H. B. MEIER.

AUTOMATIC TIME CONTACT SWITCH.

APPLICATION FILED FEB. 10, 1913.

1,092,736.

Patented Apr. 7, 1914.

2 SHEETS—SHEET 1.

Fig. 2.

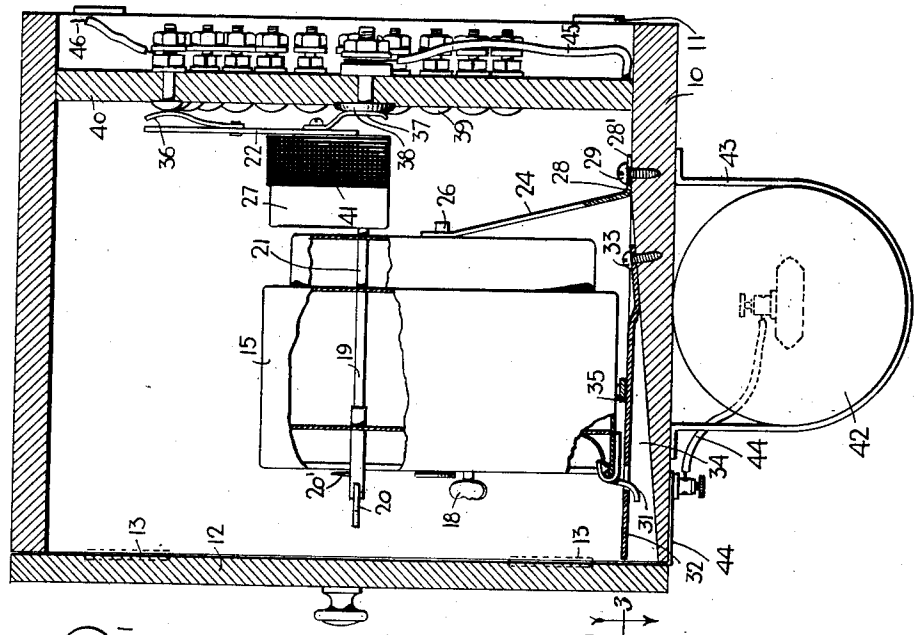
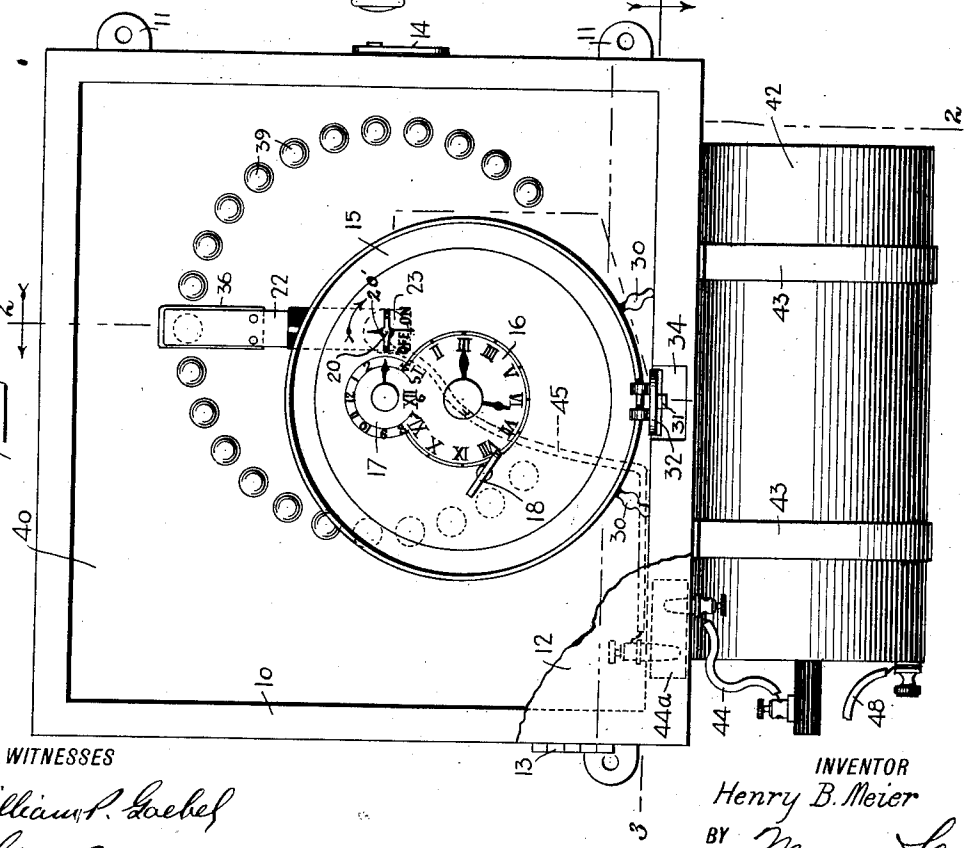


Fig. 1.



