May 26, 1959 M. RIGAUD 2,888,288

LOCKING DEVICE

Filed Dec. 19, 1956 5 Sheets-Sheet 1

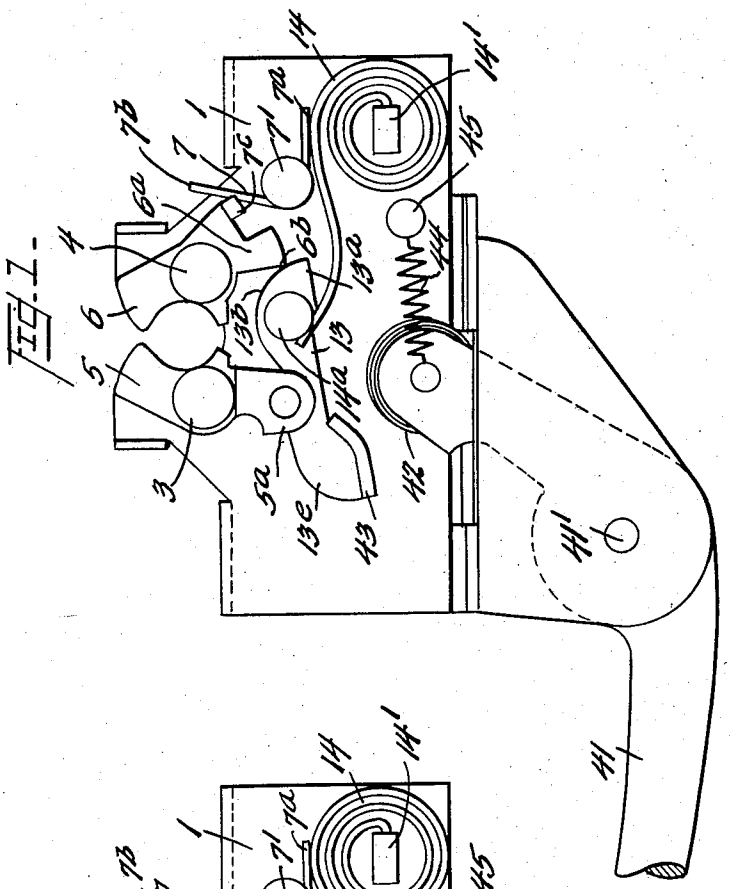


FIG. 1

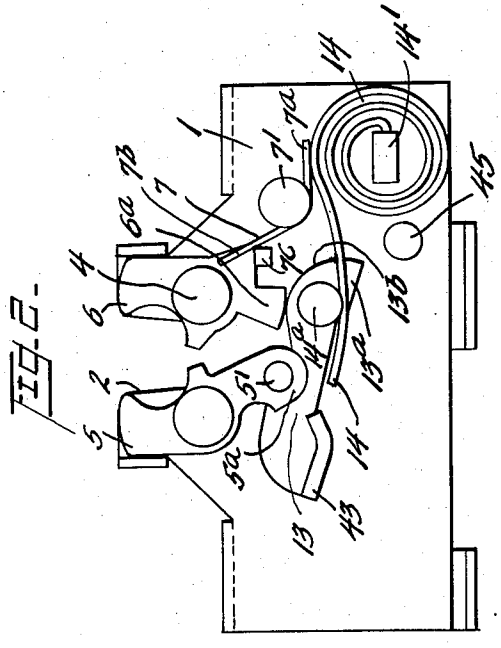


FIG. 2

INVENTOR
Maurice Rigaud

BY Watson, Cole, Grindle & Watson

ATTORNEYS

May 26, 1959 M. RIGAUD 2,888,288

LOCKING DEVICE

Filed Dec. 19, 1956 5 Sheets-Sheet 2

FIG. 4.

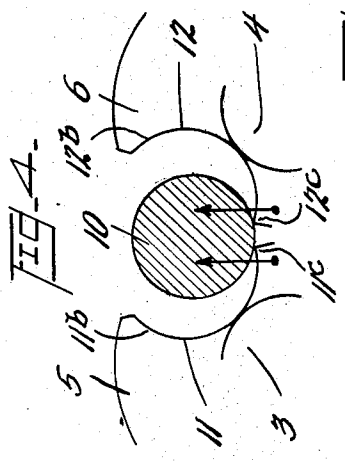


FIG. 5.

