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H. A. GIFFIN ET AL
SPOOL STRIPPER

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3 Sheets-Sheet 1

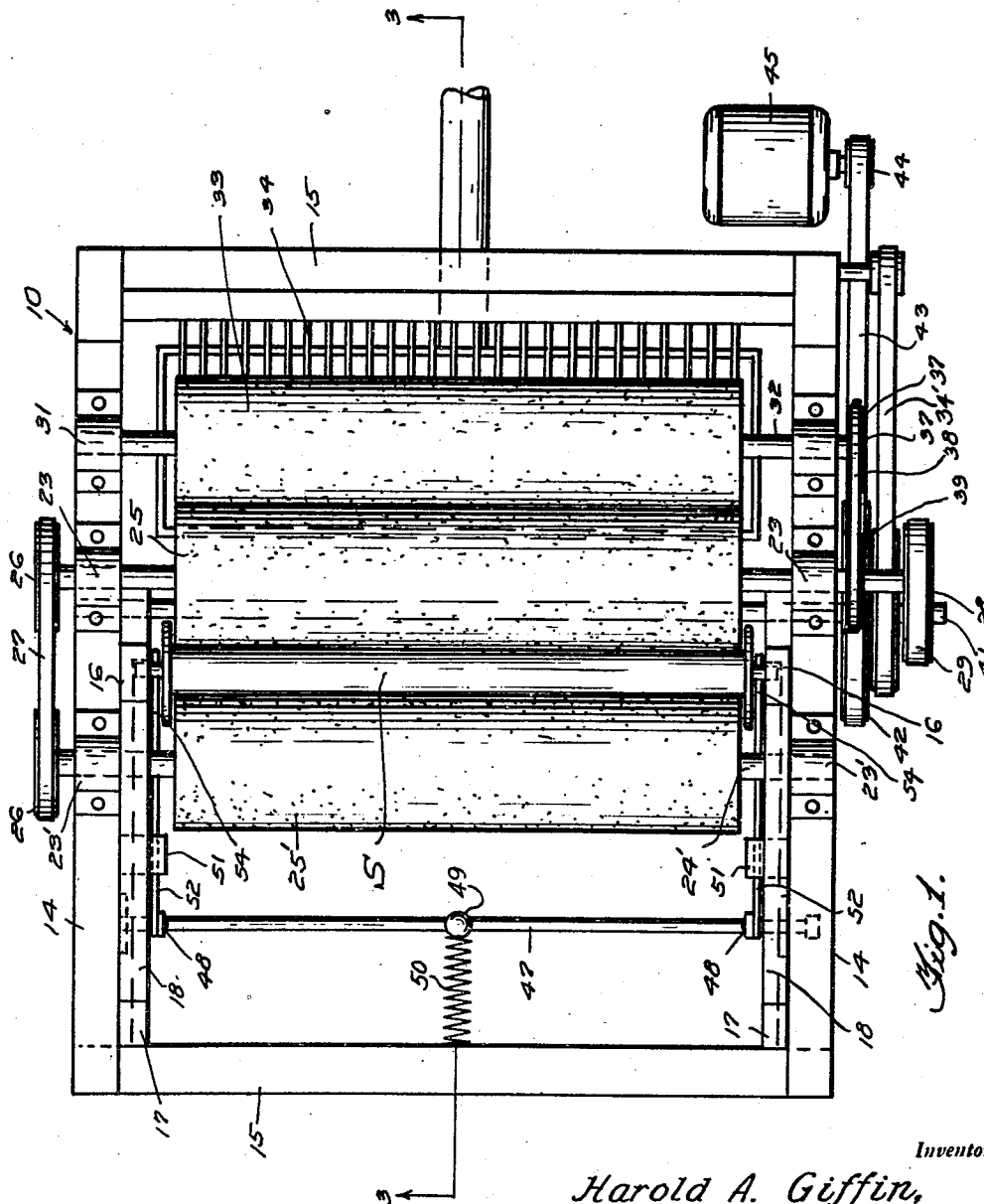


Fig. 1.

