

June 17, 1958

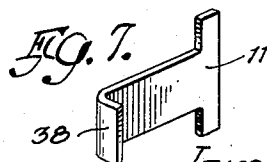
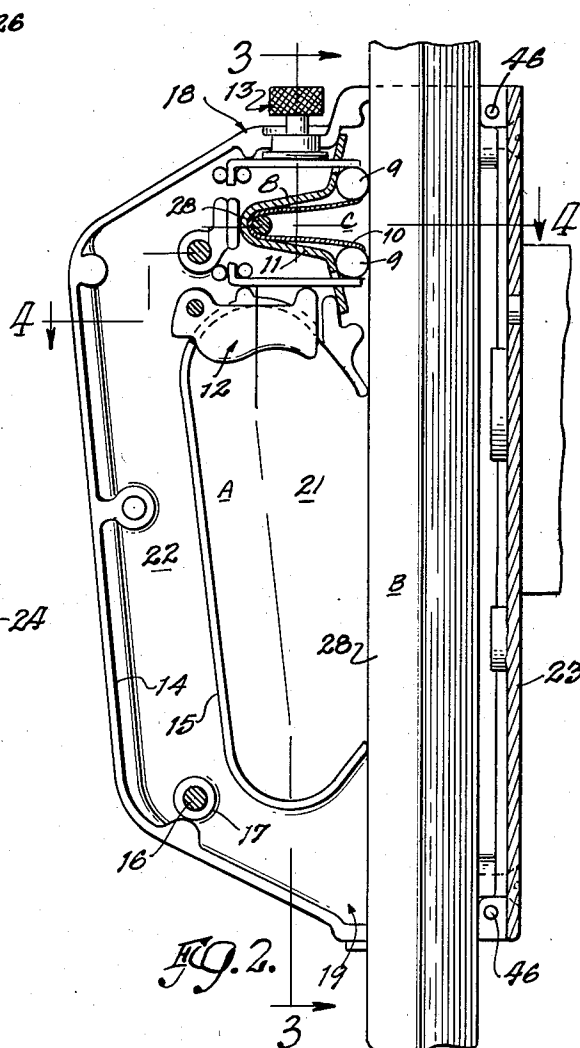
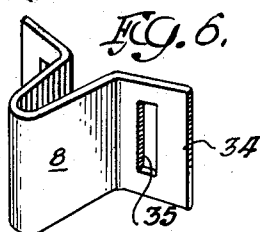
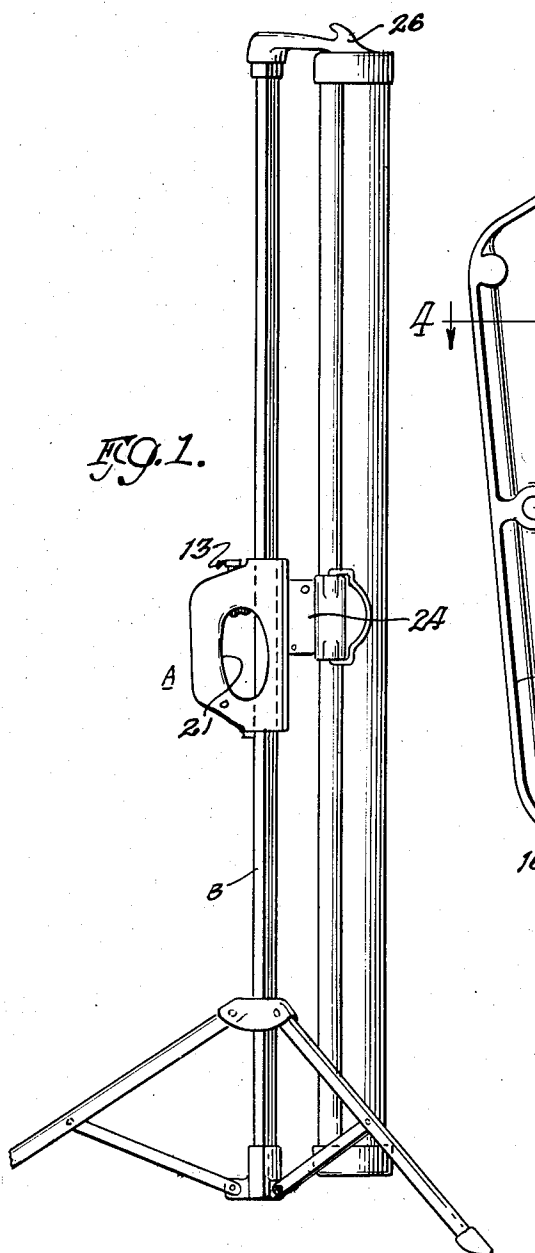
L. E. COOLEY, SR., ET AL

