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 [21] Appl. No. **783,874**
 [22] Filed **Dec. 16, 1968**
 [45] Patented **Jan. 5, 1971**
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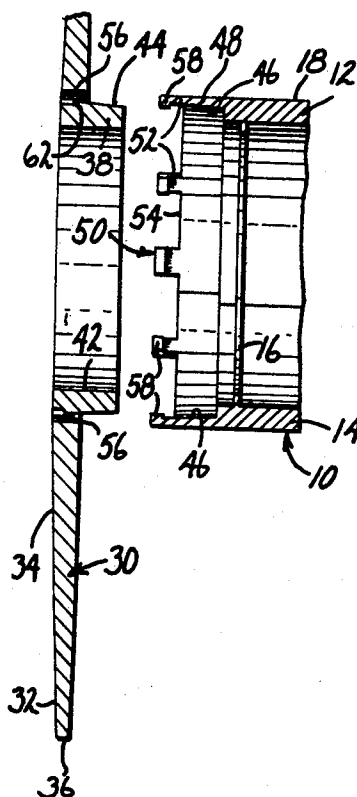
[54] KNOCKDOWN SPOOL 1 Claim, 6 Drawing Figs.

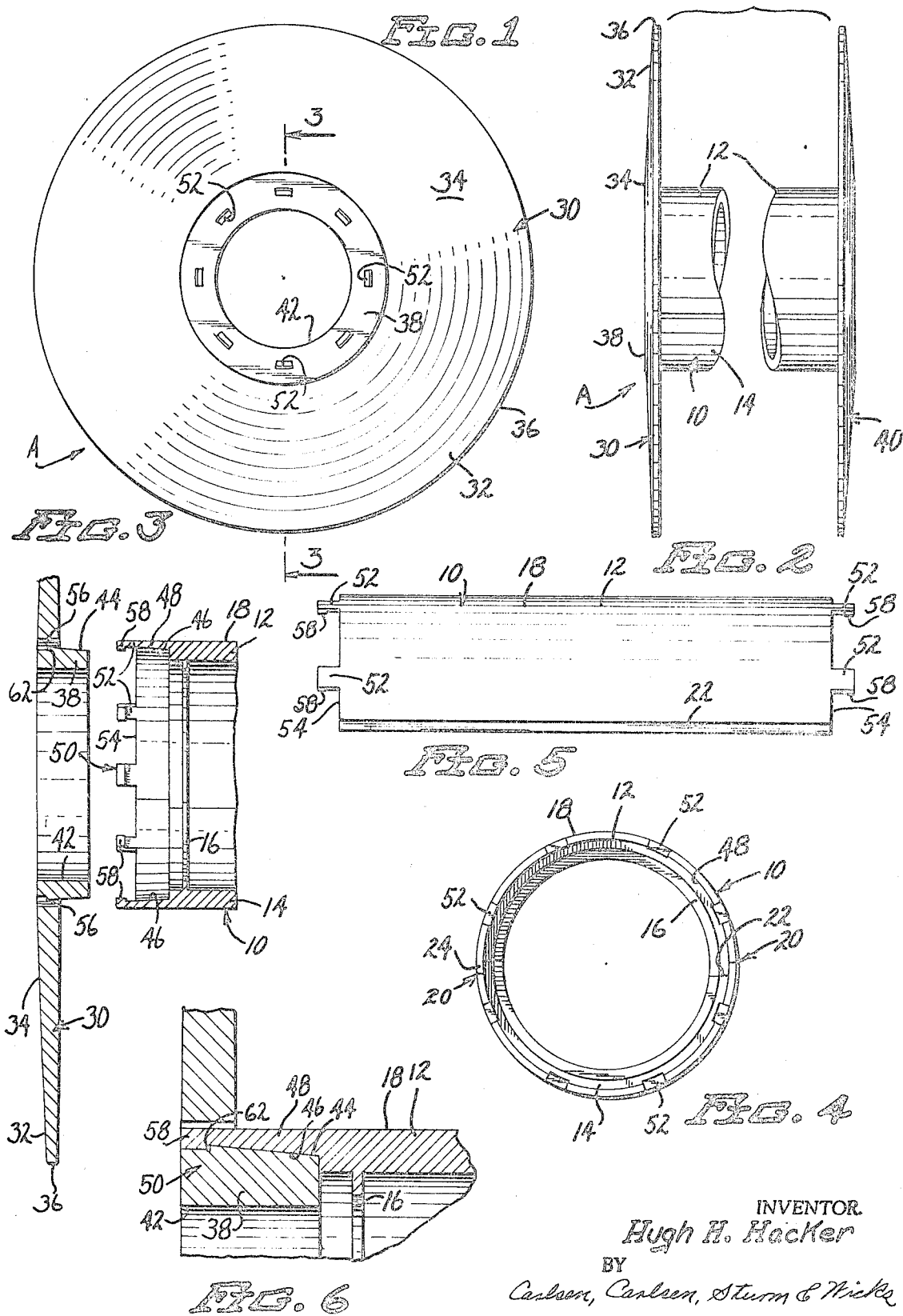
[52] U.S. Cl. 242/118.61
 [51] Int. Cl. B65h 75/14
 [50] Field of Search 242/118.7,
 118.8, 118.6, 118.61, 118.4, 115, 77, 77.3, 77.4,
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ABSTRACT: A knockdown spool comprising a drum consisting of two identical juxtaposed staves semicircular in cross section whose edges have longitudinal grooves and tongues engageable therewith for restraining circumferential and radial movement between the staves, said spool further including identical end flanges having apertures therein to receive resilient stems on said staves and said end flanges further having shoulders engageable with catches on said stems together with inclined guides guiding said catches into engagement with said shoulders and locking the end flanges on said drum.





