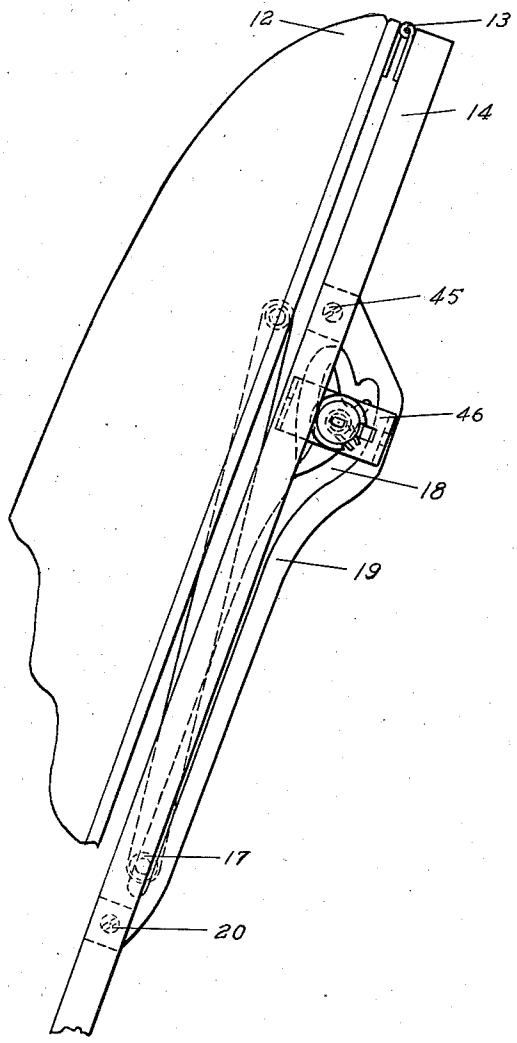
April 13, 1937. E. NORTH 2,076,860

SUPPORTING DEVICE

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Fig. 1.



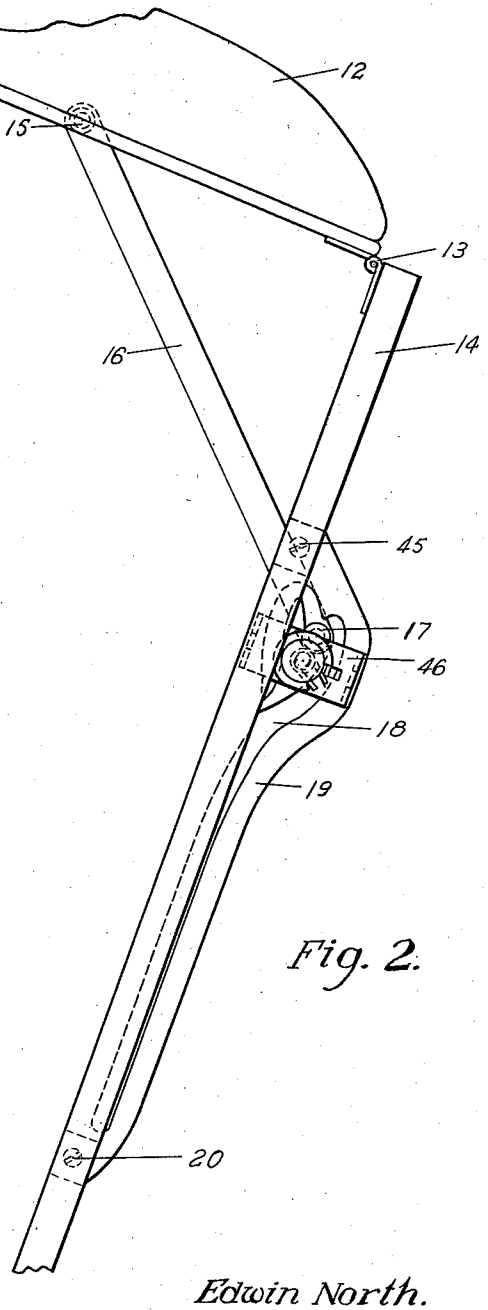


Fig. 2.