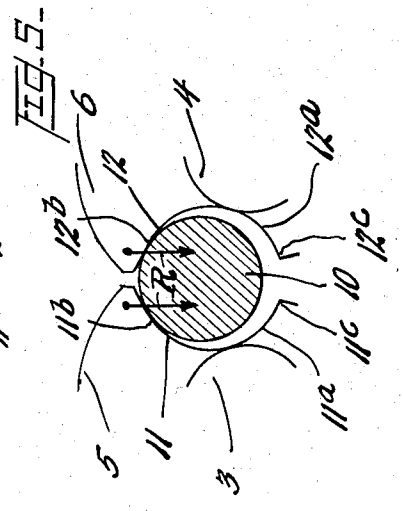
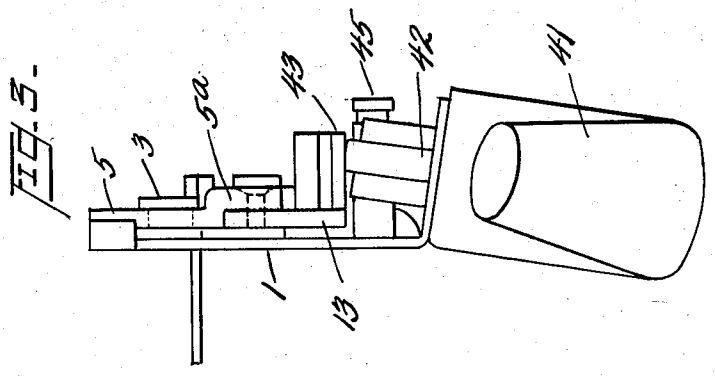


FIG. 3.



INVENTOR

Maurice Rigaud

BY Watson, Cole, Grindle + Watson

ATTORNEYS

May 26, 1959 M. RIGAUD 2,888,288

LOCKING DEVICE

Filed Dec. 19, 1956 5 Sheets-Sheet 3

FIG. 6

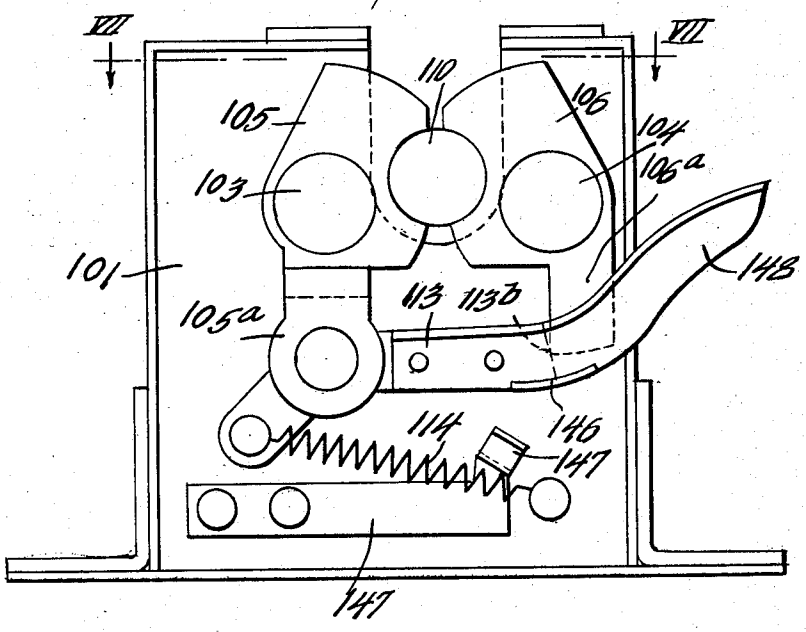
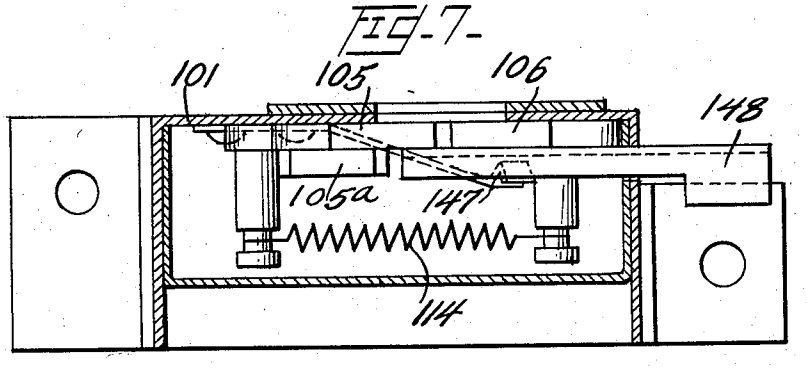


FIG. 7



INVENTOR

Maurice Rigaud

BY Watson, Cole, Grindle & Watson

ATTORNEYS

May 26, 1959 M. RIGAUD 2,888,288

LOCKING DEVICE

Filed Dec. 19, 1956 5 Sheets-Sheet 4

FIG. 9.

