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MULE SPINNING JACK SPOOL

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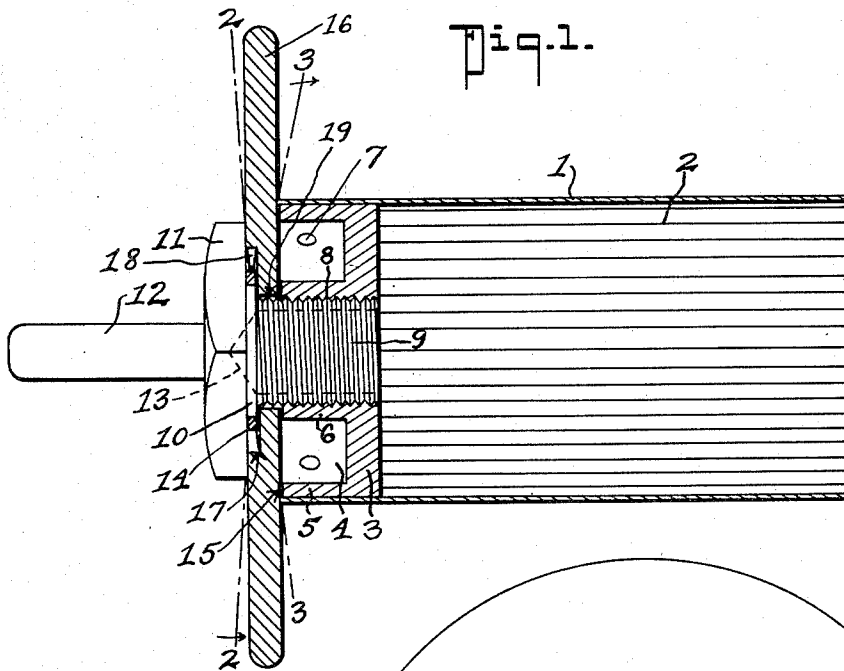


Fig. 1.

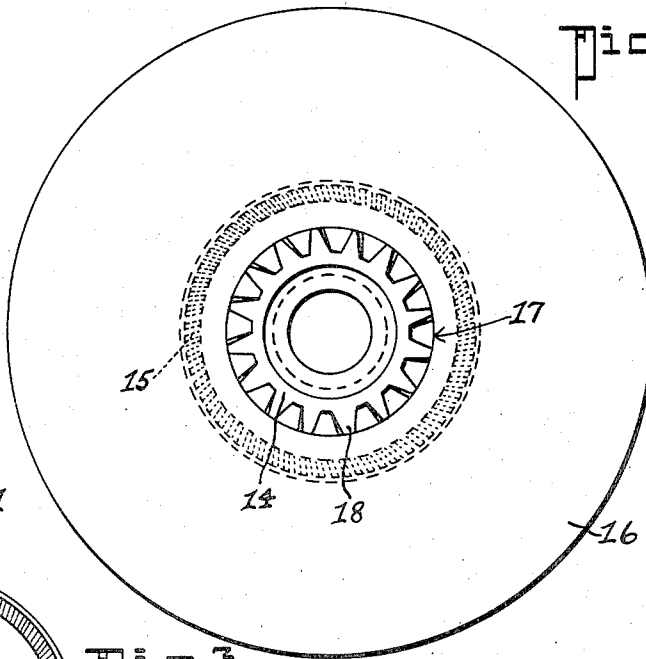


Fig. 2.

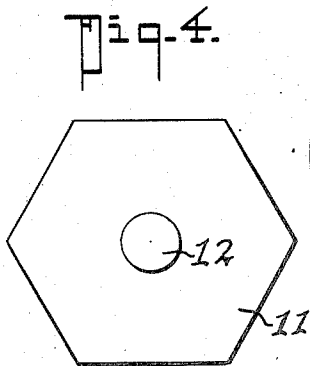


Fig. 4.

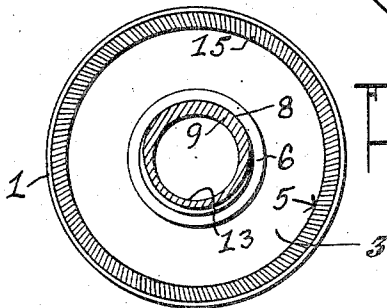


Fig. 3.

