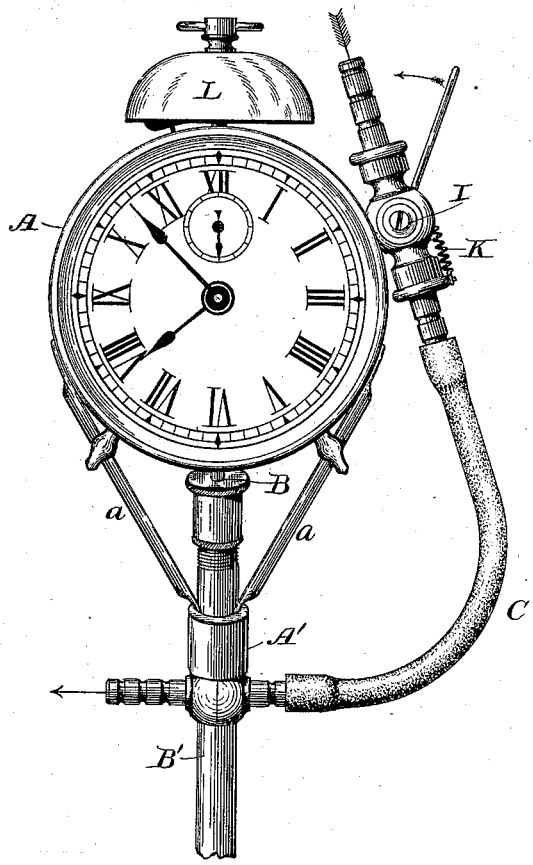
(No Model.) 2 Sheets—Sheet 1.

O. B. BRANN.

AUTOMATIC REGULATOR FOR VULCANIZING APPARATUS AND OTHER PURPOSES.

No. 385,236. Patented June 26, 1888.

Fig. 1.



Witnesses:—

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Inventor:—

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(No Model.) 2 Sheets—Sheet. 2.

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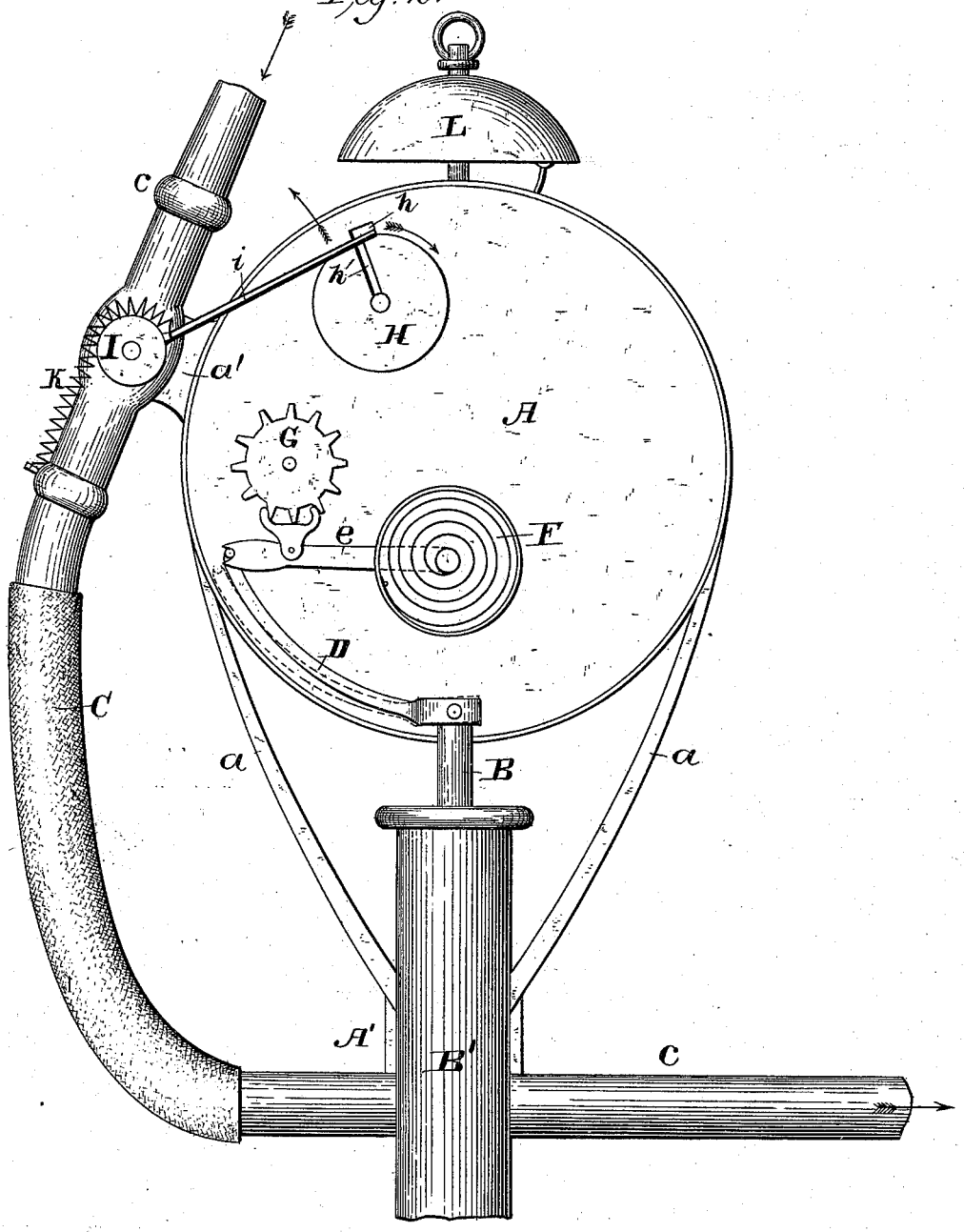
Fig. 2.



