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Harrell

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[54] **T-TYPE LOCKER HANDLE**

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[52] **U.S. Cl.** **292/7,** 70/82, 70/212, 292/359, 292/DIG. 68

[51] **Int. Cl.** **E05b 13/08,** E05b 65/02

[58] **Field of Search** 70/81, 82, 84, 183, 212; 292/7, 104, 148, 205, 359

[56] **References Cited**

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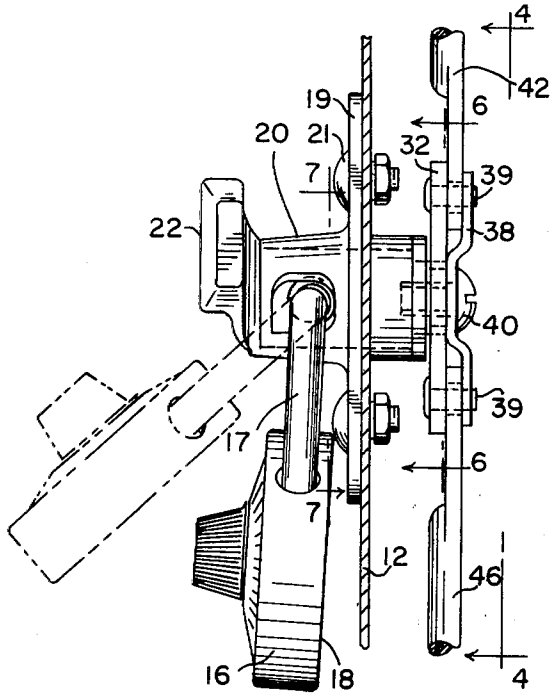
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Attorney, Agent, or Firm—Gomer W. Walters

[57] **ABSTRACT**

A locker handle particularly adapted for use in a locker assembly including a frame and door means hingedly mounted on the frame for opening and closing movement having handle bearing means mounted on the door and generally T-shaped handle means disposed for rotation in the handle bearing means. Latching means are mounted on the inward end of the handle means and movable thereby to engage or disengage an adjacent door and/or the frame at one or more points when the door means are in a closed position and thereby latch and unlatch the door means from the frame. The handle means is integrally formed having a gripping portion joined to a generally cylindrical stem portion and offset slightly from the central axis of the stem portion so that a locking means having a shackle may be inserted through cooperative openings in the stem portion and the handle bearing means to prevent their relative movement while providing easy access to its back while in a locked condition.

