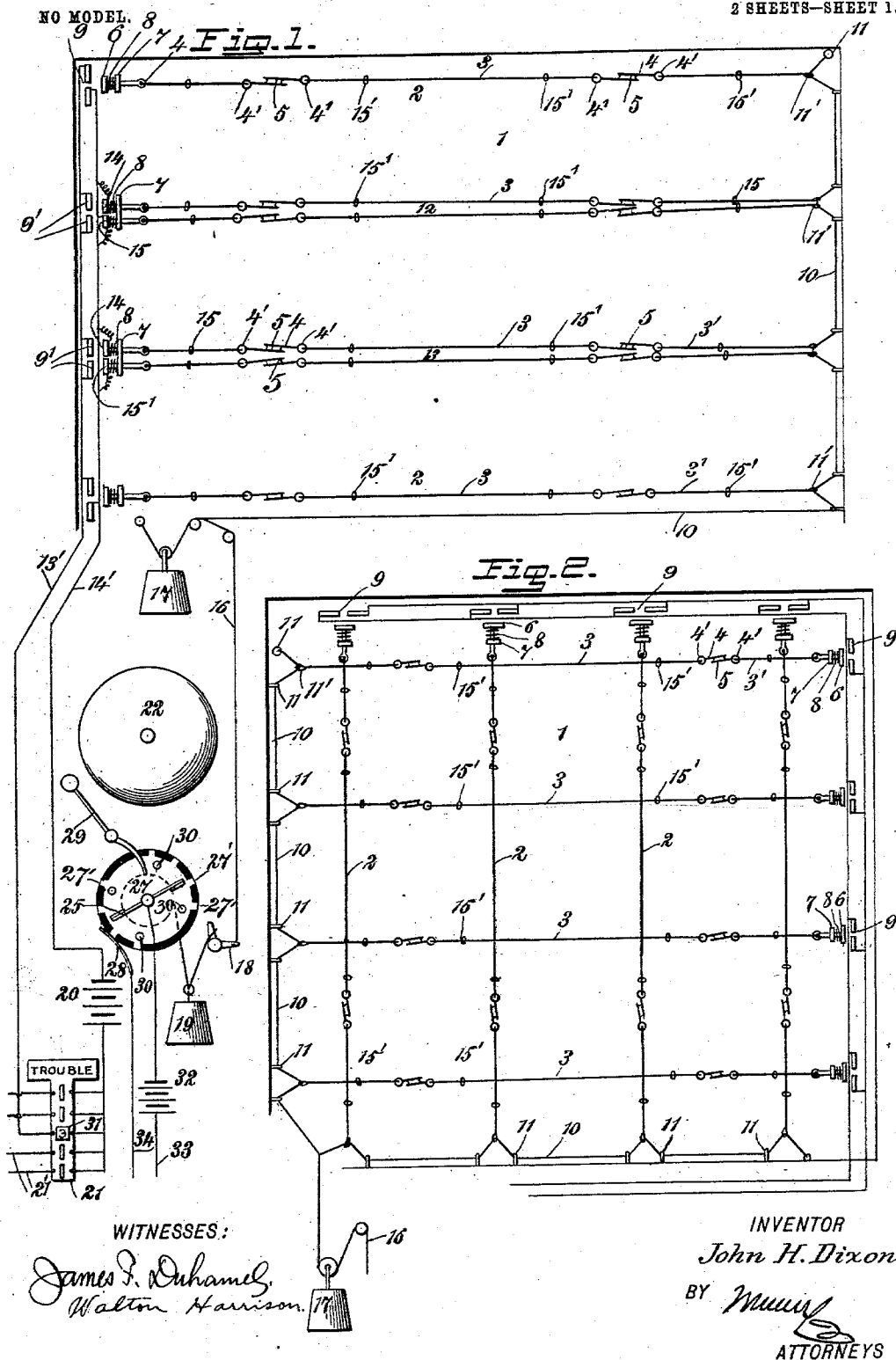


J. H. DIXON.
FIRE SIGNAL.

APPLICATION FILED SEPT. 26, 1901.