2,838,784

HAND-GRIP LATCH MECHANISM

Filed May 16, 1956

2 Sheets-Sheet 1



Inventors:
 Laurel E. Cooley Sr.
 Laurel E. Cooley Jr.
 Carl O. Plaul

June 17, 1958

L. E. COOLEY, SR., ET AL
HAND-GRIP LATCH MECHANISM

2,838,784

Filed May 16, 1956

2 Sheets-Sheet 2

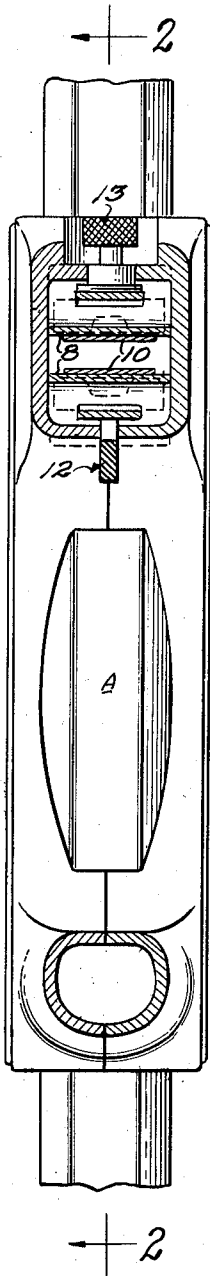


FIG. 3.

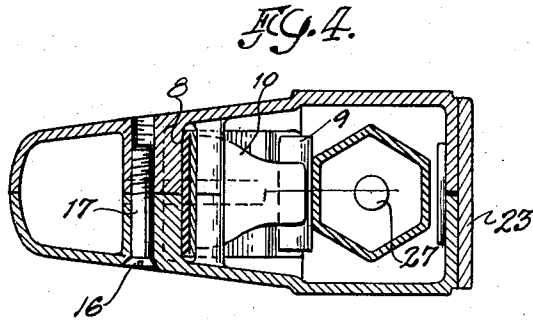


FIG. 4.

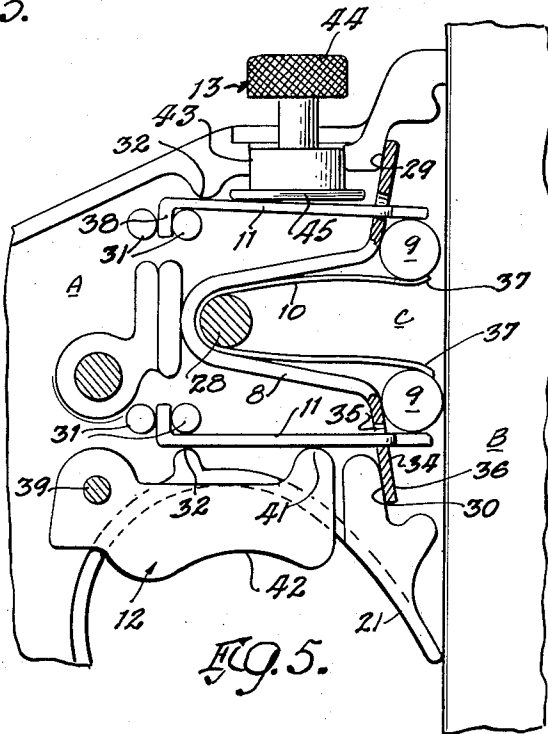


FIG. 5.

