

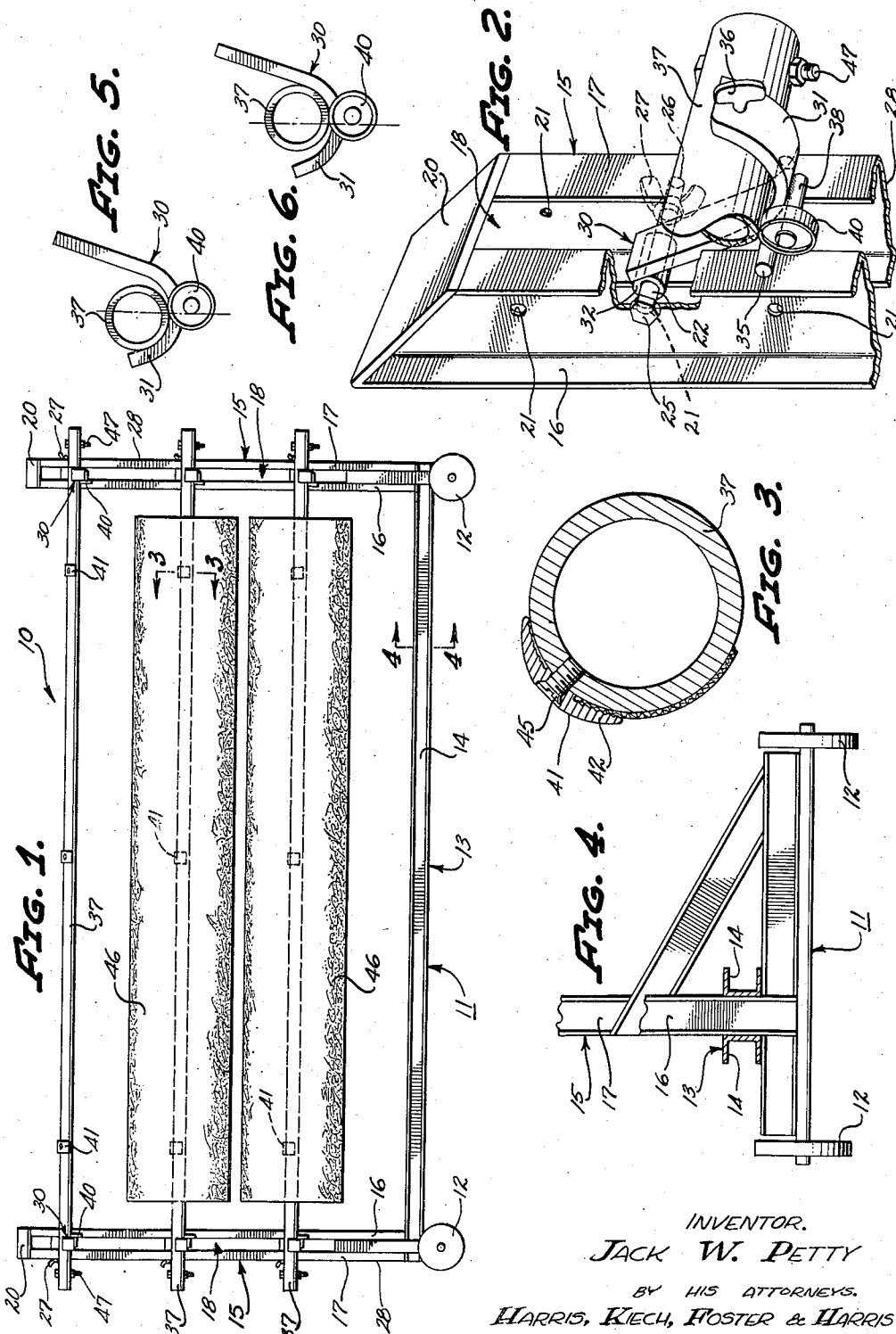
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MANDREL CARRIER STANDARD

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MANDREL CARRIER STANDARD

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The instant invention relates to a device which is designed to be utilized in the commercial handling of large rolls of material. A broad object of the instant invention is to produce what may be termed a "mandrel roller carrier" which is designed to hold large rolls of carpeting so that this carpeting may be readily removed from the rolls as desired, and which is designed to be moved from place to place as required. Further objects of the instant invention, as well as specific advantages of it, will be apparent in the balance of this specification and the appended claims.

The invention may be briefly summarized as embodying a carriage upon which there are mounted, so as to be spaced from one another, two upright assemblies, each of which is provided with any desired number of hook assemblies which are intended to be utilized in holding a mandrel upon which a roll of carpet is placed. The precise nature of the instant invention is best summarized in more detail by the appended claims. The actual details of the construction of the invention are shown in the accompanying drawings, in which:

Fig. 1 is a side view of a device of the instant invention showing its use;

Fig. 2 is an isometric view illustrating part of an upright support assembly and a hook assembly of the instant invention in use;

Fig. 3 is an enlarged cross-sectional view taken at line 3—3 of Fig. 1 showing the manner in which a roll of carpeting or other rolled material is held upon a mandrel during use of the present invention;

Fig. 4 is an enlarged partial cross-sectional view taken at line 4—4 of Fig. 1; and

Figs. 5 and 6 are cross-sectional views illustrating the operation of a hook assembly of the invention.

