

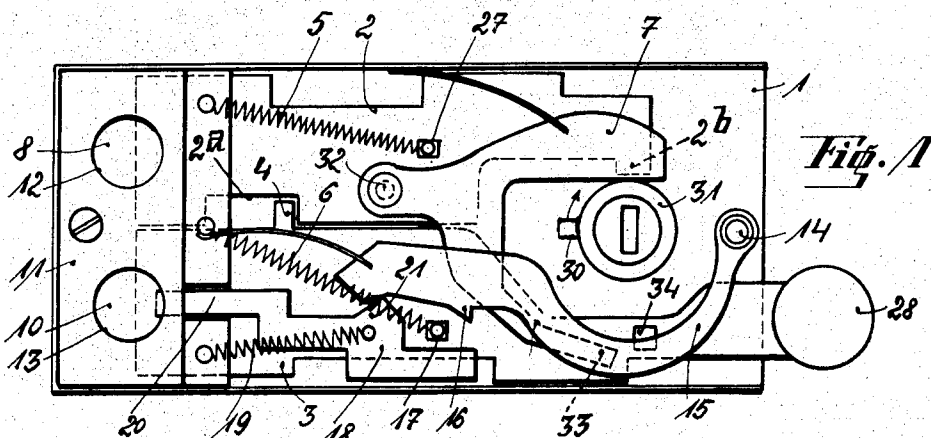
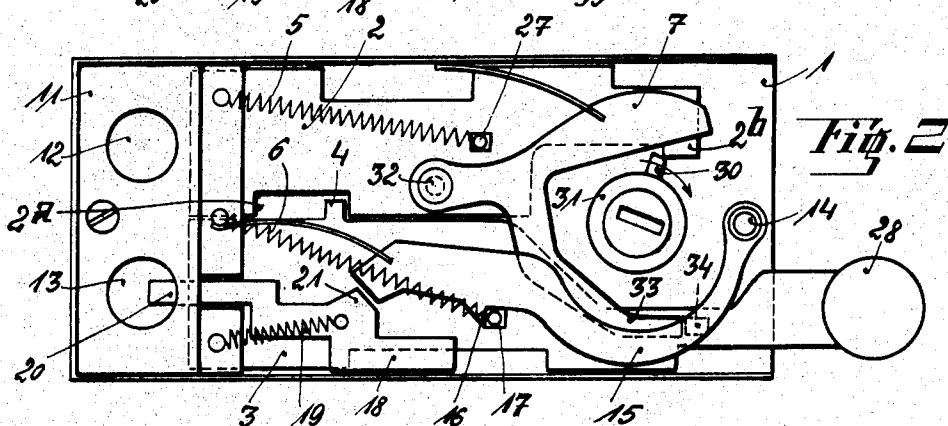
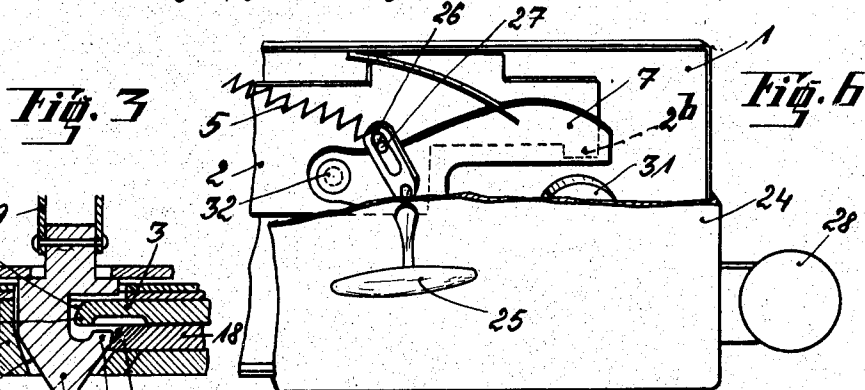
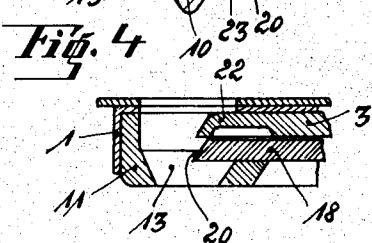
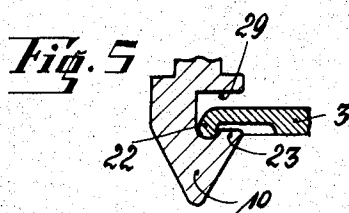
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DOOR BARRING DEVICE

