United States Patent [19]

Anderson et al.

[11] **3,750,811**

[45] **Aug. 7, 1973**

[54] **CARPET UNLOADING AND TRANSPORTING ASSEMBLY**

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[22] Filed: **Sept. 4, 1970**

[21] Appl. No.: **69,789**

[52] U.S. Cl. ..... **214/394,** 214/38 R, 214/85.5

[51] **Int. Cl.** **B65g 67/24,** B60p 3/00

[58] **Field of Search** ..... 214/392, 394, 396, 214/44 R, 38 R, 85.5

[56] **References Cited**

UNITED STATES PATENTS

2,702,139	2/1955	Faustine	214/396
2,612,279	9/1952	Simmons	214/394
3,028,030	4/1962	Wylie	214/396
3,348,712	10/1967	Hanson	214/396

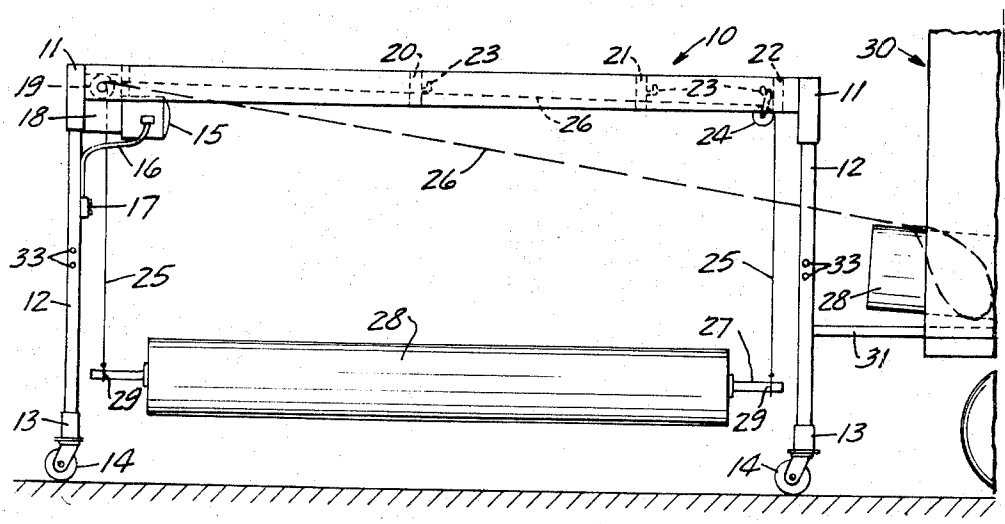
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[57] **ABSTRACT**

A carpet roll unloading and transporting assembly is provided comprising an elongated rectangular frame with legs extending downwardly from the corners and terminating in castors. An electrically driven drum is provided at one end of the assembly which winds and unwinds a pair of cable members to raise and lower rolls of carpeting for transporting or cutting off of portions for use. One of the cables is used in the assembly for unloading of rolls of carpeting from a truck.

