Oct. 6, 1931. R. M. STEPHENS 1,826,263

FIRE ESCAPE

Filed April 8, 1930

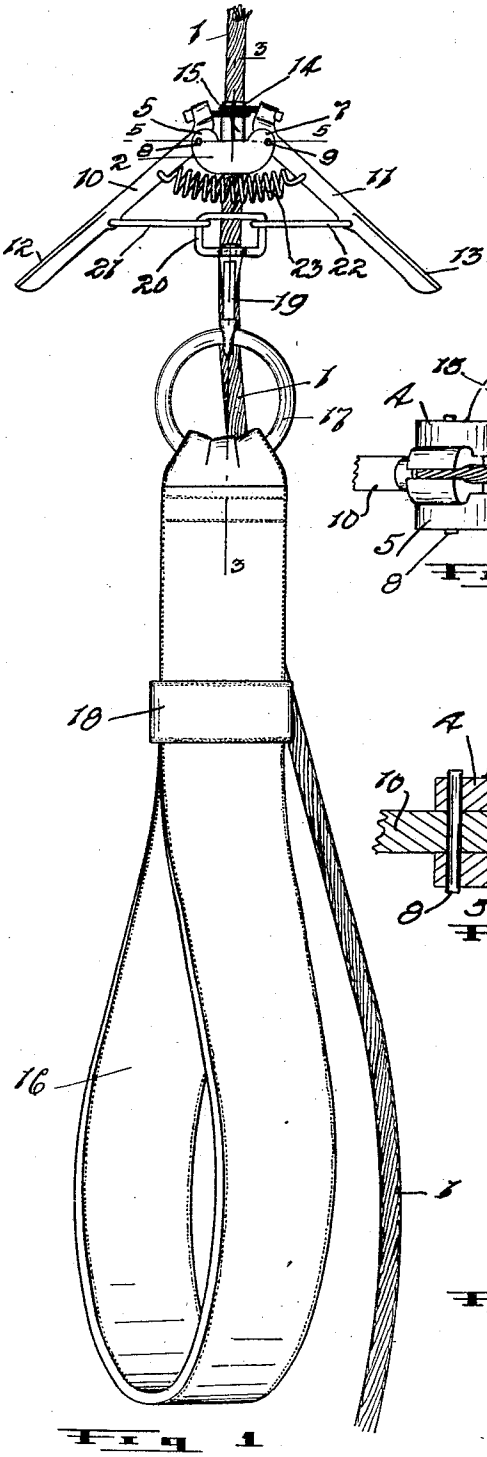


Fig 1

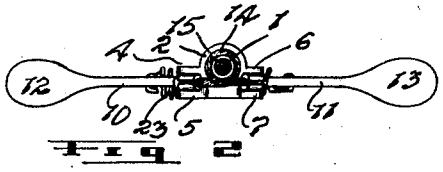


Fig 2

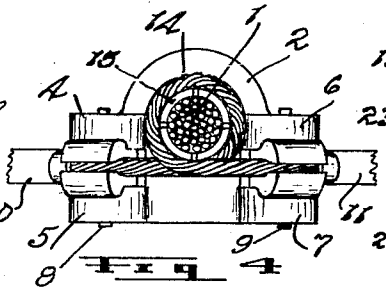


Fig 4

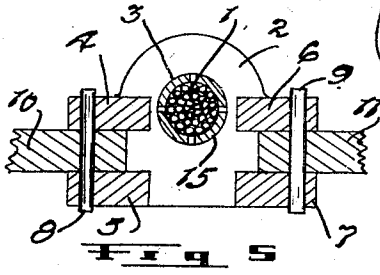


Fig 5

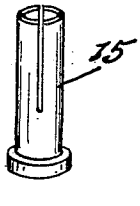


Fig 6

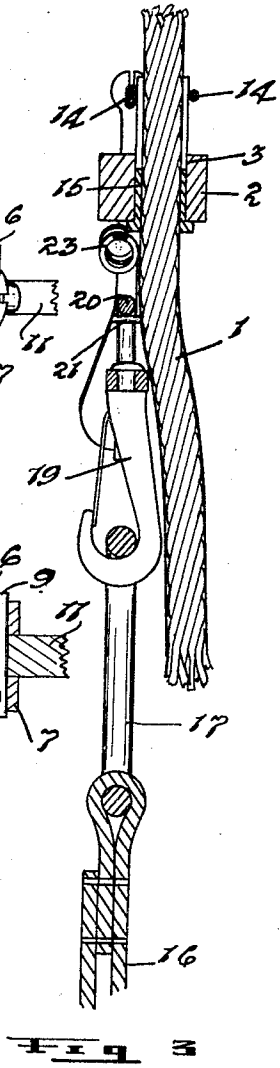


Fig 3

Inventor
R. M. Stephens
By

Patented Oct. 6, 1931 1,826,263

UNITED STATES PATENT OFFICE

ROBERT M. STEPHENS, OF WINNIPEG, MANITOBA, CANADA

FIRE ESCAPE

Application filed April 8, 1930. Serial No. 442,571.

The invention relates to improvements in fire escapes and an object of the invention is to provide a fire escape for a building which embodies an anchored rope or line and a friction member mounted on the rope for suspending the one escaping and to arrange the escape so that it is absolutely impossible for the one escaping to initially drop and possible for him to control his falling speed as he desires and in fact stop at any point as he wishes.

A further object is to construct the fire escape so that the friction member thereof initially grips the line or rope sufficiently to hold the same from slipping and such that when the one escaping first thrusts his weight to the rope he will be positively held and cannot descend until he desires to do so.

A further object is to construct the fire escape such that the grip on the rope when descending is directly proportional to the weight of the person descending provided of course the party descending does not actuate the mechanism provided for diminishing the grip.

A further object is to construct the device in a simple, durable and inexpensive manner and so that the various parts can be readily assembled and replaced if such be necessary.

With the above more important and other minor objects in view which will become more apparent as the description proceeds, the invention consists essentially in the arrangement and construction of parts hereinafter more particularly described, reference being had to the accompanying drawings, in which:—

Fig. 1 is a side view of the fire escape.

Fig. 2 is a plan view of the parts as they appear in Figure 1.

Fig. 3 is an enlarged detailed vertical sectional view at 3—3 Figure 1.

