Dec. 29, 1959 A. A. RIZZUTO 2,918,985

FOLDABLE PLATFORM EXTENSION

Original Filed May 27, 1957

FIG. 1.

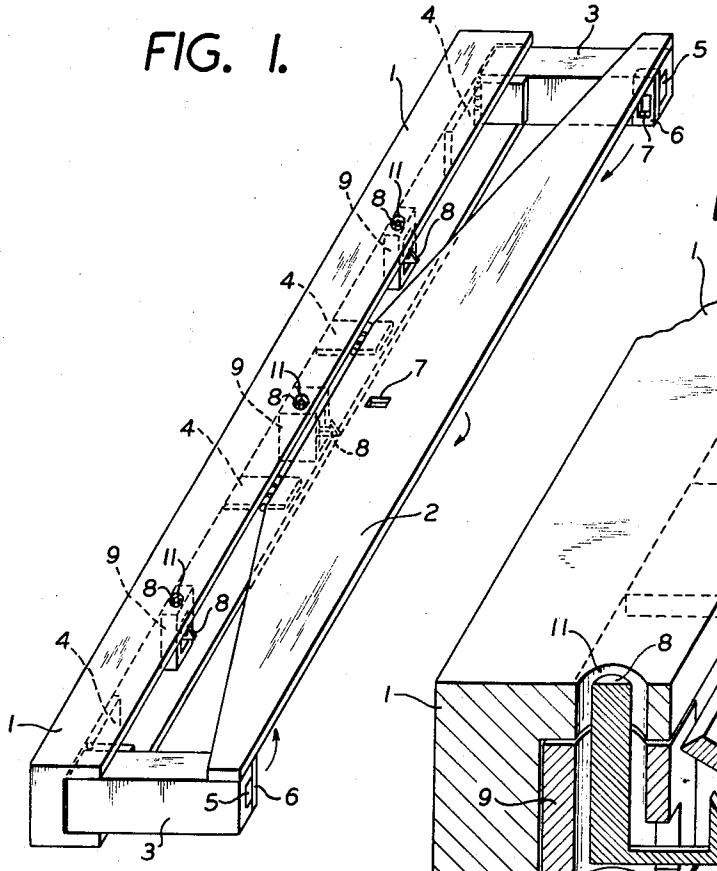
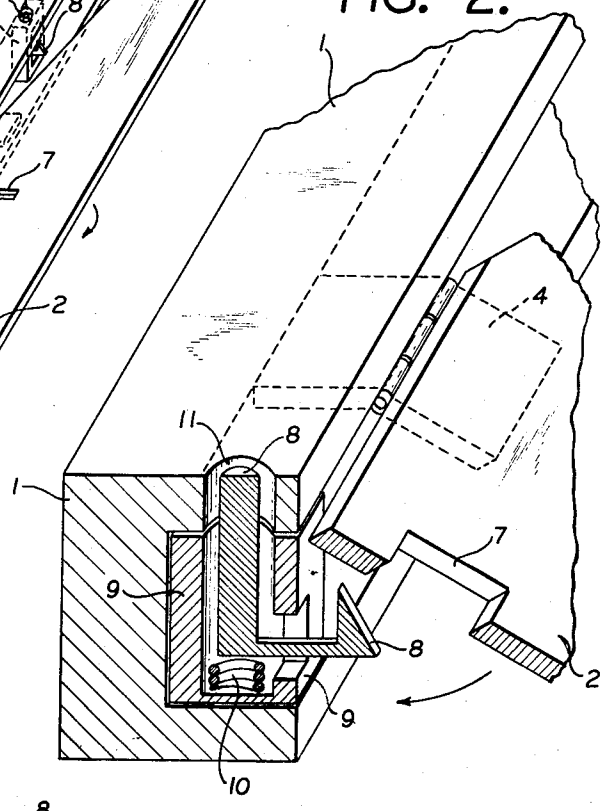


FIG. 2.



