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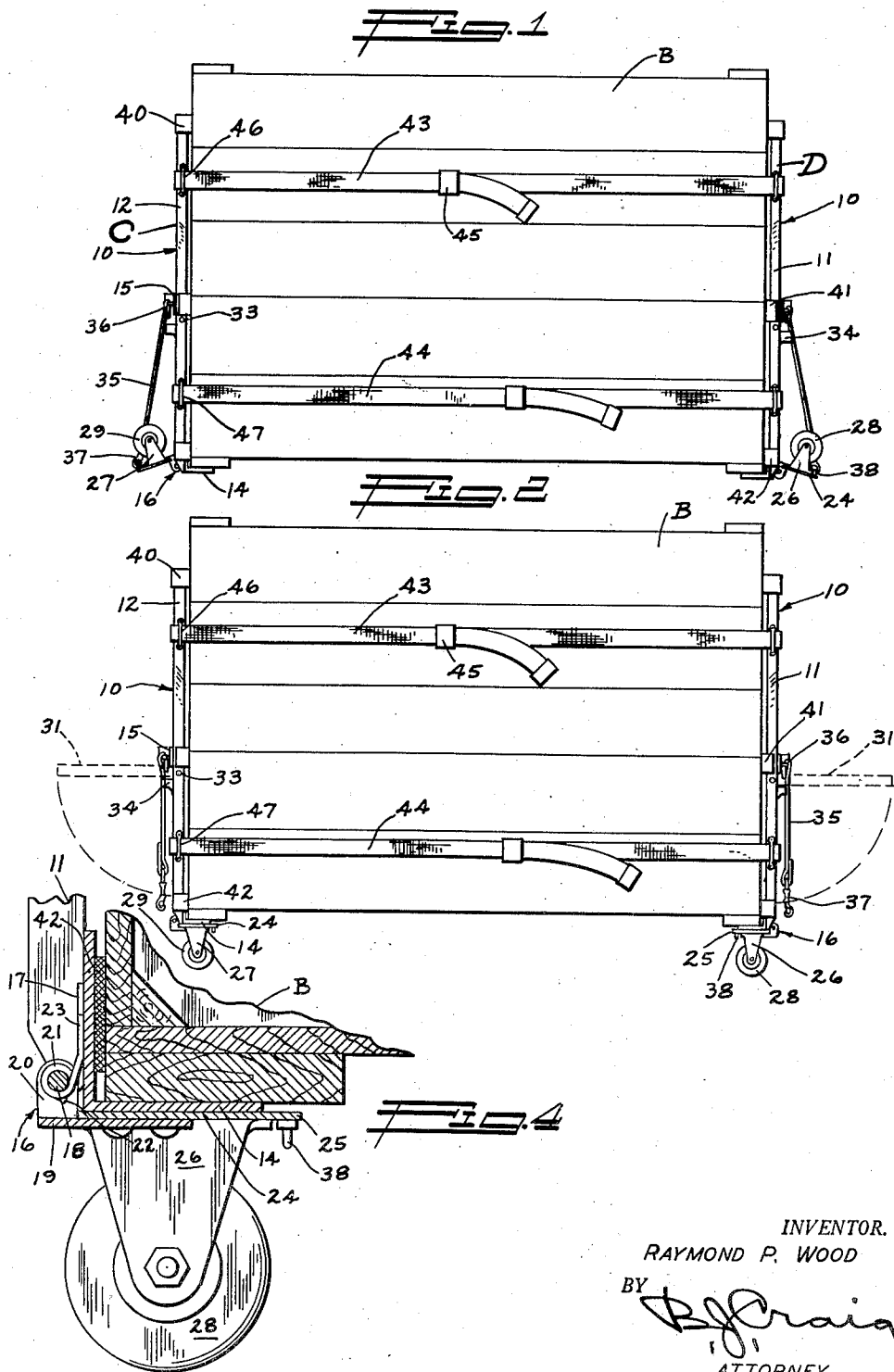
R. P. WOOD