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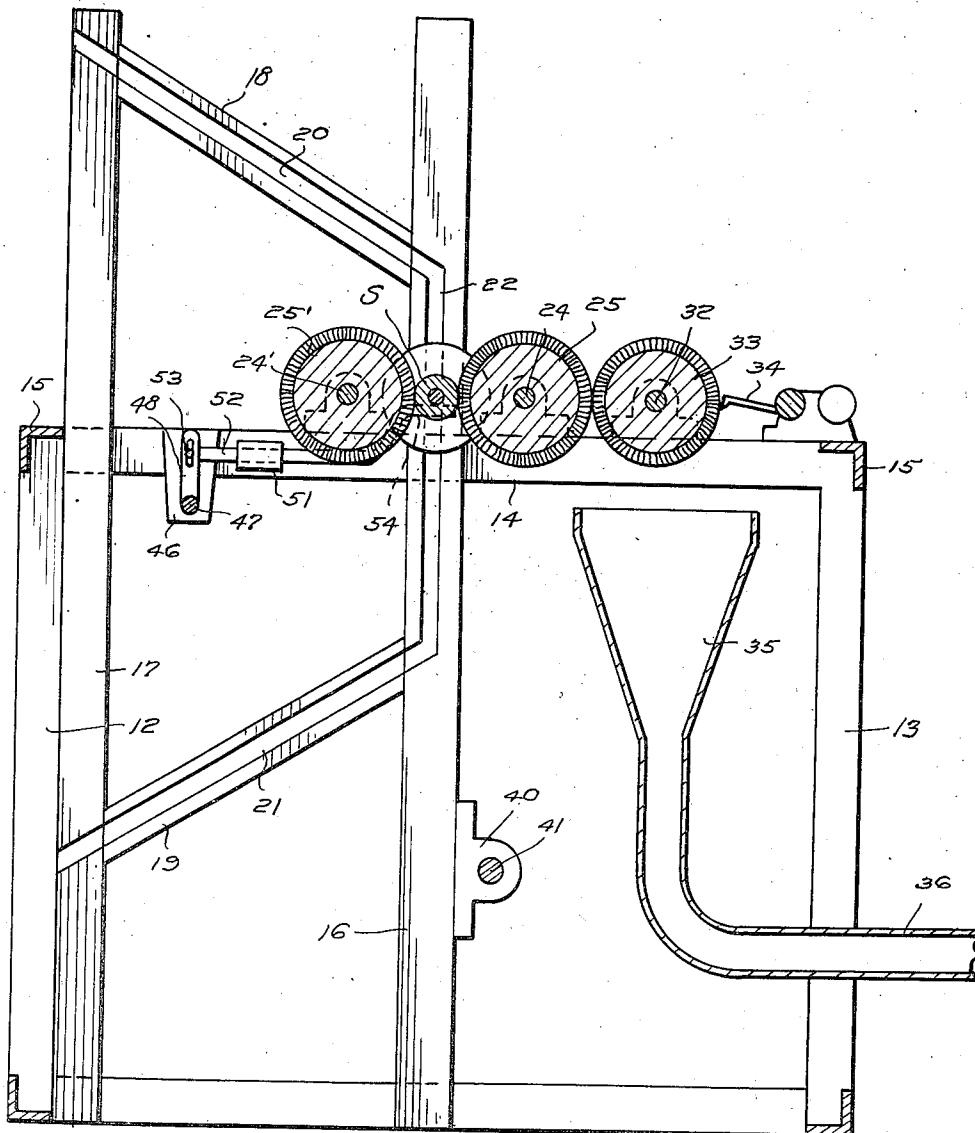


Fig. 3.

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UNITED STATES PATENT OFFICE

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SPOOL STRIPPER

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Application August 14, 1945, Serial No. 610,732

6 Claims. (Cl. 28—19)

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This invention relates to improvements in a spool stripper, and has for its primary object to remove that part of the roving or roping which lies close to the body or core of the carding spool.

In the textile industry, it is a matter of common knowledge that the first few turns of roving or roping about the core of a spool upon which it is wound is unsuitable for the production of yarn, and consequently it is customary to leave the first few turns of the roving or roping on the spool or bobbin, and this material is discarded as waste. Before the spool or bobbin can be reused, however, it is necessary that these turns of roving be removed, and to this end it has been common practice to draw a knife along the barrel of the spool so as to cut the roping or roving free. Such procedure, unless conducted with extreme skill, injures the barrel of the spool and in the case of a spool having a wooden barrel, the sharp edge of the knife is quite apt to leave slivers which not only render the spool dangerous to handle by the employees of a textile mill, but also are apt to injure the roving, roping or yarn that later may be wound on the spool. It has not been infrequent that the operation of drawing a knife longitudinally along the surface of the spool has so damaged the spool barrel as to render it wholly useless.

Another object of the present invention is to avoid damage to the barrels of carding spools, bobbins, and the like.

The above and other objects may be attained by employing this invention, which embodies among its features passing a carding spool downwardly in a vertical path between a pressure roll and a rapidly revolving stripper roll by which the roving or roving is caught and unwound from the spool, removing the waste from the stripper roll and depositing it in a suitable hopper from which it may be discharged into storage bins for subsequent disposal.

