

O. STÖHR.

APPARATUS FOR THE REMOVAL OF PROJECTING HAIRS AND THE LIKE FROM WOOL YARN THREADS.

APPLICATION FILED NOV. 2, 1911.

1,062,806.

Patented May 27, 1913.

2 SHEETS-SHEET 1.

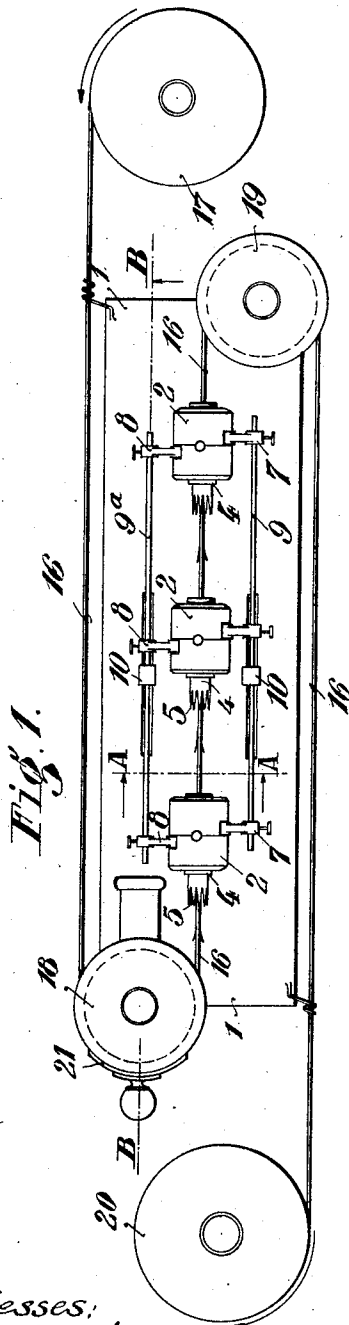


Fig. 1.

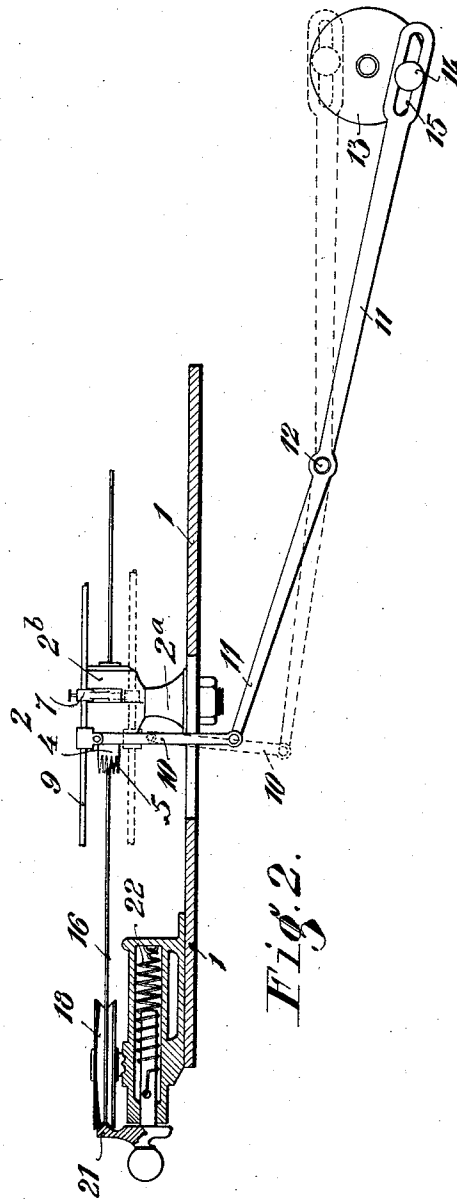


Fig. 2.

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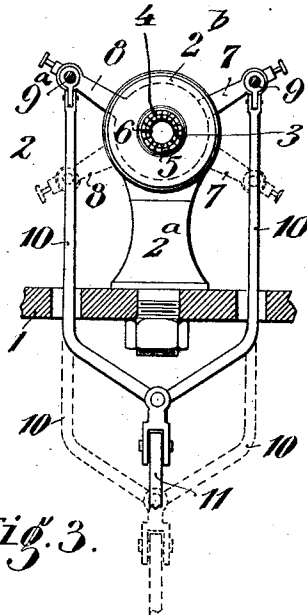


Fig. 3.