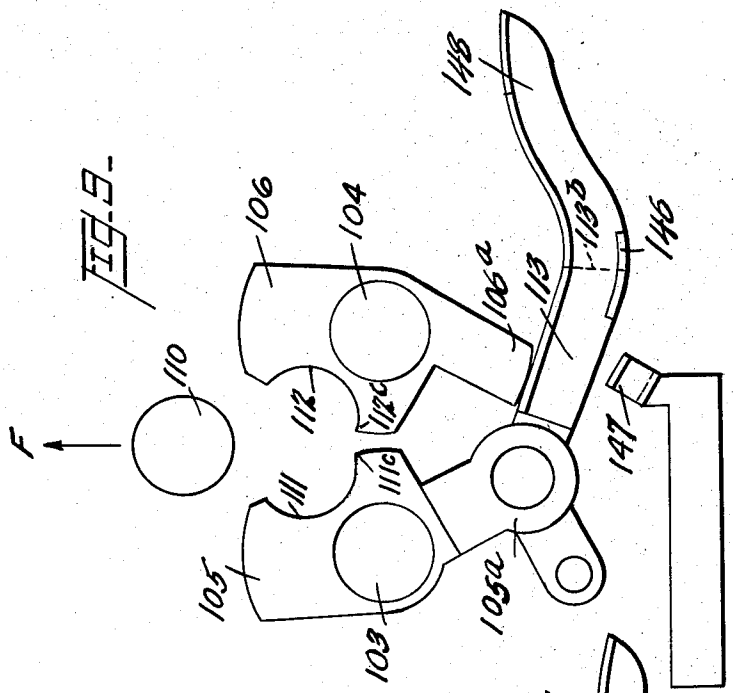
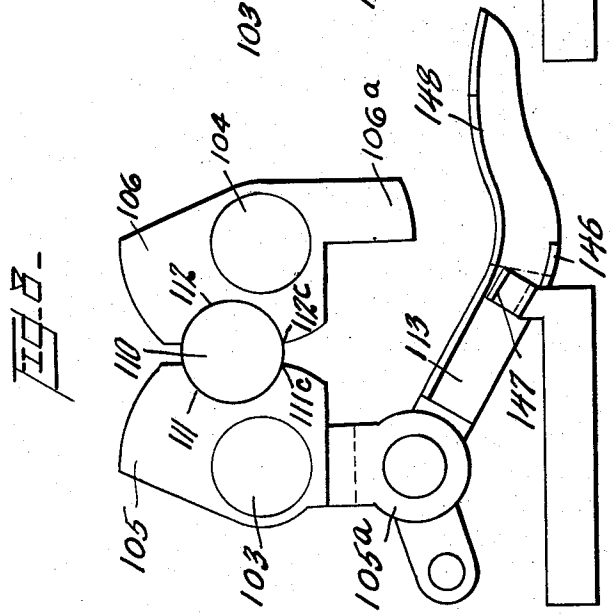


FIG. 8.



INVENTOR

Maurice Rigaud

BY Watson, Cole, Grindle & Watson

ATTORNEYS

May 26, 1959 M. RIGAUD 2,888,288

LOCKING DEVICE

Filed Dec. 19, 1956 5 Sheets-Sheet 5

FIG. 10.

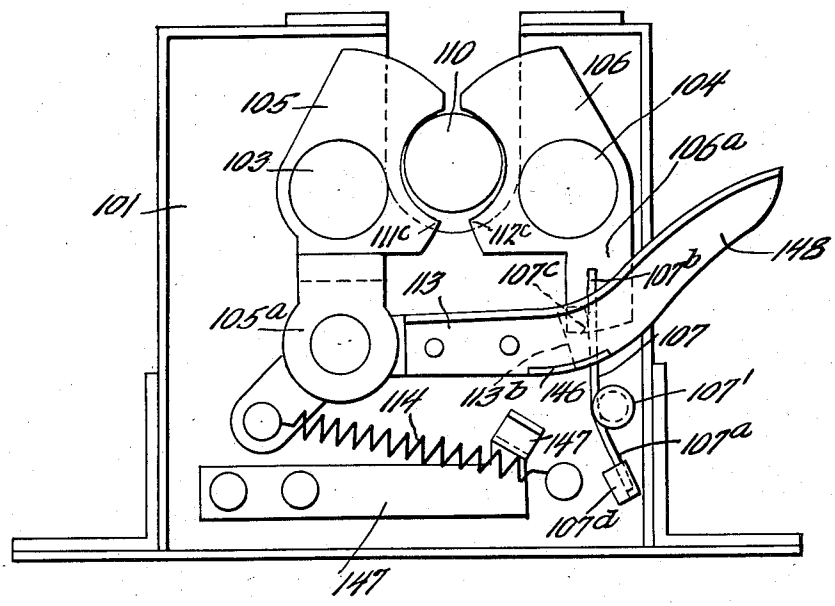
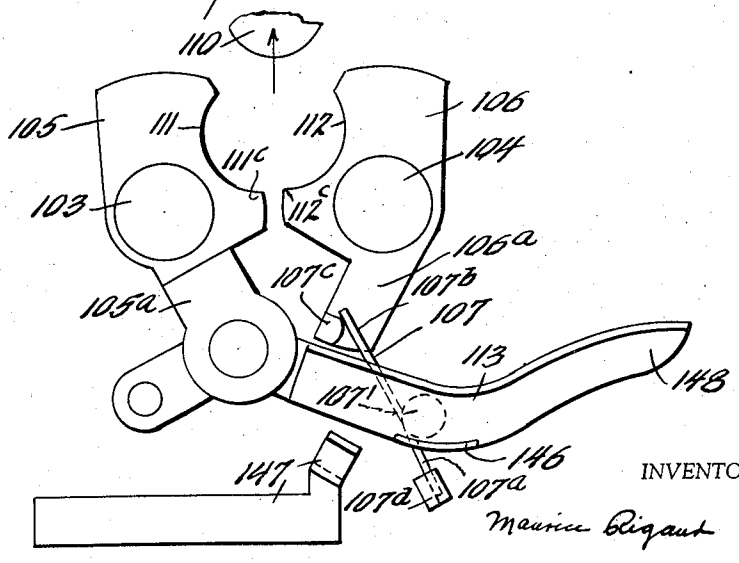


FIG. 11.



