April 11, 1933. J. KAUFMANN 1,903,546

COMBINED CLEARER, WAXER, AND TENSION DEVICE

Filed Dec. 5, 1930

Fig. 1.

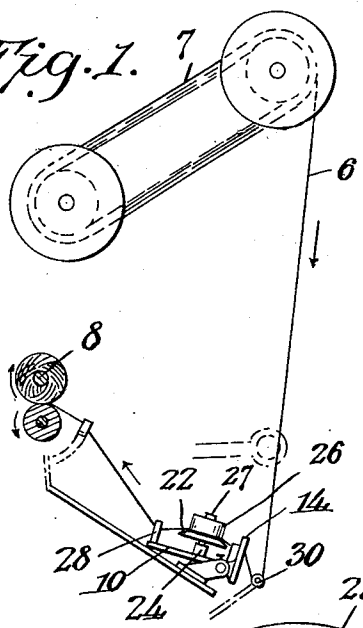
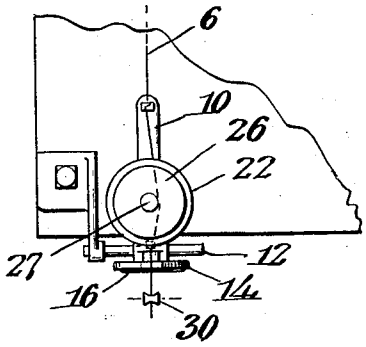


Fig. 2.



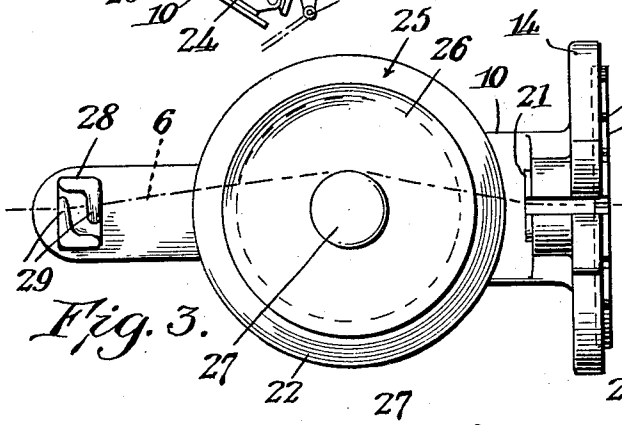


Fig. 3.

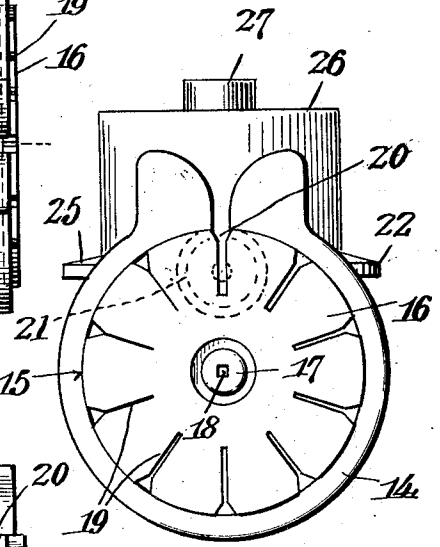


Fig. 5.

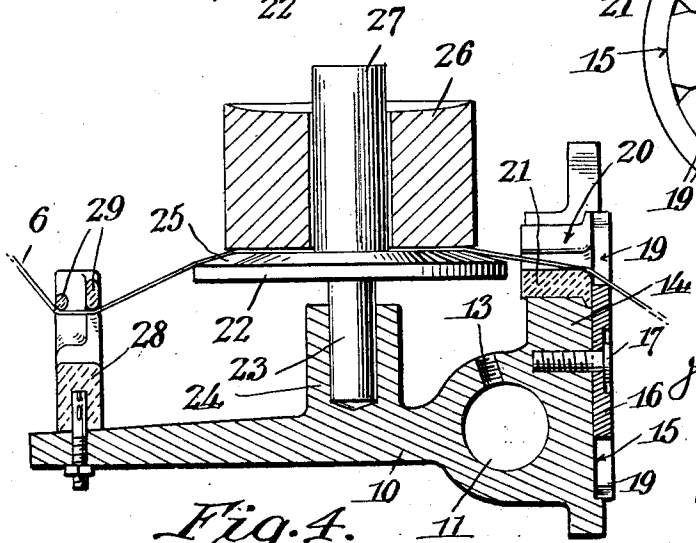


Fig. 4.