Edwin North.
INVENTOR.

BY Clarence E. Threedy
HIS ATTORNEY.

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Fig. 3.

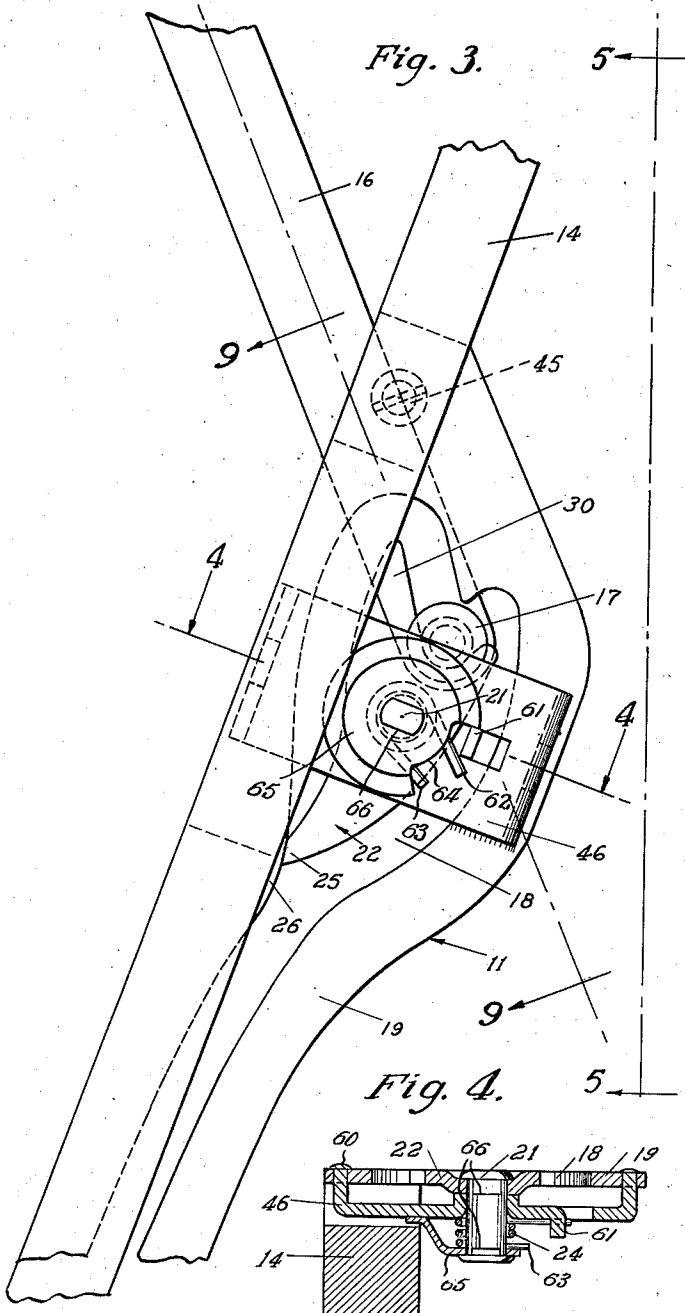
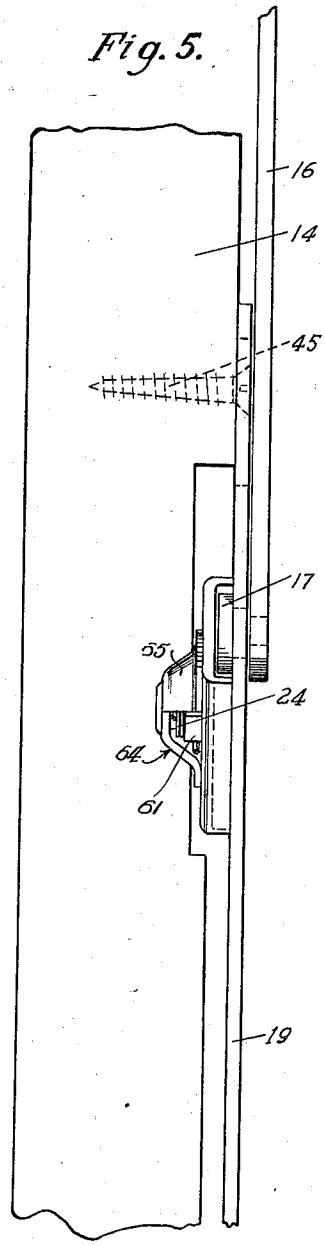