Other features include a pair of spaced, vertically extending guides for the reception of the ends of the trunnions carried at the ends of the carding spool, a pressure roll and a stripper roll supported in spaced parallel relation on opposite sides of the guides for engaging the spool barrel, a waste-removing roll adjacent the stripper roll for taking the waste from said stripper roll, a comb for stripping the waste taken by the second-mentioned roll from the stripper roll, a hopper into which the waste is deposited by the comb, and means to arrest the carding spool in proper position between the pressure and stripper rolls

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to cause the waste carried by the barrel thereof to be removed.

In the drawings:

Figure 1 is a top plan view of a waste stripper embodying the features of this invention,

Figure 2 is a side view of Figure 1, and

Figure 3 is a longitudinal sectional view taken substantially on the line 3—3 of Figure 1.

Referring to the drawings in detail, this improved stripper comprises a pair of side frames designated generally 10, each of which comprises a base member 11, front legs 12, rear legs 13, and a horizontal supporting bar 14. These frames 10 are held in spaced parallel relation by transversely extending bars 15, and extending vertically from the inner side of each frame are intermediate standards 16 which are arranged substantially midway between the ends of the bars 11 and 14. A similar vertically extending standard 17 is attached to the inner face of each frame 10 adjacent the front leg 12 thereof and is co-extensive with the standards 16 previously mentioned. Extending downwardly at an angle from a point near the top of each standard 17 to a point somewhat below the top of each standard 16 is an inclined guide bar 18, and extending downwardly and forwardly from a point somewhat below the horizontal bar 14 on the standard 16 is an inclined bar 19, the lower end of which joins the standard 17 at a point somewhat below its junction with the standard 16. The bars 18 and 19 and the standards 17 are provided, on their inner faces, with aligning grooves 20 and 21 which, as illustrated, converge toward the standards 16 and join the upper and lower ends of grooves 22 formed in the standard 16. The grooves 20, 21, and 22 are of a width sufficient to receive the trunnions of the carding spools to be stripped, as will be more fully hereinafter described.

Carried by the horizontal bars 14 on one side of the standards 16 are aligned bearings 23 and arranged an equal distance from the standards 16 on the opposite sides are bearings 23'. Rotatably mounted in the bearings 23 is a shaft 24 which extends parallel to a shaft 24' mounted in the bearings 23'. Carried by the shaft 24' nearest the front of the machine is a pressure roll 25' which cooperates with a stripper roll 25 mounted on the opposite shaft in holding a spool to be stripped against said stripper roll. The shafts 24 and 24' are each provided with a pulley 26 which pulleys have driving connection with each other through the medium of a belt 27 so that when the shaft 24 is rotated, the shaft 24' will rotate in the same direction in unison therewith. A drive pulley 28

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is attached to the shaft 24 and has driving connection through a belt 29 which is trained over a drive pulley 30 carried by the main drive shaft of the machine to be more fully hereinafter described. Mounted in suitable bearings 31 carried by the bars 14 is a shaft 32 carrying a transfer roll 33 which is adapted to run against the stripper roll 25 to take the waste therefrom. A conventional mechanical comb 34 is positioned near the periphery of the transfer roll 33 so that as the transfer roll rotates and gathers the waste from the stripper roll 25, the comb will serve to strip the waste from the transfer roll 33. A hopper 35 is positioned below the transfer roll 33 so that as the waste is stripped from the roll, it will be deposited in the hopper and may be withdrawn therefrom through a tube 36 connected with a blower (not shown) to create a draft through the hopper 35 and tube 36 which will remove the contents of the hopper and deposit it in suitable bins (not shown) for subsequent disposal. Attached to one end of the shaft 32 is a pulley 37 which has driving connection through the medium of a belt 38 with a pulley 39 carried by the shaft 24 so that when the rollers 25 and 25' are set in motion, the transfer roller 33 will also be driven in the same direction.

Mounted in suitable bearings 40 carried by the standards 16 is a main drive shaft 41 carrying a pulley 42 which has driving connection through the medium of a belt 43 which extends around the drive pulley 44 of a prime mover 45 such as an electric motor. This main drive shaft is equipped with the pulley 30 and it will thus be seen that when the prime mover 45 is operated, the stripper roll 25, the pressure roll 25' and the roll 33 will also be driven. A suitable endless belt 34 establishes driving connection between the main drive shaft 41 and the comb 34.

Rotatably mounted in suitable brackets 46 carried by the horizontal bars 14 adjacent their forward ends is a shaft 47, adjacent opposite ends of which are fixed upwardly extending levers 48. A hand lever 49 is secured intermediate the ends of the shaft 47 and to the lower end of the hand lever is attached one end of a retractile coil spring 50, the opposite end of which is connected to the adjacent cross bar 15. Slidably mounted in sleeves 51 carried by the bars 14 are bolts 52 which are connected, as at 53, to the levers 48 and the opposite ends of these bolts are upwardly offset, as at 54, to move horizontally between the ends of one of the rolls 25 and 25' and the standard 16 at a point slightly below the horizontal axes of the shafts 24.

