

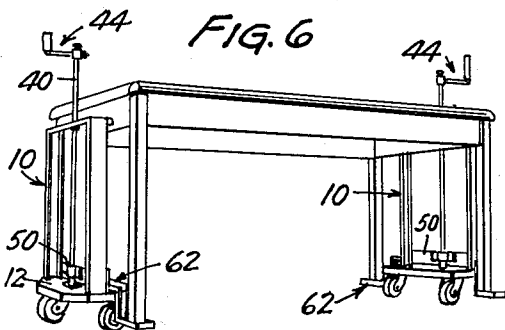
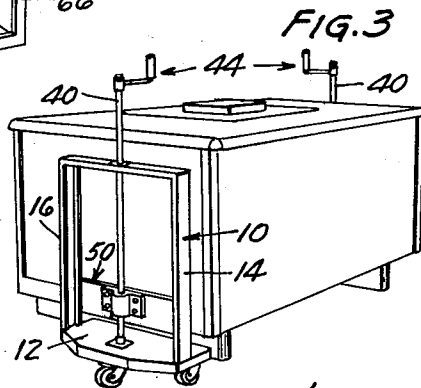
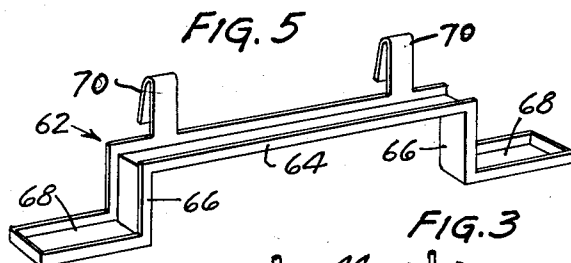
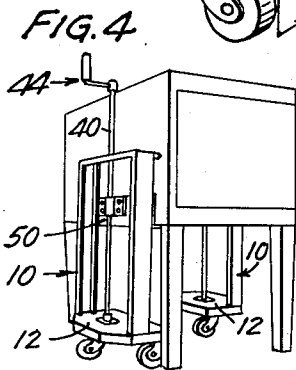
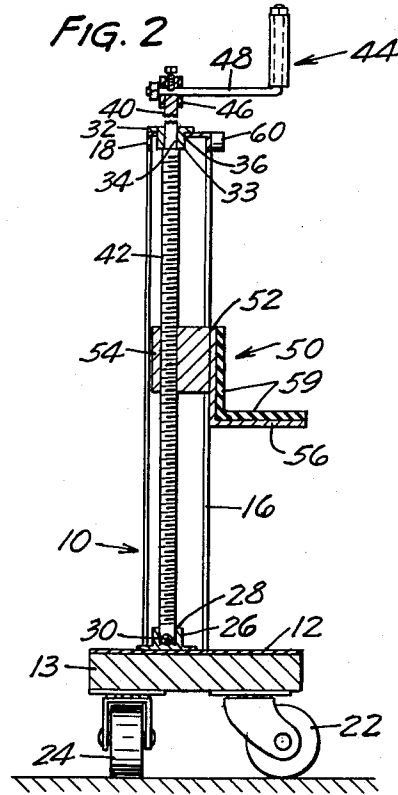
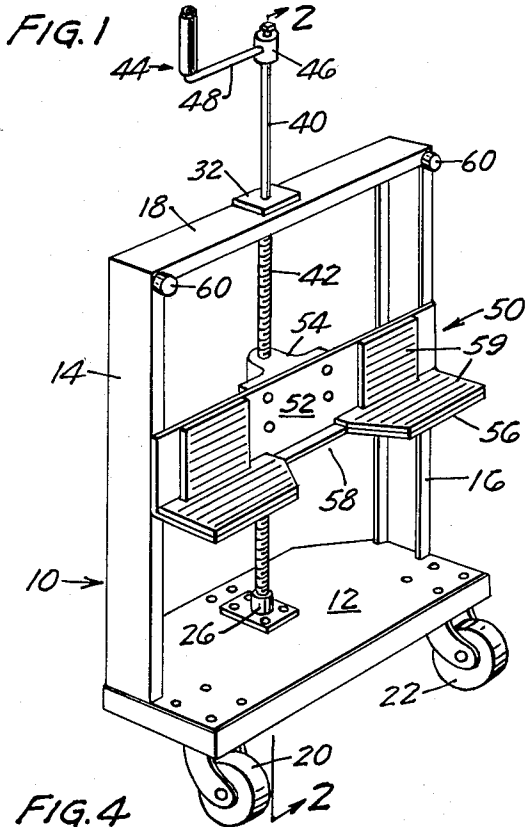
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F. DUNASKI

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FURNITURE MOVING DEVICE

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INVENTOR
FRANK DUNASKI
BY
Stanley S. Decker Hunt
ATTORNEY

1

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FURNITURE MOVING DEVICE

Frank Dunaski, 846 Jessamine Ave. E., St. Paul 6, Minn.

