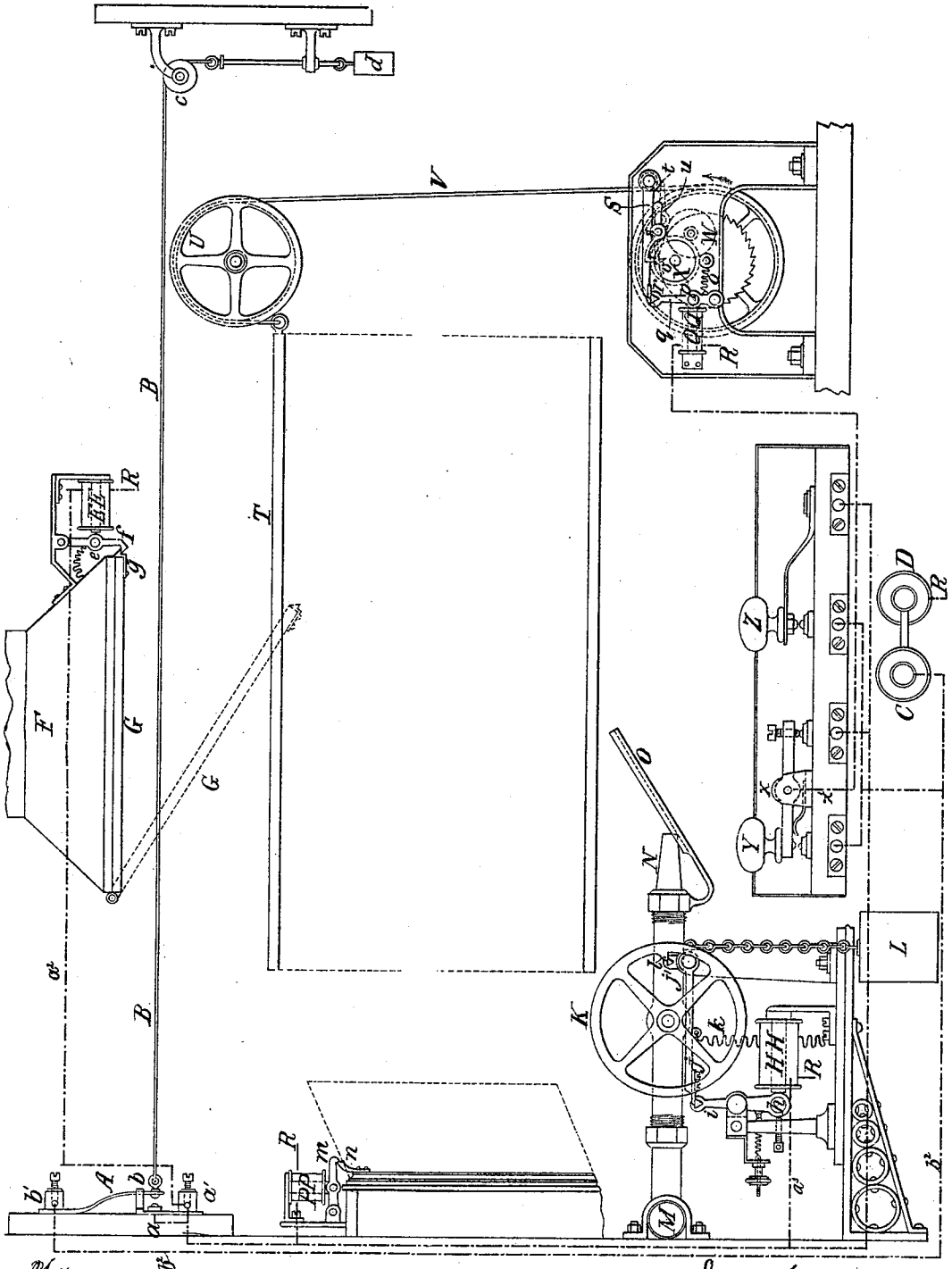
(No Model.)

C. A. MAYRHOFER.

ELECTRIC SAFETY APPARATUS FOR THEATERS AND OTHER BUILDINGS.

No. 269,593. Patented Dec. 26, 1882.