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UNITED STATES PATENT OFFICE

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COMBINED CLEARER, WAXER, AND TENSION DEVICE

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This invention relates to mechanism associated with machinery for winding silk, cotton, thread, wool, or other textile yarn, and has for its primary object to provide a combination slug clearer, waxer and tension device capable of application to spooling or winding machines now in use, and which will not only facilitate the operation of such machines but will materially improve the material operated upon.

A further object of the invention is to provide a device of an improved nature whereby the thread or yarn is cleared of slugs, seeds, bunches and other foreign substances, and is also waxed and properly treated all in the same operation.

A further object of the invention is to provide in a device for waxing the thread or yarn, improved means whereby the strand is properly tensioned in passing to the spool.

A further object resides in improved means for adapting the device for yarns or threads of various sizes, and characterized by means to prevent the unauthorized changing of a clearer after once being set.

With these objects in view, together with others which will appear as the description proceeds, the invention consists in the novel construction, combination and arrangement of parts, all as will appear more fully hereinafter, illustrated in the drawing and particularly pointed out in the claims.

In the drawing:

Fig. 1 is a fragmentary sectional view illustrating diagrammatically parts of a winding machine essential to an understanding of the invention, and illustrating in side elevation the application thereto of a device embodying the invention,

Fig. 2 is a top plan view of the device as it will appear when applied to the machine,

Fig. 3 is an enlarged top plan view of the device when removed from the machine,

Fig. 4 is a sectional view taken longitudinally from the device, and

Fig. 5 is a front elevation of the device.

As will be readily understood, the yarn, thread or the like, is wound from either skeins, caps, quills or bobbins for knitting, warping or other textile purposes. In this operation it is necessary that the yarn be cleaned of all slugs, seeds, hard knots, bunches and other foreign matter. At the same time, it is desirable that the yarn be treated in such way as to soften and strengthen the same so that it will not be brittle and dry when used for knitting purposes. As shown in Fig. 1, the yarn line indicated at 6 passes from the skein 7 to a mechanically operated cone indicated at 8, where it is properly and evenly wound thereon. In its travel from the skein to the cone it is necessary that proper tension be applied to the yarn so as to insure a proper and even winding. The device of my invention includes efficient tensioning means in addition to means for removing slugs and means for waxing or treating the yarn in its travel.

In its broadest aspect, the invention comprehends a slug clearer through which the yarn first passes, a waxer and a guide or "pig-tail"; the clearer and "pig-tail" being so arranged relative to each other and to the waxer that proper tension is applied to the thread and at the same time the latter is brought into proper contact with a waxing block so as to treat the thread immediately following the clearing operation and prior to its passage through the "pig-tail" to the cone.

In accomplishing these results a bracket 10 is employed. This bracket is substantially straight longitudinally, and has a lateral opening 11 near its forward end to receive an arm 12 affixed to the body of the machine immediately below the skein, the bracket being held properly adjusted upon the arm by means of a screw passing through the threaded opening 13 in the bracket and to impinge the said arm.

The forward end of the bracket is provided with a head 14 disposed at right angles to the bracket and providing a circular forward face as shown in Fig. 5. This forward face is provided with an annular recess 15 within which sets a clearer disc or plate 16. This plate is provided with a central opening through which extends a stud or screw 17 which threadedly engages within an opening in the head. The head of the screw may be provided with a kerf or opening 18 of special

shape or construction to permit of same being operated only with a tool or instrument adapted for insertion in said kerf or opening.

