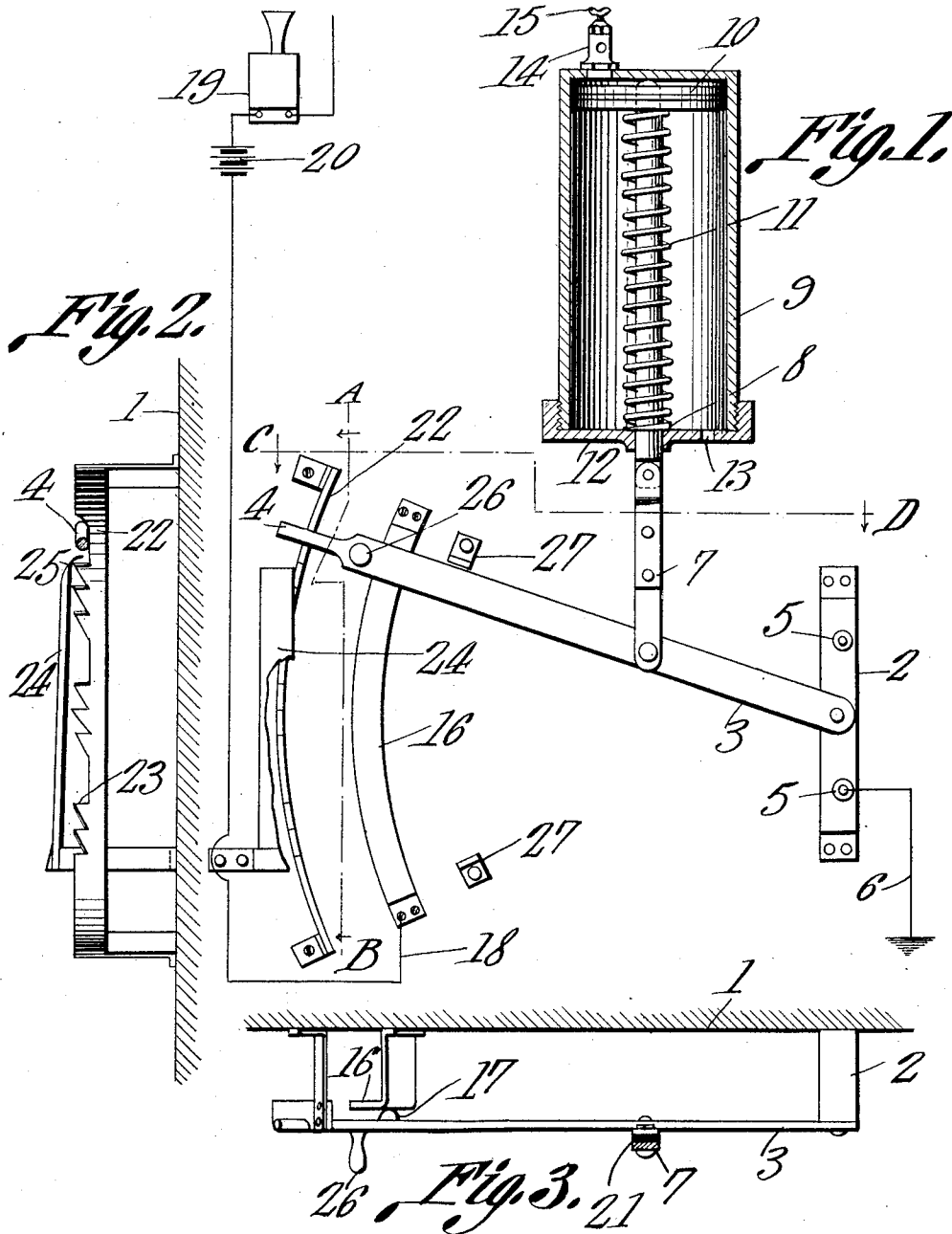


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 AUTOMATIC FIRE ALARM.
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Witnesses

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AUTOMATIC FIRE-ALARM.