Fig. 4 is an enlarged detailed plan view of the parts appearing in Figure 2 with the outer ends of the levers broken away.

Fig. 5 is an enlarged detailed horizontal sectional view at 5—5 Figure 1.

Fig. 6 is a perspective view of the sleeve.

In the drawings like characters of reference indicate corresponding parts in the several figures.

It is desirable that this fire escape have one end of the rope, cable or line thereof permanently fastened to the building in a location adjacent the window or other outlet so that the free end of the rope can be readily thrown out the window to permit a person to escape by descending the rope. The rope, cable or line 1 will be of a length such that it will carry the person from the point of exit to the ground and the upper end of the rope as before stated will be permanently anchored to the building in any suitable manner. On the rope, I mount a sliding member which supports the person from the rope when escaping and comprises the parts now described.

A head 2 is provided and the head is supplied with a vertical circular bore or hole 3 and opposing pairs of upstanding side lugs 4, 5, 6 and 7, the lugs carrying pivot pins 8 and 9 which pivotally support the upper inner ends of downwardly and outwardly extending similar hand levers 10 and 11, the levers having their outer ends enlarged to provide convenient grips 12 and 13. To the upper ends of the levers, I permanently fasten the outstanding ends of a short length, binding member 14 such as of wire or cable which cable is centrally looped around the upper longitudinally split end of a sleeve 15 which has the lower end frictionally driven into the bore 3 and the split end extending above the head.

It will be observed that the outstanding ends of the cable are tangential to the sleeve and that the arrangement is such that one can by simultaneously pulling downwardly on the extending ends of the levers, cause the

loop of the cable 14 to draw tightly around the sleeve and compress the same.

The rope 1 is passed through the sleeve with the result that a down pulling of the levers causes the sleeve to grip the rope, the amount of grip being directly proportional to the force applied in a downward direction on the free ends of the levers.

