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HOLDING MEANS FOR PIVOTALLY CONNECTED PARTS

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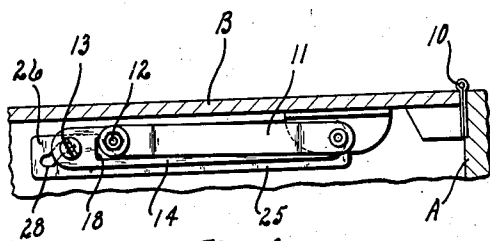


Fig. 1

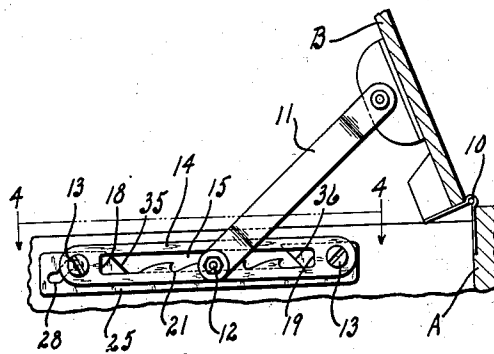


Fig. 2

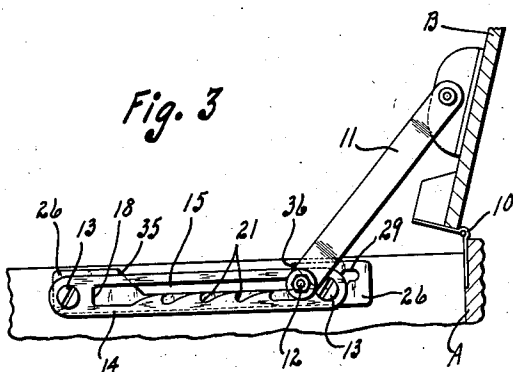


Fig. 3

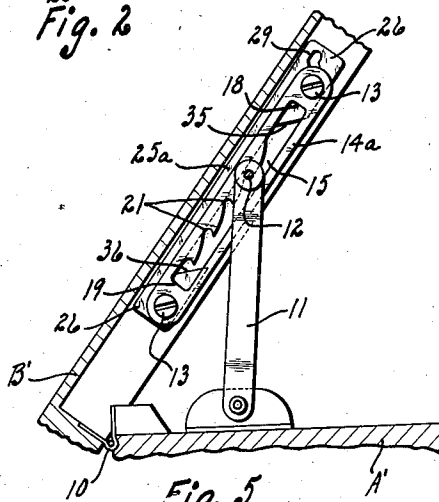


Fig. 5

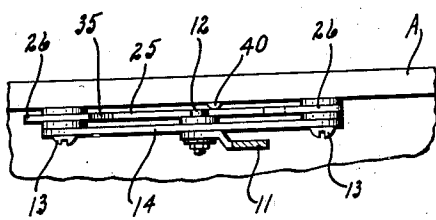


Fig. 4

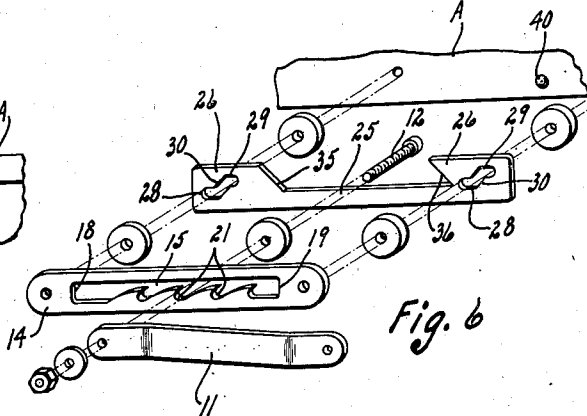


Fig. 6

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HOLDING MEANS FOR PIVOTALLY
CONNECTED PARTS

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11 Claims. (Cl. 217—60)

This invention relates to improvements in devices for maintaining in various degrees of separation two pivotally connected parts, such as a school desk body and a lid therefor or a trunk body and a cover therefor, etc. More particularly, the invention relates to improvements in those elements of such devices which permit, when desired, such pivotally connected parts to be readily and quickly closed.