In Fig. 1 of the drawings there is shown a mandrel carrier 10 of the instant invention which comprises a base or carriage 11 of essentially conventional construction having wheels 12 so that this carriage can be moved from place to place as required. As is seen from a consideration of Figs. 1 and 4 of the drawings, this carriage 11 includes an elongated center section 13 composed of two channels 14 placed back to back as shown. This type of construction of the center section is very advantageous inasmuch as it twists when a sudden force is applied to either of two upright support assemblies 15, enabling the carrier 10 to "absorb" such a blow without upsetting. The action obtained through the use of the channels 14 in the manner shown is essentially that of a torsion bar spring, yet these channels, because of their shape, provide sufficient strength to maintain the carrier in the desired manner, regardless of the loads placed upon this carrier.

The two upright support assemblies 15 are mounted upon this carriage so as to project from it. These assemblies 15 are spaced from one another upon the carriage 11 so as to be substantially parallel, as indicated in Fig. 1 of the drawings. As is best apparent in Fig. 2 of these drawings, each of these assemblies 15 includes two gen-

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erally U-shaped support sections 16 and 17 which are also spaced from one another so as to define within the upright support assemblies 15 an open space 18 of substantially rectilinear configuration. The tops of the support sections 16 and 17 are preferably joined together by means of a tie plate 20 which is secured to the support sections as by welding or the like. Both of the support sections 16 and 17 within each of the assemblies 15 are provided with a series of aligned openings 21 which are designed to hold pivot pins 22. Preferably, each of these pivot pins 22 is formed in the manner of a conventional bolt with a head 25 which is adapted to fit within one of the support sections 16, as indicated in Fig. 2, and a threaded end 26 which is adapted to project through the appropriate opening in the adjacent section 17 where the entire pivot pin 22 is secured in place by a conventional wing nut 27. For convenience in attaching the wing nut 27 to the pivot pin 22 the support section 17 is preferably spaced so that the flat or bottom section 28 of this support section 17 is located so as to be as far removed from the support section 16 as conveniently possible.

The pivot pins 22 employed with both of the upright support assemblies 15 are adapted to carry hook assemblies 30 each of which assemblies comprises a hook element 31, to the shank end of which there is secured by welding or the like a bushing 32 of such size as to fit around the pivot pin 22 in the manner illustrated in Fig. 2 so that the entire hook assembly 30 may be rotated about this pivot pin 22 as desired during operation of the carrier 10. A stop bar 35 is secured to the back side of the hook element 31 at the junction of the shank of this hook element and the curved bottom of it. This stop bar is of such dimensions that it projects from the sides of the hook element 31 so as to normally bear against the support sections 16 and 17, preventing the hook assembly 30 from rotating so as to be entirely within the open space 18 when this hook assembly 30 is secured to the pivot pin 22 as during use of the carrier 10. In other words, the stop bar 35 holds the hook in a given position. Upon the curved portion of the hook element 31 furthest removed from the bushing 32, there may be provided a thumb screw 36 projecting through the hook element 31 so as to bear against a mandrel 37 carried by the hook assembly 30 in order to aid in controlling the rotation of this mandrel. It is frequently desirable to secure to the curved bottom portion of the hook element 31 a small shaft 38 which carries a wheel 40 adjacent the side of the hook element 31 so as to project slightly above the bottom of this hook element 31. This wheel 40 is designed to help carry the weight of the mandrel 37 and any carpeting which may be disposed upon it so that the mandrel may be easily turned when desired.

The position of the wheel 40 with respect to a line drawn vertically to the lowermost point of the hook element 31 is important to the invention when it is desired that the amount of force required to turn the mandrel 37 be varied. As an example of when such variation of the force required to turn the mandrel is desired, it may be stated that when the device of the present invention is used in the intended manner with large rolls of carpeting, it is generally desired that a relatively large amount of force be required to turn the rolls of carpeting disposed upon any of the mandrels 37 so as to remove carpeting from such mandrels; whereas a comparatively small amount of force is desired in winding a carpeting upon such mandrels. This difference in the force desired is important in order to prevent unwinding of the mandrel due to the weight of the carpet upon it once this carpet has partially been unwound.

