Jan. 27, 1942. R. R. POLLARD ET AL 2,271,206

GUIDING DEVICE

Filed April 9, 1940

FIG. 2

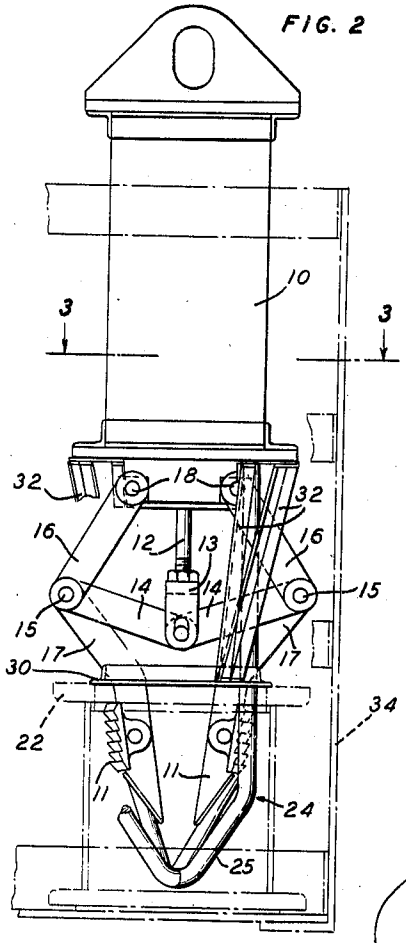
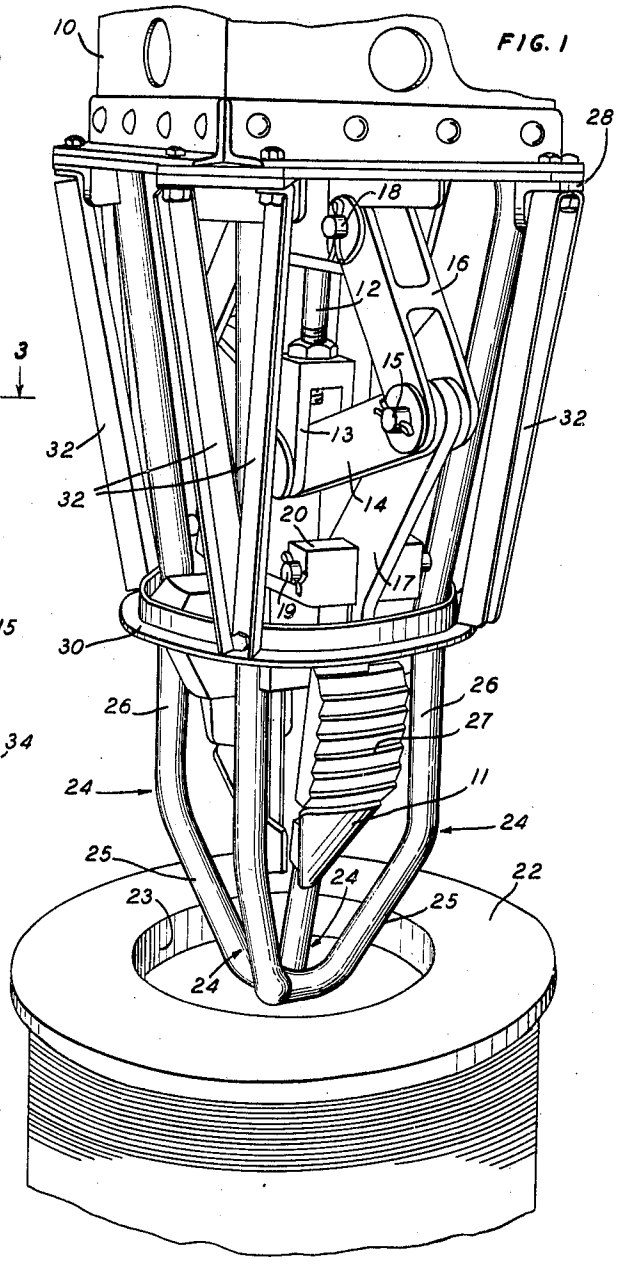


FIG. 1



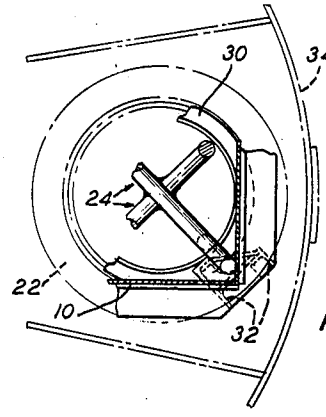


FIG. 3

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GUIDING DEVICE

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8 Claims. (Cl. 294—95)

This invention relates to guiding devices, and more particularly to devices for guiding lifting grapples into hollow articles and for guiding the articles into containers.

