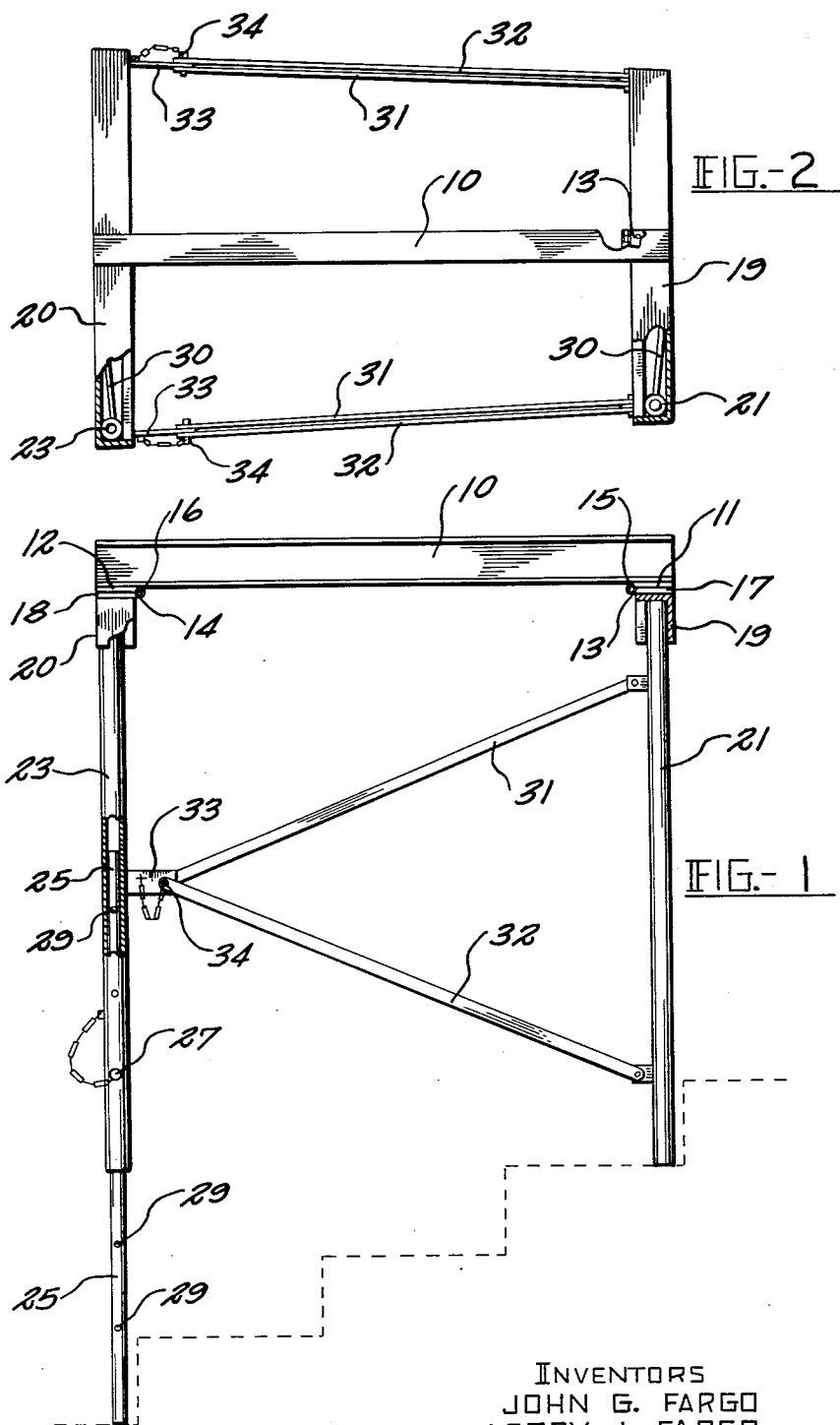


3,000,329

HOIST OVER STAIRWAYS

Filed June 17, 1959

2 Sheets-Sheet 1



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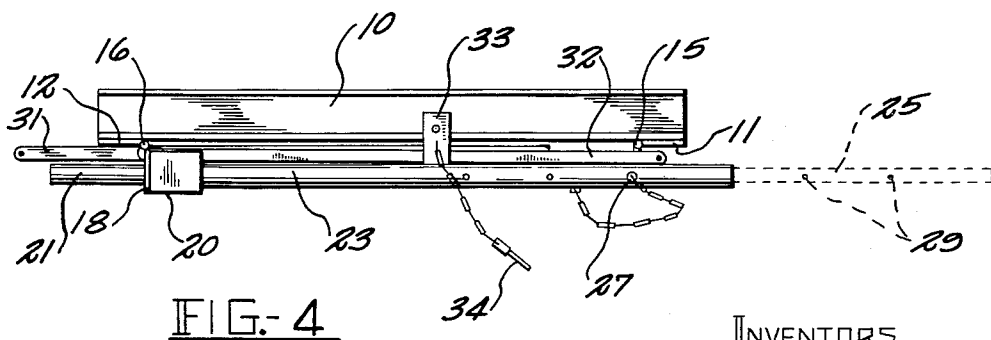
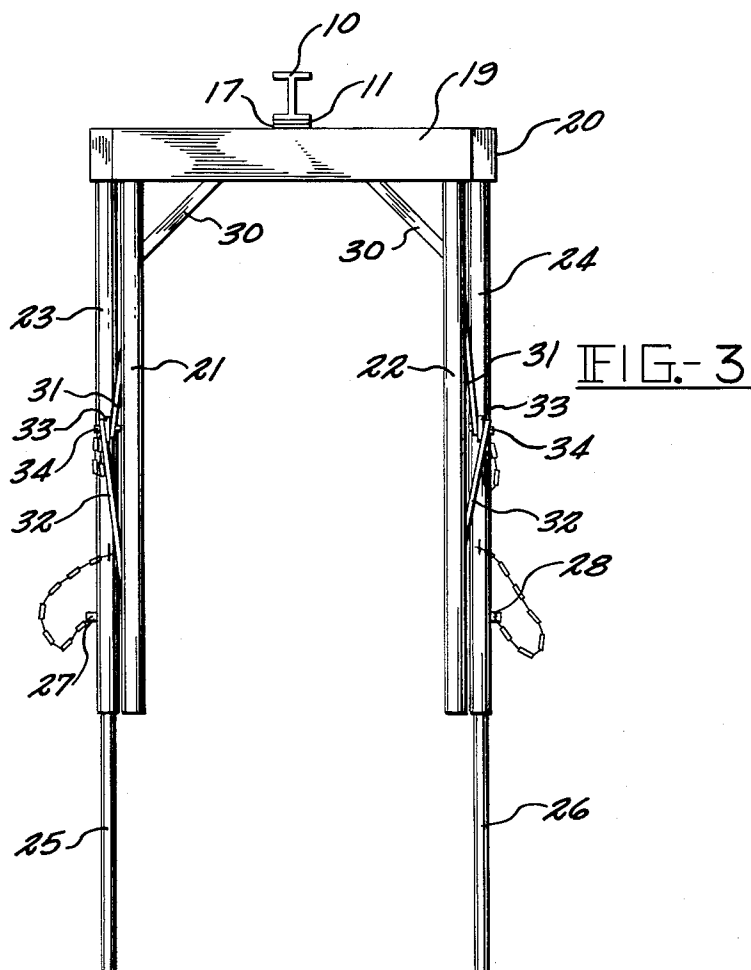
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HOIST OVER STAIRWAYS

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2 Sheets-Sheet 2



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3,000,329

HOIST OVER STAIRWAYS

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2 Claims. (Cl. 104—126)

This invention relates to a structure of a demountable or foldable nature which may be carried from job to job where rather heavy machinery such as floor grinding or sanding machines are to be carried up and down stairs. It finds particular use in the terrazzo floor industry where heavy machines have to be carried to upper floors up stairways in the absence of elevators, such machines being employed to grind down the floor surfaces.

A primary object of the invention is to provide a structure which will carry a lifting tackle, such as a chain fall or other lifting and lowering mechanisms in such manner, that the device to be lifted may be carried up a few stairs at a time, and then the lifting structure be moved up to higher steps or lower steps, depending upon the direction of the carry of the machine, all in a manner of promoting the utmost safety for the operators.

A further primary object of the invention is to provide a structure which is exceedingly light in proportion to its dimensions, lending itself to be made out of an aluminum alloy, and so fabricated that it may be folded into a relatively compact package for carrying from one job to another.

