July 13, 1937. J. O. McKEAN 2,086,983

YARN WAXER

Filed Oct. 14, 1936

Fig. 2.

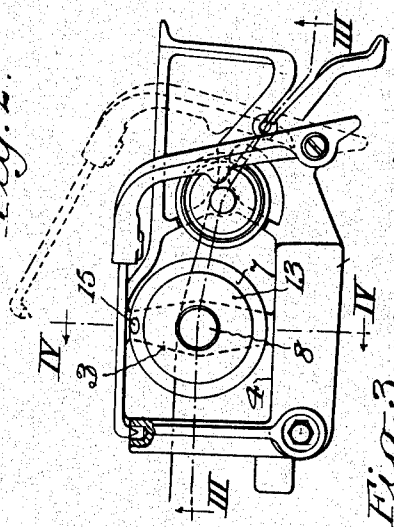


Fig. 3.

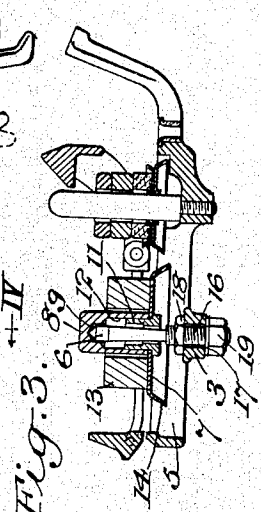


Fig. 4.

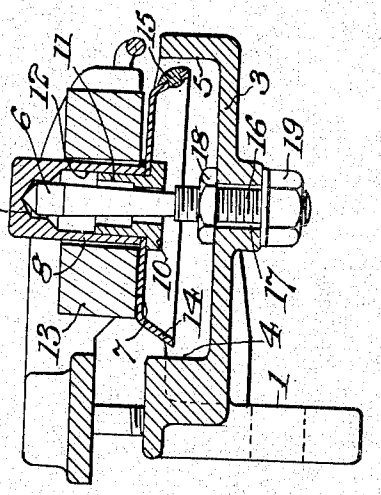


Fig. 5.

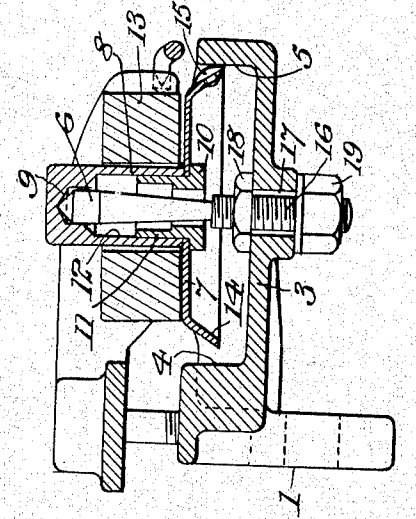


Fig. 1.

Fig. 6.

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YARN WAXER

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14 Claims. (Cl. 91—36)

My invention relates to that type of yarn waxers in which the yarn on its way to the package passes between a rotatable washer and a cake of wax.

In yarn waxers as heretofore produced, several difficulties have arisen in the operation of the same. One of the difficulties was the throwing out of the yarn from between the washer and wax cake when the speed of the washer, being uncontrolled, revolved freely and became too great, which throwing out of the yarn caused it to be unevenly waxed and to frequently become tangled and broken, necessitating waste of time in the winding of the yarn package as well as the waste of the yarn.

Another of the difficulties was that when the yarn broke in its passage between the package and the waxer or between the package and the tension device the momentum of the waxer tended to wind the yarn in coils around the hub of the waxer before its rotation stopped, thus clogging the waxer and requiring the removal of the waste yarn before the winding operation could be restarted.

Still another difficulty arose from the inability of the previous waxers of this type to properly wax different sizes of yarns running at different speeds. Also the changes in weight of the cakes of wax from a new and heavy thick cake to a worn light and thin cake caused varied, uncontrolled and unsatisfactory results in the waxing of the yarn.

The object of my invention is to produce a waxer which will eliminate the above difficulties and which will be adjustable and automatic in its action whereby yarns of all sizes, running at various speeds, will be waxed evenly and thoroughly and irrespective of the weight of the wax cakes.

