United States Patent

Berry et al.

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[54] LOCKING BARS

[72] Inventors: **Daniel Victor Berry**, Bracknell; **Stanley Gerald Thomas Knott**, Wadhurst, both of England

[73] Assignee: **Ingersoll Locks Limited**, London, England

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Related U.S. Application Data

[63] Continuation of Ser. No. 73, Jan. 2, 1970.

[30] **Foreign Application Priority Data**

Jan. 3, 1969 Great Britain 521/69

[52] **U.S. Cl.** **70/52**, 70/39

[51] **Int. Cl.** **E05b 67/02**, E05b 67/22

[58] **Field of Search** 70/21–23, 26, 38–39, 70/51–56, 417–418

[56] **References Cited**

UNITED STATES PATENTS

2,104,981	1/1938	Falk	70/33
2,541,638	2/1951	Clevett	70/56
3,345,837	10/1967	Barnes	70/52

FOREIGN PATENTS OR APPLICATIONS

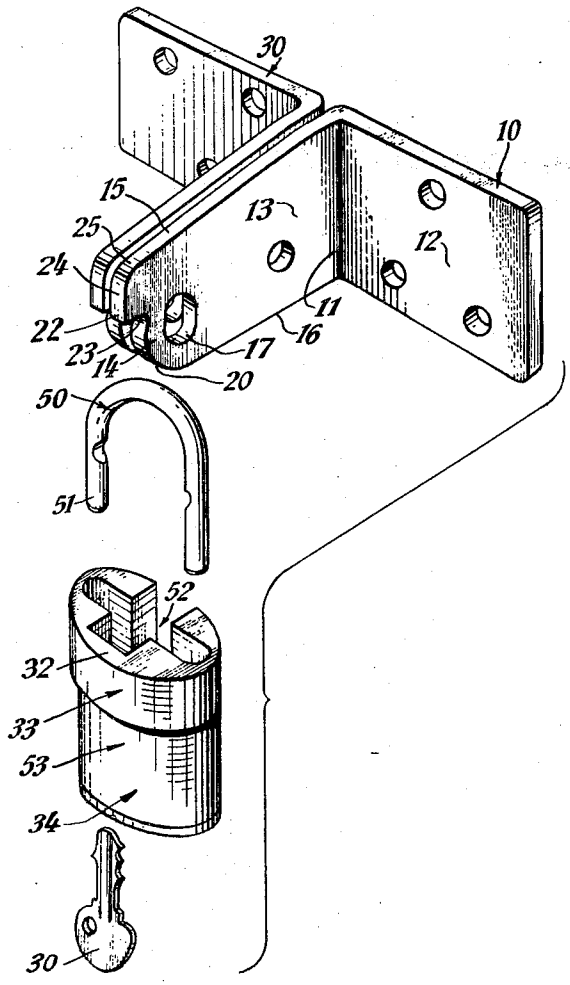
414,307	7/1946	Italy	70/55
413,366	4/1946	Italy	70/55

Primary Examiner—Robert L. Wolfe
Attorney—Edwin E. Greigg

[57] **ABSTRACT**

A locking bar adapted to cooperate with a shackle of a padlock, which locking bar comprises a shackle-receiving orifice and an abutment provided on the surface of said bar, the arrangement being such that with the padlock secured to the bar by means of a padlock shackle passing through said orifice, the abutment is adapted to engage with the body and/or shackle of the padlock to restrain substantial rotation of said padlock about the orifice in said bar.