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4 Claims. (Cl. 214-390)

The present invention relates to devices for moving furniture, particularly furniture of the office type such as office desks, and the like.

An object of my invention is to provide novel devices for lifting and moving furniture, such as office desks and the like, whereby one person by himself quickly and readily can move even very heavy office furniture from one place to another.

A further object is to provide a novel movable lifting device by which office furniture such as desks, tables and the like can be easily, quickly and stably lifted and supported off of the floor, and transported from one place to another in such stable position without need of removal of contents or items stacked thereon such as might spill out or fall therefrom if the furniture were manually transported.

The manner in which these and other objects and advantages are obtained by my invention will be apparent from the following description, taken in conjunction with the appended drawing, wherein like reference characters refer to corresponding parts in the several views, and in which:

FIGURE 1 is a view in perspective of a preferred form of my device;

FIGURE 2 is a lateral section taken along the lines 2-2 of FIGURE 1;

FIGURE 3 is a view in perspective showing a desk in a position elevated from the floor by a pair of my novel devices, ready for transporting from one place to another;

FIGURE 4 is a view in perspective of a piece of office furniture such as a file cabinet in a position ready for lifting off of the floor with the aid of a pair of my devices;

FIGURE 5 is a view in perspective of a table-lifting attachment adapted for mounting on my novel furniture lifting device; and

FIGURE 6 is a view in perspective showing a table in position elevated from the floor with the aid of my invention, including the attachment of FIGURE 5, ready for transporting from one place to another.

Referring now to the drawing, and in particular FIGURES 1 and 2 of the drawing, the embodiment shown is seen to comprise a frame 10 which includes a base 12, supported by an underbase 13 of wood, e.g., 3/4 inch hardwood, a pair of upright supports 14 and 16 welded to and extending upwardly from said base 12 generally parallel with respect to one another, and a top brace 18 supported by and affixed to the upper end of said upright supports 14 and 16 at either end thereof. The base 12 preferably is composed of 10 gauge steel, while said upright supports 14 and 16 preferably are composed of channel-shaped metal of sufficient gauge, for example 14 gauge, for rigidity. The top brace 18 is likewise preferably so constructed. In addition to its reinforcing function, the underbase 13 also dampens noise when my device is used.

Positioned on the underside of base 12 and underbase 13 are three casters or swivel mounted wheels, with two of the casters 20 and 22 being positioned at opposite forward corners of base 12, and the third caster 24 being positioned adjacent the rearward edge of said base generally centrally thereof. The base should be of such width in the lateral direction where my devices are to be used in the moving of conventional sized office furniture, and of such depth from front to rear, so that the device is not easily tipped. However, as will be observed

2

as the description unfolds, my device has an inherent low center of gravity in view of the nature of its construction and is thus remarkably stable against tipping.

Preferably the upright supports 14 and 16 are positioned on said base 12 in a front to rear direction somewhat between front casters 20 and 22 and rear caster 24, but closer to the latter than to said forward casters.

Positioned midway between supports 14 and 16, and directly below top brace 18, is a socket member 26. Resting in the recess 28 of said socket member 26 is a ball-bearing 30. Fastened to top brace 18, immediately above socket member 26 (that is, midway between upright supports 14 and 16) is a plate 32 having a central bearing block 33, the latter having a vertical bearing aperture 34 therein. Said bearing plate is removably attached to said top brace, such as with bolts, with the bearing block 33 extending downwardly through larger aperture 36 (FIG. 2) in said top brace 18.

Extending through bearing aperture 34 is a rotatable shaft 40, the lower end of which rests within the recess 28 of socket 26 on ball-bearing 30. The portion 42 of said shaft 40 disposed between socket 26 and top brace 18 is provided with a worm thread, such as Acme thread or a U.S. coarse thread. The upper end of shaft 40 extending upwardly beyond top brace 18 is provided with a handle 44, mounted preferably on the topmost end of said shaft. The handle comprises a collar 46 fixedly mounted on the upper end of shaft 40, said collar being drilled horizontally so as slidably to accommodate one leg of a right angular handle member 48. A set screw (not shown) in said collar 46 tightens against handle member 48 to retain it in the desired position.