2 SHEETS—SHEET 1.



No. 740,823.

PATENTED OCT. 6, 1903.

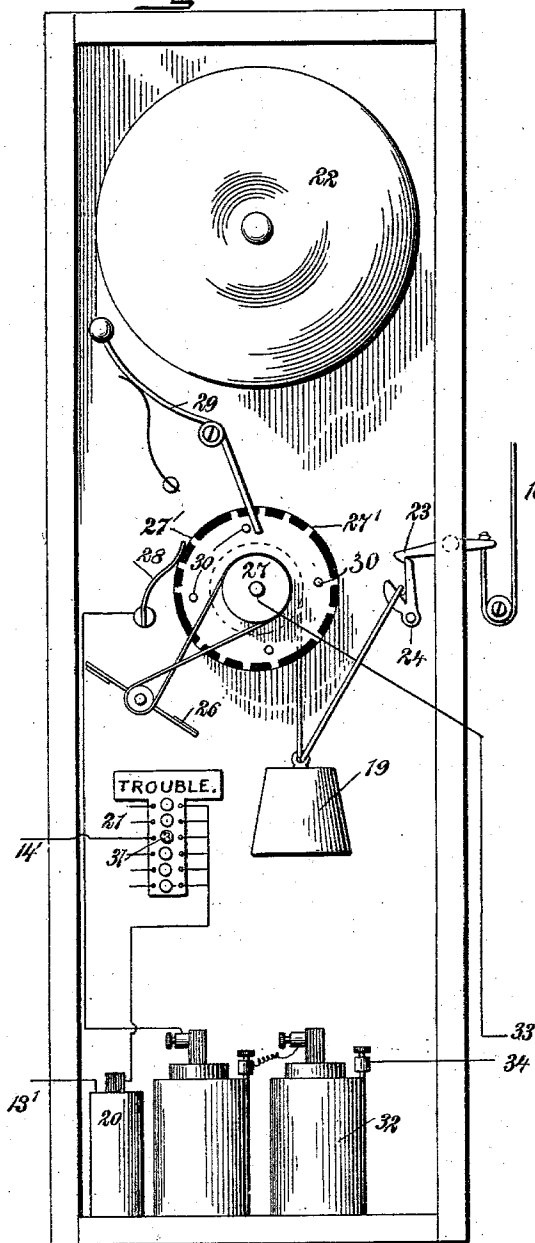
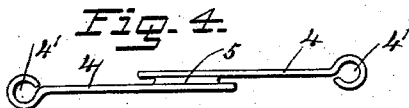
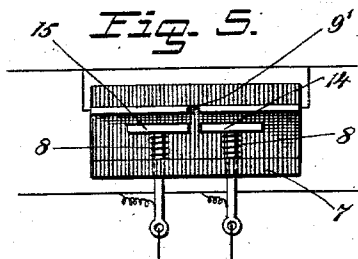
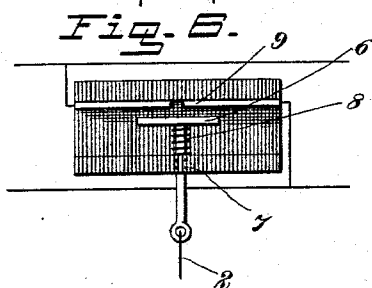
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NO MODEL.

2 SHEETS—SHEET 2.

Fig. 3.



WITNESSES:

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UNITED STATES PATENT OFFICE.

JOHN H. DIXON, OF PITTSBURG, PENNSYLVANIA.

FIRE-SIGNAL.

SPECIFICATION forming part of Letters Patent No. 740,823, dated October 6, 1903.

Application filed September 26, 1901. Serial No. 76,653. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. DIXON, a citizen of the United States, and a resident of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and Improved Fire-Signal, of which the following is a full, clear, and exact description.

My invention relates to automatic fire-signals, and more particularly to the type in which a wire is made fusible for the purpose of sounding alarms.