7 Claims, 2 Drawing Figures



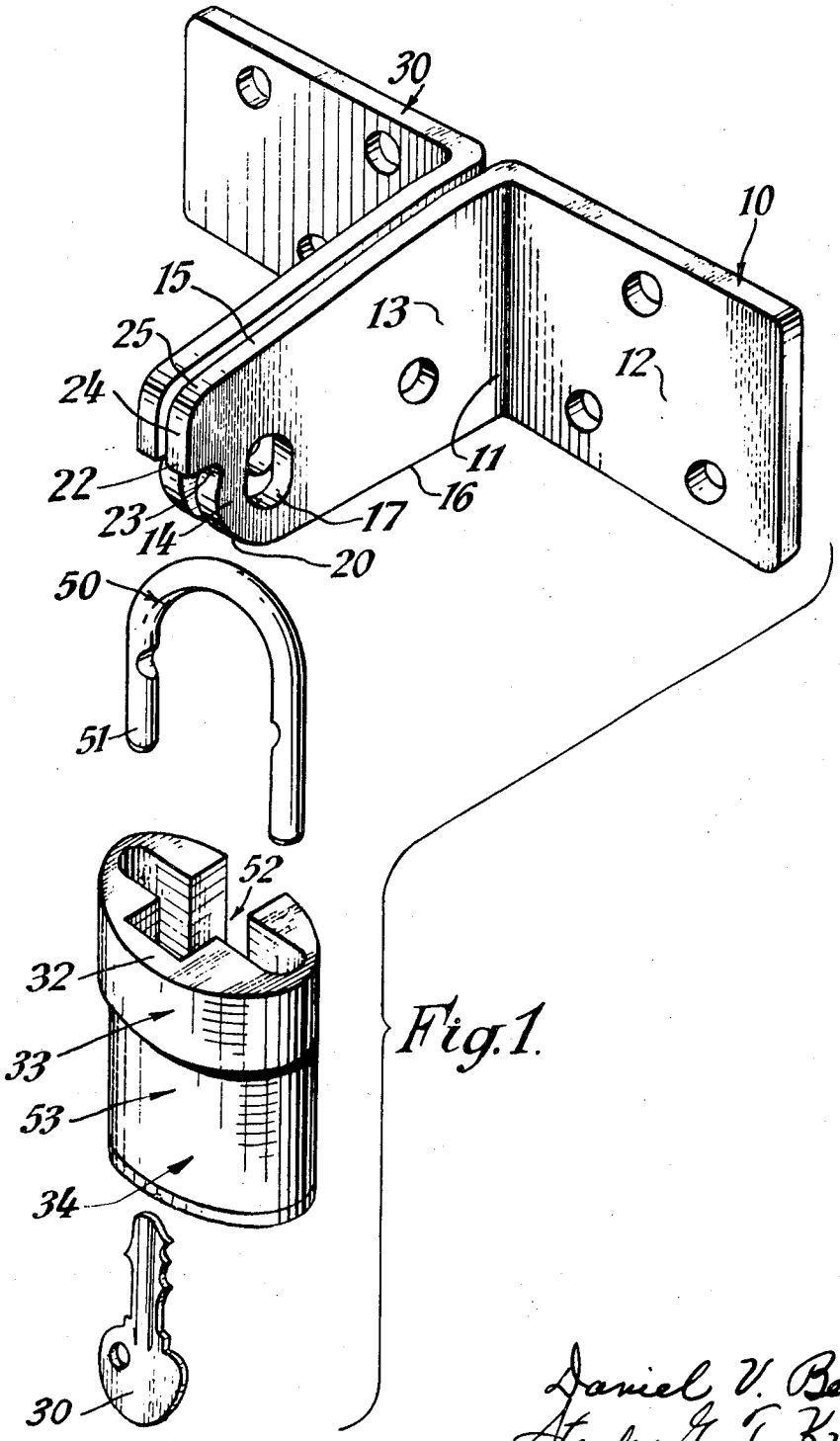


Fig. 1.

