

No. 883,273.

PATENTED MAR. 31, 1908.

C. E. AVERY.
TIME SWITCH.

APPLICATION FILED AUG. 1, 1906.

Fig. 1,

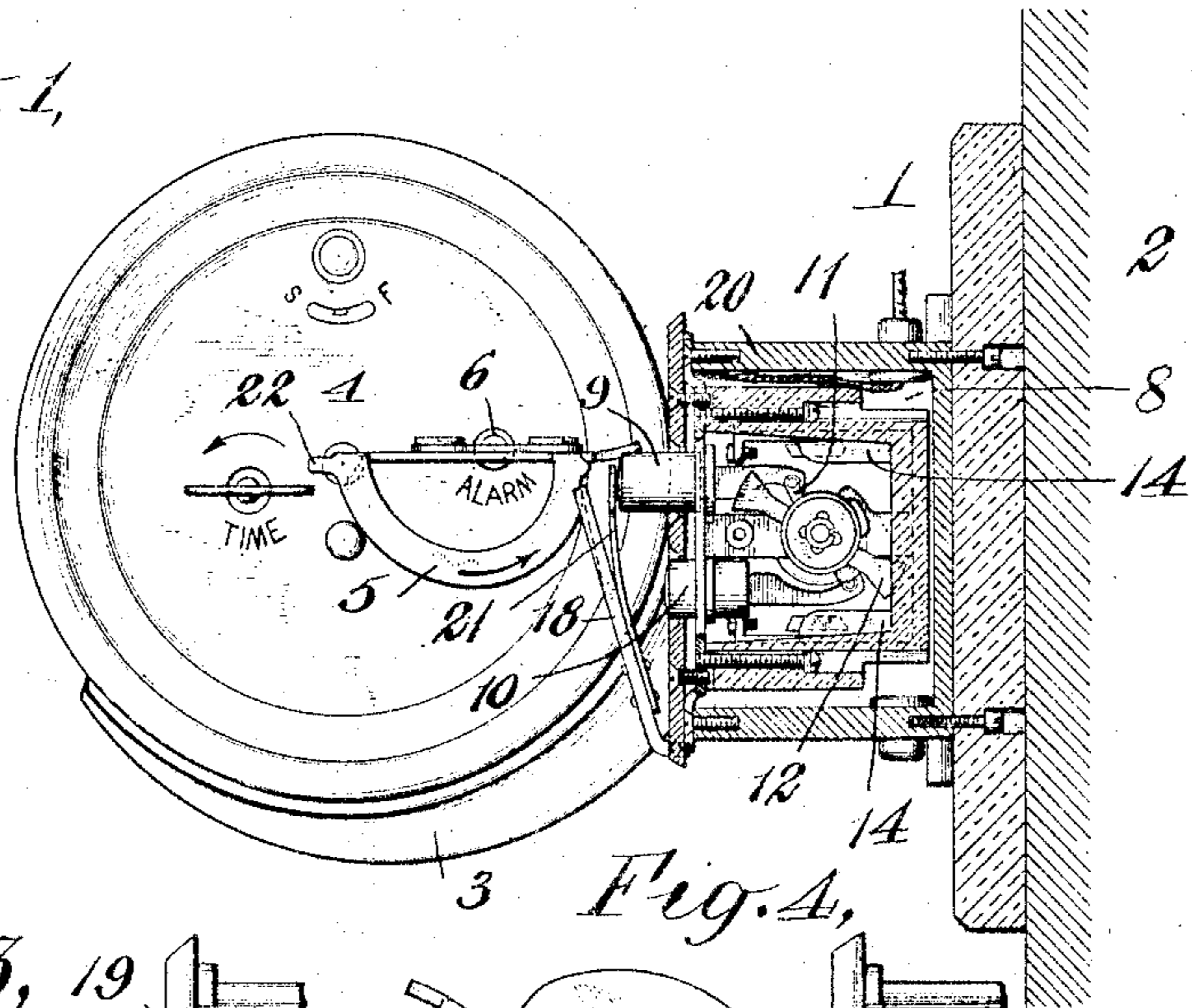


Fig. 4,

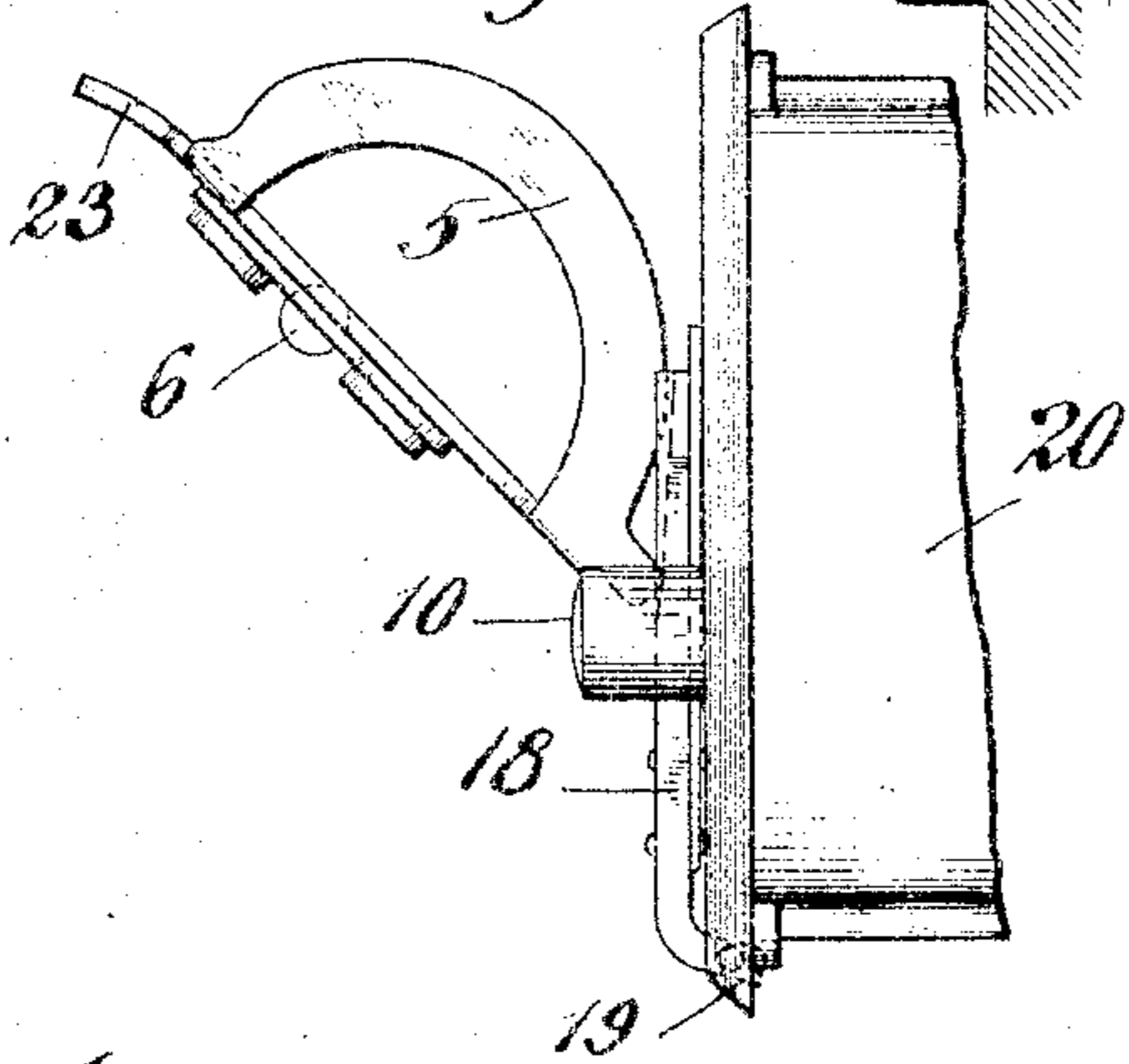