5 Claims, 4 Drawing Figures



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FIG. 1

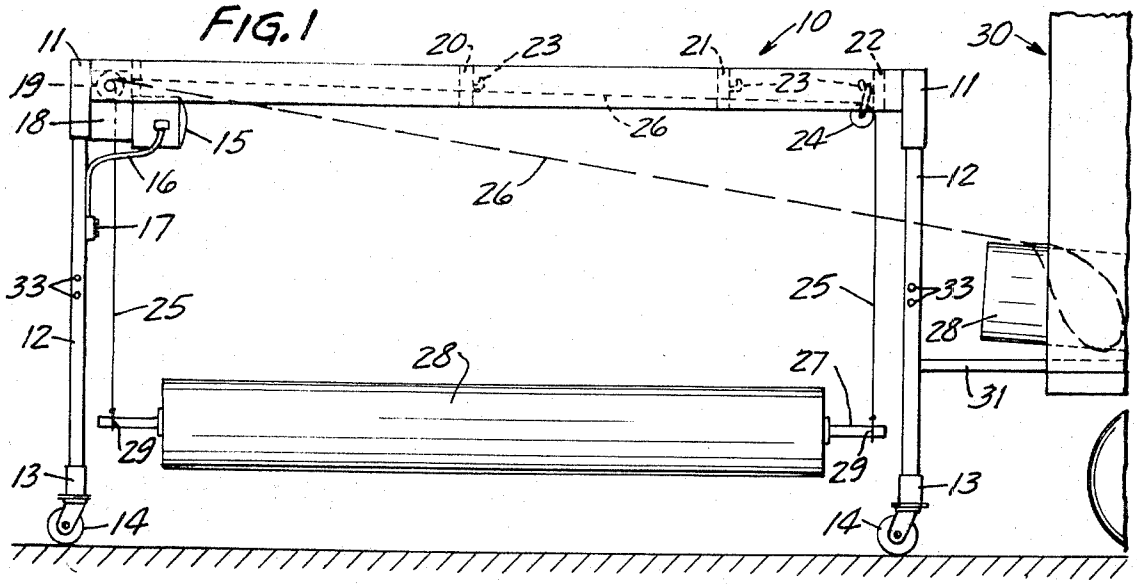


FIG. 2

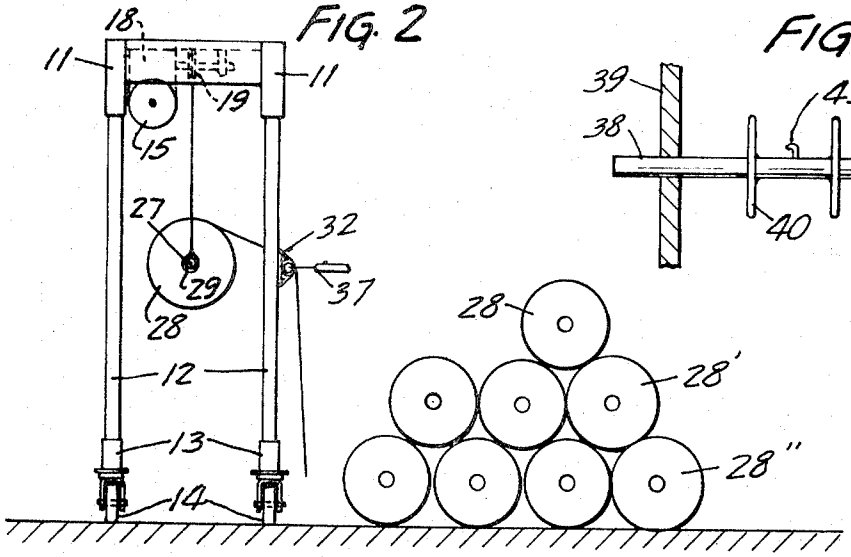
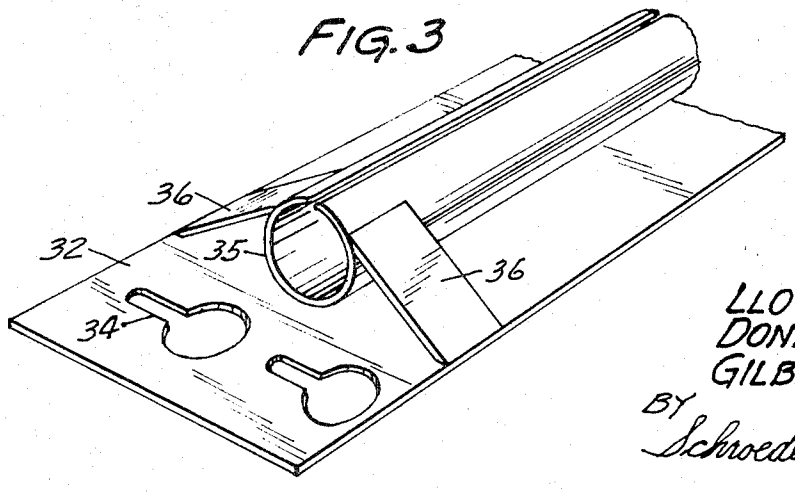


FIG. 4

FIG. 3



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CARPET UNLOADING AND TRANSPORTING ASSEMBLY

BRIEF SUMMARY OF THE INVENTION

Our invention is particularly directed to the problems of handling large rolls of carpeting in a warehousing or retail store outlet where the sophisticated equipment of the manufacturer or warehousemen is too expensive and space consuming for use. Rolls of carpeting are commonly made in lengths up to 15 feet and weigh in excess of 800 pounds each. Manual handling of such large rolls is clearly undesirable.

Our invention provides equipment which, in one piece of apparatus, will provide an unloading tool for removal of carpeting from trucks and the like and will also readily move large rolls of carpeting throughout a store or other facility safely and economically. The assembly is such that it can readily move down very narrow aisles and turn very sharp corners. Thus, it maximizes the amount of useful space in a storage area.

