Dec. 1, 1953 J. J. CARCERENY 2,660,752

COMBINED HINGE AND LATCH FOR DOORS

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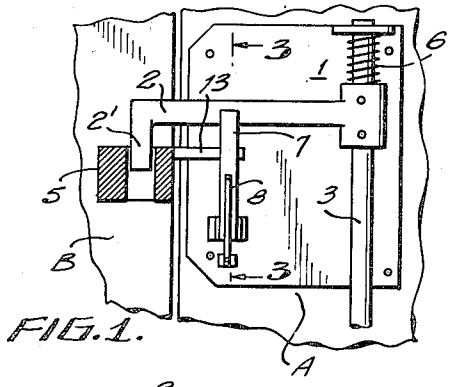

FIG. 1.

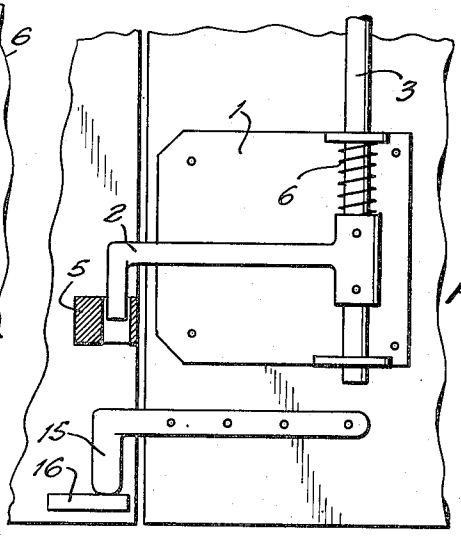

FIG. 2.

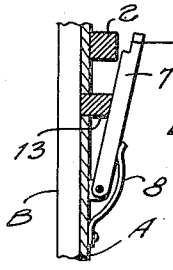

FIG. 3.

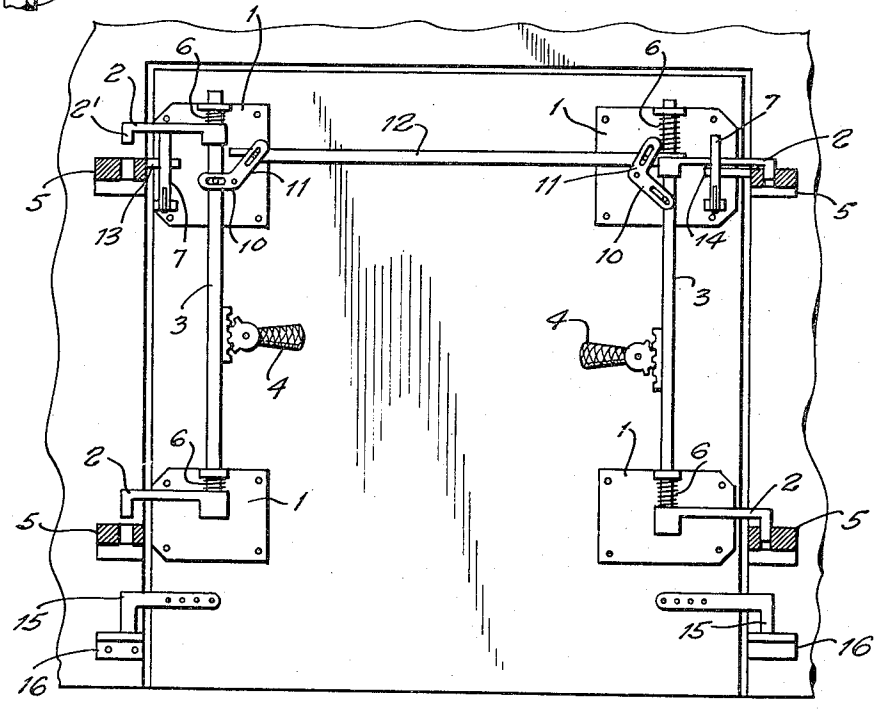

FIG. 4.

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COMBINED HINGE AND LATCH FOR DOORS

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1 Claim. (Cl. 16—147)

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This invention refers to a combined hinge and latch mechanism, for doors and similar objects.

The objects of this invention is mounting the door, which may be the door of a room, motor-car, ice-box, of a piece of furniture or of any other object, in such a way that it is quite the same to open it on either of its sides or edges, either on the right or on the left, and aiso, if necessary, to allow of its opening forward or backward.

With this object in view, the present invention mainly consists in a combined hinge and latch arrangement for a door and a door frame including two units adapted to be mounted on opposite vertical edges of the door, each unit comprising in combination, a vertical actuating rod adapted to be mounted on the door near one vertical edge slidably between a raised position and a lowered position, two spaced hinge means rigidly secured at one end thereof to the actuating rod and adapted to project with the other end thereof beyond one vertical edge of the door, and having on the other end a downwardly extending pin, two spaced hinge sleeves adapted to be secured to the door frame aligned with the pins so that in the lowered position of the actuating rod the pins are inserted into the respective hinge sleeves, and in the raised position of the actuating rod the pins are disengaged from the hinge sleeves, spring means urging the actuating rods downwardly to the lower position thereof, two manually operated means, each manually operated means engaging one of the actuating rods for raising the same against the action of the spring means to the raised position thereof, cross bar means pivotally engaging with one end thereof one of the actuating rods and with the other end thereof the other of the actuating rods and forcing each actuating rod to the lower position thereof when the other actuating rod is raised by the manually operated means to the raised position thereof, catch means adapted to be pivotally mounted on the door tiltable between an engaging position engaging one of the hinge means in the raised position of the actuating rod for holding the same in the raised position, and a releasing position releasing the hinge means permitting return of the respective actuating rod to the lower position thereof, lead spring means urging the catch means into engaging position, releasing means engaging the catch means for tilting the same into the releasing position thereof when the pins are aligned with the hinge sleeves, two supporting means having a horizontal supporting surface each adapted to be mounted on the door frame adjacent to one vertical edge of the door, and two supporting members adapted to be