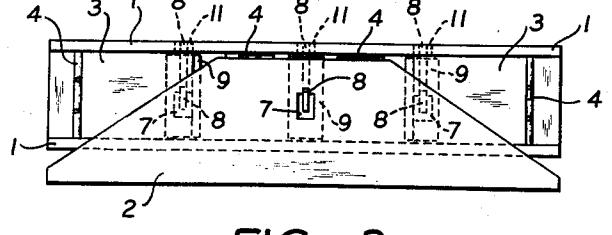


FIG. 3.

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FOLDABLE PLATFORM EXTENSION

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Original application May 27, 1957, Serial No. 661,644. Divided and this application February 19, 1959, Serial No. 794,468

3 Claims. (Cl. 182—223)

This invention relates to new and useful improvements in platform extensions generally, and more particularly to a type of platform or step attachment which is both foldable and removable, and this application constitutes a division of a copending application, Serial No. 661,644, filed May 27, 1957.

An object of the present invention is to provide an extension for a platform or step which will broaden the standing surface thereof for a user and thereby permit greater freedom of motion and activity and also insure a more secure footing.

Another object is to provide an attachment for a platform or step which can be used as a supporting extension thereof and which can be maintained in a folded or vertical position when not in use.

A further object is to provide an extension for a platform or step which is detachable and therefore usable wherever it may be needed.

In the accompanying drawing forming a part hereof:

Fig. 1 is a perspective view of the invention showing the extension in a horizontal operative position.

Fig. 2 is a perspective cross-sectional view of the extension partially suspended illustrating the manner in which it is depressed to a vertical or folded position and retained in such a position by a spring catch.

Fig. 3 is a face view of the extension in the folded or vertical position assumed when not in use.

The drawing illustrates the invention as a unit which is portable and attachable wherever it may be of use, the means of attaching the unit depending of course on the form of the specific structure requiring the extension. The invention is particularly useful as an extension for a step of a ladder or stepladder and in a folded or vertical position would not impair the usefulness of a step immediately below the folded extension, if constructed properly.

As seen in Fig. 1, the invention consists of four principal parts, namely, a channel-shaped frame 1, for which a frame of I section could be substituted if desired, a triangle-shaped plate 2 attached to the upper flange of the frame 1 by means of spring hinges 4, and a pair of barlike arms 3 attached to the web portion of the frame 1 also by means of spring hinges 4. If the plate 2 and the arms 3 are permanently attached to a structure the frame 1 would not necessarily be required since the operating parts of the invention could be attached individually to the structure and still cooperate to serve the purpose of the invention. For example, if the steps of a ladder or step ladder are channel-shaped or of I section in form, any one step, or all of the steps, could individually constitute the frame for the operating parts of the invention.

The plate 2 is provided with a centrally-positioned slot 7 and the arms 3 are each provided with a laterally-formed hollow or recess 5 at the free end thereof and

a slotted cover 6 which is superimposed on the hollowed portion of the arm 3. The frame 1 is provided with spaced openings 11 in the upper flange.

A spring catch 8 is an L-shaped rod having an upturned toe the outside of which is beveled and the inside at right angles to the foot of the catch. The leg of the L-shaped catch 8 is contained within a boxlike incasement 9 and is supported in a vertical position by a spiral spring 10. The incasement 9 is provided with an opening in the front thereof to permit a protrusion of the foot of the catch 8, and an opening at the top to permit a protrusion of the upper portion of the leg of the catch. The effective use of the catch 8 depends upon the hook shape of the toe which is formed by an inward slant of the outside surface of the toe.

Three incasements 9 containing the spring catches 8 are attached within the channel of the frame 1, each in a position which permits engagement of the beveled toe of the catch 8 with the upper edge of the slot 7 in the plate 2 and at the end of each arm 3 when the arms and the plate are in a folded position as seen in Fig. 3, the toe of only the center catch 8 being exposed. The spaced openings 11 in the upper flange of the frame 1 permit a necessary exposure of the upper portion of the leg of each catch 8 as seen in Figs. 1 and 2.

