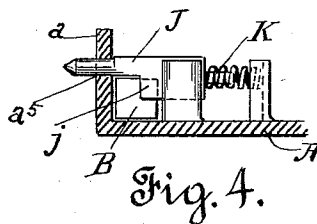
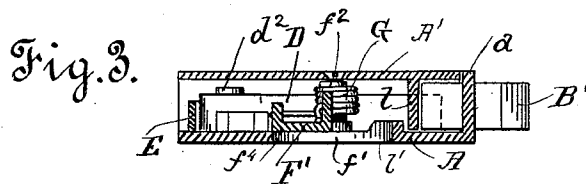
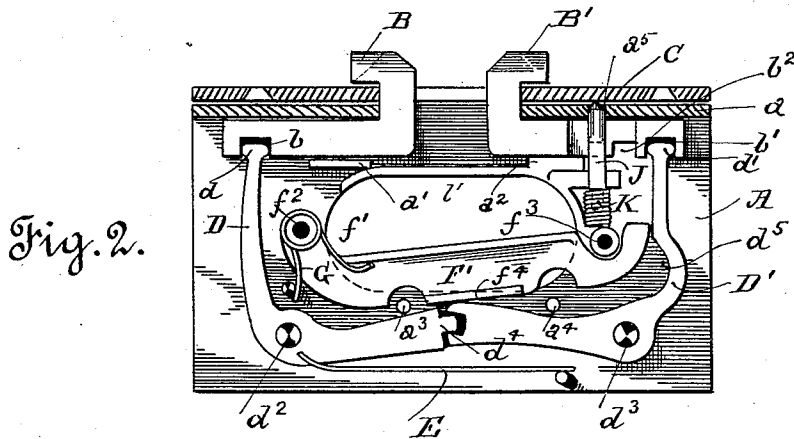
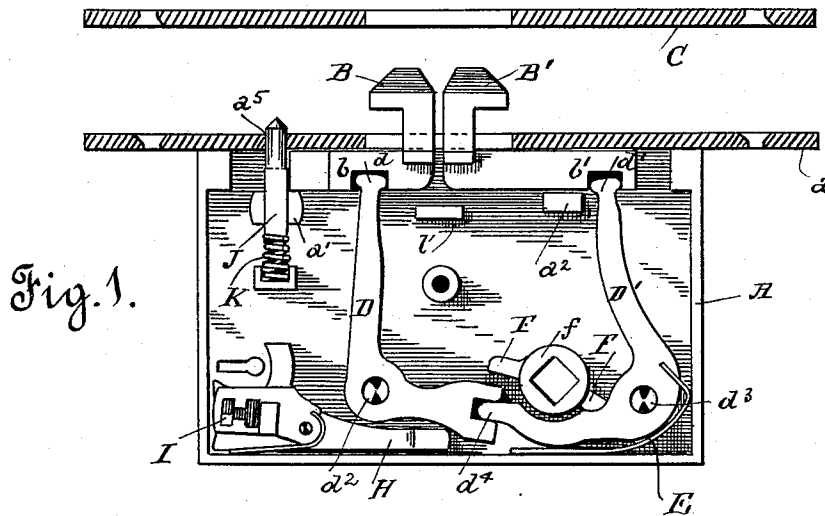


(No Model.)

G. FLEISCHEL & J. BERTRAND.
LOCK.

No. 479,104.

Patented July 19, 1892.



Witnesses.
Hellouteverde.

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UNITED STATES PATENT OFFICE.

GEORGE FLEISCHEL AND JOSEPH BERTRAND, OF SAN FRANCISCO,
CALIFORNIA.

LOCK.

SPECIFICATION forming part of Letters Patent No. 479,104, dated July 19, 1892.

Application filed March 24, 1892. Serial No. 426,288. (No model.)

To all whom it may concern:

Be it known that we, GEORGE FLEISCHEL and JOSEPH BERTRAND, citizens of the United States, and residents of the city and county of San Francisco, and State of California, have invented certain new and useful Improvements in Locks; and we do 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 drawings, and to the letters of reference marked thereon, which form a part of this specification.

Our invention relates to improvements in sliding-door locks; and the object of our improvements is to provide a lock which will work with greater ease and smoothness and be more durable than other locks of this same class.

Referring to the drawings, Figure 1 is a side elevation of a lock applicable to sliding doors connecting different apartments of a house, one side of the lock-case being removed. Fig. 2 is a similar view of a lock specially adapted for elevator-doors. Fig. 3 is a cross-section taken from the center of Fig. 2, looking toward the left; and Fig. 4 is a detail view of a spring-actuated pin used in connection with the bolts of our improved lock.

Similar letters of reference indicate similar parts in the four views.

A is the case, which is made of cast-iron or brass, as usual.

