Aug. 31, 1937. E. REICH 2,091,334

SLIVER BOBBIN

Filed Oct. 4, 1935 2 Sheets-Sheet 1

Fig. 1.

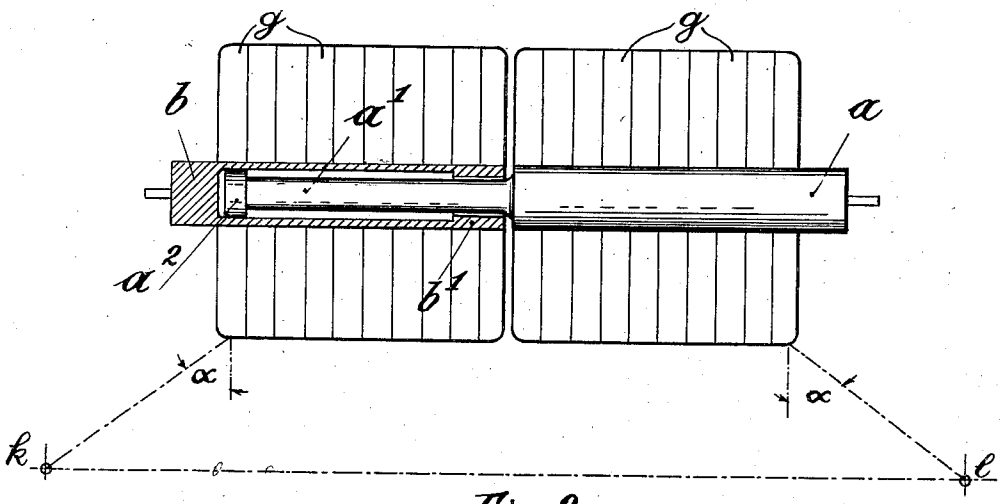
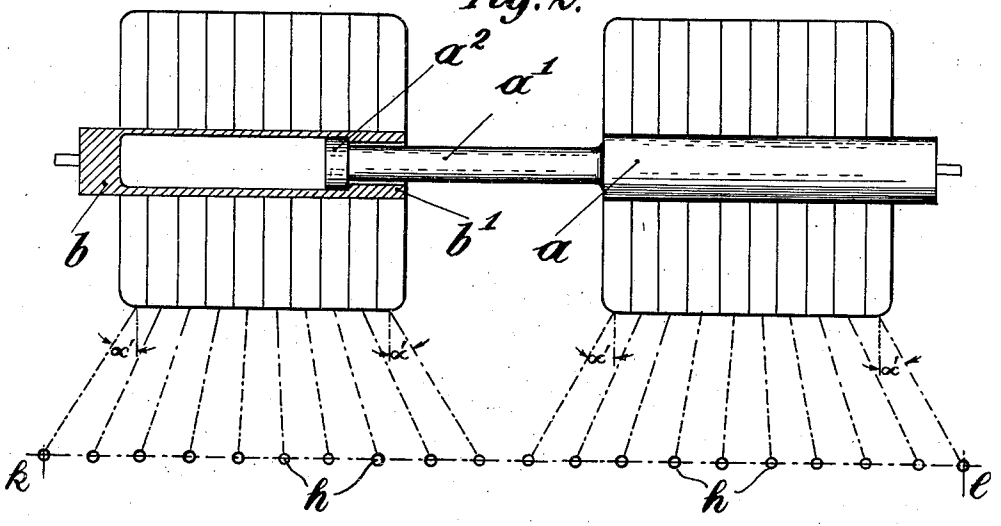



Fig. 2.




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Filed Oct. 4, 1935 2 Sheets-Sheet 2

Fig. 3.

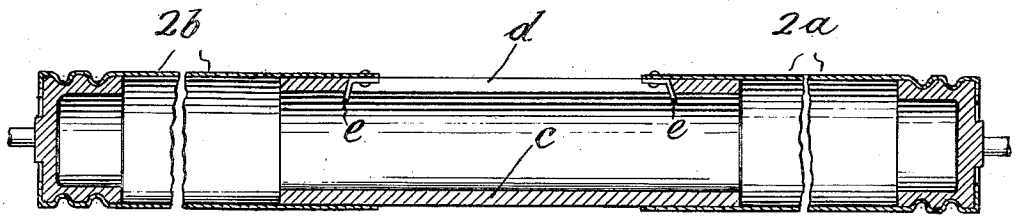
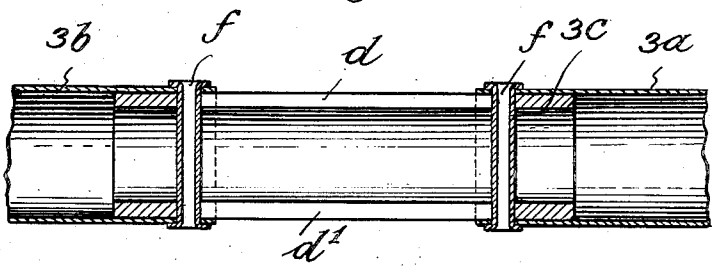



Fig. 4.