Inventors:
Laurel E. Cooley Sr.
Laurel E. Cooley Jr.
Carl O. Plaut

1

2,838,784

HAND-GRIP LATCH MECHANISM

Laurel E. Cooley, Sr., and Laurel E. Cooley, Jr.,
La Grange, and Carl O. Plaul, Chicago, Ill.

Application May 16, 1956, Serial No. 585,286

4 Claims. (Cl. 16—125)

This invention relates to latch mechanism by which a hand-grip may be adjustably positioned on a supporting member.

The main objects of this invention are to provide an improved form of automatic-acting, manually-releasable latch mechanism for adjustably-mounted hand-grips; to provide an improved form of latch mechanism of this kind which permits positioning the hand-grip at any desired place on the supporting member by the simple act of depressing and releasing detents; to provide an improved latch mechanism which is simple in construction, positive and secure in operation, and readily actuatable by fingers of the operator's hand while the hand is firmly grasping the hand-grip; and to provide an improved hand-grip latch mechanism of this kind which is especially suitable for use with portable projection screen equipment.

In the particular adaptation shown in the accompanying drawings:

Figure 1 is a perspective, elevational view of a portable projection screen for special use with which this improved latch mechanism has been designed;

Fig. 2 is an enlarged, vertical, interior view of this improved hand-grip latch mechanism;

Fig. 3 is a transverse, vertical view of the same taken on the plane of the line 3—3 of Fig. 2, the line 2—2 indicating the plane of the view shown in Fig. 2;

Fig. 4 is a transverse, sectional view taken on the plane of the line 4—4 of Fig. 2;

Fig. 5 is a further enlarged view of the latch mechanism;

Fig. 6 is a perspective view of one of the parts of this improved latch mechanism; and

Fig. 7 is a perspective view of another part of the same.

The essential concept of this invention involves a pair of oppositely-actuated wedging elements set in a hand-grip and normally engaging a supporting standard to lock the hand-grip in position thereon, the hand-grip mounting a pair of wedge-retracting detents positioned for finger depression, with the operator's hand in firm grasp of the hand-grip, for shifting the hand-grip on the standard.

A hand-grip A, with the automatic-acting, manually-releasable latch mechanism C, embodying the foregoing concept, is formed for embrave sliding on a supporting member B and within which hand-grip A is arranged a plate 8, wedging rollers 9, a spring 10, levers 11, and detents 12 and 13, comprising the latch mechanism C.

This hand-grip A, as here shown, is a two-piece casting, each piece of C-shape and channelled between perimetrical flanges 14 and 15 along the faces of which flanges the two pieces abut and are held together by screws 16 extending through and into threaded abutting hubs 17. The opposite ends 18 and 19 of the hand-grip A are formed to embrace the mounting member B, and dispose an intermediate part 22 of the hand-grip A outwardly of the mounting member B and thereby form an opening 21 through which the operator's fingers extend when he grasps the hand-grip A for carrying that where-to it is attached or for adjusting the same on the mounting

2

member B. On the side of the mounting B, opposite the opening 21 between the member embracing ends 18 and 19, each hand-grip casting is formed with a flange 23 which abut in the plane of the rims 14 and 15 and to which flanges 23 is connected the equipment wherewith such a hand-grip is to be used. Inwardly adjacent the ends of one of the flanges 23 are formed small pins 46 which fit in apertures adjacent the other flange to position the flanges 23 in proper registration when the two hand-grip pieces are secured together by the screws 16.

The form of the mounting member B depends upon the type of equipment wherewith this improved hand-grip latch mechanism C is to be used. As here shown, the mounting member is a conventional standard for a portable projection screen. The hand-grip A is convenient for either transporting the equipment or for adjusting the position of a screen-housing bracket 24 with respect to a hook 26 on an extension post 27 telescopically arranged within the standard. The standard here is shown of hexagonal cross section, hence presents a flat face 25 against which the latch mechanism C acts to position the hand-grip A.

The latch mechanism C comprises the hereinbefore noted plate 8, rollers 9, spring 10, levers 11, and detents 12 and 13. Forming a functioning part of the latch mechanism are the three triangularly-arranged shoulders 28, 29, and 30, the two pairs of hubs 31 and the contiguous shoulders 32 and the retainer block 33.