Suitable means is provided for supporting the person, such being herein shown as a compartively wide belt 16 provided with a suspending ring 17 and a sliding band 18. The belt will be passed around the body in a location underlying the arm pits, the band 18 being at such time adjacent the ring 17. After the belt has been so placed on the body, the band 18 will be pulled towards the body to lie adjacent the breast and friction is relied upon to hold the band in such position. The ring 17 is caught on a swivelled snap hoop 19 carried by an eye 20 and the eye is attached to the levers by connecting links 21 and 22.

A tension spring 23 underlies the head and has the ends thereof connected to the levers and the spring is of such a strength that it will cause a sufficient pull on the ends of the cable 14 to make the split end of the sleeve grip the rope so that the sleeve will remain when not in use where it is placed on the rope and a quick and positive grip will be effected when the weight of the user is initially applied. To make this clear, I may say that the friction member will be set on the rope prior to usage in the most convenient position for the user desiring to escape and that after the user has adjusted the belt and trusted his weight to the device, the device will immediately tightly grip under the imposed weight. In the normal position of the article, that is, with no weight imposed thereon, the links 21 and 22 are held horizontally, axially aligned and at such time as aforesaid, the spring is causing an initial grip of the sleeve on the line.

Subsequently when the person escaping imposes his weight on the levers, the lower ends of the levers are pulled inwardly by the links and the friction grip exerted on the line is in direct proportion to the imposed weight and this is sufficient to positively prevent any sliding movement of the device on the rope. Such an arrangement naturally insures confidence in the device.

When the person is ready to descend and assuming his weight is suspended by the device, he grasps the lower ends of the levers and shoves them outwardly and upwardly and as he does so, he relieves the grip on the rope and the speed at which he descends will depend entirely on the amount the levers are shoved up. Obviously if one become excited due to falling too fast, he will naturally let go of the levers and immediately he does this, the line will be instantaneously tightly gripped and his falling movement will be arrested as at such time his weight will be acting through the levers to cause the sleeve to grip the line.

The amount of initial grip on the rope can obviously be set by choosing a spring of desired tension. Obviously should a person descending force the levers to their outer limiting position as limited by the links, the amount of grip at such time would be the same as the initial grip brought about by the spring with no suspended load.

What I claim as my invention is:—

1. In a fire escape, the combination with a suspending line, of a head slidably mounted on the line and embodying a compressible friction member engageable with the line, a pair of levers pivotally carried by the head, a binding member enveloping the friction member and attached to the levers and means for suspending a person from the levers.

2. In a fire escape, the combination with a suspending line, of a head slidably mounted on the line, a compressible friction member carried by the head and engageable with the line, a pair of levers pivotally attached to the head, a binding member enveloping the friction member and attached to the levers and means for suspending a person from the ends of the levers remote from the binding member.

3. In a fire escape, the combination with a suspending line, of a head slidably mounted on the line, a compressible friction member carried by the head and receiving the line, a pair of opposed downwardly diverging levers having their upper ends pivotally attached to the opposite sides of the head, a binding member enveloping the friction member and having the ends thereof fastened to the upper ends of the levers and means for suspending a person from the lower ends of the levers.

4. In a fire escape, the combination with a suspending line, of a head slidably mounted on the line, a compressible friction member carried by the head and receiving the line, a pair of opposed downwardly diverging levers having their upper ends pivotally attached to the opposite sides of the head, a binding member enveloping the friction member and having the ends thereof fastened to the upper ends of the levers, a connection between the lower ends of the levers limiting their out swung position and means for suspending a person from said connection.

5. In a fire escape, the combination with a suspending line, of a head slidably mounted on the line, a compressible friction member carried by the head and receiving the line, a pair of opposed downwardly diverging levers having their upper ends pivotally attached to the opposite sides of the head, a binding member enveloping the friction member and having the ends thereof fas-

tened to the upper ends of the levers, a connection between the lower ends of the levers limiting their out swung position, means for suspending a person from said connection and a tension spring underlying the head and connecting the levers and designed to effect through the levers, binding member and friction member an initial biting of the line.

Signed at Winnipeg this 27 day of December, 1929.

ROBERT M. STEPHENS.