Aug. 10, 1965 H. L. ROBERTSON ETAL 3,199,753

ZIPPER MANIPULATING APPARATUS

Filed Oct. 22, 1962

FIG. 1

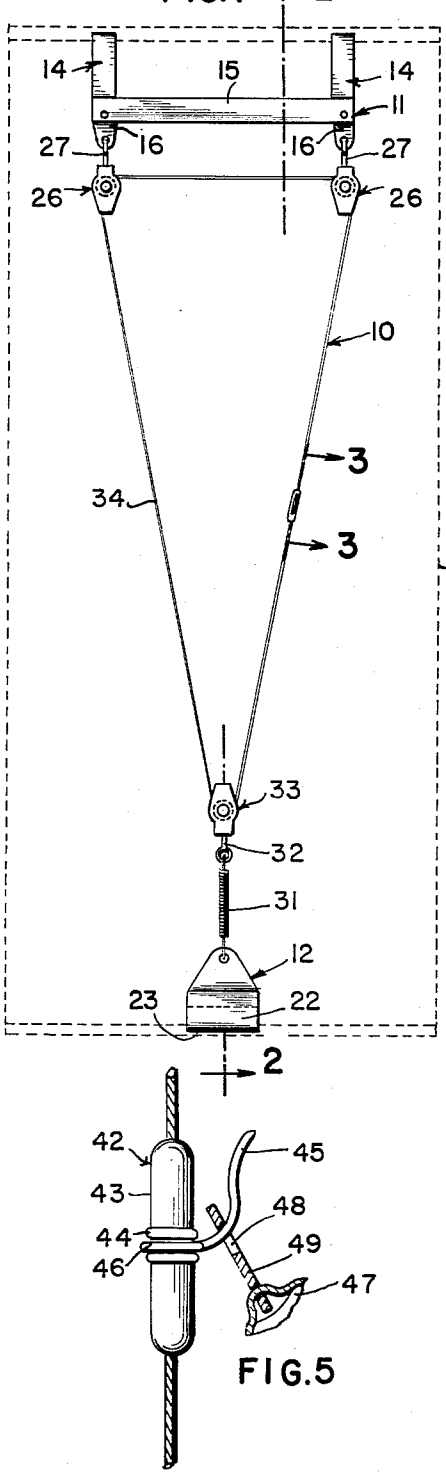


FIG. 2

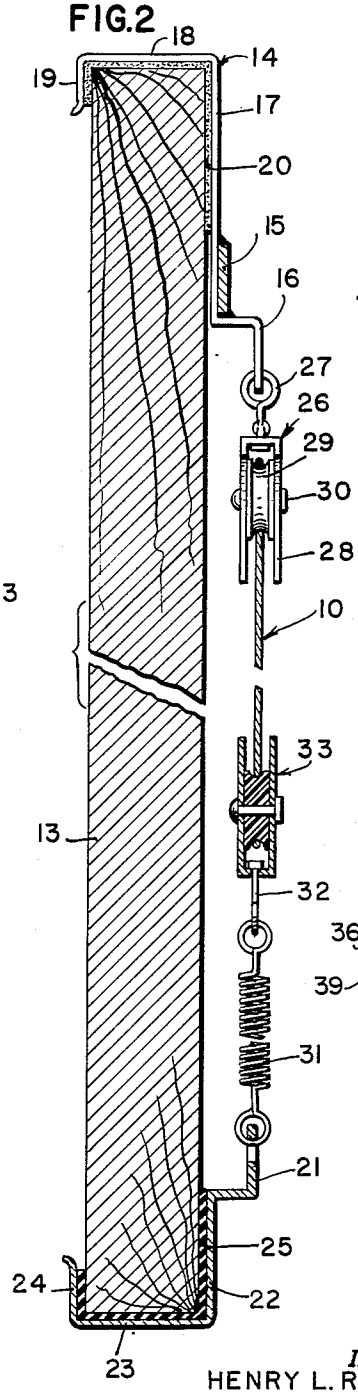


FIG. 3

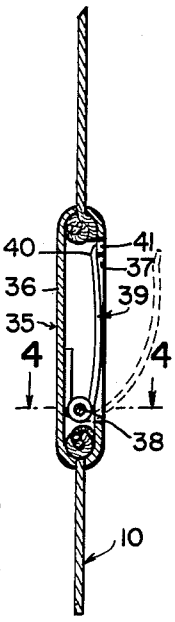


FIG. 4

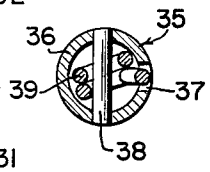


FIG. 5

INVENTORS
HENRY L. ROBERTSON
FRANCES K. ROBERTSON

BY Lyon & Lyon
ATTORNEYS

United States Patent Office 3,199,753 Patented Aug. 10, 1965

3,199,753

ZIPPER MANIPULATING APPARATUS

Henry L. Robertson and Frances K. Robertson, both of 4714 Amigo Ave., Tarzana, Calif.

Filed Oct. 22, 1962, Ser. No. 232,175
5 Claims. (Cl. 223—111)

This invention relates to an apparatus for manipulating a zipper from a location remote from the zipper for opening or closing the zipper.

It is well known that many articles of clothing and particularly women's clothing are provided with zippers in locations that are not easily reached by the person wearing such article of clothing. Further, persons that are partially disabled and do not have a full and normal use of their hands and arms have even greater difficulty in manipulating zippers that are located in awkward positions on the clothing. An obvious example of such a difficult to manipulate zipper is a zipper on the back of a woman's dress which requires movement of the movable element of the zipper from a location near the waist to a location near the neck for closing the zipper. With such a zipper the woman must first raise the movable zipper element as far as possible and then reach over her own shoulder and attempt to reach the partially raised movable zipper element. With the movable zipper element in this position, if the element should become stuck to the clothing, it is extremely difficult, if not impossible, for the woman to reach the element and appropriately manipulate it to release it.

Accordingly, it is a principal object of this invention to provide an apparatus for causing movement of the movable element of the zipper from a location remote from such movable element.

Another object of this invention is to provide an apparatus for causing upward or downward movement of the movable element of the zipper through simple manual manipulation of an element of the apparatus remote from the movable zipper element.