The precise form of the plate 8 most clearly is shown in the perspective view of Fig. 6. It is a strip of resilient strap metal bent to nearly approximate a V with the ends 34 oppositely angulated and having rectangular apertures 35 therein. The plate 8 is positioned with the base embracing the annular shoulder 28 inwardly of the retainer block 33 and with the extremities 36 of the angulated ends 34 so abutting the shoulders 29 and 30 as to tension the plate 8 in position with the angulated ends 34 opposed to the face 25 of the mounting member B. So positioned the angulated plate ends 34 and the face 25 of the member B form pockets into which the rollers 9 are wedged by the spring 10.

The spring 10 is a strip of quite resilient metal bent to approximate a U. The spring 10 nests within the plate 8 to embrace the annular shoulder 28 with the arms of the spring 10 extending outwardly along the arms of the plate 8. The extremities 37 of the spring 10 are given a slight curve to conform with the contour of the rollers 9 and insure their retention in the pockets between the angulated plate ends 34 and the face 25 of the mounting member B.

The levers 11, the precise form of which is most clearly shown in Fig. 7, are T-shape with the end 38 of the stem transversely offset. Each lever 11 has the stem part extended through an aperture 35 in one of the angulated ends 34 of the plate 8 and the offset lever end 34 set between a pair of hubs 31 with the adjacent portion of the lever abutting a shoulder 32. This disposes the other or transverse extremity of each lever 11 in contact with a roller 9 in opposition to the contact of the roller with the spring extremity 37.

The detent 12 is a comparatively thin casting or stamping of irregular contour seated in a slot 40 (Fig. 3) on the under side of the hand-grip upper end 18. At its outer end the detent 12 is hinged to a pin 39 so as to locate a lug 41 on the other end of the detent 12 in contact with the underside of the lower lever 11 adjacent the angulated plate end 34. This disposes the arcuate part 42 in position to be contacted by the index finger of an operator's hand embracing the intermediate section 22 of the hand-grip A.

The detent 13 is in the form of a double-headed pin

3

with one head slidably supported in a bore 43 in the upper part of the upper hand-grip end 18 about midway between the ends of the upper lever 11. The detent 13 has a knurled head 44 on its upper end and is prevented from axial displacement outwardly of the bore 43 by a rim 45. Thus positioned, the detent 13 is convenient for depression by the thumb of the operator's hand embracing the intermediate section 22 of the hand-grip A.

Half of each of the shoulders 28, 29, and 30, the pairs of hubs 31, the shoulders 32, the retainer block 33 and the bore 43 are integral internal parts of each of the two hand-grip castings. Therefore it is possible to insert the plate 8, spring 10, and levers 11 and detents 12 and 13 into position in one casting, as shown in Figs. 3 and 5. Upon superimposing the other casting on the first one, these several internal parts may be pressed around and/or in between these shoulders, hubs and parts on the other casting. With the screws 16 in place all parts of the hand-grip A are locked together.

The operation of this improved hand-grip latch mechanism C is as follows:

Once the hand-grip A is completely assembled and placed on a mounting member B, the spring extremities 37 press the respective rollers 9 into contact with the opposed faces of the angulated plate ends 34 and the face 25 of the mounting member B. Any attempt to shift the hand-grip A on the member B, in either direction, will be resisted by the even firmer wedging of the rollers 9 between these respective parts.

However, when it is necessary to change the position of the hand-grip A on the member B, it is only necessary to depress one or the other of the detents 12 or 13. Depressing such detents actuates the respective lever 11 to shift the corresponding roller 9 against the action of the spring 10 and thus move the roller out of position to be wedged in between these angular faces, when the hand-grip A is to be moved in the direction of the depressed detent 12 or 13. Of course, depressing both detents 12 and 13 at the same time will permit a free movement of the hand-grip A in either direction on the mounting member B. Releasing either or both detents 12 and 13 restores the latch mechanism C to its latching relationship and prevents any movement of the hand-grip in either direction on the member B.