10 The general object, therefore, of the present invention is the provision of a simple and improved device of the character described, which device enables the pivotally connected parts with which it is associated to be easily, quickly and conveniently separated to any desired extent and to be maintained, when desired, in any desired position of separation, and thereafter, when desired, to be just as easily, quickly and conveniently closed, all without the necessity of directly manipulating any of the elements of said device.

With the foregoing and other objects in view which will appear as the description of the invention proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the invention as herein disclosed can be made within the scope of what is claimed, without departing from the spirit of the invention.

The invention will be readily understood from the following description thereof, reference being had to the accompanying drawing in which

Fig. 1 is a side elevation of two pivotally connected parts in closed position, said parts having the present device associated therewith; Fig. 2 is a side elevation of said parts maintained in partly separated position by the present device; Fig. 3 is a similar view with said parts in fully separated position; Fig. 4 is a horizontal sectional view of said parts, the view being on the line 4—4, Fig. 2; Fig. 5 is a side elevation of two pivotally connected parts maintained in a separated position by the present device, the elements of which are associated with said parts in a slightly modified manner; and Fig. 6 is a perspective view of the several elements of the present device in what may be termed an "explosion" arrangement.

50 In Figs. 1 to 4 inclusive of the accompanying drawing are shown two parts A and B pivotally connected at 10. The part A, for example, may be a portion of the body of a school desk, and the part B may be a portion of the lid of said desk, or the part A may be a portion of the body

of a trunk and the part B may be a portion of the cover of said trunk, or said parts may be portions of any other objects with which the present invention may be advantageously used. Either or both parts may be movable, it being only necessary that there be relative movement thereof, and for purposes of illustration only and in no sense of limitation, the part A of Figs. 1 to 4 inclusive is stationary and the part B is movable relative thereto.

Pivotally connected to the movable part B is one end portion of a suitable prop or brace bar 11, the other end portion of which is provided with a transversely disposed latch pin 12. Suitably secured to the stationary part A, such as by the screws 13 in the end portions thereof, is a horizontally disposed latch member 14, here shown as a flat sheet metal member provided with a longitudinally disposed internal slot 15 in which the latch pin 12 of the brace bar 11 is movable, said latch pin having a forward movement in said slot from the forward end 18 thereof to the rear end 19 thereof, and a return movement from said rear end 19 to said forward end 18. Along the bottom of said latch member slot are one or more latch pin receiving recesses 21, there being four such recesses in the embodiment of the invention herein illustrated.

During forward movement of said latch pin, which is effected by relative separating movement of the parts A and B, said pin reaches in turn each of said recesses 21 and, if desired, said pin may be permitted to enter and remain in any one thereof, the effect of which would be to maintain the parts A and B, through the brace bar 11, in a position of separation. As clearly shown in the accompanying drawing, the walls of each recess 21 are so formed that removal of said latch pin therefrom is easily effected by forward movement of said latch pin but not by rearward movement thereof, with the result that said recesses do not interfere with forward movement of said latch pin in the latch member slot 15 but they do prevent, and quite effectively so, return movement of said latch pin in said slot.

In order to readily permit such return movement of the latch pin 12 from the rear end 19 of said latch member slot to the front end 18 thereof, to thereby enable the parts A and B to be readily closed, when desired, means is provided for blocking and thereby closing to the latch pin 12, when desired, the entrances of said recesses, to thereby enable return movement of said latch pin to be readily effected, without the

necessity of manually handling or manipulating the brace bar 11 or the latch pin 12 carried thereby.