The invention accomplished all these purposes through the use of a rectangularly-shaped frame member having a length several times its width, with leg members extending from the four corners of the rectangular frame and terminating in castors at the base thereof. The legs are constructed to readily change to any desired length and will ordinarily be from six to nine feet in length. They are constructed in such a manner as not to require cross bracing therebetween, a factor which adds to the versatility of the assembly for purposes that will be described more completely hereinbelow. A motor and cable-winding drum is provided at one end of the assembly, having two cables independently wound thereon. The first cable is adapted to extend directly downwardly from the drum to act as a hoist member on one end of the frame. A second cable is considerably longer than the first and extends, when fully extended, well beyond the opposite end of the assembly, so as to permit winding about rolls of carpeting in the back of a truck or the like. In this mode the assembly can be utilized to pull carpeting away from the bed of a truck and into position for hoisting into the center of the frame assembly for transportation to other parts of the store. A plurality of cross bar members are provided having hook means attached thereto for mounting of pulley members. The pulley members are adapted to releasably engage the longer cable to provide the second lift member for elevating carpeting for transportation, cutting or other purposes. A removable cutting bar is also provided.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a side elevational view of the apparatus in accordance with our invention showing its use in two different manners;

FIG. 2 is an end elevational view of the apparatus in accordance with FIG. 1 illustrating an additional use;

FIG. 3 is a perspective view of a cutting bar for utilization in the manner described in FIG. 2;

FIG. 4 is a schematic illustration of a two-member cable winding drum.

Turning first to FIGS. 1 and 2, there is illustrated a carpet unloading and transporting assembly in accordance with our invention. This assembly consists of an upper portion of elongated rectangular configuration generally designated **10**, which is advantageously formed of 2×2×3/16-inch steel angle. The rectangular

frame described is one with a length of about 17½ feet × 40 inches in width. The angle irons are joined at the corners of the rectangular frame by appropriate means such as welding to square steel tubing **11**, which may be of a size 2½×2½×3/16-inch, with an overall length of about 14 inches. For the purpose of ilustration, the side rail angle iron members have been exaggerated as to their width dimensions relative to the scale of the rest of the assembly. The corner post members **11** have a steel cap welded across the upper portion thereof to present a closed end tube. Telescoping partly into and extending downwardly from the corner post tubes **11** are leg members **12**, which are advantageously formed from 2 2×3/16-inch steel tubing. The overall length of leg members **12** will depend upon the needs of the user, but will ordinarily be of a length of 6 feet or longer. Tube members **12** terminate in a castor assembly **13**, which includes a wheel member **14**. The upper portion **13** of the castor assembly is shown as a rectangular steel tube of similar dimension to member **11** and into which member **12** telescopes. As a feature for ready replacement of leg members **12**, a fastening means such as set screws may be utilized in members **11** and **13** to hold the leg members **12** within the tubulations. As can be seen, the set screws are not required, as the weight of the assembly will hold the tubes in their respective positions.

At one end of frame **10** there is attached a motor **15**, which is connected by means of cord **16** to a switch box **17**. Switch box **17** is shown as having two buttons which operate electric motor **15** in either a forward or reverse direction. Not shown is a means for supplying electric power through switch box **17** to motor **15**. A simple plug-in to an extension cord, would be one such means. Motor **15** is connected to cooperate with a gear box **18**, which in turn is in operable engagement with a drum member **19**.

Attached at various positions along the length of frame **10** intermediate the long sides thereof are support bars **20**, **21** and **22**. These bars are fixedly mounted to the angle irons of the longitudinal sides of frame **10**. Bars **20**, **21** and **22** have a means such as a hook **23** attached thereto, which is adapted to engage and hold a pulley member **24**. As shown in FIG. **1**, pulley **24** is mounted at the furthest end from the motor and drum assembly. A pair of independently wound cable members **25** and **26** are in engagement with drum **19** and are wound and unwound by the rotation of the drum. Cable **25** extends vertically downwardly from drum **19** and engages a steel rod **27**, which extends through a carpet roll **28** and provides support therefor. Cable **25** is provided at the end thereof with a means such as a permanent loop **29** for slipping around the steel rod **27**. Cable **26**, in solid line, extends from drum member **19** through pulley **24** and down to the opposite end of rod **27** to provide a second lift point for the carpet **28**. It can now be readily understood that carpet **28** may be either raised or lowered by rotation of drum **19** through power supplied by motor **15**.