INVENTOR

Maurice Rigaud

BY Watson, Cole, Grindle & Watson

ATTORNEYS

United States Patent Office 2,888,288 Patented May 26, 1959

2,888,288

LOCKING DEVICE

Maurice Rigaud, Paris, France, assignor to Societe des Agrafes Francaises & d'Articles Metalliques (Societe Anonyme), Paris, France, a company of France

Application December 19, 1956, Serial No. 629,411

Claims priority, application France December 21, 1955

13 Claims. (Cl. 292—46)

This invention relates to locking devices and more particularly to those devices in which jaws are carried by one of the two members which are to be secured together, which jaws are adapted to close upon a lock catch, stud, pin, or bar carried by the other of said members, when the latter comes into contact with said jaws.

The present invention constitutes a novel development of the invention covered in my copending application Serial No. 489,998, filed February 23, 1955.

The principal object of the invention is to provide a novel and improved locking device of this type, which device includes novel features related, among other things, to the nature of the contact of the jaws with the lock stud or pin, the means for locking jaws in closed position, and the means for actuating and releasing the locking device.

The invention, in certain of its practical embodiments, contemplates the provision of jaws having notches for seizing the stud or pin, which notches are so shaped that when said jaws close around the stud, they exert upon the latter a force or reaction which tends to urge the stud and the locking device toward each other. This arrangement displays many advantages; for example, when the device is used in connection with doors such as refrigerator doors, which must usually be closed with a certain definite force upon a plastic buffer ring which assures the airtightness of the closure.

Another improvement, contemplated by the present invention, relates to the application to the locking device of a ratchet feature which makes it possible to free the jaws without effecting an opening of the closure, which latter operation can only be accomplished when the pin and jaws are separated.

This improvement is particularly suitable for the application of the locking device to a part, such as the hood of an auomobile, which closes vertically, since the weight of the hood itself may close the locking device or even prevent it from opening, if special precautions are not taken. It may be applied equally well to situations where a plurality of locking devices are used on a single object or part, whereby it is not necessary to operate them simultaneously.

The following specification taken in connection with the accompanying drawings, and disclosing only non-limiting examples of the invention, will make clear how the invention may be practiced; the particulars brought out by the specification and the drawing being of course included in the invention insofar as they are embraced in the subjoined claims.

In the drawings:

Figure 1 is a schematic plan view of a locking device illustrating the first named novel improvement stated as an object of the invention, the jaws being represented as in closed position;

Figure 2 is a view similar to Figure 1, in which the jaws are shown in open position;

Figure 3 is an end view of the device shown in Figure 1;

Figures 4 and 5 are schematic views upon an enlarged scale showing the action of the jaws on the stud or pin;

Figure 6 is a plan view of a locking device illustrating the second named improvement, which of course may be freely used in conjunction with the improvement illustrated in the earlier figures of drawing;

Figure 7 is a sectional view taken on line VII—VII of Figure 6;

Fgure 8 is a partial diagrammatic view showing the principal parts of the arrangement after the operating handle catches on the ratcheting device;

Figure 9 is a view similar to Figure 8 with the locking device in opened position;

Figure 10 is a view similar to Figure 6 showing the bolt pulling feature which may be common to all of those illustrated and also applying a spring to the right-hand jaw element; and

Figure 11 is a view similar to Figure 9 of the lock shown in Figure 10.

In the embodiment of the invention shown in Figures 1–5 inclusive, the principal basic parts of the locking device disclosed in my above-mentioned copending application will be recognized, namely, the lock casing or supporting frame **1** which is provided with a notch **2** in one side thereof to provide for the entry of the stud or pin **10**, the jaws **5** and **6** which are pivotally secured to the casing by means of the stub shafts **3** and **4**. The locking of the jaws in closed position is ensured by the lever **13**, which carries a projecting roller **14***a* against which the operative arm of a relatively powerful spring **14** presses, the other end of the spring with its coil being secured to the casing **1** as at **14'**. The lever **13** is pivotally carried by the rearward projection **5***a* of the jaw **5**, this pivotal attachment being afforded by the pin **5'**.

A spring **7** coiled around a stud **7'** projecting from the casing **1** has one of its ends **7***a* abutting a portion of the spring **14** and its opposite end **7***b* bearing against a projection **7***c* formed on the rearward portion **6***a* of the jaw **6**, this spring **7** tending to urge the jaw **6** to open position as shown in Figure 2. The arm **13***a* of the lever **13** terminates in an inclined curved surface **13***b* and this inclined surface is adapted to bear against the corner **6***b* of the rearward projection **6***a* of the jaw **6** when all the parts are in locked position as shown in Figure 1.