WITNESSES

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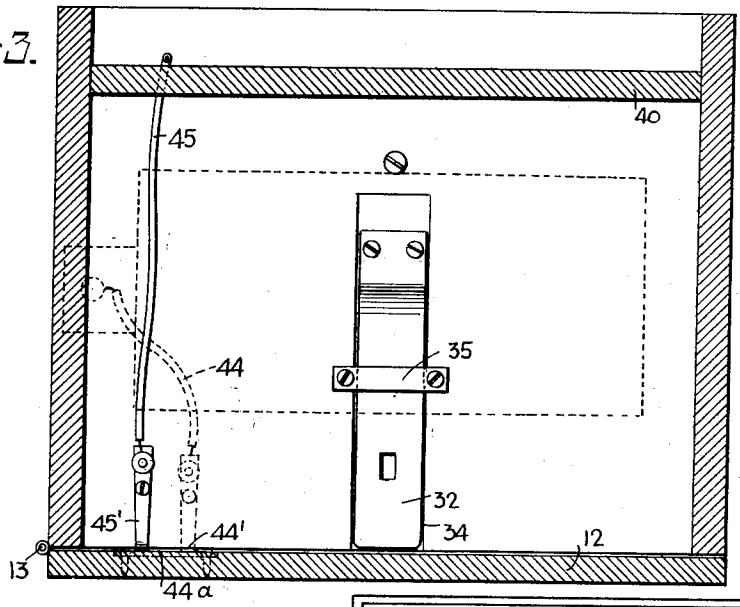
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2 SHEETS—SHEET 2.

Fig. 3.



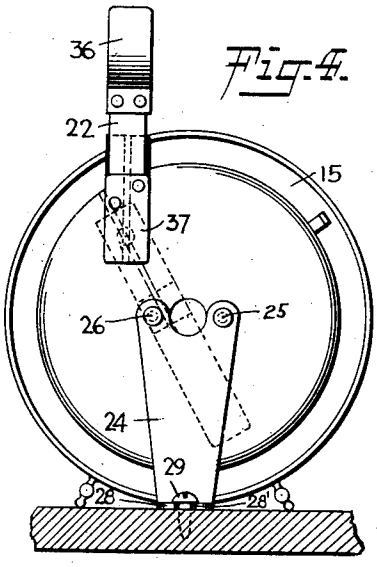


Fig. 4.

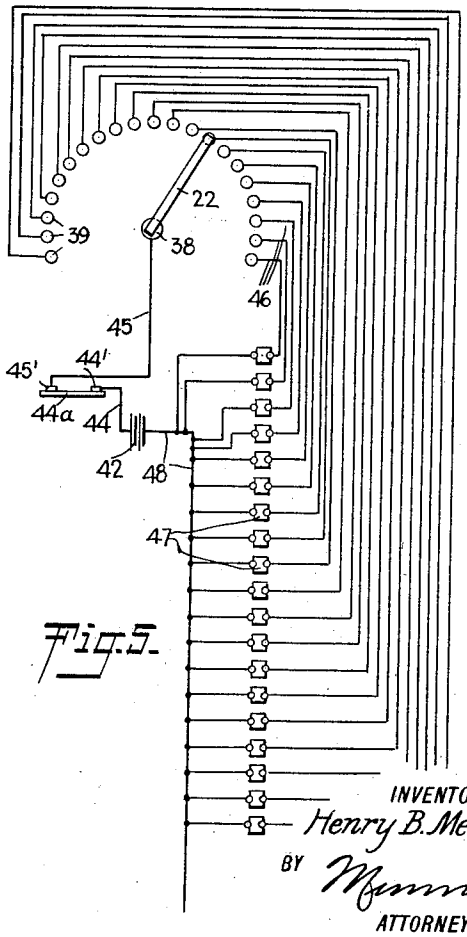


Fig. 5.