Fig. 4.

Fig. 5.



Edwin North
INVENTOR.

BY Clarence E. Thrudy
HIS ATTORNEY.

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Fig. 6.

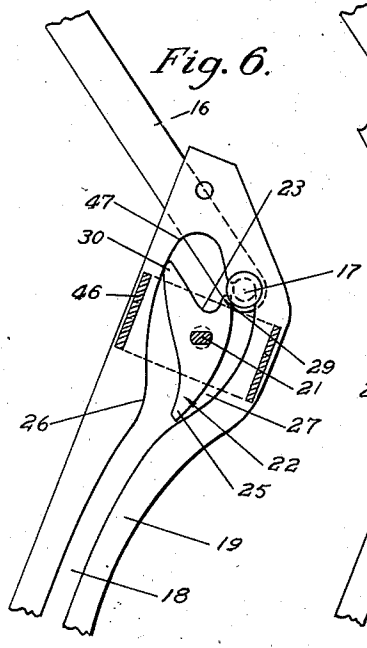


Fig. 7.

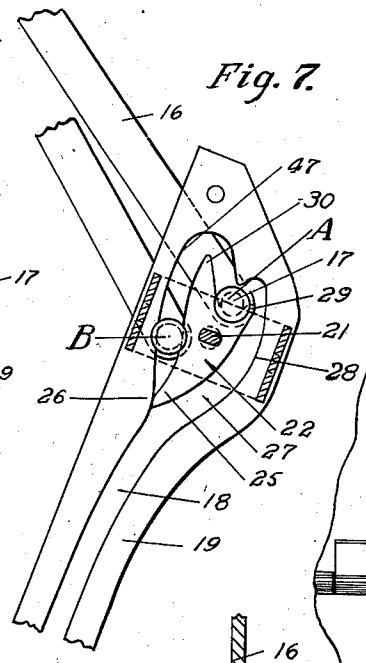


Fig. 11.

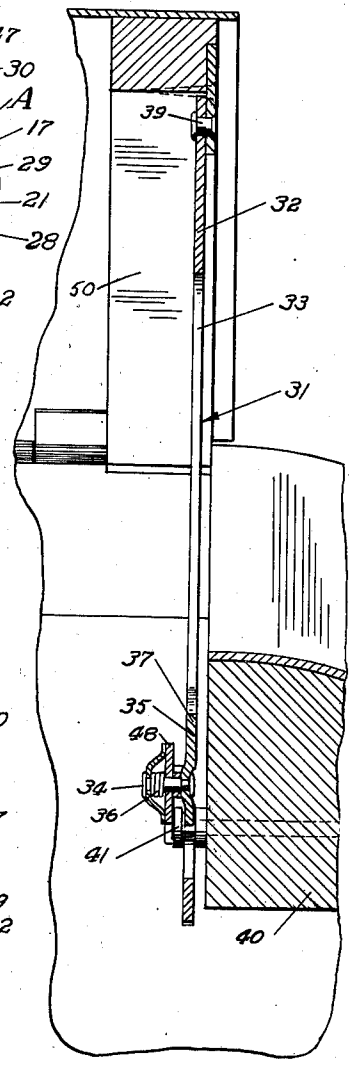
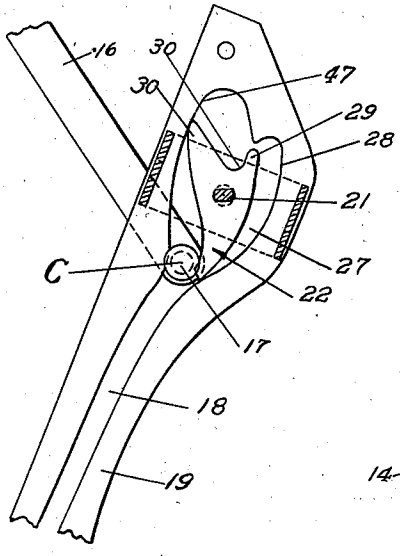


