

May 9, 1933.

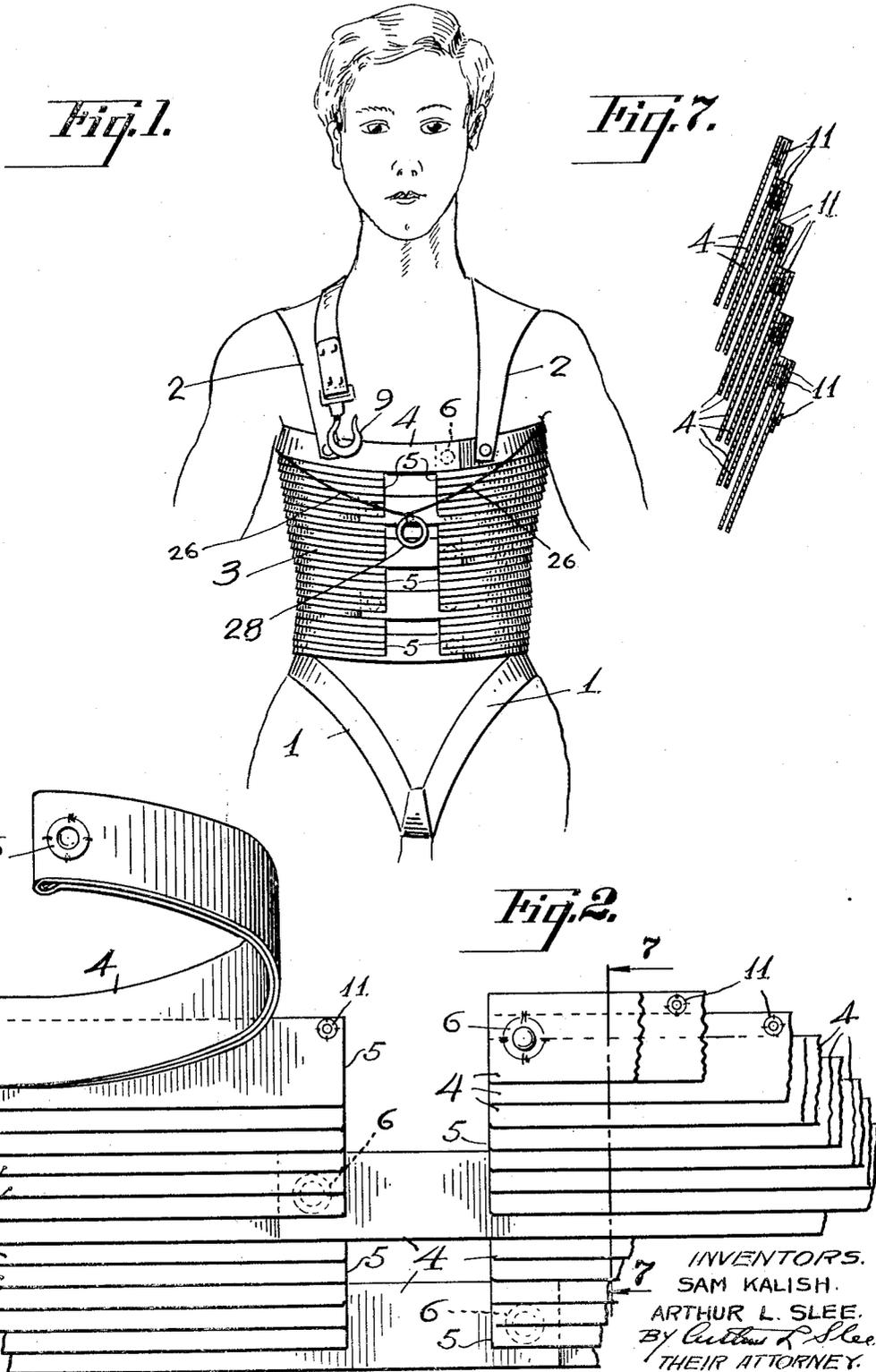
S. KALISH ET AL

1,908,156

LOWERING DEVICE

Filed Oct. 28, 1931

2 Sheets-Sheet 1



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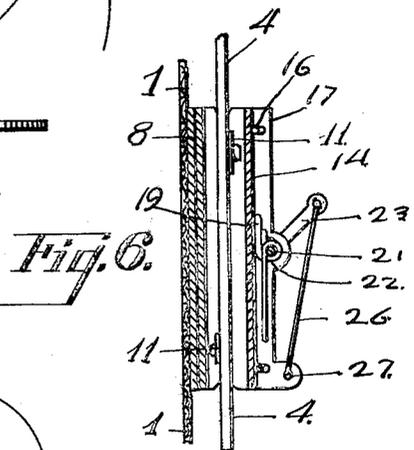