The opening of the jaws is controlled by means of a handle **41** pivoted as at **41'** to an extension of the lock casing, and terminating in a roller **42** which comes to bear upon the inclined projection or flange **43** provided on the opposite end **13***c* of the lever **13**. The spring **14** (Figure 1) acts upon the roller **14***a* of lever **13** in order to ensure a more gentle opening and closing of the locking device. The end of the handle **41** carrying the roller **42** is subjected to the action of the spring **44** which connects the roller carrying portion of the handle **41** with a projection **45** on the lock casing.

As shown in enlarged detail in Figures 4 and 5 of the drawings, the notches **11** and **12** of the respective operative ends of the jaws **5** and **6** are shaped so that, when the jaws are closed on the pin or stud **10**, they tend to urge the pin and the latching device toward each other.

For this purpose, in the case of a pin of circular cross-section for example, the inner parts **11***a* and **12***a* of the notches **11** and **12** have a radius of curvature which is greater than the radius of the pin **10**, so as to leave a certain amount of play between those portions and the pin, while the outer portions **11***b* and **12***b* terminate in elongated nose portions which press against the outer circumference of the pin at points approximately 120 degrees apart.

Thus the effort exerted by the lever **13** on the extremities **5***a* and **6***a* of the jaws is translated into reactions R (see Figure 5) directed toward the main body of the device. Under these condition, if, for example, the pin is carried by the fixed member, the entire locking device and the member upon which it is carried tend to move towards the pin, and naturally it would be just the reverse if the locking device were on the fixed member and the pin on the movable member or closure.

In order to ensure a sufficient margin of displacement between the pin and the locking device, the sloping or curved surface **13***b* (Figure 1) by which the lever **13** contacts and presses against the jaw **6** has a predetermined length, and is preferably curved inwardly. This arrangement at the same time ensures compensation for play which might be produced between the said parts.

During the opening of the lock, as indicated in Figure 4, the heels **11***c* and **12***c* of the notches **11** and **12** strike the pin **10** and ensure that the door, or other closure with which the locking device is associated, begins to open in the same manner as described in my above-mentioned copending application.

The embodiment illustrated in Figures 6–9 inclusive is more particularly intended to be employed when it is desired to provide a delayed opening of the locking device, which becomes of considerable interest, for example, when the device is installed on an automobile hood which closes vertically, or where several locking devices are used in association with the same closure or other member.

In fact, in some previously mentioned modes of construction, the opening of the jaws is accompanied by a rebound which tends to separate the jaws from the pin.

If then the locking device were installed in connection with a hood which closed vertically, the hood would be suddenly raised if the device were opened, and would fall back again thus reclosing it if no precautions were taken to hold it up. In the case of a very heavy hood, the weight of the hood itself could even prevent the jaws from opening and it would be necessary to raise the hood while holding the locking device open.

Likewise if, for instance, several locking devices were used to secure the same object or member, the initiation of the opening which accompanies the unclasping of the jaws might constitute an inconvenience or disadvantage if all of the locking devices were not to function simultaneously. In order to obviate the above-mentioned disadvantages, the embodiment shown in Figures 6–9 inclusive is arranged so as to effect the opening in two stages, that is, a first step during which the jaws are unlocked but do not separate, and a second step which consists in the opening of the jaws themselves.

For this purpose, in the embodiment shown in the drawings, the lever **113** connected to arm **105***a* of the jaw **105** has a ratchet part including an edge or flange **146** which cooperates with the resilient ratchet element or catch **147** secured to the lock casing **101**. In this embodiment the spring **7** associated with the jaws in the embodiment previously described, may be omitted. In the instant embodiment the lever **113** is prolonged to form a grip or handle portion **148** by which the opening of the lock may be controlled.

The operation of this device is as follows. The jaws **105** and **106** are normally open as shown in Figure 9 and when the member to be locked is pressed down (for example a car hood), the pin **110** abuts against the lower nose portions **111***c* and **112***c* of the notches **111** and **112** and causes the jaws to close upon the pin. Lever **113**, constrained by its spring **114** (Figure 6) then moves so as to present the inclined surfaces **113***b* in front of the arm **106***a* of the jaw **106**. Thus the locking of the device is assured with the various parts then occupying the positions shown in Figure 6.

If the handle **148** is pressed, the flange or edge **146** is brought into engagement with the ratchet spring catch

element **147** and the lever **113** is disengaged from the jaw **106**. The various parts of the locking device then occupy the position shown in Figure 8, in which position the jaws are freed, but the actual opening of the locking device has not yet taken place, since the force exerted by pin **110** upon the heel portions **111***c* and **112***c* of the notches is sufficient to prevent such opening.

To open the device completely, a force such as indicated at F in Figure 9 must be exerted upon the pin **110**, for example, by the raising of the hood or other closure with which the device is associated. Under the effect of this force, the jaws separate and the rotation of the jaw **105** about its axle **103**, under the action of the spring **114** results in the ledge or flange **146** sliding within and along the spring catch **147**, which disengages the lever **113**. The various parts of the locking device then occupy the position shown in Figure 9. The device is then, so to speak, re-armed, and it is only necessary to push down the hood in order to lock the mechanism.