These and other objects including the ease of operation, the relatively low cost of construction, will become apparent to those versed in the art in the following description of one particular form which is made in reference to the accompanying drawings, in which

FIG. 1 is a view in side elevation and partial section of a structure embodying the invention;

FIG. 2 is a view in top plan and partial section;

FIG. 3 is a view in end elevation; and

FIG. 4 is a view in side elevation of the structure in a collapsed or folded condition.

An I beam 10 is provided as the element on which a lifting tackle may be shiftably carried longitudinally of the beam, the specific tackle not herein being shown since it does not, by its details, enter into the invention per se.

At each end portion of the beam 10, there is fixed to the underside thereof respectively leaves 11 and 12 of hinges generally designated by the numerals 13 and 14. The pintles 15 and 16 are spaced inwardly from the ends of the beam 10, with the leaves extending outwardly therefrom to the ends of the beam, FIG. 1. The other leaves 17 and 18 of the hinges 13 and 14 are fixed centrally to angle irons 19 and 20 extending transversely across and under the end portions of the beam 10 with the hinges 13 and 14 intervening therebetween.

Preferably the angle iron 19 is shorter in length than is the angle iron 20. The end portions of the beam 10 are centrally located in respect to the two irons 19 and 20, and a pair of legs 21 and 22 are fixed by their upper ends to the outer end portions of the angle 19 to extend at right angles therefrom in spaced apart relation. These legs 21 and 22 are fixed in lengths.

