

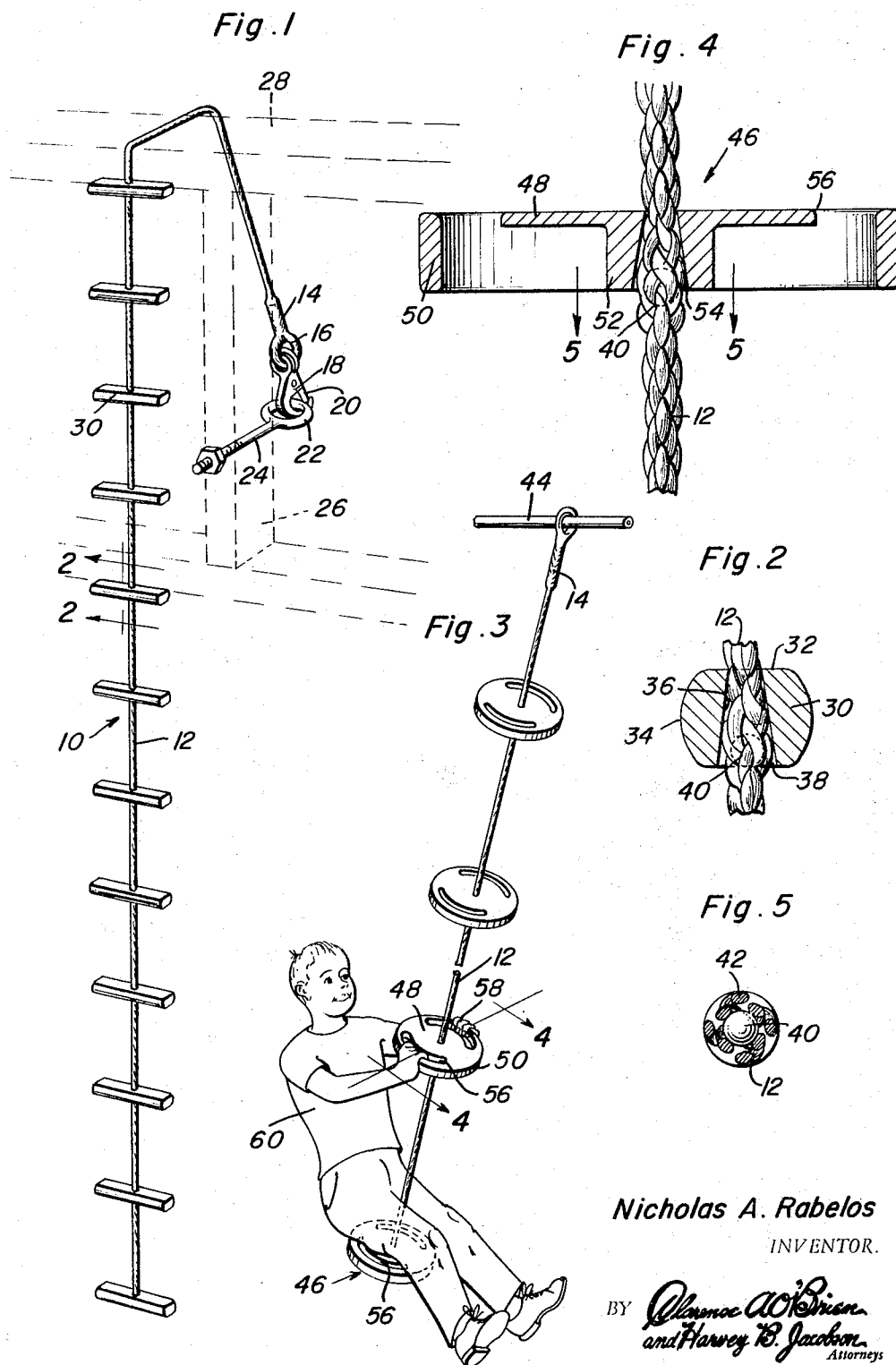
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EMERGENCY ESCAPE LADDER AND AMUSEMENT DEVICE

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1

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EMERGENCY ESCAPE LADDER AND AMUSEMENT DEVICE

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The present invention relates to a safety device especially adapted for use in the home as well as a device which may be used as an amusement device or exercising device by children or the like.