2,359,016

ARTICLE HANDLING APPARATUS

Filed Oct. 18, 1943

2 Sheets-Sheet 1



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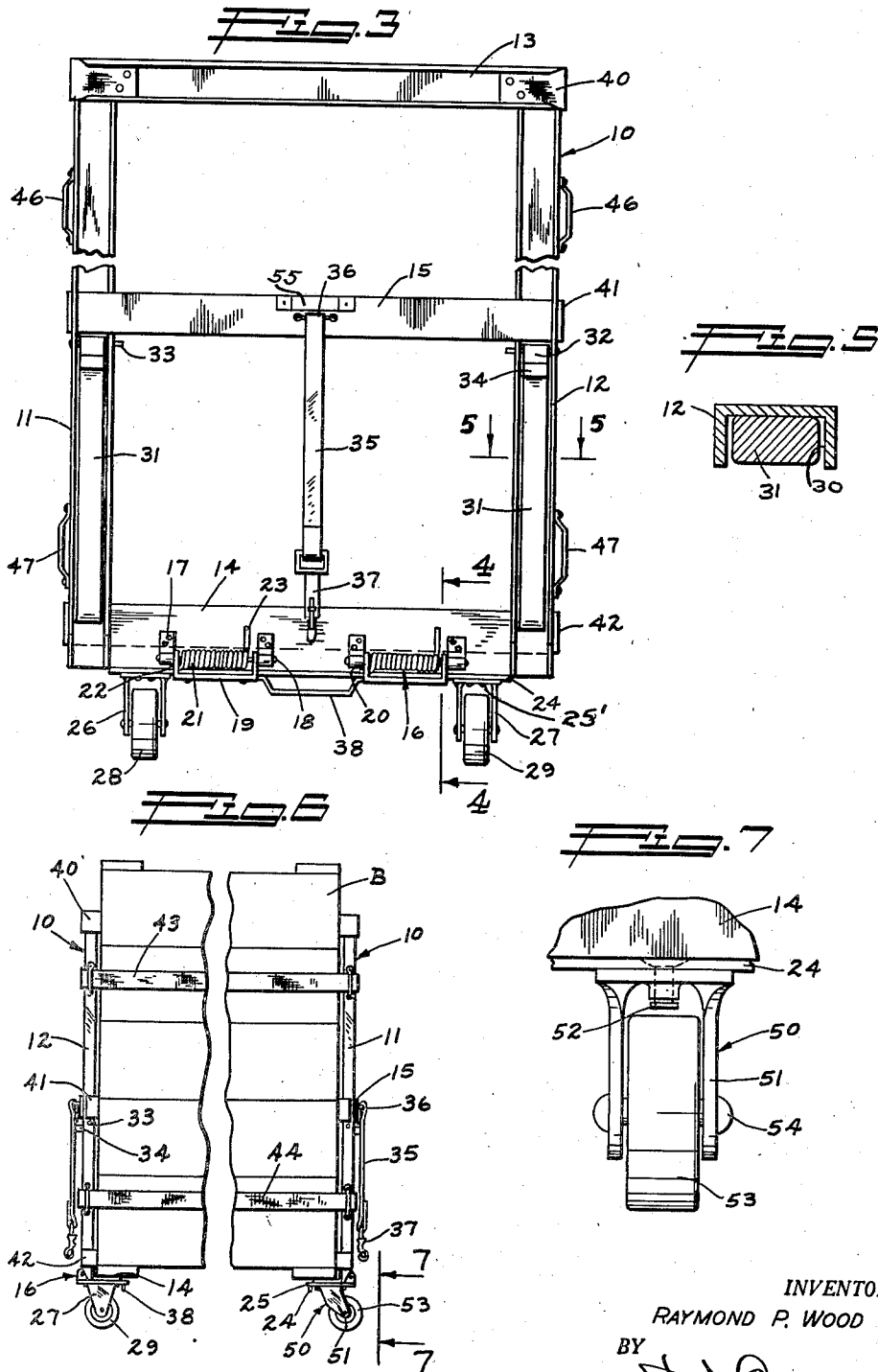
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ARTICLE HANDLING APPARATUS

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10 Claims. (Cl. 214-65)

This invention relates to an article handling apparatus and more particularly to an apparatus adapted to be used in connection with the moving of large boxes, refrigerators, stoves and the like, and provides as its main object a novel apparatus which permits easy and safe handling of large and bulky objects.

A more specific object of my invention is to provide a novel means for placing and holding a set of dollies beneath an article to be moved.

Another object of this invention is to provide a novel means by which the ends of a large and bulky object may be raised in order to place a dolly beneath said object.