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DOOR BARRING DEVICE

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5 Claims. (Cl. 70-14)

This invention relates to improvements in door barring devices of the type described and shown in my United States Patent No. 1,988,049, January 15, 1935, in which the normally stationary part of the door is provided with two barring staples, of which the one is firmly affixed to that stationary door part and the other can be axially moved for a certain short length of way, viz. as much as is sufficient to permit the formation of a gap between the said normally stationary door part and the wing. Said barring staples co-operate with a suitably designed lock having a sliding bolt that engages either only the first-mentioned barring member in which case the door is completely closed, or engages also the other barring member in which case the door can be partly opened, or said bolt engages neither of the said staples when the wing can be completely opened. The lock provided with said sliding bolt is a double-throw lock and said bolt can be manually operated from the interior of the door, or by means of a key from the outer side of the same.

While in my former door barring device, as above referred to, the two barring staples co-operate with only one sliding bolt, my present improved device is equipped with two sliding bolts, of which the one co-operates with the stationary barring staple and the other co-operates with the movable one.

Concerning the known barring device as referred to in the above first paragraph, there occur cases in which, besides the sliding bolt that co-operates with the two barring staples, also an ordinary sliding bolt is provided which is manually actuated from the inner side of the door, without any co-operation with any of the barring staples.

With locks of this design it is difficult to operate the barring bolt and the second bolt simultaneously from outside the door by means of a key and the invention has for its object to overcome this difficulty. For this purpose also the second sliding bolt is now designed as a barring bolt, the two bolts co-operating, as hitherto, with two barring staples, of which the one co-operates with the one barring staple and the other with the other staple. The two bolts co-operate also with one another by the intermediary of a tumbler hinged to that bolt which can be shifted from the outer side of the door by means of a key, and there are, furthermore, provided a pawl and a separate sliding member which co-operates with said pawl which latter co-operates, in turn, with the second bolt that is manually to be

operated, all as fully and clearly described hereinafter.

The invention is illustrated diagrammatically and by way of example on the accompanying drawing in which Figure 1 shows the interior of the lock (the front plate of the casing being removed), the operating parts being shown in that position in which both sliding bolts engage the appertaining barring staples (visible at the left-hand end of the figure). Figure 2 is a similar representation showing the sliding bolts withdrawn from the barring staples. Figure 3 is a horizontal section through the movable barring staple and the adjacent parts. Figure 4 is a similar representation, the movable barring staple being, however, omitted in this figure. Figure 5 is a separate view of that barring staple, together with the adjacent and engaging end of the appertaining sliding bolt, and Figure 6 is partly a representation of the upper portion of the right-hand half of Fig. 1 and partly a front-view of the casing portion located therebelow.

In the drawing, 1 (Figs. 1 and 2) denotes the frame of the lock casing, and 24 (Fig. 6) denotes the front plate of that casing. Within the casing is an upper sliding bolt 2 and a lower sliding bolt 3. The bolt 2 co-operates with the stationary barring member 8 which extends from the stationary door part to which it is attached through a bore 12 into the lock casing, and the bolt 3 co-operates with the movable barring staple 10 which extends from said door part through a bore 13 into said casing. The free end of the bolt 3 extends outwardly from the casing and is here provided with a grip 28.

In the lower rim of the bolt 2 is a recess 2^a and at the upper rim of the bolt 3 is a projection 4 engaging in said recess whereby the two bolts are coupled with one another. The bolts are subjected to the pull of helical tensile springs 5 and 6 which continually tend to keep them in the position shown in Fig. 1, in which the bolts are in engagement with the two barring staples, in which position they are held by a lever 7.