11 Claims, 9 Drawing Figures



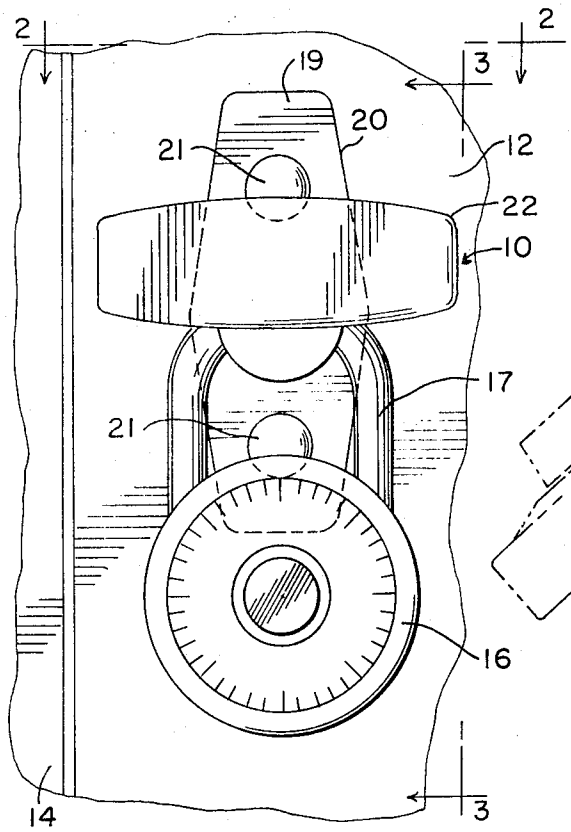


FIG. 1

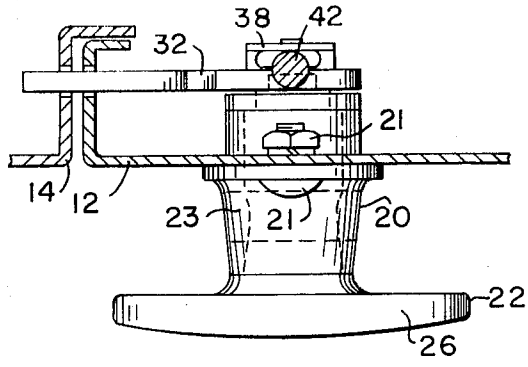


FIG. 2

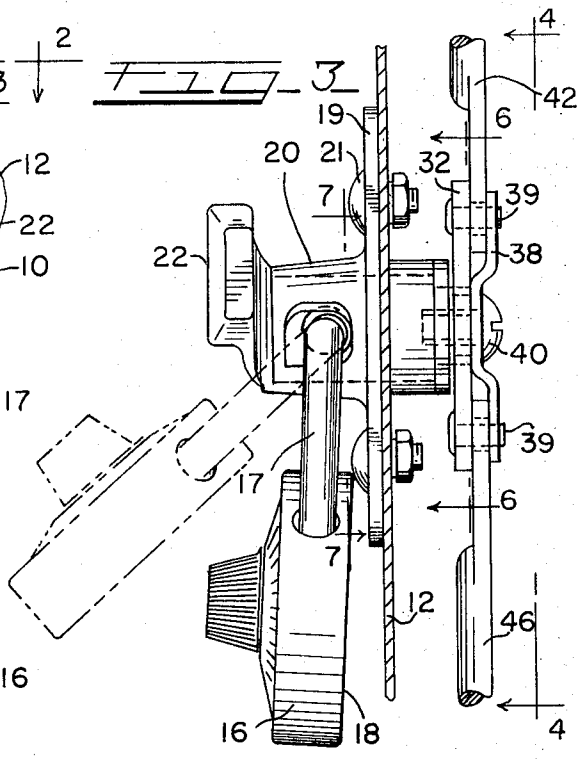


FIG. 3

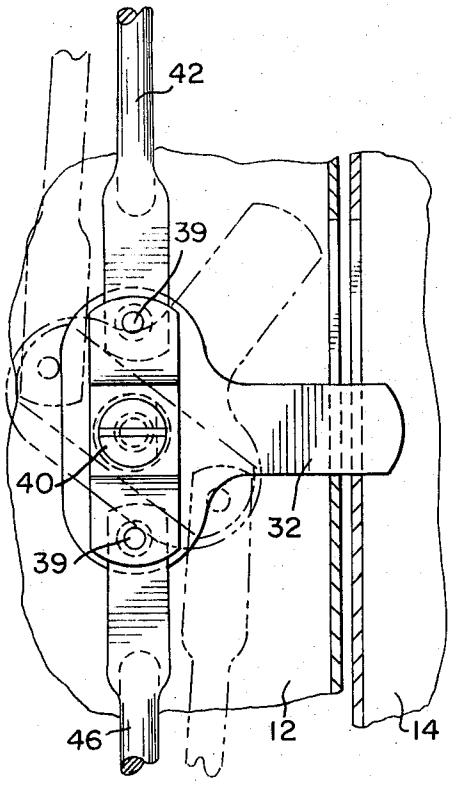


FIG. 4

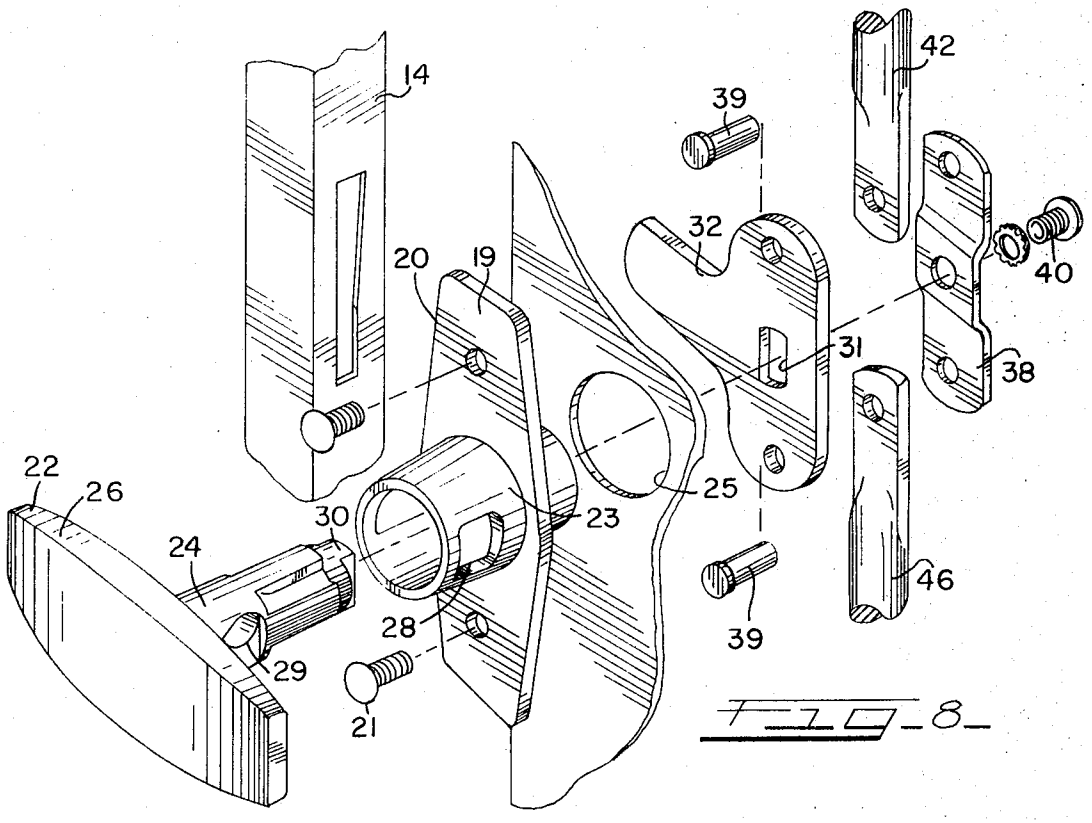


FIG. 8

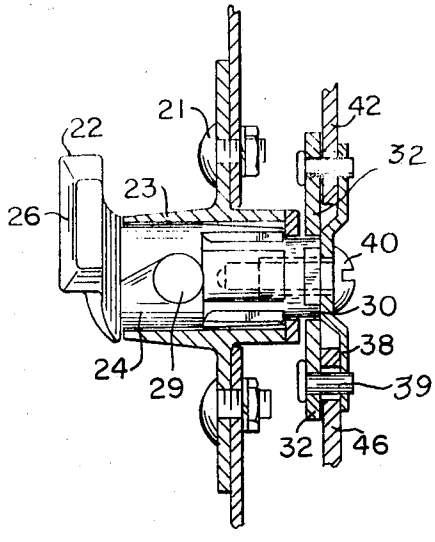


FIG. 5

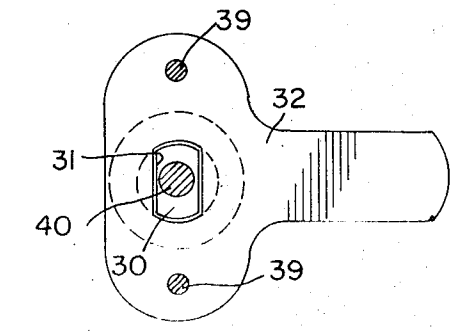


FIG. 6

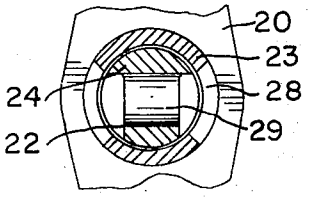
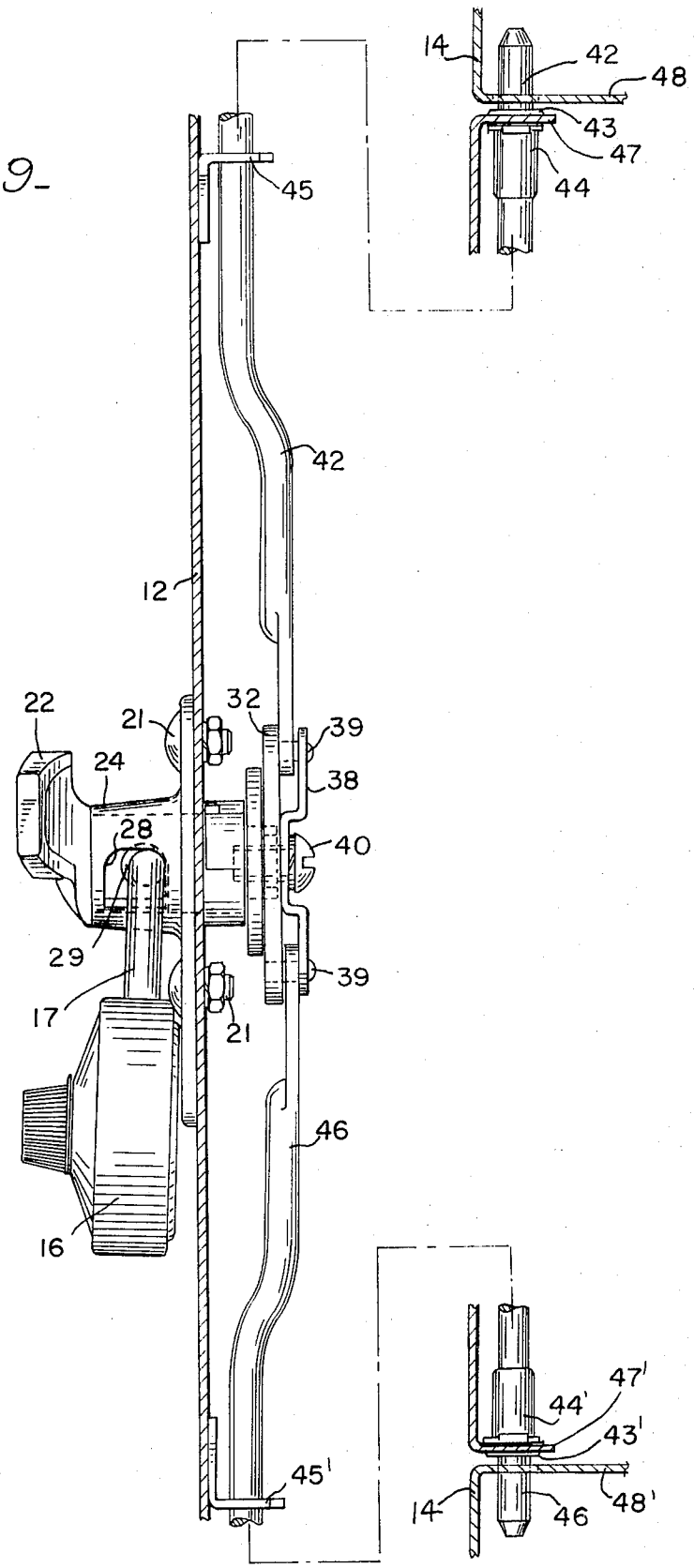


FIG. 7

FIG. 9


14
42
48
43
47
44
45
42
12
22
21
32
39
24
38
28
40
29
39
17
21
46
16
45'
47'
44'
43'
14
46
48'

T-TYPE LOCKER HANDLE

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to handle and latching means for locker assemblies, in general, and, in particular, to a T-shaped handle mounted on a locker for use in connection with a single or multiple-point latching system.

2. Description of the Prior Art

While T-shaped locker handles have been widely used in lockers installed in gymnasiums and military installations, present handles include several significant disadvantages. One of the main disadvantages is that such handles have never been successfully used with a three-point latch system; that is, a system