Witnesses:
Edward F. Diggers.
Samuel C. Hinwood

Inventor.
Charles Albert Mayrhofer
by W. H. Babcock
Attorney.

N. PETERS. Photo-Lithographer. Washington. D. C.

UNITED STATES PATENT OFFICE.

CHARLES A. MAYRHOFER, OF VIENNA, AUSTRIA-HUNGARY, ASSIGNOR TO ROBERT I. LANGSTAFF HAVILAND, OF SAME PLACE.

ELECTRIC SAFETY APPARATUS FOR THEATERS AND OTHER BUILDINGS.

SPECIFICATION forming part of Letters Patent No. 269,593, dated December 26, 1882.

Application filed June 3, 1882. (No model.) Patented in Austria-Hungary, March 13, 1882, No. 1,218, and No. 9,537; in France April 22, 1882, No. 148,549; in Belgium April 22, 1882, No. 57,688; in Italy April 29, 1882, XVI, 14,131, XXVIII, 149, and in Sweden September 1, 1882.

To all whom it may concern:

Be it known that I, CHARLES ALBERT MAYRHOFER, a subject of the Emperor of Austria, residing at the city of Vienna, in the Austro-Hungarian Empire, have invented certain new and useful Improvements in Electric Safety Apparatus for Theaters and other Buildings; 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, reference being had to the accompanying drawing, and to letters or figures of reference marked thereon, which forms a part of this specification.

This invention relates to electric safety apparatus for theaters, warehouses, and other buildings; and it consists in an arrangement and combination of apparatus for automatically or at will and by electrical means causing a stream of water to be thrown into any part of a theater or other building in case of a fire breaking out therein, and to cause doors, trap-doors, shutters, and other closing appliances to be opened and the curtain to drop.

The accompanying drawing shows my apparatus applied to a theater.

Contact appliances of the kind hereinafter described are placed in any suitable number on the walls or floors of the structure or wherever circumstances require it. The closer together they are placed the greater will be the security obtained. Each such contact-maker consists of a spring, A, which is held in tension by a cord, B, made of easily-combustible material, that is stretched across the space to be rendered safe against fire, and passes over a pulley, *c*, and is loaded by a weight, *d*. The spring A is by this means kept away from the contact stud or plate *a* and pressed against the stop or staple *b*. If, now, in any part of the theater, warehouse, or other structure one of the cords B (and these cords should be stretched across in all directions) should be burned by a flame rising up to it, then the following takes place: As contact is made between the spring A and the stud or plate *a* the electrical circuit will be closed by means of the wires a^2 b^2, which are held in the terminals a' b'. The wire b^2 leads directly to the battery, in which C and D are the two poles of the same. The current passes off in various directions from the contact appliances. Thus one branch leads from each end to the fire-indicator station. The wire a^2 leads to the trap-door appliance F, where, in consequence of the current passing around the electro-magnets E E, they are magnetized and attract the keeper *e*, withdrawing the hook or catch *f* from the nose *g*, so that the trap-door G, resting thereon, drops down by its own weight, and thus opens entirely, allowing the smoke and gases in the building to escape.

R is the return-wire to the battery. A branch wire, a^3, leads to the electro-magnets H H, and by wire R back to the battery. When the current is on the magnets H attract the keeper *h*, whereby the upper end, *i*, of the latter is drawn away from the extreme end of the lever *j*, which then, assisted by the helical spring *k*, falls down. The projection *j'* on the lever *j* is thereby withdrawn from under the peg *l* on the chain-pulley K, and the weight L, suspended by a chain from the pulley K, will now pull that side of the pulley down or over, thereby opening a cock, on the plug of which said pulley is fixed, and causing a stream of water to rush out from the water-pipe M to the outlet pipe or nipple N. The stream is directed as required by turning the guide O. The same appliance, but without the guide O, may be used for automatically shutting off the gas-supply. The electric current also magnetizes the electro-magnets P P, causing the keeper-lever *m* to be raised and released from the catch *n* on the door, which then opens of itself. The door must be so hung as to open outwardly. The wire R in this case indicates also the return-wire to the battery.

