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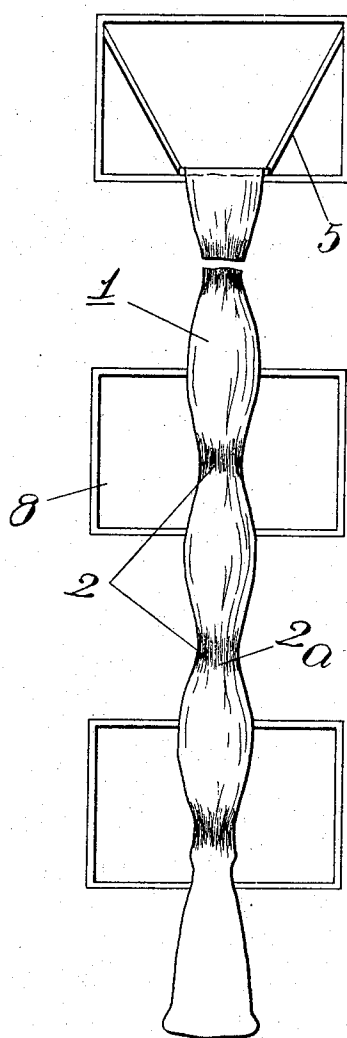
MASATADA YAMAMOTO  
ESCAPE DEVICE

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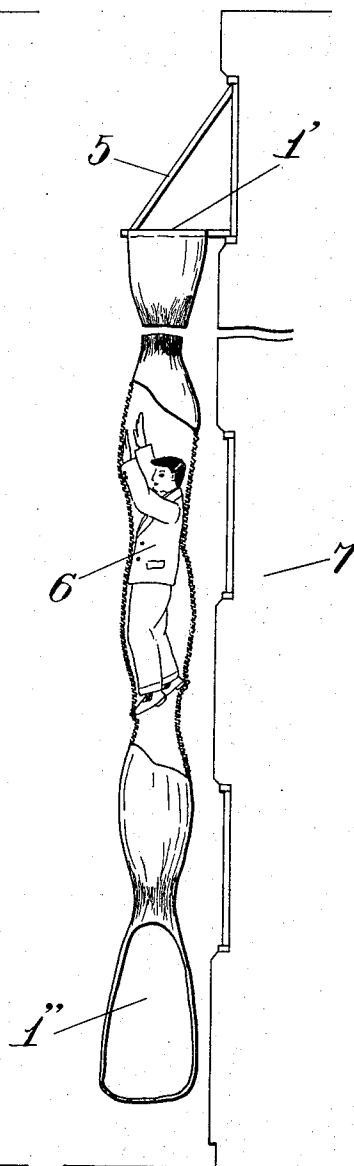
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*Fig. 1*



*Fig. 2*



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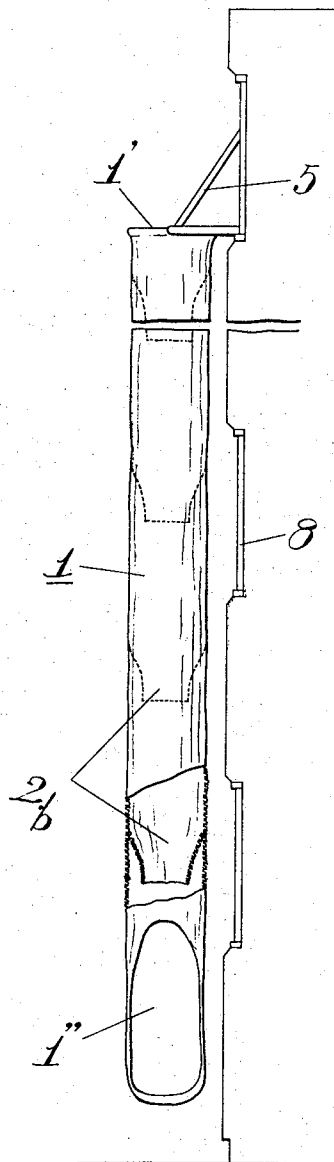
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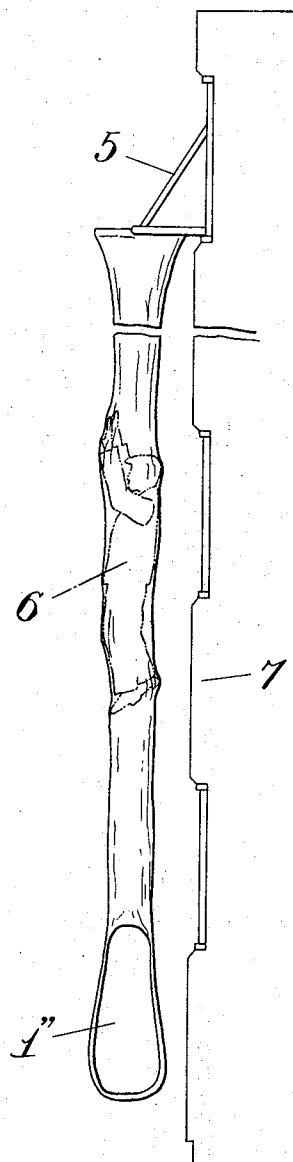
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*Fig. 3*