It is to be noted that these detents 12 and 13 are so positioned on the hand-grip A that either or both may be depressed when the operator's hand is firmly grasping the intermediate section 22 of the hand-grip A. With the hand in such grasping position, the detent 12 may be depressed by a slight contact of the index finger and the detent 13 may be depressed by a slight action of the thumb. Thus the operator always has a sure control of whatever object is attached to the hand-grip A, even when he is depressing a detent to permit shifting of the hand-grip on the mounting member.

It is to be understood that details of the construction shown may be altered or omitted without departing from the spirit of the invention as defined by the following claims.

We claim:

1. A C-shaped hand-grip having the ends embracively slidable on a mounting member with the intermediate part of the hand-grip in spaced relationship to the mounting member to provide an opening between the mounting member and the intermediate part of the hand-grip for the fingers of an operator's hand, a pair of shoulders integral with the hand-grip on the interior of one end and spaced apart longitudinally of and adjacently opposed to the mounting member, a third shoulder on the interior of the hand-grip located at a point intermediate the pair of shoulders and more remote from the mounting members, a V-shaped resilient plate the ends of which are oppositely angulated, the plate being positioned in the hand-grip with the base of the V embracing the third shoulder and the angulated ends abutting the respective

4

shoulders to dispose the ends at opposite angles to the opposed face and in longitudinally-spaced relationship to the mounting member to provide oppositely-disposed wedge-shaped gaps between the angulated plate ends and the opposed mounting member, a pair of levers pivoted within the hand-grip adjacent the third shoulder on opposite sides thereof longitudinally of the mounting member and extending toward the mounting member beyond the angulated plate ends to partially span the space between the angulated plate ends and the mounting member, a cylindrical roller interposed between each angulated plate end and seated on the ends of the respective levers with their axes radially normal to the mounting member, a spring interposed between and contacting the pair of rollers to hold the rollers on the lever ends and into wedging contact between the angulated ends and the mounting member, and manually-actuable detents located on the hand-grip adjacent the levers for selectively depressing the respective levers to retract the respective rollers from wedging relationship between the angulated plate ends and the mounting member to permit opposite shifting of the hand-grip along the mounting member.

2. A C-shaped hand-grip having the ends embracively slidable on a mounting member with the intermediate part of the hand-grip in spaced relationship to the mounting member to provide an opening between the mounting member and the intermediate part of the hand-grip for the fingers of an operator's hand, a pair of shoulders integral with the hand-grip on the interior of one end and spaced apart longitudinally of and adjacently opposed to the mounting member, a third shoulder on the interior of the hand-grip located at a point intermediate the pair of shoulders and more remote from the mounting members, a V-shaped resilient plate the ends of which are oppositely angulated, the plate being positioned in the hand-grip with the base of the V embracing the third shoulder and the angulated ends abutting the respective shoulders to dispose the ends at opposite angles to the opposed face of and in longitudinally-spaced relationship to the mounting member to provide oppositely-disposed wedge-shaped gaps between the angulated plate ends and the opposed mounting member, a pair of levers pivoted within the hand-grip adjacent the third shoulder on opposite sides thereof longitudinally of the mounting member and extending toward the mounting member beyond the angulated plate ends to partially span the space between the angulated plate ends and the mounting member, a cylindrical roller interposed between each angulated plate end and seated on the ends of the respective levers with their axes radially normal to the mounting member, a U-shaped leaf spring fixed at its base to the hand-grip inwardly of the U-shaped plate with the free ends of the spring contacting the respective rollers in opposition to the lever ends to hold the respective rollers on the lever ends and into wedging contact between the angulated ends and the mounting member, and manually-actuable detents located on the hand-grip adjacent the levers for selectively depressing the respective levers to retract the respective rollers from wedging relationship between the angulated plate ends and the mounting member to permit opposite shifting of the hand-grip along the mounting member.