Daniel V. Berry &
Stanley G. T. Knott
INVENTOR

BY Edwin E. Greigg
ATTORNEY

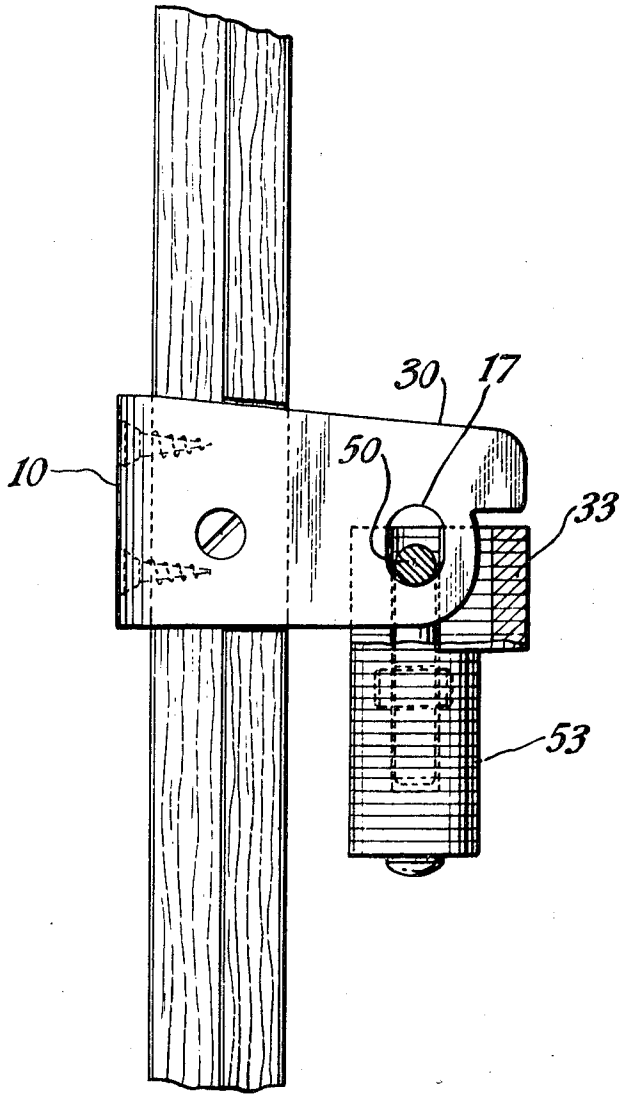


Fig.2.

LOCKING BARS

This is a streamlined continuation of application Ser. No. 73, filed Jan. 2, 1970.

The present invention relates to locking bars and has particular reference to a locking bar adapted to be used in combination with padlocks forming the subject of our copending application Ser. No. 794,250, filed Jan. 27, 1969 now U.S. Pat. No. 3,572,064 issued Mar. 23, 1971.

Our copending application Ser. No. 794,250 provides a padlock comprising a shackle adapted to engage one or more members to be locked, a casing adapted to accommodate said shackle in a locking position and provided with a recess adapted to accommodate part of said member or members when the shackle is in the locking position, said shackle having a member engaging portion which with the shackle in said locking position engages the member or members to be locked the arrangement being such that in use with the shackle in the locking position at least part of the member engaging portion of the member or members adapted to be engaged thereby is accommodated by said recess. In a preferred embodiment of the padlock described above the body of the padlock is provided with an extended portion built up on the side of the padlock which serves to close one end of the recess therein.

It will be appreciated that with a normal locking bar comprising a plate extending from the member to be locked having an eye towards the outer end of the plate in the locking position of the preferred embodiment of the padlock described above the shackle and the end of the locking bar itself will be protected by means of the built-up portion of the padlock body closing said one end of the transverse recess in the top thereof. However, attack on the padlock, although hindered by the construction of the padlock body, is still possible since it is possible to lift the padlock from its normal hanging position to rotate it about the axis of that part of the shackle passing through the eye in the locking bar until the underside of the padlock, that is to say, the open end of the transverse recess in the top of the padlock body, is exposed and the portion of the shackle bridging the walls of the recess, where not covered or protected by the locking bars themselves, is potentially open for attack by cropping tools, wedges and the like.

