April 15, 1958 G. J. FERGUSON 2,830,839

EMERGENCY HASP RELEASE

Filed March 25, 1954 2 Sheets-Sheet 1

Fig. 1.

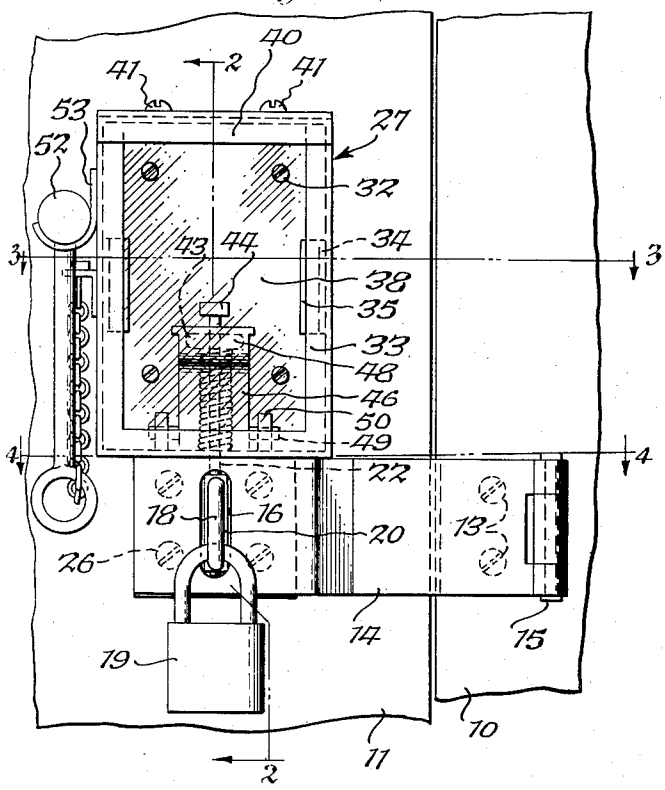


Fig. 2.

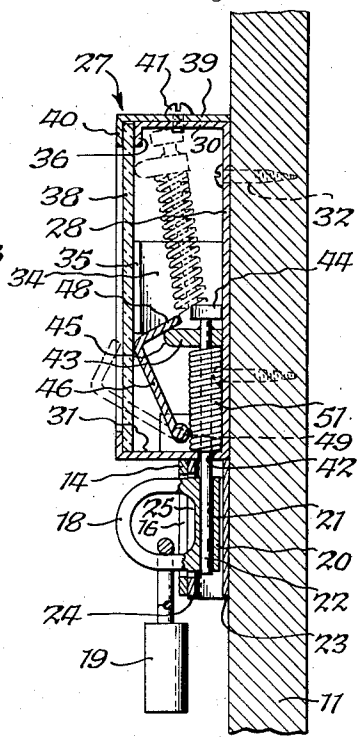


Fig. 3.

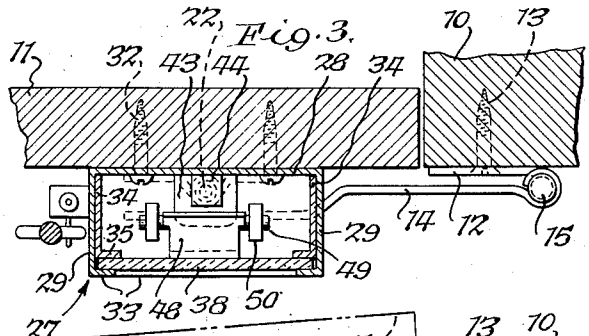


Fig. 5.

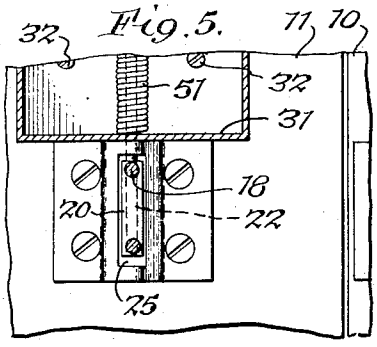
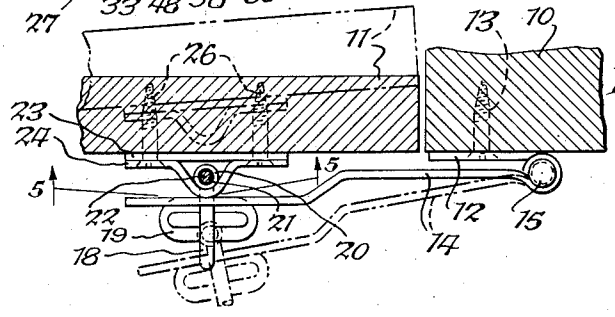


Fig. 4.