3. A C-shaped hand-grip having the ends embracively slidable on a mounting member with the intermediate part of the hand-grip in spaced relationship to the mounting member to provide an opening between the mounting member and the intermediate part of the hand-grip for the fingers of an operator's hand, a pair of shoulders integral with the hand-grip on the interior of one end and spaced apart longitudinally of and adjacently opposed to the mounting member, a third shoulder on the interior of the hand-grip located at a point intermediate the pair of shoulders and more remote from the mounting members, a V-shaped resilient plate the ends of which are oppositely angulated, the plate being positioned in the hand-grip with the base of the V embracing the third shoulder

5

and the angulated ends abutting the respective shoulders to dispose the ends at opposite angles to the opposed face of and in longitudinally-spaced relationship to the mounting member to provide oppositely-disposed wedge-shaped gaps between the angulated plate ends and the opposed mounting member, the angulated ends of the V-shaped member having transverse elongated apertures therein, a pair of levers pivoted within the hand-grip adjacent the third shoulder on opposite sides thereof longitudinally of the mounting member, the levers extending toward the mounting member with the ends protruding through the apertures in the respective angulated plate ends and partially spanning the space between the angulated plate ends and the mounting member, a cylindrical roller interposed between the mounting member and each angulated plate end and seated on the ends of the respective levers with their axes radially normal to the mounting member, a U-shaped leaf-spring having the base thereof embracing the third shoulder inwardly of the plate and with the free ends of the spring contacting the respective rollers in opposition to the lever ends to normally hold the respective rollers on the respective lever ends and into wedging contact between the angulated plate ends and the mounting member, and finger-depressible detents arranged on the inner and outer parts of the one end of the hand-grip in contact with the respective levers whereby the selective depression of the detents retracts the respective rollers to permit shifting of the hand-grip in opposite directions along the mounting member.

4. A C-shaped hand-grip having the ends embracively slidable on a mounting member with the intermediate part of the hand-grip in spaced relationship to the mounting member to provide an opening between the mounting member and the intermediate part of the hand-grip for the fingers of an operator's hand, a pair of shoulders integral with the hand-grip on the interior of one end and spaced apart longitudinally of and adjacently opposed to the mounting member, a third shoulder on the interior of the hand-grip located at a point intermediate the pair of shoulders and more remote from the mounting member, a V-shaped resilient plate the ends of which are oppositely angulated, the plate being positioned in the hand-grip with the base of the V embracing the third shoulder and the angulated ends abutting the respective shoulders to dispose the ends at opposite angles to the opposed face of and in longitudinally-spaced relationship to the

6

mounting member to provide oppositely-disposed wedge-shaped gaps between the angulated plate ends and the opposed mounting member, the angulated ends of the V-shaped member having transverse elongated apertures therein, a pair of levers pivoted within the hand-grip adjacent the third shoulder on opposite sides thereof longitudinally of the mounting member, the levers extending toward the mounting member with the ends protruding through the apertures in the respective angulated plate ends and partially spanning the space between the angulated plate ends and the mounting member, a cylindrical roller interposed between the mounting member and each angulated plate end and seated on the ends of the respective levers with their axes radially normal to the mounting member, a U-shaped leaf-spring having the base thereof embracing the third shoulder inwardly of the plate and with the free ends of the spring contacting the respective rollers in opposition to the lever ends to normally hold the respective rollers on the respective lever ends and into wedging contact between the angulated plate ends and the mounting member, a detent pivoted on the inner part of one hand-grip end contiguous to the respective lever and having the free end of the detent disposed to contact the lever adjacent the angulated plate ends in opposition to the U-shaped spring, the detent being depressible by contact of the index finger of the hand embracing the hand-grip, and a second detent shiftably mounted on the outer part of the one hand-grip end to engage the other lever intermediate the lever ends in opposition to the U-shaped spring, the second detent being depressible by the thumb on the hand embracing the hand-grip, the depression of either or both detents retracting the respective rollers to permit movement of the hand-grip along the mounting member.

References Cited in the file of this patent

UNITED STATES PATENTS

313,896	Stickney	Mar. 17, 1885
546,380	Colton	Sept. 17, 1895
620,199	Van Ruzin	Feb. 28, 1899
1,101,552	Hume	June 30, 1914
2,370,235	Du Mais	Feb. 27, 1945
2,591,685	Du Mais	Apr. 8, 1952

FOREIGN PATENTS

568,281	Germany	Jan. 17, 1933
---------	---------	---------------