The features shown in Figures 10 and 11 follow from the indication already given that the jaws of all of the embodiments may be configured as illustrated in Figures 4 and 5 of the drawings, and these later figures illustrate an actual embodiment in which a spring **107** is applied to the right-hand jaw as in Figures 1 and 2 of the drawings.

Thus in Figures 10 and 11 there is shown a lock assembly having the manipulative features of the embodiment already described in connection with Figures 6 and 9 of the drawings and these parts have been given the same reference numerals as in those earlier figures, with the exception that the spring acting upon the shank **106***a* of the jaw member **106** is shown at **107** in a similar fashion to the one illustrated at **7** in Figures 1 and 2. The spring is pivoted on a post **107'**, and has a shank portion **107***a* which abuts a stop **107***d*, and the extending arm **107***b* of the spring presses against a projection **107***c* on the shank **106***a* of the jaw member **106**.

It is understood that various changes and modifications may be made in the embodiments illustrated and described herein without departing from the scope of the invention as defined by the following claims. It is further understood that all compatible features of the embodiment shown in Figures 6 to 9 inclusive may be combined with those illustrated in Figures 1–5 of the drawings, and vice versa.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

1. A locking device for use in cooperation with a stud with which it is adapted to come into locking engagement, said device comprising, in combination, a supporting base member, a pair of oppositely disposed jaw elements pivotally mounted on said base member and having opposed locking arms adapted to move toward each other to lock such a stud therebetween and opposed non-locking arms arranged to move apart as said locking arms move toward each other, means tending normally to urge the locking arms of the jaw elements apart toward stud-freeing positions, a lever having a blocking portion, said lever being pivotally movable to a blocking position in which said blocking portion extends between said no-locking arms and into wedging engagement with a portion of the non-locking arm of one of the jaw elements to prevent the locking arm of the latter jaw element from disengaging the stud, means effective continually upon said lever tending to pivot the latter toward its said blocking position, and an operating handle associated with said lever for moving the latter away from blocking position to permit the locking device to open, said handle comprising a separate pivotally mounted member having a manipulative portion and carrying a roller adapted to contact with and urge said lever away from jaw-blocking position.

2. The locking device as set forth in claim 1 in which the lever is pivotally mounted at a point intermediate its length upon the non-locking arm of one of said jaw elements, and said roller contacts a portion of the lever upon the opposite side of said pivot point from the jaw arm contacting portion.

3. Locking apparatus for use in urging two closure members together and retaining them against forces urging them apart, as in the case of a resiliently buffered refrigerator door and door jam, said apparatus comprising a stud fixedly secured to one of said members and a manipulatable locking device fixedly secured to the other of said members and adapted to be brought into locking engagement with said stud; said locking device comprising a supporting base member; a pair of oppositely disposed jaw elements pivotally mounted on said base member for swinging movement in a plane perpendicular to the axis of said stud, and having opposed locking arms adapted to move toward each other during said swinging movement in one direction to seize and retain said stud therebetween, and opposed non-locking arms arranged to move apart as said locking arms move toward each other; means associated with at least one of the jaw elements for normally urging the locking arm thereof away from the locking arm of the other jaw element and thus toward stud-freeing position; a lever having a blocking portion thereon, said lever being movably carried with respect to said supporting base member, and movable in a plane perpendicular to the axis of said stud to a blocking position in which said wedging edge extends between said non-locking arms and into wedging engagement directly with a portion of the non-locking arm of one of the jaw elements to prevent the locking arm of the latter jaw element from disengaging the stud, means effective continually upon said lever tending to move the latter toward its wedging and blocking position; said locking arms of the jaw elements having concave notches in the mutually facing surfaces thereof for seizing the stud, said notches being constructed and arranged with respect to the cross-section of the stud as follows, so that when said locking arms are closed about the stud they exert upon the latter an action which tends to urge the stud and the locking device together and thus urge the two closure members toward each other; the said notches for this purpose presenting in closed position about said stud a total enclosed area which is greater than the cross-sectional area of the stud, and the arms beyond the widest portion of the notches presenting mutually inwardly extending noses which press against the outward portions of the periphery of said stud and urge the stud inwardly toward said locking device when the arrangement is in closed position; said blocking portion of said lever comprising a long inclined edge of the lever which is outwardly convex in the direction toward the non-locking arm of the jaw element, and is adapted to contact the said arm tangentially and wedgingly urge it toward stud engaging position.

4. The locking device as set forth in claim 3 in which the lever is pivotally mounted upon the non-locking arm of the other of said jaw elements.