The object of my invention is to provide a cheap and practicable device for causing and transmitting signals in case of fire in a building with a minimum liability of signals being induced from other cause than fire.

In the accompanying drawings like figures indicate like parts in all the views.

Figure 1 is a diagrammatic view showing the invention as applied to the ceiling or wall of a room. Fig. 2 is likewise a diagrammatic view showing the fuse-wires crossed at right angles with each other. Fig. 3 is an elevation showing certain parts of the alarm mechanism inclosed in a cabinet. Fig. 4 shows one of the fusible links, and Figs. 5 and 6 show the electrical contacts for actuating one of the electrical alarms.

Upon the wall or ceiling 1 are mounted the composite wires 2, 12, and 13, comprising middle sections 3, each preferably about eight feet long, and end sections 3', each preferably not over four feet in length. These sections are of steel wire and are connected together by fusible links made of two brass shanks 4 and with eyes 4' and soldered together at 5. These fusible links may be made quite small in size, and each of them need not be more than an inch and a half long. The wires are loosely threaded through stationary eyes 15', secured upon the wall or ceiling. Contacts 6 14 15 are provided for the purpose of closing the circuit when the wire is fused or broken. These contacts move against the stationary contacts 9 9', being actuated by the springs 8, which press upon the insulating guide-plates 7, thus closing the electrical circuit, consisting of the battery 20, wires 13' 14', and connected with a local annunciator 21. This annunciator may be provided with wires

21', connecting with other floors. As shown in Fig. 1, the target 31 of the annunciator 21 indicates a fire upon the third floor. The annunciator being of the usual type it is not deemed necessary to be here described. The fuse-wires may be made parallel, as shown in Fig. 1, and may be either single, as shown at 2, or double, as shown at 12 and 13. In case the wires are double the contact ends are likewise made double, so that the breaking of any wire will close the electrical circuit of the battery 20. In case the wires are crossed they are preferably arranged as shown in Fig. 2. At the opposite ends of the wires—that is, the ends not provided with electrical contacts—the rings or eyes 11' are connected with the cord 10, made, preferably, of picture-wire or some similar flexible substance. The wire runs through the stationary eyes 11 and is drawn outward from its true line and held under tension, as shown in Fig. 1, so that the breaking of a single wire or of a pair of wires, as the case may be, will cause the cord 10 to slacken. A weight 17 is so arranged as to pull constantly upon this cord for the purpose of keeping the cord and all of the wires taut. Connected to the cord 10 is another cord 16, which connects with a bell-crank 18. A weight 19 is suspended so that its weight is normally exerted upon the said bell-crank 18. When, however, the weight 19 is released by the motion of the bell-crank, the said weight is free to descend, thereby rotating a drum 27, which is provided with pins 30 and with electrical contacts 27', which are pressed on by the stationary spring-contacts 28, connected with a separate battery 32 and with an alarm-signal located at a distant station by means of wires 33 and 34, as shown more particularly in Fig. 3. This last-mentioned alarm-signal is for the purpose of giving an independent alarm. The contacts 27' are rotated by the drum 27 and weight 19 whenever the cord 10 is slackened. Consequently the alarm at the central station can never be given except when the cord 10 is slackened. This can only occur where the single wire 2 is broken or fused or where both of the paired wires 12 or the paired wires 13 are broken or fused. The

breaking or fusing of one of the wires 13 is alone unable to slacken the cord, for the reason that the same is held by the companion wire. If, however, the single wire 2 is broken, the cord 10 is slackened. The object of this arrangement is to make two separate alarms and to make them entirely independent, thus lessening the chance of accidental breaking of the wire to create a false alarm of fire.