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Fig. 6.

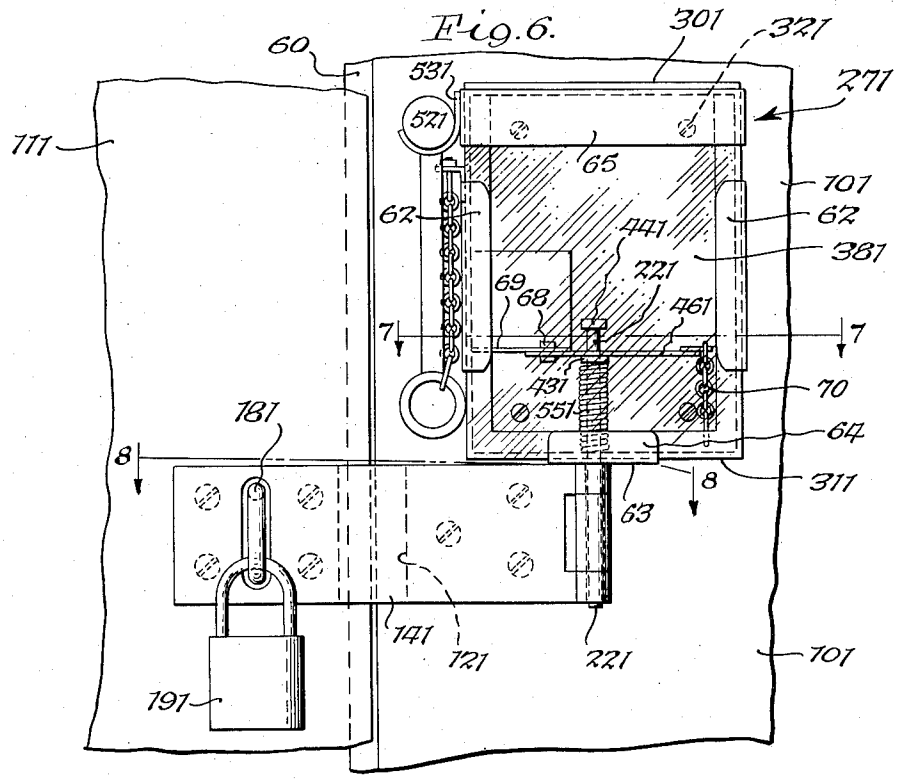


Fig. 7.

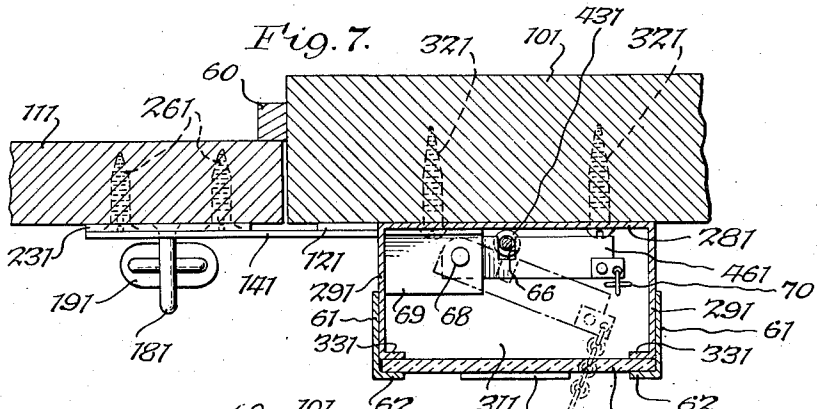
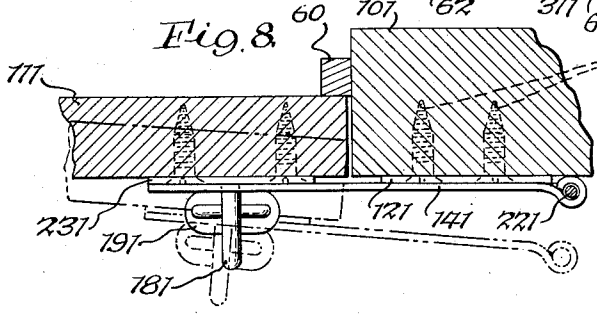


Fig. 8.