Each year, a number of persons are killed by home fires by virtue of being trapped on upper floors of a home. Additionally, numerous injuries occur due to persons jumping from windows or the like in the event of a fire. Some buildings have fire escape ladders but usually, private homes are not equipped in this manner and for this reason, if the stairway to an upper level of a home is blocked by fire, persons entrapped on the upper level usually exit through the windows or the like. Accordingly, it is the primary object of the present invention to provide an emergency escape device which may be broadly considered a ladder although the structure of the present invention is quite simple and inexpensive and yet one which will enable a person to easily descend from an elevated level in a home to ground level.

Structurally, the present invention involves the use of a single flexible rope or line constructed of braided material such as nylon or the like. Attached to the line is a plurality of transverse rigid members which actually form handholds to enable a person to climb down the flexible line to safety. One end of the flexible line is attached to an anchor member secured to the usual building structure centrally of and interiorly of the bottom of a window so that the device may be stored in attached position or stored in a drawer, closet or the like in a very compact manner and yet be readily available for immediate use in the event of a fire or other emergency which may arise.

The structure further involves the use of a novel mechanism for anchoring the transverse members to the lines in desired position without employing clamps, nails or other similar types of fasteners which are relatively insecure when used with a relatively small transverse member as in the present construction.

The same flexible line and the same anchoring mechanism for the longitudinally spaced members on the lines may be employed for securing generally circular discs of plates having arcuate slots thereon by which children may climb up the line or use the line as a swing in certain instances thereby providing a highly entertaining amusement device which also serves the purpose of enabling children to exercise for maintaining them in a physically fit condition.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

FIGURE 1 is a perspective view illustrating the manner of installation of the emergency escape device in a building structure;

FIGURE 2 is a detailed sectional view, on an enlarged scale, taken substantially upon a plane passing along section line 2-2 of FIGURE 1 illustrating the structural details of the means for connecting the cross members to the flexible line;

FIGURE 3 is a perspective view of the present invention employed as an exercising device;

FIGURE 4 is a detail sectional view taken substantially

2

upon a plane passing along section line 4-4 of FIGURE 3 illustrating the manner of connecting the disc-like element to the flexible line; and

FIGURE 5 is a detailed sectional view taken substantially upon a plane passing along section line 5-5 on FIGURE 4 illustrating the manner in which the spherical ball is inserted interiorly of the braided line.

Referring now specifically to the drawings, the numeral 10 generally designates the emergency escape device of the present invention which includes an elongated flexible rope or line 12 which is a braided line constructed of nylon, hemp or other material from which a flexible rope may be constructed. The line 12 is of various lengths and the upper end thereof is provided with a loop 14 formed therein with the loop or eye having a reinforcing metal ring 16 incorporated therein. For the purposes of anchoring the line 12 in position, a snap hook 18 is provided on the upper end of the line 12 and is connected to the loop 14. The snap hook 18 is provided with a resilient tongue 20 which enables the snap hook to be detachably connected with the eye 22 of an eyebolt 24 which extends through and is rigidly fixed to a vertical frame member or stud 26 of a window frame which is generally orientated in the center of and extends below the window sill 28. Insofar as the building structure is concerned, it is conventional and various types of anchor bolts or fasteners may be employed for detachably securing the upper end of the line 12 thereto. In use, the line 12 is rested against the window sill 28 and extends therefrom to a point adjacent the ground surface. For individual houses, the length of the line 12 may be determined so that persons in the upper stories thereof may safely climb down the line 12 to a position adjacent the ground surface.

Attached to the flexible line 12 at longitudinally spaced points thereon is a plurality of cross members 30 in the form of rigid bars preferably constructed of wood or the like. As illustrated in FIGURE 2, each of the bars 30 is provided with generally flat top and bottom surfaces 32 and rounded side surfaces 34. Centrally of each bar 32, there is provided a vertical bore 36 which tapers upwardly with the wide lower end thereof being designated by numeral 38. The braided line 12 extends through the bore 36 as illustrated in FIGURE 2 and orientated within the interior of the braided line 12 is a spherical ball 40 which forms an enlargement or abutment in the braided line 12 so that as the enlargement tries to proceed upwardly in the tapered bore 36, it will frictionally lock the bar 30 to the line 12 in a desired position. When installing the spherical ball 40, it is only necessary to move adjacent portions of the braided line 12 longitudinally toward each other thus separating the individual strands 42 of the line 12 so that the spherical ball 40 may be inserted between adjacent strands 42 thus enabling the bars 30 to be supported in any desired spaced interval depending upon the size of the person normally expected to use the device. If the device is normally expected to be used by children, the cross-bars 30 may be orientated from eight to twelve inches apart so that by gripping the cross-bars and engaging the seat with the cross-bars on both sides of the line 12, a child may climb down the flexible line 12 or only the hands may be used to lower oneself in a step-by-step manner down the flexible line 12.

