

Aug. 18, 1925.

1,550,201

F. W. BREWSTER
YARN SPLICING MACHINE

Filed Aug. 23, 1922

Fig. 1.

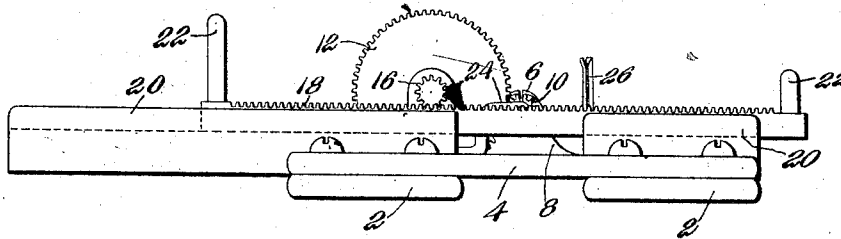
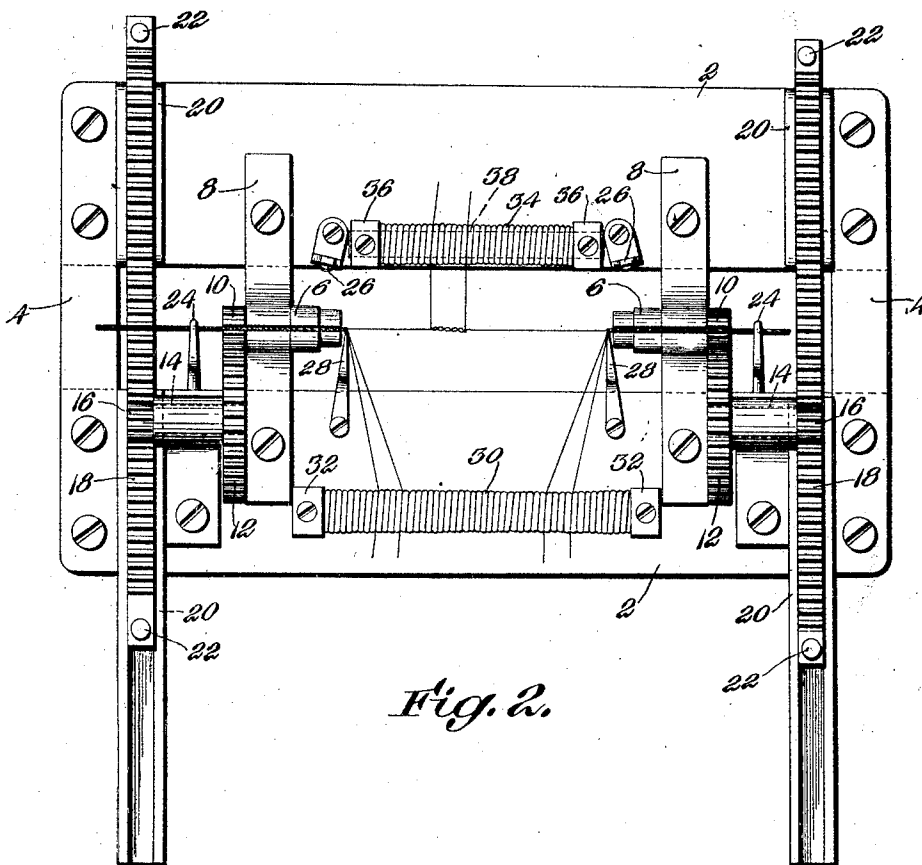


Fig. 2.

Inventor
Franklin W. Brewster

Witness
Jas. J. Maloney

By
Van Eeren Fisher, Hildreth & Carey
Attys

UNITED STATES PATENT OFFICE.

FRANKLIN W. BREWSTER, OF CENTRAL FALLS, RHODE ISLAND, ASSIGNOR TO MANVILLE JENCKES COMPANY, OF PAWTUCKET, RHODE ISLAND, A CORPORATION OF RHODE ISLAND.

YARN-SPlicing MACHINE.

Application filed August 23, 1922. Serial No. 593,707.

To all whom it may concern:

Be it known that I, FRANKLIN W. BREWSTER, a citizen of the United States, residing at Central Falls, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Yarn-Splicing Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The invention relates to machines for splicing yarns which consist of a number of strands twisted together. The object of the invention is to facilitate the manual operation of the twister heads by which the yarns are untwisted, and also to facilitate the manual splicing of the untwisted strands preparatory to the retwisting of the spliced strands. It is also an object of the invention to provide a light portable machine which may be conveniently used in repairing defective fabric to splice the ends of a new section of yarn to the ends of the woven yarn from which a defective portion has been removed. To these ends the invention consists of the features of construction and combination of parts hereafter described and set forth in the claims.

A splicing machine embodying the invention in its preferred form is shown in the accompanying drawings, in which Fig. 1 is an end elevation of the machine and Fig. 2 is a plan view.

The operating parts of the machine are mounted upon a base plate formed in two sections 2 which are connected by the cross bars 4. Mounted upon the upper side of the base plate are two opposed twister heads 6 which are arranged in axial alinement and are adapted to be rotated in opposite directions to untwist and retwist the yarns. Each head is mounted in a bearing bracket 8 secured to the upper side of the base plate, and each head is provided on its rear end with a pinion 10 which is engaged by a gear 12 secured on one end of a shaft 14 which is also mounted on the upper side of the base plate. Each shaft 14 is provided on its outer end with a pinion 16 which is engaged by a rack 18 underlying the pinion and supported and sliding in guideways 20 secured to the upper side of the base plate. Each rack is provided with two vertically project-

ing pins 22 which form stops for preventing sufficient movement of the rack in either direction to disengage it from the pinion. The forward pin also forms a handle by which the rack may be moved back and forth by the operator in twisting or untwisting the yarns.

