

No. 725,571.

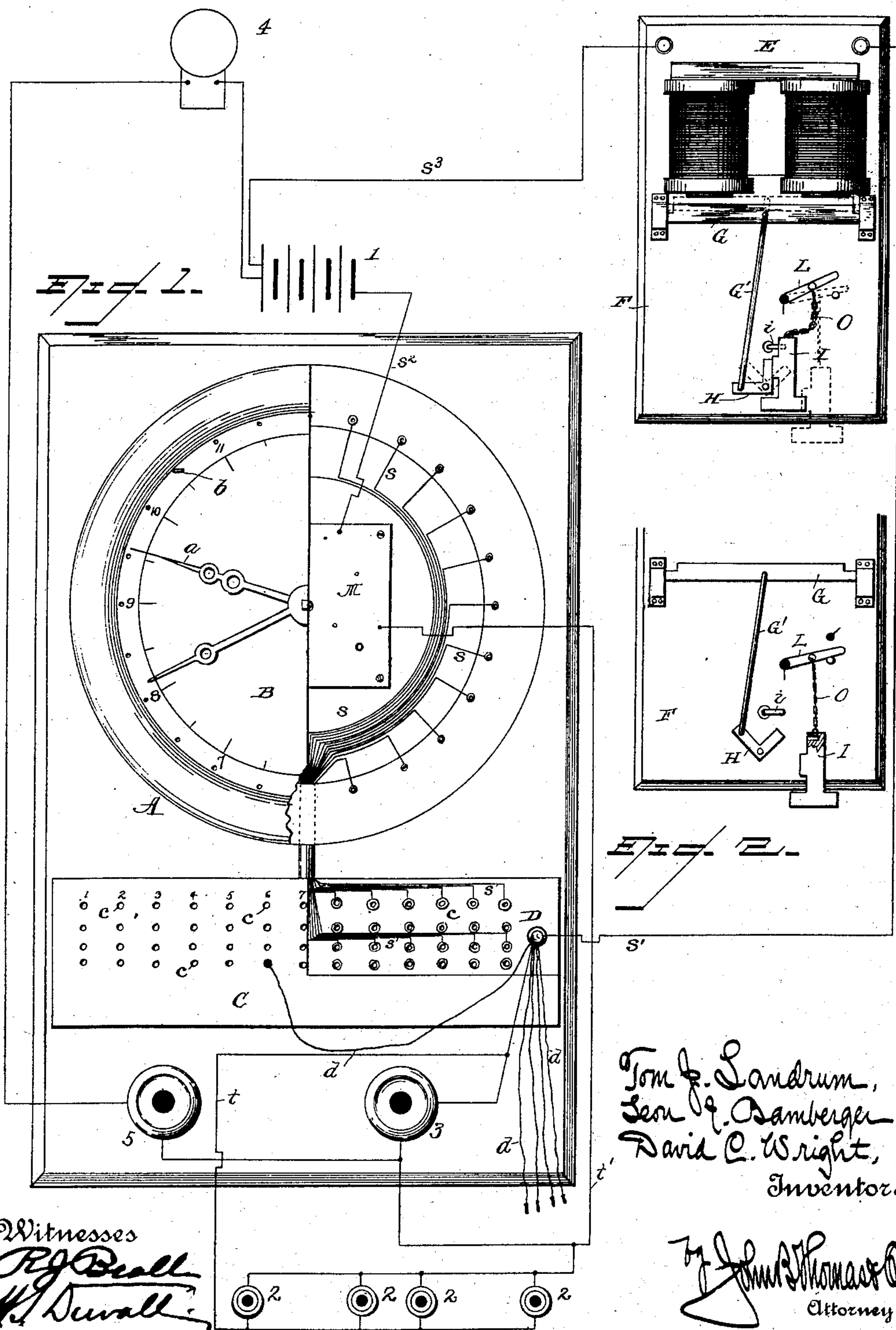
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STOP MECHANISM FOR MACHINERY.

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NO MODEL.





# UNITED STATES PATENT OFFICE.

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## STOP MECHANISM FOR MACHINERY.

SPECIFICATION forming part of Letters Patent No. 725,571, dated April 14, 1903.

Application filed February 18, 1901. Serial No. 47,790. (No model.)

*To all whom it may concern:*

Be it known that we, TOM J. LANDRUM and LEON J. BAMBERGER, of Louisville, Kentucky, and DAVID C. WRIGHT, of New Albany, Indiana, citizens of the United States, have invented certain Improvements in Stop Mechanism for Machinery, of which the following is a specification.

The invention is an improvement in devices for stopping an engine or motor automatically at predetermined periods of time and instantly by means of individual push-buttons, all as will be hereinafter fully described, and specifically set forth in the appended claim.

In large factories where there are a number of machines driven by shafts and belt connections and in which girls are employed to operate the machines the operators are liable to serious accident by getting their hair or dress caught in the rapidly-moving belts, and serious results from such accidents could be prevented only by quickly stopping the driving-shafts or motor by which they are driven.

