2 Sheets—Sheet 1.

I. L. G. RICE.

METHOD OF WINDING, UNITING, AND GROUPING BOBBINS.

No. 186,045. Patented Jan. 9, 1877.

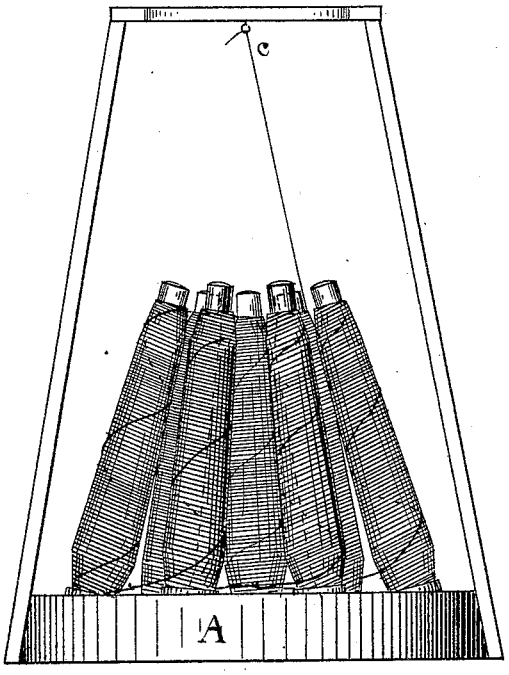

Fig. 1.

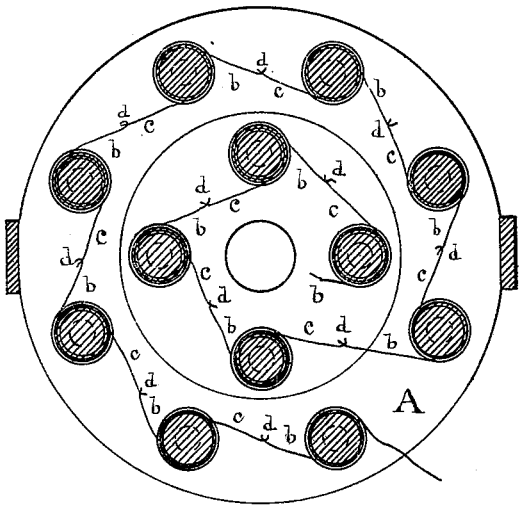

Fig. 2.

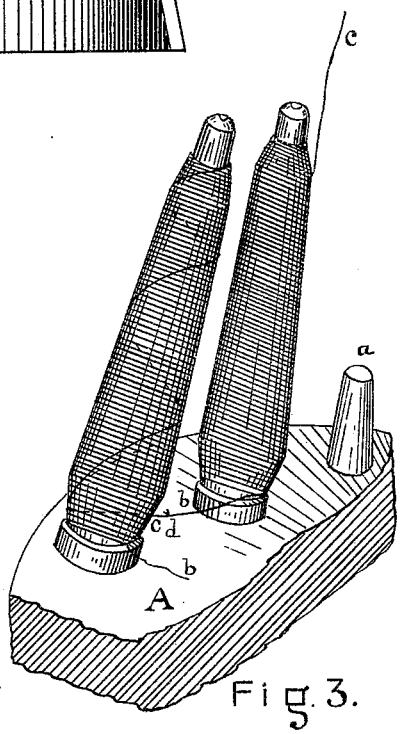

Fig. 3.

WITNESSES

Frank L. Parker

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Isaac L. G. Rice.

2 Sheets—Sheet 2.

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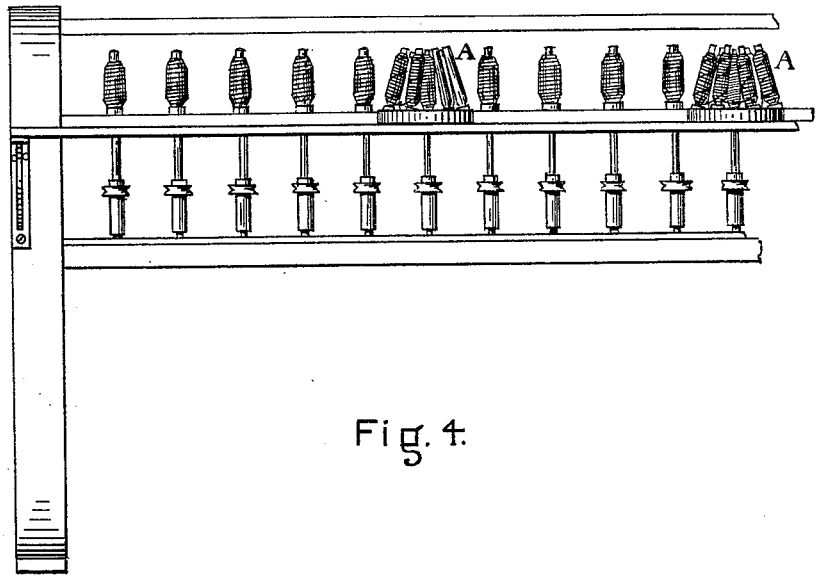

Fig. 4.