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To all whom it may concern:

Be it known that I, LEWIS MYERS, a citizen of the United States, residing at Newark, in the county of Oakland and State of Michigan, have invented a new and useful Automatic Fire-Alarm, of which the following is a specification.

This invention has reference to improvements in automatic fire alarms and it is designed to provide a simple and yet efficient and sure acting device whereby fire alarm signals may be sent from various stations, the character of the signal indicating the station from which the alarm is sent.

The present invention is designed to be housed in a box or other container such as is customarily used for fire alarm systems and to be under the control of a person wishing to turn in an alarm, the mechanism being of simple and yet efficient construction not liable to get out of order and which will respond promptly and certainly when desired.

The invention will be best understood from a consideration of the following detailed description taken in connection with the accompanying drawings forming a part of this specification, in which drawings—

Figure 1 is a partly structural and partly diagrammatic view of the invention with parts broken away and parts in section. Fig. 2 is a section on the line A—B of Fig. 1. Fig. 3 is a section on the line C—D of Fig. 1.

The structure of the present invention is designed to be mounted on a suitable base plate 1, indicated in Figs. 2 and 3 which is assumed to be of a suitable size to fit within a fire alarm box such as is customarily used in connection with municipal or other fire alarm systems.

Mounted on the base 1 is a block 2 to which is pivoted an arm 3 at one end of the latter, the other end of the arm being formed into an extension 4 for a purpose which will presently appear. The block 2 may carry binding posts 5, one of which may be connected to ground by a conductor 6 and the other of which may be used for line connections if desired or necessary.

The arm 3 is connected by a link 7 to a piston rod 8 entering a cylinder 9 and within

the latter carrying a piston 10 suitably packed to render the piston practically air tight. Surrounding the piston rod 8 within the cylinder 9 is a spring 11 bearing at one end against one end of the cylinder which end may be constituted by a cylinder head 12, and at the other end the spring bears against the piston 10, the tendency of the spring being to force the piston toward the end of the cylinder remote from the head 12. The head 12 may be provided with a perforation 13 for the ready escape or entrance of air with respect to the cylinder 9 while at the other end of the cylinder there is a valve 14 which may be of a type permitting the ready entrance of air into the cylinder when the piston is moved toward the head 12 but which will retard the escape of air from the cylinder when the piston is moved under the action of the spring 11, and for this purpose a set screw 15 is provided so that the speed with which air may escape from the cylinder when the piston is moving under the action of the spring 11 may be regulated at will, the cylinder 9 and piston 10 then acting as a dash pot or retarding device for movement of the piston when released to the action of the spring 11.

Underriding the arm 3 near the free end is a curved plate 16 and the arm 3 is provided on the face adjacent to the plate 16 with a contact member 17 bearing upon the plate 16. The plate 16 is coupled to a conductor 18 which may lead to any distant point and be connected to a signal 19 of any suitable sort and this conductor may also include a battery 20 or other source of electric energy. Whenever the arm 3 which may be made of elastic as well as electrically conducting material, is moved out of engagement with the plate 16 the electric circuit from the battery 20 through the conductor 18 to the plate 16 then by way of the contact 17 to the arm 3 and from the latter to the block 2 and to ground through the conductor 6 is broken. Since it is not desirable to include the piston rod 8 and cylinder 9 in the circuit, the link 7 may be made of two parts electrically separated by insulation indicated at 21 in Fig. 3.

In order that the arm 3 may break contact with the plate 16 intermittently at pre-

determined intervals there is provided a strip 22 suitably supported on the base 1 and in the path of the end 4 of the arm 3, the top edge of this strip being of such height
 5 as to support the arm 3 under bending stress and to space the arm 3 from the plate 16. The outer edge of the strip 22 may be formed with teeth 23 in any desired arrangement and order and when the end 4 of the
 10 arm 3 travels over this strip in the proper direction, the end 4 will drop successively between the teeth 23 and engage the plate 16.

In the operation of the device the arm 3 is moved in a direction to compress the
 15 spring 11 and is then released to the action of the spring returning slowly to the initial position by the action of the spring 11 as retarded by the slow escape of air from the valve structure 14.