A further object of my invention is to provide a novel transportable unit.

A still further object of this invention is to provide a novel article handling apparatus which is light in weight and compact so as to permit easy storing when the apparatus is not in use.

Other and further important objects and the advantages of my invention will be apparent from the disclosures in the specification, appended claims, and in the accompanying drawings, wherein:

Fig. 1 is a side elevational view of the apparatus of this invention as used in connection with an article to be transported and showing the apparatus in the position it occupies prior to the placing of the dollies beneath the article;

Fig. 2 is a view similar to Fig. 1 showing the dollies beneath the article;

Fig. 3 is an enlarged end view of the apparatus;

Fig. 4 is a sectional view taken on line 4-4 of Fig. 3;

Fig. 5 is a fragmentary sectional view taken on line 5-5 of Fig. 3;

Fig. 6 is a side elevation showing an alternate arrangement of my invention, and

Fig. 7 is a fragmentary side elevational view of the alternate arrangement of my invention as illustrated in, and taken on line 7-7, of Fig. 6.

Referring to the drawings by reference characters, I have shown my invention as embodied in an article handling apparatus which is indicated generally at 10. As shown the apparatus may be used in connection with an article such as a box B although it will be understood that the apparatus may be used with large and bulky articles such as refrigerators, stoves, etc.

The apparatus 10 consists of two frames C and D which are arranged at opposite ends or opposite sides of the article to be moved. Each member C and D includes spaced, vertical channel members 11 and 12. The upper ends of the mem-

bers 11 and 12 are connected by a cross member 13 and their lower ends are connected by a member 14. The member 14 is shown as an angle having one side forwardly projecting to form a step portion. Spaced intermediate the members 13 and 14 I provide a channelled brace member 15.

In use one end of the box B is raised and the step portion of the member 14 is slipped thereunder and the box is then lowered. Thereafter the step portion on the other frame is slipped beneath the other end of the box.

Attached to the outside of the angle 14 I provide a pair of hinges indicated generally at 16. Each hinge includes a leaf member 17 secured to the angle 14 and pivotally mounted by a pintle pin 18 to ears 20 on a lower hinge leaf member 19. Arranged about each pin 18 I provide a coiled spring 21 which has one end attached to one of the ears 20 as at 22 and the other end extended as at 23 to be in pressure contact with the angle 14, and the construction of the spring is such that each spring normally urges the associated hinge 16 to an open position so that the hinges assume the position shown in Fig. 2.

Secured to the lower hinge plates 19 I arrange a dolly support plate 24 which extends, when in the lower position, slightly beyond the lower side of the angle 14 as at 25 (see Fig. 4). Spaced inwardly from the ends of the plate 24 and mounted thereon as by rivets 25' I provide a pair of U-shaped brackets 26 and 27 which support dollies 28 and 29.

Within the channelled portions 30 of the uprights 11 and 12, immediately below the cross ties 15 I arrange lifting handles 31 which are pivotally mounted to the sides of the uprights 11 and 12 as at 32 on pins 33. Each handle has a stop member 34 thereon which is adapted to engage the outer face of the associated cross tie member 15 when the handle is in the operative or horizontal position. The construction and arrangement of the handles 31 is such that upon being lowered they will fall by gravity to a completely retracted position within the spaces 30, as best shown in Figs. 3 and 5.

A strap 35, mounted as at 36 at the approximate center of each cross member 15, extends downwardly and has, at its lower end, a hook 37 which is adapted to be fastened to a handle 38 mounted on the plate 24 intermediate the dollies 28 and 29, and the construction is such that when the hook 37 is secured to the handle 38 the dollies will be retained in a raised position as shown in

Fig. 1. This enables the angles 14 to rest on a surface and beneath the box B.

A series of pad members 40, 41 and 42 are suitably attached to the uprights 11 and 12 and pass over the faces of the members 13, 14 and 15 to prevent marring and scratching of the box or other article.

A pair of straps 43 and 44, having buckles 45, pass through guide members 46 and 47 respectively and secure the members C and D in assembled position on the article being handled.

In operation the angles 14 of the apparatus are forced under the box B and the straps 43 and 44 are secured in position as shown in Fig. 1. Fig. 2 illustrates the second stage of the operation in which, after releasing the hooks 37, the handles 31 are lifted to allow the dollies to be moved beneath the box B by the action of the springs 21. It will be seen that the box B is now in position to be moved to any desired location.