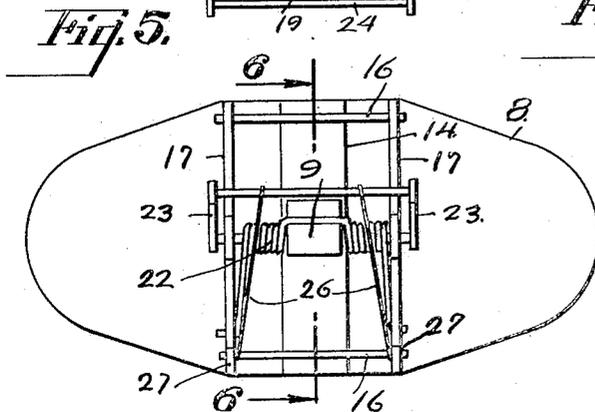
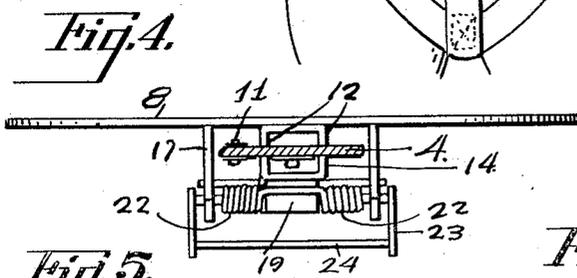
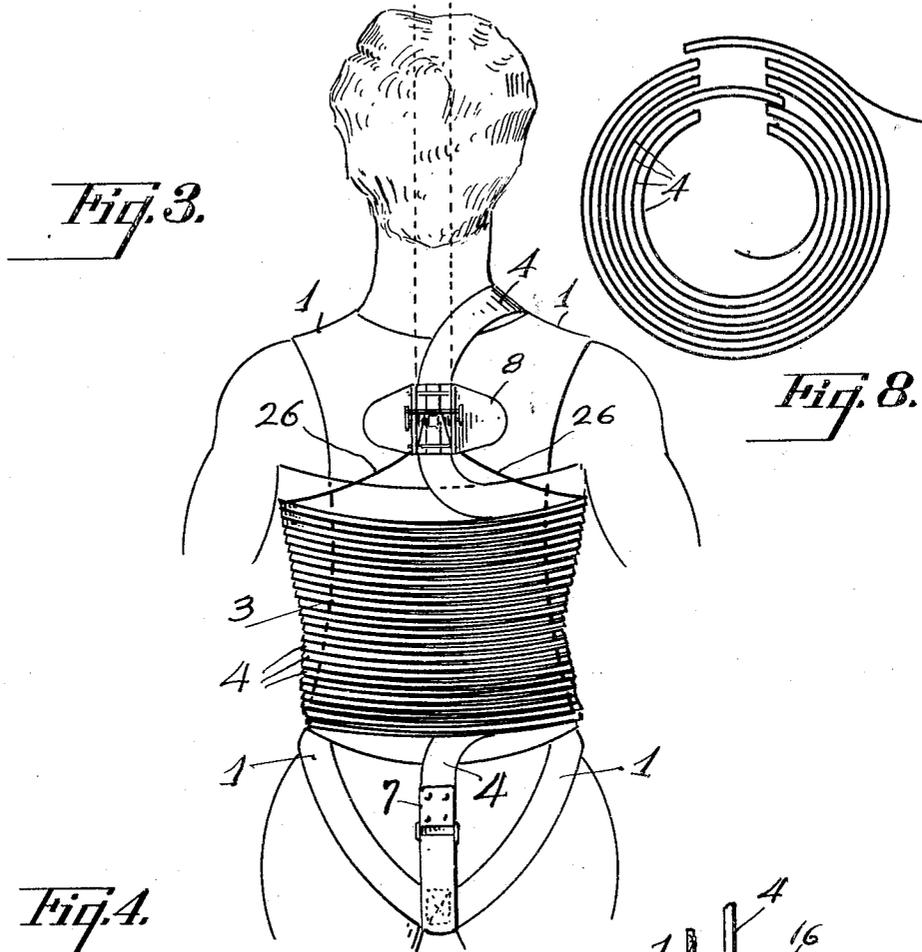
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2 Sheets-Sheet 2