In order that the end 4 of the arm 3 may not drop between the teeth 23 on the initial movement there is provided a strip 24 fast at one end to the base and at the other end downwardly bent as indicated at 25 close
 25 to the terminal one of the series of notches 23. When the arm 3 is moved from the initial position by a person grasping a suitable handle 26 on said arm 3 the end 4 will engage the downturned end 25 of the strip
 30 24 and will be guided into overriding relation to the strip 24 and be thus held away from the toothed edge of the strip 22. Ultimately the end of the strip 24 is reached and then the elasticity of the arm 3 will
 35 cause it to drop on the upper edge of the strip 22 and when released the spring 11 will move the arm 3 toward the initial position. Thus under these conditions the end 4 will ride under the strip 24 which is sufficiently spaced at this end from the strip
 40 22 to permit such movement. As soon as the end 4 of the arm 3 reaches the first of the teeth 23 its elasticity will cause it to ride up on the teeth and electrical connection is
 45 broken between the contact 17 and the plate 16 and the signal 19 is actuated, the signal 19 therefore operating on open circuit and being inoperative on closed circuit. The teeth 23 are inclined in the direction of
 50 travel of the arm 3 under the action of the spring 11 and consequently the end 4 will immediately ride up the inclined edge of the teeth thus moving the contact 17 from the plate 16 and thereby breaking the electric
 55 circuit to the signal 19 which immediately operates. The end 4 of the arm 3 on reaching the next tooth in order will ride up thereon again opening the circuit and immediately thereafter drop from the tooth
 60 and then ride up on third tooth if present, and so on throughout the series, ultimately overriding the end 25 of the strip 24 and finally passing onto the smooth portion of

the strip 22 when the arm will come to rest, closing the circuit, stops 27 being provided
 65 for the arm 3 at each end of its travel.

The arrangement of the teeth 23 will determine the character of the signal. In the particular illustration shown there are three
 70 groups of three teeth each with intervening spaces therebetween where the arm 3 comes into contact with the plate 16 so that a signal will be sent consisting of three groups of three signals each with intervening
 75 intervals depending upon the length of the inactive portions of the strip 22.

The device is of very simple construction, cheaply made and not liable at all to get out of order since the parts may be made amply
 80 strong to resist even violent use.

It will be understood that the time relation and number of engagements of the contacts 16 and 17 will be determined by the number and arrangement of the teeth 23 and of course the signals sent will agree
 85 with the teeth. In this way each signal station may have its own distinctive arrangement and the signals sent from the stations will agree with the individual arrangements of the teeth.
 90

What is claimed is:—

1. In an alarm apparatus, an elastic, pivoted conducting arm constituting a contact member and movable at will in one direction, a spring for moving the contact arm in
 95 the other direction, a dash-pot for controlling the active movement of the said spring, another contact member in the path of and co-extensive with the travel of the pivoted conducting arm, and a toothed strip in normal
 100 opposition to the elastic tendency of the arm and having the teeth spaced to determine the number and time relation of engagements of the contact members during the spring actuated movement of the pivoted
 105 contact arm.

2. In an alarm apparatus, a pivoted, elastic contact arm movable at will in one direction to set the arm for active movement, mechanical means for moving the arm actively
 110 toward the initial position, a toothed member controlling the movement of the arm under its elastic tendency when moved actively by the mechanical means, and a guide strip for the contact arm in operative relation
 115 to the toothed member and active to hold the arm away from the toothed member during the movement of the arm in the direction to set it.

3. In an alarm apparatus, a pivoted elastic contact arm movable at will in one direction to set it, a spring for moving the arm
 120 actively, a dash-pot for retarding the movement of the arm by the spring, a contact member within the path of the arm under its
 125 elastic tendency and co-extensive with the

travel of the arm under the action of the
spring, a toothed strip in operative relation
to the arm and normally holding said arm
away from the contact member, and a guide
5 strip overlying the toothed strip and con-
stituting a mechanical switch for holding the
arm away from the toothed strip during the
setting movement.

In testimony that I claim the foregoing as
my own, I have hereto affixed my signature 10
in the presence of two witnesses.

LEWIS MYERS.

Witnesses:

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