June 29, 1943. T. E. CARLSON 2,322,825

YARN GUIDE

Filed Dec. 10, 1941

Fig. 1.

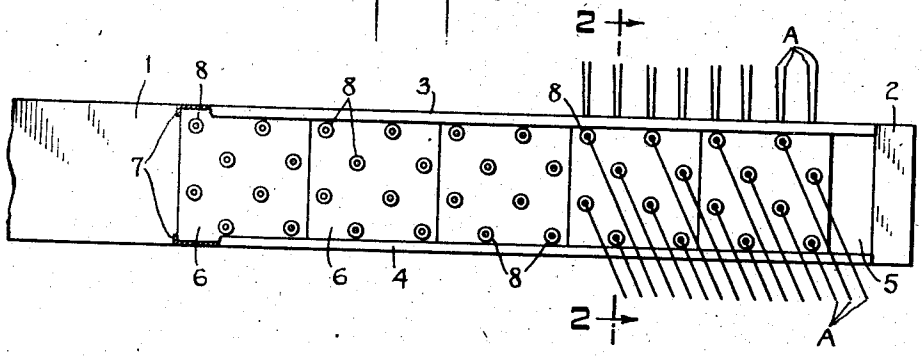



Fig. 2.

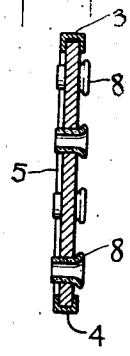



Fig. 3.

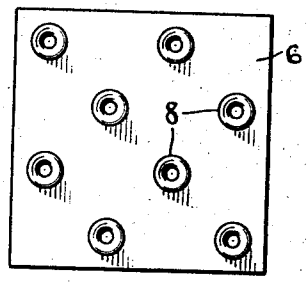



Fig. 4.

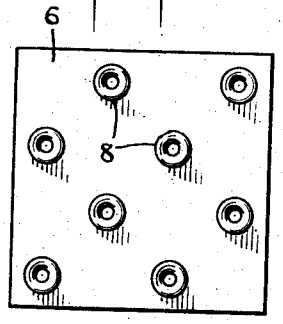



Fig. 5.

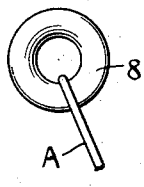



Fig. 6

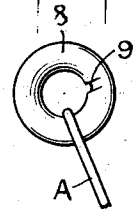



Fig. 7.

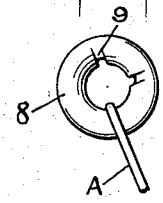
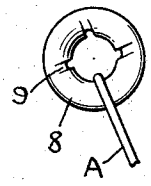



Fig. 8.




INVENTOR
Theodore Einar Carlson
BY
ATTORNEYS

Patented June 29, 1943

2,322,825

# UNITED STATES PATENT OFFICE

2,322,825

## YARN GUIDE

Theodore E. Carlson, Cumberland, Md., assignor to Celanese Corporation of America, a corporation of Delaware

Application December 10, 1941, Serial No. 422,373

8 Claims. (Cl. 242—157)

This invention relates to yarn guides, and relates more particularly to improvements in holders for yarn guides for use in textile operations employing one or more ends of yarn.

An object of this invention is to provide a novel method of mounting guide eyes in a holder whereby the life of the guide eyes is enhanced.

A further object of this invention is the provision of an improved construction for a yarn guide holder for use on a creel or wherever one or more guide eyes are employed.

Other objects of this invention, together with certain details of construction and combinations of parts, will appear from the following detailed description.

In the drawing:

Figure 1 is a front view of a bank of yarn guides for use in connection with a creel,

Figure 2 is a cross-sectional view, taken on line 2—2, of Figure 1,

Figures 3 and 4 are detail views of holder plates, the plate shown in Figure 4 having been given a quarter turn, i. e. rotated through an angle of 90°, and

Figures 5, 6, 7 and 8 are detail views of a guide eye during different periods of its use and showing grooves worn therein by the passage of the yarn therethrough.

Like reference numerals indicate like parts throughout the several views of the drawing.

Referring now to the drawing, wherein a preferred embodiment of my invention is shown, the reference numeral 1 indicates a supporting frame of a warp knitting creel on which a plate holder 2, hereinafter described more fully, is mounted. In such a warp knitting creel approximately 400 yarn ends are wound upon a spool and several of these spools may be employed to make up a single warp for a warp knitting machine which may handle up to 20,000 or more ends, depending upon the type and width of fabric to be produced. It is to be understood, however, that the holder arrangement shown in the drawing is given by way of example only and that the invention is not only applicable to the spooling of yarns for warp knitting machines but may also be employed in a creel for beaming warps for weaving machines, on the looms themselves in slashing operations and, in fact, wherever one or more yarn ends are led through guide eyes which may be cut by the abrasive action of travelling yarns.