The operation of the invention is extremely simple and convenient. If attached to a step of a ladder or stepladder, for example, the invention can be operated entirely without the use of the hands. Assuming that the plate 2 is in an operative position as seen in Fig. 1, a user by means of a foot action could direct each arm 3 to a folded position, the arms being retained in such a position by the spring catches 8, and then depress the plate 2 likewise to a folded position as illustrated in Fig. 3. The operation of the catch 8 is illustrated in Fig. 2 wherein the slanted toe of the catch 8 engages the upper edge of the slot 7, including of course the slot at the end of each arm 3, and the toe is itself depressed sufficiently, by the downward pressure of the upper edge of the slot 7, to be able to pass thru the slot, the spiral spring 10, by its recoiling action, thrusting the leg of the catch 8 upward so that the top edge of the slanted toe is above the upper edge of the slot 7 on the outside thereof, as seen in Fig. 3. As a result of this operation, the arms 3 and the plate 2 are secured in a folded and inoperative position by the catches 8. The operation is reversed when the exposed portion of the leg of each catch 8, in the upper flange of the frame 1, is depressed thereby permitting a disengagement of the toe of the catch from the upper edge of the slot 7 and a swinging of the plate 2 and the arms 3 to an extended operative position by the recoiling action of the spring hinges 4.

The invention described and illustrated herein may assume other forms in the construction and arrangement of parts and it should be understood that changes in the form and structural details of the invention may be made without departing from the spirit and scope thereof as hereinafter claimed.

What is claimed is:

1. A foldable platform extension comprising a channel-shaped frame having a vertical web portion and an upper flange and a lower flange extending horizontally from said web portion, said upper flange being provided with spaced openings, a substantially triangle-shaped plate attached to the upper flange by means of spring hinges, said plate having a centrally positioned slot formed therein, a pair of barlike arms attached by means of spring hinges to the web portion of said frame at each end there-

of, said arms having each a hollow formed in the inside lateral surface at the free end thereof, said hollow having a platelike cover susperimposed thereon, said cover being provided with a centrally positioned slot, and incased spring catches attached to the web portion of the frame between the flanges thereof, said catches being positioned one at the center of the web portion and one on each side of said central catch in a spaced relation thereto, said incased spring catches comprising each a boxlike incasement having openings in the front and upper portions thereof, an L-shaped catch vertically disposed within said incasement and having an upturned bevel toe the inside surface whereof is perpendicular to the foot of the catch, said toe extending from the front portion of said incasement thru the opening thereof and in spaced relation thereto and the head portion of the catch surmounting the leg portion thereof extending thru the opening in the upper portion of the incasement and thru one of said openings in the upper flange of the frame, said head portion being thereby exposed on the upper surface of said upper flange, and a spiral spring disposed within the incasement directly below the leg portion of said catch and serving as a support thereof, said triangle-shaped plate being adapted to swing from a horizontally extended position to a vertically folded position thereby permitting an engagement between the bevel portion of the toe of said central catch and the upper edge of the slot in the plate whereby simultaneously the catch is depressed permitting a complete penetration of the plate by the toe thru said slot and the spiral spring is contorted, said spring recoiling after said penetration by the toe thereby thrusting the catch upward and permitting the toe to detachably secure said plate in a folded position, said plate being releasable from said folded position by a depression of the exposed head of the catch in the upper flange of the frame thereby permitting a disengagement of the toe of the catch from the plate by way of the slot therein, said plate thereupon being swingable upward to a horizontally extended position by the actuation of said spring hinges, said barlike arms being adapted to swing horizontally from an extended position to a folded position within the frame between the flanges thereof thereby permitting an engagement of the bevel portions of the toes of said sidelong catches with the upper edges of the slots at the free ends of said arms whereby the arms are detachably secured in a folded position by said catches in the manner described hereinbefore relative to said detachably secured plate, said arms being releasable from a folded position by a disengagement of the catches therefrom in the manner described hereinbefore relative to said releasable plate, said arms thereupon being swingable horizontally to an extended position by the actuation of said spring hinges wherein the arms function as supporting means for said plate.

