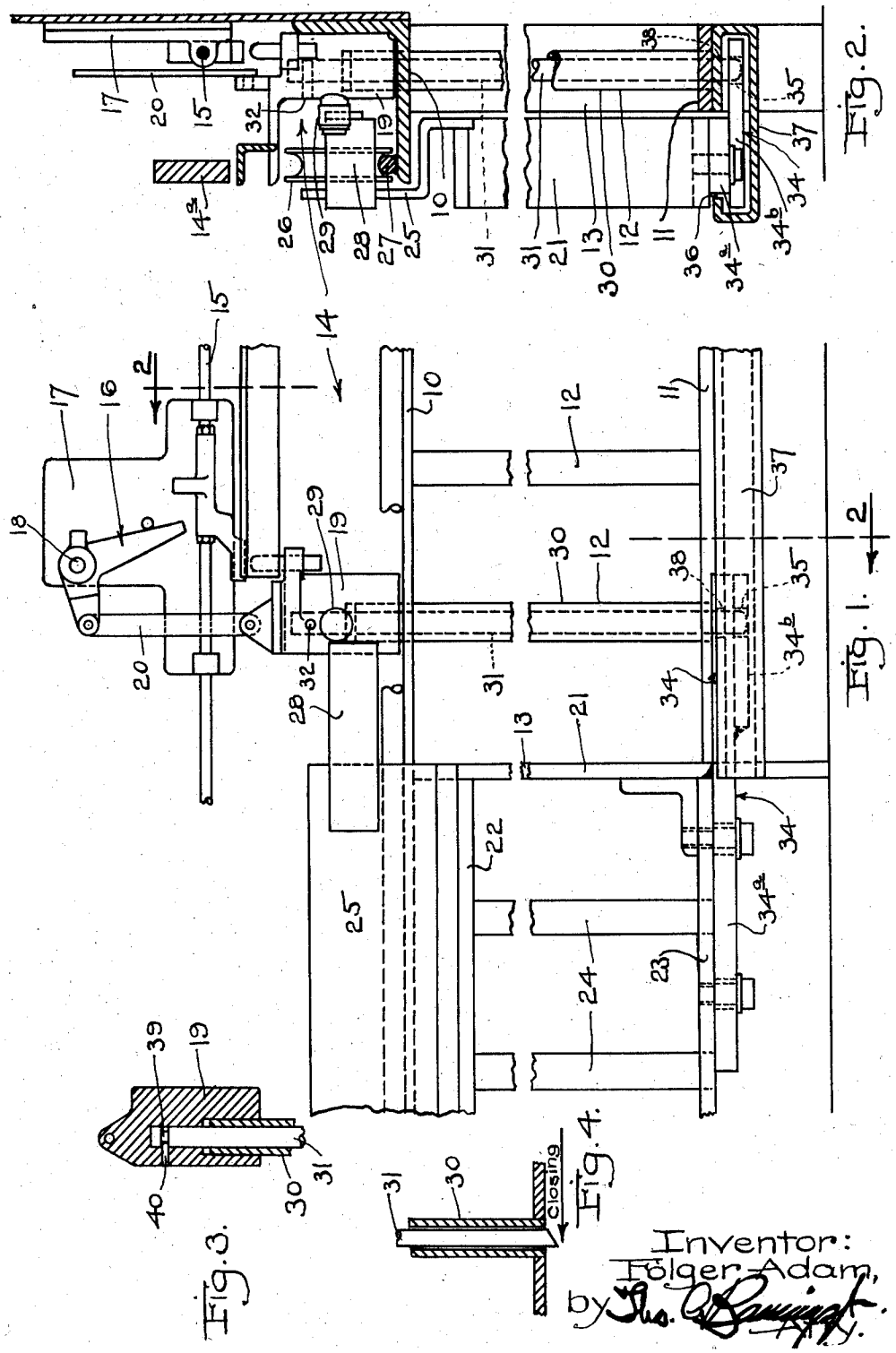
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JAIL LOCKING DEVICE AND THE LIKE

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JAIL LOCKING DEVICE AND THE LIKE

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8 Claims. (Cl. 189—7)

This invention relates to improvement in locking devices, especially for sliding doors, and especially for use in connection with such installations as jails, and other confinement enclosures. The construction herein disclosed relates particularly to improvements whereby the sliding door or gate is locked at both its upper and lower edges. Such result, when both these locking devices are to be simultaneously operated, requires that some form of connection be established between the upper and lower edges of the door or gate opening, whereby both these locking devices will be simultaneously actuated. Furthermore, both gang and keyless locking devices for rows of prison doors are provided with horizontally extending rods of various characters extending from a central control cabinet at one end of the cell row to the last door of the row; being encased in protective covering of suitable kind, and situated just above the top of the cell door opening.