The movable barring staple 10 is attached to a chain 9 (Fig. 3) which extends into a guide (not shown) provided in the stationary door part, and is subjected to the action of a spring in known manner for example as shown in Fig. 2 of my Patent 1,988,049 above referred to, said spring tending to keep said staple in its position of rest, in which it is located inside the lock casing, as in Fig. 3. In the lock the two barring staples are guided by a plate 11 (Figs 1-4) secured to the lock frame 1. The already men-

tioned bores 12 and 13 are provided in said plate 11, and the outer ends of said bores are conical, as are also the free ends of the barring staples.

Above the right-hand end of the sliding bolt 3 is hinged to the lock casing at 14 a pawl 15 which has at its lower edge a nose 16 that can co-operate with a lateral projection 17 of the bolt 3, as in Fig. 2, and between the left-hand end of said pawl 15 and the barring staple 10 is a slidable releasing member 18 which is subject to the pull of a helical tensile spring 19 which continually tends to hold said member 18 in the position shown in Fig. 2. On the upper edge of this member is an oblique face 21 which can co-operate with the correspondingly shaped left-hand of the pawl 15 in order to lift this pawl and disengage thereby the projection 17 of the sliding bolt 3 from the action of the nose 16 whereby the bolt 3 will be released so as to be drawn by the spring 6 from the position of Fig. 2 into the position of Fig. 1.

In the barring staple 10 is a lateral recess 29 located opposite the adjacent end of the sliding bolt 3, and one side of said recess is so shaped that a lug 23 is formed which can be engaged (in the manner shown in Fig. 5) by the correspondingly shaped end 22 of the bolt 3. When these parts 22 and 23 are in the position shown in Fig. 5, the bolt 3 and the staple 10 are coupled with one another.

The passage through which the bolt 3 can enter into the recess 29 of the barring staple 10 is so large that also the releasing member 18 can enter into the respective bore of the plate 11, as in Fig. 4, and owing to the conical shape of the staple 10 and to the oblique shape of the ends of the members 3 and 18, the staple 10 can shift said two members laterally away whereby the member 18 will lift the pawl 15 and disengage the coupling 16, 17, as already described, but when the recess 29 of the staple 10 has arrived opposite the bolt 3, said bolt will enter into said recess, as in Fig. 3. The spring 19 is now under tension, but the spring 6 is not.

The helical spring 5 is connected at one end with the upper sliding bolt by means of a pin 27 (Figs. 1 and 2) that engages a slotted link 26 firmly connected with an outer grip 25. When this grip is turned in clockwise direction, the bolt 2 will be withdrawn from the barring staple 8 counter to the pull of the spring 5, and it is now possible to open the door a little, viz. as much as is permitted by the chain 9 connected with the barring staple 10. If the door should be completely opened, the bolt 3 is manually withdrawn by means of the grip 28 whereby its other end will be drawn out of the recess 29 of the staple 10 so that the entire lock can be turned away from said member 10 when the door to which the lock is attached is turned. When the bolt 3 is withdrawn, its pin 17 contacts with the nose 16 of the pawl 15, lifts it, and is thereafter retained by said nose whereby the bolt 3 is locked in its retracted position, the spring 6 being now under tension.

Thus, when the sliding bolt 3 has been manually withdrawn and locked in this position, as has just been described, the lock can be withdrawn from the barring staple 10, but when this has been done the member 18 is no longer retained in repressed position and is, thus, pulled by spring 19 into its position of rest, which is that shown in Figs. 1 and 4. Simultaneously therewith, however, the projection 21 of the member 18 has lifted the pawl 15 and thereby released the bolt 3

so that also this bolt re-assumes the position shown in Fig. 1, in which position its operating end likewise enters into the bore 13 (Fig. 4).