Fig. 8.



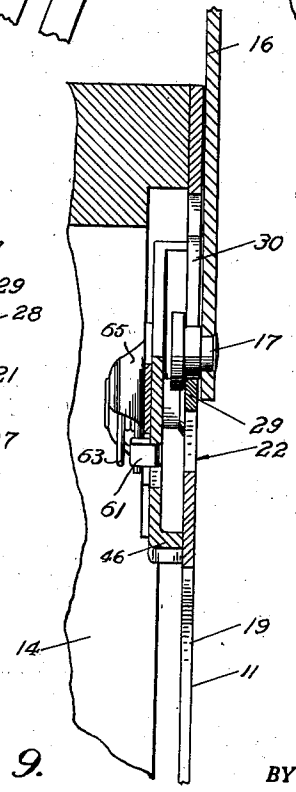


Fig. 9.

Edwin North
INVENTOR.

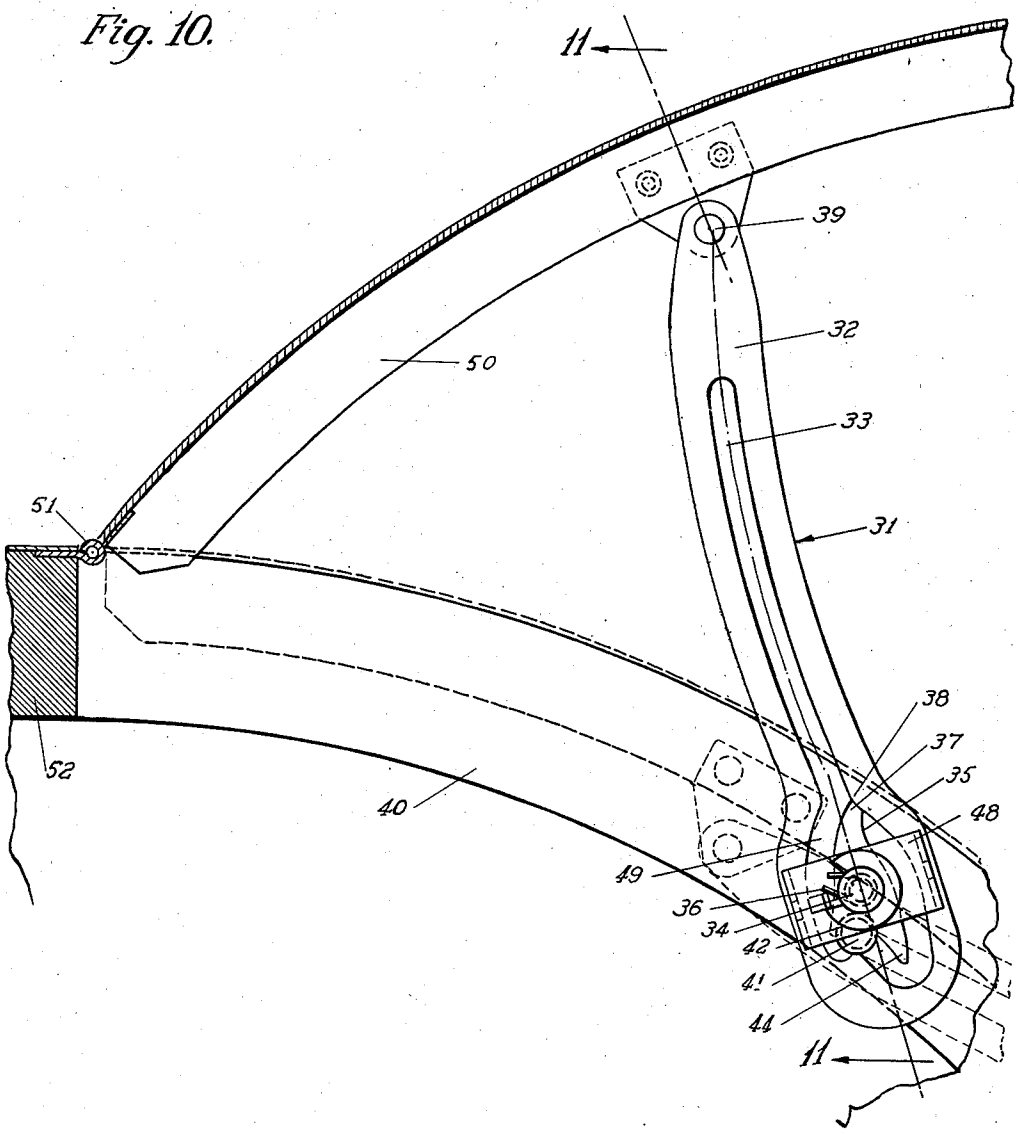
BY Clarence E Threedy
HIS ATTORNEY.