which latches a locker door at the top, bottom and mid-portions of the door and is operated by simple movement of the T-handle itself. In the past, most T-handle lockers have only had one point latching systems, and thus, lockers subject to heavy abuses such as those used in gymnasiums, have often been damaged or broken into because of the lack of effective latching at the top and bottom.

Another disadvantage of prior T-type handles is that, because of their construction, it had been virtually impossible or at least extremely difficult to gain access to the back of the locking means to open it or to obtain information from it in case an emergency requires access to the locker by authorized personnel. Any upward pivoting movement of the locking means was always obstructed by handles thereby preventing access to the back.

Finally, while prior T-type handles and latching mechanisms are relatively complex and therefore, expensive to manufacture, they have not proven to be rigid enough in either construction or mounting to withstand the abuse to which the lockers on which they are placed are constantly subjected.

SUMMARY OF THE INVENTION

The present invention provides a novel T-shaped locker handle assembly which is securely mounted to a locker door or frame and operates a three-point latching system while being formed so as to offer easy access to the back of a locking means in locked condition. This T-type locker handle overcomes the disadvantages of the prior art and satisfactorily meets military requirements by a handle means which is disposed for rotation relative to a locker door in a hollow handle bearing means mounted on the door. The handle means includes an integrally formed gripping portion corresponding to the top of a T which is disposed generally transversely to a cylindrical stem portion corresponding to the stem of a T. The stem portion has an opening formed therein to receive the shackle of a locking means. The gripping portion is offset from the central axis of the stem portion so that when the stem portion is inserted into the handle bearing means and the handle is in operating condition, the locking means received through corresponding openings in the stem portion and handle bearing means may be pivoted upwardly to a horizontal position allowing easy access to information or secondary access locking means found at the back of the locking means.