When now the door is closed, the conical head of the barring staple 10 presses the members 3 and 18 laterally away, the member 18 remaining then in this other position, but the member 3 returning finally again into its locking position, in that its operating or locking end re-enters into the recess 29 of the bolt 10, as in Fig. 3. 10

When the parts are in the position illustrated in Figs. 1 and 3, and the door is now opened, this can be done only to such an extent as the chain 9 permits, that is to say, only a gap of a certain sufficient width is formed between the door 15 frame (or other normally stationary part of the door) and the door. The bent end 22 (Fig. 5) of the sliding bolt 3 draws the staple bolt 10 outwardly in the direction of its axis, but is at the same time coupled with it owing to the inter-engagement of the two hook-shaped portions 22 and 23 whereby unauthorized shifting of the sliding bolt 3 from the outside (through said gap) by hand or by a mechanical member is prevented.

When the door is closed and it to be opened 25 from the outside by a key, the beard of the same enters into the slotted member 31 which is provided with a lug 30 that lifts the lever 7 when the key is turned. The lever is hinged at 32 to the sliding bolt 2 and is U-shaped, the lower leg 33 of which can co-operate with a projection 34 of the sliding bolt 3 (Fig. 2). This takes place when the lever 7 has been lifted by the lug 30. Immediately thereafter this lug pushes against a tooth 2^b of the bolt 2, whereby this bolt will be shifted into the position of Fig. 2, in which it is disengaged from the barring staple 8. As the lever 7 is hinged to the bolt, it is shifted together with the same from the position Fig. 1 into the position Fig. 2, whereby its leg 33 shifts the bolt 3 by the intermediary of the lug 34 so that also this bolt is disengaged from the barring staple 10. The door can now be freely opened.

I claim:

1. A door lock adapted to allow the door to be partly opened, comprising in combination a casing fixed on a stationary part of the door frame, a plate in said casing, two laterally slotted barring staples in said casing, one of said staples being stationary and the other capable of limited axial movement and guided in said plate, a latch frame mounted on the door, an upper sliding bolt in said casing adapted to engage in the slot in said stationary staple when the door is closed, and a lower sliding bolt adapted to engage in the slot in said movable staple when the door is closed, means for shifting said upper bolt to disengage from said stationary staple and means for connecting said upper bolt with said lower bolt after said upper bolt has been shifted a predetermined distance to disengage said lower bolt from said movable staple to allow the door to be completely opened.

2. A door barring device as specified in claim 1, comprising, in combination with the arrangement and combination of parts stated in claim 1, a lug projecting laterally from the manually operable sliding bolt which co-operates with the axially shiftable barring staple, and a pawl hinged to the lock casing and having a projection co-operating with said lug to retain the appertaining bolt in its retracted position.

3. A door barring device as specified in claim 1, comprising, in combination with the elements stated in claim 1, a lug projecting laterally from the manually operable sliding bolt, a pawl hinged

to the lock casing and having a projection co-operating with said lug to retain the appertaining bolt in its retracted position, and a releasing member shiftable between said pawl and the axially movable barring element and co-operating with one of its ends with said bolt and at its other end so designed as to be able to lift the said pawl and disengage the said projection and the said lug.

4. A door barring device, comprising, in combination with two laterally slotted barring staples attached to a stationary part of the door frame, of which staples one is stationary and the other is axially movable for a restricted length of way said axially movable staple having a rearwardly directed nose extending into its lateral slot, a lock casing having two sliding bolts housed therein, said bolts engageable in said staple slots and being so arranged relatively to said staples as to

be engageable in the slots of the same, one of said bolts being operable by a key from outside the door and co-operating with the stationary barring staple, and the other bolt being manually operable from inside the door and co-operating with the axially shiftable barring staple and having at its operating end a forwardly directed nose to interengage with said first-mentioned nose.

5. A door barring device as specified in claim 1, comprising, in combination with the elements stated in claim 1, a lug projecting laterally from the manually operable sliding bolt, and a U-shaped lever hinged to the other bolt, one leg of said lever terminating adjacent to said lug and adapted to retract the manually operable bolt rearwardly when the other bolt is shifted by a key.

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