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# UNITED STATES PATENT OFFICE

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## LOWERING DEVICE

Application filed October 28, 1931. Serial No. 571,698.

Our invention relates to improvements in lowering devices for lowering a person from any elevation, wherein a flexible ribbon, folded repeatedly upon itself to form a jacket to be worn by said person, operates in conjunction with a suspending harness and also with means for controlling the paying out of said ribbon.

The primary object of the present invention is to provide a new and improved lowering device.

Another object of the invention is to provide a new and improved device of the character described which may be worn under the clothing in the form of a jacket or under garment.

A further object is to provide a new and improved device of the character set forth in which a flexible ribbon of considerable length may be so folded that it may be worn as a jacket under the clothing of an operator in a manner which will provide an efficient method of paying out said ribbon, during a lowering process.

A still further object is to provide improved means for normally and frictionally engaging a suspending or lowering ribbon, to which a person is to be lowered may be attached, to normally prevent the same from being paid out or released, as well as improved means for releasing said frictional engaging means whereby the paying out of said suspending ribbon may be controlled by the person being lowered.

We accomplish these and other objects by means of the improved device disclosed in the drawings forming a part of the present application wherein like characters of reference are used to designate similar parts throughout the specification and drawings, and in which—

Fig. 1 is a front elevation of the device as attached to a person to be lowered;

Fig. 2 is an enlarged broken detailed view, disclosing the manner in which the ribbon is folded and fastened when formed into a jacket;

Fig. 3 is a rear elevation of the device as applied to a person;

Fig. 4 is an enlarged plan view of the frictional ribbon engaging means;

Fig. 5 is an elevation of Fig. 4;

Fig. 6 is a vertical sectional view taken on line 6—6 of Fig. 5;

Fig. 7 is an enlarged vertical sectional view taken on line 7—7 of Fig. 2; and

Fig. 8 is a diagrammatic plan view disclosing the convolutions or folding method for forming a jacket from the folded tape.

Referring to the drawings, the numeral 1 is used to designate in general a suitable harness adapted to support the human form and provided at its upper end with suitable shoulder straps 2 secured to the back thereof and which pass over the shoulders of the wearer from the upper back portion thereof and have their ends detachably secured to the upper front portion of a jacket, indicated in general by the numeral 3, formed by a suitable flexible ribbon 4 repeatedly folded upon itself by having each alternate fold overlapping diagonally, to form said jacket 3, with the opposite ends of the fold aligned to form jacket edges 5 which are detachably connected to each other to hold said jacket around an operator by means of suitable detachable snaps or fasteners 6, or other quickly detachable fastening devices, as disclosed in Fig. 2 of the drawings, to hold the jacket 3 formed thereby upon the form of a wearer or operator.

One end of the flexible ribbon 4 is detachably connected, as at 7, to the lower rear portion of the harness 1, and the opposite end, after passing through a ribbon holding device indicated in general by the numeral 8, secured to the upper back portion of the harness 1, passes over one shoulder of the wearer, so as to be accessible when required for use, and has detachably secured thereto a suitable fastening or anchoring device, such, for instance, as a hook 9.

The folds of the flexible ribbon 4 overlap and are detachably held together at their adjacent or overlapping edges by means of a plurality of suitable snap fasteners or other suitable detachable fastening devices 11 as disclosed in Fig. 7 of the drawings so that as the ribbon 4 is paid out, when in operation, the overlapping folds of the flexible ribbon 4

forming the jacket 3, may be readily detached and paid out to lower the operator or wearer in a manner hereinafter more fully set forth.