My invention comprises, generally, a waxing device wherein the yarn itself, when running through the device, is the actuating means for rotating the base washer and its wax cake and in which the rotary base washer is eccentrically weighted so that the weighted side of the washer will contact with its support when the speed of the washer rises to a predetermined point and thus cause the retardation of the washer to a safe speed.

My invention comprises, more specifically, a waxer of the above character in which a suitable support is provided with an uprising pin on which the uprising hub of the rotary base washer is loosely hung for limited lateral movement, the base washer being weighted on its periphery, as, for instance, by a hardened or wear resisting projection adapted to be swung into contact with a side wall of the said support to retard the washer and thereby control its speed when its speed rises to a predetermined point.

A practical embodiment of my invention is represented in the accompanying drawing, in which

Fig. 1 represents a detail transverse vertical section through a package winding machine of any well known or approved form, with my improved waxer applied thereto;

Fig. 2 represents a plan view of the waxer;

Fig. 3 represents a vertical longitudinal section taken in the planes of the line III—III of Fig. 2, looking in the direction of the arrows;

Fig. 4 represents on an enlarged scale a vertical transverse section taken in the plane of the line IV—IV of Fig. 2, looking in the direction of the arrows, the rotary base washer being in its normal position out of contact with a side wall of its support;

Fig. 5 represents a similar section with the rotary base washer shown in the position it assumes when it reaches a predetermined speed and comes into contact with the side wall of its support for retarding the washer; and

Fig. 6 represents a detail vertical section showing the pin and the washer loosely suspended therefrom, secured in a different position laterally with respect to a side wall of its support.

The skeleton frame 1 in the present instance forms a support for both the waxer and the usual tension device, which frame is shown as mounted for angular adjustment on an arm 2 of the winding machine.

A crossbar 3 spans the space between the said walls 4 and 5 of the support 1. A pin 6 uprises from the crossbar 3, which pin has a pointed upper end and a reversely tapered shank. An eccentrically weighted base washer 7 is shown as provided with an uprising hub 8, the closed upper end of the bore of which hub has a tapered socket 9 for receiving the pointed upper end of the said pin. The base washer is permanently secured between the bottom of the hub 8 and the flange 10 of a hollow sleeve 11 which is inserted into the bore 12 of the hub 8. A cake of wax 13 is carried by the base washer 7.

The periphery of the base washer 7 is provided with a flaring skirt or flange 14 having at one point thereon a weighted projection 15 of hardened or wear resisting material, which projection unbalances the base washer sufficiently to cause it, by centrifugal action, to bring the projection 15 into contact with the side wall 5 of the

support when the rotative speed of the washer rises to a predetermined point. This contacting of the projection 15 with the side wall 5 causes the rotative speed of the washer to be automatically reduced to a safe limit.

The washer supporting pin 6 may be adjusted laterally to and secured in different positions with respect to the side wall 5 of the support so as to increase or diminish the normal space between the washer and the said side wall, to suit different yarn and speed conditions as will be hereinafter more fully explained. This lateral adjustment of the pin and thereby the washer suspended therefrom is accomplished by providing the pin with a threaded portion 16 which extends through a hole 17 in the crossbar 3, which hole is considerably larger in diameter than the diameter of the said threaded portion 16. Lock nuts 18 and 19 are threaded on the portion 16 above and below the crossbar 3, which nuts may be tightened to secure the pin in its lateral adjustment with respect to the side wall 5 of the support.

As the yarn passes from the tension device to and through the waxer to the package being wound, the yarn will rotate the washer and the wax cake carried thereby. When the washer rises to a predetermined speed the weighted projection 15 will, because of centrifugal force on the unbalanced washer, be brought into contact with the side wall 5 of the support to automatically retard the washer.

The reason for the lateral adjustment of the pin 6 is to increase or decrease the normal space between the weighted projection on the eccentrically weighted washer and the side wall of the support. This will allow a greater or lesser degree of impact when the weighted projection hits the side wall as the washer rises to a predetermined speed. When the upright pin 6 is permanently set, the centrifugally rotated washer and the side wall, constituting the speed controlling mechanism, automatically compensate for different speeds of yarn.

From the above description it will be seen that I have produced a waxer having automatic centrifugally controlled means for retarding to a greater or lesser extent the free rotation of the washer and its wax cake to suit different requirements as hereinabove pointed out, and it will also be seen that I have produced a waxing device which may be adjusted to suit different yarn and speed conditions.