When it is desired to strip the waste roving or roping from a carding spool or bobbin, the spool S is placed between the standards 17 at the upper ends of the groove 20 and allowed to move by gravity down the groove, as suggested in the dotted line position in Figure 2, until the trunnions on the ends of the spool encounter the offset portions 54 of the bolts 52. At this point, downward movement of the spool S is arrested and it is in position between the stripper roll 25 and pressure roll 25' so that the waste contained by the spool will be removed. Simultaneously with the removal of the waste from the spool S, the roll 37 will remove the waste from the adjacent roll 25 and move it into position to be received by the hopper 35 as the waste is being stripped from the roll 33 by the comb 34. When the waste has been completely removed from the spool S, pull is exerted on the hand lever 49 thus rocking the shaft 47 against the tension of the spring 50

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and withdrawing the bolts from their position beneath the trunnions on the spool S. The spool will thus be freed to descend through the grooves 22 and will be discharged through the grooves 21 to the front of the machine near the floor. In this way, the waste may readily be stripped from carding spools without injury to the barrels thereof so that they may be used repeatedly at a great saving of both labor and expense. Moreover, no danger of slivers being formed on the surface of the spool barrel will be encountered and hence the device will contribute materially to the safety and comfort of textile workers.

The stripper rolls herein referred to may be of any conventional type, such for instance, as those disclosed in the patents issued to Dronsfield, August 6, 1918, No. 1,274,522; to Terrell, April 28, 1925, No. Re. 16,053; and to Crossland, June 7, 1927, No. 1,631,920.

While in the foregoing there has been shown and described the preferred embodiment of this invention, it is to be understood that minor changes in the details of construction and combination and arrangement of parts may be resorted to without departing from the spirit and scope of the invention as claimed.

Having thus described the invention, what we claim is:

1. A waste stripper for carding or like spools which includes a pair of horizontally disposed spaced parallel rolls between which a spool is adapted to be directed, at least one of said rolls being a stripper roll, vertical guides for directing a spool between the rolls and releasable means mounted adjacent the guides independently of the rolls to arrest between the rolls in waste stripping position the spool as it descends in the guides.

2. In a waste stripper for spools, a pair of spaced parallel side frames, each having a horizontally disposed supporting rail, a standard attached to the inner face of each side frame at its forward end, a standard attached to the inner face of each side frame intermediate its ends, angularly disposed bars extending between the standards in a plane parallel to the side frames, each intermediate standard having a vertical groove in its inner face, each angularly disposed bar having a longitudinal groove in its inner face which opens into the groove in its respective standard, the width of the grooves being sufficient to accommodate the trunnions at the ends of a spool, a roll supported on the horizontal supporting rail on each side of the intermediate standards, at least one of said rolls being a stripper roll, and means to arrest a spool as it descends in the grooves in the standards and hold it between the rolls.

3. In a waste stripper for spools, a pair of spaced parallel side frames, each having a horizontally disposed supporting rail, a standard attached to the inner face of each side frame at its forward end, a standard attached to the inner face of each side frame intermediate its ends, angularly disposed bars extending between the standards in a plane parallel to the side frames, each intermediate standard having a vertical groove in its inner face, each angularly disposed bar having a longitudinal groove in its inner face which opens into the groove in its respective standard, the width of the grooves being sufficient to accommodate the trunnions at the ends of a spool, a roll supported on the horizontal supporting rail on each side of the intermediate standards, at least one of said rolls being

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a stripper roll, means to arrest a spool as it descends in the grooves in the standards and hold it between the rolls, and means to clear the stripper roll of waste.

4. In a stripper for carding or like spools, a pair of spaced parallel rolls mounted to rotate about axes lying in the same horizontal plane, at least one of said rolls being a stripping roll, means to guide between the rolls a carding or like spool from which waste yarn is to be stripped, and releasable means mounted adjacent the guides independently of the rolls to arrest between the rolls in waste stripping position the spool as it descends in the guide means.

5. In a stripper for spools, a pair of spaced parallel rolls mounted to rotate about axes in the same horizontal plane, at least one of said rolls being a stripping roll, a vertical guide adjacent each end of the pair of rolls for directing spools between the rolls, and releasable means operable transversely adjacent each guide independently of the rolls to arrest between the rolls the spool as it descends in the guides.

6. In a stripper for spools, a pair of spaced parallel vertical guides for guiding spools during their descent under the influence of gravity, a pair of spaced parallel rolls mounted to rotate about spaced axes lying in the same horizontal

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plane and adapted to engage a spool from opposite sides of the guides, manually actuated means operable adjacent each guide independently of the rolls to arrest a spool in its descent between the guides and hold it in waste stripping engagement with the rolls and at least one of the rolls being a stripping roll.

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