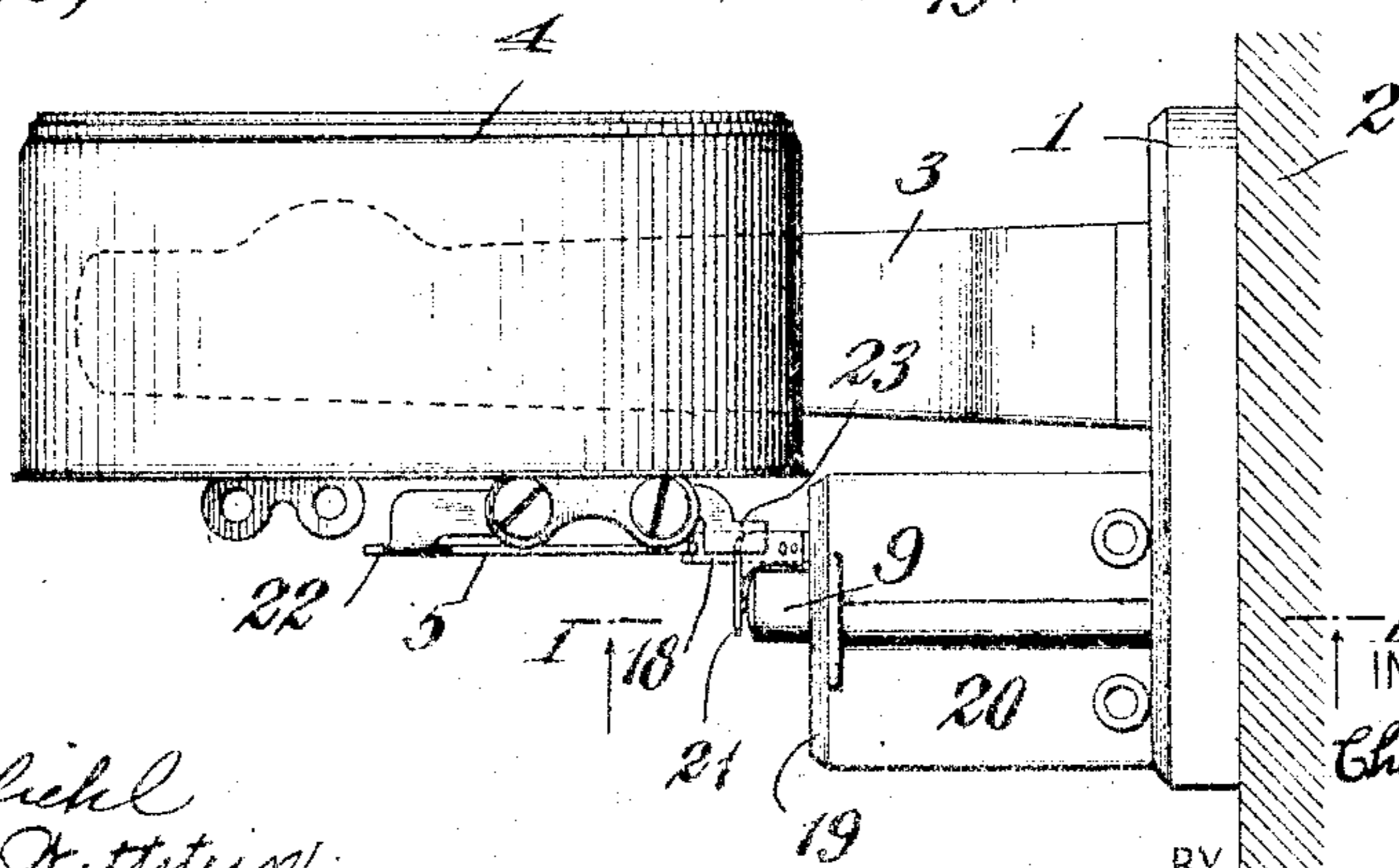
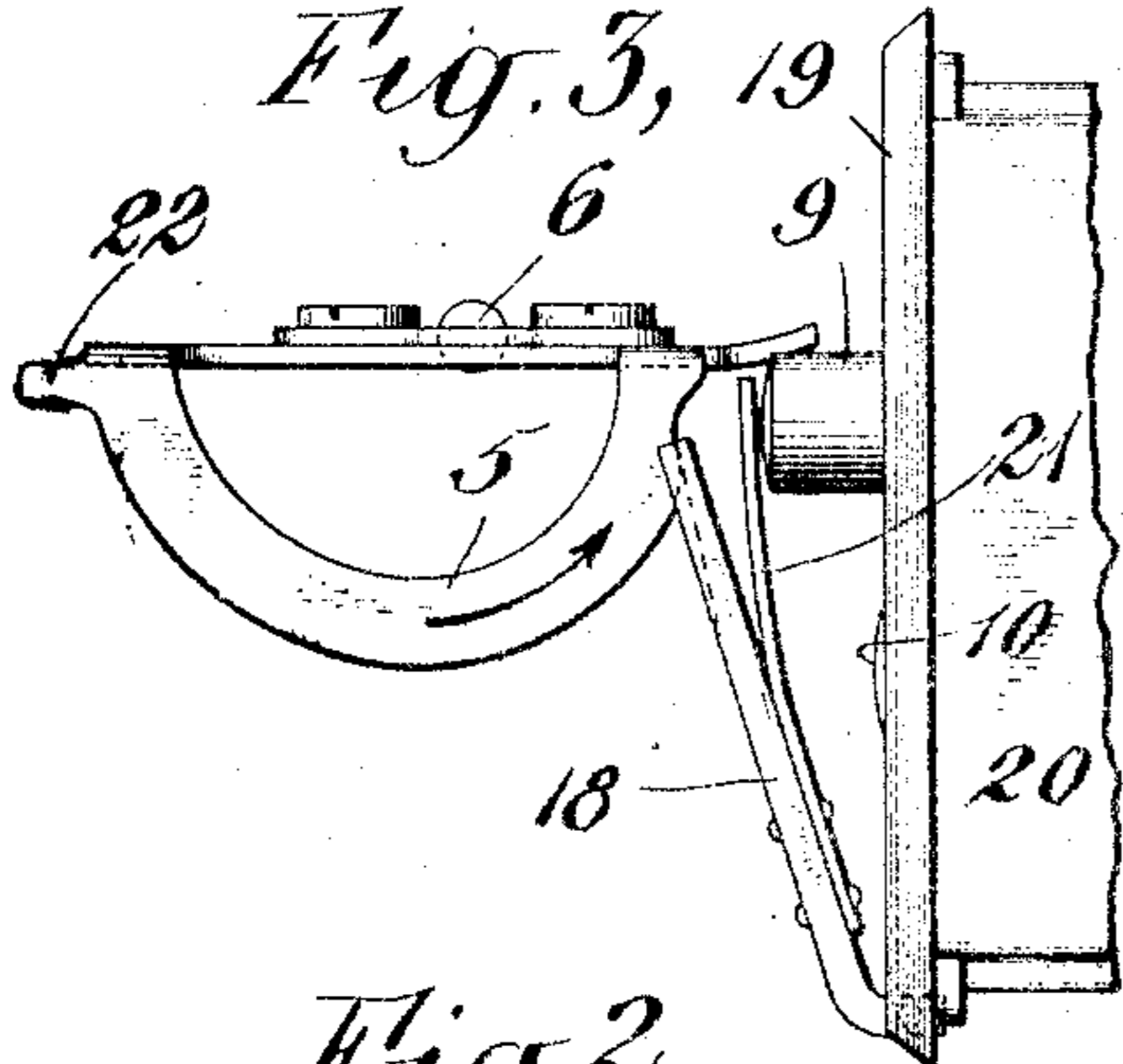