In the curtain-operating appliance the current magnetizes the electro-magnets Q Q and passes back by the wire R. When the keeper *p* is attracted against the pull of the helical spring *o* its upper end, *q*, is withdrawn from

the support of the end *r* of the lever S, which drops down, and while pressing on a peg projecting laterally from the back end of the stop-hook lever *s* the other or hook end of said lever *s* will be raised out of gear with a groove on the stop-wheel X. A projection, *t*, on the lever S will simultaneously depress the back end of the pawl-lever *u*, causing the other or pawl end of the same to be pulled out of gear with the pawl-wheel. The lever *u* is shown in dotted lines. By this means the whole of the clock-work will be set in motion, and the cord V, leading therefrom to the pulley U, will cause the curtain to descend. W is an intermediate wheel of the clock-work.

The key appliance to be worked by the officials of the theater is shown at Y Z. In order to test the action of the curtain appliance, for instance, the key Y is depressed. The current will then pass from the pole C of the battery by means of the fulcrum *x* and wire *x'* to the electro-magnets Q Q, causing the clock-work to be released and set going, and the curtain to drop without affecting the other apparatus. If it is required to actuate them all, the key Z is depressed.

These auto-electric safety appliances work automatically in all cases where local circumstances permit the use of contact appliances, in consequence of the burning through of the restraining-cords, which are impregnated with substances of an easily-combustible nature. Where such cords are inadmissible the apparatus may be put into action at the operator's will by means of the key appliances, which may be placed in the most convenient parts of the building. The apparatus is also always easily kept under control and in working order, and the entire apparatus is operated by depressing the key Z. The conducting-wires may be built into the walls, and thus be prevented against accidental or willful injury. The appliances are not costly, and can be adapted to all circumstances.

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

1. The spring A and weighted cord B, in combination with the stud *a*, the circuit-wires connected respectively to said spring and stud, one of said wires leading to the battery and the other to the magnets H, the magnets H, governed by said circuit, a keeper, *h*, supporting one end of a lever, *j*, and a weighted chain-pulley, K, directly operating the cock of a water-pipe, and adapted to hold said cock closed by the other end of said lever *j*, whereby when the circuit is closed by the burning of cord B the electro-magnets are magnetized and attract the keeper *h*, which releases the lever *j*, and then the chain-pulley by its weight is turned, and the cock of the water-pipe is opened, substantially as set forth.

2. In combination with circuit-wires, a battery, and automatic closing devices, the magnets H, controlled by said circuit, the armature or keeper *h*, the lever *j*, having projection *j'*, chain-pulley K, having peg *l*, the weight L and its chain on said pulley, and a cock in a pipe, operated by said pulley, substantially as set forth.

3. In combination with circuit-wires, a battery, and automatic closing devices, the magnets H, keeper *h*, lever *j*, having projection *j'*, chain-pulley K, having peg *l*, a chain on said pulley, having weight L, pipe M, a cock in said pipe, operated by said pulley, and movable guide O for directing the water flowing from said pipe, as set forth.

4. The battery and wires of an electric circuit, in combination with cord B, spring A, and stud *a*, whereby the circuit is automatically closed, a tripping device operated by said circuit, a train of wheels set free by said tripping device, a cord, V, attached to said train of wheels, and a curtain, T, suspended by means of said cord, whereby said curtain will be allowed to drop in consequence of the burning of cord B and the closing of the circuit.

5. The key Y, in combination with battery C, the circuit-wires, the electro-magnets Q, a train of clock-work tripped thereby, cord V, and curtain T, whereby said curtain is dropped when said key is depressed, substantially as set forth.

6. A theater-curtain and its suspending-cord, a train of clock-work to which said cord is attached, a detent or tripping device for said clock-work, and a magnet operating said detent, in combination with two independent electric circuits, a key for manually closing one of said circuits, and a spring and combustible cord for automatically closing the other circuit, substantially as set forth.

7. An automatically-closed electric circuit and an independent electric circuit closed at will by a key, in combination with a curtain, a suspending device, and a detent or tripping device therefor, a door, its fastening devices, and a detent or tripping device therefor, a cock governing a water-pipe, a weighted wheel for turning said cock, and a detent or tripping device therefor, all of said detents or tripping devices being operated simultaneously by either of said circuits, substantially as set forth.

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

CHARLES ALBERT MAYRHOFER.

Witnesses:
HANS KOTTAS,
JAMES RILEY WEAVER.