The means here shown for so controlling the entrances of said recesses is a simple resilient sheet metal member 25 arranged between the latch member 14 and part A and having enlarged end portions 26 mounted on the same screws 13 which secure the latch member 14 to the part A. For purposes of such mounting, said recess controlling member 25 is provided in its enlarged end portions 26 with suitable slots each having a horizontally disposed bottom end portion 28, a horizontally disposed top end portion 29, arranged rearwardly of and slightly above the bottom end portion 28, and a rearwardly and upwardly inclined intermediate connecting portion 30. The particular shape of such slots enables said recess controlling member to be moved forwardly and at the same time slightly raised and to be moved rearwardly with corresponding lowering thereof. The raising of such member is of such extent that the latch pin receiving recesses 21 are blocked and thereby closed, with the result that when said member is in its raised position, as shown in Fig. 3, the latch pin 12 cannot enter any of the recesses 21 and hence return movement of said latch pin can be easily and conveniently effected. Likewise, the lowering of said member exposes and thereby opens the entrances of said recesses, with the result that the latch pin 12 is free to enter any of said recesses.

In order to enable said recess controlling member 25 to be readily shifted forwardly to block and thereby close the entrances of the latch member recesses 21, as shown in Fig. 3, or shifted rearwardly to expose and thereby open the entrances of said recesses, as shown in Fig. 4, said member is respectively provided at the rear end of its enlarged front end portion and at the front end of its enlarged rear end portion with suitable shoulders 35 and 36, the engagement with which of the latch pin 12 effects the desired shifting of said member. When the latch pin 12 strikes said rear shoulder 36, which is here shown as downwardly and rearwardly inclined, as it does during the final part of each of its forward movements, said recess controlling member is shifted rearwardly and raised, to thereby bring about the blocking and hence the closing of said recesses. Likewise, when said latch pin 12 strikes the front shoulder 35, which shoulder is here shown as forwardly and upwardly inclined, as it does during the final part of each of its return movements, said controlling member is shifted forwardly and downwardly, thereby unblocking and hence opening the latch member cavities 21.

In this way, the recesses 21 are always unblocked or open to receive said latch pin during forward movements thereof, thereby enabling the parts A and B to be readily separated whenever desired and to be readily maintained, when desired, in any desired position of separation, and are always blocked or closed to said latch pin during return movements thereof, thereby enabling the parts A and B to be readily closed when desired, all without the necessity of manually directly handling or manipulating any of the elements of the present device.

To close the parts A and B from a separated position thereof, or to enable said parts to be maintained in a less separated position, it is merely necessary to effect full separation of

said parts, as shown in Fig. 3, the effect of which is to bring about full forward movement of the latch pin 12 and the rearward and upward shifting by said latch pin of the recess controlling member 25. Such shifting of said recess controlling member effectively blocks and thereby closes the entrances of the recesses 21, thereby permitting the latch pin 12 to be readily returned to the forward end 18 of the latch member slot 15 and hence permitting closing of the parts A and B. During the final stage of the closing movement of the parts A and B, the latch pin 12 is completing its return movement and at that time effects a forward and downward shifting of the recess controlling member 25, with the result that said recesses are unblocked or opened, so that upon the next forward movement of said latch pin, said latch pin is free to enter and remain in any of said recesses, thereby enabling the parts A and B to be maintained in any desired position of separation, all as will be readily understood.

In Fig. 5 is shown two pivotally connected parts A' and B' having the present device associated therewith in a slightly modified manner. In this view, the latch member 14a and the recess controlling member 25a are secured to the movable part B', rather than to the stationary part A'. Inasmuch as the device functions in the same way, however, no further reference to this location of its parts is believed to be necessary.

In order to insure the maintenance of the recess controlling member of the present device in the position to which it is shifted by the brace bar latch pin, particularly if said member is associated with a movable part, as in Fig. 5, a suitable projection 40 yieldingly engages said recess controlling member and by such engagement normally resists shifting movement thereof. As here shown, said projection is carried by the part with which said controlling member is associated, the part A in Figs. 1 to 4 inclusive and in Fig. 6 and the part B' in Fig. 5. Inasmuch as said recess controlling member is of resilient character, said projection is here shown as a simple rigid protuberance, although any other suitable means may be employed to normally resist shifting movement of said recess controlling member, if desired.

Other features of the present invention will be apparent to those skilled in the art to which it relates.