B B' are L-shaped bolts, the stem of which lies within the case between the rim *a* and a guide *a'* *a*², and whose base projects out through an aperture in the rim. These bolts are movable to and from each other and adapted to pass through and engage with a striker plate or keeper C, facing the rim of the lock. The bolts are shot and withdrawn simultaneously by means of interconnected levers D D', provided with enlarged tips *d* *d'*, engaging recesses *b* *b'* in their innermost ends. D D' oscillate about pivots at *d*² *d*³ and are urged forward at their connected ends by a spring E, so that the bolts may be kept apart or in a locked position, and it requires pressure from the side opposite the spring suf-

ficient to overcome the tension thereof to swing back the levers and have the bolts together or unlocked. The levers may be connected to each other in any way permitting them free action—as, for instance, by thinning down the end of one and fitting it in a notch in the end of the other, as shown at *d*⁴. The levers are swung backward to withdraw the bolts through the medium of cams F, revolving with the hub *f* of the door-knobs in the case of ordinary house sliding doors and by means of a pivoted handpiece F', reached and pressed back through an opening *f'* in the face of the lock, in the case of elevator-doors. F and F' operate upon the levers in the same manner by being driven against their connected ends; but they differ, in that the handpiece is not made so as to be readily worked from either side of the door. The reason of this is that, while it is convenient to have the ordinary doors open readily from either side, it is very important, in order to prevent accidents, to give none but persons riding in an elevator the facility of opening without a key the doors giving unto the elevator-well. A further difference between the cams and the handpiece is to be found, in that the former are merely subject to the action of the spring E in being turned aside after the door-knobs have been released and the bolts again shot, whereas the latter is provided with its own spring G, which is wound about its pivoted end *f*². This spring constantly pushes the handpiece into the aperture *f* and normally keeps its free end resting against a stop *f*³ and wedged in between this stop and one of the levers. Thus constructed and disposed the handpiece is always within easy reach of an elevator-attendant, and by checking the movements of the levers prevents the unlocking of the bolts from the outside by means of a knife or some similar instrument, which might be inserted between the lock-case and the striker-plate. If, however, the piece F' is pressed back by hand to withdraw the bolts in the regular manner, its free end then falls within a curve *d*⁵ in one of the levers and is held therein until the bolts are again returned to their locked position. F' may also be set back from the outside of the elevator-door by

means of a key passing through ordinary holes in the back plate A' of the lock, in which case the pin of the key enters and revolves in either of two holes $a^3 a^4$ in the face-plate, and its web 5 is turned so as to engage with a flange f^4 at the rear edge of the handpiece. The cam-operated levers may be secured in place to prevent the withdrawal of the bolts as well as those operated by the handpiece; but with 10 them it is done by the use of an ordinary bolt H and tumbler I, actuated by a key in the usual way, the bolt being made to slide back of the levers at the point where they are connected, so that they cannot be moved by the 15 cams.

A special feature of our improved lock is that the bolts when they are retracted and the door is slid open do not immediately spring back to their locked position, as in other locks 20 of the same type, but they are kept together in their retracted position until the door is closed again. They are so kept together by means of a pin J, pressed by a spring K and provided with a projection or stump j , passing 25 beyond the end of one of the bolts, as shown in Figs. 1 and 4, or engaging a notch b^2 therein, as represented at Fig. 2, when the bolts are withdrawn, the end of the pin J then 30 projecting out a little farther through a hole a^5 in the rim a in which it rests. The object of this construction is to avoid the constant friction occurring between the bolt-tips and the nosing of the keeper when the bolts are let into the keeper through forced contact 35 with the edges of the aperture in the striker-plate and which wears out those pieces in a short while. The bolt-tips, being kept together, go through the striker-plate without touching it, and it is only after the 40 striker-plate has pushed back the pin J and released the bolts that they come apart and lock the door. It is for the same reason that the bolt-tips are made square in the case of elevator-door locks, as illustrated in Fig. 2, 45 so that if the pin has been driven back for any cause they will strike squarely against the plate C upon the door being closed and not be forced into the keeper until properly retracted, as might happen were they made 50 of the ordinary beveled form. As to locks for house sliding doors, which are not opened and closed so often nor accessible to all sorts of people and which are provided with knobs easily operated from either side, it is perhaps

more convenient to have the outermost ends 55 of the bolts beveled, as shown at Fig. 1.

The back plate A', Fig. 3, does not differ from the ordinary construction, except that it is provided with an inwardly-projecting 60 flange l , which lies between a similar flange or stop l' , projecting from the face-plate and the bolts B B'. These flanges mutually contribute in preventing the bolts from being 65 sprung or displaced in case their outer ends are forced against the striker-plate. 65

Having described our invention, what we claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination, in a lock, of simultaneously-sliding bolts, spring-pressed inter- 70 connected levers engaging said bolts and normally keeping them in a locked position, and means to depress the connected ends of said levers and thereby withdraw the bolts, substantially as set forth. 75

2. The combination, in a lock, of simultaneously-sliding bolts normally kept in a 80 locked position, spring-pressed interconnected levers controlling the same, a depressing device acting on said levers to withdraw said bolts, and means to keep said bolts retracted, 85 substantially as set forth.

3. The combination, in a lock, of simultaneously-sliding bolts, interconnected levers 90 engaged therewith, a spring pressing upon the connected ends of said levers and holding said bolts in a locked position, a device adapted to depress said levers oppositely to said 95 spring and thereby retract the bolts, a spring-actuated outwardly-projecting pin engaging and holding the bolts when retracted, and a 95 striker-plate contacting with the projecting end of said pin, substantially as set forth.

4. The combination, in a lock, of simultaneously-movable bolts, spring-pressed inter- 95 connected levers normally keeping the same in a locked position, a stop f^3 , and a pivoted lever-depressing handpiece the free end whereof is normally wedged in between said 100 stop and one of said levers, substantially as set forth.

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

GEORGE FLEISCHEL. [L. S.]

JOSEPH BERTRAND. [L. S.]

Witnesses:

A. M. WENTWORTH,

A. A. BAXTER.