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HENRY B. MEIER, OF PORT CHESTER, NEW YORK.

AUTOMATIC TIME CONTACT-SWITCH.

1,092,736. Specification of Letters Patent. Patented Apr. 7, 1914.

Application filed February 10, 1913. Serial No. 747,347.

To all whom it may concern:

Be it known that I, HENRY B. MEIER, a citizen of the United States, and a resident of Port Chester, in the county of Westchester and State of New York, have invented a new and Improved Automatic Time Contact-Switch, of which the following is a full, clear, and exact description.

This invention relates to time controlled switches, having reference to such application of these devices as are set forth in my co-pending application, Serial No. 727,342, filed October 23, 1912. Said application shows a device adapted particularly for feeding poultry or other live stock, but especially in this instance the improvement is adapted for use in connection with a plurality of related electric circuits which are adapted to be completed in succession by a movable contact blade operated by clock mechanism.

Among the objects of this invention is to so improve this class of mechanism as to provide a casing for the clock, said casing having a door closing the same so as to exclude dirt, dust or other substances or conditions which might interfere with the proper operation of the clock mechanism, and said door serving, when closed, to make connection between two parts of an electric wire but so arranged that when the door is open, said parts are separated so that it will be impossible to complete a circuit from the battery until the door is again closed.

A further object of this invention is to improve the means for securing the clock in position within the casing so that it will be held normally in proper position with relation to the electrical contacts, but providing a means whereby the clock may be removed from the casing when it may be found necessary.

A still further object of this invention is to provide an alarm clock with means to control its setting and winding operations from its face instead of at the back as usual.

The foregoing and other objects of this invention will hereinafter be more fully described and claimed and illustrated in the drawings forming a part of this specification in which like characters of reference indicate corresponding parts in all the views, and in which—

Figure 1 is a view in elevation of a casing made in accordance with this invention, with the clock and battery in position, but having a portion of the door broken away; Fig. 2 is a transverse vertical section substantially on the broken line 2—2 of Fig. 1; Fig. 3 is a transverse horizontal section on the line 3—3 of Fig. 1; Fig. 4 is a rear elevation of the clock showing the movable switch blade elevated in full lines, and at its "off" position in dotted lines; and Fig. 5 is a diagram illustrating the electrical scheme.

The several parts of this invention may be made of any suitable materials, and the relative sizes, as well as the general design of the improvement, may be varied to a considerable extent without departing from the spirit of the invention hereinafter claimed.

Referring more particularly to the drawings, I show at 10 a casing which is adapted to be secured in fixed position through ears or lugs 11 and provided with a door 12 opening outwardly from the casing as upon vertical hinges 13. The door is adapted to be locked closed by means of a hook 14 or any other suitable latch device.

At 15 I show a clock having a time dial 16 and an alarm dial 17 on its face. A winding stem 18 or key is located on the face of the clock whereby the main spring may be wound without removing the clock from the casing 10. Likewise the winding stem 19 for the alarm mechanism projects forwardly from the face where it terminates in a key 20, as well as extending rearwardly, as shown at 21, for the connection of a movable switch blade 22. The key 20 for winding the alarm also carries a pointer 20′ which coöperates with a dial 23 whereby the conditions of the switch may be observed as "on" or "off."

The means I employ preferably to secure the clock in position upon the floor of the casing consists of a spring brace 24 connected at its upper end to the back of the clock as shown at 25 and 26, the fastener 26 extending rearwardly and constituting a stud to limit the rotation of the shank 27 of the switch blade 22. The lower end of the brace 24 constitutes a foot 28 having a slot 28′ adapted to receive a stud 29 which prevents rearward or lateral movement of the clock. The clock stands as usual upon legs 30, which prevent lateral tilting of the clock. In order to lock the clock from forward displacement, I provide a tongue 31 adapted to project downwardly into coöperation with a spring plate 32. The rear end of the plate is secured at 33 in a depression 34 in the bot-

tom of the casing, and the front end of the plate is loose or free to be moved downwardly to unhook the tongue 31, which operation may be effected by pressing the clock rearwardly against the force of the spring brace 24. Upward movement of the spring plate 32 is limited by a keeper 35. With the clock secured in place as described, it is substantially rigid and may be so retained for an indefinite period.