In the manufacture of copper wire for use in electrical fields, such wire in most instances is drawn to a desired gage and wound on a reel. At this point in the manufacture the wire may be several miles in length and its weight, in addition to the weight of the sturdy reel to support the wire, necessitates a grapple and hoist for the transportation thereof. To avoid damaging the wire on the reel, grapples of the type which engage the interior of the reels are frequently used and it has been found advantageous to provide a guiding device for such grapples so that they may be more accurately aligned with the center of the reel and may more efficiently engage the reel and guide the reel and grapple into a container.

An object of the invention is to provide a simple, efficient and practical device for guiding grapples.

With this and other objects in view, the invention comprises a guide for a grapple, the guide having spaced guide members below a stop to guide engaging members of the grapple a definite distance into hollow articles such as a reel, limited by the stop, and spaced upper guide members to guide the article into a receptacle.

Other objects and advantages will be apparent from the following detailed description when taken in conjunction with the accompanying drawing, wherein

Fig. 1 is a fragmentary perspective view of a grapple illustrating the guiding device associated therewith;

Fig. 2 is a fragmentary side elevational view of the guiding device for the grapple illustrating the guiding of the reel and grapple into a container, and

Fig. 3 is a fragmentary sectional view taken along the line 3—3 of Fig. 2.

Referring now to the drawing, attention is first directed to the grapple, which in general consists of a housing 10 supporting control mechanism for article engaging elements 11, which control mechanism may be an air cylinder and a piston controlled through certain means (not shown). A rod 12 extending downwardly from the housing and moved by the control means, for example, the piston, is connected through a yoke 13 to links 14. The links 14 extend outwardly and have their outer ends connected to pivots 15 which join other links 16, with arms 17 supporting the article engaging elements 11. The upper ends of the links 16 are pivotally connected at 18 to the housing or other suitable means carried by the housing, while the arms 17 are pivotally mounted at 19. The pivots 19 are carried by stationary brackets 20, that is, brackets which are held against movement with the arms 17. With this type of grapple the upward movement of the rod 12 in a definite path will cause simultaneous movement of the engaging elements 11 outwardly like distances from the center line of the grapple. Therefore, if the engaging elements 11 are lowered centrally into a hollow article such as a reel 22 and moved outwardly like distances simultaneously, they will engage inner portions of the reel simultaneously and thus form a positive connection between the grapple and the reel.

In reels of this type an inner flange 23 provides an edge or shoulder which may be engaged by the arcuate teeth 27 of the engaging members. It is, therefore, important that the engaging elements be guided into the reel to centrally locate them. This is accomplished by guide members indicated generally at 24. The guide members 24 in the present instance are formed of equally spaced rods joined at their lower ends by suitable means such as welding and extending upwardly and outwardly at desired angles to form a conical lower portion 25, the rods then extending upwardly to form a cylindrical portion 26 and providing openings for the article engaging elements 11 to pass therethrough in moving into and out of engagement with the reel. The upper ends of the guide members 24 extend to the corners of the housing 10, where, by the aid of integral flanges 28, the members are securely mounted. An annular stop 30 angular in cross section and disposed concentric with the guide members 24, is conditioned to come to rest upon the end of the reel 22 to definitely locate the engaging elements 11 in the reel and to assist in aligning the elements properly. In addition to locating the elements in the reel the stop 30 in coming to rest upon the head of the reel will align the center of the grapple with the center of the reel.

