

B. A. PETERSON.

DOFFER.

APPLICATION FILED JULY 13, 1910.

1,064,165.

Patented June 10, 1913.

2 SHEETS—SHEET 1.

Fig. 1.

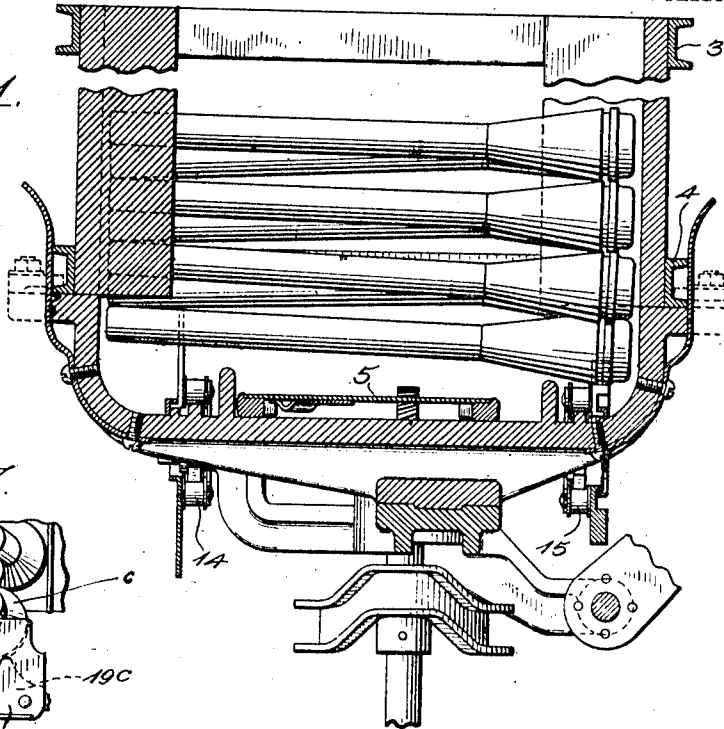


Fig. 7.

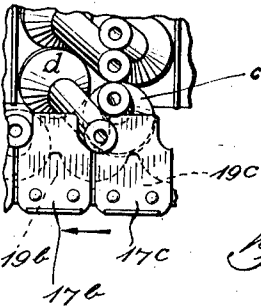
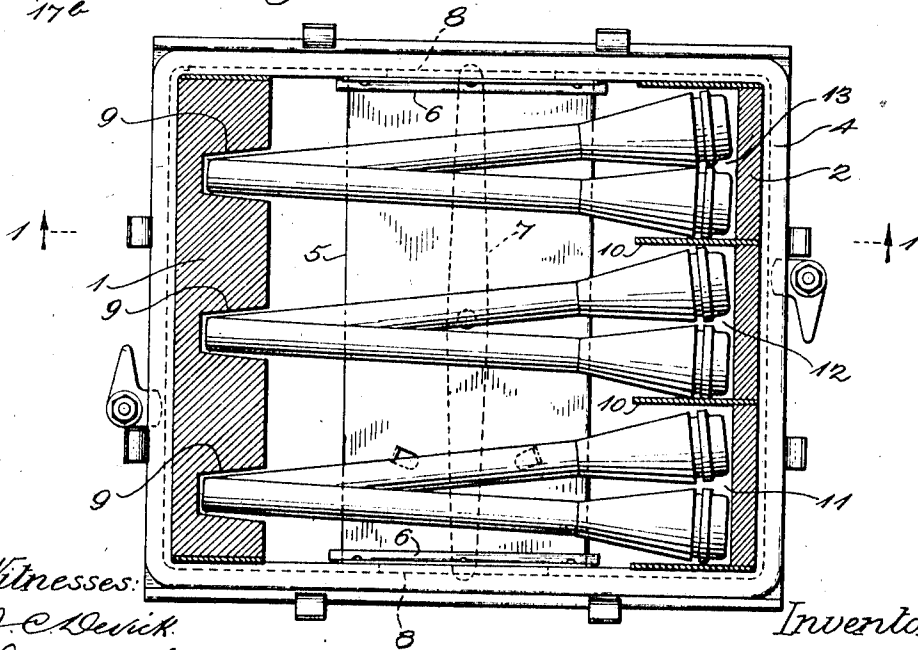


Fig. 2.



