No. 804,040. PATENTED NOV. 7, 1905.

W. T. PLATT.

ELECTRICALLY OPERATED DOOR OPENING SYSTEM.

APPLICATION FILED MAR. 7, 1904.

2 SHEETS—SHEET 1.

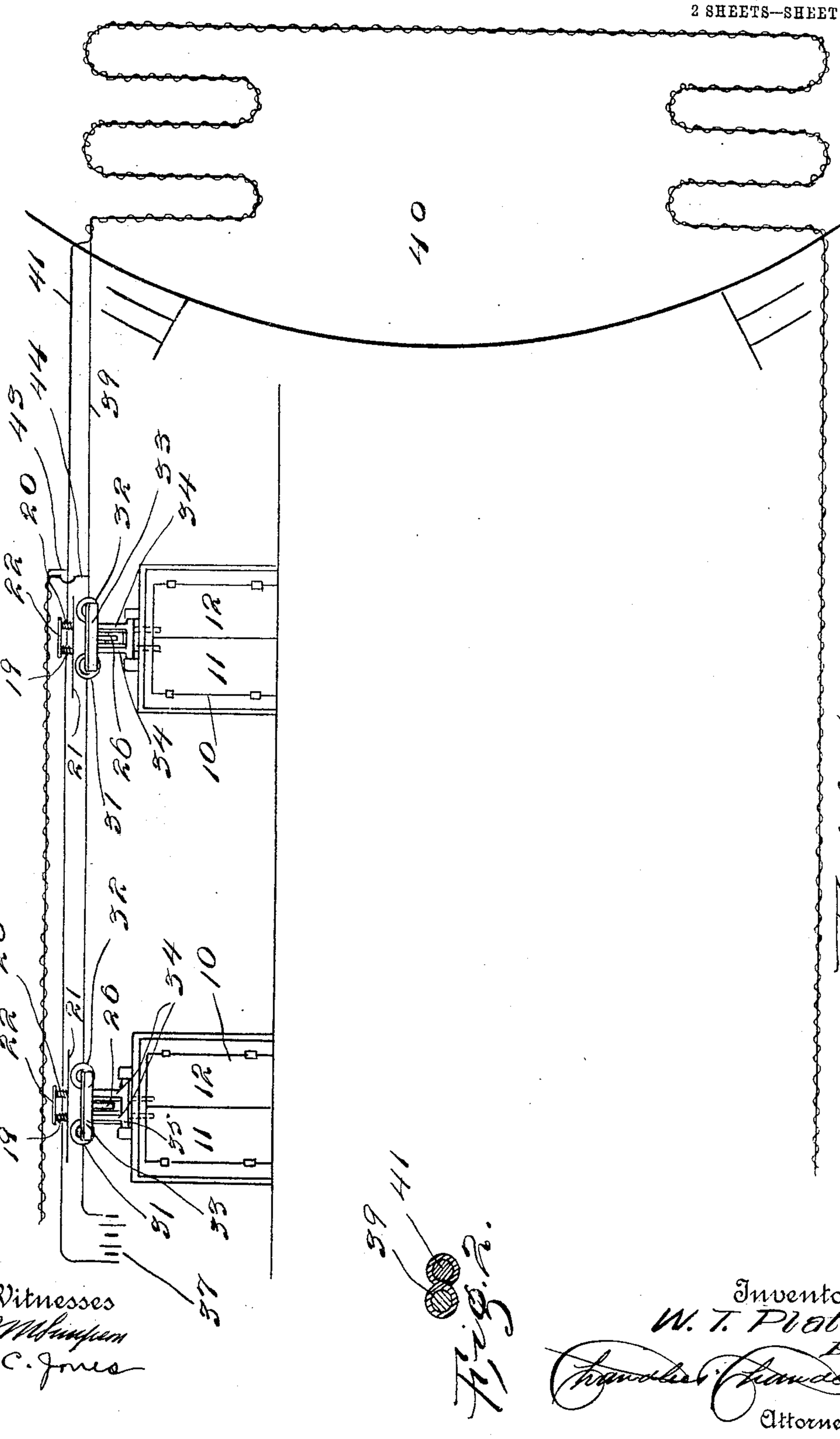

Fig. 1.

Fig. 2.