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MULE SPINNING JACK SPOOL

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10 Claims. (Cl. 242—124)

Our invention relates to the art of spinning, and it particularly has reference to jack spools. Its primary object is to provide a spool having an all metal barrel with replaceable heads of fibre or similar substance, of an improved construction by virtue of which the functional life of the spool is increased and the roving may be cut from the barrel with knives or hooks without injury to the spool, and a lighter weight spool than the wooden ones is produced.

Other objects will in part be obvious and will in part be pointed out hereinafter.

To the attainment of the aforesaid objects and ends the invention further resides in those novel features of construction, combination and arrangement of parts which will first be fully described and then will be specifically pointed out in the appended claims, reference being had to the accompanying drawing, in which:

Figure 1 is a central longitudinal section and part elevation of one end of a jack spool with our invention.

Figure 2 is a section on the line 2—2 of Figure 1.

Figure 3 is a section on the line 3—3 of Figure 1.

Figure 4 is an end elevation of the end stud.

In the drawing, in which like numbers of reference indicate like parts in all the figures, 1 represents the metal barrel of the spool. This may be made of sheet steel tubing, either plane or corrugated as shown at 2 in Figure 1. The barrel may be of any desired length, running in practice usually from twenty-seven inches up to seventy-five inches, with a diameter of two and three-eighths inches, more or less.

Into the ends of the barrel are forced inserted studs each comprising a web 3, an annular flange 5 and a central stud proper 6, the latter being threaded, as at 8, to receive the threaded portion 9 of an end stud composed of the threaded portion 9, the annular shoulder 10, nut 11, and journal 12.

The space 4 between the flange 5 and the stud proper 6 provides a convenient entrance for a spot welding tool by means of which the inserted studs and barrel 1 are spot welded together as at 7. The edge of the flange 5 is knurled at 15, the direction of the teeth, instead of lying radial to the axis of the barrel, are inclined thereto and indent the head 16 so as to keep the head from loosening, by digging into the same and thereby checking any tendency to move in a counter-clockwise direction (that is, the direction that will loosen the head on either end of the spool). In assembling the parts are tightened at

both ends of the spool by applying a wrench at one end while the other end is held in a vise. The end stud is bored at 13 to lighten the spool.

The head 16 has a bore 19 and is recessed at 17 to receive a lock washer 14 which has a central opening so as to fit on the shoulder 10, the teeth 18 of the washer engaging the nut 11 and head 16. When nut 11 is screwed home it will lie tightly against head 16 and head 16 will be tightly pressed against the edge of flange 5 with teeth 15 embedded in the head, while stud proper 9 will have its end flush with the inner face of the stud 3.

Further, the corners of the nut 11 lie over the knurled edge 15, giving a good bearing so that heads will not be warped in or out.

It is of course to be understood that the structure shown in Figure 1 is duplicated at the other end (not shown) of the barrel.

From the foregoing description, taken in connection with the accompanying drawing, it is thought that the construction, assembly and operation and uses of the invention will be clear to those skilled in the art.

What we claim is:

1. In a spool, a metal barrel, an inserted stud in each end of the barrel and permanently secured thereto, said inserted studs each including an annular flange and a stud proper, the latter having a central threaded bore and the former having its edge knurled, an end stud having a nut portion and a threaded portion, the latter entering and cooperating with said central threaded bore, and a fibre head carried by said end stud between the nut portion thereof and the annular flange of said inserted stud and engaged by said knurled edge.

2. In a spool, a metal barrel, an inserted stud in each end of the barrel and permanently secured thereto, said inserted studs each including an annular flange and a stud proper, the latter having a central threaded bore and the former having its edge knurled, the knurls being inclined to the axis of the stud, an end stud having a nut portion and a threaded portion, the latter entering and cooperating with said central threaded bore, and a fibre head carried by said end stud between the nut portion thereof and the annular flange of said inserted stud, said fibre head being engaged by said knurled edge.