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Fig. 10.



Edwin North
INVENTOR.

BY Clarence E. Thrudy
HIS ATTORNEY.

Patented Apr. 13, 1937 2,076,860

UNITED STATES PATENT OFFICE

2,076,860

SUPPORTING DEVICE

Edwin North, Rockford, Ill., assignor to National Lock Co., Rockford, Ill., a corporation of Delaware

Application October 18, 1935, Serial No. 45,543

6 Claims. (Cl. 217—60)

This invention relates to supporting devices.

It is an object of this invention to provide an improved supporting device which is relatively simple and inexpensive in construction and efficient in use.

Another object of the present invention is to provide a supporting device which is especially adapted for use in supporting the rear seat cushion or deck door of an automotive vehicle but which may be used wherever a supporting device is required to support a lid or door in open position, as for example, upon articles of furniture and the like.

In recent models of automobiles, especially those of the coupe and roadster type, it is difficult, if not impossible, for a person to raise the deck door in order to reach into the forward part of the luggage compartment.

Another object of the present device, therefore, is to provide a supporting device for the deck door of an automotive vehicle which is so constructed that the deck door may readily be raised in order to permit a person to reach into the forward part of the luggage compartment.

Other objects will appear hereinafter.

The invention consists in the novel combination and arrangement of parts to be hereinafter described and claimed.

The invention will be best understood by reference to the accompanying drawings showing the preferred form of construction, and in which:

Fig. 1 is a fragmentary side elevational view of a preferred form of the new supporting device showing the same used for the purpose of supporting the rear back rest cushion of an automotive vehicle and showing the parts in the position which they assume when the back rest cushion is in its normal or lowered position;

Fig. 2 is a view similar to Fig. 1, but showing the parts in the position which they assume when the back rest cushion is in raised position;

Fig. 3 is an elevational detail view of the device shown in Figs. 1 and 2 and showing the parts in the position in which they assume when the back rest cushion is in raised position;

Fig. 4 is a transverse sectional view, on line 4—4 in Fig. 3;

Fig. 5 is an elevational view on line 5—5 in Fig. 3;

Figs. 6, 7 and 8 are fragmentary side elevational views of the preferred form of the invention shown in Figs. 1 to 5 inclusive, showing the operating parts in the various positions which they assume during the operation of raising and lowering the back rest cushion;

Fig. 9 is a sectional view, on line 9—9 in Fig. 3;

Fig. 10 is a view, partly in section and partly in side elevation, of a modified form of the invention showing the same used for supporting the deck door of an automotive vehicle in raised position and showing the parts in the position which they assume when the deck door is in raised position; and

Fig. 11 is a sectional view on line 11—11 in Fig. 10.