It is desirable that the flexible line 12 have sufficient strength requirement as deemed necessary for the particular individuals involved and also, it is preferable for the flexible line 12 to be of a bright color so that it will be readily recognized as a safety device and also in order to enable it to be readily located in the event of an emergency since individuals tend to be rather panicky in event of an emergency. Thus, by providing a brightly colored flexible line 12, it will be readily observed and also it may

be used as an exercising device as illustrated in FIGURE 3.

Referring to FIGURES 3 and 4, the flexible line 12 is employed as an exercising device or an amusement device somewhat in the nature of a swing or climbing device. The upper end of the flexible line 12 has the loop 14 attached to a suitable support bar, pipe or the like 44. The flexible line 12 may be suspended from any overhead support such as a tree limb, building structural component or the like as long as the line 12 is free to hang downwardly toward the ground surface. Mounted on the flexible line 12 is a plurality of disc elements 46 in the form of a circular plate 48 having a depending peripheral flange 50 at the outer edge thereof and having a thick central hub portion 52 having a tapered bore 54 therein for receiving the flexible line 12 having a spherical ball 40 disposed therein. The spherical ball 40 forms an enlargement thereby frictionally locking the discs 46 in place on the line 12. Disposed at diametrically opposed points on the plate 48 is a pair of arcuate slots 56 which forms handholds for receiving the hands 58 of an occupant 60. As illustrated in FIGURE 3, the device may be used somewhat in the nature of a swing by occupant 60 setting on one of the discs 46 and engaging his hands with another disc. While only two discs have been illustrated in FIGURE 3, it will be appreciated that these discs may be orientated at desired spaced elevational relation and any number of discs may be provided thereby forming a climbing ladder or exercising device whereby the children using the device may lift themselves from disc to disc. In this arrangement, the disc would be placed somewhat closer together than illustrated in FIGURE 3 and the flexible line would be long enough to reach to a point adjacent the ground surface and the disc would be orientated in spaced relation on the line throughout the length thereof.

The transverse bars 30 and the discs 46 may be preferably constructed of wood, plastic or metal as long as the strength requirements are satisfied. In packaging the device illustrated in FIGURE 1, the cross-bars 30 may be orientated alongside of each other and the sections of the flexible line 12 between the cross-bars looped around the ends thereof thereby forming a substantially flat package. In packaging the device of FIGURE 3, the portion of the flexible line 12 may be coiled within the hollow space defined between the hub 52 and the flange 50 so that the disc may be stacked against each other when packaged thereby enabling the device to be packaged in a relatively compact condition.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. A device comprising an elongated flexible line, means at the upper end of said line for supporting engagement with an elevated support, a plurality of support members attached to said line at longitudinally spaced points thereon, each of said support members being in the form of a substantially circular disc including a relatively thin circular plate having a depending flange at the outer edge thereof and a relatively thick hub at the center thereof, said hub having a tapered bore extending therethrough with the larger dimension of the bore being at the bottom thereof, enlargement means on said line for wedging engagement with the bottom portion of said bore, said disc including arcuate openings adjacent the periphery thereof with the inner edge of the flange defining one edge of the opening thereby providing handholds for persons climbing the line.

2. The structure as defined in claim 1 wherein said enlargement means on the line includes a ball-shaped member disposed interiorly of the line whereby the circumference of the line is increased where the ball is inserted.

3. A device comprising an elongated flexible element, means at the upper end of said element for supporting engagement with an elevated support whereby the supported element hangs free perpendicularly from the support, a plurality of support members attached to said element at vertically spaced points thereon, each of said support members including a substantially circular plate having a circumferential depending flange and a central hub portion, said hub portion being formed with a perpendicular bore for the passage of the element through the hub portion, said plate being provided with diametrically opposing arcuate openings adjacent its periphery with an arcuate portion of the inner edge of the flange defining one edge of each of the openings thereby forming handholds for persons to grip the plates in climbing the hanging flexible element, and means carried by the element at vertically spaced points thereon and supportingly underlying and engaging the hub portion of each support member at the lower end of the bore of the support member for securing the plates on the flexible element.

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