Each head, pinion and bearing is slotted so that the yarn may be passed laterally into the axis of the head where it is gripped by the converging walls of the slot at the forward end of the head. An upwardly bent guide wire 24 is secured in the bearing for each shaft 14 and is provided with a guide eye at its upper end through which the yarn is led to the corresponding twister head. During the rotation of the heads to untwist the strands of yarns the end of each yarn may be held in spring clamping clips 26 which are mounted on the rear section of the base plate 2. The untwisted strands may be separated, brought forward over guides 28, and introduced into a strand holder 30. This strand holder consists of a coiled spring mounted between the collars 32 on a rod which is secured on the upper face of the base plate, and is arranged parallel to and on the front side of the axial line of the twister heads.

After the strands have been untwisted, separated and introduced into the strand holder 30, the pairs of strands are lightly twisted together by the operator and the splicing twist of the different pairs of strands are located at different points between the heads. In order that the free ends of each pair of inter-twisted strands may be retained in position and the untwisting of the temporary splice be prevented a holder or retainer similar to the holder 30 for the separated strands is mounted on the rear side of and parallel to the axial line of the heads. This holder or retainer consists of a coiled spring 34 arranged between the collars 36 and the ends of a rod 38 which is secured to the upper side of the rear base plate 2.

It will be observed that all of the operating parts are mounted on the upper side of the base plate and the screws by which the parts or their supports are secured do not project beyond the under surface of the base plate and consequently the base plate presents a smooth lower or bottom surface which may be placed upon and slid over the

surface of a woven fabric such, for instance, as a cord tire fabric, without danger of catching upon or displacing the cords or filling. The machine is, therefore, well adapted for use in repairing defective yarns or cords which may be found upon inspecting a woven fabric. In making such repair the defective portion of the yarn or cord is removed, the splicing machine is placed on top of the fabric while supported upon the inspecting table and is so positioned that the end of the fabric cord may be introduced into one of the twister heads while one end of the section of new cord is introduced into the other head, the ends of the cords introduced into the heads being held by the clips 26. By manipulation of the racks the heads may then be rotated to untwist the strands of the cords and then the strands separated and introduced into the strand holder 30. A pair of strands may then be twisted together and drawn taut between the heads and the splicing twist properly located at any desired point between the two heads, after which the ends of the spliced strands may be introduced into the holder 34 which prevents untwisting of the strands and also holds the splice in position while the other pairs of strands are successively twisted together and properly located. The racks may then be manipulated to retwist the spliced strands, the loose ends of the pairs of strands being removed from the holder 34. The ends of the new section of yarn or cord may thus be quickly and conveniently spliced to the yarn or cord of the fabric and then the repaired yarn or cord drawn into its final position in the fabric.

While it is preferred to employ the specific construction and arrangement of parts in embodying the invention in a portable machine adapted for use in repairing woven fabric it will be understood that this construction and arrangement is not essential and may be varied or modified as found desirable or best suited to the purpose for which the machine is to be utilized.

What is claimed is:

1. A yarn splicing machine comprising two opposed twister heads rotatable in either direction, clips for holding the ends of the yarns passed through the twister heads, a holder back of the axial line of the heads constructed to hold at different points throughout its length the free ends of pairs

of strands which are successively twisted together preparatory to retwisting the spliced strands, and a strand holder in front of the axial line of the heads for holding the untwisted strands leading from each head.

2. A yarn splicing machine comprising two opposed twister heads rotatable in either direction, a holder on one side of and parallel to the axial line of the heads constructed to hold at different points throughout its length the free ends of pairs of strands which are successively twisted together preparatory to retwisting the spliced strand, and a strand holder on the other side of and parallel to the axial line of the heads for holding the untwisted strands leading from each head.

3. A yarn splicing machine comprising two twister heads mounted in axial alignment, a pinion on each head, and a manually operable sliding rack geared to each pinion.

4. A portable yarn splicing machine comprising a base plate having an under surface below all parts carried by the plate and adapted to be placed by the operator on a woven fabric, two opposed twister heads rotatable manually in either direction mounted on the base, a strand holder for holding the untwisted strands mounted on the base and located above its bottom surface, and a holder constructed to hold at different points throughout its length the ends of the intertwisted pairs of strands also mounted on the base and located above its bottom surface.

5. A yarn splicing machine comprising two opposed twister heads mounted in axial alignment, a pinion on each head, a shaft for each head provided with a gear engaging said pinion, a pinion on each shaft, and a manually operable sliding rack underlying and engaging each of said latter pinions.

6. A portable yarn splicing machine comprising a base plate adapted to be placed by the operator on a woven fabric, two opposed twister heads mounted in axial alignment on the upper side of the base plate, a pinion on each head, a shaft corresponding to each head provided with a gear engaging the pinion, a pinion on each shaft, and a sliding rack underlying and engaging each of said latter pinions, the racks, gears and pinions all being arranged above the bottom surface of the plate.

FRANKLIN W. BREWSTER.