

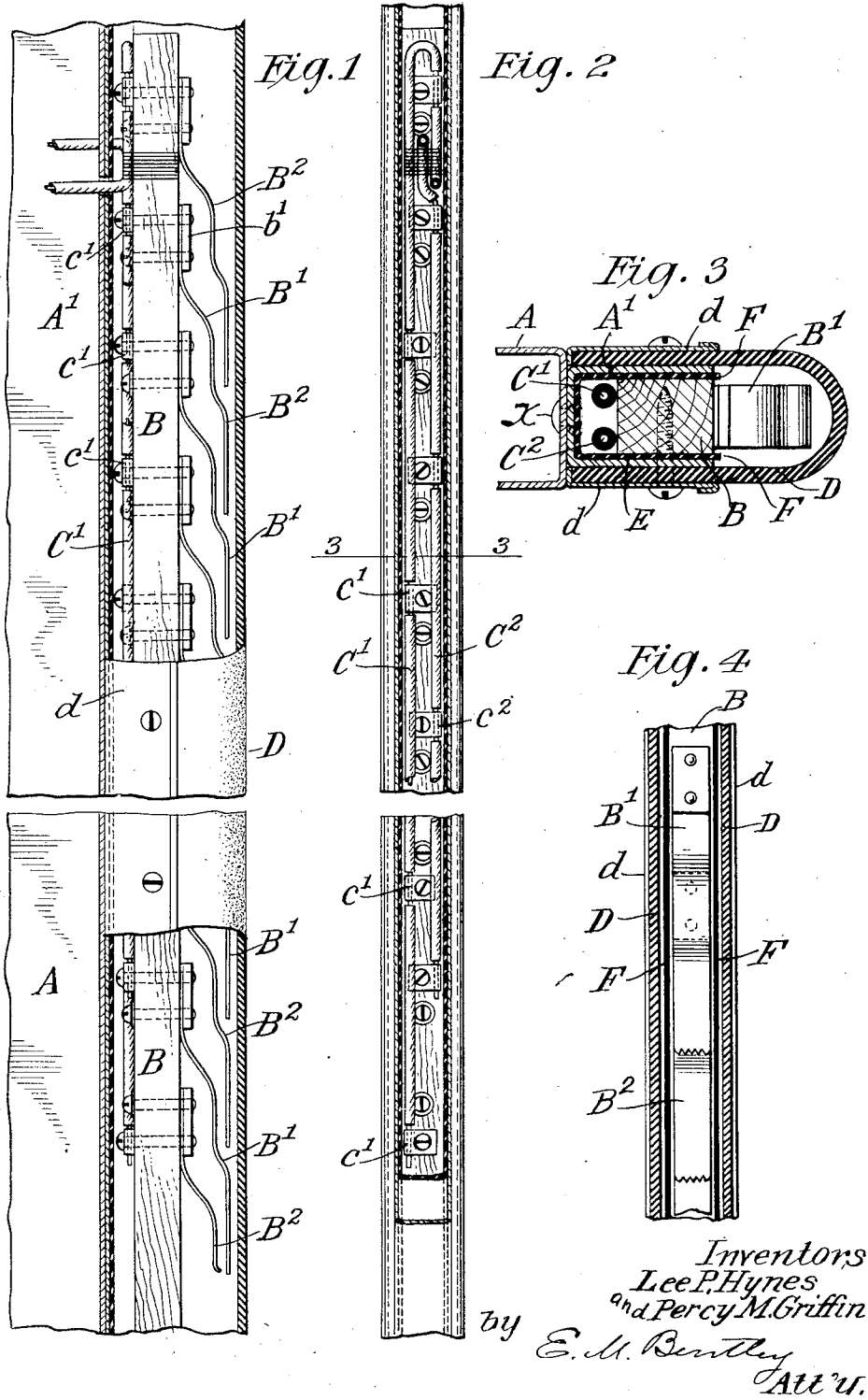
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DOOR EDGE CIRCUIT CLOSER

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UNITED STATES PATENT OFFICE.

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DOOR-EDGE CIRCUIT CLOSER.

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For a detailed description of the present form of our invention, reference may be had to the following specification and to the accompanying drawing forming a part thereof, wherein

Fig. 1 is a side elevation partly in section;

Fig. 2 is a front elevation;

Fig. 3 is a horizontal section and

Fig. 4 a portion of a rear elevation.

10 Our invention relates to an arrangement of door-edge circuit-closer for causing the closure of an electric circuit when a door, such as a car-door, encounters an obstacle while in the act of closing. The effect of thus closing the circuit is to cause the immediate arrest or retraction of the door to prevent injury to the encountered obstacle.

Heretofore a door-shoe has been used for this purpose which, as its name indicates, has been in the nature of a bar or channel mounted on the front edge of the door, so as to swing or slide inward with respect thereto when it strikes an obstruction and thereby cause the closure of the contacts of an electric circuit. Such shoes are objectionable in that they require a bodily movement of the entire shoe to close the contacts and involve pivotal or sliding connections having considerable friction that renders them sluggish in operation.

