Sept. 22, 1925. 1,554,335

G. CROSSLAND

AXMINSTER SPOOL

Filed March 17, 1925

FIG. 1.

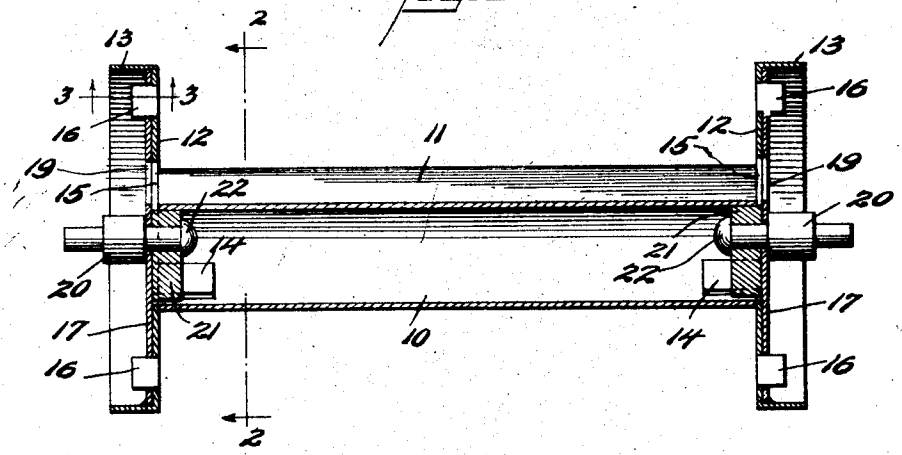


FIG. 2.

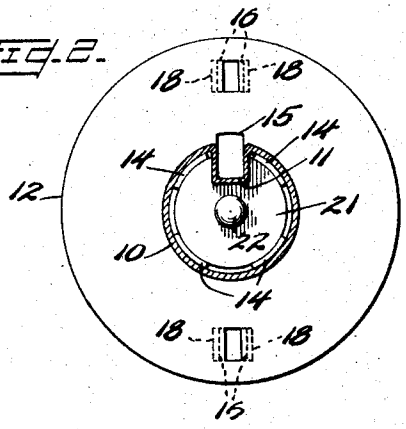
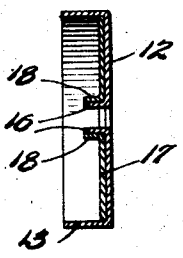


FIG. 3.



Inventor

George Crossland,

By Watson, Coit, Grosz & Grindle

Attorney

Patented Sept. 22, 1925. 1,554,335

UNITED STATES PATENT OFFICE.

GEORGE CROSSLAND, OF AMSTERDAM, NEW YORK, ASSIGNOR TO MOHAWK CARPET MILLS, INCORPORATED, OF AMSTERDAM, NEW YORK, A CORPORATION OF NEW YORK.

AXMINSTER SPOOL.

Application filed March 17, 1925. Serial No. 16,233.

To all whom it may concern:

Be it known that I, GEORGE CROSSLAND, a citizen of the United States, and residing at Amsterdam, county of Montgomery, State of New York, have invented certain new and useful Improvements in Axminster Spools, of which the following is a specification.

This invention relates to spools for Axminster loom tube frames, and relates more particularly to all metal spools of this type. In the past it has been the practice to make these Axminster spools entirely of wood or with wooden barrels and metal heads.

In the use of Axminster spools, it is first necessary to wind upon them the various colored yarns called for by the pattern of the Axminster rug to be woven. This is done by placing the spool in a winding machine, securing the ends of the yarns to the barrel of the spool in parallel spaced relation, and drawing the yarns from their respective bobbins by rotating the spool. The large number of these yarns together exert a very considerable tension, and consequently a comparatively large turning moment is required to rotate the spool. With the wooden Axminster spools it is common practice to turn the spool by means of a stud entering into a hole in the spool quite near the center thereof. Naturally only a very slight moment arm or leverage can be secured in this manner and the heavy force therefore required to be exerted on the spool causes splitting of the head and of the barrel. The same difficulties are to a large extent present in the case of spools having wooden barrels and metal heads. In this case the heads are caused to become loosened from the barrels, resulting in the destruction of the spool. The wooden, or partly wooden spools are also easily subject to breakage and splintering from careless handling or accident. My improved spool is designed to overcome these and other difficulties.

The object of this invention is to provide an all metal Axminster spool which shall be durable, strong, light in weight, simple in construction and economical to manufacture.