A lift assembly 50 is supported on the threaded portion 42 of shaft 40. Said lift assembly comprises a vertical back panel 52 to the back surface of which is affixed centrally thereof a mounting bracket 54. Said mounting bracket is threadably journaled about the threaded portion 42 of shaft 40, with said bracket and said threaded portion cooperating so that the bracket is raised and lowered as said shaft is rotated and counter-rotated. A lifting shelf 56 extends forwardly from the lower edge of back panel 52. Preferably the lifting shelf 56 has a gap 58 centrally thereof. The upper surfaces of the lifting shelf are covered with a protective rubber or plastic covering 59, as are the adjacent portions of back panel 52. Preferably, also, the forward corners where upright supports 14 and 16 meet top brace 18 are provided with protective rubber bumpers 60.

It will be seen that, by reason of the fact that upright supports 14 and 16 are located toward the rear of base 12, lifting shelf 56 extends over the forward portion of base 12, that is, over forward casters 20 and 22. Thus, when weight is brought to bear on lifting shelf 56, the downward forces thereof are applied nearly directly over forward casters 20 and 22, minimizing any tendency to tip the device.

In use, my device is usually employed in pairs. With particular reference to FIGURES 3 and 4, wherein my invention is being employed in connection with the moving of an office desk (FIG. 3) and a file cabinet (FIG. 4), the handle means 44 of one of my devices is turned to lower (if it is not already in the downward position) the lift assembly 50 so that the lifting shelf is just below the end edge of the piece of furniture to be lifted. The device is then rolled into position with the shelf disposed immediately under the end edge of the furniture. If the desk is located with one end near a wall, often my device (being narrow) can be rolled into position from the side between the desk and wall. If the desk being moved is a stenographer's desk, certain types of which contain a lengthwise reinforcing channel on the underside thereof, the device

is rolled into position so that this channel is disposed in (or over) the gap 58 of lifting shelf 56. Handle 48 is then rotated in the direction so as to raise the lift assembly with lifting shelf 56 engaging and lifting off of the floor one end of the desk. With the stability of my device, even though one end of the desk is lifted somewhat off of the floor while the other end remains on the floor, there is little or no danger of my device tipping.

The procedure is then repeated at the other end of the desk or piece of furniture to be moved with another one of the devices. It is, of course, unnecessary to lift the piece of furniture more than just a very short distance, for example only an inch or so, off the floor in order to transport it from one place to another with my lifting devices. When in lifted position, the piece of furniture is readily and easily rolled along the floor on the casters 20, 22 and 24 of my device. When the furniture has been moved to the desired place, the handle is merely rotated in the direction which lowers the lift assembly 50 and lifting shelf 56, the furniture thus being brought to rest on the floor. Slight additional rotation of the handle frees the lifting devices from the furniture piece so that they can be rolled away.

Referring now to FIGURES 5 and 6, since it is time-consuming to turn the lifting shelf to such a height as to engage the underside of a table, I have devised a special lift device 62 to accommodate tables. The table device 62 consists of a channel-shaped member having a central portion 64 downwardly extending connecting portions 66 and outwardly extending cup portions 68. A pair of hooks 70 is provided, the hooks being connected to the central portion 46, by which the table-lifting device is hung over back panel 52 of the furniture lifting device of the present invention, with the connecting portions 66 extending laterally of the ends of said back panel, and with the cup portions 68 extending laterally still further.

The dimensions of the table-lifting device, of course, are such that the cup portions 68 will receive the legs of conventionally sized office furniture.

When my device is used with the table-lifting attachment 62, the handle 48 is turned so that the cup portions 68 of the lifting device are just off the floor. (This distance is exaggerated in FIGURE 6 for clarity in illustration.) The table is then lifted manually so that the legs of the table fit into the cup portions 68 of the lifting device.

Occasionally, my furniture lifting device is used in connection with moving furniture of a height such that it is not possible to rotate the handle 48 through a complete revolution because of interference from the surface of the furniture being moved. In this event, I simply loosen the set screw of the collar 46 so that the handle member 48 will slide within said collar. The handle is then rotated 180°, following which it is slid within collar 46 so that it extends from said collar on the side opposite that from which it first extended. The shaft can then be rotated 180° again in the same direction as before. This can be repeated as often as is necessary. It is to be emphasized since the furniture to be moved need only to be lifted just a very slight distance off the floor, it is usually unnecessary to rotate the shaft more than a few times in order to lift the furniture sufficiently off the floor so that it can be transported from one place to another. Instead of the handle construction shown, a reversible "ratchet" handle of well known construction can also be employed.