Figs. 5 and 6 of the drawings show this principle of operation quite clearly. In both Figs. 5 and 6, the center of the wheel 40 is located as indicated immediately back

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of the line drawn vertically from the lowermost point within the hook element 31. In Fig. 5, a mandrel 37 is shown disposed slightly forward of the wheel 40. In Fig. 6, the same mandrel is shown disposed with the majority of the mandrel directly to the rear of this same wheel. When the mandrel 37 is disposed as shown in Fig. 5, its weight is distributed between the wheel 40 and the hook element 31 in such a manner that the major component of the weight of this mandrel bears directly against the hook element, with a minor component of its weight bearing against the wheel 40. When the same mandrel 37 is in the position shown in Fig. 6 of the drawings, the relationship of the weight is reversed; that is, the major component of the weight of this mandrel 37 is borne by the wheel 40, while the smaller component of it is borne by the hook element 31. Thus, when the mandrel 37 is in the position shown in Fig. 5, it is more difficult to turn this mandrel than when it is located in the position shown in Fig. 6. When carpeting or other rolled material is disposed upon the mandrel 37 so that it comes off the top of the roller to the left of Fig. 5, it is comparatively easy to maintain the two positions shown during the rolling of carpeting upon this mandrel or the unrolling of it, since the rotation of the mandrel 37 during such operations tends to automatically position the mandrel in either of the two locations shown. Obviously, it is possible, however, to place the wheel 40 on the other side of the vertical line indicated so as to accomplish the expected results.

As is best apparent from Fig. 1 of the drawings, pairs of the hook assemblies 30 are preferably disposed upon pivot pins 22 at the same level upon each of the upright support assemblies 15 so that a plurality of the mandrels 37 can be placed upon these various hook assemblies. When mandrels 37 are utilized in this manner, they normally are attached to carpeting by means of holders 41 of a category best seen in Fig. 3 of the drawings. This holder consists merely of a curved plate 42 secured to the mandrel 37 by means of a conventional screw 45 in such a manner that carpeting is held between the plate 42 and the mandrel 37. This carpeting is, of course, further disposed about the mandrel 37 in the form of a large roll 46.

Inasmuch as rolls of carpeting are exceedingly heavy, it is frequently desirable to use a crank attachment to turn the mandrel 37 when it is necessary to remove from or take back carpeting upon these mandrels. For this purpose, the mandrels 37 preferably are formed adjacent their ends so as to be intersected by means of common bolts 47 projecting through opposite portions of the mandrels 37. These bolts may be readily engaged by a conventional crank (not shown) fitting within the mandrels 37 so that a slot within the crank engages the bolt.

The hook assemblies 30 employed with the invention are exceedingly advantageous from a commercial standpoint inasmuch as they are extremely efficient in use in turning the mandrels 37 during the removal of carpeting from them or the winding of carpeting upon them. They are further exceedingly advantageous in that it is comparatively easy to position very heavy rolls of carpeting upon these hook assemblies when such rolls of carpeting are lifted by two men. In this case, the men holding an individual roll of carpeting, such as the rolls 46 shown in Fig. 1 of the drawings, can, of course, directly position the mandrel 37 employed with such a roll of carpeting directly within the hook assemblies 30, or these hook assemblies will pivot as the mandrel is pushed in an

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upward direction against the support assemblies 15 about the pivot pins 22 into an upward position until the stop bars 35 contact the support sections 16 and 17. In this position, the mandrel 37 may be moved upwardly against the support assemblies 15 with a minimum of difficulty, and, once the mandrel 37 passes over the hook assemblies 30, these hook assemblies will return to their initial positions, and the mandrel being placed upon the carrier 10 may be dropped within the hook assemblies 30 with a minimum of difficulty.

Those skilled in the art will realize that the herein described invention is capable of wide modifications within the scope of the instant disclosure. Such modifications are to be considered as part of the inventive concept insofar as they are defined by the appended claims.

I claim as my invention:

1. In a device designed to be used in supporting a rotatable mandrel, the improvement which comprises: two upright support sections secured adjacent one another so as to define a space between said support sections; a pivot pin mounted between said support sections so as to traverse said space; and a hook assembly positioned upon said pivot pin, said hook assembly including a hook element to one end of which there is secured a bushing, said bushing being positioned around said pivot pin, and to another portion of which there is secured a stop bar, said stop bar projecting from said hook element so as to normally bear against said support sections.

2. A construction as defined in claim 1 wherein a rotatable wheel is secured to said hook element, said rotatable wheel serving to help support a rotatable mandrel positioned within said hook element so that said mandrel may be easily rotated.

3. A new and improved device designed to be utilized in handling large rolls of material, which includes: a carriage; two upright support assemblies positioned upon opposed extremities of said carriage, each of said support assemblies including two upright support sections secured adjacent to one another so as to define a space between said support sections; at least one pivot pin mounted between said support sections in each of said upright support assemblies; and a hook assembly positioned upon each of said pivot pins, said hook assembly including a hook element to one end of which there is secured a bushing, said bushing being positioned around the associated pivot pin, and including a stop bar secured to said hook element, said stop bar projecting from said hook element so as to normally bear against the adjacent support sections.

4. A device as defined in claim 3, wherein a wheel is secured to said hook assembly so as to support part of the weight of a mandrel positioned within said hook assembly.

5. A device as defined in claim 4, wherein the center of said wheel is located at one side of a line drawn vertically to the lowermost portion of said hook element.

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