Another object of this invention is to provide a novel form of zipper manipulating apparatus which is relatively inexpensive and is portable for removable installation on any conventional door.

Other and more detailed objects and advantages of this invention will appear from the following description and the accompanying drawings.

In the drawings:

FIGURE 1 is an elevational view illustrating the preferred embodiment of this invention as it may be installed on a conventional door.

FIGURE 2 is a fragmentary sectional elevation view taken substantially on the line 2—2 as shown in FIGURE 1.

FIGURE 3 is a fragmentary sectional view of the latch mechanism taken substantially on the line 3—3 as shown in FIGURE 1.

FIGURE 4 is a sectional plan view taken substantially on the line 4—4 as shown in FIGURE 3.

FIGURE 5 is an elevation view similar to FIGURE 3 and illustrating a modified form of latch mechanism.

Referring now to the drawings, the zipper manipulating apparatus, generally designated **10**, is provided with a pair of brackets **11** and **12** adapted to be removably mounted on any conventiinal door **13**. Bracket **11** is comprised of two frame members **14** laterally spaced and joined by a brace **15**. The frame members **14** each has a connector portion **16** integrally joined to a vertical portion **17** which is in turn joined to a flange **18** positioned at right angles to the vertical portion **17**. A lip portion **19** extends downwardly from flange **18** and is spaced from vertical portion **17** by a distance greater

than the thickness of a conventional door **13**. One side of the vertical portion **17**, flange **18**, and lip portion **19** may be provided with a pad **20** for engaging the surface of the door **13** to prevent marring of the door and to enhance the gripping of the door.

Similarly, bracket **12** is provided with a connector portion **21**, a vertical portion **22**, a flange **23**, and a lip portion **24**. A pad **25** may also be provided for the same purposes as pad **20**. The connector portions **16** and **21** are spaced outwardly from the surface of the door **13**.