A second pair of legs 23 and 24 are fixed by their upper ends to the angle bar 20, at the outer ends of that bar 20. These legs 23 and 24 are tubular, and receive in telescoping manner therewithin extensions 25 and 26. The legs 23, 24 and extensions 25, 26 are drilled therethrough so that pins 27 and 28 may be passed selectively through a hole in each of the legs 23 and 24 to enter holes 29 in the extension legs whereby the two legs 23 and 24 may, in effect, be increased in length by these extensions to that degree desired.

The legs 21 and 22, are preferably braced in respect

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to the angle bar 19 by braces 30, extending diagonally between the bar 19 and the legs 21 and 22, FIG. 3. The legs 23 and 24 are likewise braced in the same manner.

When the device is in the erected position as indicated in FIGS. 1-3, there is a pair of struts 31 and 32 hinged at spaced apart points along the legs 21 and 22 and carried toward the legs 23 and 24 respectively to be detachably engaged with a bracket 33 fixed in each instance to the legs 23 and 24. Thus, as indicated in FIG. 1, the legs 21 and 23 are braced in what may be termed a fore and aft direction to prevent these legs swinging with their respective angle bars 19 and 20. In like manner the legs 22 and 24 are rigidly spaced apart by their struts 31 and 32. The engagement of the ends of the struts 31 and 32 with the bracket 33 is such that the respective ends bear on opposite faces of the bracket 33 and are held by a pin 34 passing through the strut ends and the bracket 33.

Operation

To use the device, it is erected as indicated in FIG. 1 where the legs 21, 22 rest on an upper tread of a stairway indicated by the dash lines, FIG. 1, and the legs 23, 24 through their extensions 25 and 26 rest on a lower tread, herein shown as the third tread down the stairs. Assuming that the lower ends of the extensions 25 and 26 are resting on the floor or a so-called ground level, the tool or whatever device is to be carried up the steps is brought up to between the leg sets 21, 22 and 23, 24, whereupon the device is lifted by whatever lifting tackle is carried by the I beam 10 until the underside of the device is elevated to the height of the fourth tread thereabove, that being the tread above which the lower ends of the legs 21 and 22 rest upon. Then the device is shifted over the intervening treads between the two sets of legs by shifting the tackle along the beam 10, whereupon the device is allowed to rest either on the third tread or the fourth tread depending upon its shape and contour, and then the entire structure is carried upwardly over another series of treads and the lifting process is repeated. The device may be lowered by following the reverse procedure.

After the lifting or lowering of the device is completed, and the structure is to be carried away or stored, the pins 34 are pulled outwardly so that the struts 31 and 32 may fold one along the other against the legs 21 and 22, FIG. 4. Then the pins 27 and 28 may be withdrawn to allow the extensions 25 and 26 to be pushed back within the legs 23 and 24 and held therein by reregistering the pins 27 and 28 with lower holes in the extension parts, pushing the pins on therethrough to retain the extensions.

The legs 21 and 22 may then be rocked around into substantial parallelism with the beam 10 by reason of the fact that the angle bar 19 will hinge on the pintle 15. Likewise the legs 23 and 24 will be rocked around under the beam 10 into substantial parallelism therewith by reason of the fact that the attached angle bar 20 will rock on its pintle 16. Since the legs 21 and 22 are spaced apart a distance less than that of the legs 23 and 24, this spacing is made such that the two legs may nest one along side the other so as to reduce the overall height of the folded structure as shown in FIG. 4.

By reason of the locations of the pintles 15 and 16, the legs are given a considerable bearing area through the angle bars 19 and 20 and through the overlapping leaves 11, 17 and 12, 18 so that in combination with the stiffening support of the struts 31 and 32, the device when erected is very rigid.

Therefore it is to be seen that we have provided an extremely simple, yet most effective structure for the purposes intended, and while the structure has been described above in minute detail, it is obvious that structural changes may be employed without departing from the spirit of the invention, and we therefore do not desire

to be limited to that precise form beyond the limitations which may be imposed by the following claims.

We claim:

1. A hoist comprising a lifting tackle carrying beam; a hinge member fixed to each underside end portion of the beam spaced along the beam from the beam end; a bar extending transversely across and under each of said portions; a second hinge member fixed to the top side of each of said bars intermediate their ends; a pintle hingedly interconnecting said first and second members thereby hinging said bars to said beam; and a leg attached to each end portion of each of said bars; said pintles being on opposing sides of the bars and positioning said bars and said hinge members to have flat abutting surfaces between said beam end portions and said bars limiting outward swinging of said legs to beam supporting positions and permitting the legs on one of said bars to swing toward the legs of the other bar; and means selectively

maintaining the legs of one bar spaced from the other legs in the beam supporting positions.

2. The structure of claim 1, in which said two hinge members consist of hinge leaves, and said abutting surfaces being the opposing faces of those leaves.

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