10 If the wires are arranged as in Fig. 1, it is likely that in case of fire the fuse-links of the two wires 12 or of the two wires 13 will be melted at some point, thus causing not only the contacts 14 15 to actuate the annunciator 21, indicating trouble, but likewise the release of the cord 10, thereby actuating the drum 27 and ringing the gong 22 by means of the clapper 29. The rotation of the drum 27 sounds the alarm at the central station, thus indicating the number of the street or house, as the case may be. The rotation of the drum 27 also causes the governor 25, as shown in Fig. 1, or the governor 26, as shown in Fig. 3, to revolve, thereby retarding the descent of the weight. The releasing mechanism is shown in slightly modified form in Fig. 3, where the cord 16 being pulled upward, as in Fig. 1, releases a dog 23 and a detent 24, thus causing the weight 19 to descend, as above described. In case of fire, therefore, where both wires 12 or both wires 13 are fused both alarms will be sounded simultaneously; but in case of an accident breaking only one of the wires 12 or one of the wires 13 the cord 10 will not be released, and therefore only the local annunciator-alarm indicating trouble will be actuated. The local annunciator should be provided with targets indicating various parts of the house, and the annunciator at the central station may be provided with letters indicating the several streets or other arbitrary parts of the city, whereby the locality of the fire can be ascertained within reasonable limits.

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

1. A fire-signal having wires provided with fusible joints and normally held under stress, a local trouble-signal controllable by sections at one end of said wires, and a distant-signal relay having means for mechanically actuating the same and controllable by opposite end sections of said fusible wires.

2. A fire-signal comprising members having fusible joints, each member being provided with a circuit-closer and held under stress, a local trouble-signal controllable by said circuit-closers of the members and operable on a disturbance of either member, and a distant-signal relay operatively connected with said members and having automatic weight-actuated means normally restrained by an intact condition of said members.

3. A fire-signal having pairs of wires pro-

vided with fusible joints and normally held under stress, and a distant-signal relay having mechanical actuating devices normally held in restraint by said pairs of wires, said relay remaining inactive except on the fusion of both members of any one pair of wires.

4. A fire-signal, comprising wires having fusible joints and end sections, means for automatically moving the end sections of said wires subsequent to their separation by fusion, a local alarm, an electric circuit including said local trouble-alarm, and having circuit-closers controllable by separable sections at one end of said wires having fusible joints, a mechanical relay connected with other separable sections of wires having fusible joints, and a separate electrical alarm actuated by said mechanical relay.

5. A fire-signal having wires each provided with fusible joints and with circuit-closers at one end thereof, a local trouble-signal controllable by either circuit-closer of the series and operable on a disturbance of either wire, a distant-signal relay having mechanical actuating devices, and a weighted flexible connection releasable by either of said wires on fusion thereof and operatively connected with said relay.

6. A fire-signal comprising members having fusible joints each held under longitudinal stress and separable by heat into independent parts, a distant-signal relay having mechanical actuating means, and a connection operatively related to said members and to the relay to maintain the latter inactive by an intact state of the members and adapted to release the relay-actuating means on the separation by heat of the members.

7. A fire-signal comprising wires each having a fusible joint, said wires being disposed in pairs and each pair of wires provided at one end with circuit-closers, a flexible weighted connector attached to the opposite ends of the wires and cooperating with the circuit-closers in maintaining said wires under longitudinal stress, a local signal controllable by either circuit-closer of the series and operable thereby on a disturbance of the wires, and a distant-signal relay having positive actuating means restrained by said flexible connector during an intact state of both members of any one pair of said wires.

8. A fire-signal having wires disposed in pairs and provided with fusible joints normally held under stress, a local signal controllable by a section at one end of either of said wires, and a distant-signal relay having means for mechanically actuating the same, said relay being controllable by the cooperation of both end sections of either pair of said wires opposite to the wire sections that actuate the local signal.

9. A fire-signal comprising pairs of wires having fusible joints, and each member of said pairs of wires provided with a circuit-

5 closer normally held open under stress of the wires, a local signal controllable by said circuit-closers and operable on a rupture of either of said members, and a distant-signal relay operatively connected conjointly with said members and having an automatic weight-actuated means normally restrained by an intact condition of said members.

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

JOHN H. DIXON.

Witnesses:

C. P. GRUNDEN,
H. B. PARKER.