A preferred form of the new supporting device is shown in Figs. 1 to 9 inclusive of the drawings, is therein generally indicated at 11, and is shown in one of its preferred uses, namely, for the purpose of supporting the rear back rest cushion 12 of an automotive vehicle of the coupe or rumble seat type, in raised position (as in Fig. 2).

In the use of the new supporting device, the rear back rest cushion 12 is hingedly mounted at its upper end as at 13 to the adjacent supporting member or frame 14.

Pivotally connected, as at 15, to the cushion 12, one at each end of the same, is a pair of supporting arms 16 and each of these supporting arms 16 carries a laterally projecting stud or cam 17 which works in a cam track or slot 18 which is formed in a supporting member 19, these supporting members 19 being attached, as at 20 and 45, to the support 14.

Pivotally mounted, as at 21, upon a bracket 46, which is attached to the supporting member 19, is a pawl 22 and provided in the peripheral edge of this pawl 22 is a recess 23 which provides a seat for the cam or stud 17, for a reason to be described presently, the pawl 22 being urged into the position in which it is shown in Figs. 1, 3 and 7 by means of a spring 24; and when the pawl 22 is in this position (as in Figs. 1, 3 and 7) an end portion or nose 25 of the pawl 22 engages a shoulder 26 which is formed in the supporting member 19, this shoulder 26 defining a part of one wall of the cam track or slot 18.

The bracket 46, as seen in Figs. 3 and 4, may be in the form of a U-shaped metal member having its side portions peened or riveted into the main arm 16, as at 60, and this bracket has a punched-out ear 61 against which one end 62 of the spring 24 bears, the other end 63 of the spring extending into the circumferential or side opening 64 of the cap 65.

Shaft 21 has keying shoulders 66 at each end so that both the pawl 22 and cap 65 move with the shaft when the same pivots. Spring 24 urges the cap 65, and hence shaft 21 and pawl 22, in a clockwise direction (Fig. 3) so that the seating

formation in the pawl is normally in position to receive the stud 17.

The foregoing construction of the pawl supporting and positioning means is the same in the structure of the form described in view of Figs. 10 and 11.

It is understood that when the present supporting device is in use two of the units 11 are used for supporting the back rest cushion 12 of an automotive vehicle, or for analogous purposes, although only one of the units is shown in the drawings.

In the use of the present supporting device 11 which is illustrated, that is, when the same is used for the purpose of supporting the rear back rest cushion 12 of an automotive vehicle in raised position, the studs or cams 17 which are carried by the supporting arms 16 are normally disposed in the position in which they are shown in Fig. 1, and in which position the studs or cams 17 are arranged at the lower ends of the cam slots or tracks 18 which are formed in the members 19, it being understood that the cams or studs 19 are moved out of this position, into the position in which they are shown in Fig. 2, when the cushion 12 is in raised position, as shown.

The back rest cushion 12 may readily be raised by lifting the same whereupon the studs or cams 17 will travel up the cam tracks or slots 18 in the supporting members 19 and will be guided by the end portions 25 of the pawls 22 between the edges 27 of the pawls 22 and the adjacent walls 28 of the cam tracks or slots 18, as may be seen by an inspection of Figs. 6 and 7, and during this movement the studs or cams 17 will engage the projecting portions 29 of the pawls 22 and will thereby pivot the pawls 22, as shown, into the position in which the same are shown in Fig. 6; whereupon, upon a slight further upward movement of cushion 12 the studs or cams 17 may be lodged in the recesses 13 provided therefor in the pawls 22, by a slight downward movement of the seat cushion 12, and the studs or cams 17 will be held in this position (as in Figs. 2, 3 and 7) by the weight of the cushion 12.