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2 SHEETS-SHEET 2.

Fig. 3.

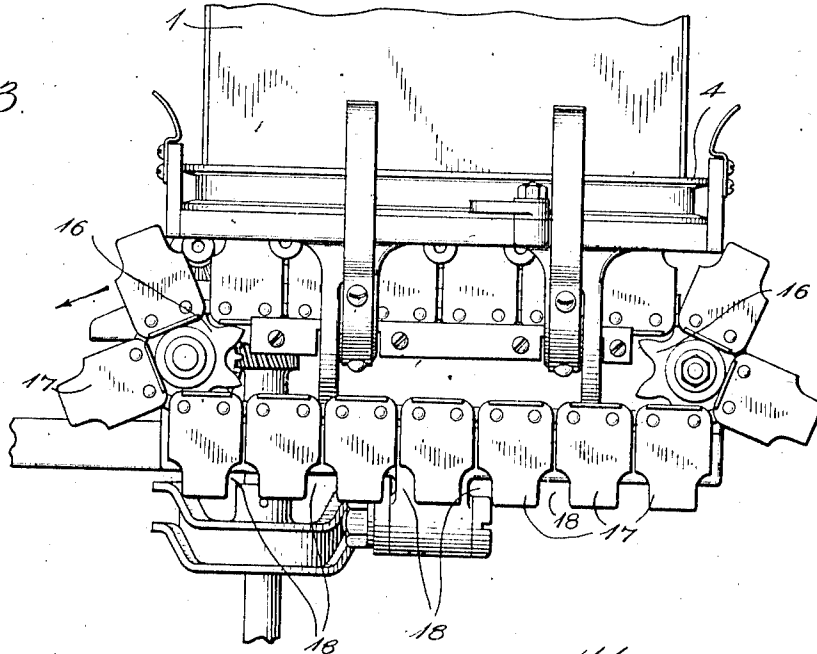


Fig. 4.

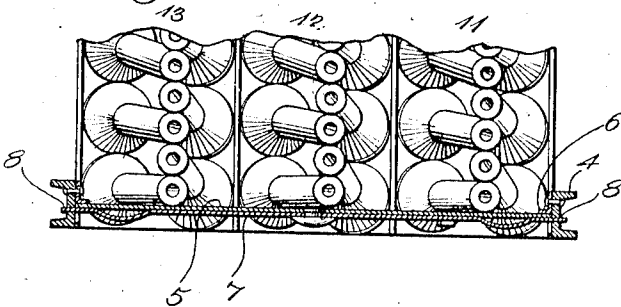


Fig. 5.

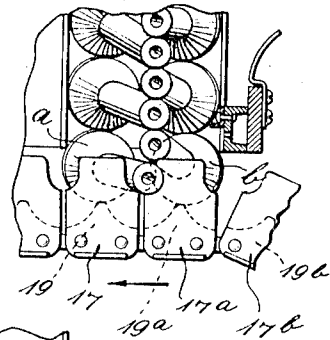
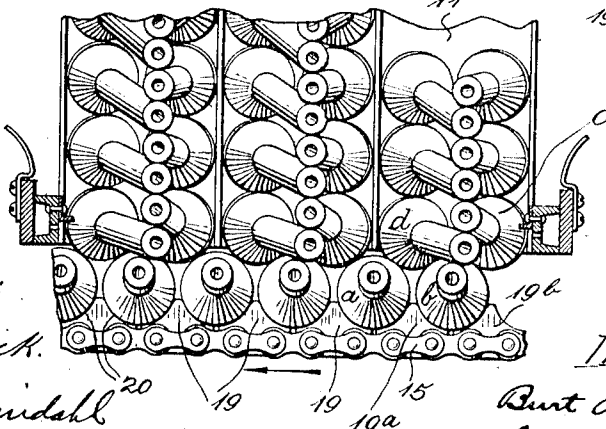


Fig. 6.