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EMERGENCY HASP RELEASE

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5 Claims. (Cl. 292—281)

This invention relates to an improved construction of hasp which permits the same to be released rapidly at will; and is especially intended for release under emergency conditions; for example, to permit escape of personnel from the interior of a building through a normally locked doorway or to permit the entrance to a normally locked room where some condition obtains therewithin which requires immediate attention.

The primary object of the invention is to provide a hasp type fastening for a door by which the door may be normally maintained locked but which fastening may be quickly released or disconnected to permit the door to be opened without use of a key.

Another object is to provide such a door fastening which is of such construction as to discourage employment of its quick release feature except under emergency conditions.

A further object is to provide such a fastening which is adaptable either to swinging or sliding doors.

Still further objects are to provide such a hasp which is simple in construction, inexpensive to manufacture and can be reset once released by the replacement of an expendable part.

Other objects and advantages will be apparent from the following description and drawings in which:

Fig. 1 is an elevational front view of a hasp embodying the preferred form of my invention and showing the same mounted on a door and frame which are fragmentarily illustrated.

Fig. 2 is a vertical sectional view thereof and taken on line 2—2, Fig. 1.

Fig. 3 is a horizontal sectional view thereof and taken on line 3—3, Fig. 1.

Fig. 4 is another horizontal sectional view thereof and taken on line 4—4, Fig. 1, and also showing by broken lines possible movement of the hasp strap and the door.

Fig. 5 is a vertical sectional view thereof and taken on line 5—5, Fig. 4.

Fig. 6 is an elevational front view of a hasp embodying a modified form of my invention and showing the same mounted on a door and frame which are fragmentarily illustrated.

Fig. 7 is a horizontal sectional view thereof and taken on line 7—7, Fig. 6.

Fig. 8 is another horizontal sectional view thereof and taken on line 8—8, Fig. 6.

Referring to the preferred form of my invention illustrated in Figs. 1–5, the numeral 10 represents a wall or frame of a building which has an opening therein normally closed by a door 11. The mode of supporting this door is unnecessary to a disclosure of the present invention and hence is not illustrated or described. The door 11 may be arranged either to slide or swing relative to the wall 10, a swinging door being illustrated in connection with Fig. 4 to be described later herein.

On this door and wall are mounted a hasp type fastening comprising a hinge plate 12 shown as attached to the wall by the screws 13, and a locking strap 14 hinged

at one end to the plate 12 to turn about the axis of the vertical hinge pin 15. The other end of the strap 14 overlies the door 11 and is provided with a vertically extending slot 16 which receives a ring 18 which projects sufficiently through this slot as shown in Fig. 2 to permit any suitable type of lock as represented by the numeral 19 to be applied in the conventional manner. The lock 19 requires a key to open the same.

The inner side of the ring 18 is formed to provide a tubular part 20 having a vertical hole 21 in which a releasable locking pin 22 is normally arranged. The tubular portion 20 of the ring 18 is arranged between a base plate 23 and a covering retainer plate 24, the latter being shown as having a vertically elongated slot 25 through which the sides of the ring 18 adjacent its tubular part extend. The central portion of the retainer plate 24 is shown as being offset outwardly to accommodate the hub or tubular portion 20 of the ring 18. The end portion of the strap 14 is preferably outwardly offset as shown. The slots 25 and 16 in the retainer plate 24 and strap 14 respectively are shown as being of the same size and in registry with each other and are large enough to permit the passage therethrough of the tubular part 20 of the ring 18. The plates 23 and 24 are shown as held to each other and to the door 11 by means of the screws 26 which pass through registered holes in these plates.

It is to be noted that when the locking pin 22 is arranged in the bore 21 of the tubular part 20 of the ring 18, this pin serves to secure this ring to the plates 23 and 24 which in turn are secured to the door 11 by the screws 26. With the locking pin 22 in its operative position described any attempt to pull the ring 18 away from the plates 23 and 24 is prevented by this pin striking against the inside surface of the web of metal of the retainer plate 24 extending across the top of the slot 25 therein, and this same effect can be produced below this slot also if the locking pin 22 is long enough to overlap the web of metal of the plate 24 below this slot.

Further in accordance with my invention, a quick release mechanism is associated with the locking pin 22 and is operative to withdraw this pin completely from the bore 21 of the tubular part 20 of the ring 18. This mechanism in its preferred form is illustrated in Figs. 1–5 and is shown as housed within a box mounted on the door 11 above the locking pin 22, the box being indicated generally at 27.

