

A. HÖHNE & H. KRAKE.
DOOR OPERATING MEANS.
APPLICATION FILED MAR. 30, 1912.

Patented June 10, 1913.

1,064,648.

Fig. 1

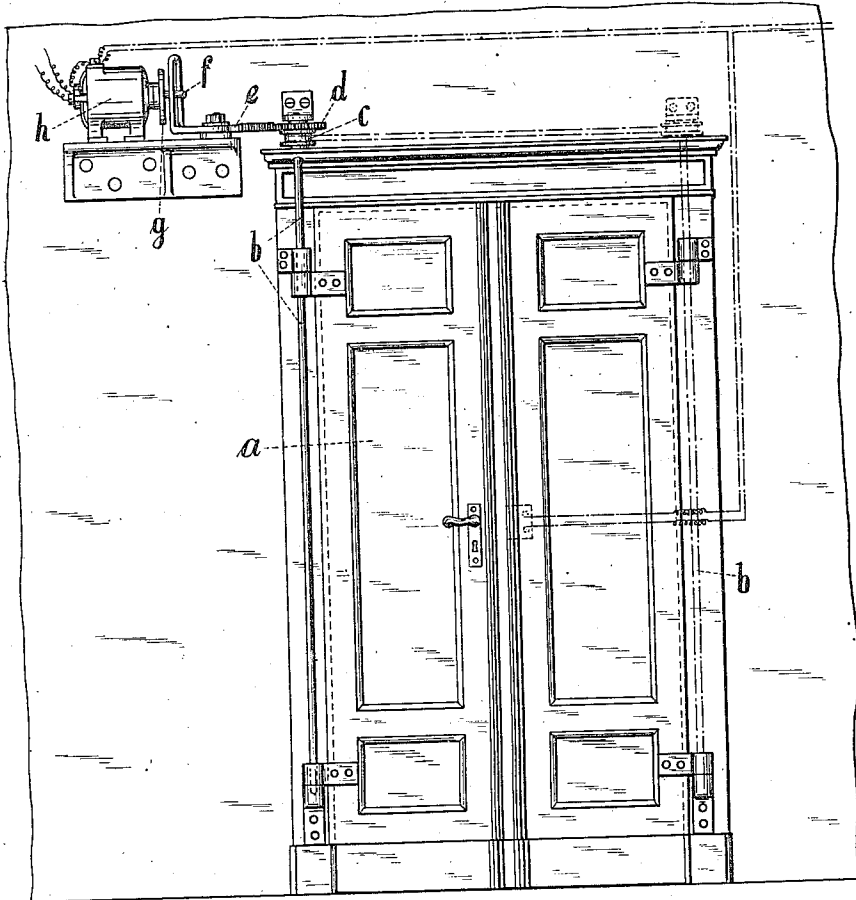


Fig. 2

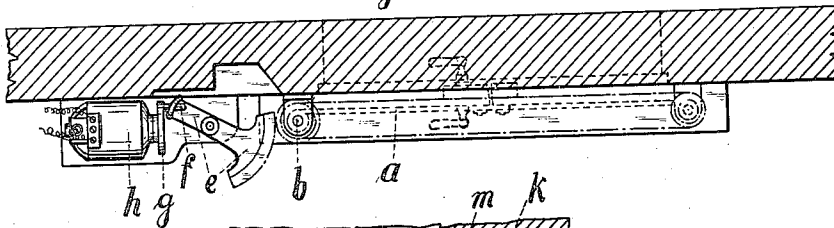
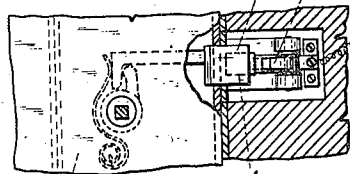
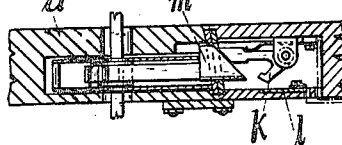


Fig. 3



Witnesses:
S. J. Henderson

Fred A. Kluge



Inventors:
Arno Höhne
and
Kernmann Krause,
By *H. G. Henderson*,
Attorney.

UNITED STATES PATENT OFFICE.

ARNO HÖHNE AND HERMANN KRAKE, OF LEIPZIG, GERMANY.

DOOR-OPERATING MEANS.

1,064,648.

Specification of Letters Patent.

Patented June 10, 1913.

Application filed March 30, 1912. Serial No. 687,401.