The primary object of this invention, therefore, is to provide simple and effective devices by which the motor can be instantly stopped by any one of the operators through the medium of a push-button and electrical connections including a magnet, which when energized attracts its armature to trip the devices which throw the switch-lever.

A further object of the invention is to include in the circuit a clock, contact-points, and connections by which the switch-lever controlling the motor can be stopped at predetermined periods of time.

In the accompanying drawings, which illustrate our invention, Figure 1 is a diagram view showing the application of our invention and including the clock and wire connections therewith. Fig. 2 is a detail view of the parts operated by the electromagnet, said parts being shown tripped and the switch-lever thrown.

In carrying out our invention we provide a clock A, having a face-plate B, upon which are marked the numerals representing the hours from "1" to "12" and also intermediate marks indicating the quarter-hours when read in connection with the hour-hand,

and at each one of these points on the face-plate is attached a metallic pin *b*, the said pins being all arranged in the path of a spring *a*, projecting from the hour-hand of the clock. The contact points or pins *b* are all connected individually to metallic plug-holes *c*, formed in a switchboard C, located below the clock, the connections being made by separate wires *s*. The arrangement of the plug-holes on the switchboard is preferably as shown, representing the hours in regular order horizontally and the quarter-hours on a line below each hour, the same corresponding exactly with the marks and contact-points on the face-plate and connected, respectively, one with the other. At one end of this switchboard is a post D, to which is connected a wire *s'*, leading to one pole of the battery 1 through the coil of a magnet E, and to said post is also connected a number of wires *d*, carrying switch-plugs adapted to fit the plug-holes *c*, hereinbefore referred to. The other pole of battery 1 is connected directly to the clock-works *m* by a wire *s*<sup>2</sup>, and it will be here noted that the partial circuit traced by the hour-hand is completed when said hour-hand contacts with a pin *b*, that is electrically connected with the post D through the switchboard connections and that when the circuit as completed the magnet becomes energized and attracts its armature, which operates the devices we shall now proceed to describe.

The electromagnet is mounted on a board or support F, and to the armature G of said magnet is attached a rod G', which is adapted to operate a trigger H, the latter releasing a weight I, and said weight when released serves to throw the switch-lever L of the motor. For this purpose the said weight is supported upon a hook *i* and is connected by chain O directly to the switch-lever that controls the motor. It is obvious, therefore, that when the magnet becomes energized by a completion of the circuit in the manner hereinbefore described the trigger is tripped and, releasing the weight, the latter throws the lever which stops the motor. The mechanism hereinbefore described is therefore operated at intervals of time determined by the connection of the post D with any number of plug-holes *c*, and it will be apparent that connections can



be made to stop the motor every hour or at any interval of time desired.

To provide for stopping the motor independent of the time mechanism, a wire  $t$  is 5 connected to the post D and a wire  $t'$  is connected directly to the clockworks, and interposed between these wires  $t$  and  $t'$  are a series of push-buttons, (designated by the numeral 2.) By this arrangement the circuit 10 is completed by the operation of any one of the push-buttons 2, the circuit being then traced as follows: from one pole of the battery to the clockworks by wire  $s^2$ , to the push-button by wire  $t'$ , to the post D by wire 15  $t$ , from said post to the magnet by wire  $s'$ , and from the magnet to the other pole of the battery by wire  $s^3$ . It is intended to locate these push-buttons 2 near all the operators, so that in case one should meet with an accident requiring the stopping of the machinery any operator can quickly stop the motor 20 by pushing a button.

In the same circuit with the push-buttons 2 is a push-button 3, located near the clock, 25 to be operated by an attendant. There is also an electric bell 4 in circuit with the battery and operated independently by push-button 5.

From the foregoing description, in connection with the accompanying drawings, the 30 construction and operation of the electric stop mechanism will be readily understood, and it will be noted that we provide for

stopping the motor at predetermined periods of time—for instance, at such times when it 35 is scheduled to stop the machinery for oiling, for the regular dinner-hour, and for quitting—and also provide for stopping the motor instantly to prevent serious results in case of an accident of any kind. 40

Having thus described our invention, we claim—

Stop mechanism for the purpose set forth, comprising a magnet, switchboard and clock mechanism in circuit with a battery, contact-points on the face of the clock connected 45 to the switchboard, and a spring portion at the outer end of the hour-hand of the clock adapted to pass over said contact-points, substantially as shown; combined with an 50 armature attracted by the magnet, a pin having a horizontal end portion, a weight supported from its upper end loosely on said horizontal portion of the pin, a bell-crank lever having one of its members bearing 55 against the central portion of the weight and adapted to move said weight off the aforesaid pin, a switch-lever, and a short chain connecting the weight to the outer end of the switch-lever, as shown and described.

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In presence of—

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