A pulley assembly **26** is pivotally mounted on each of the connector portions **16** by means of a swivel connector **27**. The pulley assemblies **26** are provided with a U-shaped frame **28** having a sheave **29** rotatably mounted on the frame **28** by means of a pin **30**. While it is not essential it is preferred that the sheaves **29** be of a nylon or Teflon type for improved operation of the apparatus **10** and for minimizing the cost of the apparatus.

A tension spring **31** is connected at one end to the connector portion **21** of bracket **12** and connected at the upper end to a swivel connector **32** similar to connectors **27**. A pulley assembly **33** similar or identical to pulley assembly **26** is connected to the swivel connector **32** in a conventional manner.

A flexible element **34** which may be of any conventional material such as a length of twine, cord, wire or rope is threaded around the sheaves **29** of the three pulleys **26** and **33** and the ends of the flexible element are secured to a latch mechanism, generally designated **35**. The length of the flexible element **34** is such as to form a taut triangularly shaped loop as shown in FIGURE 1. The loop is of such a size as to cause extension of the tension spring **31** when the apparatus **10** is installed on the door **13** to thereby maintain the loop in a taut condition.

The latch mechanism **35** may be of any convenient configuration and design adapted to perform the hereinafter described functions. It is to be noted that the latch mechanism is positioned on one of the relatively vertical sides of the triangular loop formed by the flexible element **34**. Latch mechanism **35** may be comprised of a housing **36** having a slot **37** in one side thereof and a transverse pin **38** mounted near one end of the housing. A hook **39** is provided and may be comprised of a length of spring wire with a portion coiled around the transverse pin **38** to form a torsion spring. The extension portion **40** of the hook **39** may be latched behind a tab **41** in the housing **36** in a manner similar to the conventional safety pin.

In the modified form a latch mechanism **42** shown in FIGURE 5, a tubular housing **43** is provided for joining the ends of the flexible element **34**. The housing **43** is provided with a pair of external ribs **44** between which is mounted a hook element **45** having a circular portion **46** encircling the housing **43**. By this arrangement the hook element **45** is adapted to swivel about the housing **43**.

With the apparatus **10** installed on the door **13**, as shown in FIGURE 1, the apparatus is ready for use. Assuming for purposes of discussion that the apparatus is to be used to close a zipper on the back of an article of apparel by raising the zipper, the person first puts on the article of apparel. The person then backs up to the apparatus **10** and adjusts the height of the latch mechanism **35** or **42** to approximately the height of the movable element **47** of the zipper by manually manipulating one or both of the vertical sides of the triangular loop formed by the flexible element **34**. The person then hooks the hook element **39** or **45** through the opening **48** provided in the handle **49** of the movable element **47** of the zipper. With the hook so engaged, the person pulls downwardly on the left-hand side of the triangular shaped loop of flex-

ible element 34 or upwardly on the right-hand side of the triangular loop (both as viewed in FIGURE 1). If the zipper becomes stuck, the reverse movement of the flexible element 34 may be employed to attempt to relieve the zipper or a quick up and down motion may be used for the same purpose. It is to be noted that the plain hook type of latching mechanism 42 is unsatisfactory for this latter purpose since the hook 45 may become dislodged from the handle 49 of the zipper element. However, by appropriately latching the hook element 39 of latch mechanism 35, repeated and vigorous up and down motion of the zipper element may be accomplished. It may be seen that the apparatus 10 may be used in this fashion for raising or lowering the movable element of a zipper and the person using the apparatus may grasp any portion of the loop formed by flexible element 34 which is most comfortable for that person's use.

Thus, it may be seen that by this invention there is provided an apparatus which may be easily and effectively operated by any person for manipulating a zipper on an article of apparel worn by that person which is located in an awkward position. It is preferred to use three or more pulley assemblies 26 and 33 so that the strands of the loop formed by the flexible element are separated and cannot become entangled. Further, by this arrangement of pulleys, one vertical portion of the loop of the flexible element is laterally spaced from the other for convenience of use since this will place one side of the loop to one side of the person when the apparatus is used for manipulating a zipper located in the center of that person's back. Although an apparatus is described which is portable and may be removably installed on any conventional door, it is readily apparent and is to be understood that modified brackets 11 and 12 may be provided when it is desired to permanently install the apparatus 10 on any vertical surface such as a wall.