What I claim is:

1. A device of the character described, comprising two pivotally connected parts, one of said parts being provided with a latch recess and the other of said parts having a brace bar connected thereto and adapted for latching cooperation with said recess to maintain said parts in separated position, and automatically operable means for controlling the entrance of said recess to selectively permit or prevent cooperation of said brace bar with said recess.
2. A device of the character described, comprising two pivotally connected parts, one of said parts being provided with a latch recess and the other of said parts having a brace bar connected thereto and adapted for latching cooperation with said recess to maintain said parts in separated position, and means operable by said brace bar for controlling the entrance of said recess to selectively permit or prevent cooperation of said brace bar with said recess.
3. A device of the character described, com-

prising two pivotally connected parts, one of said parts being provided with a latch recess and the other of said parts having a brace bar pivotally connected thereto, said brace bar being provided with a latch pin adapted for latching engagement in said recess to maintain said parts in separated position, and means operable by said latch pin for controlling the entrance of said recess to selectively permit or prevent said latch pin from engagement in said recess.

4. A device of the character described, comprising two pivotally connected parts, one of said parts being provided with a latch recess and the other of said parts having a brace bar connected thereto and adapted for latching cooperation with said recess to maintain said parts in separated position, adjustable means for controlling the entrance of said recess to selectively permit or prevent cooperation of said brace bar with said recess, and projecting means engaging said adjustable means for normally resisting adjustment thereof.

5. A device of the character described, comprising two pivotally connected parts, one of said parts being provided with a latch recess and the other of said parts having a brace bar connected thereto and adapted for latching cooperation with said recess to maintain said parts in separated position, adjustable means for controlling the entrance of said recess to selectively permit or prevent cooperation of said brace bar with said recess, and a projection having yielding engagement with said adjustable means for normally resisting adjustment thereof.

6. A device of the character described, comprising two pivotally connected parts, one of said parts being provided with a latch recess and the other of said parts having a brace bar connected thereto and adapted for latching cooperation with said recess to maintain said parts in separated position, an adjustable member of resilient character for controlling the entrance of said recess to selectively permit or prevent cooperation of said brace bar with said recess, and a rigid projection engaging said adjustable member for normally resisting adjustment thereof.

7. A device of the character described, comprising two pivotally connected parts, a brace bar pivotally connected to one of said parts and provided with a latch pin, a latch member carried by the other of said parts and provided with a latch pin receiving recess, said latch pin having forward and return movements relative to said latch member, and means movable only during the final part of each of the forward

movements of said latch pin for closing the entrance of said recess during each of the return movements of said latch pin.

8. A device of the character described, comprising two pivotally connected parts, a brace bar pivotally connected to one of said parts and provided with a latch pin, a latch member carried by the other of said parts and provided with a latch pin receiving recess, said latch pin having forward and return movements relative to said latch member, and means movable only during the final part of each of the return movements of said latch pin for opening the entrance of said recess during each of the forward movements of said latch pin.

9. A device of the character described, comprising two pivotally connected parts, a brace bar pivotally connected to one of said parts and provided with a latch pin, a latch member carried by the other of said parts and provided with a latch pin receiving recess, said latch pin having forward and return movements relative to said latch member, and means operable by said latch pin during the final part of each of said movements of said latch pin for controlling the entrance of said recess during the initial part of each of said movements of said latch pin.

10. A device of the character described, comprising two pivotally connected parts, one of said parts being provided with a latch recess and the other of said parts having a brace bar connected thereto and provided with a latch pin for latching cooperation with said recess to maintain said parts in separated position, and adjustable means movable by said latch pin for controlling the entrance of said recess to selectively permit or prevent cooperation of said latch pin with said recess, said controlling means being provided with a pair of opposed shoulders for engagement by said latch pin in effecting movement of said controlling means.

11. A device of the character described, comprising two pivotally connected parts, one of said parts being provided with a latch recess and the other of said parts having a brace bar connected thereto and provided with a latch pin for latching cooperation with said recess to maintain said parts in separated position, and adjustable means movable by said latch pin for controlling the entrance of said recess to selectively permit or prevent cooperation of said latch pin with said recess, said controlling means being provided with a pair of oppositely inclined shoulders for engagement by said latch pin in effecting movement of said controlling means.

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