JULIUS HAUENSTEIN, OF JERSEY CITY, NEW JERSEY.

DOUBLE-ACTING SELF-CLOSING DOOR DEVICE.

Application filed November 3, 1921. Serial No. 512,436.

To all whom it may concern:

Be it known that I, JULIUS HAUENSTEIN, a citizen of the United States, residing at Jersey City, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Double-Acting Self-Closing Door Devices, of which the following is a specification.

This invention has for its main purpose the provision of means adapted to close any type of swinging door to, thus make the device particularly applicable for fire doors or the like.

Another object is to provide a self-closing door which can be locked in closed position in the usual manner.

Still another object is to provide a door which is free from any jars or slams when closing.

A further object is to provide a door which can be swung either inwardly or outwardly without the aid of springs and will thereafter immediately return to closed position.

These and other objects will become apparent in the description in which similar characters of reference refer to like-named parts in the drawings.

Referring briefly to the drawings, Figure 1 represents a front elevation of a door, its casing having the self-closing pivot members attached thereto.

Figure 2 is a front elevation of the lower hinge members showing the pivot stud and cam roller in place thereon.

Figure 3 is a fragmentary front elevation of a casing having double doors.

Figure 4 is a perspective view of the lower hinge member, shown bottom side up, so as to illustrate the position of the cam roller.

Figure 5 is a perspective view of the cam block.

Figure 6 is an elevational sectional view of the door casing taken on the line 6—6 of Figure 1, position of the door when open.

Referring to the drawings, the numeral 10 represents side frames having the top member 11 joined thereto to form a door casing.

The usual type of door 12 is used and has swivel members secured to its upper and lower corners. The lower swivel member is composed of a pair of parallel plates 13 retained in spaced relation by the block 14 held by screws 15. The thickness of the blocks 14 are dependent upon the thickness of the door panel employed in the construction.

A bearing block 16, spaced from block 14 is also secured between the plate members by the screw 17. The blocks have holes therein adapted to receive a pin 18 on which is rotatably mounted a roller 19 in such a way that its periphery will extend below the edge of the side plates.

A pivot stud 20, secured to the underside of the block 14, engages in corresponding holes in the casing and forms a pivot for the door to swing upon. The pivot stud of the lower member engages a hole 20' located in the cam block 21 let into the floor at the base of the door casing and has curved inclined elevations contiguous both sides of the hole. As the door is swung open, the roller 19 will ride upon the inclined surfaces and will consequently raise the door a distance corresponding to the height of the inclined surfaces.

After pressure has been released, the door will immediately begin to descend the inclined surface by gravity and will, after slight oscillation, come to rest in the groove indicated at 23.

The upper swivel member is identical with the lower and is indicated by the same reference numerals, but the roll members 16, 18 and 19 are omitted as they are not required on the upper pivot member.

From Figures 1 and 6 it is obvious that the door will occupy a higher position in the casing when open than when closed and for that reason follow-up wedges 23 are provided to telescope into the channel formed by the elements 24 permanently secured to the door casing. The follow-up wedges rest upon the upper surface of the door and are pivoted at one end by the pins 25. As the door is rotated, the roller will ascend the inclined surface thereby forcing the follow-up wedge into the channel, the latter position being shown in Figure 6. From the foregoing it is apparent that when the door is in the closed position, the communication between adjacent rooms is completely sealed, this factor being important when considering fire-doors.

The roller can be lubricated by removing the lower screws 15, after which oil can be poured into the threaded hole, and as the hole having the pin 18 therein joins the screw hole, it is obvious that the lubricant will find its way to the roller bearing.
I claim:

1. In combination with a door and casing, a pair of pivot members secured to the upper and lower corners of a door and comprising plates secured to the door, blocks secured between said plates having a pin, a roller rotatably mounted on said pin, and a block having raised cam surfaces on which said roller rides as the door is rotated, said surfaces constituting means for automatically closing the door.

2. In combination with a door and casing, a pivot device comprising plate members arranged in pairs at both the upper and lower corners of the door, a cam block having inclined surfaces thereon, pivot blocks secured between each pair of plate members, a roller rotatably mounted between the lower pair of plate members and adapted to ride upon the inclined surfaces of the cam block and lift the door upon opening it, means for closing the opening left at the upper end of the casing when the door is closed, and means for releasably keeping the door in closed position.

3. In combination with a swinging door and its casing, said door having a limited vertical movement when operated, of means for closing the opening between the door top and its casing when the door is closed.

4. In combination with a swinging door and its casing, said casing having a groove directly above the top of the door when closed, of a pivoted element in the mentioned groove adapted to normally rest on the top of the door, said element closing the space therebetween.

In witness whereof I affix my signature.

JULIUS HAUENSTEIN.