It is evident that various changes may be resorted to in the construction, form and arrangement of the several parts without departing from the spirit and scope of my invention, and hence I do not intend to be limited to the particular embodiment herein shown and described, but

What I claim is:

1. In a yarn waxer, a support, a rotary eccentrically weighted washer and a wax cake carried thereby, the weighted side of the said washer being arranged, by centrifugal action, to be brought into contact with the support for automatically retarding the washer.

2. In a yarn waxer, a support, a rotary eccentrically weighted washer and a wax cake carried thereby, the weighted side of the said washer being arranged, by centrifugal action, to be brought into contact with the support for automatically retarding the washer, and means for laterally adjusting the position of the washer to suit different yarn and speed conditions.

3. In a yarn waxer, a support, an uprising pin, a rotary eccentrically weighted washer loosely hung thereon and a wax cake carried by the washer, said washer being arranged, by centrifugal action, to be brought into contact with the support for automatically retarding the washer.

4. In a yarn waxer, a support, an uprising pin, a rotary eccentrically weighted washer loosely hung thereon and a wax cake carried by the washer, said washer being arranged, by centrifugal action, to be brought into contact with the support for automatically retarding the washer, and means for laterally adjusting the pin and thereby the washer to suit different yarn and speed conditions.

5. In a yarn waxer, an uprising pin, a rotary washer having an uprising hub loosely hung on said pin and a wax cake carried by the washer, said washer being arranged, by centrifugal action, to be brought into contact with the support for automatically retarding the washer.

6. In a yarn waxer, an uprising pin, a rotary washer having an uprising hub loosely hung on said pin and a wax cake carried by the washer, said washer being arranged, by centrifugal action, to be brought into contact with the support for automatically retarding the washer, and means for laterally adjusting the pin and thereby the washer to suit different yarn and speed conditions.

7. In a yarn waxer, a support, a rotary washer and a wax cake carried thereby, said washer having centrifugally controlled means arranged to contact with the support for automatically retarding the washer when it rises to a predetermined speed.

8. In a yarn waxer, a support, a rotary washer and a wax cake carried thereby, said washer having centrifugally controlled means arranged to contact with the support for automatically retarding the washer when it rises to a predetermined speed, and means for laterally adjusting the position of the washer to suit different yarn and speed conditions.

9. In a yarn waxer, a support, an uprising pin, a rotary washer loosely hung thereon and a wax cake carried by the washer, said washer having centrifugally controlled means arranged to contact with the support for automatically retarding the washer when it rises to a predetermined speed.

10. In a yarn waxer, a support, an uprising pin, a rotary washer loosely hung thereon and a wax cake carried by the washer, said washer having centrifugally controlled means arranged to contact with the support for automatically retarding the washer when it rises to a predetermined speed, and means for laterally adjusting the pin and thereby the washer to suit different yarn and speed conditions.

11. In a yarn waxer, a support, an uprising pin, a rotary washer having a hub loosely hung on said pin and a wax cake carried by the washer, said washer having centrifugally controlled means arranged to contact with the support for automatically retarding the washer when it rises to a predetermined speed.

12. In a yarn waxer, a support, an uprising pin, a rotary washer having a hub loosely hung on said pin and a wax cake carried by the washer, said washer having centrifugally controlled means arranged to contact with the support for automatically retarding the washer when it rises to a predetermined speed, and means for laterally adjusting the pin and thereby the

washer to suit different yarn and speed conditions.

13. In a yarn waxer, a support, an uprising pin, a rotary washer having a hub loosely hung on said pin and a wax cake carried by the washer, said washer having at one point on its periphery a weighted projection for unbalancing the washer whereby the projection, by centrifugal action, will contact with the support to automatically retard the washer when it rises to a predetermined speed.

14. In a yarn waxer, a support, an uprising pin, a rotary washer having a hub loosely hung on said pin and a wax cake carried by the washer, said washer having at one point on its periphery a weighted projection of wear resisting material for unbalancing the washer whereby the projection, by centrifugal action, will contact with the support to automatically retard the washer when it rises to a predetermined speed.

JOHN O. McKEAN.