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UNITED STATES PATENT OFFICE.

BURT A. PETERSON, OF ROCKFORD, ILLINOIS, ASSIGNOR TO HOWARD D. COLMAN, LUTHER L. MILLER, AND HARRY A. SEVERSON, COPARTNERS DOING BUSINESS AT ROCKFORD, ILLINOIS, AS BARBER-COLMAN COMPANY.

DOFFER.

1,064,165.

Specification of Letters Patent.

Patented June 10, 1913.

Application filed July 13, 1910. Serial No. 571,689.

To all whom it may concern:

Be it known that I, BURT A. PETERSON, a citizen of the United States, residing at Rockford, in the county of Winnebago and State of Illinois, have invented certain new and useful Improvements in Doffers, of which the following is a specification.

This invention relates to doffers, *i. e.*, machines for removing full bobbins from the spindles of spinning frames and replacing them with empty bobbins.

The object of the invention is to produce a bobbin magazine and bobbin feed for doffers, the magazine and bobbin feed herein shown being especially adapted to the form of bobbins known as "filling" bobbins.

In the accompanying drawings Figure 1 is a fragmental vertical section through a bobbin magazine and bobbin feed, embodying the features of my invention. Fig. 2 is a horizontal section through the magazine, representing the magazine in place on the doffer. Fig. 3 is a fragmental side elevation of the magazine and the bobbin feed. Fig. 4 is a sectional view through the magazine illustrating the arrangement of the bobbins before the feeding of the bobbins therefrom is begun. Figs. 5, 6 and 7 are views showing consecutive stages in the movement of the bobbins from the magazine to the bobbin-feeding means.

The magazine comprises opposite side walls 1 and 2 united by rectangular top and bottom frames 3 and 4. It is provided with a removable bottom 5 adapted to fit between opposite sides of the lower frame 4 and against stop flanges 6 on said frame. A locking bar 7 is pivoted at its mid-portion upon the lower side of the bottom 5, the ends of said bar being adapted to enter slots 8 (Fig. 4) in the lower frame 4. It will be seen that the bottom 5 is insertible into and removable from the magazine by movement of the bottom in a vertical direction. The doffer may be provided with means for thus removing and replacing the bottom, but as this means is no part of the invention herein claimed, said means will not be described herein. In this instance, the bobbins are arranged within the magazine in three groups, the tips of all the bobbins extending in the same general direction. In the side wall 1 of the magazine are formed three grooves 9, the width of each groove

being substantially the same as the diameter 55 of the tip of a bobbin. The opposite side of the magazine is divided by partitions 10 into three vertical compartments 11, 12 and 13, each compartment being of uniform width from top to bottom. The width of 60 each of these compartments is substantially twice the diameter of the butts of the bobbins, so that the bobbin butts may lie side by side in said compartments. As shown in the drawings, and particularly Fig. 4, the 65 bobbins are arranged in the compartments in pairs, the butts of the bobbins of each pair lying side by side and the tip of one bobbin lying upon the other. Referring to Fig. 4, it will be seen that the bobbins are 70 so arranged that the tip of the left-hand bobbin of each pair is below the tip of the right-hand bobbin.

When the doffer is in operation, the bobbins in the magazine rest upon a bobbin- 75 feeding means located below the magazine, and virtually forming the bottom of the latter. Said bobbin-feeding means consists of a conveyer formed of two endless chains 14 and 15 mounted upon sprocket wheels 80 16, said sprocket wheels being driven in any suitable manner. The chain 14 has fixed thereto lugs 17 adapted to form recesses 18 between them for the reception of the tips of the bobbins, and the chain 15 carries 85 lugs 19 providing recesses 20 to receive the butts of the bobbins.

