June 3, 1969 M. SZABO 3,447,197

COLLAPSIBLE HANDLE OPERABLE BY EXERTION OF A PUSH DOWNWARDLY ON ONE END THEREOF

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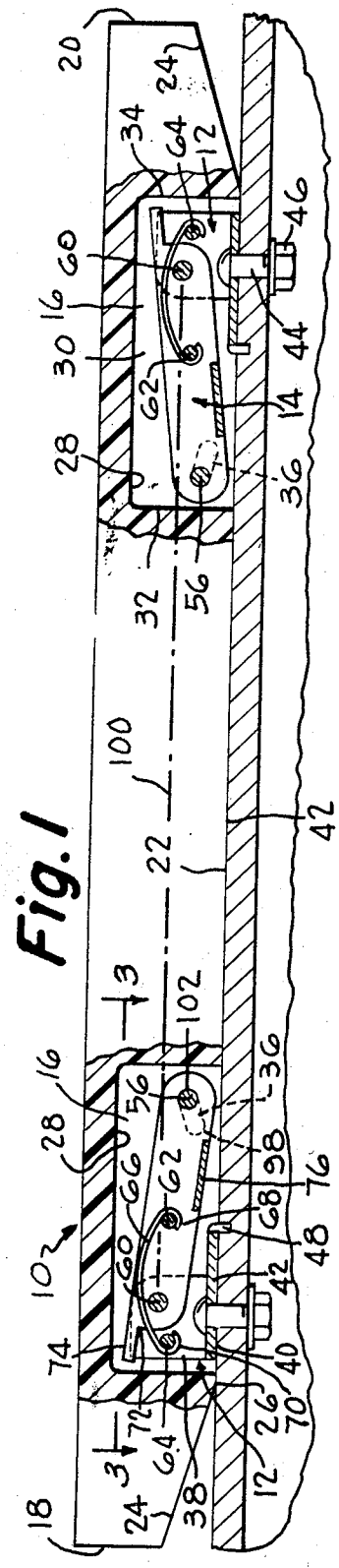