KNOCKDOWN SPOOL

SUMMARY OF THE INVENTION

Applicant provides a simple knocked-down spool for ribbon, tubing, wire and the like. The spool can be readily molded of plastic material and prior to erection the parts occupy a minimum of space. The spool has a construction whereby the same can be easily and quickly assembled without fastening devices into a rigid operable condition for use. The two staves making up the drum are identical, and the end flanges are identical thereby requiring but two molds when the device is made from plastic.

These and other more detailed and specific objects will be disclosed in the course of the following specification, reference being had to the accompanying drawings, in which:

FIG. 1 is an end view of a spool illustrating an embodiment of the invention.

FIG. 2 is a side view of the structure shown in FIG. 1, a portion of which is broken away.

FIG. 3 is a sectional view taken on line 3-3 of FIG. 1, illustrating a portion of one end flange and stave with the stave in position to be applied to the end flange and drawn to a greater scale than the scale of FIG. 2.

FIG. 4 is an end view of the drum shown in FIG. 3 rotated 22½° from the position shown in FIG. 3.

FIG. 5 is a side elevational view of the upper stave shown in FIG. 4.

FIG. 6 is an enlarged fragmentary sectional view of a portion of FIG. 3 with a stem shown in connected position with the flange.

The spool A herein illustrated and constituting the invention includes a drum 10 having end flanges 30 and 40 attached thereto.

The drum 10 consists of a number of staves assembled to form a tubular construction. In the form of the invention disclosed two staves 12 and 14 are shown which are identical and semicircular in cross section. However, a different number may be used. These staves are provided with ribs 16 extending in a circular direction inwardly therefrom. The outer surface 18 of the drum 10 when the staves 12 and 14 are assembled becomes cylindrical and substantially uninterrupted and receives the product to be wound on the spool.

The longitudinal edges of the staves are held from circumferential movement and inward movement by holding means 20. This holding means utilizes a longitudinal groove 22 in the form of a rabbet at one longitudinal edge thereof and a tongue 24 at the other longitudinal edge thereof. The tongue of one stave fits into the groove of the adjoining stave so that each stave is interconnected with the adjoining stave to maintain the circumference of the drum as cylindrical. At the same time the staves are held from relative circumferential and radial movement when the product is wound about the same.

The end flanges 30 and 40 are identical in construction and are interchangeable. Hence only the end flange 30 will be described in detail. This flange is disclike in form and has an outward taper 32 on the outer surface 34 thereof making it thinner at its outer edge 36. Extending axially inwardly from the central portion of the flange 30 is a collar 38 which is concentric with said flange and is formed with a cylindrical bore 42 also concentric with said flange. The outer surface 44 of collar 38 is conical and forms a guideway for the stems hereafter described and is adapted to fit into a conical socket 46 formed in the end of drum 10. This socket 46 forms a

sleeve 48 of lesser thickness than the thickness of the wall structure of said drum.

The flange 30 is held attached to the drum 10 by locking means 50 which includes a number of stems 52 extending outwardly from the outer edge 54 of the sleeve portion 48. These stems are received in apertures 56 in the flange 30 adjacent collar 38. The stems 52 have catches 58 at the ends of the same which engage shoulders 62 formed on the collar 38 at the localities of the apertures 56.

The stems 52 are of such a length that when the catches 58 engage the shoulders, the outer edge 54 of the collar 38 is in abutting engagement with the annular shoulder 59 of the socket 46 which aids in preventing displacement and promotes rigidity of drum and flange.

The manner of assembling the parts is exceedingly simple. The two staves 12 and 14 are fitted together as shown in FIG. 4. The flange 30 is next placed on a flat surface with the collar 38 extending upwardly. The two staves are then inserted over collar 38 with the stems 52 registering with the apertures 56. Downward pressure on the drum will progressively cause the conical surface 44 of collar 38 to spread apart the stems 52 as they enter apertures 56. As the catches 58 pass the shoulders 62 they snap back of the same for engagement thereof to lock the flange 30 to the drum 10. The same procedure is then applied to the flange 40.

The advantages of the invention are manifest. The device can be constructed at small expense. When the device is molded from plastic, only one mold is necessary for both staves 12 and 14 for the same are identical. The same is true of the flanges 30 and 40 which are identical. The spool is sturdy in construction. When in knock-down relation the parts occupy a minimum amount of space. When assembled there are no weak portions subject to the strain produced by the winding of the product on the drum. When in use the winding of the product on the drum holds the staves in assembled relation and prevents movement therebetween. When assembled the flanges have a flat smooth inner surface extending down to the drum and the drum has a smooth cylindrical surface extending up to the flanges. The spool may be used with string, cord, wire, tubing or sheet material in strips.

I claim:

1. A knockdown spool comprising:

- a. two semicircular staves adapted to be assembled to form a drum;
- b. platelike end flanges at the ends of the drum;
- c. holding means between the staves restraining relative radial movement between said staves when said staves are assembled;
- d. a frustoconical collar extending inwardly from each of said end flanges; and
- e. concentric with the axis of said drum:
 - f. said collar being disposed with its smaller end innermost relative to said drum;
 - g. the ends of said drum each having a conical bore forming a sleeve adapted to receive said frustoconical collar;
 - h. apertures in said flanges at the outer surface of each of said frustoconical collars;
 - i. outwardly facing shoulders on said end flanges;
 - j. stems issuing from the sleeves; and
 - k. catches issuing from said stems and engageable with said shoulders.