The switch blade 22 carries a pair of spring contacts 36 and 37, the latter bearing constantly upon a contact 38 arranged preferably at the center of a series of auxiliary contacts 39. All of the contacts 38 and 39 extend through and are preferably fixed to the rear wall 40 of the casing. The contact blade 22 is preferably insulated from the clock as shown at 41 so as to prevent the electricity from interfering with the proper running of the clock.

At 42 is a battery of any suitable construction shown as being supported upon the bottom of the casing by means of straps 43. The main circuit of the battery includes two wires 44 and 45 spaced but adapted to be connected by means of a bridge 44ª carried by the door 12 and adapted to contact with a pair of spring contacts 44′ and 45′ secured preferably at the front edge of the bottom of the casing. The wire 45 is secured to the contact 38. A series of auxiliary circuit wires 46 are connected to the contacts 39 and extend thence in any suitable directions and to any desired distances and are adapted to include as many independent stations 47 as may be desired to be effected or controlled by the battery. Said stations 47 may represent feeding or watering devices or any other means to be electrically controlled by the time mechanism. Said auxiliary wires 46 extend from the stations to a common trunk 48 having permanent connection to the battery. When the door 12 is shut, the electric circuit may be made through the wires 44, 45 and 48, the connection being completed by the switch blade 22 between the contact 38 and any one of the contacts 39 and its auxiliary wire 46. The switch blade 22 being adapted to sweep over any number of the contacts 39 in succession, various operations may be performed thereby at the several stations in succession. The number of auxiliary wires which may be effective may be reduced as much as desired by disconnecting the required number of wires 46 from the contacts 39, and such disconnection will not interfere with the desired operation at the other stations.

Under normal conditions, the alarm spring will be understood to be substantially wound tight with the switch blade 22 suspended substantially vertically downward from the axis of the winding shaft 21 or on the opposite side of the stud 26 from that indicated in dotted lines in Fig. 4. In this position the spring contact 36 will not engage any of the contacts 39. With the clock operating as usual, and with the alarm mechanism set to be operated as usual, when the alarm mechanism operates, the switch blade 22 will swing counterclockwise as indicated in Fig. 1, causing the spring contact 36 to engage the contacts 39 successively, such swinging movement, however, of the blade 22 being slow enough for the engagement between the spring contact 36 and each contact 39 to have sufficient duration to cause the desired operation at the several stations 47. Under normal conditions, therefore, the contact blade 22 will swing around the axis of the winding shaft 21 until it reaches the stud 26, as shown in Fig. 4, where it will be positively stopped, having passed over and beyond the last contact 39. In order to reset this mechanism, the operator must first open the casing door 12; hence, the main circuit will be broken by removal of the bridge 44ª. Then turning the key 20 in the direction of the arrow on Fig. 1, the alarm spring will be rewound, and the switch blade 22 will be restored to its "on" position. The movement of the switch blade in this direction, however, will have no effect upon the battery through the contact spring 36 because of the gap between the wires 44 and 45. After the proper winding and setting has been accomplished, the operator will close and lock the door, making the circuit complete with respect to the bridge 44ª and awaiting the time mechanism to operate through the auxiliary wires, as above described.

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

1. The combination of a casing having a series of electrical contacts, time mechanism carrying a movable blade adapted to connect certain of said contacts, and means to secure the time mechanism in position with respect to the casing, said securing means comprising a spring brace connected at one end to the time mechanism and having at its other end a foot adapted to project into engagement with a stud at one side of the time mechanism and a spring plate connected to the bottom of the casing coöperating with another part of the time mechanism, the last mentioned coöperation being made effective through the spring action of said brace.

2. The combination with a support and a series of electrical contacts secured thereto, of time mechanism upon said support, a movable switch blade carried by the time mechanism, and means to secure the time mechanism in position, maintaining said switch blade in constant contact with cer-

tain of said contacts, said securing means including a pair of spring members coöperating between the support and the front and the rear portions respectively of said time mechanism.

3. The combination of a support having a depression, a clock upon the support, and means to secure the clock firmly in position, said securing means including a spring brace secured to one portion of the clock, a tongue extending from another portion of the clock and a spring plate operating in said support depression and having a hole to receive and interlock with said tongue.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HENRY B. MEIER.

Witnesses:
GEO. L. BEELER,
PHILIP D. ROLLHAUS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."