It is therefore customary and desirable to provide locking means for these cell doors at the top of each door opening and also at the bottom thereof; and to accomplish this purpose it is necessary that a locking rod or locking bar be extended vertically downward from this mechanism box which runs along above the cell door down one edge of the door opening to provide some sort of interlock with the bottom of the door, thus simultaneously locking the door at top and bottom.

Heretofore it has been customary, as disclosed for example in Letters Patent of the United States, No. 2,148,521, issued to me February 28, 1939, to provide a small steel box or pilaster or locking post built integral with the cell front grating and arranged with guides carrying the locking bar through the hollow portion of this box, and terminating in some sort of locking arrangement at the bottom. Such pilasters and locking posts are expensive to build, and they make it necessary to provide guides inside of them for the locking bar; and they also have the disadvantage that they provide large areas where accumulations of dirt and filth may occur; and the more important disadvantage of closing up a portion of the grated front of the cell.

The main object of the present invention is to provide an arrangement whereby the necessary connection between the mechanism at the upper edge of the door opening and the locking device at the lower edge of the door, may be effected through one of the bars or rods constituting the cell grating itself, either by making such bar or rod hollow, or by taking advantage of the presence of such bar or rod itself for establishing the desired connection. Generally, according to the present invention I make one of these bars hollow, or make use of such hollow rod or bar already present, and then I extend the necessary operating rod or bar down through such hollow grating rod or bar or tube, connecting the upper end of such operating rod or bar to the operating devices at the upper edge of the cell front, and connecting the lower end of such operating rod or bar with the locking device for the lower edge of the door, or else actually using such lower end itself for the locking function. In any case, the necessary connection from the operating devices at the top of the cell front to the locking position at the lower edge of the door is accomplished without in any manner interfering with the grating members as such, and without having to provide any special housing for such vertical rod or bar, and without any of the disadvantages heretofore entailed by such vertical rod or bar.

Sometimes I may make such vertical rod or bar rotary so that it will rotate in case of any attempt to saw or cut through the grating. However, this is optional with the designer.

A further object and feature of the invention is to provide a very simple arrangement for effecting the locking function by the use of this vertical rod or bar when the cell door has been closed. In this connection it is a further object to so arrange the parts that no slot or opening will be afforded in the structure whereby the prisoner may interfere with the operation of the parts, or whereby he may gain access to such parts for ulterior purposes. When such a slot or opening is necessary it is so located that it is not accessible to the prisoner within the locked cell; and such slot or opening is also well covered over and protected against access from the cell side of the structure.

Other objects are to provide an arrangement which may be readily used in connection with many forms of cell structures now in use, and in connection with many forms of locking devices for such structures, and substantially without material change thereof from present standard forms and practices.

Other objects and uses of the invention will appear from a detailed description of the same, which consists in the features of construction and combinations of parts hereinafter described and claimed.

In the drawing:

Figure 1 shows a fragmentary face view of a portion of a cell front having applied thereto the features of the present invention, the door being in closed position, and portions of a typical form of gang lock operating and other mechanism being shown above the door head;

Figure 2 shows a cross-section on the line 2—2 of Figure 1, looking in the direction of the arrows. In both Figures 1 and 2 the central portions of the cell front and door have been cut away to shorten the figures vertically;

Figure 3 shows a fragmentary modified view of a connection between the upper end of the vertical rod or bar and the bracket to which it is connected, permitting rotation of such rod or bar; and

Figure 4 shows a fragmentary view of the lower end of another modification of the vertical rod or bar, same being provided with a slanting bottom face whereby the door may be latched shut by pressure or impact after the rod or bar has been lowered.

Referring first to Figures 1 and 2, the cell front therein shown includes the upper and lower horizontal bars or plates 10 and 11, between which are extended the vertical bars 12. These bars are of suitable construction, and are suitably connected into the bars or plates in well understood manner. At the position of the door opening there is the usual end plate, vertical, 13; and above the cell front there extends the box 14 within which are carried the usual operating and control devices well understood in this art. For purposes of simplicity in illustration, etc., I have shown only the master bar 14^a for door operating functions, same being horizontally movable from the control box; and the control rod 15 for the control of the door, same being also operable from the control box; and I have also shown the bell crank 16 pivoted to the bracket 17 at the point 18. This bell crank has one arm connected to the vertically movable block 19 by means of the link 20, so that under proper conditions this block 19 is raised and lowered for the door locking functions. This general type of device is shown in Letters Patent of the United States, No. 2,119,090, issued me May 31, 1938, and I have herein chosen to illustrate the same merely by way of example, and not in any sense as a limitation of the usefulness or application of the features of my present invention, except as I may do so in the claims to follow.