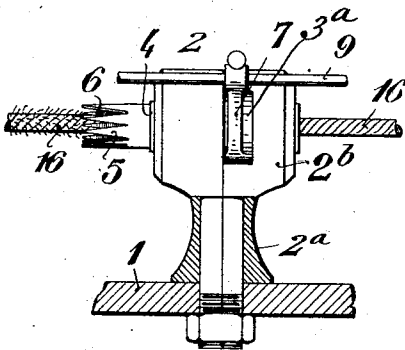


Fig. 4.

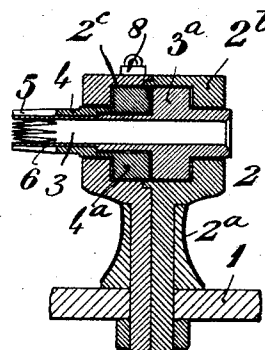


Fig. 5.

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# UNITED STATES PATENT OFFICE.

OTTO STÖHR, OF LEIPZIG-GOHLIS, GERMANY.

APPARATUS FOR THE REMOVAL OF PROJECTING HAIRS AND THE LIKE FROM WOOL-YARN THREADS.

1,062,806.

Specification of Letters Patent.

Patented May 27, 1913.

Application filed November 2, 1911. Serial No. 658,158.

*To all whom it may concern:*

Be it known that I, OTTO STÖHR, a subject of the German Emperor, and residing at Leipzig-Gohlis, Germany, have invented certain new and useful Improvements in an Apparatus for the Removal of Projecting Hairs and the Like from Wool-Yarn Threads, of which the following is a specification.

The present invention relates to an improvement in machines for the removal of projecting hairs, fibers and the like from wool yarn threads. Valuable wool yarns such as are made from the so called Austrian wool are distinguished from ordinary yarns by their smoothness and freedom from projecting hairs, and by their very glossy appearance.

It is the object of the present invention to provide an apparatus for treating the ordinary kind of wool yarns in such manner as to remove the fibers, hairs and the like which project from the yarn, and to give the surface of said yarn a polish and gloss resembling that possessed by the best grades of wool yarn. This result is obtained by passing the yarn in a tensioned condition through concentric oscillating tubular knives which cut off all hairs and fibers projecting from the surface of the yarn, after which said yarn is made to travel over suitably heated surfaces where it is given a high degree of polish.

One form of apparatus suitable for the purpose is illustrated in the accompanying drawings wherein, Figure 1 is a plan view of such portions of the machine as will clearly show the invention. Fig. 2 is a vertical sectional view through a part of the apparatus on an enlarged scale. Fig. 3 is a cross-sectional view of the apparatus on the line A—A, Fig. 1. Fig. 4 is a side view of the cutting device on an enlarged scale. Fig. 5 is a vertical, longitudinal sectional view of the same.

Upon a rigid bed plate 1, a number of cutting devices 2 are mounted in axial line, through the center of which devices yarn 16 to be treated passes in a tensioned condition. Each cutting device 2 comprises a fixed standard 2<sup>a</sup>, see Figs. 3, 4 and 5, supporting a bearing 2<sup>b</sup> formed with an inner cylindrical chamber 2<sup>c</sup>. Mounted to oscillate in each bearing 2<sup>b</sup> is a tubular cutter 4, one end of which projects horizontally from said bear-