This box 27 may be variously constructed but is shown as having rear, side, top and bottom walls 28, 29—29, 30 and 31, respectively. Screws 32 passing through holes in the rear wall 28 and screwed into the door 11 serve to mount the box on the door. The forward marginal portions of the side and bottom walls 29 and 31 respectively are shown as inturned to provide a flange 33 running along the front face of the vertical sides and bottom. An L-shaped angle member 34 is shown as arranged on the inner surface of each side wall 29 and is so disposed that its short flange 35 is spaced rearwardly from the inner surface of the outer box flange 33. The angle members 34 may be spot welded or otherwise suitably secured in the position shown which is approximately midway of the height of the side walls 29. The top wall 30 has a down turned flange 36 coplanar with the flanges 35, and the opposing surfaces between these flanges and the box front flange 33 provides a guideway for a frangible panel 38 such as a glass pane. This panel 38 is inserted from the top of the box and when in the position shown in the drawings whereby the front of the box is closed by this panel, the same is held in such position by an L-shaped plate 39 which lies on top of the top wall 30 and has a depending flange 40 lying in the same

plane as the box front flange 33. The plate is removably secured to the top wall by the screws 41.

The locking pin 22 is elongated vertically and extends upwardly through an enlarged hole 42 in the bottom wall 31 of the box 27. Adjacent its upper end the pin 22 carries a lug 43 which projects forwardly toward the front of the box and is shown in the form of a plate through which the upper end of the pin 22 projects, this pin being welded to the lug plate 43. The upper extremity of the pin 22 is enlarged to provide a head 44 which is solely for the purpose of facilitating resetting of the release mechanism as explained later herein. The rear side of the lug plate 43 is shown as flat and in the cocked position of the locking pin 22, this rear side engages the front face of the rear wall 28 as shown by full lines in Fig. 2. The front side of the lug plate 43 is preferably convexly outwardly rounded as shown at 45 to provide a cam surface.

The lug 43 cooperates with a releasable keeper 46 to hold the locking pin in the cocked position shown in full lines in Fig. 2. For this purpose the keeper 46 is in the form of an L-shaped plate having a rearwardly turned finger 48 which extends upwardly and over the rounded front side 45 of the lug plate 43 and engages the upper portion of this rounded side. Thus the lower face of the finger 48 provides a cam surface which engages the cam surface 45 on the pin 22. The lower end of the keeper 46 has a hinged connection to the bottom wall 31 of the box 27 so as to be rotatable about an axis extending generally parallel to the plane of the frangible panel 38. The hinged mounting of the keeper 46 may be variously provided but as shown a trunnion pin 49 extends laterally from each side of the keeper at its lower end and is received in a trunnion block 50 suitably fixedly mounted on the bottom wall 31.

A helical compression spring 51 is shown as surrounding the intermediate portion of the locking pin 22. The upper end of this spring bears against the bottom of the lug plate 43 and may be permanently connected thereto if desired. The lower end of the spring 51 bears against the upper surface of the bottom wall 31 of the box 27.

In the full line position of this spring 51 shown in Fig. 2, it is in a compressed condition and by reason thereof urges upwardly the lug plate 43 and locking pin 22 attached thereto. The lug 43 in turn transmits a force to the finger 48 of the keeper 46 and urges the same to rotate about the axis of its trunnions in a counterclockwise direction as viewed in Fig. 2. However, rotation of the keeper 46 is prevented by engagement of the same at its forwardly projecting corner with the inside face of the frangible panel 38.

In this manner, the lower portion of the locking pin 22 is retained within the tubular portion 20 of the ring 18, as long as the frangible panel 38 is intact. However, when this panel 38 is broken, as by striking the same with the mallet 52 which is shown as removably hung on a bracket 53 provided on the side of the box 27 for convenience, the restraint on swinging of the keeper 46 is eliminated. In this situation the upward force exerted by the lug 43 against the keeper 46 operates to cam and swing the keeper out of the way and free the locking pin 22 which is thereupon rapidly upwardly ejected from interlocking engagement with the ring 18 and moves fully into the box 27 and may assume the position illustrated by broken lines in Fig. 2. When the locking pin 22 and ring 18 are so disengaged, the latter is free to move out through the registered openings 16 and 25 in the hasp strap 14 and retainer plate 24 respectively.

