contact 14 for guiding it.

The operation of the invention is as follows: After the band 13 has been properly apertured, it is wound upon the drum 11 and its free end attached to the drum 9. The latter is rotated in the direction of the arrow shown in Fig. 2, by the clock works 1, and as the band is unwound from the drum 11 and wound upon the drum 9, it passes between the contacts 14, 15. By suitably locating the apertures in the band, the signal circuit 16 is completed at different intervals of time according to the alarm or signal it is desired to sound; and in this connection it will be understood that the signals will vary according to the use to which the mechanism is put. After the band 13 has been entirely unwound from the drum 11, the contact pin 15 is elevated to disengage its projection 24 from the support 20 and then turn to retain it in its elevated position. The crank handle 12 is then turned to rewind the band upon the drum 11, the reverse rotation of the drum 9

will be permitted when the notched disk is moved longitudinally on the shaft and away from the drum. When the band 13 is made of paper and formed with apertures the latter may be quickly and easily made at the proper places in the band according to the time at which it is desired to sound the bell, and should it be necessary at any time to change the time of the sounding of the bell, the apertures may be closed by pasting piece of paper over them and new ones may be formed.

It will be understood that various changes in the form, proportion and minor details of construction may be made without departing from the spirit or sacrificing any of the advantages of the invention as defined by the appended claims.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent of the United States, is:—

1. In a mechanism of the character described, a frame, a pair of shafts, a drum upon one of said shafts, a winding crank upon the last mentioned shaft, a drum loosely mounted upon the other of said shafts, means for connecting the last mentioned drum to its shaft for rotation therewith, a flexible element of non-conducting material attached to and wound upon said drums and having means for completing an electric circuit therethrough, electrical contacts to co-act with said element and an electric alarm or signal circuit including said contacts.

2. In a mechanism of the character described, a frame, a pair of shafts, a drum fixed to one of said shafts, a winding element carried by the last mentioned shaft, a drum loose upon the other of said shafts, clock works for operating the last mentioned shaft, means for causing the loosely mounted drum to rotate with its shaft, a flexible non-conducting band connected to and wound upon said drums and formed with apertures; a stationary contact over which said band passes, and a spring actuated sliding contact for pressing said band against the stationary contact and for completing an electric circuit through the apertures in said band, substantially as described.

3. In a mechanism of the character described, a support, a stationary contact, a circuit controlling element traveling over said stationary contact and having means for completing an electric circuit therethrough, a support of non-conducting material formed with an opening having a longitudinally extending groove therein, a contact pin slidably and rotatably mounted in said opening and having a projection to enter the groove of said opening and a spring for actuating said contact pin, substantially as shown and set forth.

4. In a mechanism of the character described, a frame or support, a pair of shafts



mounted therein, a drum fixed upon one of  
said shafts, a drum loosely mounted upon the  
other of said shafts, a notched disk slidably  
but non-rotatably mounted upon the last  
5 mentioned shaft, a pin carried by the drum  
on the last mentioned shaft and adapted to  
enter one of the notches in said disk to lock  
said drum to said disk for rotation therewith,  
a circuit controlling element attached to and  
10 wound upon said drums and having means

for completing a circuit therethrough and  
circuit closing contacts to co-act with said  
element, substantially as described.

In testimony whereof I hereunto affix my  
signature in presence of two witnesses.

PRESCOTT W. EAMES.

Witnesses:

GEO. N. BILLINGS,  
CLARA E. HEALY.