In Figs. 6 and 7 I show an alternate arrangement of my invention in which all of the parts are similar to those previously described except that one of the members 10 is provided with pivoted dollies 50 each of which comprises a bracket 51, pivoted to the plate member 24 as by a pin 52, and a wheel 53, secured to the bracket by means of a pin or axle 54. It will be seen that this arrangement will increase the mobility of the unit.

When not in use the frames will stand vertically resting upon the step portions 14 and the edges of the plates 24 in the position shown in Fig. 1.

In order to facilitate handling heavy articles being transported by my improved apparatus I show a loop member 55 secured upon each of the cross members 15. In lifting suitable hooks may engage the loop members 55.

Having thus described my invention and the present preferred embodiments thereof, I desire to emphasize the fact that many modifications may be resorted to in a manner limited only by a just interpretation of the following claims.

Having thus described my invention, I claim:

1. An article handling apparatus comprising a supporting frame, said frame including spaced vertical members, a top transverse member connecting said vertical members, a bottom transverse member secured to the lower ends of said vertical members, said bottom member including a portion extending horizontally forward from said frame, a dolly support plate, means to hingedly support the dolly support plate on the bottom member for movement from a position remote from said horizontal portion to a position beneath said horizontal portion, a pair of rollers mounted on said plate, spring means normally urging the plate to a position beneath said horizontal portion, releasable means to hold said plate remote from said horizontal portion, and a handle pivoted on each vertical member, each handle having a stop member thereon positioned to engage a portion of the frame when the handle is raised.

2. An article handling apparatus including a frame having spaced vertical members, an upper transverse member connecting said vertical members, a lower transverse member secured to the lower portion of said vertical members, said lower member including a portion extending horizontally forward from said frame, a dolly support plate, means to hingedly support the dolly support plate on the bottom member for move-

ment from a position remote from said horizontal portion to a position beneath said horizontal portion, a pair of spaced rollers mounted on said plate, spring means normally urging the plate to a position beneath said horizontal portion, a flexible member having one end secured to a portion of said frame and having the other end releasably secured to said plate, said flexible member being of a length to hold said plate remote from said horizontal portion, and a handle pivoted on each vertical member, each handle having a stop member thereon positioned to engage a portion of the frame when the handle is raised.

3. An article handling apparatus comprising a supporting frame, said frame including spaced vertical members, a top transverse member connecting said vertical members, an intermediate transverse member connecting said vertical members, a bottom transverse member secured to the lower ends of said vertical members, said bottom member including a portion extending horizontally forward from said frame, a dolly support plate, means to hingedly support the dolly support plate on the bottom member for movement from a position remote from said horizontal portion to a position beneath said horizontal portion, a pair of brackets mounted on said plate, a roller mounted on each bracket, spring means normally urging the plate to a position beneath said horizontal portion, a flexible member having one end secured to a portion of said frame and having the other end releasably secured to said plate, said flexible member being of a length to hold said plate remote from said horizontal portion, and a handle pivoted on each vertical member immediately below said intermediate transverse member, each handle having a stop member thereon positioned to engage a portion of the frame when the handle is raised.

4. An article handling apparatus comprising a supporting frame, said frame including spaced vertical channel members, a top transverse member connecting said vertical channel members, an intermediate transverse member connecting said vertical channel members, an angle member having one flange thereof secured to the lower ends of said vertical channel members, the other flange of said angle member extending horizontally forward from said frame, a dolly support plate, means to hingedly support the dolly support on the frame for movement from a position parallel to and remote from said other flange to a position beneath said other flange, a pair of brackets mounted on said plate, a roller mounted on each bracket, spring means normally urging the plate to a position beneath said other flange, a flexible member having one end secured to a portion of said frame and having the other end releasably secured to said plate, said flexible member being of a length to hold said plate in its position parallel to and remote from said other flange, and a handle pivoted on each vertical channel member immediately below said intermediate transverse member, each handle having a stop member thereon positioned to engage a portion of the frame when the handle is raised.