It will be noted that release of the locking pin 22 as above described permits the door 11 to be swung in either direction about the vertical axis of its hinges (not shown). Referring to Fig. 4, the door may be swung upwardly as illustrated by the upper broken lines in this figure, and may also be swung downwardly which would push the

strap 14 to swing about its hinge pin 15 out of the way as illustrated by the lower broken lines in this figure.

It will also be noted that the door is free to swing either way if the mounting of the hasp is reversed so that the box 27 is mounted on the stationary frame 10 and the hasp hinge plate 12 is fastened to the door 11. The particular type of mounting is a matter of preference.

In order to reset the quick release mechanism, the cover plate 39 is removed, the ring 18 is reinserted through the slots 16 and 25 so that its tubular part 20 is in proper position again to receive the locking pin 22 whereupon this pin is manually inserted from the interior of the box 27 through the hole 42 and into the bore 21 of the tubular part. The pin 22 is pressed down compressing the spring 51 and when the lug 43 is sufficiently low the keeper 46 is swung up until its finger 48 overlies this lug. Holding the keeper 46 in this position, a new frangible panel 38 is slid into the box from above, passing in front of the keeper which may thereupon be released to bear against the new panel. Finally, the cover plate 39 is reapplied and held by the screws 41.

In the modification of my invention illustrated in Figs. 6–8, the quick release mechanism is not operated automatically by the mere breaking of the frangible panel 38, as in the case of the form shown in Figs. 1–5, but requires a second manual operation of pulling a keeper so as to free the locking pin.

It will also be noted that the locking pin 221 is now at a different place on the hasp, being now the hinge pin which connects the strap 141 to the hinge plate 121. The ring 181 is now secured to a base plate 231 in any suitable manner such as employed in the conventional hasp construction. The base plate 231 is shown as secured to the door 111 by screws 261 and the hinge plate 121 is fastened to the frame 101 by the screws 131. The door 111 is shown as closed against a stop 69 fixed to the stationary frame 101. A lock 191 is shown as fastened to the ring 181.

The box 271 is shown as constructed differently from the box 27. The box 271 has rear, side, top and bottom walls 281, 291—291, 301 and 311, respectively. The rear wall 281 is mounted on the frame 101 by the screws 321. The forward marginal portions of the side and bottom walls 291 and 311 respectively are shown as inturned to provide a flange 331 running along the front face of the vertical sides and bottom. In order to provide a guideway for the insertion of the frangible panel or glass pane 381 and to retain the same on the front of the box 271, the side walls 291 are each shown as having fast thereto intermediate its height an L-shaped retainer 61 having an inturned flange 62. A similar L-shaped retainer 63 with inturned flange 64 is provided on the bottom wall 311. A U-shaped retainer strap 65 is shown as embracing the front upper portion of the box 271, its rearwardly extending arms overlying the side walls 291 and being suitably secured thereto. The web of this retainer strap 65 and the flanges 62 and 64 lie in a common vertical plane.

The upper extremity of locking pin 221 is shown as formed with an enlarged head 441 and slightly below this head is a collar 431 fast to the pin and which serves as a lug. Surrounding the locking pin 221 between this lug 431 and the bottom wall 311 of the box is a helical compression spring 551. This spring 551 urges the locking pin 221 upwardly. Such upward movement is prevented by a keeper 461 which is in the form of a horizontal flat plate having a notch 66 which is adapted to receive the shank portion of the locking pin and engage the upper surface of the collar or lug 431 thereon, as shown by full lines in Fig. 7. One end of the keeper 461 is pivoted as at 68 to a bracket 69 which is suitably fixedly secured to the rear wall 281 of the box 271. The opposite and free end of the keeper 461 is shown as carrying a short length of chain 70 which serves as a pull.

In using the modified device shown in Figs. 6–8 to release the locking pin **221**, the frangible panel **381** is broken, as by striking the same with the mallet **521** normally hung on the bracket **531** on one side of the box **271**. Following breaking of the panel **381**, the operator reaches into the interior of the box and grasping the chain **70**, pulls the keeper **461** forwardly, or in a clockwise direction as viewed in Fig. 7, until the keeper and lug **431** on the locking pin are completely disengaged. The locking pin **221** then is quickly moved upwardly by expansion of the spring **551** and this operates to withdraw the lower portion of this pin from engagement with the strap **141** and hinge plate **121** of the hasp, thereby breaking the fastening between the door **111** and frame **101**. The door is then free to be swung away from its stop **60**, carrying with it the disconnected hasp strap **141**, as illustrated by broken lines in Fig. 8.