The handle means has mounted for rotation with it, at the inward end of the stem portion, a key-shaped latching cam. This latching cam may be pivoted with the handle means to either enter cooperative openings formed in the door and the frame adjacent to it or be positioned on the opposite side of the frame flange from the door, to latch the door at its mid-point. The latching cam also has, pivotally mounted on it, opposite upper and lower connecting rods having latch means at outer ends movable into and out of cooperatively aligned openings in the door and the frame to engage or disengage the frame and prevent opening of the door. The door may thereby be latched at three points along its height to hold it securely in closed position and prevent damage due to bending of the door at the top or bottom.

The stem portion of the handle means is formed with an opening therethrough which may be cooperatively aligned with an opening formed in the handle bearing means mounted on the door so that when the gripping portion of the handle means is in generally horizontal position and the door is latched, a shackle of a locking means may be inserted through these openings to prevent rotation of the handle means and unlatching of the door. However, since the gripping portion of the handle means is offset with respect to the central axis of rotation of the stem portion, the entire locking means, though in locked condition, may be rotated forwardly and upwardly to allow access to its back. This permits authorized personnel to obtain information from the back of the lock or to open the lock by a secondary access locking means at its back thereby, in emergency situations, to gain access to the interior of the locker.

Since the handle means is rotated within the rigidly mounted handle bearing means and is simply but securely connected to the latching means, it is able to withstand severe abuse and thereby overcomes the lack of strength inherent in previous types of T-type handle and latch means.

Accordingly, it is an object of this invention to provide a T-type locker assembly which is simple in construction and operation but strong enough to withstand severe abuse.

It is another object of this invention to provide a locker handle assembly which is so formed to allow a locking means, in locked condition, to prevent movement of the handle, while being movable itself to a position permitting access to the back of the locking means.

It is a further object of this invention to provide a locker handle assembly including a latching means which is operable and effective to provide three-point or one-point latching of the locker door with respect to the locker frame.

It is still a further object of this invention to provide a locker handle assembly including a handle means mounted within and rotatable with respect to a handle bearing means, which is connected to a latching means designed to provide three-point latching of the locker door with respect to the locker frame.

These and other objects of this invention will become evident from the following description of the drawings illustrating a preferred embodiment wherein:

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a front view of the T-type locker handle assembly of this invention shown mounted on a locker door and frame;

FIG. 2 is a top plan view of the locker handle assembly of this invention taken generally along line 2—2 of FIG. 1;

FIG. 3 is a side elevational view of the locker handle assembly of this invention taken generally along line 3—3 of FIG. 1 and showing the possible relative movement of the locking means with respect to said handle;

FIG. 4 is a rear elevational view of the locker handle assembly taken generally along line 4—4 of FIG. 3 and showing, in hidden lines, the pivotal movement of the latching means of this invention;

FIG. 5 is a side cross-sectional view of the locker handle assembly of this invention shown in FIG. 3;

FIG. 6 is a rear elevational view of the singlepoint latching means of the locker handle assembly of this invention taken generally along line 6—6 of FIG. 3;

FIG. 7 is a fragmentary cross-sectional view of the interior of the handle means and handle bearing means of the locker handle assembly of this invention taken generally along line 7—7 of FIG. 3;

FIG. 8 is an exploded perspective view of the locker handle assembly of this invention shown in FIG. 3; and,

FIG. 9 is a side elevational view of the locker handle assembly of this invention illustrating a three-point latching system.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawings and in particular, to FIG. 1, the locker handle assembly of this invention is shown generally at **10.** This locker handle assembly **10** is shown mounted on a locker door **12** which is hingedly mounted over an opening on a locker frame **14** to form a closure member for a locker assembly. While it is recognized that the locker handle assembly **10** of this invention could also be mounted on a double door type locker assembly wherein the numeral **14** would refer to the opposite door, the latching means operated by the locker handle will remain of the same construction and this invention will function in the same manner with the same result as in a single door assembly. It is also clear that locker handle assembly **10** could be mounted on the frame **14** of the locker assembly by minor modifications of the embodiment shown. Again, however, the locker handle assembly **10** would function in the same manner to achieve the same result.