To all whom it may concern:

Be it known that we, ARNO HÖHNE and HERMANN KRAKE, lawyers, residing at No. 51 Waldstrasse and No. 13 Wiesenstrasse, 5 respectively, both at Leipzig, Germany, have invented certain new and useful Improvements in Door-Operating Means, of which the following is a specification.

This invention relates to a device for 10 opening and closing doors in which use is made of an electric motor connected to the doors, and of a yielding clutch arranged between the driving parts. The novelty of this arrangement consists in the provision of 15 a contact device in or associated with the door handle whereby the electromotor can be started for the purpose of opening and closing the door by means of a toothed gear in the event of the door not being inten- 20 tionally held in its open position.

A preferable construction of this invention is shown in the accompanying drawing in which—

Figure 1 illustrates the device in eleva- 25 tion, Fig. 2 is a plan view of Fig. 1, and Figs. 3 and 4 show the contact device associated with the handle of the door.

The movable door portion *a* is rigidly connected to an upright shaft *b*. The up- 30 per end of this shaft carries a friction clutch *c* provided with a tooth wheel *d*. This tooth wheel engages with a lever shaped sector *e* which is rotatably journaled in the wood work or masonry adjacent to the door. The 35 free arm of this sector has an upright extension which is slotted as shown. Adapted to glide in this slot is a pin *f* arranged eccentrically on a disk *g* which is driven by the electric motor *h*. The conductors for 40 starting this motor lead to a contact device arranged in the vicinity of the door handle. This contact device consists of a bell crank lever of which one arm *i* is so arranged under the influence of a spring that by the 45 closing movement of the door, the catch *m* of the latter imparts to the arm *i* an angular movement in opposition to its spring whereby the other arm *k* of this lever is thrown out of engagement with a contact 50 piece *l*. When the catch *m* is retracted by the depression or rotation of the handle in the usual manner the arm *k* is moved into engagement with the contact piece *l*. By thus establishing the contact, the electro- 55 motor *h* is started and in rotating the disk *g* causes the sector *e* to be reciprocated about

its pivot until the circuit is interrupted. By this movement the door thus connected with the motor is first opened and if it is held in this position the motor continues to 60 operate owing to the provision of the friction clutch *c*. On the door being released it is caused to be automatically closed by the motor immediately the sector *e* receives the appropriate movement, after which the catch 65 *m* is caused to coöperate with the lever arm *i* and thereby to break the circuit.

The opening movement of the door by means of the handle may be facilitated by the provision of a spring arrangement which 70 on the handle being depressed opens the door to such an extent that the catch cannot again drop into the closed position.

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

1. In an automatic opening and closing 75 device for doors the combination with the movable door portion of an electric motor, a contact device associated with and actuated by the door handle, a tooth gear arranged on the door shaft and a toothed rock- 80 ing lever located between said wheel and the motor and adapted to be actuated by the said motor substantially as set forth.

2. In an automatic opening and closing 85 device for doors the combination with a movable door portion, of an electric motor, a contact device associated with and actuated by the door handle, a tooth gear mounted 90 on the door shaft, a toothed sector interposed between said gear and the electric motor and provided with a slotted arm and an eccentric pin engaging with the said slotted arm and actuated by the said motor whereby a rocking movement is imparted 95 to the said sector substantially as set forth.

3. In an automatic opening and closing device for doors the combination with a 100 movable door portion, of an electric motor, a contact device associated with and actuated by the door handle, a gear interposed between the door shaft and the said electric motor and a friction clutch between said gear and said door shaft all substantially as described. 105

4. In an automatic opening and closing device for doors the combination with a 110 movable door portion of an electric motor, a contact device associated with and actuated by the door handle, a bell crank lever forming part of the said contact device and a spring holding said bell crank lever nor-

mally in contact with the catch of the said movable door portion substantially as described.

5 5. In an automatic opening and closing device for doors, the combination with a motor operatively connected with the door, of a slidable catch *m* operatively connected with the door handle, and a contact device electrically connected with the motor, said
10 device including a bell crank lever having arms *i* and *h*, one arm lying in the path of

movement of the slidable catch *m*, and the other arm adapted to make and break engagement with a contact-piece, substantially as described.

In testimony whereof we have affixed our signatures in presence of two witnesses.

ARNO HÖHNE.

HERMANN KRAKE.

Witnesses:

RUDOLPH FRICKE,

GUSTAV HOFMANN.