Nov. 28, 1961 W. L. DULL ET AL 3,010,674

WIRE TAKE-OFF DEVICE

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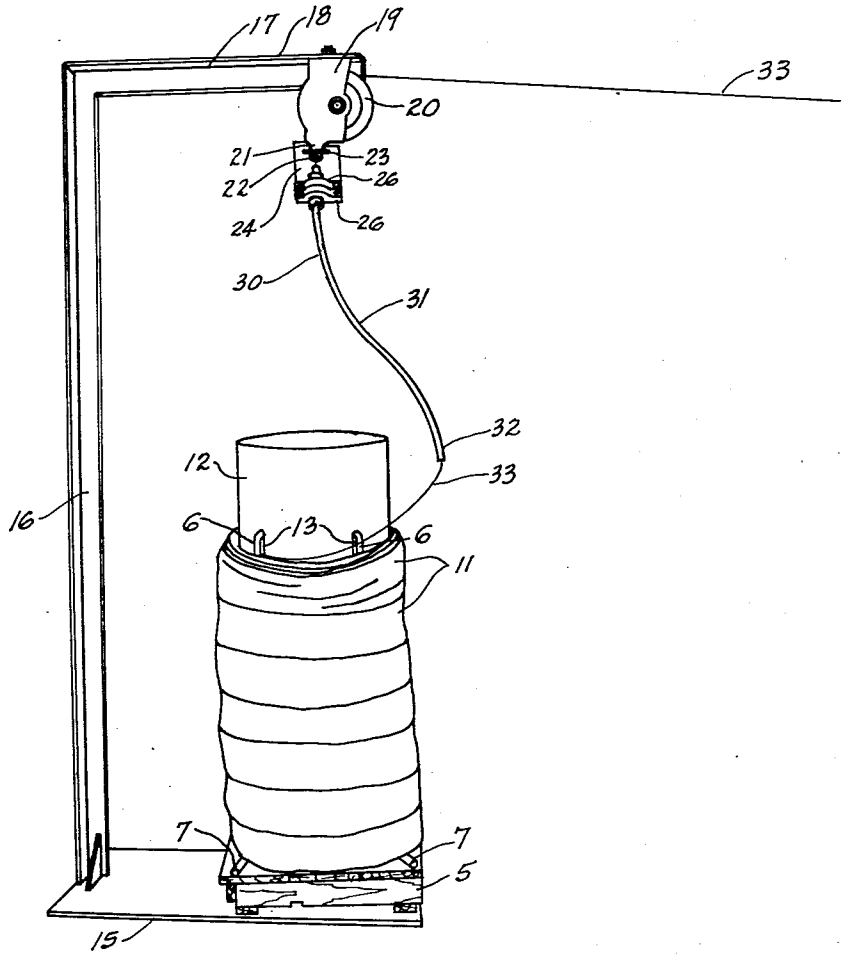


Fig. 1.

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Fig. 2.

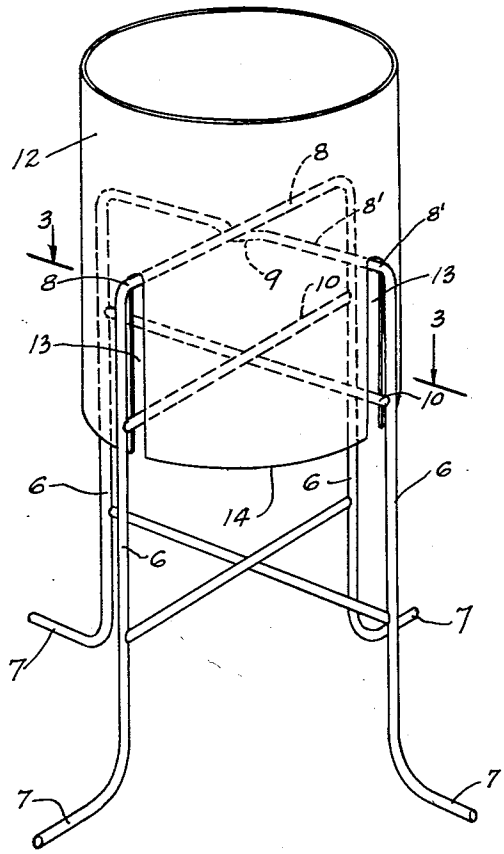
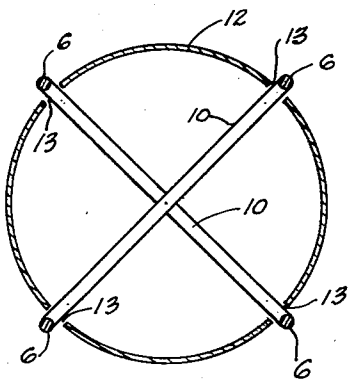


Fig. 3.