When it is desired to lower the cushion 12, this may be accomplished by raising the same slightly so as to move the studs or cams 17 past the projecting portions 30 of the pawls 22, and between the latter and the walls 47 of the cam slots or tracks 19, (see Figs. 6, 7 and 8), whereupon the studs or cams 17 may be moved from position "A", (Fig. 7) into position "B", (Fig. 7). During this movement of the cams or studs 17 the same will engage the end portions 25 of the pawls 22 (as shown in position "C", Fig. 8) and thereby pivot the latter, against the action of their resetting springs 24, into the position in which the parts are shown in Fig. 8, whereupon, upon further downward movement of the back rest cushion 12, the studs or cams 17 may be lowered along the cam tracks or slots 18 into their normal or lowered position in which they are shown in Fig. 4, and in this manner the back rest cushion 12 may be lowered.

It will be noted that in the use of the new supporting device 11 the back rest cushion 12 may be raised or lowered readily by manipulating the cushion 12 itself and without touching any of the several parts of the supporting device 11 itself, as is necessary in the case of supporting devices now in use for similar purposes. This makes the present device easy and convenient to operate and eliminates any danger of the operator's fingers becoming wedged in or injured by the operating parts of the device, as may happen in the use of the prior art devices.

A modified form of the invention is shown in Figs. 10 and 11, is therein generally indicated at 31, and is shown as used for the purpose of supporting the deck door 50 of an automotive vehicle in raised position, the said deck door 50 being shown as hinged, as at 51, to its support 52.

The modified form 31 of the present supporting device comprises a pair of supporting arms or members 32 which are similar and analogous to the supporting members 19, which are shown in the preferred form of the invention illustrated in Figs. 1 to 9 inclusive, and each of these supporting arms 32 is pivotally connected, at one end, as at 39 to the deck door 50.

Provided in each of the supporting members 32 is a cam track or slot 33 and pivotally mounted in this cam track or slot 33, as at 34, and upon a bracket 46 which is attached to the member 32, is a pawl 35 which is normally urged, by a spring 36, into the position in which it is shown in Fig. 10, and in which position of the parts an end portion 37 of the pawl 35 engages a shoulder 38 which is formed in the supporting member 32, said shoulder 38 forming part of the wall of the cam slot or track 33.

Attached to and projecting from the support 52 are supporting arms 40, each of which has a stud or cam 41 projecting therefrom and these studs or cams 41 are adapted to be lodged in recesses 42 which are formed in the pawls 35, these recesses 42 being similar to the recesses 23 which are formed in the pawls 22; each of the pawls 35 having a projecting portion 43, these portions 43 being similar to the projecting portions 29 which are formed on the pawls 22 in the preferred form of the invention shown in Figs. 1 to 9 inclusive.

In the use of the modified form of the supporting device shown in Figs. 10 and 11, the studs 41 are normally disposed in the upper end portions of the cam tracks or slots 33 (relative to the position in which the parts are seen in Figs. 10 and 11). However, when the deck door 50 is raised the supporting members 32 are lifted upwardly thereby causing the studs or cams 41 to be guided, by the projecting portions 37 of the pawls 35, along the branches 49 of the cam tracks or slots 33 into engagement with the projecting parts 43 of the pawl 35. This engagement of the studs or cams 41 with the projecting portions 43 of the pawls 35 causes the latter to pivot, against the action of their resetting springs 36, in a counterclockwise direction as shown in Fig. 11, whereupon by lowering the deck door 50 slightly the studs or cams 41 may be lodged in the recesses 42 which are formed in the peripheral edge portions of the studs 41 being retained in the recesses 42 by the weight of the deck door 32.