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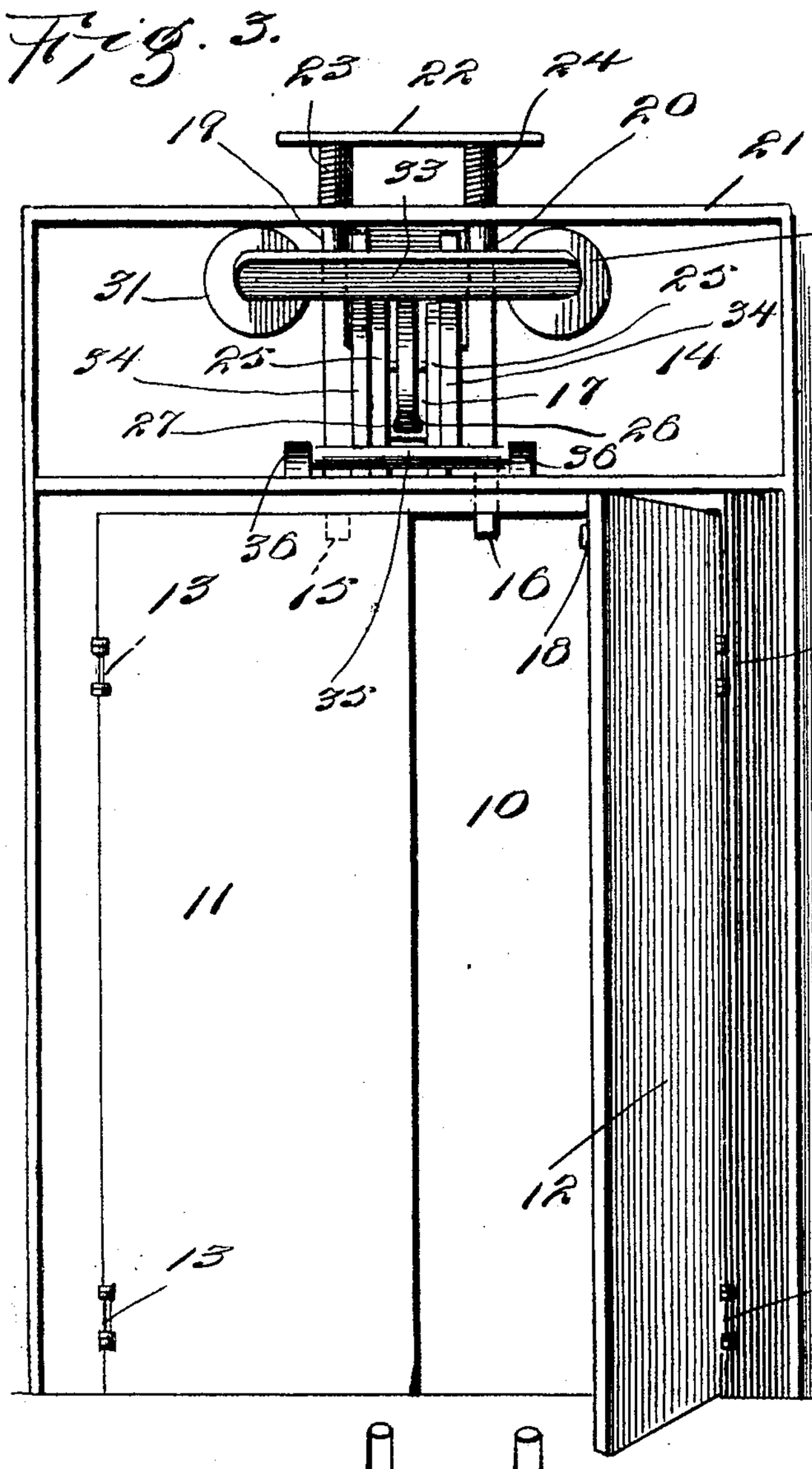
2 SHEETS—SHEET 2.

Fig. 3.