The disc or plate 16 is provided around its periphery with a plurality of radially disposed slots or kerfs 19, adapted selectively to be brought into registration with a guide opening 20 in the upper part of head 14. These slots will vary in breadth, so as to accommodate threads or yarns of different gage or sizes. The guide opening 20 may be provided with a porcelain liner 21 over which the thread passes.

Immediately in the rear of head 14 is a waxing table 22 preferably of disc shape and having a centrally arranged post 23 depending therefrom and rotatably seated in a socket 24 projecting upwardly from bracket 10 in true longitudinal alignment with the central portion of said head. The edges of the table 22 may be beveled as indicated at 25 so as to obviate any abrupt corners or edges to be engaged by the yarn or thread. The table is supported upon the bracket with its operative or upper face slightly above the guide opening 20 of the head, and a block of wax 26 or other material with which it is desired the thread or yarn be treated, is supported upon said table. This block is provided with a central opening to receive a staff 27 rising from the upper face of the table and centrally thereof.

The main guide or "pig-tail" is indicated at 28 and extends upwardly from the rear end of bracket 10 in longitudinal alignment with the central portion of head 14 and post 23, but the arms 29 of said guide are disposed preferably below the horizontal plane of the operative face of table 22.

It will be understood that in passing from the skein the yarn or thread 6 engages a guide indicated at 30, disposed slightly below the guide opening 20 of the head, from whence it passes upwardly through the clearer plate 16 to the table 26 and tangentially passes the staff 27 thereof, through the guide or "pig-tail" 28 and to the cone 8. The clearer plate 16 will be adjusted so as to bring a slot 19 of proper width into registration with the guide slot 20 of the head, whereupon the screw or stud 17 is tightened with a special tool to hold the plate so adjusted. As the yarn or thread passes through the slot 19 of the clearer plate, it will be cleaned of all bunches, slugs, seeds or other foreign matter, whereupon it moves upwardly and across the table 22 and into intimate contact with the lower face of block 26. In taking its course across the operative face of the table and beneath the wax block 26 the yarn passes tangentially of the staff 27, and this creates in the yarn or thread a slight twisting action, causing the fibers thus waxed to be brought into close contact with the body of the thread just prior to entrance of the latter to guide or "pig-tail" 28.

By providing the clearer plate 16 with a specially constructed adjusting screw, the machine operator will be prevented from making an improper adjustment of the plate unless provided with the proper key or tool for operating the screw. By arranging the waxing table with its operative surface slightly above the clearer and guide, proper tension is given to the thread to facilitate the waxing operation. Moreover, this arrangement causes the thread to at all times travel properly across the waxing block and in contact therewith.

By combining the clearer, waxing table and main guide in one and the same structure upon the support or bracket 10, material savings in labor, yarn or thread and machinery are effected. Moreover, it obviates separate operations as has been practiced heretofore, as yarn threaded upon a machine equipped with my device is in perfect condition for use when wound upon the spool or cone.

While the foregoing is a description of the invention in its preferred embodiments, it is obvious that variations in the details of construction, the assemblage and arrangement of parts may be resorted to without departing from the invention as defined by the claims.

I claim:

1. In a device of the class described, a bracket, an enlarged head at one end of said bracket and providing an annular forward face, said face having a recess therein, a clearer disc rotatably supported within said recess, said disc having kerfs in its edges, said head having a guide slot for registration with one of said kerfs, a post rotatably carried by said bracket immediately in the rear of said head, a table supported upon said post and disposed above said guide openings, and a waxing block carried by said post and resting upon said table.

2. In a device of the class described, a bracket to be supported upon a machine, an enlarged head at one end of said bracket, the forward face of said head having a recess therein, said head having a guide slot at its upper end, a clearer disc adjustably supported within said recess and having kerfs in its edges to be brought selectively into registration with said guide slot, a post rotatably supported upon said bracket in the rear of said head, a table carried by said post and disposed above said guide slot, a wax block carried by said post and supported upon the upper face of said table, and a guide on the rear of said bracket disposed below the upper surface of said table.

In testimony whereof I affix my signature.

JOSEPH KAUFMANN.