SPOOL ADAPTER FOR ROPE LAYERS OR STRANDING MACHINES

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Filed Nov. 29, 1946

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Fig. 7.

Fig. 8.

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The present invention relates to specific features of construction and arrangement of an adapter designedly intended to fit into holes or central apertures of bobbins or spools of different sizes so as to enable the use of different size supply spools or bobbins in cradles of a stranding machine or layer of a given standard size or type. The above and other more detailed features of the invention will be fully apparent from consideration of the following detailed disclosures and the appended claims when read in connection with the accompanying drawings, in which:

Figure 1 is a longitudinal section through an adapter showing a preferred construction of the invention. Figures 2 and 3 are elevations of the two chief component parts of the adapter. Figure 4 is a fragmentary longitudinal section through the flier of a rope-laying or stranding machine of the type in which the adapter of the present invention is well suited for use. Figure 5 is an enlarged plan view showing one of the cradles of the stranding machine or rope layer detached from the flier and illustrating the mounting therein of an adapter embodying the present invention. Figure 6 is a side elevation of the parts shown in Figure 5. Figure 7 is a fragmentary plan of a rope stranding machine or layer showing a bobbin supporting cradle therein mounting a relatively large diameter spool or bobbin. Figure 8 is a view of the same flier and cradle shown in Figure 7 illustrating the use of the adapter of the present invention for supporting a relatively smaller bobbin or supply reel.

It is well known to those skilled in the art that stranding machines or rope layers frequently employ a rotatably mounted flier such as indicated at 10 in Figure 4, carrying a plurality of spider-like brackets 12, which rotatably support a plurality of cradles 14 having respective trunnion portions 18 engaging suitable bearings carried by the spiders 12.

Each cradle 14 is usually provided with an open top recess 18 forming a seat for rotatably supporting a respective supply spool or bobbin such as indicated at 28. Heretofore the cradles 14 have been designed to fit only a given sized bobbin. Under the present invention I provide an adapter which makes it possible to use spools or bobbins of different sizes in any given cradle.

My improved adapter is shown in longitudinal section in assembled position in Figure 1 for engagement with a spool, and the component parts thereof are shown in detail in Figures 2 and 3. The adapter consists essentially of two complementary main elements, A and B, the element A having a flange 22 and a substantially cylindrical seat portion 24 adapted to make a snug fit with the central opening 25 of the spool or bobbin 29. Similarly, the element B is provided with a flange 22b and a seat portion 24b to fit the opening 25 in the spool or bobbin. A central hub 26 extends inwardly from the flange 32 of the member A and is formed with internal screw threads 28, for adjustable engagement with external threads 30 formed on an inwardly extending portion 32 formed on the member B. The member A includes a trunnion 34, which is flanged at 35, this trunnion portion being adapted to be received in one of the recesses 16 formed in the cradle. The member B is formed with a similar trunnion portion 34b and flange 38b, and this latter trunnion portion is also adapted to be fitted in the recess 16 of the cradle as clearly indicated in the plan in Figure 5. It will be understood that the diameter of portions 24 and 24b may be varied to suit the central apertures of different size spools or bobbins, and it is also apparent that the flanges 36 and 36b serve to keep the adapter from slipping endwise in the cradle. The adapter will usually be equipped with a sheave-like tension control member 38 around which will be reeled a flexible cord or cable 48 which will be anchored at 42 to a suitable lug 44 formed on the cradle. The opposite end of the cord may connect with a spring or weight not shown so as to apply the usual tension for controlling the pay-off of stranding wire from the spool or bobbin.

In normal use, the two parts A and B will be screwed together firmly so that the flanges 22 and 22b thereof press firmly against the spool and grip it tightly. The construction and arrangement illustrated and described is such that the weight will be properly distributed in the device so that when assembled with the spool and placed in the cradle, the position of the cradle will remain horizontal in the trunnions of the layer while the flier rotates. The pay-off of wire from the spools or bobbins is such that as the wire is pulled from the spool it will tend to tighten the threaded coupling formed by the engaging threads 28 and 38 of the two component parts A and B of the adapter.

By utilization of the herein described invention, it is possible and practicable to use spools of variable dimensions in cradles of standard or uniform dimensions. One outstanding advantage
of the adapter is that it can be fitted to spools prior to their insertion in the cradle of the strand ing machine, thus the spools can be made ready for loading while the machine is actually running. The construction of the adapter illustrated is deemed to be advantageous since it can be placed in a cradle in such a position that as the wire or other stranding material pays off, the tension groove and cord tends to tighten the parts. Inasmuch as in many wire drawing operations the wire is drawn directly to a spool, the adapter of the present invention effects a considerable monetary saving because respooling for use in various types of machines is reduced to a minimum. Furthermore, the use of the described adapter reduces the amount of handling and processing of the wire required, the number of wire joints used, and therefore, the quality of the finished cable or rope-like product is materially improved.

While I have described quite precisely a construction and arrangement of an adapter which an actual reduction to practice has demonstrated is very practical, it is to be understood that various modifications and substitutions of equivalents may be made by those skilled in the art without departing from the invention as defined in the appended claims.

I claim:

1. In a stranding machine of the type having a rotary flier with a plurality of cradles turn- tioned therein, the improvement comprising an adapter for rotatably supporting spools of varying sizes in a given cradle, said adapter including coating members each having a trunnion portion rotatably supported in the cradle, a respective spool engaging flange on each member and a joint for coupling said members to one another, with provision for varying the distance between said flanges so as to accommodate and firmly grip spools of varying axial lengths.

2. In a stranding machine of the type having a rotary flier with a plurality of pivotally mounted cradles, the improvement comprising an adapter for rotatably supporting spools of varying sizes in any one of said cradles, said adapter including coating members each having a trunnion portion rotatably supported in the cradle, a respective spool engaging flange on each member and a joint for coupling said members to one another, comprising respective internally and externally threaded portions at the inner extremities of said members adapted to vary the distance between said flanges when said members are screwed together so as to accommodate and firmly grip spools of varying axial lengths.

3. In an adapter for stranding machines, a pair of spool engaging members, each comprising an elongated hub, a circular flange intermediate the length of said hub and integral therewith and having a circumferential seat, and a trunnion at an end of said hub and integral therewith, the hub of one of said members having an internally threaded bore at the end opposite its trunnion, the hub of the other of said members having an externally threaded section at the end opposite its trunnion complementary to and engageably with said internally threaded bore for adjustable coupling said members, the seats on said flanges being adapted to fit within opposite ends of a spool to grip and rotatably support the spool on said trunnions, the longitudinal spacing between said flanges being variable on adjustment of the distance of coupling engagement of the threaded sections to accommodate spools of varying lengths the spool remaining longitudinally centered between the trunnions.

MICHAEL McKOSKY.

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