United States Patent

[11] 3,568,901

[72] Inventor **Lewis F. McNitt**
23219 Lake Road, Bay Village, Ohio 44140

[21] Appl. No. **778,267**
[22] Filed **Nov. 22, 1968**
[45] Patented **Mar. 9, 1971**

[54] **SLIDE FASTENER OPERATING MECHANISM**
3 Claims, 4 Drawing Figs.

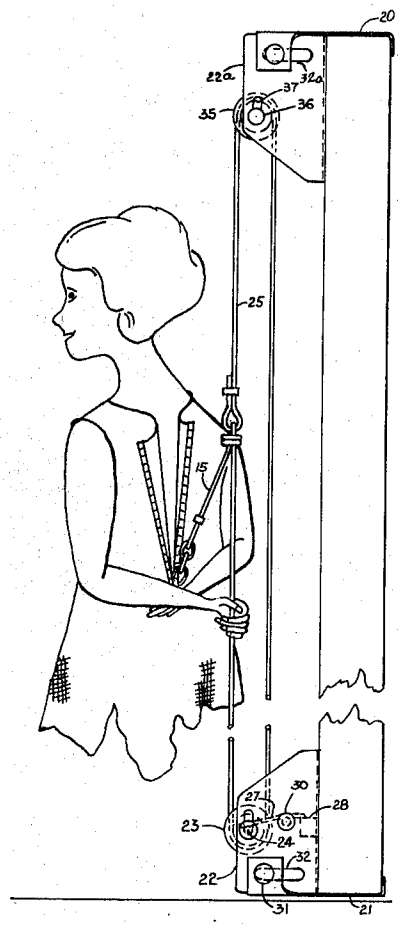
[52] **U.S. Cl.** **223/111,** 294/1
[51] **Int. Cl.** **A47j 51/06**
[50] **Field of Search** ..... 294/26, 1 (A); 24/205.15; 223/111

[56] **References Cited**
UNITED STATES PATENTS

2,604,242	7/1952	Vahan	294/1(A)X
3,199,753	8/1965	Robertson et al.	294/1(A)X

Primary Examiner—Evon C. Blunk
Assistant Examiner—Douglas D. Watts
Attorney—Woodrow Portz

ABSTRACT: A slide fastener operating mechanism adapted for door or wall mounting is secured to an endless cord that is suspended and running between spaced, resiliently supported end pulleys, themselves positioned in easily removable over-the-door or wall securable brackets.



PATENTED MAR 9 1971

3,568,901

FIG 1

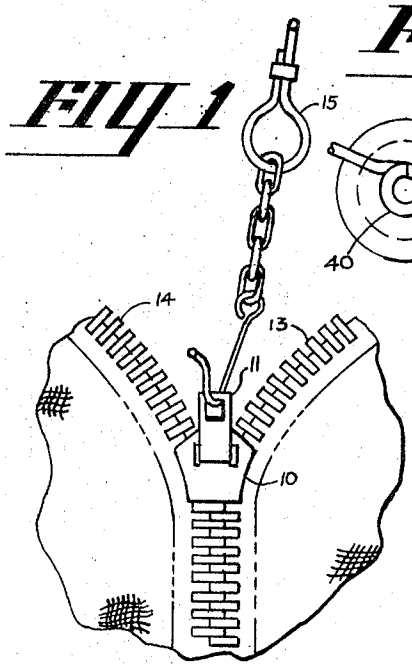


FIG 4

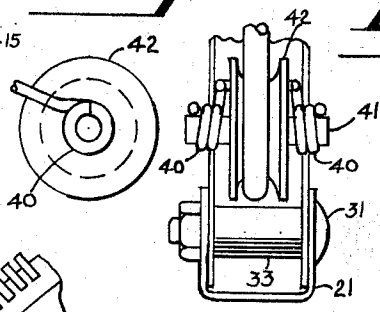
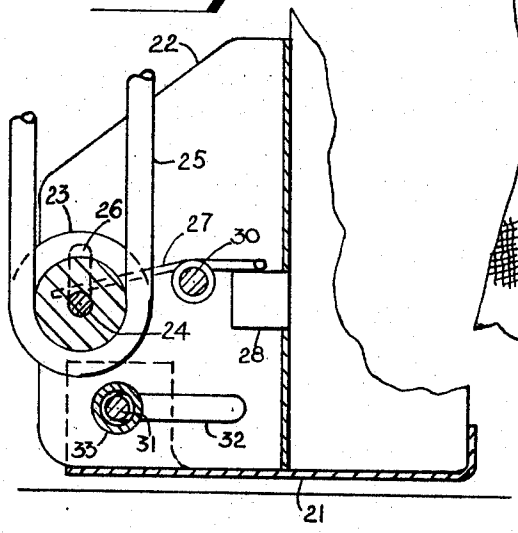


FIG 3

FIG 2



INVENTOR
LEWIS F. McNITT

BY
Thomas J. Mayner

ATTORNEY

SLIDE FASTENER OPERATING MECHANISM

This invention relates to operating mechanisms for slide fasteners. More particularly it is directed to a slide fastener designed to assist those persons finding difficulty in their manipulation when included in the back of a wearer's clothing. The mechanism is easily mounted over door ends, being made securable therein, and it has resiliency in that it is yielding when an operator tends to slightly move away from it.

The mechanism includes spring yielding support means of pulleys or wheels in which an endless cord is placed and to which is attached a hook means adapted to be secured to the slide locking device. Advantageously, the spring mounting of the pulleys provides for substantial yielding permitting the operator adequate room for more comfortable operation. Also the over-the-door end brackets permit self-mounting and dismounting. Should a permanent and a more narrow mounting of the end pulley holders be desired the over-the-door end brackets are made disengageable and the pulley holders may be screw secured to the door or wall.