It is a further object of this invention to provide an Axminster spool adapted to be easily turned when winding the yarn thereon.

Further objects and advantages of my invention will be apparent from the following description taken in conjunction with the accompanying drawings, which form a part of this specification, and in which,

Figure 1 is a central longitudinal vertical section thru my improved spool;

Figure 2 is a cross section thereof taken on the line 2—2 of Figure 1; and

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

Referring more particularly to the drawings, in which like reference characters denote like parts throughout the several views thereof, 10 denotes the barrel of the spool, which is provided with the usual longitudinal groove or recess 11. The barrel 10 may be formed from a piece of seamless tubing or it may be bent to shape from a suitable sheet of metal, the edges being joined at either re-entrant edge of the groove 11.

Each end of the barrel is provided with a head 12, preferably made of a single piece of sheet metal, and having a peripheral outturned flange 13 and a plurality of central lugs 14. The lugs 14 are so proportioned as to fit snugly within the barrel 10, and are bent in the opposite direction to the flange 13. Four of these lugs 14 are shown but obviously any suitable or desired number may be employed. Two of the lugs are preferably arranged so as to straddle the groove 11 and hold the barrel against rotation relative to the heads. The other lugs may conveniently be at diametrically opposite points in order to give uniform strength to the structure. Each head 12 is also provided with a hole 15 adapted to register with the groove 11 in the barrel 10 and is provided in addition with two pairs of diametrically opposite lugs 16 which are preferably arranged in line with the opening 15 and the center of the head and are bent outwardly so as to come within flange 13. These lugs are arranged near the periphery of the head in order that the greatest possible moment arm or leverage about the center of the spool may be obtained when these lugs are used as the points of application of the turning force.

A circular plate 17 fits within the flange 13 of each head 12, and is provided with lugs 18 adapted to closely engage the outer sides of the lugs 16, and also with an opening 19 adapted to register with the opening 15 of the head. Each plate 17 has a central

hole thru which passes the inner reduced end of a gudgeon 20, the outer reduced end of which serves as a shaft for rotatably supporting the spool. A washer 21 of such diameter as to fit snugly within the lugs 14 and having a recess adapted to fit the groove 11, is also mounted on the inner end of each gudgeon 20, beyond the plate 17.

In the assembly of the spool the heads 12 are first fitted onto the barrel 10 and secured thereto preferably by spot-welding the lugs 14 to the interior of the barrel. A plate 17 is slipped on one reduced end of each gudgeon 20, a washer 21 placed on next, and a rivet head 22 then formed on the end of the gudgeon to securely hold these members together and against the shoulder of the gudgeon. One of the units thus formed of the parts 17, 20 and 21 is then put in each head, and the whole secured together by suitable means such as spot-welding.

The use of my improved Axminster spool is substantially similar to that of the spools of the prior art with the exception that the clutches on the winding machines are changed so as to cooperate with the lugs 16 and 18, as will be apparent from the above description.

It will be obvious that many changes and alterations might be made in the structure above described without departing from the spirit of my invention, and such modifications are within the intent of the appended claims.

Having thus described my invention what is claimed as new and desired to be secured by Letters Patent is:

1. An all-metal Axminster spool comprising in combination, a barrel, a flanged head secured to an end of said barrel, a plate positioned within said flanged head, lugs on said head near the periphery thereof extending thru apertures in said plate, and lugs on said plate engaging said first lugs.

2. In an Axminster spool, in combination, a tubular sheet metal barrel having a longitudinal groove, a sheet metal head having a peripheral flange, integral central lugs on said head adapted to fit within said barrel, a metal plate adapted to fit within said flanged head and having projections near the periphery thereof, and a gudgeon secured to the center of said plate.

3. The combination as claimed in claim 2, in which the projections on said plate are integral lugs bent out from the body of the plate.

4. In an Axminster spool, in combination, a tubular sheet metal barrel having a longitudinal groove, a sheet metal head having an outwardly turned peripheral flange, integral central lugs on said head adapted to fit within said barrel, a metal plate adapted to fit within said flanged head, said head and said plate having apertures registering with the end of the longitudinal groove in said barrel and having also cooperating lugs near the periphery thereof, said lugs being bent outward to constitute a turning means for the spool, a gudgeon secured to the center of said plate, and a washer carried by said gudgeon and fitting within the central lugs of the plate, said washer having a recess adapted to fit the groove in the barrel.

In testimony whereof I hereunto affix my signature.

GEORGE CROSSLAND.