The locker handle assembly **10** is shown in FIG. 1 having a locking means or padlock **16** in locked condition with the shackle **17** of the padlock in cooperative engagement with the locker handle assembly **10** to prevent movement of the locker handle assembly **10** and subsequent opening of the door. The padlock **16** has a rear face **18,** as shown in FIG. **3,** which normally contains information such as a serial or master code number which must be obtained to open the lock. It may contain a secondary access lock of a key type to allow a master key to be used directly to open the locking means **16.**

The locker handle assembly **10,** as shown in FIGS. **1-3, 5** and **8,** includes a handle bearing means **20** having a generally flat plate portion **19** having upper and lower extensions through which fastening means **21** may be inserted through corresponding openings formed in the door **12** to maintain the entire locker handle assembly **10** is a secure and rigid position on the locker door **12.** Fastening means **21** may consist of an unslotted screw threaded at its one end to engage a hexagonal nut with a lock washer interposed between the opposite side of the door **12,** as shown in FIG. **2.** The handle bearing means **20** has, at its center, a sleeve portion **23** having a generally cylindrical exterior and hollow interior bore tapered very slightly toward its rear. This sleeve portion **23** extends from either side of plate **19** with the rearward portion extending through a corresponding opening **25** on door **12.**

The sleeve portion **23** of the handle bearing means **20** has disposed within it, for rotation relative to it, a handle means shown generally at **22.** Handle means **22** is generally shaped in the form of a T, thus giving rise to the name "T-Type Handle." Handle means **22** includes a gripping or bar portion **26** which is integrally formed with a stem portion **24** disposed generally normally to it. Stem portion **24** has a central axis around which the handle means **22** is rotated. Stem portion **24** is tapered inwardly toward its rearward end to a degree corresponding to the taper of the interior of sleeve portion **23** of handle bearing means **19** so that handle means **22** may be inserted within the sleeve portion **23** for rotational movement.

As shown in FIG. **5,** the handle means **22** is uniquely formed with the gripping or bar portion **26** offset from the central axis of stem portion **24.** The shackle **17** of locking means **16** may be inserted through corresponding shackle openings **28** in the bearing means and **29** in the stem portion of the handle means **22** to a position shown by the heavy lines in FIG. **3.** However, the configuration of the handle means noted above permits the padlock **16,** in locked condition, to be pivoted upwardly on shackle **17,** disposed through the openings **28** and **29,** to the position shown by the dotted lines in FIG. **3.** The maneuverability of the locking means **16** relative to the handle **22** allowed by the novel configuration of the handle means **22** permits authorized personnel to gain access to the information or secondary access means positioned on the back of the padlock **16.**

As shown in FIG. **8,** the stem portion **24** of handle means **22,** has, at its inward or rearward end, a rectangular boss **30.** This boss may be inserted into a corresponding rectangular hole **31** formed in a generally T-shaped latching cam **32.** Latching cam **32** is fixedly mounted to handle means **22** over boss **30,** in a single-point latching system, by a lock washer and cam fastener **40** as shown in FIGS. **6** and **8.** Fastening means **40** is inserted into a cored, threaded hole which is bored into the stem portion **24** of handle means **22,** as shown in FIG. **5,** to assure a positive connection.

In constructing a three-point latching system, on the other hand, an upper latching means or rod **42** and lower latching means or rod **46** are mounted directly on the upper and lower ears of the T-shaped latching cam **32,** respectively. These rods are pivotally mounted with respect to the latching cam **32** by pins **39** which permit the latching cam to pivot with respect to the opposite rods **42** and **46,** respectively. A cam plate **38** is interposed between the cam fastener **40** and the latching cam **32,** before fastener **40** is inserted through opening **31** in latching cam **32** to engage handle means **22.** This plate **38** also receives, at its upper and lower ends, the pivot pins **39** to assure that movement of latching cam

32 will always cause generally vertical movement of the upper and lower latching means 42 and 46.

The upper and lower latching means 42 and 46 also have, at their ends opposite the latching cam 32, means for engaging the locker frame 14 to effect a positive latch. For the sake of brevity, only one of these frame engaging latching means will be described in detail here, the opposite, but similar latching arrangement being denoted by prime numerals in the drawing, as shown in FIG. 9. The upper latch means or rod 42 passes through a guide means 45 disposed near its upper end which serves to track the latch means 42 toward a hole formed in the top flange 47 of the door 12. When the door 12 is in closed position, this hole in the flange 47 will be aligned with a corresponding hole formed in the flange 48 of the frame 14. Guided by the guide means 45, the rod passes through an eyelet 44 which is held in position, allowing for a certain amount of play, by a spring clip 43. This enables the connecting rod 42, which is usually displaced somewhat laterally due to the movement caused by rotation of the latching cam 32, to be maintained in a location permitting insertion of the end of the rod 42 through the corresponding aligned openings in the door flange 47 and frame flange 48.