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UNITED STATES PATENT OFFICE.

OSCAR B. BRANN, OF PORTLAND, MAINE.

AUTOMATIC REGULATOR FOR VULCANIZING APPARATUS AND OTHER PURPOSES.

SPECIFICATION forming part of Letters Patent No. 385,236, dated June 26, 1888.

Application filed August 18, 1887. Serial No. 247,245. (No model.)

To all whom it may concern:

Be it known that I, OSCAR B. BRANN, a citizen of the United States, residing at Portland, in the county of Cumberland and State of Maine, have invented certain new and useful Improvements in Automatic Regulators for Vulcanizing Apparatuses and other Purposes; and I do hereby 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.

In the accompanying drawings, Figure 1 is a front elevation of the device. Fig. 2 is a rear elevation, the back plate of the clock being removed to show the relative arrangements of the more important parts of the mechanism and to indicate their operation.

This invention relates to improvements in mechanism or apparatus for regulating heat and pressure; and it consists in connecting them with a clock attachment, whereby the clock can be started at any desired pressure or temperature, and the gas be thereby shut off fully, and the clock stopped automatically at the end of any time desired.

Having thus generally stated the nature and object of the present invention, I will proceed to describe it more in detail as far as I have completed it.

In the drawings, A denotes a clock, which is suitably supported by means of standards or arms *a* to the sides of pipe B′.

A piston-rod, B, connected at its upper end with the clock mechanism, is operated by steam-pressure in the pipe B′, in which it moves. The steam in this pipe B′ is derived from a boiler placed in any convenient location. The pipe C conducts the gas through the pipe B′ and around piston-rod B from the supply to the heater under vulcanizer or steam-box. This pipe C toward its upper end is connected with the side of the clock A by a bracket, *a′*, or in any convenient way and manner. At its upper or outer end the pipe C can be conveniently connected with any suitable source of gas-supply. The piston-rod B, being forced up by the steam-pressure below, moves upwardly one end of the finger D, said end being suitably pivoted to said rod. This upward motion of the finger at this end serves to deflect the opposite end of the finger and relieves it from connection with the escapement-bar *e*. In the position of the finger and bar shown in the drawings this finger will prevent the operation of the spring F upon the escapement G; but when the said bar has been released from contact with the finger, as indicated in dotted lines, Fig. 2, the spring will operate upon the escapement in the usual way and cause the entire mechanism of the clock to move. The alarm-wind H within the clock, having been set at the beginning of process of vulcanization to go off at a given moment, presumably at the time the process of vulcanization has been completed, will at this latter moment, by its rotation, release from contact with a catch, *h*, on the outer end of the crank *h′* of the wind from the outer end of the arm *i* of the stop-cock I in the gas-supply pipe. Till this moment the cock, which was opened in the beginning of the process, has been held open by bringing the end of arm *h* into contact with said catch on the crank of the alarm-wind. When the said arm is released from contact with said catch, it is, by means of the spring K, (attached at one end in any convenient way or manner to pipe C and at the other to said arm,) thrown over, thus closing the cock I and shutting off the inflow of gas. The gas having, as aforesaid, been thus cut off from the heater or burner, the supply of steam immediately diminishes and presently ceases, and the piston-rod B, falling down, serves to engage the finger D with the escapement-bar.