Fig. 1

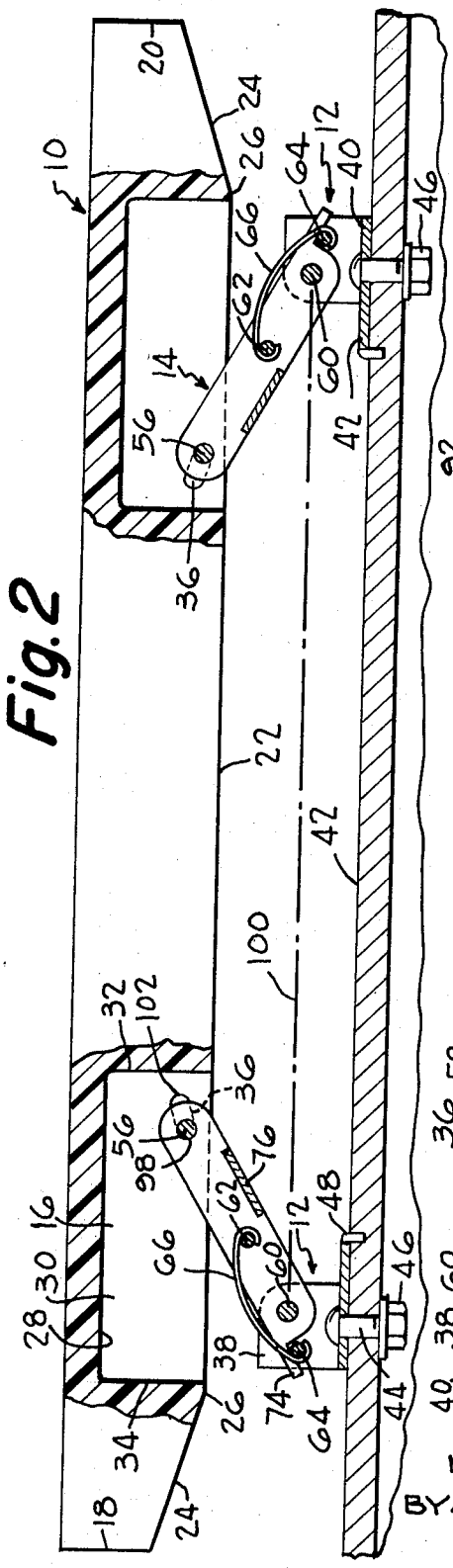


Fig. 2

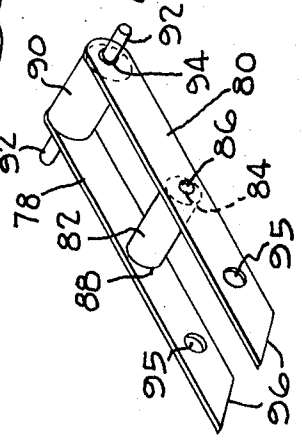


Fig. 4

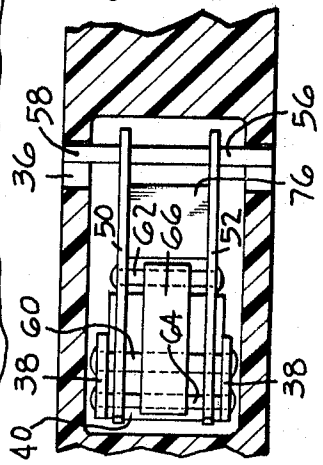


Fig. 3

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COLLAPSIBLE HANDLE OPERABLE BY EXERTION OF A PUSH DOWNWARDLY ON ONE END THEREOF

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8 Claims

ABSTRACT OF THE DISCLOSURE

A collapsible handle for a carrying case, luggage and the like in which the linkage pivotally connecting the handgrip to the case wall is urged selectively by leaf springs into a raised carrying position and a toggled collapsed position with the lower surface of the handgrip against or adjacent the case wall.

This is a continuation-in-part of my copending application Ser. No. 630,389 filed April 12, 1967.

This invention relates to a handle for use with a carrying case, luggage and the like which is collapsible from a raised carrying position to a non-carrying position in which the lower or undersurface of the handgrip is against or adjacent the case wall.

The primary object of the invention is to provide a collapsible handle of the character described in which leaf springs are used in conjunction with pivoted linkage connecting the handgrip to the case wall whereby the springs constantly urge the handgrip selectively into the raised carrying position above the case wall and into the collapsed non-carrying position against or adjacent the case wall, the leaf springs acting cooperatively with the pivot points of the linkage to provide toggle retention of the handgrip in its collapsed non-carrying position.

Another object of the invention is to provide a collapsible handle of the character described which is raised from its collapsed non-carrying position by depressing one end of the handgrip to raise the other end and then by releasing the depressed end, there being stop means to prevent overturning of the handgrip in the process of raising the same.

Another object of the invention is to provide a collapsible handle of the character described which is sturdy and therefore capable of sustaining substantial loads while it is relatively simple in construction and economical to assemble and mount on a carrying case, as well as easy to raise and collapse.

These and other objects of the invention will become more apparent as the following description proceeds in conjunction with the accompanying drawings wherein:

FIG. 1 is a side elevational view of the instant handle shown in its collapsed non-carrying position, parts being broken away and shown in section;

FIG. 2 is a view similar to FIG. 1 showing the handle in its raised carrying position;

FIG. 3 is a sectional view taken on the line 3—3 of FIG. 1; and

FIG. 4 is a perspective view of a modified form of link.

Specific reference is now being made to the drawings wherein similar reference characters are used for corresponding elements throughout.