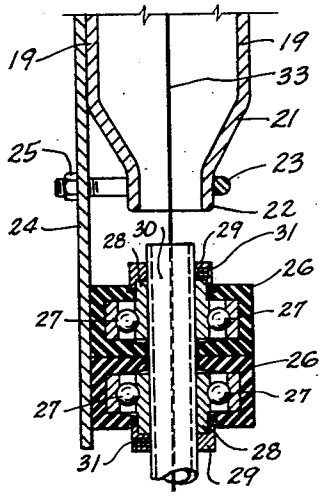


Fig. 4.

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WIRE TAKE-OFF DEVICE

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1 Claim. (Cl. 242—128)

Our invention relates to a wire take-off device, and more particularly to a device for taking wire, that is in coils, off a rack, such as a shipping rack, on which said coils are mounted in stacked relation, in such a manner that the wire is removed from the coil while mounted on the rack in a smooth and efficient manner and directed to the point of use.

More particularly our invention comprises a take-off device for the wire that is on a rack in the form of axially adjacent coils, comprising a guide tube that is mounted for rotation at its upper end on a suitable support and has an offset therein so that the lower end thereof rotates in a circle of slightly larger radius than that of the coils of wire on the rack as the wire is drawn through the same and off to the point of use, due to the swivel mounting thereof at its upper end, and a guide member mounted on the rack for the coils of wire that extends upwardly therefrom and has an annular guide wall that is of lesser diameter than the circular path of the lower end of the guide tube and substantially co-axial with said path.

More specifically our invention comprises in combination with a rack for wire coils, a stationary support for the rack and means on said support for mounting a guide tube above the rack swivelly, so that the upper end of the guide tube is in vertically spaced relation to the rack, said guide tube being immediately below a sheave over which the wire passes to the point of use, means being provided concentrically with the pivotal axis of the guide tube for guiding the wire from the upper end of the guide tube to the sheave, and a cylindrical guide member that is detachably mounted on the rack and extends down within the upper coils of wire mounted on the rack, and projects upwardly above said wire coils and above the upper end of said rack, so that the guide tube will rotate around said cylindrical guide member as the wire is drawn through the same, the lower end of said guide tube being laterally spaced from the cylindrical guide member and extending an appreciable distance below the upper end of said cylindrical guide member.

It is a further purpose of our invention to provide, in a device of the above mentioned character, a cylindrical guide member that is so constructed and arranged as to be readily detachably mounted on the rack for the coils of wire, said rack comprising a skeleton frame having intersecting transverse members that are receivable in slots extending upwardly from the lower end of the cylindrical guide member to detachably mount said cylindrical guide member on said rack.

Other objects and advantages of our invention will appear as the description of the drawings proceeds. We desire to have it understood, however, that we do not intend to limit ourselves to the particular details shown or described, except as defined in the claims.

In the drawings:

FIG. 1 is a view in perspective of our improved take-off device as used in conjunction with a rack having coils of wire thereon.

FIG. 2 is an enlarged perspective view of the rack and the cylindrical guide member, showing the mounting thereof on the rack.

FIG. 3 is a section taken on the line 3—3 of FIG. 2, and

FIG. 4 is an enlarged fragmentary vertical sectional

view through the swivel mounting for the guide tube and the wire guide leading to the sheave.

Referring in detail to the drawings, our improved take-off device is particularly adapted for taking off wire mounted in coils in stacked relation on a rack such as disclosed in the application of William Lee Dull, Serial No. 493,253, filed March 9, 1955, now Patent No. 2,916,-152, for Shipping Rack for Wire Coils. Said rack is provided with a skeleton framework that is mounted in fixed position on a base member or pallet of wood **5**. Mounted on said base member is a pair of bent rods providing parallel legs **6** that have outwardly directed foot portion **7** thereon that are secured in a suitable manner on the base **5**. Said rods have transversely extending portions **8** and **8'** that are rigidly connected together at their intersections, the transversely extending portion **8'** being offset as at **9** to place the main body portions of the members **8'** and **8** in the same plane. Other transversely extending bracing members, also made of rod, such as the members **10**, are provided at predetermined locations along said legs to connect and brace the same, said members **10** being fixed to said legs **6** and to each other at their intersection. Mounted on the rack in axial adjacency are the coils of wire **11** (see FIG. 1).