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mounted on the door projecting over the vertical edges of the same, each supporting member located above one of the supporting means and abutting on the horizontal surface thereof so as to support the door for pivoting movement when the pins and the hinge sleeves are aligned.

The invention will be best understood with reference to the accompanying drawing in which is shown an embodiment of the invention which is only mentioned as an example.

Fig. 1 represents, in a front view, a hinged-latch or bolt belonging to the upper part of a door;

Fig. 2 shows, in the the same manner, the set of hinged-latches or bolts of the lower part of a door;

Fig. 3 shows a detail, in a sectional view on line III—III of Fig. 1.

Fig. 4 is a front view of a single-leaf door A, provided with a double set of hinged-latches, according to the invention.

This mechanism consists of a set of supports —1—, which contain the latches or bolts which are united or connected and worked by a control-rod —3—, that is moved by means of a doorknob or handle —4—, which may be in the form of a lever, rack and pinion, springs, eccentrics or other means. Each hinge means —2— may be raised by the actuating rod —3— and for withdrawing the pins 2' from the hinge sleeves 5 which are secured to the frame of the door.

For return of pins 2' to the lowered position, the springs —6— are provided, which may be placed, either on the ends of the rod 3—3 or on its central part.

In Figs. 1 and 3 is shown a catch means —7—, consisting of a pivoted lever loaded by a spring —8—. This lever has a special shape, for example, a step —9—, suitably formed for engaging the arm of the hinge means 2.

The actuating rods 3 of the units at the sides of the door are connected by a system of levers 10, 11, 12, that may be placed on one or on both sides of the door, and include a transverse blocking-bar —12—, which acts upon either upper arm 2 to block upward movement of the corresponding rod 3 when the opposite rod 3 is in raised position as shown in Fig. 4. The helicoidal springs —6—, are compressed on the side on which the hinged-latches or bolts are raised or moved, while on the opposite side, they will remain at their normal tension.

When the set of hinge means 2, 2' on one side are raised, the arms 2 will be retained then, by the catch means —7—. In this case, on closing the door, the fingers 13, 14 provided on the side

or frame B of the door A, or on any other suitable zone of the same, cause the release of the catch means 7 by engaging and pushing the same off the arms 2.

The support of the door is effected by supporting members —15—, which may be fixed or slightly movable, the rounded point of which rests on supporting means —16— fixed on the frame of the door.

The control of the blocking-bar —12— may be by levers, as already explained, or by eccenters or by any other means that causes it to travel, moved by the action of a rod 3—3.

This invention, in its essential parts, may be carried out in practice with many other variations which will also receive the due protection asked for. The hinge and latch arrangement may be made in any shape and size, using any of the most suitable materials for its manufacture, as it is all comprised within the spirit of what is claimed.

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

A combined hinge and latch arrangement for a door and a door frame including two units adapted to be mounted on opposite vertical edges of the door, each unit comprising in combination, a vertical actuating rod adapted to be mounted on the door near one vertical edge slidable between a raised position and a lowered position; two spaced hinge means rigidly secured at one end thereof to said actuating rod and adapted to project with the other end thereof beyond one vertical edge of the door, and having on said other end a downwardly extending pin; two spaced hinge sleeves adapted to be secured to the door frame aligned with said pins so that in said lowered position of said actuating rod said pins are inserted into the respective hinge sleeves, and in said raised position of the actuating rod said pins are disengaged from said hinge sleeves; spring means urging said actuating rods downwardly to said lower position thereof, two manually operated means, each manually operated means engaging one of said actuating rods for raising the same against the action of said spring

means to said raised position thereof; cross bar means pivotally engaging with one end thereof one of said actuating rods and with the other end thereof the other of said actuating rods and forcing each actuating rod to said lower position thereof when the other actuating rod is raised by said manually operated means to said raised position thereof; catch means adapted to be pivotally mounted on the door tiltable between an engaging position engaging one of said hinge means in said raised position of said actuating rod for holding the same in said raised position, and a releasing position releasing said hinge means permitting return of the respective actuating rod to the lower position thereof; leaf spring means urging said catch means into engaging position; releasing means engaging said catch means for tilting the same into said releasing position thereof when said pins are aligned with said hinge sleeves; two supporting means having a horizontal supporting surface each adapted to be mounted on the door frame adjacent to one vertical edge of the door; and two supporting members adapted to be mounted on the door projecting over the vertical edges of the same, each supporting member located above one of said supporting means and abutting on the horizontal surface thereof so as to support the door for pivoting movement when said pins and said hinge sleeves are aligned.

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