Carpeting comes in a variety of lengths, and normally is sold in 6-foot, 12-foot or 15-foot lengths. In the form shown in FIG. **1**, a 15-foot length of carpeting is illustrated as being raised. For shorter lengths of carpeting, it is desirable that the cable **26** engage steel rod **27** at a point near the carpeting, rather than at some end remote from the actual carpeting. There is less tendency to bend rod **27** if the support points are near the carpet-

ing, as the carpeting and its inserted liner gives some support against bending. Therefore, we have provided additional points for pulley member **24**, such as cross beams **20** and **21**, appropriately positioned to take into account the varying carpet lengths. By positioning a pulley either permanently or movably to the other support positions, one can readily accommodate different lengths of carpeting rolls.

In a second use of the assembly of our invention, there is illustrated a truck **30** having a tailgate **31**. The assembly in accordance with our invention is moved into position against tailgate **31** so that legs **12** are in contact therewith. Cable member **26** has been slipped off of pulley **24** and has een extended outwardly into the back of truck **30** and looped about a roll of carpeting. The permanent loop **29** may be used to form a slip noose arrangement for engaging the end of the carpeting. The motor is then activated to pull the roll of carpeting out from the body of truck **30** and in between the upstanding legs **12**. It may be desirable when handling very heavy carpeting or where the underlying surface is not clean to have a wheeled cart member between the legs of the frame assembly to catch the carpeting as it is pulled from the truck and to allow it to move freely along until it is completely withdrawn from the truck. Once the carpeting has been withdrawn from the truck, the steel rod **27** may be inserted therethrough and connected in the manner previously described.

Turning to FIG. **2**, there is illustrated an assembly in accordance with our invention wherein a roll of carpeting **28** has been elevated to a point above a cutting bar **32**, shown in greater detail in FIG. **3**. The cutting bar is detachably mounted to the legs **12** by means such as studs **33**, which are adapted to engage keyholes **34** of member **32**. It should be noted at this point that legs **12** have no obstructions therebetween at the lower portions thereof. This permits the entire assembly to be rolled about and to pass over rolls of carpeting such as illustrated in FIG. **2** from a sideward motion of the frame, as well as to extend over single rolls of carpeting longitudinally. As the cutting bar is only used a portion of the time, it is desirable that it be readily attachable and detachable.

Turning to FIG. **3**, there is illustrated a preferred form of cutting bar, which involves a plate member having secured thereto an elongated cylindrical tube **35**, having a slot running the length thereof at the upper surface. Brace members **36** are provided at the ends of the tube to hold it rigidly in place and to prevent it from rotating.

As shown in FIG. **2**, a length of carpeting has been unwound from roll **28** and lapped over the cutting bar **32**. A length of carpeting may be removed by a cutting tool such as knife **37**, utilizing the cutting tool guide **32** to make a straightline cut.

Referring again to FIG. **2**, it should be appreciated that rolls of carpeting may be piled as illustrated, or they may be removed from the pile regardless of their position therein. For example, the assembly **10** may be positioned over the rolls of carpeting and a steel rod **27** inserted therethrough any member such as **28**, **28'** or **28''**. Upon activation of electric motor **15**, the drum will wind up cables **25** and **26** and raise the desired roll of carpeting up into position above the pile of carpeting so that it can be moved to some other position or have a section of carpeting cut therefrom.

Where narrow aisles are encountered in storage of carpeting, it will be necessary to form steel rod **27** from a series of rod sections. The rod sections should be formed of steel tubing having a telescoping member fixedly fastened to one end thereof for insertion into a cooperating adjacent section of tube to provide the desired overall length. We have found that individual sections of about four-foot lengths may be joined in such a manner to give any desired length.