According to the present invention, there is provided a locking bar adapted to cooperate with the shackle of a padlock which locking bar comprises a shackle receiving orifice and an abutment provided on the surface of said bar the arrangement being such that with the padlock secured to the bar by means of a padlock shackle passing through said orifice, the abutment is adapted to engage with the body and/or shackle of the padlock to restrain substantial rotation of said padlock about the orifice in said bar.

The present invention also includes locking means comprising a padlock and one or more locking bars adapted to be secured by said padlock, wherein the padlock comprising a shackle adapted to engage with said bar or bars, a casing adapted to accommodate said shackle in a locking position and provided with a recess adapted to accommodate part of said bar or bars when the shackle is in the locking position, said shackle having a bar engaging portion which with the shackle in the locking position engages with the bar or bars to be locked and wherein the locking bars comprises a shackle receiving orifice and an abutment provided on the surface of said bar, the arrangement being such that in use with the shackle passing through the shackle receiving orifice of the bar or bars and in the locking position with respect to the casing of the padlock, the bar engaging portion of the shackle and the bar or bars engaged thereby is accommodated within said recess and the abutment is adapted to engage the casing and/or shackle of the padlock to restrain substantial rotation of said padlock about the shackle receiving orifice in the bar.

In a particular embodiment of the present invention the recess extends transversely across the shackle receiving portion of the padlock body and the body of the padlock is extended on one side and built up to close the groove on said side the arrangement being such that in the locking attitude the shackle of the padlock is substantially completely accommodated within the padlock body.

A locking bar or bars may each comprise a flat plate tapering towards one end and provided at said one end with an eye or shackle receiving orifice. The said one end of the plate is provided adjacent said eye with a rounded portion which is adapted to pass into the open end of the recess in the padlock, the rounded extremity being adapted to abut the inner surface of the wall closing the recess on the other side of the body of the padlock, the arrangement being such that the padlock shackle is adapted to pass through the eye of each of said bars in order to maintain said bars in a locked relation one to the other. Each bar may be provided forward of the body of the padlock in the locked position with an upstanding abutment, which, on moving the padlock upwardly to abut the upper surface of the padlock, prevents substantial rotational movement of the padlock and prevents the open part of the recess being exposed thereby hindering attack on the shackle with cropping tools, saws and the like.

Following is a description by way of example and with reference to the accompanying drawings of a typical locking bar in accordance with the present invention.

In the drawings:

FIG. 1 is an exploded view of a padlock and locking bar assembly;

FIG. 2 is a side view of the assembly shown in FIG. 1.

A locking bar **10** comprises an elongate steel strip substantially three-tenths inch thick, said strip being angled at **11** towards its center thereof to provide a first portion **12** adapted to be fixed and/or secured to an item to be locked or closed, for instance a door, and the second portion **13** projecting forwardly from said door or other item to be secured to form a tongue having a forward end **14**, a top edge **15** and a bottom edge **16** and flat sides. The tongue **13** is provided with a substantially circular drilling or eye **17** towards the bottom edge **16** at the forward end of the tongue **13**, said eye **17** being adapted to accommodate the curved bar engaging portion **50** of a U-shaped padlock shackle **51**.

The forward end **14** of the tongue **13** is defined by a curved portion **20** extending upwardly from the bottom edge **16**, said curved portion **20** being adapted to be entered into the transverse recess **52** of a cooperating padlock **53**. The curved portion **20** of the tongue **13** defining the junction between the bottom edge **16** and the forward end **14** of the locking bar terminates at a longitudinal plane of the tongue **13**, just upwardly of the uppermost extremity of the shackle receiving eye **17** in a forwardly extending abutment **22** having a downwardly disposed abutment surface **23**. The forward extremity **24** of the abutment **22** extends upwardly from the abutment surface **23** and forms a convexly curved upper edge **25** to terminate in the upper edge **15** of the tongue **13**.