A cylindrical guide member **12** is detachably mounted on the skeleton frame of the rack for the coils of wire in the manner illustrated in FIGS. 2 and 3. The cylindrical body portion **12** is open at its upper and lower ends and extending upwardly from the open lower end thereof a predetermined distance are the slots **13**, there being four of said slots for accommodating the cross members **8** and **8'** and the cross members **10**, as will be obvious from FIGS. 2 and 3. Said slots are of such length that the cylindrical guide member **12** can be passed down over the cross members or braces **10** with the lower marginal edge **14** of said cylindrical guide member located slightly below said members **10**. This will provide such engagement between the members **10**, **8**, **8'** and the walls of the slots **13** that the cylindrical guide member **12** will be held firmly in upstanding position on the skeletonized rack for the coils of wire **11**.

The take-off device further comprises a platform **15**, which constitutes a stationary support for the rack, the base **5** thereof being mounted on said platform **15**. Extending upwardly from the platform **15** is a standard **16**, which has a transversely extending arm **17**, which is provided with a flange **18**, to which is bolted the sheave mounting member **19**, said member **19** being provided with suitable bearings for a sheave **20**. The lower end of the member **19** is formed into a wire guide **21** of a tubular character, which has a reduced lower end portion **22** around which a U-bolt **23** extends. The U-bolt **23** is provided with nuts **25** for clamping a plate **24** to the reduced portion **22** and thus to the one wall of the mounting member **19**. The plate **24** has a pair of rubber bearing blocks **26** mounted thereon, in which ball bearings **27** are mounted, the inner sleeves **28** of said ball bearings having flanged cup-like collars **29** mounted thereon that are fixed to the guide tube **30** by means of set screws **31**.

While bearings of a particular character are shown in FIG. 4 for swivelly mounting the guide tube **30**, the particular structure thereof is not absolutely necessary to the invention, the important feature of the mounting of the guide tube **30** is that it is mounted at its upper end for an easy swivelling movement about the axis of the reduced lower end portion **22** of the wire guide **21** leading to the sheave **20**. The guide tube **30** is provided with an S-curve **31** therein so as to offset the lower end portion **32** thereof from the upper swivelled end portion thereof, with the result that the lower end portion **32** of said guide

tube, when said tube is turning on the axis of its upper swivel mounting, is rotating in a path that is of a diameter greater than the diameter of the cylindrical guide member **12**, so that the lower end **32** of said tubular member will always be spaced laterally from the cylindrical side face of the guide member **12** as it rotates during take-off of wire from the rack.

In operation, the wire **33** that is to be taken off is passed through the guide tube **30**, up through the upper swivelled end thereof into the wire guide **22**, over the sheave **20** and to a point of use thereof, which, according to the illustration of FIG. 1, is to the right of the sheave at a distance beyond the limits of the drawing. As the wire **33** is pulled toward the right as it is being used it will pass upwardly through the guide member **21**, rotating the sheave **20** clockwise, as viewed in FIG. 1, and said wire will be pulled upwardly through the guide tube **30** feeding into the lower end **32** thereof and causing said lower end, (assuming that the wire in the coils **11** is wound as shown in FIG. 1) to travel clockwise (looking downwardly on the apparatus) around the cylindrical guide member **12**. The cylindrical guide member **12** will be engaged by the wire **33** as it travels upwardly from the coil **11** and into the end **32** of the guide **30** and thus said cylindrical guide member **12** will assure the smooth and orderly removal of the wire from the coils **11** without any kinking or tangling thereof and aid in the smooth operation of the guide tube **30** in its rotative movements caused by the pull on the wire **33**. The wire from each of the succeeding coils **11** below the upper coil is similarly threaded through the guide tube **30**, the wire guide **21** and over the sheave **20** when it is desired to take it off the rack and feed it to suitable apparatus at the point of use. When all the wire on a rack has been taken off in this manner, the cylindrical guide member **12** is removed from the rack, the empty rack removed from the platform **15**, another rack filled with coils of wire **11** is placed on the platform **15** and the guide member **12** is placed in position on said filled rack as shown in FIG. 1.

What we claim is:

The combination with a stationary rack for wire coils, of a cylindrical guide member extending upwardly from the upper end of said rack, a guide tube, a sheave, means above said rack for mounting the upper end of said guide tube to swivel about a fixed axis and for mounting said sheave above the upper end of said guide tube, said means being in vertically spaced relation to the upper end of said cylindrical guide member, and a wire guide on said means concentric with said axis between said sheave and the upper end of said guide tube, said guide tube extending downwardly from said mounting means to dispose the lower end thereof below the upper end of said cylindrical guide member and above the upper end of said rack, said guide tube being offset to laterally space said lower end from said cylindrical guide member.

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