Upper guide members 32 are disposed in pairs about the stop 30 and extend from the stop, where the members of each pair are secured adjacent each other, to the housing, where the members of each pair are secured to the flanges 28 at spaced positions from each other as illustrated in Fig. 1. These upper guide members, therefore, extend outwardly at definite angles and the upper portions thereof extend beyond the outer

diameters of the reel to guide the reel and grapple into a container such as that illustrated at **34** in Fig. 2. The container **34** may be of the type shown in the copending application of S. P. McDaniels, Serial No. 194,047, filed March 5, 1938.

In operating the grapple with the guiding device attached, it will be apparent that during the lowering of the grapple into a hollow article such as the reel **22** the lower guide members **24**, due to the conical shape formed by the lower ends thereof, will cause lateral movement of the grapple to direct the engaging elements to the center of the reel and the cylindrical portion formed by the upper portions of the guide members will maintain the centering of the engaging elements and prevent their engagement with the reel during their downward movement. The stop **30** may engage the head of the reel at one point if the centers of the reel and grapple are not aligned, but further movement of the grapple downwardly will allow the stop to come to rest flush with the head of the reel and cause accurate alignment of the grapple and reel. At this time the mechanism may be actuated to cause movement of the article engaging elements **11** outwardly and due to the accurate positioning of these elements they will engage the reel simultaneously and at like positions to form a positive connection with the reel. The entire unit with the reel attached may then be raised upwardly and moved to a position above the container **34** and then lowered into the container. The upper guides **32**, due to their angular positions extending to the outermost point of the housing of the grapple, prevent the grapple from engaging any portion of the container while lowering the reel to a desired position therein. It will be apparent that the arms **17** project outwardly beyond the upper guides **32** and these are not included in the aforementioned outwardly extending portions of the grapple due to the fact that they extend at definite angles and are self-guiding when lowered into the container.

The embodiment of the invention herein disclosed is merely illustrative and may be widely modified and departed from in many ways without departing from the spirit and scope of the invention as pointed out in and limited solely by the appended claims.

What is claimed is:

1. A guiding device for a lifting grapple having article engaging elements, the guiding device comprising guide members spaced for the movement of the elements therebetween and formed to guide the elements into a hollow article, and means to guide the article into a receptacle.

2. A guiding device for a lifting grapple having article engaging elements, the guiding device comprising guide members spaced from the movement of the elements therebetween and formed to guide the elements into a hollow article, and means to guide the article and grapple into a receptacle.

3. A guiding device for a lifting grapple having article engaging elements, the guiding device comprising guide members spaced for the movement of the elements therebetween and formed to provide a conical tip to guide the elements into a hollow article, a stop member to limit movement of the guide members and elements into the article, and spaced members to secure the stop member and guide members to the grapple and serve to guide the grapple with the article into a receptacle.

4. A guiding device for a lifting grapple having article engaging elements, the guiding device comprising rods interjoined at their lower ends to form a conical tip for guiding the elements into a hollow article and spaced for the projection of the elements therebetween, and means to secure the rods to the grapple.

5. A guiding device for a lifting grapple having article engaging elements, the guiding device comprising rods interjoined at their lower ends to form a conical tip for guiding the elements into a hollow article and spaced for the projection of the elements therebetween, an annular stop to support the rods and limit movement of the rods and elements into the article, and means to secure the stop to the grapple.

6. A guiding device for a lifting grapple having article engaging elements, the guiding device comprising rods interjoined at their lower ends to form a conical tip for guiding the elements into a hollow article and spaced for the projection of the elements therebetween, an annular stop to support the rods and limit movement of the rods and elements into the article, and spaced members to secure the stop to the grapple extending outwardly from the stop to guide the article and grapple into a receptacle.

7. A guiding device for a lifting grapple having article engaging elements, the guiding device comprising guide members spaced about a vertical center line of the grapple to provide for the movement of the elements therebetween and formed to guide the elements into a hollow article, and guides extending angularly away from the said center line to positions beyond the extremity of the article to guide the article into a receptacle.

8. A guiding device for a lifting grapple having article engaging elements, the guiding device comprising guide members spaced about a vertical center line of the grapple to provide for the movement of the elements therebetween and formed to guide the elements into a hollow article, a stop to limit movement of the elements into the article, and guides extending angularly from the stop to positions beyond the outer periphery of the article to guide the article into a receptacle.

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