*Fig. 7*



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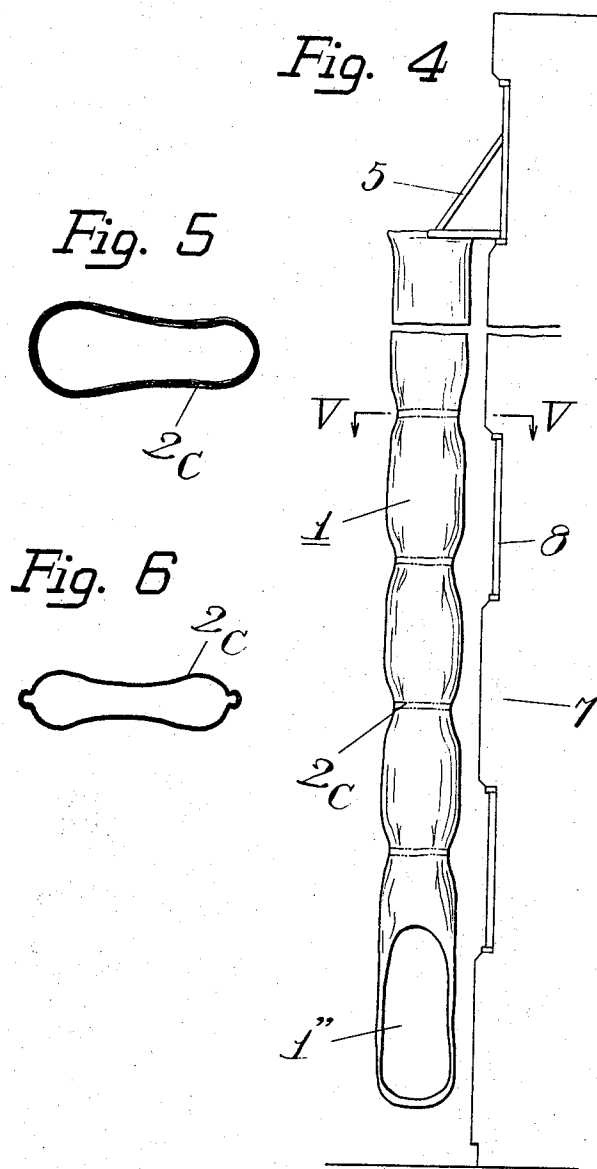
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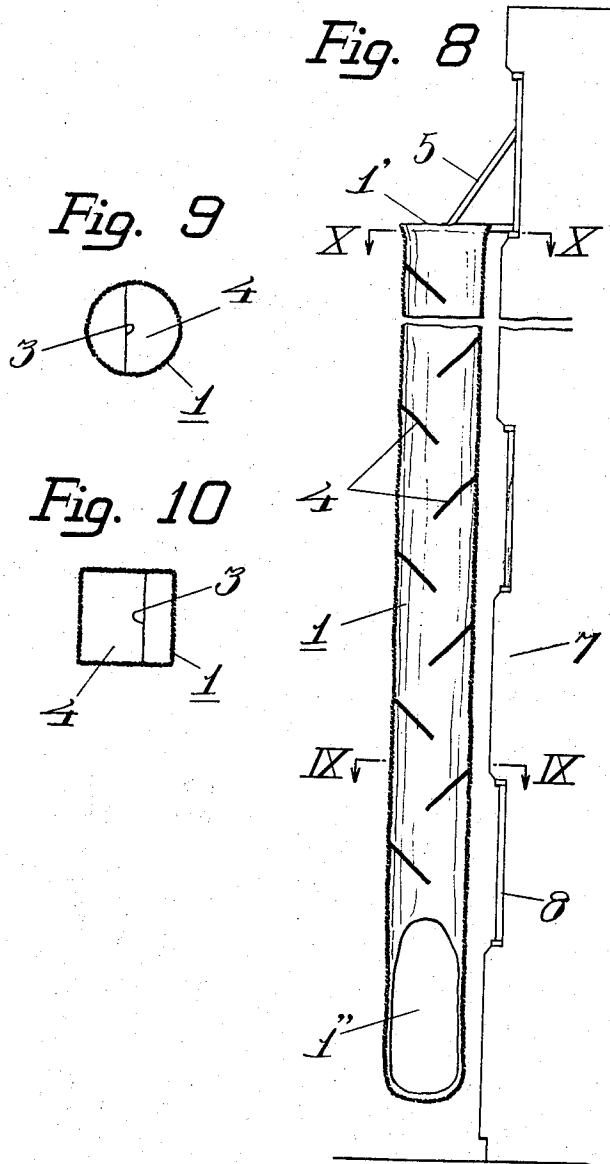
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## ESCAPE DEVICE