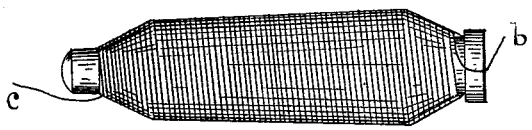

Fig. 5.

WITNESSES

Frank G. Parker

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INVENTOR

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UNITED STATES PATENT OFFICE.

ISRAEL L. G. RICE, OF CAMBRIDGE, MASSACHUSETTS, ASSIGNOR OF ONE-HALF HIS RIGHT TO WALTER T. BENT, OF SAME PLACE.

IMPROVEMENT IN METHODS OF WINDING, UNITING, AND GROUPING BOBBINS.

Specification forming part of Letters Patent No. **186,045**, dated January 9, 1877; application filed April 20, 1876.

To all whom it may concern:

Be it known that I, ISRAEL L. G. RICE, of Cambridge, in the county of Middlesex and State of Massachusetts, have invented a new and useful System of Arranging, and Winding, and Uniting the Yarn on Two or More Bobbins, so as to form a single continuous thread, which invention is fully set forth in the following specification, reference being had to the accompanying drawings.

The object of my invention is to make a continuous thread of the yarn that is wound on several spinning-bobbins, so that the yarn on all these bobbins may be drawn off the tops of these bobbins without stoppage. This is done as follows: When an empty bobbin is placed on a spindle of a spinning-frame it has a few turns of yarn wound upon it at the bottom of the bobbin by hand. This is to be done by the "doffer." The object of doing this is to secure a sufficient length of yarn to tie onto the outer end of the yarn on another bobbin; then the yarn is spun and wound onto the bobbin, as usual, care being taken that, in spinning, the yarn is not wound down at the very bottom of the bobbin, so as to cover over the yarn that was wound on it by hand.

After the bobbin is doffed it is placed upon one of the pins *a* in the stand A, another full bobbin is taken from off the spinning-frame and placed on a pin on the stand A, and the end of yarn that is on the top of one bobbin is wound around that bobbin one or two turns, so as to bring it at the bottom of the bobbin, and it is then tied to the end of yarn that is at the bottom of the bobbin beside it.

It will readily be seen that by drawing off the yarn from the top of one bobbin it will all unwind until it finally reaches the point where it is connected with the yarn on the bobbin beside it. This is clearly shown in the elevation, Figure 1, the plan, Fig. 2, and the sectional elevation, Fig. 3.

Fig. 4 shows a front elevation of a spinning-frame, with a shelf in front of the spindles, on which the stand A, with empty bobbins, may be placed. In the operation of doffing, full bobbins may be taken from the spinning-frame and put upon the stand A, while the empty bobbins on the stand may be placed on the spinning-frame. The doffers or the spinners can unite the ends of yarn on the bobbins when the frame is spinning.

Fig. 5 is a view of a bobbin with the end of the yarn that was first put upon the bobbin, (shown at *b*.) To keep it from being lost or snarled up it is slipped into a "cut" in the end of the bobbin.

The end of the yarn last put on the bobbin is shown at *c*. The knot where *c* and *b* are connected is marked *d*. The plan view, Fig. 2, fully shows the system.

It will be found advantageous to so arrange the bobbins that their centers will all point to a common center, and at their common center a guide shall be placed, through which the yarn is to be drawn. This is illustrated in Fig. 1.

In winding the bobbins they should be wound so that the yarn will lie upon them in a series of cone-shaped layers, as it does on the cops used for filling that are spun on the mule, this being the best mode for rapidly drawing it off the top.

I do not limit myself to any particular stand or order of arrangement for these bobbins, the entire essence or principle of my invention being uniting the yarn that has first been wound upon one bobbin to the yarn that was last wound upon another at their respective ends, so that the yarn that is upon the bobbins may all be unwound without stopping, accomplishing, in fact, the same thing as if the yarn had all been spun and wound upon a single bobbin, with this difference, that the various bobbins may, should it be desirable, have upon them different-colored yarns—a thing which would be impracticable on a single bobbin, while the mechanical difficulties of spinning a large amount of yarn on a single bobbin are obvious to all familiar with the spinning-frame.

I claim as my invention—

The method herein described of winding and uniting the yarn on two or more bobbins, and grouping these bobbins so as to form a single continuous thread, which may be drawn off without interruption, whereby the process of spooling may be dispensed with.

Witnesses: ISRAEL L. G. RICE.

WILLIAM EDSON,

FRANK G. PARKER.