The instant handle comprises three essential components, namely an elongated handgrip **10**, anchoring members **12** and linkage **14** operatively connecting the handgrip to the anchoring members. The handgrip may

be made of a suitable material, preferably molded of plastic, and includes recesses **16** adjacent the ends **18** and **20**, the recesses opening through the lower or undersurface **22** of the handgrip. The ends **18** and **20** are tapered downwardly and inwardly as at **24** to meet the lower substantially flat surface **22** at corners **26**.

The recess **16** contains an upper wall **28**, side walls **30** and inner and outer end portions **32** and **34**. Opening into the recess through the opposed side walls **30** are terminally closed upwardly and inwardly inclined slots **36**.

Each anchoring member **12** includes a metallic substantially U-shaped member having upstanding ears **38** joined by a web **40** which bears against the case wall **42** and is secured thereto by an appropriate staked-in screw **44** and nut **46**. To prevent rotation of the member while the nut **46** is screwed home, the web **42** can be provided with an inward extension **48** having a downturned lug or hook which fits into an appropriate aperture in the case wall.

In the form of the invention shown in FIGS. 1–3, the linkage **14** comprises a pair of elongated vertical transversely spaced plates **50** and **52**. A first transverse pin **56** extends rotatably through the plates adjacent their inner ends and include end portions **58** which extend into the slots **36** for sliding movement therealong. Thus the inner end of each link unit is slidable lengthwise of the handgrip and pivotal around a transverse axis. Adjacent the other or outer ends of the plates, another or second transverse pin **60** extends rotatably through the plates, the pin being preferably a double headed rivet carried by the anchoring member **12** and extending between the ears **38** thereof. Thus the outer end of each link unit is pivoted to the anchoring member around a transverse axis.

Secured between the plates **50** and **52** intermediate the first and second pivot pins **56** and **60** is a third fixed pin **62** and secured between the ears **38** beneath the second pivot pin **60** is another or fourth fixed pin **64**. A leaf spring **66** is provided which is disposed between the plates **50** and **52**, straddles the second pivot pin **60** and is terminally hooked as at **68** and **70** around the pins **62** and **64**, the leaf spring being under tension at all times tending thereby to draw the terminal pins **62** and **64** towards each other.

The outer end portions of the plates **50** and **52** are cut away inwardly beyond the area of the pin **64** but short of the pivot pin **60** as at **72** so that the plates, in effect, contain longitudinal extensions **74** for a purpose soon to appear. In this form of the invention each link is a channel so that the plates **50** and **52** at their lower edges are joined by a web **76** which extends partially of the length of the plates up to their inner edges.

In the modification shown in FIG. 4, the link is not a pre-formed channel member but rather a pair of vertically disposed transversely spaced plates **78** and **80** which are held together by modified forms of the third fixed pin and first pivot pin. Thus the third fixed pin includes an enlarged central spacer portion **82** and reduced pintles **84** which extend through the plates and are then peened or headed as at **86** with the result that the shoulders **88** formed at the juncture of the pintles and the spacer portion **82** bear against the inner faces of the plates. Similarly, the first pivot pin has a central enlarged spacer portion **90** and reduced pintles **92** which extend through the plates and are slidably and rotatably received in the handgrip slots **36**. The pintles are peened as at **94** at the outer faces of the plates to retain the pivot pin on the plates. Aligned holes **95** are provided in the plates to rotatably receive the second pivot pin **60** and instead of rectangular cut-outs **72** which clear the fourth pin **64** and form the extensions **74** as in FIGS. 1–3, the exten-

sions in this form of the invention are formed as angular undercuts **96** at the extreme outer ends of the plates **78** and **80**, preferably employing at 45° angle.