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1 Claim. (Cl. 182-48)

The present invention relates to an escape such as a fire escape.

More particularly, this invention relates to a fire escape that may be used by an escaper from high up in the concrete building making his escape from a fire and other calamities.

An object of the present invention is to provide a fire escape so made that the escaper may descend vertically therein from high up in the concrete building in safety and in a short period of time.

A further object of the present invention is to provide a fire escape so made that the escaper may descend vertically therein from high up in the concrete building without the cooperation by the assistant operators, especially those working at the lower side thereof.

A further object of the present invention is to provide a fire escape wherein the escaper may have the rate of descent adjusted freely or may be stopped for a moment during descent.

With these objects in view and other objects hereinafter set forth, the arrangement of parts of the present invention will be described in detail in the following specification and the appended claim, some embodiments thereof being illustrated in the accompanying drawings, in which:

FIG. 1 is a front view showing a tubular member of the present invention;

FIG. 2 is a side view cut in part and showing the tubular member of the present invention as used by an escaper;

FIGS. 3 and 4 are the side views similar to FIG. 2 showing in part the tubular members of other embodiments of the present invention;

FIG. 5 is an enlarged plan view shown in cross-section taken on the line V—V of FIG. 4 and showing a resilient band member used in the tubular member;

FIG. 6 is a sectional plan view showing another embodiment of the resilient band member used in the tubular member of FIG. 4;

FIGS. 7 and 8 are side views similar to FIGS. 3 and 4 showing the tubular members of still other embodiments of the present invention;

FIG. 9 is a plan view shown in cross-section taken on the line IX—IX of FIG. 8; and

FIG. 10 is a plan view shown in cross-section taken on the line X—X of FIG. 8.

Referring more particularly to the drawings, a tubular body 1 of the fire escape is made from soft pliant material, such as sackcloth, and is formed with frictional resilient means to control the rate of descent of the escaper such as a plurality of throats 2 each being lesser in diameter than the tubular body 1 and normally lesser than the body width of the escaper. The tubular body 1 has an opening and 1' at one end thereof for receiving an escaper 6 into said body and one or more opening ends 1" provided laterally to the wall thereof at the other end for the escaper to exit from the body. The throats 2 as shown in the embodiment of FIG. 1 are each formed by an elastic cloth 2a, and in the embodiment of FIG. 3 pieces of elastic cloth 2b each formed with the shape of a trumpet are provided to the inside of the tubular body 1, said pieces 2b of elastic cloth being seamed to the inside of the tubular body 1 on the sides thereof with enlarged diameters. In the embodiment of FIG. 4, the tubular body 1 is strained from the outside by resilient band members 2c provided at many positions as desired on the tubular body 1 to form a plurality of frictional

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resilient means to control the rate of descent of the escaper.

In a further embodiment of the present invention shown in FIG. 7, the tubular body 1 is formed entirely from an elastic cloth normally lesser in diameter than the body width of the escaper being passed down therein, while in FIG. 8 a plurality of spaced apart segments 4 are provided in steps to interior of the tubular body 1 so that the one side 3 thereof may be located clear of the wall side of the tubular body 1.