The plate holder 2 comprises channel members 3 and 4 held in spaced relation by a spacer 5. These channel members are adapted to receive plates 6, which may be made of metal, wood, ceramic or other suitable material, to form a bank. The ends of the channel members 3 and 4 may be bent as shown at 7 to retain the plates 6 in position in said plate holder. Mounted in each plate 6 may be one or a plurality of guide eyes 8 which guide eyes could be made of any suitable material but are preferably made of porcelain.

In the preferred embodiment of my invention, guide eyes 8 are shown mounted in the plate 6 which is square and adapted to slide easily into plate holder 2. In use the yarn indicated by reference character A passes through the guide eye as shown in Figure 5, for example, in contact with the inner edge thereof. When the guide eyes have become cut as indicated at 9, the plates are removed, given a one-quarter or 90 degree turn, and then put back in the plate holder so that the yarn A will cross the guide eye in a different position as shown in Figure 6. The plates can be turned twice more as shown in Figures 7 and 8 to provide new surfaces on the guide eye for yarn contact before returning to their original position. After the plates have been rotated to their original or starting position they may be removed from the holder 2 and have new guide eyes inserted therein.

In place of the square plates 6 shown in the drawing, plates of other geometric shapes may be employed, such as hexagonal, octagonal, or other polygonal plates, provided, however, that the guides are so spaced that after each turn they remain equidistant from each other throughout all of the plates of the bank. As shown in the drawing, the square plates 6 each have eight guide eyes so arranged that upon rotation of the plates in unison the guide eyes remain equidistant. If desired, square plates having 1, 2, 4, 5, 9 or more guides may be employed in place of the one shown.

It is to be understood that the foregoing detailed description is merely given by way of illustration and that many variations may be made therein without departing from the spirit of my invention.

Having described my invention, what I desire to secure by Letters Patent is:

1. Method of extending the life of guide eyes employed in a bank of the same to space and change the direction of travelling yarns, which comprises mounting a set of guide eyes in a support in fixed relation to each other, aligning a plurality of said sets to form a bank and turning each set of the bank the same predetermined distance so as to cause each guide eye in said

bank to present a different portion thereof for contact with said yarn.

2. Method of extending the life of guide eyes employed in a bank of the same to space and change the direction of travelling yarns, which comprises mounting a set of guide eyes in a support in fixed relation to each other, aligning a plurality of said sets to form a bank so that all of the guide eyes in said bank are equidistant from each other and turning each set of the bank the same predetermined distance so as to cause each guide eye in said bank to present a different portion thereof for contact with said yarn while maintaining their original relationship as to distance therebetween.

3. In a device of the character described, a guide eye, a polygonal holder for said guide eye and a support for said holder, said support having channel members for supporting between the channels thereof said polygonal holder in a plurality of positions.

4. A yarn spacing and direction changing device for use in textile operations for directing at least one travelling yarn, comprising a polygonal holder having at least one guide eye set therein and a support for said holder, said support having channel members for supporting between the channels thereof said polygonal holder in a plurality of positions.

5. A yarn spacing and direction changing device suitable for directing a plurality of travelling yarns, comprising a plate holder, a plurality of plates mounted in said holder and adapted to be rotated relatively thereto, and a plurality of guide eyes mounted in each plate, said guide eyes being so spaced in each plate so as to be equidistant from each other throughout all of the plates carried by said plate holder.

6. A yarn spacing and direction changing device suitable for directing a plurality of travelling yarns, comprising a plate holder, a plurality of plates mounted in said holder and adapted to be rotated relatively thereto, and a plurality of guide eyes mounted in each plate, said guide eyes being so spaced in each plate so as to be equidistant from each other throughout all of the plates carried by said plate holder and means for holding said plates in position on said plate holder.

7. A yarn spacing and direction changing device suitable for directing a plurality of travelling yarns, comprising a plate holder, a plurality of plates mounted in said holder and adapted to be rotated relatively thereto, and a plurality of rows of guide eyes mounted in each plate, said guide eyes being so spaced in each plate so as to be equidistant from each other throughout all of the plates carried by said plate holder.

8. A yarn spacing and direction changing device suitable for directing a plurality of travelling yarns, comprising a plate holder, a plurality of plates mounted in said holder and adapted to be rotated relatively thereto, and a plurality of rows of guide eyes mounted in each plate, said guide eyes being so spaced in each plate so as to be equidistant from each other throughout all of the plates carried by said plate holder and means for holding said plates in position on said plate holder.

THEODORE E. CARLSON.