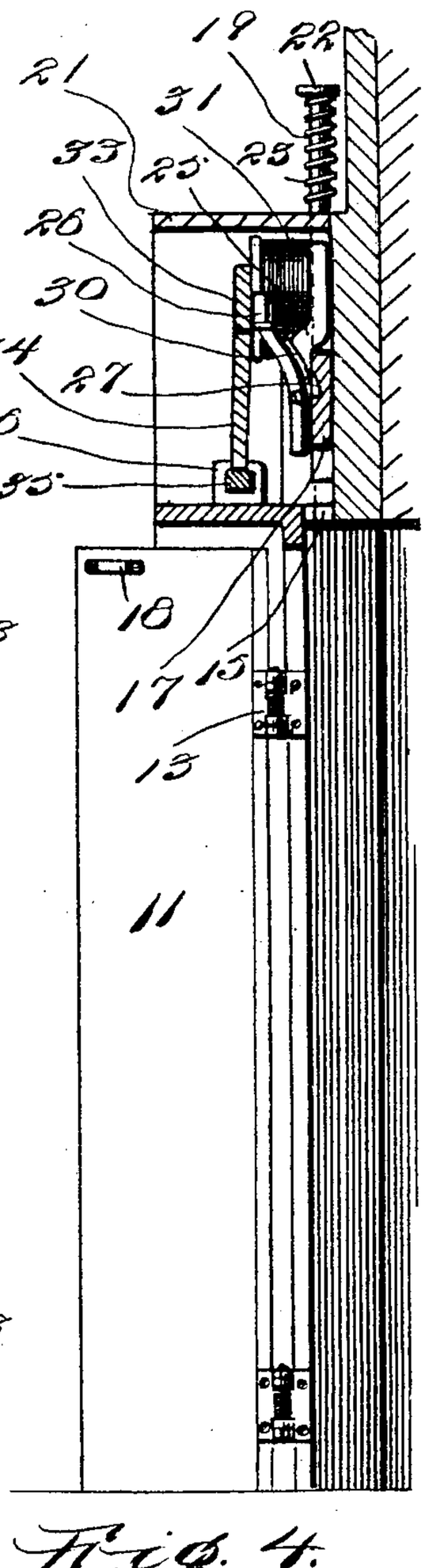


Fig. 4.

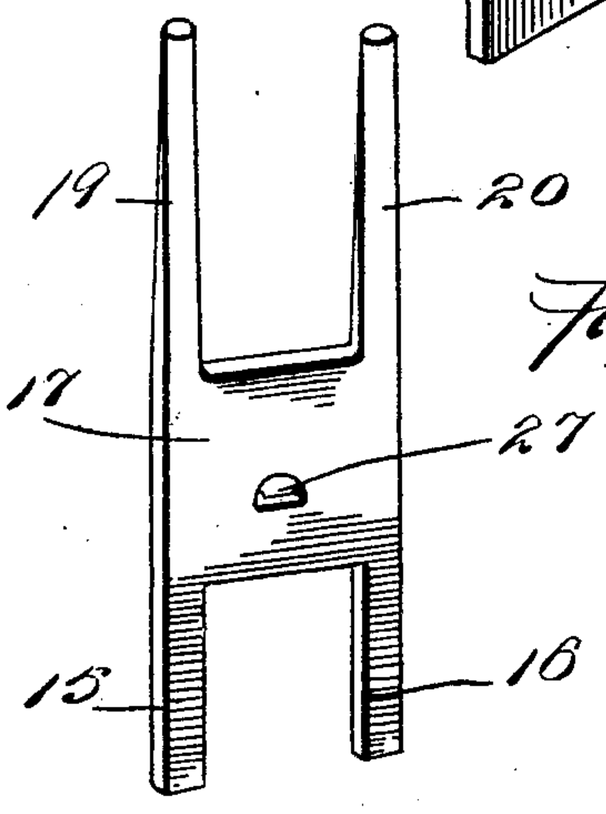


Fig. 5.

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UNITED STATES PATENT OFFICE.

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ELECTRICALLY-OPERATED DOOR-OPENING SYSTEM.

No. 804,040. Specification of Letters Patent. Patented Nov. 7, 1905.

Application filed March 7, 1904. Serial No. 197,002.

To all whom it may concern:

Be it known that I, WILLIAM T. PLATT, a citizen of the United States, residing at St. Louis, State of Missouri, have invented certain new and useful Improvements in Electrically-Operated Door-Opening Systems; 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.

This invention relates to safety applances for theaters and other places of assemblage, the object of the invention being to provide an arrangement whereby when a fire occurs an electric circuit will be closed and the several exits from the building will be instantly and simultaneously opened.

A further object of the invention is to provide a construction and arrangement which will permit of closing the electric circuit manually, if desired, and in which the doors to the several exits will normally present the appearance of paneling, so as to preserve any ornamental character that the building may have.

Other objects and advantages of the invention will be understood from the following description.

In the drawings forming a portion of this specification, and in which like numerals of reference indicate similar parts in the several views, Figure 1 is a diagrammatic view showing the plan of installation of the system. Fig. 2 is a transverse section through a pair of circuit-wires such as are employed in the present system. Fig. 3 is an elevation showing one of the exits with one door open and one door closed and the locking-bolts projected or in active positions. Fig. 4 is a vertical section in a plane between the coils of the electromagnets, the latch for holding the locking-bolts being in elevation. Fig. 5 is a detail view of the double locking-bolt.

