J. C. CARRERA, J. SALVATELLI & A. GRAZIANI.

DOORS.

No. 180,544. Patented Aug. 1, 1876.

Fig. 1.

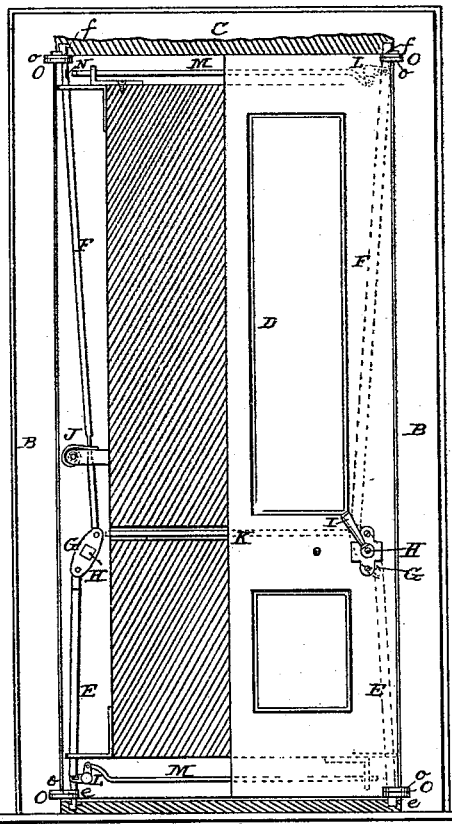


Fig. 2.

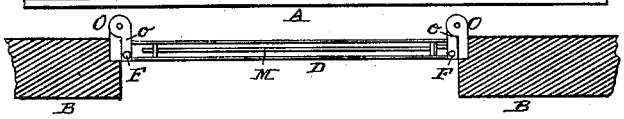


Fig. 3.

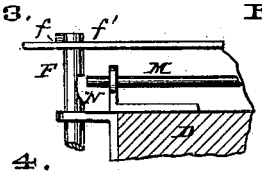


Fig. 4.

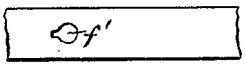


Fig. 5

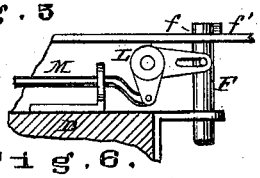
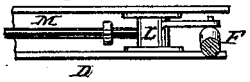


Fig. 6.



ATTEST.

Robert Burns.
Chas Gooch

INVENTORS

J. C. Carrera
J. Salvatelli
A. Graziani
By Knight Bros Attys

UNITED STATES PATENT OFFICE.

JULIUS C. CARRERA, JOHN SALVATELLI, AND ALEXANDER GRAZIANI, OF ST. LOUIS, MISSOURI.

IMPROVEMENT IN DOORS.

Specification forming part of Letters Patent No. **180,544**, dated August 1, 1876; application filed May 16, 1876.

To all whom it may concern:

Be it known that we, JULIUS CÆSAR CARRERA, JOHN SALVATELLI, and ALEXANDER GRAZIANI, all of the city and county of St. Louis and State of Missouri, have invented certain Improvements in Doors, which improvement is fully set forth in the following specification, reference being had to the accompanying drawings.

Our improvement relates to those doors which are supported by vertical bolts, serving as pivots on which the door is adapted to swing.

Our invention consists in providing such a structure with a horizontal bar adapted to lock either set of bolts, so as to prevent both sides of the door from being freed at the same time.

Figure 1 is one-half in elevation and one-half in section, the lintel and threshold being in section. Fig. 2 is a top view, showing the door-posts in section, level with the top of the door. Fig. 3 is an enlarged detail showing the upper end of one of the bolts in side view. Fig. 4 is a top view (enlarged) of part of one of the plates, in which the bolts have bearing. Fig. 5 shows in side view the upper bolt upon the opposite side of the door to Fig. 3. Fig. 6 is a top view of one of the bolts and connections.

A is the threshold; B B, the side posts; and C, the lintel. D is the door. The threshold has at each end a socket to receive the end of a vertical bolt. These sockets may be fixed, or may be made in the free plate of a hinge, as shown in Fig. 2, so as to allow them to be movable to enable the door to swing in both directions, when it is made to fit tight between the posts or stiles, as will be more fully described hereinafter.

At each edge of the door are vertical bolts E and F, the lower bolt E engaging in a socket beneath, in which it may turn when it acts as a hinge for the door, and the upper bolt engaging and turning in a similar socket above. These bolts are secured to the opposite ends of a cross-bar, G, on a spindle, H, turned by a handle, I, to retract the bolts from their sockets *e* and *f*. The bolts are held in their sockets by springs J.

It will be observed that if the bolts E F upon one side are drawn from their sockets the bolts upon the other side will act as hinges on which the door may be opened.

It is considered better that when one pair of bolts E F are retracted the other pair upon the other side of the door shall be unretractible, so as to prevent the door being accidentally thrown down. To accomplish this a horizontal bar, K, passes through the door, so that when either of the cross-bars G is turned to retract the bolts the bar rests against the other cross-bar, and prevents the other cross-bar from being turned for this purpose.

In addition to this I place at the upper ends of the bolts F side lugs, which extend above the socket plate and prevent the retraction of the bolt F, when the door is not closed. When the door is closed the lug may be drawn down through the notch *f'* directly beneath it.

As a modification of the bar K we provide for the bolt E upon one side of the door, and the bolt F upon the other side, bell-cranks L, which are moved by the retraction of the bolt, and which thrust out by such movement bolts M to engage in notches N in the opposite bolts E or F, and thus prevent the retraction of the bolts upon the opposite sides of the door.

When the door is fitted closely in the posts upon both sides it will be necessary that the turning-points of the bolts shall be placed flush with or a little outside the face of the door, so as to allow it to open well back.

When, in addition to this, the door is intended to open both outwardly and inwardly, the sockets *e* and *f* must be made at the free end of the moving leaf *o* of a hinge, O, whose pintle is at the opposite face of the door from the pivot-socket *e* or *f*, as the case may be.

Thus it will be seen that if when the door swings inward it turns on the bolts, when it opens outward it turns on the hinge-pintle *o'*, and vice versa.

We claim as our invention—

The horizontal bar K, in combination with the cross-bars G, bolts E F, handle I, and door D, substantially as and for the purpose set forth.

JULIUS CÆSAR CARRERA.
JOHN SALVATELLI.
ALEXANDER GRAZIANI.

Witnesses:
SAML. KNIGHT,
ROBERT BURNS.