These elastic members and spaced apart segments and so forth as above described are intended as the frictional resilient members characteristic of the invention designed for adjusting the rate of descent or transitory stop of the escaper going down the tubular body 1.

The most outstanding feature of the present invention is that the escaper may escape via a fire escape suspended freely downwardly.

Assuming that calamity such as a fire has taken place in a high concrete building 7 and tenants have to escape from high up in the building, said tubular body 1 may be hauled outside the building from the window 8 or the roof thereof or the like. The tubular body 1, supported at its upper end by a suitable supporting device 5, may be hung in parallel with the side of the building by its own gravity, so that the fixing operation of the fire escape according to the present invention may be done with much ease in distinction from the chute type fire escape such as used in the conventional practice. Thus the escaper may be plunged, feet first, into the tubular body 1 through the opening end provided at one side thereof. Because of the presence of the frictional resilient members such as the aforementioned throats 2 or spaced apart segments 4, the escaper will go down only as far as the topmost frictional resilient member and there the escaper may either retard the rate of descent or come to a transitory stop by having his arms or legs extended apart slightly during descent. The degree to which the escaper's arms or legs may be extended may vary with the grown-ups or children, and the latter may easily adjust the rate of descent or be stopped for a moment during the course of descent by having their arms or legs extended apart just wider than the grown-ups.

Preferably the distance between the adjacent frictional resilient members should not be so large to permit the escaper to descent in safety down the fire escape and, as a matter of course, said length may preferably be just less than the body length of the escaper.

Since the frictional resilient members provided to the inside of the tubular body 1 are elastic like rubber or spaced apart segments with the one side thereof located clear of the wall side thereof, the escaper may slide down said topmost frictional member as far as the frictional member right below said member by having the latter expanded laterally, and also past the other frictional resilient members provided in steps to the inside of the tubular member 1 in a similar manner, so that the escaper may escape to the ground promptly. The distance across the elastic member or the angle of inclination or width of the spaced apart segments may be determined separately depending on the elasticity of the cloths from which these members are formed, and also may be designed so that they have practically nothing to do with the thinness or fatness of the escaper.

Auxiliary devices such as a safety string provided to hang freely down the tubular body 1 or vents provided on the wall member of the tubular member 1 will enhance the effect of the invention.

The fire escape of this kind which has so far been used is of the chute type designed to convey the escaper obliquely downwardly from the building. Hence, the higher the building, the larger the space that is required

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for the operation of the fire escape, and the fire escape of this kind may be incapacitated for use if there are some impediments such as transmission lines in the field.

Even though the fire escape is extended in parallel with the building and obliquely downwardly, it will take up quite a bit of space around the site of the building, and where the escaper is intended to descend on the road below the building, the road must be used over such a wide area that the traffic of the road is hindered.

Additionally, there are many deficiencies that the fire escape of this kind may be subjected to considerable injuries and sometimes ruptures may be caused lengthwise because the fire escape is extended obliquely and the escaper has to adjust the rate of descent with his footwear such as shoes, and in order to prevent the risk besetting the escaper during descent the fire escape must be provided with a twofold bottom to increase the weight of the fire escape so that the latter is made more difficult to manipulate and the smooth operation thereof may be retarded. In addition to these there are further deficiencies that the supporting portion of the tubular body has to be increased in strength considerably in view of the combined weights of the escaper and the tubular body itself that has to be extended obliquely.

According to the present invention, these deficiencies may be eliminated, and the fire escape of the present invention has effects such that it may be used actually if there is any small space from the building to the ground level and without the fixture device on the ground to support the other side of the tubular body or the cooperation by the assistant operators working on the ground.

While the present invention has been described with reference to five of the embodiments thereof, it is to be noted that the invention is not limited thereto, but may

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include all other structures coming within the purview of the invention claimed in the appended claim.

What is claimed is:

- 5 An escape device comprising an elongated tubular body adapted to be supported at its one end in a position to extend vertically downwardly and including an opening at each end of a size to permit passage of a person, said tubular body itself being made of a pliant material and having a plurality of wide body portions and smaller throat portions which are vertically spaced in the operative position, said throat portions being formed as part of said body portions and connecting said wide portions and being of a cross section slightly smaller than said body portions and that of a person and being made of an elastic material which will expand to permit passage of the person therethrough feet first, the resilient material being strong enough to resist the free fall of the individual and slow his downward speed but permit his passage whereby he may move downwardly safely without using any additional descending apparatus.

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