ing and is notched to form a circular series of tapering cutting fingers 5. The inner end of the tubular cutter 4 is enlarged to form a circular head 4<sup>a</sup> which occupies a portion of the chamber 2<sup>c</sup> and rocks therein. Projecting radially from the head 4<sup>a</sup> through a slot in the bearing 2<sup>b</sup> is an arm 8 by means of which an oscillating motion is imparted to the tubular cutter through means hereinafter to be described. Concentrically mounted within the tubular cutter 4 is a second tubular cutter 3, the outer end of which is armed with tapering cutting fingers 6 similar to the fingers 5 which cooperate with said fingers to sever all projecting hairs from the yarn passing through the cutting device. The cutter 3 like the cutter 4 has an enlarged circular head 3<sup>a</sup> on its inner end within the chamber 2<sup>c</sup> from which projects an operating arm 7 as shown. A rod 9 connects the arms 7 of all the cutting devices, while a similar rod 9<sup>a</sup> joins all the arms 8. Links 10 pivotally connected to said rods extend downwardly through the bed plate 1 beneath which their lower end are pivoted to one end of a lever 11 fulcrumed at 12, and by means of a disk 13 bearing a crank pin 14 engaging a slot 15 in the opposite end of the lever 11 said lever is caused to rock in a vertical plane when the disk is rotated, imparting like motion to the rods 9 and 9<sup>a</sup>, which through their connection to the arms 7 and 8, simultaneously operate the tubular cutters 3 and 4 in opposite directions. From the fact that the cutters 3 and 4 rock or oscillate in opposite directions the yarn is prevented from sticking or becoming entangled in the fingers through the catching or clogging of the projecting hairs with any portion of the cutting mechanism. The thread or yarn 16 under treatment is unwound from a drum 17, or from spools, caps or the like, and passes around a grooved pulley 18 which forms a part of a brake device for properly tensioning the thread, thence in a straight line through each of the cutting devices 2 successively where all projecting hairs and fibers are removed, after which the thread is led to a fixed or revolvable heating member 19 to be polished, thence to a drum 20 upon which it is wound.

In addition to the grooved pulley 18, the brake device comprises a shoe 21 lying within the groove of the pulley and extending around a large portion of its periphery

against which it bears with greater or less pressure. Because of the extended engagement of the brake shoe with the yarn as it passes around the pulley 18, the yarn is  
 5 securely and at the same time elastically supported in its passage through the cutting devices. To cause the brake shoe to press with a proper degree of force against the yarn and the pulley 18 and thus properly  
 10 tension said yarn, the brake shoe is shown as mounted on a suitable support carried by the bed plate 1 which support permits said shoe to move radially with respect to the grooved pulley 18, and is held in contact with said  
 15 pulley by any suitable means, as a spring 22.

It is to be noted that the yarn 16 leaves the pulley 18 at a tangent, and then passes absolutely centrally into the cutting devices in a straight line. After passing through  
 20 the cutting devices the yarn is led to the fixed or revoluble heating member 19, and is there polished, thence it passes to the drum 20 upon which it is wound.

I claim—

25 1. An apparatus of the kind described, a cutting device comprising a pair of concentric tubular knives through which a strand of yarn passes under tension, and means for simultaneously oscillating said knives in op-  
 30 posite directions to trim the surface of the yarn.

2. In an apparatus of the kind described, a cutting device comprising a pair of concentric tubular knives, through which a  
 35 strand of yarn passes under tension, a bearing for supporting said knives in which they are adapted to rock independently, an arm on each knife, and means connected to said arm for simultaneously oscillating the knives  
 40 in opposite directions to trim the surface of the yarn.

3. In an apparatus of the kind described, a cutting device comprising a pair of con-

centric tubular knives through which a strand of yarn passes under tension, a head 45 on one end of each knife from which projects an operating arm, and a tubular series of tapered fingers on their opposite ends, a bearing for supporting said knives and their heads in which said knives are adapted to  
 50 rock independently, and means connected to said arms for simultaneously oscillating the knives in opposite directions to trim the surface of the yarn.

4. In an apparatus of the kind described, 55 the combination of a feeding mechanism for yarn, means for tensioning said yarn, a cutting device comprising a pair of concentric tubular knives through which the yarn passes from the tensioning means, each knife 60 being formed of a circular series of tapering fingers projecting from the ends of the knives, means for simultaneously oscillating said knives in opposite directions to trim the surface of the yarn, and a polishing surface 65 over which the yarn passes from the cutters.

5. In an apparatus of the kind described, the combination of a feed for yarn, a brake device for tensioning said yarn, a plurality of independent cutting devices arranged in 70 a straight line through which the yarn passes under tension, each of said cutting devices comprising a pair of concentric tubular knives formed of a circular series of tapering fingers, means for simultaneously 75 operating said knives in opposite directions to trim the surface of the yarn, and polishing means over which said yarn passes from the cutters.

In testimony whereof, I affix my signature 80 in the presence of two witnesses.

OTTO STÖHR.

Witnesses:

RUDOLPH FRICKE,  
 ALBERT R. MORAWETZ.