Referring now to the drawings, the present system comprises, primarily, a number of exits or openings 10 in the walls of the building, (indicated in Fig. 1,) each of these openings being provided with a pair of doors 11 and 12, having spring-hinges 13, which when the doors are closed tend to open them, so that if the doors are bolted they will remain closed and as soon as the bolts are withdrawn the doors will fly open.

Above each exit or door-opening is a compartment 14, in which is slidably mounted a double bolt comprising the arms 15 and 16, connected at their upper ends by the cross-piece 17, the lower ends of these bolts extending downwardly through the bottom of the compartment for removable engagement in the keepers 18, secured to the upper edges of the doors, so that when engaged with these keepers the doors will be held closed.

From the upper end of the cross-piece 17 extend the additional arms 19 and 20, which pass through the plate 21 and are connected at their upper ends by the cross-piece 22, helical springs 23 and 24 being disposed upon these upper arms and resting with their lower ends against the plate 21 and their upper ends against the cross-piece 22 to force the double bolt upwardly or out of engagement with the keepers on the doors. Pivoted between the supports 25 in the compartment 14 is a latch 26, which is disposed for engagement of one end thereof in the recess 27 in the portion 17 of the double bolt when the double bolt is in position to engage its lower ends with the keepers of the doors, this latch serving to hold the double bolt at such times against upward movement.

When it is desired to open the exits, it will be understood that it is only necessary to move the latch from engagement with the double bolt, when the helical springs will raise the latter from the doors.

The retaining-latch is held yieldably in position to engage the recess in the double bolt by means of a spring 30, which is suitably mounted and presses against the latch.

To disengage the latch from the bolt, an electromagnet is provided, including the coils 31 and 32, said electromagnet having an armature 33, mounted upon the arms 34, that project from the rock-shaft 35, that is journaled in the ears 36 at the bottom of the compartment 14. The armature 33 rests against the upper end of the retaining-latch, and when the electromagnet is energized the armature is moved and presses against the upper end of the latch and swings the lower end out of the recess in the double bolt, so that the latter is released and by moving upwardly under the influence of its helical springs releases the doors, which fly open. By connecting the releasing-magnets of a number of exits in a common circuit the doors may be released simultaneously by closing the circuit at any desired point.

In Fig. 1 of the drawings there is shown a system of wiring wherein the electromagnets at the different exits are connected in series with a source of electricity 37. These elec-

tromagnets are connected with one terminal of the source of electricity, and from the electromagnet most remote from the source of electricity there leads a wire 39, which passes to various parts of the building with whatever ramifications desired. In Fig. 1 of the drawings there is indicated a stage 40, and it will be noted that the wire is zigzag at the ends of the stage to correspond to the positions of the parts of the scenery. From the source of electricity leads a second wire 41, which after passing the said remote electromagnet is wrapped around the wire 39, from which it is separated only by a very slight insulation, which will be destroyed when its temperature is raised only slightly above the normal temperature in the building. When an abnormal temperature occurs, the insulation is destroyed and the wires coming together complete the electric circuit through the several electromagnets, which are energized so that the doors of the several exits are released in the manner hereinbefore described and the doors fly open. From the wires 39 and 41 lead pairs of wires 43 and 44, respectively, at intervals, which extend to different parts of the building and which lie in close relation and have a light separating insulation the same as the wires 39 and 41, so that when they are subjected to heat they will come together and close the circuit through the releasing-electromagnets. These pairs of wires are connected beyond the electromagnet most remote from the source of electricity, so that when the circuit is closed by any pair of them the entire number of electromagnets will be energized, it being understood, of course, that said wires may lead to points intermediate of the exits.

It will be understood that in practice modifications of the specific construction shown may be made and any suitable materials and proportions may be used for the various parts without departing from the spirit of the invention.

What is claimed is—

In a building having a plurality of exits, the combination with a pair of doors for each exit having means for holding them normally and yieldably in open position, of a bolt for holding the doors of each exit in closed position, means for holding said bolt normally active, an electromagnet having an armature disposed to move said holding means to inactive position when the electromagnet is energized, and means for moving the bolt to inactive position when released, of a source of electricity with one terminal of which the electromagnets of all the doors are connected in series, a wire connected with the opposite terminal of the source of electricity, and a wire leading from the electromagnet and lying in close relation to the first-named wire, said wires being adapted for mutual contact when subjected to a predetermined temperature.

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

WILLIAM T. PLATT.

Witnesses:
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