5. A locking device for use in cooperation with a stud with which it is adapted to come into locking engagement, said device comprising, in combination, a supporting base member, a pair of oppositely disposed jaw elements pivotally mounted on said base member and having opposed locking arms adapted to move toward each other to lock such a stud therebetween and opposed non-locking arms arranged to move apart as said locking arms move toward each other, means tending normally to urge the locking arms of the jaw elements apart toward stud-freeing positions, a lever having a blocking portion, said lever being pivotally movable to a blocking position in which said blocking portion extends between said non-locking arms and into wedging engagement with a portion of the non-locking arm of one of the jaw elements to prevent the locking arm of the latter jaw element from disengaging the stud, means effective continually upon said lever tending to pivot the latter toward its said blocking position, the said last named means comprising a spring element having an arm extending therefrom, and a roller rotatably mounted on said lever against which said spring arm presses, thus affording gentler opening and closing of the device.

6. A locking device for use in cooperation with a stud with which it is adapted to come into locking engagement, said device comprising, in combination, a supporting base member, a pair of oppositely disposed jaw elements pivotally mounted on said base member and having opposed locking arms adapted to move toward each other to lock such a stud therebetween and opposed non-locking arms arranged to move apart as said locking arms move toward each other, means tending normally to urge the locking arms of the jaw elements apart toward stud-freeing positions, a lever having a blocking portion, said lever being pivotally movable to a blocking position in which said blocking portion extends between said non-locking arms and into wedging engagement with an integral part of the non-locking arm of one of the jaw elements to prevent the locking arm of the latter jaw element from disengaging the stud, means effective continually upon said lever tending to pivot the latter toward its said blocking position, the lever being pivotally mounted upon the non-locking arm of the other of said jaw elements, and a ratchet-like device for said lever whereby it may be held in an intermediate position where the blocking portion thereof is removed from contact with the non-locking arm of said other jaw element but the jaw element to which the lever is pivoted is still held in releasable contact with the stud, the jaw elements thus being freed without opening.

7. The locking device as set forth in claim 6 in which the ratchet-like device comprises a projection carried by said lever, and a resilient ratchet-like detent carried by the supporting base member and adapted to catch on said projection.

8. The locking device as set forth in claim 6 in which the ratchet-like device comprises a flange of predetermined length carried by said lever, a resilient ratchet-catch carried by said supporting base, the length of said catch being so related to that of said flange that, although the flange snaps into engagement with said catch when the lever is first moved to such intermediate position, the flange is adapted to be slid from engagement with the catch upon swinging movement of said jaw element to which the lever is pivotally connected.

9. Locking apparatus for use in urging two closure members together and retaining them against forces urging them apart, as in the case of a resiliently buffered refrigerator door and door jamb, said apparatus comprising a stud fixedly secured to one of said members and a manipulatable locking device fixedly secured to the other of said members and adapted to be brought into locking engagement with said stud; said locking device comprising a supporting base member; a pair of oppositely disposed jaw elements pivotally mounted on said base member for swinging movement in a plane perpendicular to the axis of said stud, and having opposed locking arms adapted to move toward each other during said swinging movement in one direction to seize and retain said stud therebetween, and opposed non-locking arms arranged to move apart as said locking arms move toward each other; means associated with at least one of the jaw elements for normally urging the locking arm thereof away from the locking arm of the other jaw element and thus toward stud-freeing position; a lever having an inclined wedging edge thereon, said lever being movably carried with respect to said supporting base member, and movable in a plane perpendicular to the axis of said stud to a blocking position in which said wedging edge extends between said non-locking arms and into wedging engage-

ment directly with a portion of the non-locking arm of one of the jaw elements to prevent the locking arm of the latter jaw element from disengaging the stud, means effective continually upon said lever tending to move the latter toward its said wedging and blocking position; and a manually operable handle associated with said lever for moving the latter away from blocking position to permit the locking device to open; said locking arms of the jaw elements having concave notches in the mutually facing surfaces thereof for seizing the stud, said notches being constructed and arranged with respect to the cross-section of the stud as follows, so that when said locking arms are closed about the stud they exert upon the latter an action which tends to urge the stud and the locking device together and thus urge the two closure members toward each other; the said notches for this purpose presenting in closed position about said stud a total enclosed area which is greater than the cross-sectional area of the stud, and the arms beyond the widest portion of the notches presenting mutually inwardly extending noses which press against the outward portions of the periphery of said stud and urge the stud inwardly toward said locking device when the arrangement is in closed position.