These and additional advantages will be described in the following specification in connection with the attached drawing, where:

FIG. 1 illustrates a slider pull mechanism to which this invention applies;

FIG. 2 is in partial section disclosing a resilient pulley mounting in an over-the-door end bracket;

FIG. 3 is a diagrammatic representation of a door installation of the slide fastener mechanism in an operative position relative a person; and

Split FIG. 4 is a frontal view of the lower pulley mounting including a yielding spring support of the pulley itself.

Referring to the drawing, slide fasteners as shown in FIG. 1 are quite commonly used in outerwear as jackets, sweaters, dresses, etc. Indeed they are preferred to buttons with their receiving buttonholes and other securing means in that a single continuous motion can zip up a dress or coat than the repeated buttoning from one to the next button, and so on until the operation is complete. Certainly, slide fasteners are a boon to people who may be suffering some physical malady and find it difficult to manipulate their fingers and arms for a buttoning operation, or in zippering. While the slide fastener **10** of FIG. 1 is readily operable by merely pulling on the slide tab **11** to close and lock the opposing stringer sides **13, 14**, an incapacitated person will still find it difficult where it is in the back of a garment to twist his or her arms about the back to fully effect a closure. Individual extension pulls **15**, as generally indicated, are available and do help in instances but not in all cases. And, also, a person afflicted with hand or arm troubles would hardly be able to screw fasten a slide fastener support mechanism to a door or wall.

A helpful combination of a slide fastener mechanism is shown in FIGS. **2, 3** and split FIG. **4**. Two opposing, rigid, U-shaped, supporting brackets **20, 21** are made to fit over a door end, as shown. Each extends inwardly into a room a distance sufficient to provide space for U-shaped pulley mounting elements **22, 22*a***. The lower mounting **22** supports a pulley **23** on a shaft **24** and the upper pulley **35** on its shaft **36**. The pulleys support the endless cord **25** which extends in a circuit therearound. And to the cord **25** there is attached a pull element **15** with a hook that is insertable in the slide tab **11**. The pulley shafts **24** and **36** extend through the parallel side webs of their assembly mounts **22, 22*a*** and each is permitted some vertical movement in their respective slots **26, 37**, being at all times resisted by springs **27** on pin **30** (shown in lower mounting) whose forward ends rest on (or about) the shafts, as on shaft **24**, and which react against a fixed element as **28** at the rear. The fixed element **28** is spotwelded to the rear section of the bracket **22**, or stamped out from a portion of bracket **22**. The spring **27**, itself, is mounted about a fixed pin or shaft **30** also supported in the walls of the bracket assembly **22**. Thus, the spring may act on the shaft **24** to urge the pulley in a direction away from the element **22*a*** supporting the other pulley. A pull on the cord **25** will move one or both pulleys in their slots **26, 37** permitting the slide fastener to yield somewhat in the forward direction toward the user and thus give the user a more comfortable position in operating the slide fastener.

The pulley holding assembly **22** itself is desirably secured to the bracket **21** by means of side positioned threaded bolt and nut combinations **31** positioned in horizontal slotted openings **32**. A tubular spacer **33** over the bolt **31** maintains a uniform spacing between the sides of the U-shaped bracket **22**. The slots **32, 32*a*** permit an adjustment of the total assembly to varying thicknesses of doors. The upper pulley assembly is similar to the one being described but for the spring which also can be included if so desired.

During a typical use as shown in FIG. **3**, a bracket **20, 21** is joined to an element **22, 22*a*** with one leg of the bracket engaging one side of a door and the element secured to the other leg of the bracket to engage the other side of the door thereby enabling the assembly of the bracket and the element to fit around or clamp the upper or lower end of a door.

FIG. **4** is a modification of the pulley mounting assembly **22** in the door bracket **21** where the depressing spring arms **27** of FIGS. **2** and **3** are replaced with coiled spring ends **40** cantilever supported from the element **22** which also act as bearings for the shaft **41** of the pulley **42**. In this construction the spring itself can be supported in the manner already described, or so mounted as to be entirely independent of the restraining and limiting slots **26**.

While the invention is directed to a combination slide fastener mechanism for over-the-door end mounting, obviously it can be also secured to the face of the door itself by means of screws thus eliminating the door end bracket assembly mountings **20, 21**.

I claim:

1. A slide fastener operating mechanism comprising:

a pair of opposing supporting brackets adapted for being mounted on a base object in a vertical spacing sufficient to affect a desired range of slide fastener movement;

a pair of U-shaped pulley-mounted elements, each mounted on a bracket and having spaced side webs, the webs of each element having one pair of opposite parallel slots extending in a horizontal direction;

adjustable means extending through each bracket and the horizontal slots of the element supported thereon for securing said element at various horizontal positions relative to the bracket;

a pair of pulleys of which one is disposed between the webs of each element;

shaft means extending through each element and the pulley received therein, one of the shaft means and the pulley carried thereon being movable in a vertical direction;

spring means carried by said element the movable shaft means acting on, and urging, the shaft means in a direction away from the other element; and

endless cord means extending in a circuit around both pulleys and having a pull element secured by one end to the cord means, said pull element terminating in a hook at its loose end.

2. The mechanism of claim **2** wherein:

said webs of at least one of said elements having a pair of opposite parallel slots extending in the vertical direction;

said element having vertical slots receiving said shaft means associated therewith extending through said vertical slots; and

each bracket is U-shaped and has two legs of which one leg is opposed to the element and the element adjustably attached to its other leg to receive a supporting object between said one leg and the element.

3. The mechanism of claim **1** wherein:

spring means in cantilever attached relation with one of said elements has coiled ends for receiving said shaft means of one of said pulleys.