When preparing to feed bobbins, the conveyer is positioned so that the lugs 17 and 19 occupy the position shown in Fig. 5 with 90 relation to the magazine. The bottom 5 is then withdrawn downwardly, thereby permitting the bobbins to settle in the magazine until they rest upon the conveyer as shown in Fig. 5. It will be seen that the 95 butts of the two lower bobbins *a* and *b* in each compartment rest upon the points of the lugs 19, that the tip of the bobbin *a* rests in the recess formed between the lugs 17 17^a opposite the lugs 19 19^a, and that the tip of 100 the bobbin *b* rests upon the tip of the bobbin *a*. Now, when the conveyer is advanced, the points of the lugs 19 19^a will be moved out from under the bobbins *a* and *b*, thereby permitting the butts of said bobbins to drop 105 into the recesses between the lugs 19, 19^a and 19^b, and the tip of the bobbin *b* to enter the recess between the lugs 17^a and 17^b.

The bobbins have now assumed the position shown in Fig. 6. As the conveyer moves forward, the butt of the bobbin *c* drops into the space between the bobbin *b* and the wall of the magazine, and settles into or toward the recess between the lugs 19^b and 19^c. The conveyer continuing to move, the tip of the bobbin *d* enters the recess between the lugs 17^b 17^c, and the stem and butt of said bobbin *d* gradually force the butt of the bobbin *c* aside until the butt of the bobbin *d* is permitted to settle into the proper recess between the lugs 19^b and 19^c. The continuing movement of the chains next permits the bobbin *c* to enter opposite recesses in the conveyer. It will thus be seen that the bobbins leave the compartments in regular and predetermined order, the left-hand bobbin being first discharged, then the right-hand bobbin, then the left-hand, and so on.

As shown in the drawings, the butt-receiving recesses 20 are a little less in depth than one-half the diameter of the butt end of a bobbin, in order that the butts of the left-hand bobbins may be able to crowd out the butts of the right-hand bobbins, as described.

It is desirable that the tip of the right-hand bobbin shall drop into its recess 18 at practically the same instant that the butt of said bobbin drops into its recess 20, as otherwise the pressure of the superimposed bobbins acting on the butt of said right-hand bobbin may hold its tip up and prevent said tip from dropping into its recess. To facilitate such simultaneous movement of the butt and tip of the right-hand bobbin onto the conveyer, I offset the tip-space 9 slightly toward the side from which the conveyer approaches. It will be seen from Fig. 2 that the tip spaces 9 are not directly opposite the butt-compartments 13.

The conveyer removes the group of bobbins in succession, that is to say, the compartment 11 is first emptied, the compartment 12 next, and finally the compartment 13.

I claim as my invention:

1. In a doffer, a bobbin magazine having means forming spaces for the tips of bobbins and opposite compartments for the butts of bobbins, the width of the tip-spaces being substantially equal to the diameter of the tips, and the width of the butt-compartments being substantially twice the diameter of the butts, there being an equal number of tip-spaces and butt-compartments, the butt-compartments being of uniform width from top to bottom.
2. In a doffer, a bobbin magazine having means forming a space therein for the tips of bobbins and an opposite compartment for the butts of bobbins, the width of the tip-space being substantially equal to the diameter of the tips, and the width of the butt-compartment being substantially twice the diameter of the butts, whereby the butts of the bobbins may lie side by side in pairs, with the tip of the left-hand bobbin of each pair below the tip of the right-hand bobbin of each pair, an endless conveyer below the magazine, the upper side of said conveyer traveling toward the left, said conveyer comprising a chain having butt-receiving recesses and a chain having tip-receiving recesses, the butt-receiving recesses being a little less in depth than one-half the diameter of a bobbin butt, for the purpose described.

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Witnesses:

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