The holding device comprises a stationary U-shaped member 12 secured to said device 8. A second U-shaped movable member 14 is held to the device 8 by suitable transverse members 16 loosely engaging apertures within the flanges 17 of the device 8. A suitable cam 19 is mounted upon a transverse shaft 21 rotatably mounted between the flanges 17 and is held in rigid frictional engagement with the back of the movable parallel members 14 by means of a comparatively strong spring 22 coiled upon said shaft 21 and engaging the flanges 17 and the cam 19 to normally exert a pressure or tension upon said cam 19 and thereby cause the U-shaped member 14 to grip the ribbon 4 between the movable member 14 and stationary member 12, as disclosed in Figs. 4 and 6 of the drawings, to normally prevent movement of said ribbon 4 and thereby sustain the weight of an operator suspended by said ribbon 4.

Each end of the shaft 21 is provided with a suitable arm or lever 23 connected by a bar 24 to which is attached a suitable cord 26, which, after passing thru suitable eyelets or guides 27 at the bottom of the flanges 17, pass around the jacket 3 and terminate in a ring 28 suspended in front of the jacket 3 so as to be accessible to the wearer.

The U-shaped members 12 and 14 are arranged in parallel spaced relation and their flanges straddle the several fasteners 6 and 11 secured upon each side of said ribbon 4, whereby said ribbon 4 may be dispensed or passed through this controlling device 8 without pressing or destroying said fasteners.

The ribbon 4 is passed between the spaced parallel members 12 and 14 as disclosed in Figs. 4 and 6 of the drawings, and the spring 22 and cam 19 cause the flanges of the member 14 to press said ribbon 4 tightly against the stationary parallel member 12 and thereby normally prevent said ribbon 4 from being dispensed. When, however, the ring 28 is pulled, the cord 26 will pull the levers or arms 23 downwardly and cause the cam 19 to release the movable U-shaped member 14 and thereby also release the ribbon 4 passing between the spaced parallel members 12 and 14 and thereby freely permit the paying out of said ribbon.

In operation, the device is worn under the clothing with the hook 9 concealed under the clothing.

When the wearer or operator desires to lower himself from any elevation he grasps the hook 9 and after pulling upon the ring 28, to permit a sufficient portion of the ribbon 4 to pay out through the holding device 8, attaches or secures the fastening hook 9 to any suitable supporting device, not shown.

The wearer or operator then lowers himself

to the extent of the ribbon extending beyond the holding device 8 and the ends of the shoulder straps 2 are then detached from the upper edge of the jacket 3.

The operator then pulls upon the ring 28 and cord 26 attached thereto a sufficient degree to release the movable U-shaped member 14 of the holding device 8 upon the back of the harness 1. This will permit the ribbon 4 to be paid out through said holding device, and the speed of descent will be in proportion to the amount said movable member 14 is released.

As the ribbon 4 is dispensed or paid out said ribbon will be released and pulled from the jacket 3, the detachable fasteners 6 and 11 being readily disengaged, until the entire ribbon has been paid out, or until the operator has reached a support.

The end of the ribbon 4 is then detached from the lower portion of the harness 1, as at 7 in Fig. 3 of the drawings, pulled through the holding device 8, and after the entire ribbon has been recovered, the same is again folded upon itself to reform the jacket 3, after which the proper end is re-secured to the harness 1 as at 7, and fitted again about the person of the operator as disclosed in Fig. 1 of the drawings.

While we have illustrated, in Fig. 1 of the drawings, certain ends of the folds of the ribbon 4 extended across the space between the edges of the jacket, we do not confine ourselves to such an arrangement as it is obvious that the ribbon 4 may be folded to make a completely enclosing jacket 3 with the edges formed by the ends of the folds meeting throughout the front of said jacket.

Having thus described our invention what we claim as new and desire to secure by Letters Patent is—

1. A lowering device comprising a harness adapted to support the human form; a flexible ribbon folded upon itself repeatedly in overlapping folds and having each fold detachably connected to an adjacent fold and forming a jacket, one end of said ribbon being attached to said harness; and a fastening device connected to the other end of said ribbon whereby a person may be lowered from an elevation by securing said fastening device and paying out said ribbon.

