

Feb. 23, 1926.

1,574,529

S. ABRAHAM

LIFE SAVING SUIT

Filed April 25, 1925

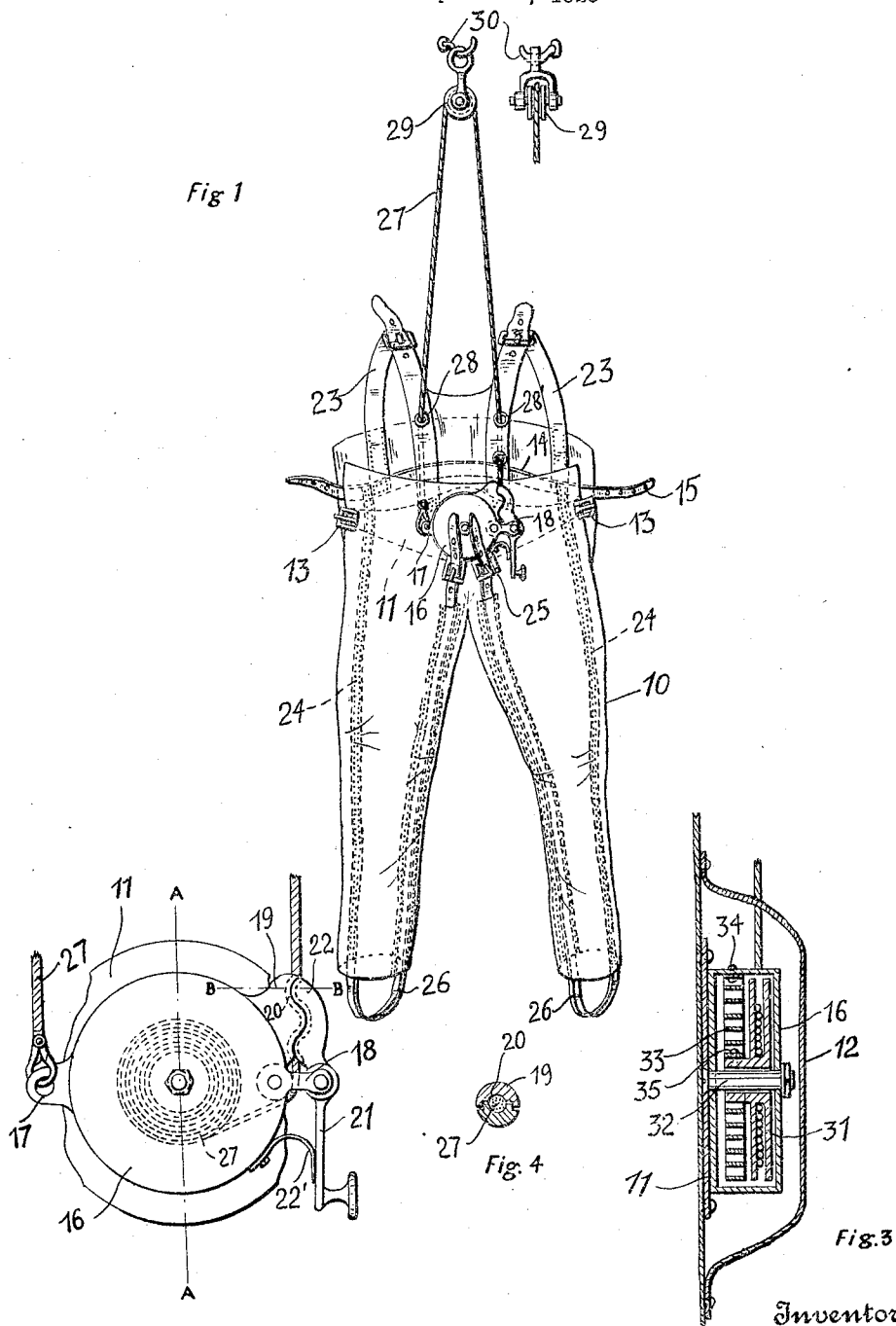


Fig. 2

Fig. 3

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SAMUEL ABRAHAM, OF NEW YORK, N. Y.

LIFE-SAVING SUIT.

Application filed April 25, 1925. Serial No. 25,920.

To all whom it may concern:

Be it known that I, SAMUEL ABRAHAM, a citizen of Hungary, and resident of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Life-Saving Suits, of which the following is a specification.

This invention relates to a protection device for workmen.

It is an object of the present invention to provide a device that will prevent the accidental falling of a workman off a structure.

It is another object to provide a device that will aid in keeping the workman in an upright and balanced position in case he should accidentally fall, or if he voluntarily wishes to descend.

A further object of the invention is the provision of means for adjusting the protection device to the size of the wearer.

Other objects and advantages will be apparent from the description to following taken in connection with the accompanying drawings in which

Figure 1 is a front view of a pair of trousers with the present invention applied thereto, part of the trousers being removed in the interest of clearness.

Figure 2 is a detail view of a portion of the protection device detached from the trousers.

Figure 3 is a sectional view taken on the plane indicated by the line A—A of Figure 2.

Figure 4 is a sectional view taken on the plane indicated by the line B—B of Figure 2.