In the operation of the locker handle assembly 10 of this invention with the locking means 16, the shackle 17 of the padlock 16 is removed from openings 28 and 29 to permit rotation of the handle means 22. The handle means 22 may then be turned to rotate the latching cam 32 about the central axis of the stem portion 24 of the handle means 22, causing the stem of the T-portion of the latching means 32 to be removed from corresponding openings formed in the vertical door flange and the frame flange into which it has been inserted to prevent movement of the middle of the door 12 relative to the frame 14. This movement also pulls upper rod 42 downwardly and moves lower rod upwardly to withdraw the ends of these rods into the eyelets 44 and 44' disposed adjacent the upper and lower door flanges 47. Such movement disengages all latching means from the frame and unlatches the door to permit its opening.

Conversely, the rotation of the handle means 22 in the opposite direction will cause the latching cam 32 and upper and lower latching means 42 and 46 to engage the frame 14 and latch the door in a closed position. The shackle 17 of the padlock 16 may then be inserted through openings 28 and 29, which are now in aligned position, to prevent further rotation of the handle means 22 and unlatching of the door 12. In such a position, the door will be latched at three points, its mid-portion, its top and its bottom, to securely and effectively maintain it in closed position. It therefore will be able to resist severe abuse and connot be pryed open at the top or bottom to prevent its proper closure, as often happens to present type T-type locker assemblies.

It is recognized that the locker handle assembly 10 of this invention is adaptable to permit use of simply the latching plate 38 and latching cam 32 alone, as described above, so that latching will occur at only the mid-point of the locker door 12. This would be particularly useful in smaller lockers or in those locations in which such lockers are not subject to abuse or attempted break ins.

It is also clear that the latching cam 32 shown in FIG. 2 could be formed so that the extended stem of the T, when rotated to a latching position, would be positioned behind the flange of the frame 14 to engage the frame 14 and prevent opening of the door. A latching cam in such a reverse S-shaped configuration would effectively latch the door without the necessity of forming corresponding openings in the door and the locker frame.

The materials suitable for construction of the locker handle assembly of this invention include any material which may be easily formed, bored or milled to the required dimensions, but which will endure much abuse and withstand stresses. Such materials include steel and steel alloys, brass and iron.

While this invention has been described in relation to a preferred embodiment thereof, it will be apparent to those skilled in the art that various modifications may be made without departing from the principles of the invention embodied herein. Therefore, only such limitations should be imposed as are indicated by the spirit and scope of the appended claims.

I claim:

1. A locker assembly including a frame, a door hingedly mounted on said frame for opening and closing movement with respect thereto, handle bearing means mounted on said door, handle means being mounted in said handle bearing means for rotation relative to said door about a central axis, said handle means being used in latching, unlatching and opening and closing said door, and latching means mounted on said handle means and movable on rotation thereof with respect to said door to engage and disengage said frame and thereby latch and unlatch said door from said frame, at at least one point on said frame, said handle means and said handle bearing means being formed with cooperative openings in each to receive a locking means to prevent relative movement therebetween, said handle means comprising an integrally formed, generally T-shaped member having a gripping portion joined to a generally cylindrical stem portion, and disposed generally transverse thereto, said central axis of rotation of said handle means being disposed longitudinally and centrally through said stem portion, said stem portion and said gripping portion being rotatable about said central axis relative to said door, said gripping portion being offset from said central axis thereby to allow a locking means having a shackle disposed through an opening formed in said stem portion to be pivoted upwardly adjacent said gripping portion to provide access to the back of said locking means to open said locking means or obtain information therefrom.

2. The locker assembly of claim 1 wherein said handle bearing means includes plate means mounted on said door and sleeve means joined to said plate means and disposed generally perpendicular thereto and extending therethrough, a rear portion of said sleeve means being inserted through an opening formed in said door, said sleeve means being formed to receive said handle means disposed for rotation therein, a forward portion of said sleeve means having openings formed therein to correspond to and cooperate with openings formed in said handle means when said door is in latched position.

3. The locker assembly of claim 1 wherein said latching means includes a latching cam mounted on said stem portion of said handle means and rotatable therewith to engage said frame when said door is in closed position, and connecting rod means pivotally mounted

on said latching cam and extending in opposite directions therefrom along said door, said connecting rod means having means disposed near their opposite ends to engage said frame when said door is in a closed position, said handle means being rotatable on its central axis to move said latching cam, said connecting rod means and said means to engage said frame and thereby latch and unlatch said locker door.