5. An article handling apparatus comprising a supporting frame, said frame including spaced vertical channel members, a top transverse member connecting said vertical channel members, an intermediate transverse member connecting said vertical channel members, an angle member having one flange thereof secured to the lower ends of said vertical channel members, the other flange of said angle member extending horizontally for-

ward from said frame, a dolly support plate, means to hingedly support the dolly support plate for movement on the angle member from a position parallel to and remote from said other flange to a position beneath said other flange, a pair of brackets mounted on said plate, a roller mounted on each bracket, spring means normally urging the plate to a position beneath said other flange, a flexible member having one end secured to said intermediate transverse member, means to releasably secure the other end of said flexible member to said plate, said flexible member being of a length to hold said plate in its position parallel to and remote from said other flange, and a handle arranged in each vertical channel member immediately below said intermediate transverse member, means to pivotally support each handle, each handle having a stop member thereon positioned to engage the intermediate transverse member when the handle is raised.

6. An article handling apparatus comprising a supporting frame, said frame including spaced vertical channel members, a top transverse member connecting said vertical channel members, an intermediate transverse member connecting said vertical channel members, an angle member having one flange thereof secured to the lower ends of said vertical channel members, the other flange of said angle member extending horizontally forward from said frame, padding members secured to said channel members and extending over the front face of said transverse members and the front of said one flange of the angle member, a dolly support plate, means to hingedly support the dolly support plate on the angle member for movement through at least 180° so that the plate may move from a position parallel to and remote from said other flange to a position beneath said other flange, a pair of brackets pivotally mounted on said plate, a roller mounted on each bracket, spring means normally urging the plate to a position beneath said other flange, a flexible member having one end secured to said intermediate transverse member, means to releasably secure the other end of said flexible member to said plate, said flexible member being of a length to hold said plate in a position parallel to and remote from said other flange, a handle arranged in each vertical channel member immediately below said intermediate transverse member, means to pivotally support each handle, each handle having a stop member thereon positioned to engage the intermediate transverse member when the handle is raised, and securing guide members mounted on the outer faces of said vertical channel members for securing the frame to one end of an article to be transported.

7. An article handling apparatus comprising a supporting frame, said frame including spaced vertical members, a top transverse member connecting said vertical members, a bottom transverse member secured to the lower ends of said vertical members, said bottom member including an article engaging portion extending forward from said frame, a dolly support plate, means to hingedly support the dolly support plate on the frame for movement from a position remote from

said article engaging portion to a position beneath said article engaging portion, a pair of rollers mounted on said plate, spring means normally urging the plate to a position beneath said article engaging portion, releasable means to hold said plate remote from said article engaging portion, and a handle pivoted on each vertical member.

8. An article handling apparatus comprising a supporting member having an article supporting step extending forward therefrom and adapted to be inserted under an article the end of which is engaged by said member, a dolly support plate, means to pivotally support the dolly support plate on said member with the axis of said pivotal support being at one side and remote from said step whereby the dolly support plate may move from a position remote from said article supporting step to a position beneath said step, a pair of rollers mounted on said dolly support plate, and resilient means normally urging the dolly support plate to a position beneath said article supporting step.

9. An article handling apparatus comprising a supporting frame, said frame including spaced vertical members, a top and a bottom transverse member secured to said vertical members, said bottom transverse member including an article supporting portion fixed on and extending horizontally forward from said frame, a dolly support plate, means to hingedly support the dolly support plate on the bottom member, the axis of said hinge support being above the plane of and remote from said article supporting portion whereby the dolly support plate may move from a position remote from said article supporting portion to a position beneath said article supporting portion, a pair of rollers mounted on said dolly support plate, resilient means normally urging the dolly support plate to a position beneath said article supporting portion, and a handle pivoted on said frame.

10. An article handling apparatus comprising a supporting frame, said frame including spaced vertical members, a top transverse member connecting said vertical members, a bottom transverse member secured to the lower ends of said vertical members, said bottom member including an article supporting portion extending horizontally forward from said frame, a dolly support plate, means to hingedly support the dolly support plate on the bottom transverse member, the axis of said hinge support being above the plane of and remote from said article supporting portion whereby the dolly support plate may move from a position at one side of and remote from said article supporting portion to a position beneath said article supporting portion, a pair of spaced rollers mounted on said dolly support plate, resilient means normally urging the dolly support plate to a position beneath said article supporting portion, releasable means to hold said dolly support plate remote from said article supporting portion, and a handle pivoted on said frame.

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