Fig. 2,



WITNESSES:

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TIME-SWITCH.

No. 883,273.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, CHARLES E. AVERY, a citizen of the United States, and a resident of Jersey City, Hudson county, New Jersey, have made certain new and useful Improvements in Time-Switches, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to circuit-controlling devices for electric circuits and the object thereof is to provide a simple and efficient circuit-controlling device or switch which will operate automatically at a predetermined time to open or close an electric circuit.

A further object thereof is to provide means for so operating existing types of switches and which will also permit the manual operation of the switch at any time and also the resetting of the same without any interference with the time controlling devices.

A further object thereof is to provide operating means by which the same apparatus may be employed to open or close the circuit by simply transposing the position of the switch device.

As illustrating its construction and mode of operation, I will describe a preferred form of apparatus embodying my invention which is operated in the manner described to close a circuit at a predetermined time with the understanding that it is not my intention to limit my invention, as defined in the claims, to the details of construction shown or to a device operating to close a circuit.

In the drawings Figure 1 is a view in elevation and partly in section on the line 1—1 (Fig. 2) of apparatus embodying my invention; Fig. 2 is a plan view thereof; Fig. 3 is a detail view showing the actuating mechanism on a larger scale, and Fig. 4 is a similar view showing the parts in another position.

Similar reference characters are employed to designate like parts in all views.

The apparatus is supported on a plate 1 which may be secured to a wall or other support 2 in any suitable manner. A bracket 3 is attached to the plate 1 and supports the time actuating mechanism 4 which as shown may be an alarm clock of ordinary construction, a rear elevation of which is illustrated in Fig. 1. A cam 5 is fixed to some rotating element controlled by or actuated with the time keeping mechanism. Preferably and as shown this cam is secured to the winding arbor 6 of the alarm which is released to ro-

tate in the direction shown by the arrow in Fig. 1 at any desired predetermined time for which the alarm is set.