2. A lowering device comprising a harness adapted to support the human form; a flexible ribbon folded upon itself repeatedly in overlapping folds and having each fold detachably connected to an adjacent fold and forming a jacket, one end of said ribbon being attached to said harness; a fastening device connected to the other end of said ribbon whereby a person may be lowered from an elevation by securing said fastening device and paying out said ribbon; and means for normally engaging the ribbon to prevent the same from paying out.

3. A lowering device comprising a harness adapted to support the human form; a flexible ribbon folded upon itself repeatedly in overlapping folds and having each fold detachably connected to an adjacent fold and forming a jacket, one end of said ribbon being attached to said harness; a fastening device connected to the other end of said ribbon whereby a person may be lowered from an elevation by securing said fastening device and paying out said ribbon; means for normally engaging the ribbon to prevent the same from paying out; and means for releasing the ribbon engaging means to permit the paying out of said ribbon and thereby permit an operator wearing said device to control said paying out of said ribbon.

4. A lowering device comprising a harness adapted to support the human form; a flexible ribbon folded upon itself repeatedly, said folds overlapping diagonally and each fold detachably connected to an adjacent fold to form a jacket for said form, one end of said ribbon being detachably connected to said harness; and a suitable hook detachably connected to the opposite end of said device whereby a person wearing said lowering device may be lowered from an elevation by paying out said ribbon.

5. A lowering device comprising a harness adapted to support the human form; a flexible ribbon folded upon itself repeatedly, said folds overlapping diagonally and each fold detachably connected to an adjacent fold to form a jacket for said form, one end of said ribbon being detachably connected to said harness; a suitable hook detachably connected to the opposite end of said device whereby a person wearing said lowering device may be lowered from an elevation by paying out said ribbon; and means for frictionally engaging said ribbon and normally preventing the paying out thereof.

6. A lowering device comprising a harness adapted to support the human form; a flexible ribbon folded upon itself repeatedly, said folds overlapping diagonally and each fold detachably connected to an adjacent fold to form a jacket for said form, one end of said ribbon being detachably connected to said harness; a suitable hook detachably connected to the opposite end of said device whereby a person wearing said lowering device may be lowered from an elevation by paying out said ribbon; means for frictionally engaging said ribbon and normally preventing the paying out thereof; and means for releasing said ribbon engaging means to permit the paying out of said ribbon whereby said paying out may be controlled.

7. A lowering device comprising a harness adapted to support the human form; a flexible ribbon folded upon itself repeatedly to form a jacket having substantially horizontally disposed folds, alternate folds overlap-

ping diagonally and having the ends of said folds alined to form edges on the front of said jacket, one of said edges meeting and detachably connected to said other edge, one end of said ribbon being detachably connected to said harness; and a fastening device detachably connected to the opposite end of said ribbon whereby a person may secure said opposite end of said ribbon and be lowered from an elevation by paying out said ribbon.

8. A lowering device comprising a harness adapted to support the human form; a flexible ribbon folded upon itself repeatedly to form a jacket having substantially horizontally disposed folds, alternate folds overlapping diagonally and having the ends of said folds alined to form edges on the front of said jacket, one of said edges meeting and detachably connected to said other edge, one end of said ribbon being detachably connected to said harness; a fastening device detachably connected to the opposite end of said ribbon whereby a person may secure said opposite end of said ribbon and be lowered from an elevation by paying out said ribbon; and means for normally engaging the ribbon frictionally to normally prevent the same from paying out.

9. A lowering device comprising a harness adapted to support the human form; a flexible ribbon folded upon itself repeatedly to form a jacket having substantially horizontally disposed folds, alternate folds overlapping diagonally and having the ends of said folds alined to form edges on the front of said jacket, one of said edges meeting and detachably connected to said other edge, one end of said ribbon being detachably connected to said harness; a fastening device detachably connected to the opposite end of said ribbon whereby a person may secure said opposite end of said ribbon and be lowered from an elevation by paying out said ribbon; means for normally engaging the ribbon frictionally to normally prevent the same from paying out; and means positioned upon the front of said jacket and connected to said ribbon engaging means for releasing and controlling said means whereby the paying out of said ribbon may be controlled by said person.

In witness whereof, we hereunto set our signatures.

SAM KALISH.

ARTHUR L. SLEE.

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