3. In a spool, a metal barrel, an inserted stud in each end of the barrel and permanently secured thereto, said inserted studs each including an annular flange and a stud proper, the latter having a central threaded bore and the former

- having its edge knurled, an end stud having a nut portion and a threaded portion, the latter entering and cooperating with said central threaded bore, a fibre head carried by said end stud between the nut portion thereof and the annular flange of said inserted stud and engaged by said knurled edge, said head being recessed on its outer face, and a lock washer in said recess to engage the head and said nut portion.
4. In a spool, a metal barrel, an inserted stud in each end of the barrel and permanently secured thereto, said inserted studs each including an annular flange and a stud proper, the latter having a central threaded bore and the former having its edge knurled, the knurls being inclined to the axis of the stud, an end stud having a nut portion and a threaded portion, the latter entering and cooperating with said central threaded bore, a fibre head carried by said end stud between the nut portion thereof and the annular flange of said inserted stud and engaged by said knurled edge, said head being recessed on its outer face, and a lock washer in said recess to engage the head and said nut portion.
5. In a spool, a metal barrel, an inserted stud in each end of the barrel and permanently secured thereto, said inserted studs each including an annular flange and a stud proper, the latter having a central threaded bore and the former having its edge knurled, an end stud having a nut portion and a threaded portion, the latter entering and cooperating with said central threaded bore, and a fibre head carried by said end stud between the nut portion thereof and the annular flange of said inserted stud and engaged by said knurled edge, said nut portion overlying the knurled edge of said inserted stud.
6. In a spool, a metal barrel, an inserted stud in each end of the barrel and permanently secured thereto, said inserted studs each including an annular flange and a stud proper, the latter having its edge knurled, the knurls being inclined to the axis of the stud, an end stud having a nut portion and a threaded portion, the latter entering and cooperating with said central threaded bore, and a fibre head carried by said end stud between the nut portion thereof and the annular flange of said inserted stud and engaged by said knurled edge, said nut portion overlying the knurled edge of said inserted stud.
7. In a spool, a metal barrel, an inserted stud in each end of the barrel and permanently secured thereto, said inserted studs each including an annular flange and a stud proper, the latter having a central threaded bore and the former having its edge knurled, an end stud having a nut portion and a threaded portion, the latter entering and cooperating with said central threaded bore, a fibre head carried by said end stud between the nut portion thereof and the annular flange of said inserted stud and engaged by said knurled edge, said head being recessed on its outer face, and a lock washer in said recess to engage the head and said nut portion, said nut portion overlying the knurled edge of said inserted stud.
8. In a spool, a metal barrel, an inserted stud in each end of the barrel and permanently secured thereto, said inserted studs each including an annular flange and a stud proper, the latter having a central threaded bore and the former having its edge knurled, the knurls being inclined to the axis of the stud, an end stud having a nut portion and a threaded portion, the latter entering and cooperating with said central threaded bore, a fibre head carried by said end stud between the nut portion thereof and the annular flange of said inserted stud and engaged by said knurled edge, said head being recessed on its outer face, and a lock washer in said recess to engage the head and said nut portion, said nut portion overlying the knurled edge of said inserted stud.
9. In a spool, a metal barrel, an inserted stud in each end of the barrel and permanently secured thereto and extending to the adjacent end of the barrel, said inserted studs each including an annular flange and a stud proper, the latter having a central threaded bore and the former having its edge knurled, an end stud having a nut portion and a threaded portion, the latter entering and cooperating with said central threaded bore, and a fibre head carried by said end stud between the nut portion thereof and the annular flange of said inserted stud, said inserted stud being pressed into the barrel and spot welded thereto.
10. In a spool, a metal barrel, fibre heads one at each end of the barrel, an inserted stud in each end of the barrel, said inserted studs each including an annular flange fitting the barrel and having its edge extending to the adjacent end of the barrel, said flange having its outer edge provided with teeth which lie inclined to the axis of the inserted stud and engage the adjacent fibre head, said inserted stud also including a stud proper and a web connecting the inner end of the stud proper to the inner end of said annular flange, the outer end of the stud proper also extending to the adjacent outer end of the barrel to engage the adjacent fibre head, said stud proper having a threaded bore, end studs each having a nut portion and a threaded portion, the latter entering and cooperating with said threaded bore, said fibre heads having their outer faces recessed, and lock washers on said studs proper to lie in said recesses and be engaged by the respective nut portion.

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