Secured to the plate 1 is a switch 8 of the push button type. As shown the switch is operated by push buttons 9 and 10, to actuate a switch lever 11 to throw a switch blade 12 into and out of contact with the switch contacts 14 to open and close the circuit. As shown in Fig. 1 the circuit is open. By depressing the button 9 the switch blade will be thrown into engagement with the contacts 14 to close the circuit. By depressing the button 10, which is elevated when the button 9 is depressed, the circuit will be opened and the switch reset. As my invention does not reside in the form of switch employed, and the operation of push button switches is well understood by those skilled in the art I deem it unnecessary to describe its construction more in detail.

A lever 18 is pivoted to the switch plate or cover 19 of the switch box 20. Its free end lies directly under the operating surface of the cam 5 and is engaged thereby. A spring arm 21 is secured to the lever 18 and projects outwardly therefrom with its free end in contact with the top of the push button 9. The outer end of the lever 18 is provided with a channel or groove which receives the edge of the cam 5 and with the parts in normal position, that is to say before the operation of the same, as shown in Fig. 3, the spring arm 21 will be under slight tension holding the parts yieldingly in engagement.

The operating surface of the cam 5 is formed to give the cam a constantly increasing throw as the cam revolves to operate the apparatus. A stop 22 carried by the cam engages the lever 18 and arrests the movement of the cam after the switch has been operated, and a similar stop 23 formed on the opposite side of the cam engages with the end of the lever 18 when the cam is reset and prevents the further movement of the cam.

With the form of apparatus shown, the parts being in the position shown in Fig. 1, when the alarm train is released at the time for which the alarm has been set, the winding arbor 6 will revolve making a partial revolution. This movement of the arbor will carry the cam 5 with it depressing the lever 18, spring arm 21 and push button 9 to close the switch which will remain closed until the cam 5 is turned back to its reset position and the push button 10 is operated

to open the switch. The resetting of the cam 5 will rewind the spring which actuates the alarm train and the device will be ready for another operation.

5 The switch inclosing box 20 may be readily removed from the plate 1 and in order to arrange the mechanism to automatically open instead of to close a circuit at a predetermined time, it is only necessary to remove
10 the switch box, reverse the cover plate 19 thereon and then replace the switch box in reversed position so that the cam 5 will actuate the push button 10 instead of the button 9. As will be understood this lever 18
15 might be omitted and the cam 5 arranged to directly engage a push button of the switch.

I claim:—

1. In a time switch, the combination of a
20 time keeping device, a rotating arbor controlled thereby, a cam carried thereby, a push button switch, a lever actuated by said cam to operate a push button of the switch and a spring secured to said lever to furnish
25 a yielding connection between the cam and the lever substantially as set forth.

2. In a time switch, the combination of a time keeping device, a rotating element controlled thereby to operate at a predetermined time, a cam carried thereby, a push
30 button switch, and a lever engaged by said cam having a spring arm which engages a push button of the switch, substantially as set forth.

25 3. In a time switch, the combination of a time keeping device having an alarm train arranged to operate at a predetermined time,

a winding arbor for the alarm, a cam secured thereto, a push button switch, a lever arranged to be actuated by said cam and a
40 spring which furnishes a yielding connection between a push button of the switch and said cam.

4. In a time switch, the combination of a time keeping device, a rotating element controlled thereby, a cam carried by said element, a lever actuated thereby, a push button switch having a button for closing and a button for opening the switch, and a support for said switch upon which the switch
50 mechanism is reversible to bring either one of said push buttons into operative relation with said lever.

5. In a time switch, the combination of a time keeping device, a rotating element controlled thereby to operate at a predetermined time, a push button switch having a button for opening and a button for closing the switch, a cam carried by said rotating element and a support for said switch upon
60 which the switch mechanism is reversible to bring either one of said push buttons into operative relation with said cam.

6. In a time switch, the combination with the alarm winding arbor of a time clock, of a
65 push button switch, a lever engaging a push button of the switch to actuate the same and a cam carried by said winding arbor and directly engaging the switch lever when the arbor is released, substantially as set forth.
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Witnesses:

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