When it is desired to reset the quick release mechanism shown in Figs. 6–8, the hinge bearings of the hasp strap **141** and hinge plate **121** are realined and the lower and hinge portion of the locking pin **221** is passed downwardly into the bearings from the interior of the box. This pin is pressed down far enough, against the urging of the release spring **551**, so that the keeper **461** can be returned to its operative position shown by full lines in Fig. 7. Following this a new frangible panel **381** is slid down across the front of the box **271** in the guideways between the flanges **331** and **62**.

Referring to Figs. 6 and 7, if the door **111** were designed to swing in the other direction from that shown, the mounting of the hasp and its quick release mechanism could be reversed. That is, the hinge plate **121** would be fastened to the door **111** and the ring base **231** would be fastened to the frame **101**.

From the foregoing it will be seen that the present invention provides a hasp with a quick release mechanism for use where the hasp is normally kept locked by means which require a key to open the same, but which, under emergency conditions, permits anyone to operate the quick release mechanism to disconnect members of the hasp and thereby permit the door which is normally secured by the hasp to be opened.

I claim:

1. In an emergency hasp release device, a hasp strap, a retainer plate having a slot therein, a ring extending through said slot and adapted to have fastened thereto said hasp strap, said ring having a tubular part arranged behind said retainer plate and adapted to pass through said slot, a locking pin having a portion normally arranged in said tubular part and cooperable with the body of said retainer plate to prevent withdrawal of said tubular part through said slot, a box having a frangible cover housing another portion of said locking pin, and releasable means arranged within said box to hold said locking pin in said tubular part said means being operative to withdraw said locking pin from said tubular part and free said ring for withdrawal through said slot when said frangible cover is broken.

2. In an emergency hasp release device, a hasp strap, a first member having an opening, a second member having an opening and a ring to which said hasp strap is adapted to be fastened, a locking pin having a portion normally arranged in said openings and serving to secure said members together, a box housing another portion of said locking pin and having a frangible cover, and releasable means arranged within said box to hold said locking pin in its aforementioned securing position, said means

being operative to withdraw said portion first mentioned of said locking pin from said openings whereby said members are disconnected when said frangible cover is broken.

3. An emergency lock release for members normally secured together, comprising a box arranged adjacent said members and having a frangible panel, a releasable locking pin normally securing said members together and extending into said box, spring means arranged within said box urging said pin in a releasing direction, a movable keeper arranged within said box between said panel and pin and adapted for movement directed either toward said panel and away from said pin or toward said pin and away from said panel, said keeper bearing against said panel, and means providing a cam engagement between said keeper and pin to maintain said pin in the aforementioned securing position while said keeper bears against said panel but adapted to cam said keeper away from said pin by movement of said pin in said releasing direction upon removal of the obstruction afforded by said panel to movement of said keeper, whereby upon breaking said panel said pin moves under the urging of said spring means to cam said keeper out of locking engagement with said pin thereby releasing said pin.

4. An emergency lock release for members normally secured together, comprising a box arranged adjacent said members and having a frangible panel, a releasable locking pin normally securing said members together and extending into said box, spring means arranged within said box urging said pin in a releasing direction, a movable keeper arranged within said box and bearing against said panel and having a cam surface, and another cam surface on said pin and engaging said keeper cam surface to maintain said pin in the aforementioned securing position, said cam surfaces being constructed and arranged to cam said keeper away from said pin upon movement of said pin in said releasing direction, whereby upon breaking said panel the obstruction to movement of said keeper is removed and said pin moves under the urging of said spring means to cam said keeper out of locking engagement with said pin thereby releasing said pin.

5. An emergency lock release for members normally secured together, comprising a box arranged adjacent said members and having a frangible panel, a releasable locking pin arranged partially within said box and having an end portion extending outwardly therefrom for securing said members together, spring means arranged within said box to urge said pin to move so as to retract its said end portion from its aforementioned securing position, a pivoted keeper arranged within said box and bearing against said panel, and means providing a cam engagement between said keeper and pin to maintain said pin with its said end portion in said securing position while said keeper bears against said panel but adapted to cam said keeper away from said pin by movement of said pin in a retracting direction upon removal of the obstruction afforded by said panel to movement of said keeper, whereby upon breaking said panel said pin moves under the urging of said spring means to swing said keeper out of locking engagement with said pin thereby releasing said pin to retract said end portion thereof.

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