The rear edge of the sliding door is shown at 21. This is in the form of a vertical bar or plate, and the body of the door is shown in the form of the horizontal bars or plates 22 and 23, together with the several vertical bars or rods 24 extending between them. The door is shown in closed position, and under these conditions the end plate 21 of the door overlaps the end plate 13 of the cell front. Opening movement of the door is towards the right in Figure 1. The door is carried by the hangers such as 25, carrying the rollers 26 riding on the track 27, all of well known form.

In the arrangement shown the upper rear corner of the door carries the block or plate 28, which, when the door reaches its closed position stands near to the position of the block 19; and that block 19 is provided with the roller or stud 29 which will then drop down behind the end of this block 28, thereby locking the upper edge of the door when the said block 19 is lowered for locking purposes. Conversely, when said block 19 is raised the said locking function is discontinued.

All the above structures are well known and understood in this art. It is desired to lock the lower portion of the door simultaneously with the locking of its upper edge. Heretofore various expedients have been devised for securing such lower locking; but in each case it is necessary to provide some form of vertical connection from the mechanism at the upper portion of the cell front to the location at the lower portion of such front where such lower locking function is to be effected, and as before stated, it has heretofore been customary to provide a special box or housing for enclosing and protecting such vertical connection, with all the attendant disadvantages, some of which I have mentioned herein.

According to my present invention in its broad aspect I propose to use one of the rods or bars of the cell front, preferably the one closest to the door opening, namely, the rod or bar 30, either as the said vertical connection, or as a housing for such vertical connection. In the arrangement shown, this bar or rod 30 is made hollow or tubular, and another vertical operating rod or bar 31 is placed therein. In this case the upper end of such rod or bar 31 is connected to the block 19 in any convenient manner. In Figures 1 and 2 such connection is effected by the cross-pin 32, so that a non-rotatable connection of the rod or bar 31 is established. Still this rod or bar will always rise and fall with the block 19, and therefore in proper harmony with the locking and unlocking movements. Then, to the lower rear corner of the door I connect the lug or plate 34, same projecting inwardly or backwardly to a position in line with the cell front structure; and this lug or plate 34 is provided with an opening 35 or size such that when the rod or bar 31 is lowered for the locking function, the door being closed, the lower end of such rod or bar 31 will enter such opening 35 with easy clearance, and lock the lower edge of the door simultaneously with the locking of its upper edge. As a convenient arrangement, the lug or plate 34 comprises two sections, 34^a and 34^b, the section 34^a reaching endwise of the door far enough to laterally overlap the location of the cell front rod or bar 30, and the section 34^b then reaching backwardly to a position in line with the said rod or bar 30, so that the proper registry is effected. Furthermore, I have shown the section 34^a as travelling in a slot 36 formed in the permanent structure, but terminating substantially at the end of the cell front structure, and therefore not reaching to the location of the door opening proper. Such slotted opening may be established by use of a channel shaped section 37, the section 34^b extending backwardly in such channel as well shown in Figure 2 and thereby travelling within a substantially closed housing. By this means that portion of the path of travel of the section 34^b which is close to the interior of the cell is effectively enclosed and protected against access by the prisoner within the cell. With this arrangement the top flange of such channel section is provided with an opening 38 through which the rod or bar 31 extends, as well shown in Figure 2.

Now with the arrangement shown in Figures 1 and 2 the tubular section 30 may be rigidly secured to the top and bottom bars or plates 10 and 11, and the vertical operating bar or rod

31 is also non-rotatable. Sometimes it may be desirable to permit rotation of said vertical operating rod or bar 31, as for example, to prevent sawing or filing the same. In Figure 3 I have shown a modified arrangement in which the upper end of this vertical rod or bar is connected to the block 19 by provision of an encircling groove 39 in the rod or bar, and by the use of a pin 40 extended through the block 19 into such groove. This will ensure proper vertical movements of the rod or bar, while permitting its free rotation.

In the arrangement of Figure 4 I have shown a modified form of construction in which the lower end of the vertical rod or bar 31 is bevelled so that during the closing movement of the door said lower end may engage the lug or plate section 34b with a snapping action, and ensure proper locking engagement of the parts, even if the vertical rod or bar 31 has been lowered in advance of the completion of the door closing movement.

Manifestly any one of the rods or bars of the cell front may be selected for the accommodation of the movable operating or locking bar 31, but preferably that one is selected which is closest to the door end of the cell front, as shown.

It will also be evident the locking devices may be so arranged as to operate on either the front or rear edge portion of the door, and the vertically movable or otherwise movable rod or bar should be correspondingly located. Furthermore, it is also evident that the movement of such rod or bar may be either vertically, or rotationally, or both; and I do not limit myself to the arrangements shown, except as I may do so in the claims to follow.

Also, while I have herein shown and described only certain embodiments of the features of my present invention, still I do not intend to limit myself thereto, except as I may do so in the claims to follow.