When it is desired to lower the deck door 50 this may be accomplished by lifting the same slightly so as to move the projecting portions 44 of the pawls 35 past the studs 41, whereupon the deck door 50 may be lowered, and when the deck door 50 is thus lowered the studs 41 will engage end portions 37 of the pawls 35, and this engagement of the studs 41 with the end portions 37 of the pawls 35 will pivot the pawls 35 slightly (in a counterclockwise direction as seen in Fig. 10), whereupon the deck door 50 and its supporting arms 32 may be lowered into their normal or initial position.

While I have illustrated and described the preferred form of construction for carrying my invention into effect, this is capable of variation and modification, without departing from the spirit of the invention. I, therefore, do not wish to be limited to the precise details of construction set forth, but desire to avail myself of such variations and modifications as come within the scope of the appended claims.

Having thus described my invention, what I claim as new and desire to protect by Letters Patent is:

1. A closure holder comprising an arm having an elongated channel therein terminating in an enlarged end opening, a stud member slidable in said channel, a latch member pivoted in said enlarged end opening, said latch having a stud engaging seat and being pivotable to permit said stud to be disengaged from said seat and be guided progressively around said latch to return to said channel, a bracket member extended over said latch, means for urging said latch into stud seating position, said means including a coil spring having an end portion engageable with said bracket and carried upon the pivotal member of said latch, and a cap fitted over said spring and said pivotal member and having a cut-away portion into which a part of said spring extends for movement with the cap.

2. In a device of the class described a member having an elongated slot with an enlarged end portion, a member projecting into and movable in said slot, a pawl pivotally mounted in the said enlarged end portion of said slot and having a formation for the reception of the said second named member, means urging said pawl in a direction to permit the movement of said second named member thereabout and into said formation in said pawl, said means including a shaft member keyed to said pawl, a spring about said shaft member and having an extremity engageable with said first named member, and a cap fitted over an end of said shaft member and the said spring thereon and having a circumferentially extensive cut-away part into which another extremity of said spring extends for urging engagement with the cap.

3. A supporting device for closures and the like comprising an elongated arm having a slot therein with an enlarged terminal area, a pawl in said terminal area, a bracket extended over said area from said arm and supportably engaging a shaft pivotally supporting and keyed to said pawl, a stud slidable in said slot into said enlarged area and around said pawl and back into said slot, said pawl having a recess into which said stud may be seated by reversing the direction of movement thereof relative to said pawl and means for positioning said pawl to permit the seating of said stud in said recess, said means comprising a spring coiled about said shaft and having an end portion engageable with said bracket, and a shell-like closure keyed to said shaft over said spring and having a cutaway part for the reception of a second extended end portion of said spring whereby the latter urges said cap and pawl in a determined direction.

4. A closure holder comprising an arm having a longitudinal slot adapted to receive a stud slidable therein and having an enlarged area at an outer end to accommodate a latch, a U-shaped bracket attached to said arm and extended over said enlarged part of said slot, a shaft member extended through said bracket, a latch in said enlarged area and keyed for movement with said shaft and having positioning means including a coil spring about said shaft, said spring having an end portion engageable with said bracket, and a cup-like closure fittted over and keyed to an end of said shaft and said spring thereon and having a cut-away part into which the opposite extremity of said spring extends.

5. A closure holder comprising an arm having a stud trackway terminating in an enlarged open area, stud means movable in said trackway and into said enlarged area, a latch pawl, bracket means on said arm, a pivot member extended through said bracket means and supportably engaging said pawl, a cap member on the opposite end of said pivot member and movable with the same and said pawl, and yieldable means disposed interiorly of said cap member and urging the same and said pawl into a predetermined position.

6. A closure holder comprising an arm having an elongated stud slot terminating in an enlarged cut-away portion, stud means slidable in said slot and into said enlarged terminal portion, a latch pawl affixed to a pivot member pivotally supported on said arm with the said pawl disposed in said enlarged terminal portion, a cap fixed on said pivot member and pivotable with the same and with said pawl, and spring means beneath said cap and operable to urge the same and said pivot member and pawl into a predetermined position.

EDWIN NORTH.