30 We purpose to avoid these objections by providing a rigid stationary strip of insulation on the edge of the door and securely fastened thereto, with a series of contacts corresponding alternately to the opposite sides of the electric circuit, mounting thereon. This series of contacts extends from top to bottom of the door and at any point in that range any applied pressure will bring together the contacts located at that point and thereby close the circuit.

45 We make the aforesaid rigid strip and the series of contacts mounted thereon as separate articles which can be constructed at the factory and then applied to the door on the ground, it being only necessary to mount the shoe and contact on the edge of the door, or in a prepared groove in said edge, and connect up its terminals with the car-circuit which is to be closed.

50 Referring to the drawing, A represents the front edge of the door, which, in this case, is provided with a metal channel A¹ riveted thereto at X for the reception of the circuit-closer. The door is assumed to be of metal,

although a wooden door could be used. B is a light rigid strip of wood seated in the channel A¹ with an intervening channel-shaped layer F of fibre or other similar insulating material. The strip B extends from top to bottom of the door and on its front face is mounted a series of contact-springs B¹ B² B¹ B², etc. These springs or fingers overlap so that the inward pressure on one will force it against the underlying portion of the next adjacent one and establish electrical connection therewith. On the rear side of the strip B are two insulated wires C¹ C² extending through the length thereof, and at intervals the insulation of the wires is cut away and a small plate seated on the strip is soldered or brazed thereto. These small plates on wire C¹ are marked c¹ c¹, etc., and those on wire C² are marked c² c², etc. Through each of these plates is passed a screw extending to the front side of the wooden strip B and there entering a hole in one of the contact-springs and in a washer plate on the face of the spring and headed over to retain it in position. For instance a screw passing through a small plate c¹ will enter a contact-spring B¹ and washer b¹ thereon. By this means all of the springs B¹ will be connected electrically to the wire C¹ and all of the springs B² to the wire C². Obviously the meeting of any spring B¹ with a spring B² will close an electric circuit between wires C¹ and C². The two wires at the top of the door are brought to approximately the same position on strip B and there secured to the strip by a binding cord. By this means any stress on the wires will not be communicated to the connecting means between the wire and its corresponding set of contact springs. The wires then pass from the rear of the strip B through the metal wall of the door-edge into the hollow space within the door. There they may be connected with the wires of the circuit to be closed.

Outside of the series of contact-springs is a yielding U-shaped rubber wall D with side-plates d d. Through these side-plates and through the walls of the metal channel A¹ are passed wood screws that hold all of the parts securely together.

In practice the rigid strip B, together with the contacts, the conductors C¹ C² and the insulating layer F is manufactured as a separate unit which can be completed at the factory

and then may be applied as a unit to the door.

What we claim as new and desire to secure by Letters Patent is:

1. A door-edge circuit closer comprising
5 a movable support, two series of independent
contact fingers having anchoring portions se-
cured to said support in a single line along
the edge thereof, so that the contact fingers
will overlap, said fingers being connected al-
10 ternately to the opposite sides of an electric
circuit in multiple, so that the said edge is
protected by a continuous line of alternately
yieldable contacts of opposite polarity, some
one of which will be moved to close the cir-
15 cuit when said edge encounters an unyielding
obstruction.

2. A door-edge circuit-closer comprising a
movable support, two series of independent
contacts located at intervals along an edge of
20 said support, a supporting strip attached to
said edge, an insulating strip therefor and
two conductors extending parallel to both se-
ries and connected respectively thereto, each
contact of a series being positioned to over-
25 hang a contact of the other series so that said
edge is protected by a continuous line of alter-
nately arranged yieldable contacts of op-
posite polarity, some one of which will be
moved to close the circuit when any portion
30 of said support edge encounters an unyield-
ing obstruction lying transversely across its
path of movement.

3. A door-edge circuit-closer comprising a
movable support, two series of independent
35 contacts located at intervals along one edge
of said support, those of one series being con-
nected in multiple to one side of an electric
circuit and those of the other series to the op-
posite side of said circuit, each contact of a

series being positioned to overhang a contact 40
of the other series so that said edge is pro-
tected by a continuous line of alternately
arranged yieldable contacts of opposite
polarity, some one of which will be moved to
close the circuit when any portion of said edge 45
encounters an unyielding obstruction extend-
ing transversely across its path of movement,
and an external enclosing wall for said con-
tacts, said enclosing wall being constructed of
yieldable material and mounted on the edge 50
of said support.

4. A door-edge circuit closer comprising a
movable support, two series of independent
contacts located at intervals along one edge
of said support, those of one series being con- 55
nected in multiple to one side of an electric
circuit and those of the other series to the
opposite side of the electric circuit, said con-
tacts being each secured at one end to said
support and free at the other end, the said 60
secured ends being arranged in alignment
along said support, the bodies of said contacts
being all extended in the same direction so as
to overlap each other and protect said edge by
a continuous line of alternately arranged 65
yieldable contacts of opposite polarity, some
one of which will be moved to close the cir-
cuit when any portion of said edge encounters
an unyielding obstruction, and an external
enclosing wall for said contacts, said wall 70
being constructed of yieldable material and
mounted on the edge of said support.

Signed at Albany, county of Albany and
State of New York, this 17th day of Janu-
ary, 1921.

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