I claim:

1. In a jail structure, the combination with a cell front including a series of vertical rods or bars, and a sliding door, and suitable lock operating mechanism located above said parts, of means to lock the rear edge portion of the door when in closed position at both top and bottom, including suitable interengaging locking portions on the top rear portion of the door and on said lock operating mechanism, and suitable means to simultaneously lock the lower rear edge portion of the door, including an element carried by the door, one of the vertical rods or bars of the cell front being tubular said tubular rod or bar being continuous between its upper and lower ends and laterally unperforated for any locking or control device, a vertically movable rod or bar within said tubular rod or bar aforesaid, an actuating connection between the upper end portion of said vertically movable rod or bar to actuate said rod or bar vertically with locking and unlocking movements of the lock operating mechanism, and means on the lower end of the vertically movable rod or bar to engage the aforesaid element carried by the door, substantially as described.

2. In a jail structure, the combination with a cell front including a series of vertical rods or bars, and a sliding door, and suitable lock operating mechanism located above said parts, of means to lock the rear edge portion of the door when in closed position at both top and bottom, including suitable interengaging locking portions on the top rear portion of the door and on said lock operating mechanism, one of the rods or bars of the cell front being tubular said tubular rod or bar being continuous between its upper and lower ends and laterally unperforated for any locking or control device, a vertically movable rod or bar therein, an operating connection between the upper end of said vertically movable rod or bar and the lock operating mechanism, effective to ensure vertical movements of said rod or bar harmoniously with the lock operating mechanism, and suitable interengaging portions carried by said vertically movable rod or bar and by the rear lower edge portion of the door, effective to lock said lower rear edge portion harmoniously with locking of the upper rear edge portion thereof, substantially as described.

3. In a jail structure, the combination with a cell front including a series of vertical rods or bars, and a sliding door, and suitable lock operating mechanism located above said parts, of means to lock the rear edge portion of the door when in closed position at both top and bottom, including suitable interengaging locking portions on the top rear portion of the door and on said lock operating mechanism, one of the rods or bars of the cell front being tubular said tubular rod or bar being continuous between its upper and lower ends and laterally unperforated for any locking or control device, a vertically movable rod or bar therein, an operating connection between the upper end of said vertically movable rod or bar and the lock operating mechanism, effective to ensure vertical movements of said rod or bar harmoniously with the lock operating mechanism, and a portion carried by the lower rear edge portion of the door adapted for engagement by the lower end of said vertically movable rod or bar for locking purposes harmoniously with the locking of said interengaging portions aforesaid, substantially as described.

4. In a jail structure including a cell front and a sliding door, said cell front including vertical rods or bars one of which is tubular said tubular rod or bar being continuous between its upper and lower ends and laterally unperforated for any locking or control device, means to lock the upper and lower portions of the door, including suitable locking devices in conjunction with both said upper and lower portions, and an interconnection between both said locking devices, including a vertically movable rod or bar within said tubular rod or bar aforesaid, substantially as described.

5. In a jail structure including a cell front and a sliding door, said cell front including vertical rods or bars one of which is tubular, means to lock the upper and lower portions of the door, including suitable locking devices in conjunction with both said upper and lower portions, and an interconnection between both said locking devices, including a vertically movable rod or bar within said tubular rod or bar aforesaid, said vertically movable rod or bar being rotatable, substantially as described.

6. In a jail structure including a cell front and a movable door, said cell front including vertical rods or bars one of which is tubular said tubular rod or bar being continuous between its upper and lower ends and laterally unperforated for any locking or control device, means to lock the lower and upper portions of the door, including suitable locking devices in conjunction with both said upper and lower portions, and an interconnection between said parts, including a movable

rod or bar within said tubular rod or bar aforesaid, substantially as described.

7. In a jail structure including a cell front and a movable door, said cell front including vertical rods or bars one of which is tubular said tubular rod or bar being continuous between its upper and lower ends and laterally unperforated for any locking or control device, means to simultaneously lock both the upper and lower portions of the door, and an interconnection between both of said locking means, including a movable rod or bar within said tubular rod or bar aforesaid, substantially as described.

8. In a jail structure including a cell front and a slidable door mounted for sliding movement across the front or outer face of said cell front, said cell front including rods or bars one of which is tubular said tubular rod or bar being continuous between its upper and lower ends and laterally unperforated for any locking or control device, means to lock the upper portion of the door, means to lock the lower portion of the door including a member connected to said lower edge portion and projecting inwardly to overlap the lower edge of the cell front, together with a movable rod or bar within said tubular rod or bar aforesaid, and having its lower end adapted for locking engagement with the member aforesaid, and its upper end in conjunction with the means to lock the upper edge portion of the door, substantially as described.

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