A similar bar **30** is secured to the other element such as a second door or an adjacent door post and in use the two bars are located side by side with eyes arranged to correspond for the passage of the shackle **51** of a padlock of the kind described in copending application Ser. No. 794,250 now U.S. Pat. No. 3,572,064 and with the abutments **22** on each bar forming a substantially continuous surface from one bar to the other.

The padlock shackle **51** is passed through the eyes of the locking bars so that the arcuate portion **50** of the padlock shackle **51**, that is to say, the bar engaging portion thereof bridging the pair of spaced limbs of the shackle, is accommodated within the eye **17** of each bar. With the padlock in the locked position, the flat upper surface **32** of the extended portion **33** of the padlock body **34** is adapted to be disposed near the downwardly disposed abutment surface **22** so that an attempt to move the padlock body **34** arcuately upwardly about the axis of that portion of the shackle **51** passing through the eyes **17** in the locking bars brings the extended portion **33** of the padlock body **34** into abutting relationship with the abutment **22** on the bar to prevent substantial rotation of the padlock and to prevent access to the underside of the padlock containing the open end of the recess **52** therein. In the locked position, the padlock shackle **51** is substantially completely shielded by the built up and extended portion **33**

of the padlock body **34** and by the locking bars themselves and an attempt to move the padlock arcuately upwardly as described above is substantially prevented thus hindering the use of cropping tools and the like to attack the shackle of the padlock from the underside thereof.

It will be appreciated from the foregoing that only one of the locking bars need be provided with an upstanding abutment but for improved security, it is preferred that an abutment be provided on each bar.

We claim:

1. An improved lock construction comprising a main body portion, a top wall portion arranged for introduction of a staple therewithin, front and rear wall portions, a bottom wall portion including a locking mechanism extending internally thereof and actuatable from without, and adapted for releasable interengagement with the staple to maintain said staple in a locking position, said top wall also including a cruciform-shaped depression extending downwardly toward the main body portion and terminating in a perforated shelf area, the cruciform-shaped depression comprising a first area adapted to receive dependent leg portions of the staple and a second area intersecting said first area for entry of perforated locking bars including a portion to be secured to said lock by said staple, said top wall portion including a forwardly projecting stepped portion arranged to extend beyond and overhand a limited area of the front wall, said stepped portion further including a terminus.

2. An improved padlock construction comprising a padlock body including a first body portion having a surface arranged for introduction of a staple therewithin, a second body portion including a locking mechanism extending internally thereof and actuatable from without and adapted for releasable interengagement with the staple to maintain said staple in a locking position, a cruciform depression extending through the surface of said first body portion towards said second body portion, said cruciform depression comprising a first area adapted to receive dependent leg portions of the staple, a second area intersecting said first area for entry of perforated locking bars including a portion to be secured to said padlock by said staple, first shielding portions in outwardly covering relation to opposite ends of said first area, a second shielding portion in covering relation to one end of said second area, said shielding portions forming an uninterrupted protective shield for one end of said second area and for each end of said first area.

3. A padlock as claimed in claim **2**, in which the first body portion is made of laminated plates and the shielding portions are integral parts of said laminated plates.

4. A padlock as claimed in claim **3**, in which the first and second body portions are part of a unitary structure which is not separable during ordinary use of the device.

5. A padlock construction as claimed in claim **2**, in which said shielding portions form a unitary part of said first body portion, and the top surface of said body portion with said shielding portions is a single plane located at a point not substantially lower than the top of said staple when assembled with the padlock body, said top surface being continuous except for the cruciform depression.

6. A padlock construction as claimed in claim **5**, in which said first and second body portions form a unitary structure which cannot be separated in ordinary use of the device.

7. An improved lock construction as claimed in claim **1** wherein the shelf area lies in a plane substantially coextensive with the terminus of said stepped portion.

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