10. Locking apparatus for use in urging two closure members together and retaining them against forces urging them apart, as in the case of a resiliently buffered refrigerator door and door jamb, said apparatus comprising a stud fixedly secured to one of said members and a manipulatable locking device fixedly secured to the other of said members and adapted to be brought into locking engagement with said stud; said locking device comprising a supporting base member; a pair of oppositely disposed jaw elements pivotally mounted on said base member for swinging movement in a plane perpendicular to the axis of said stud, and having opposed locking arms adapted to move toward each other during said swinging movement in one direction to seize and retain said stud therebetween, and opposed non-locking arms arranged to move apart as said locking arms move toward each other; means associated with at least one of the jaw elements for normally urging the locking arm thereof away from the locking arm of the other jaw element and thus toward stud-freeing position; a lever having an inclined wedging edge thereon, means for pivotally mounting said lever upon the non-locking arm of one of said jaw elements, and movable pivotally in a plane perpendicular to the axis of said stud to a blocking position in which said wedging edge extends between said non-locking arms and into wedging engagement directly with a portion of the non-locking arm of the other of the jaw elements to prevent the locking arm of the latter jaw element from disengaging the stud, means effective continually upon said lever tending to swing the latter toward its said wedging and blocking position and also urge the jaw element to which the lever is pivoted to open position; and a manually operating handle associated with said lever for moving the latter away from blocking position to permit the locking device to open; said locking arms of the jaw elements having concave notches in the mutually facing surfaces thereof for seizing the stud, said notches being constructed and arranged with respect to the cross-section of the stud as follows, so that when said locking arms are closed about the stud they exert upon the latter an action which tends to urge the stud and the locking device together and thus urge the two closure members toward each other; the said notches presenting in closed position about said stud a total enclosed area which is greater than the cross-sectional area of the stud, and the arms beyond the widest portion of the notches presenting mutually inwardly extending noses which are spaced from each other but press against two spaced outward portions of the periphery of said stud and urge the stud inwardly toward said locking device when the arrangement is in closed position, the cross-section of the stud being circular and the notches being circularly arcuate and having a radius of curvature greater than that of said stud cross-section.

11. A locking device for use in cooperation with a stud with which it is adapted to come into locking engagement, said device comprising, in combination, a supporting base member, a pair of oppositely disposed jaw elements pivotally mounted on said base member and having opposed locking arms adapted to move toward each other to lock such a stud therebetween and opposed non-locking arms arranged to move apart as said locking arms move toward each other, means tending normally to urge the locking arms of the jaw elements apart toward stud-freeing positions, a lever having a blocking portion, means for pivotally mounting said lever upon the non-locking arm of one of said jaw elements for movement in a plane parallel to the plane of movement of said jaw elements, said lever being pivotally movable to a blocking position in which said blocking portion extends between said non-locking arms and into wedging engagement with an integral part of the non-locking arm of the other of the jaw elements to prevent the locking arm of the latter jaw element from disengaging the stud, resilient means operative upon the jaw and lever combination at a point near the point of pivotal connection of said jaw and lever and urging the jaw and lever combination toward blocking position of the lever and opening position of the jaw element to which the lever is pivoted, a detent on said supporting base member remote from said other jaw element and a projection on said lever adapted to catch on the detent member when the lever is swung away from blocking position against the influence of the resilient means, the lever being thus held in a position where the blocking portion thereof is removed from contact with the non-locking arm of said other jaw element but the jaw element to which the lever is pivoted is still held in releasable contact with the stud, the jaw elements being thus freed without opening.

12. The device as set forth in claim 11 in which the projection carried by said lever is of limited extent longitudinally thereof whereby said lever may be moved to displace said projection from the confines of said detent and thus permit full movement of the lever and first named jaw element to open position to release the stud.

13. A locking device for use in cooperation with a stud with which it is adapted to come into locking engagement, said device comprising, in combination, a supporting base member; a pair of oppositely disposed jaw elements pivotally mounted on said base member and having opposed locking arms adapted to move toward each other to lock such a stud therebetween and opposed non-locking arms arranged to move apart as said locking arms move toward each other; means tending normally to urge the locking arms of the jaw elements apart toward stud-freeing positions; a lever having a blocking portion, means for pivotally mounting said lever upon the non-locking arm of one of said jaw elements for movement in a plane parallel to the plane of movement of said jaw elements, said lever extending generally in a transverse direction toward the other of said jaw elements and being pivotally movable to a blocking position in which said blocking portion extends between said non-locking arms and into wedging engagement with an integral part of the non-locking arm of the other of the jaw elements to prevent the locking arm of the latter jaw element from disengaging the stud; a tension spring also extending generally transverse of the arrangement, one end of said spring secured to the lever at a point outwardly beyond its pivotal connection with the first named jaw element and the other end of the spring secured to the base member, said spring thus having the effect of urging the non-locking arm of the first named jaw element transversely and the jaw element itself toward stud-releasing position, and at the same time urging said lever pivotally toward blocking position with respect to the second named jaw element, the lever thus being capable

of swinging movement about its pivotal connection with the first named jaw element and also of substantial longitudinal movement upon pivotal movement of that jaw element; a detent on said supporting base member spaced from said other jaw element in a direction substantially longitudinally of said jaw element and away from the stud, and a projection of limited longitudinal extent carried by said lever adapted to catch on the detent member when the lever is swung away from blocking position against the influence of the tension spring, the lever thus being held in a position where the blocking portion thereof is removed from contact with the non-locking arm of said other jaw element but the jaw element to which

the lever is pivoted is still held in releasable contact with the stud, the jaw elements being thus freed without opening, and whereby longitudinal movement of the lever will release the projection from the detent and effect the final opening movement of the first named jaw element from about the stud.

References Cited in the file of this patent

UNITED STATES PATENTS

2,646,299 Kramer ---------- July 21, 1953

FOREIGN PATENTS

272,145 Switzerland ---------- Mar. 1, 1951