The alarm-bell L is placed at any convenient position in relation to or upon the clock, and is suitably connected by any mechanical contrivance with the alarm, so that the cutting off of the gas-supply will be duly indicated.

The above invention is designed to be used particularly in connection with the device patented by me May 17, 1887, as shown in Letters Patent of that date, No. 363,275. It will not be necessary in this connection to indicate or describe any more in detail the connection of this automatic regulator with that device, because any one skilled in matters to which these inventions pertain will at once understand the relation of these two devices the one to the other.

It will be readily perceived that by means of the present device a great saving can be effected in the time and attention necessary to be paid to the aforesaid vulcanizing apparatus,

because when once the process has been begun and the alarm set for its closing no further attention will be needed to it.

It will of course be understood that the above description and the accompanying drawings only indicate in general the structure of this device. It is my intention to make and use it in this way, or to make any and all merely mechanical changes in the construction and arrangement of the several parts as will render the device more perfect and better adapted to its work.

The operation of this device may be stated, in general terms, as follows: When not in use, the outer end of the finger D rests in a notch in the end of the escapement-bar of the clock and the clock is stopped, as shown in Fig. 2. To set the device in operation, the cock I is opened for the passage of gas to the burner under the steam-box or vulcanizer by turning its arm down to the alarm-wind, where it is held open by engaging its arm under the catch on crank of the alarm-wind, which has been wound up for the purpose. As now shown in the drawings, the gas has been turned on and lighted under vulcanizer. Now, supposing it is desired to continue the heat for one hour after the required temperature is reached, it will be seen in Fig. 1 that the clock indicates about seven minutes of eight. The alarm is set therefore to sound at seven minutes of nine. When the steam has been generated in the steam-box, the pressure upon the piston-rod causes it to rise up, carrying one end of the finger up, and also the outer end of escapement-bar. This action will continue until the required temperature has been reached, when the finger having been carried up so far it slips out and above the notch in the escapement-bar, which, when released, will be acted upon by the hair-spring and the clock set in motion. Now when the clock has run for one hour, or at seven minutes of nine, the alarm-bell will sound, and the alarm-wind, revolving, will release the arm of stop-cock, and the spiral spring will draw it back and close the stop-cock, thus shutting off the gas fully from the burner. When the heat is shut off, the steam-pressure will go down in vulcanizer and the spiral spring in regulator will carry the spindle and finger down, and the outer end of finger will engage itself in the notch of escapement-bar, and thus will stop the clock and be ready for future use.

What I consider new and desire to claim is—

1. In combination with the clock mechanism and the piston-rod, operated as described, the finger-bar, spring, and escapement.

2. An automatic heat-regulating device consisting of a steam-actuated piston, clock mechanism, and alarm-wind, and an automatic cut-off for the gas, substantially as described.

3. In combination with the gas-supply pipe having cock I and spring K attached thereto, the arm *h* and alarm-wind H, with which one end of the arm is connected, substantially as described.

4. In combination with the steam-actuated piston and the finger pivoted thereto, the clock mechanism, the gas-supply pipe, the cock I thereon, and its spring-actuated arm *i*, substantially as described.

5. The steam-pipe B′, its piston B, the finger D, pivoted at one end to said piston, the bar *e*, the spring F, and the escapement G, substantially as and for the purposes set forth.

6. In combination with the gas-supply pipe C, the spring-actuated cock I, the steam-pipe B′ and piston B, the escapement, and the alarm-wind, substantially as and for the purposes set forth.

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

OSCAR B. BRANN.

Witnesses:
FRED H. KING,
M. F. HICKS.