In use when the handle is in its collapsed position as shown in FIG. 1, its lower surface **22** is against the case wall **42** and each of the links **12** is in a generally horizontal slightly inclined position with the first pivot pin **56** or **90** adjacent the outer end **98** of the slots **36**. The pin **56** is below the horizontal line **100** joining the second pivot pins **60** so that a toggle action takes place. The third fixed pin **62** or **82** also assumes a position below line **100** so that the spring **66**, being under tension at all times, aids this toggle action. When finger pressure is applied to one end of the handgrip, say end **20**, the handgrip rocks around the corresponding corner **26** to raise the other end **18**. At that end the pin **56** moves towards the outer end **98** of the slots **36**, the link being urged into this raised position by the spring **66** until the extensions **74** or **96** abuts the fourth pin **64** thus preventing the handgrip from overturning or rattling. It will be noted that the extension **74** or **96** at the outer end of the link units in both modifications are separated laterally to allow clearance for the spring **66**.

As the end **18** is first raised, the toggle at the other end **20** is broken and the first pivot pin **56** or **90** moves above the line **100**. When the finger pressure on the end **20** is released, the spring **66** at that end urges the link upwardly until its extension **74** or **96** abuts the corresponding pin **64**, at which position the handgrip is in its raised position substantially parallel to the case wall.

The foregoing operation employs a rocking action around either of the corners **26** of the handgrip. If desired, the ears **38** of the anchoring members **12** can be made of such height as to engage the upper wall **28** of the recess **16** when the handle is in its non-carrying collapsed position, wherein the lower surface **22** of the handgrip is adjacent but does not abut the case wall **42**. In this construction, a push downwardly on one of the ends of the handgrip in this position will cause that end to rock around the fulcrum formed by the ears **38** engaging the upper wall **28** of the recess **16**, rather than around the corner **26**, as described above.

While preferred embodiments of the invention have been here shown and described, it will be understood that skilled artisans may make minor variations without departing from the spirit of the invention.

I claim:

1. A collapsible handle for use with a carrying case comprising an elongated handgrip, a pair of spaced anchoring members secured to a wall of the carrying case, a pair of links for each anchoring member, first means slidably and pivotally securing one end of the link to the handgrip, second means pivotally securing the link to an anchoring member adjacent its other end, a leaf spring straddling the second pivot means and means terminally attaching the spring to the link and to the anchoring means, the second pivot means being above the means terminally attaching the spring to the link and the first pivot means when the hand grip is collapsed with its lower surface adjacent the case wall to provide toggle retention cooperatively with the spring which act at all times under tension.

2. The combination of claim **1** and an extension on the link beyond the second pivot means adapted to engage the means terminally attaching the spring to the anchoring member to limit the upward movement of the link and prevent overturn of the handgrip.

3. The combination of claim **1** wherein the link comprises a pair of spaced vertical plates, the first pivot means including a first transverse pin extending through the plates adjacent the inner end of the link and slots in the handgrip slidably receiving the ends of the first pin, the second pivot means including a second transverse pin extending through the plates adjacent the outer end of the link and secured to the anchoring member, the means terminally attaching the spring to the link and anchoring member including a third transverse pin extending between and being secured to the plates intermediate the first and second pins, and a fourth transverse pin carried by the anchoring member, the spring being disposed between the plates, straddling the second pin and being hooked about the third and fourth pins.

4. The combination of claim **3** wherein the first and third pins are below the second pin when the handle is collapsed and the lower surface of the handgrip is adjacent the case wall.

5. The combination of claim **3** wherein the plates include portions extending over the fourth pin and adapted to abut the same when the handgrip is raised to a predetermined position.

6. The combination of claim **3** wherein the plates are joined at the bottom edges adjacent the outer ends thereof to form a channel member.

7. The combination of claim **1** and means providing a fulcrum round which one end of the handgrip can be rocked when its lower surface is adjacent the case wall and a force is applied downwardly at said one end to raise the other end of the handgrip after which the other end is pushed upwardly by its spring when the force on the depressed end of the handgrip is released.

8. The combination of claim **7** and an extension on the link beyond the second pivot means adapted to engage the means terminally attaching the spring to the anchoring member to limit the upward movement of the link and prevent overturn of the handgrip.

References Cited

UNITED STATES PATENTS

1,495,752	5/1924	La Rue	16—115
2,723,417	11/1955	Furholmen	16—115

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