2. A foldable platform extension comprising a channel-shaped frame having a web portion and upper and lower flanges, said upper flange being provided with spaced openings, a substantially triangle-shaped plate attached to the upper flange by means of spring hinges, said plate having a centrally positioned slot formed therein, a pair of barlike arms attached by means of spring hinges to the web portion of said frame at each end thereof, said arms having each a recess formed laterally at the free end thereof, said recess having a platelike cover superimposed thereon, said cover being provided with a centrally positioned slot, and incased spring catches attached to the web portion of the frame one thereof being positioned at the center of the web portion and a pair laterally of said central catch in spaced relation thereto, said incased spring catches comprising each a boxlike incasement having openings in the front and upper portions thereof, an L-shaped catch vertically disposed within said incasement and having an upturned bevel toe the inside surface whereof is perpendicular to the foot portion of said catch, said toe extending from the front portion of said incasement thru the opening thereof and in spaced relation thereto and the head portion of said catch surmounting the leg portion thereof extending thru the opening in the upper portion of the incasement and thru one of said openings in the upper flange of the frame, said head portion thereby exposed on the upper surface of said upper flange, and a spiral spring disposed within said incasement subjacent to and supporting the leg portion of said catch, said triangle-shaped plate being adapted to fold from a horizontally extended position to a vertically locked position by engaging and depressing the toe of said central catch thereby simultaneously effecting a contortion of the spiral spring and permitting said toe to penetrate the plate thru the slot therein and detachably secure said plate in a locked position by the recoiling action of said spiral spring, said plate being releasable from said locked position by a depression of the exposed head of the catch in the upper flange of the frame thereby permitting a disengagement of said toe from the plate by way of the slot therein and permitting said plate to swing upward to a horizontally extended position by the actuation of said spring hinges, said barlike arms being adapted to fold from an extended position to a horizontally locked position within said frame by engaging and depressing the toes of said lateral catches thereby simultaneously effecting a contortion of the spiral springs and permitting said toes to penetrate said platelike covers thru the slots therein and detachably secure the arms in a locked position by the recoiling action of said spiral springs, said arms being releasable from said locked position by a depression of the exposed heads of the catches in the upper flange of the frame thereby permitting a disengagement of said toes from said platelike covers by way of the slots therein and permitting said arms to swing horizontally to an extended position by the actuation of said spring hinges wherein the arms function as supporting means for said plate.

3. A foldable platform extension comprising a channel-shaped frame having a web portion and upper and lower flanges, said upper flange being provided with spaced openings, a platelike slotted extension attached to the upper flange by means of spring hinges, a pair of extension supports attached by means of spring hinges to the web portion of said frame at each end thereof, said supports being provided with lateral recesses at the free ends thereof and rectangular slotted covers superimposed on said recesses, and spring catch means attached to the web portion of the frame, said means being positioned one at the center and a pair laterally of said central means in spaced relation thereto, said catch means comprising each an incasement having openings in the front and upper portions thereof, an L-shaped catch vertically disposed within said incasement having an upturned bevel toe, said toe extending from the front portion of said incasement thru the opening thereof and in spaced relation thereto and the head portion of said catch extending thru the opening in the upper portion of the incasement and thru one of said openings in the upper flange, and a spiral spring disposed within said incasement subjacent to and supporting the leg portion of said catch, said extension being adapted to fold from a horizontally extended position to a vertically locked position by engaging and depressing the toe of said L-shaped catch thereby simultaneously effecting a contortion of the spiral spring and permitting said toe to penetrate the extension thru the slotted portion thereof and releasably secure said extension in said locked position by the recoiling action of said spiral spring, said extension supports being adapted to fold from a horizontally extended position to a horizontally locked position by engaging the L-shaped catches of said lateral catch means in the slotted portions thereof in the manner described hereinbefore relative to said releasably secured extension, said platelike extension and said extension supports being releasable from a locked position by a depression of the head portions of said

L-shaped catches thru said openings in the upper flange thereby permitting a disengagement of the catches of said central and lateral catch means respectively from the slotted portions of the extension and the supports and permitting said extension and said supports to swing to a horizontally extended and operative position by the actuation of said spring hinges.

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