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# UNITED STATES PATENT OFFICE

2,091,334

## SLIVER BOBBIN

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Application October 4, 1935, Serial No. 43,611
In Germany October 29, 1934

1 Claim. (Cl. 242—118)

In the spinning of woollen yarns, as distinct from worsted yarns, the slivers from the carding or roving frame are wound on bobbins which are filled with slivers for high or low counts without reference to the number of spindles which each bobbin is to serve. Consequently the number of independent bobbins carrying a given number of slivers independently wound side by side is not always convenient for serving the spinning machine on which the process of manufacture is to proceed. In a ring spinning machine the spacing of the spindles cannot be reduced below a certain minimum, and in the case of the higher counts each whole sliver-bobbin with its plurality of independently wound slivers may have to serve a bank of spindles of a length quite out of proportion to its own length. On the bobbin 20 individual slivers may, for example, be independently wound side by side and occupy together a total bobbin length of 900 mm., and if the 20 spindles are spaced only 75 mm. apart the distance between the first and the last spindle is 1425 mm. This involves an angle of feed from the first sliver coil to the first spindle and from the last sliver coil to the last spindle which is much too large for some fibres, and various more or less inconvenient devices have heretofore been adapted for meeting the difficulty.

According to my invention the device constitutes a telescopic bobbin structure composed of two or more sections, each section carrying a group of sliver coils wound side by side. The arbors of these individual bobbin sections telescope one into the other and are pushed together when the bobbin is being wound, so that the individual sliver groups are wound closely beside one another. These arbors can, if necessary, be drawn apart when the bobbin is delivering, so that the individual sliver groups are spread over a greater length. This lessens to a great extent the angle of feed on delivery to the spindles. The effect may be illustrated by the following example.

On a bobbin structure of 900 mm. total length may be wound side by side 20 individual slivers, and the maximum angle of feed which the slivers will stand is such as to permit an addition of not more than 300 mm. to the length of the spindle bank served, beyond the aforementioned 900 mm. If the 20 spindles served by this main bobbin are spread over this space, it would allow a spacing between the spindles of only about 63 mm., which is not enough to safely and reliably operate the spindles. If, however, the bobbin is made in two telescopic sections which can be pulled apart, it can in effect be changed into two bobbins, each carrying a group of 10 slivers and occupying a bobbin length of 450 mm. On each of these divided bobbins or bobbin sections, the first and last sliver will have the same safe angle of feed when serving 10 spindles which may for instance be spaced over a bank length of 450+300=750 mm., resulting in a spindle spacing of about 83 mm. instead of 63 mm., and thus in a convenient spacing arrangement of the 20 spindles on a bank length of 1500 mm.

It will be seen that the telescopic bobbin allows of much more freedom in the spacing of the spindles, and conversely overcomes the difficulties arising from excessive angles of feed.

Three forms of construction according to the invention are shown by way of example in the accompanying drawings.

Figs. 1 and 2 are views, partly in section, of a two-part bobbin, which is shown in its contracted state in Fig. 1, and in its expanded state in Fig. 2.

Fig. 3 is a longitudinal section of the second form of construction, the bobbin being shown in its expanded state, and

Fig. 4 is a section, partly broken away, of the third form of construction, also in its expanded state.

Referring first to the construction shown in Figs. 1 and 2, the part $a$ of the bobbin has an extension $a^1$ of reduced diameter, with an enlargement $a^2$ at its free end. Normally, in the winding position (Fig. 1) the part $a^1$ is within a hollow part $b$, of the same length and diameter as the part $a$. The slivers are wound in coils $g$ upon the two bobbin sections, the group of coils on section $b$ being independent of those on section $a$, to permit the two groups of coils to be pulled apart. The part $b$ can slide on the part $a^1$, but complete withdrawal is prevented by a shoulder $b^1$ of the part $b$, against which the enlargement $a^2$ abuts when the members $a$ and $b$ are pulled apart as shown in Fig. 2.

Chain lines indicate the angle of feed $\alpha$ at which yarn from the end slivers would have to be delivered to the end spindles of a 20 spindle bank of the length $k$–$l$ if delivery took place with the parts $a$ and $b$ in the position shown in Fig. 1. Similarly, chain lines in Fig. 2 indicate the much reduced angle $\alpha$ obtained in feeding a 20 spindle bank of the same length $k$–$l$ when the two parts are pulled apart, the slivers being delivered through guides $h$.

The bobbin shown in Fig. 3 has two tubular parts 2$a$, 2$b$, both slidable on a tubular part $c$.

The part *c* has a slot *d*, extending lengthwise thereof but terminating short of each end of the tube, and the parts **2***a*, **2***b* have tongues *e*, which engage in the slot and thus limit the extent to which the parts *a*, *b*, can be pulled outwards for expanding the bobbin.

In the construction shown in Fig. 4 there are also two parts **3***a*, **3***b* slidable upon a tubular part **3***c*, but the part **3***c* has two slots *d*, $d^1$ opposite each other, and each of the parts **3***a*, **3***b* has fixed thereto a transverse pin *f* extending through both the slots, to limit the outward movement.

What I claim and desire to secure by Letters Patent is:—

Method of feeding yarn slivers to a feeding line considerably longer than the bobbin carrying the slivers, which comprises winding a plurality of slivers side by side in groups respectively upon the component telescoping parts of a telescoping bobbin, with the parts in contracted position; then expanding the bobbin to separate the groups of slivers a desired distance for delivery of the individual slivers onto the feeding line within a given feeding angle of the individual slivers.

ERICH REICH.