Having fully described our invention it is to be understood that we do not wish to be limited to the details herein set forth or to the details illustrated in the drawings, but our invention is of the full scope of the appended claims.

We claim:

1. In an apparatus adapted to be used on a relatively vertical support surface of the type having vertically spaced upwardly and downwardly facing surfaces facing away from each other for manipulating the movable element of a zipper from a remote location, the combination of: a pair of pulley means adapted to be mounted in laterally spaced relationship on the support surface, another pulley means adapted to be mounted on the support surface in vertically spaced relation with and at a substantial distance from said pair of pulley means, means for resiliently urging at least one of said pulley means away from the other pulley means, a flexible element passing over each of said pulley means in operative relation, said flexible element having ends joined to form a continuous loop having two major vertical portions substantially spaced from each other, and means secured to said flexible element on one of said vertical portions for releasably engaging the movable element of the zipper for causing movement of the movable element upon movement of said flexible element relative to said pulley means.

2. In an apparatus adapted to be used on a relatively vertical support surface of the type having vertically spaced upwardly and downwardly facing surfaces facing away from each other for manipulating the movable element of a zipper from a remote location, the combination of: a pair of brackets adapted to be mounted in substantially and vertically spaced relationship on the support surface, a pair of pulley means mounted on one of said brackets in laterally spaced relation, pulley means mounted on the other said bracket, means for resiliently urging at least one of said pulley means away from the other said pulley means, a flexible element passing over each of said pulley means in operative relation, said flexible element having ends joined to form a continuous loop having diverging spaced vertical portions, and means secured to one of said vertical portions of said flexible element for releasably engaging the movable element of the zipper for causing movement of the movable element upon movement of said flexible element relative to said pulley means.

3. In an apparatus adapted to be used on a relatively vertical support surface of the type having vertically spaced upwardly and downwardly facing surfaces facing away from each other for manipulating the movable element of a zipper from a remote location, the combination of: a pair of brackets, said brackets adapted to be removably mounted on the support surface and spaced a substantial vertical distance apart, a pair of pulleys mounted on one of said brackets in laterally spaced relationship, a pulley mounted on the other said bracket, a flexible element passing over each of said pulleys in operative tensioned relation, said flexible element having ends joined to form a continuous loop having two spaced vertical portions, and means secured to one of said vertical portions of said flexible element for releasably engaging the movable element of the zipper for causing movement of the movable element upon movement of said flexible element relative to said pulley means.

4. In an apparatus adapted to be used on a relatively vertical support surface of the type having vertically spaced upwardly and downwardly facing surfaces facing away from each other for manipulating the movable element of a zipper from a remote location, the combination of: a pair of brackets, said brackets adapted to be removably mounted on the support surface and spaced a substantial vertical distance apart, a pair of pulleys mounted on one of said brackets in laterally spaced relationship, a tension spring mounted on the other said bracket, a pulley mounted on said tension spring, a flexible element passing over each of said pulleys in operative relation, said flexible element having ends joined to form a continuous loop of a length for causing pretensioning of said spring for maintaining said flexible element in a taut triangular loop around the three said pulleys with two spaced and relatively vertical sides, hook means secured to said flexible element along one of the said relatively vertical sides of said triangular loop, and said hook means adapted to releasably engage the movable element of the zipper for causing movement of said movable element upon movement of the other relatively vertical side of said triangular loop along the direction of the latter said side.

5. The combination of claim 4 wherein the upper of said pair of brackets has a downwardly facing abutment adapted to engage said upwardly facing support surface, the lower of said pair of brackets having an upwardly facing abutment adapted to engage said downwardly facing support surface, and the said pretensioning of said tension spring adapted to cause said interengagement of said abutments and surfaces for permitting said removable mounting of said brackets.

References Cited by the Examiner

UNITED STATES PATENTS

2,604,242	7/52	Vahan	294—1
2,798,194	7/57	Cantin	160—331 X
3,096,078	7/63	Steingass et al.	160—331 X

JORDAN FRANKLIN, *Primary Examiner.*

DAVID J. WILLIAMOWSKY, *Examiner.*