When desired, for example in replacing shaft 40 or packing my device for shipping or such like, the shaft can be quickly removed. It is first rotated so that the lifting device is moved to the very bottom of the shaft. The bearing plate 32 is then loosened from top brace 18 and the shaft is then lifted from socket 26 and rotated sufficient additional times to free the shaft from lift assembly 50. The shaft with bearing plate 32, is then simply pulled free of the device.

Hereinabove, I have described my invention with the

aid of specific preferred embodiments. This has been merely for purpose of illustration and not limitation, as my invention comprehends equivalent structures and the scope thereof is to be construed in light of the specification taken as a whole, including the appended claims.

I claim:

1. A stable self-supporting device for lifting and moving furniture comprising: a frame including a base; a pair of casters positioned on the underside of said base one each at the opposite forward corners of said base, and a third caster positioned on the underside of said base rearwardly of said pair of casters and generally equidistant therefrom, said casters comprising a wheel rotatably mounted on a swivel; an angular lifting member having a vertical back panel and a lifting shelf extending forwardly from said panel, said vertical back panel of said lifting member being disposed rearwardly of a vertical extension of the line connecting said pair of casters and said lifting shelf extending substantially over said line, said lifting shelf further extending at least substantially as far laterally as said pair of casters, and when said lift member is in its lowermost position, said shelf passing under the end edge of an office desk as said device is rolled against said desk; and means for raising and lowering said lifting member.

2. A stable self-supporting device for lifting and moving furniture comprising: a frame including a base; a pair of upright supports extending upwardly from said base, and a top brace affixed to the upper portions of said upright supports, a pair of casters positioned on the underside of said base one each at the opposite forward corners of said base, and a third caster positioned on the underside of said base rearwardly of said pair of casters and generally centrally thereof, said casters comprising a wheel rotatably mounted on a swivel; a generally vertically disposed shaft rotatably supported by said base and said top brace, said shaft being disposed generally equidistantly between said pair of casters forwardly of said rear caster and rearwardly of a vertical extension of the line connecting said pair of casters, the portion of said shaft extending between said top brace and said base being provided with a worm thread; handle means for rotating said shaft; an angular lift member having a vertical backed panel, a mounting bracket affixed to the back surface of said panel threadably journaled about said threaded portion of said shaft for raising and lowering said lift member upon rotation and counter-rotation of said shaft, and a lifting shelf extending forwardly from said panel, said vertical back panel of said lifting member being disposed rearwardly of a vertical extension of the line connecting said pair of casters and said lifting shelf, extending substantially over said line, said lifting shelf further extending at least substantially as far laterally as said pair of casters, and when said lifting member is in its lowermost position, said shelf passing under the end edge of an office desk as said device is rolled against said desk.

3. A stable self-supporting device for lifting and moving furniture comprising: a frame including a base, a pair of upright supports extending upwardly from said base adjacent the lateral extremities thereof, and a top brace affixed to the upper portions of said upright supports; at least three swivelly mounted wheels positioned on the underside of such base; a generally vertically disposed shaft rotatably supported by said base and said top brace, said vertical shaft being disposed within a vertical extension of the area defined by said swivelly mounted wheels, the portion of said shaft extending between said top brace and said base being provided with a worm thread; handle means for rotating said shaft; and an angular lift member, said lift member having a vertical back panel, a mounting bracket affixed to the back surface of said panel threadably journaled about said threaded portion of said shaft for raising and lowering said lift member as said shaft is rotated and counter-rotated, and a lifting shelf extending forwardly from said panel, said lifting shelf

5

being positioned over and within a vertical extension of said area defined by said swivelly mounted wheels with downward forces exerted on said shelf by a load thereon being directed within said area, said panel extending laterally on each end at least to and in front of said upright supports and thereby being stopped from rotation upon rotation of said shaft, said shelf, when said lifting member is in its lowermost position, passing under the end edge of an office desk as said device is rolled against said desk.

4. A stable self-supporting device for lifting and moving furniture comprising: a frame including a base; a pair of casters positioned on the underside of said base one each at the opposite forward corners of said base, and a third caster positioned on the underside of said base rearwardly of said pair of casters and generally equidistant therefrom, said casters each comprising a wheel rotatably mounted on a swivel; an angular lifting member having a vertical back panel and a lifting shelf extending forwardly from said panel, said vertical back panel of said

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lifting member being disposed rearwardly of a vertical extension of the line connecting said pair of casters and said lifting shelf extending substantially over said line, said lifting shelf further extending a substantial distance in the lateral directions and having a gap therein centrally thereof, and when said lifting member is in its lowermost position, said shelf passing under the end edge of an office desk as said device is rolled against said desk; and means for raising and lowering said lifting member.

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