Referring to the views in detail, the numeral 10 indicates a pair of overalls or trousers used by workmen. Secured to the front portion of the trousers 10 at the waistline, by any suitable means, is a metallic belt 11, having a wide central portion and gradually growing narrower toward the ends as will be seen from Figure 1. This belt 11 is concealed underneath the material of the garment and also by a pocket 12 formed of the same material as the trousers. (Fig. 3.) The ends of the belt terminate in buckles 13. Secured to the interior of the rear portion of the trousers 10 is a leather strap 14, having eyelets 15 at its ends for engagement with the buckles 13. Mounted on the wide central portion of the belt 11 by means of rivets, or in any other suitable manner,

is a metal casing 16. Formed on one side of the casing 16 is an ear 17, and formed on the opposite side thereof is a protruding arm 18. Integrally formed on the casing 16 at a point above the arm 18 is a breaking shoe member 19, said breaking shoe having a grooved face 20 of irregular outline, for a purpose which will be explained. Pivoted on the arm 18 is a lever 21 provided with a complementary breaking shoe member 22 having a grooved face similar in outline and form to the grooved face 20 of the breaking member 19 and with which it cooperates. A spring 22' with its free end pressing outwardly against the lever 21 normally tends to keep the breaking members 19 and 22 in engagement with each other.

Secured to the rear and front portions adjacent the top of the trousers by any suitable means are shoulder straps 23 which may be adjusted to the size of the wearer by means of the buckles carried thereby.

Fastened to the strap 14 at the interior of the trousers 10 is one end of an elongated strap 24. This strap 24 passes downwardly through narrow pockets or guide ways along the interior of one side of the leg of the trousers and upwardly along the other side of said leg, and its other end is adjustably secured to the buckle 25 mounted on the casing 16. As seen in Figure 1, the strap 24 protrudes somewhat below the lowermost edge of the trouser leg and forms a loop 26 for supporting a foot of the wearer.

Fixed to the ear 17 is one end of a cable 27. As viewed in Figure 1, this cable 27 passes upwardly through an opening 28 in one of the shoulder straps 23 and around a pulley 29 suspended from a hook 30 which is mounted on the frame of the building not shown. The cable 27 passes downwardly through the openings 28' in the other of the shoulder straps 23 and between the breaking shoes 19 and 22, riding through the irregular grooved faces thereof and is wound on a drum 31 which is mounted rotatably on a shaft 32 passing through the center of the casing 16. Encircling the same shaft 32, with its coils in a direction opposite to the direction of the coils of the cable 27, is a spring 33, said spring being secured to the casing 16 at the point indicated at 34 and to the hub of the drum 31 at the point indicated at 35 so that as the cable is unwound the spring 33 is wound up as will be understood.

In operation, the wearer steps into the trousers placing his feet in the loops 26 and adjusts the trousers lengthwise by means of the strap 24 and buckle 25. The straps 23 are then adjusted over the shoulders of the wearer, and the strap 14 is adjustably secured to the buckles 13. The straps 24, 23 and 14 cooperating with each other tend to keep the wearer in a balanced position in case he should accidentally fall, or should voluntarily wish to descend. To permit the wearer to walk about during the course of his work it is necessary to permit the cable 27 to be paid out. This is accomplished by pressing the lever 21 against the action of the spring thereby disengaging the faces of the breaking shoes 19 and 22 and releasing the grip on the cable 27. When pressure is removed from the lever 21, the breaking shoes 19 and 22 automatically come together and hold the cable 27. It will be understood that the straps 24 and 23 support the weight of the body and that the breaking shoes 19 and 22 are stoutly constructed so that in case the wearer should fall, the shoes will break the fall and the straps will hold the wearer in an upright balanced position.

Variations may be resorted to within the scope of the invention and portions of the improvements may be used without others.

When the use of the device is finished, cable 27 may be unhooked from ear 17 and the spring 33 will then automatically wind the cable around the drum 31. Brake shoes 19 and 22 will naturally have to be released previously by exerting a pressure on the lever 21, and the same operation takes place

every time it is desired to shorten the released length of the cable. It will also be obvious from inspecting the drawings that with a single element, that is the lever 21, the speed of descent with my device can be regulated from free drop to absolute stop and to almost every speed in between.

I claim:

1. In a device of the character described, in combination, a pair of trousers, an adjustable waist belt for said trousers, adjustable straps disposed lengthwise and sidewise of said trousers, a casing secured to said waist belt; a reversible drum in said casing, a cable attached to and adapted to be coiled around said drum; a pair of complementary brake shoes normally engaging said cable to prevent its unwinding from the drum, and means adapted to be regulated by the person descending in said device to decrease or entirely release the pressure of the brake shoes on said cable.

2. In a device of claim 1, said brake shoes and their regulating means comprising a stationary shoe secured on the casing; a pivotally arranged movable shoe; a spring normally urging said pivoted shoe into engagement with said stationary shoe, and means operable by one hand of the user of the device to counteract said spring and reduce its pressure on said pivoted brake shoe to any desired degree.

Signed at New York, in the county of New York, and State of New York, this 2nd day of March, A. D. 1925.

SAMUEL ABRAHAM.