Referring to FIG. **4**, there is illustrated in schematic form a drum assembly consisting of two separate members which are adapted to cooperate. When our invention is utilized in the manners described above, it is apparent that the cable lengths will not always be of the desired relationship to one another. That is, when utilized to pull carpeting out from a truck, cable **25** will be unwound and either deposited on the surface or be of such a length as to be rewound on drum **19** as cable **26** is extended. FIG. **4** illustrates one means of separately winding cables **25** and **26**, so that they either cooperate in movement with one another or can be independently wound and unwound. In the showing of FIG. **4**, shaft **38** extends rotatably through support members **39** and has positioned thereon two drums **40** and **41**. Drum **40** is fixedly attached to shaft **38** by some appropriate means such as welds. Drum member **41** is journaled onto shaft **38** and is free to rotate thereon. A spring member **42** is positioned along shaft **38** to bias member **41** into engagement with fixed drum **40**. Between the faces of drums **40** and **41** there is provided clutch means (not shown) such as a gear ring so that both drums will rotate simultaneously when in engagement. When it is desired that only one of the drums rotate, drum **41** is pulled along shaft **38** out of engagement with the clutch means by appropriate means (not shown). Thus, if one wishes to unwind cable **26** to remove a roll of carpeting from a drum or to adjust the cable to some position other than as shown in FIG. **1**, drum **41** is disengaged so as not to rotate with drum **40**. The cables can then be positioned relative to one another as desired.

Any appropriate means may be utilized to hold the cable members onto drums **19**, **40** or **41**, such as a hook member **43**.

While all of the above description has been made with reference to cables, we have found that the most desirable cable is a one-half-inch diameter nylon rope. A one-half-inch nylon rope has a tensile strength of about 5,000 pounds. The nylon rope has proved to be most satisfactory for this purpose, as it is clean, requires no lubrication, and does not have a tendency to fray and interfere with handling of materials, as is the case with steel cable. Likewise, it is relatively inexpensive and does not tend to kink.

We claim:

1. A manually movable carpet roll unloading and transporting assembly capable of handling a variety of carpet roll sizes, comprising:

a. a rectangular frame member having a length several times the width thereof and having a plurality of cross bar members between the long sides thereof and intermediate the ends, said cross bar members having means for mounting a pulley therefrom;

b. leg members in engagement with and extending substantially vertically downwardly from the corners of said rectangular frame and terminating in

castors, said legs defining obstruction-free openings therebetween over the major portion of their length;

c. a drum rotatably mounted to said frame member adjacent one end thereof with its axis of rotation transverse to the long sides of said frame;

d. pulley means attached to at least one of said cross bar members remote from said drum, said pulley means constructed to releasably engage a cable;

e. nylon rope cable mounted to said drum to provide two free ends of cable, the first of said free ends of cable extending downwardly from said drum to at least the base of said legs in the unwound condition to provide a first vertical lifting means at the drum end of said frame, the second of said free ends extending from said drum in a first operative position over said pulley means and downwardly therefrom to thereby provide a second vertical lifting means at a position remote from said drum end and extending directly from said drum between and beyond the legs of the opposite end of said frame so as to provide a means for drawing a carpet from the bed of a vehicle into a position intermediate said leg members; and

f. electrical motor means connected to said drum for rotating said drum to wind and unwind said cables.

2. An assembly in accordance with claim **1** wherein said frame member has tubular members extending downwardly at the corners thereof and said leg members adjustably telescope with said tubes.

3. An assembly in accordance with claim **1** wherein the nylon ropes have permanent loop members at the ends thereof.

4. A manually movable carpet roll unloading and transporting assembly capable of handling a variety of carpet roll sizes, comprising:

a. a frame member having a length several times the width thereof, said frame member including at least one longitudinal support member having means for mounting a pulley member therefrom;

b. leg members in engagement with and extending substantially vertically downwardly from the corners of said frame and terminating in castors, said legs defining obstruction-free openings therebetween over the major part of their length;

c. a drum rotatably mounted in supportive relation to said frame member near one end thereof, with its axis of rotation transverse to the longitudinal axis of said frame;

d. pulley means supported by said longitudinal support member at a point substantially removed from said drum member, said pulley means constructed to releasably engage a cable;

e. nylon rope cable mounted to said drum to provide two free ends of cable, the first of said free ends of cable extending downwardly from said drum to at least the base of said legs in the unwound condition to provide a first vertical lifting means at the drum end of said frame, the second of said free ends extending from said drum in a first operative position over said pulley means and downwardly therefrom to thereby provide a second vertical lifting means at a position remote from said drum end and extending directly from said drum between and beyond the legs of the opposite end of said frame so as to provide a means for drawing a carpet from the bed of a vehicle into a position intermediate said leg members; and

f. electrical motor means connected to said drum for rotating said drum to wind and unwind said cables.

5. An assembly in accordance with claim **4** wherein said two cables are individually wound upon separate drum members and the drum members may be rotated separately or simultaneously.

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