4. The locker assembly of claim **1** wherein said latching means includes a latching cam mounted on said stem portion of said handle means and rotatable therewith to engage said frame when said door is in a closed position to latch said door, or to disengage said frame and unlatch said door.

5. In a locker assembly including frame means, and door means hingedly mounted on said frame means for opening and closing with respect thereto, the improvement comprising, a handle assembly means mounted on said door means and having at least a portion rotatable relative thereto, and latching means mounted on said handle assembly means and movable thereby with respect to said door means and said frame means to latch and unlatch said door means when said door means is in closed position with respect to said frame means, said handle assembly means including bearing means mounted on said door means, said bearing means having a plate means fixed to said door means and hollow sleeve means disposed perpendicularly through said plate means and joined thereto, and including handle means, said handle means having a gripping portion rigidly joined to a generally cylindrical stem portion, said stem portion having a central axis running longitudinally and centrally therethrough for rotation of said handle means thereabout, said stem portion of said handle means being insertable through said sleeve means and supported thereby, said handle means being rotatable therein relative to said door means about said central axis, said handle means being used in latching, unlatching and opening and closing said door means, said gripping portion being disposed generally transversely to said stem portion and offset radially with respect to said central axis to allow a locking means, disposed through cooperative openings formed in said stem portion and said bearing means to prevent relative movement therebetween, to be rotated upwardly and forwardly to provide access to a reverse side thereof.

6. The improvement set forth in claim **5** wherein said latching means includes a latching cam mounted on said stem portion of said handle means and rotatable therewith, and connecting rod means pivotally mounted on said latching cam and extending in opposite directions therefrom along said door means, said connecting rod means having means disposed near their opposite ends to engage said frame means when said door means is in a closed position, said handle means being rotatable on its central axis to move said latching cam, said connecting rod means and said means to engage said frame to latch and unlatch said locker door means with respect to said frame means.

7. The improvement set forth in claim **5** wherein said latching means includes a latching cam mounted on said stem portion of said handle means and rotatable therewith to engage said frame when said door is in a closed position to latch said door or to disengage said frame and unlatch said door.

8. In a locker assembly including a frame member and a closure member hingedly mounted on said frame member for opening and closing with respect thereto, the improvement comprising handle assembly means mounted on one of said members for rotatable movement with respect thereto, and latching means mounted on said handle assembly means and movable thereby to engage and disengage the other of said members when said closure means is in a closed position and thereby latch and unlatch said closure member with respect to said frame member, said handle assembly means receiving the shackle of a locking means through a portion thereof to prevent movement of said handle assembly means with respect to said closure member, said handle assembly means including handle bearing means mounted on a door and handle means mounted in said handle bearing means, said handle means having a central axis and being rotatable with respect to said handle bearing means including an integrally formed generally T-shaped member having a gripping portion joined to a generally cylindrical stem portion and disposed generally transversely thereto, said central axis of rotation of said handle means being disposed longitudinally and centrally through said stem portion, said gripping portion being offset from said central axis thereby to allow a locking means having a shackle disposed through an opening formed in said stem portion to be pivoted upwardly adjacent said gripping portion to provide access to the back of said locking means to open said locking means or obtain information therefrom.

9. The improvement set forth in claim **8** wherein said handle bearing means includes plate means mounted on said door and sleeve means joined to said plate means and disposed generally perpendicular thereto and extending therethrough, a rear portion of said sleeve means being inserted through an opening formed in said door, said sleeve means being formed to receive said handle means disposed for rotation therein, a forward portion of said sleeve means having openings formed therein to correspond to and cooperate with openings formed in said handle means when said door is in latched position.

10. The improvement set forth in claim **8** wherein said latching means includes a latching cam mounted on said stem portion of said handle means and rotatable therewith to engage said frame member when said closure member is in a closed position, and connecting rod means pivotally mounted on said latching cam and extending in opposite directions therefrom along said closure member, said connecting rod means having means disposed near their opposite ends to engage said frame member when said closure member is in a closed position, said handle means being rotatable on its central axis to move said latching cam, said connecting rod means and said means to engage said frame and thereby latch and unlatch said closure member.

11. The improvement set forth in claim **8** wherein said latching means includes a latching cam mounted on said stem portion of said handle means and rotatable therewith to engage said frame member when said closure member is in a closed position to latch said closure member or to disengage said frame and unlatch said closure member.

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