G. E. TAFT.

Spinning-Frame Spindle.

No. 225,181. Patented Mar. 2, 1880.

Fig. 1.

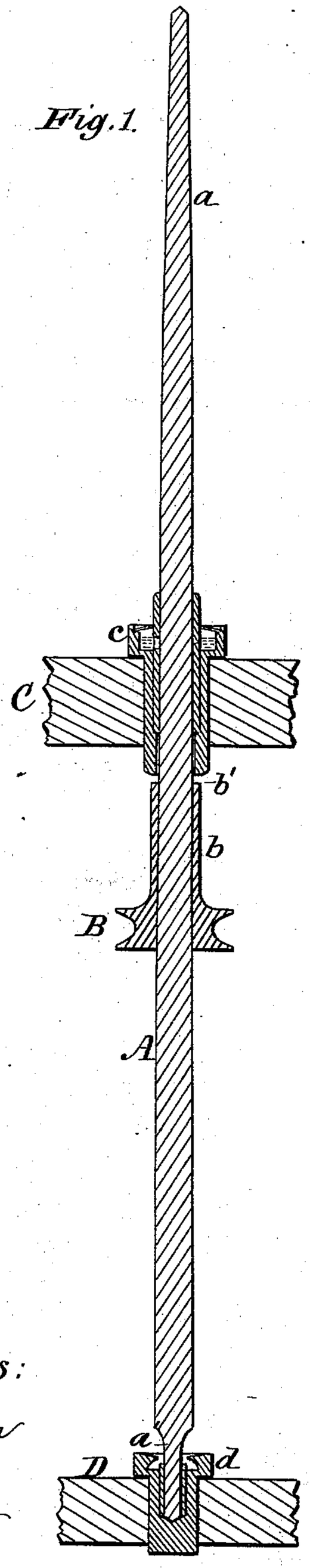
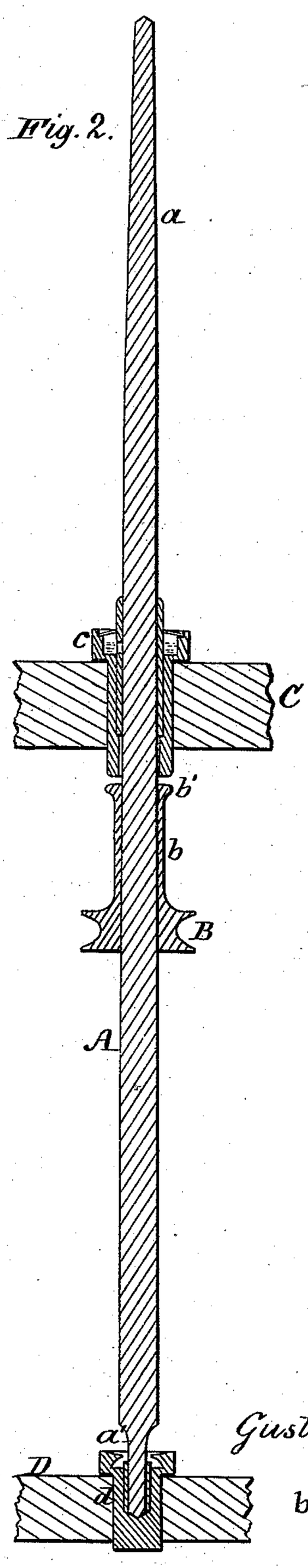


Fig. 2.



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UNITED STATES PATENT OFFICE.

GUSTAVUS E. TAFT, OF WHITINSVILLE, MASSACHUSETTS, ASSIGNOR TO WHITIN MACHINE WORKS, OF SAME PLACE.

SPINNING-FRAME SPINDLE.

SPECIFICATION forming part of Letters Patent No. 225,181, dated March 2, 1880.

Application filed April 16, 1879.

To all whom it may concern:

Be it known that I, GUSTAVUS E. TAFT, of Whitinsville, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Spinning-Frame Spindles: and I hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 represents a vertical section through the spinning-frame spindle and its supports. Fig. 2 represents a vertical section of a modification of the same.

My invention relates to that class of spinning-frame spindles called "live-spindles," which are retained in position by a bolster in the top rail and a step in the bottom rail of the frame.

Heretofore the spindles of this class have been provided with a cast-metal whirl (made without any strengthening-sleeve) forcibly secured thereto, to receive the band used to revolve them; and the metal of the spindle has been turned down and reduced to form a shoulder at a short distance above the position occupied by the whirl as an abutment to bear against the under side of the bolster and prevent the spindle from rising during the operation of spinning. To produce this shoulder, the metal of the spindle has to be primarily much larger than required for the balance of the spindle, and the removal of the metal forms a weak place in the spindle immediately above the shoulder, besides presenting other difficulties, as uneven contraction in hardening and in making and finishing said spindle.

Spindles used in single-rail spinning-frames are shorter than those used with double rails. They have been made without shoulders, carrying a whirl recessed underneath, and having a slightly-projecting hub above, and presenting thus only the ordinary amount of contact-surface between the whirl and spindle; but this construction does not meet the requirements of double-rail frames, and is neither designed to nor does it strengthen, stiffen, or re-enforce the spindle between its bearings, and thus prevent its vibration.

The object of my invention is to reduce the cost of spindles suitable for double-rail spinning-frames by making them without shoulder, and consequently of lighter rods than heretofore, and at the same time to strengthen, stiffen, and re-enforce them between their bearings, and thus prevent any trembling of said spindles. For this purpose I provide each one with a long sleeve, cast with the whirl and fitting tightly upon the spindle, the top of said long sleeve performing also the function of the shoulder heretofore generally formed upon the spindle.

My invention consists in combining, with the top and bottom rails of a double-rail spinning-frame and a bolster and step secured to said rails, a plain live-spindle, made without shoulders, and a whirl provided with a long re-enforcing sleeve, fitting tightly upon said spindle, to strengthen and stiffen it adjacent to the point at which the driving-power is applied.

In the drawings, A represents the spindle. It is made nearly cylindrical, or with a diameter nearly uniform for about three-quarters of its length, and then tapers more rapidly at *a* to readily receive the bobbin. The middle portion of the spindle has a very slight taper, so that the whirl B can be tightly driven and secured upon it. The spindle is retained in position upon the spinning-frame between the top rail, C, and bottom rail, D, the top rail carrying the bolster *c* to receive it, and the bottom rail having the step *d*, into which the lower end, *a'*, of the spindle is placed.

As before mentioned, this spindle is made of lighter rods than usual, as it has no projecting ring or shoulder upon its periphery. To stiffen it at and above the whirl, and at the same time form the necessary abutment to retain the spindle between its bearings, the cast-metal whirl B is provided with a long re-enforcing sleeve, *b*, to tightly embrace the spindle and extend up far enough to make a shoulder to come against the under side of the bolster in the upper rail, or within about a sixteenth of an inch from it, to allow for the vertical vibration of the spindle and insure its easy motion. The top *b'* of this sleeve *b* makes a good-sized shoulder, even larger than heretofore done, on the spindle, to bear against the under

side of the bolster. This top b' may be made, as shown in Fig. 2, of a diameter larger than the body of the sleeve b.

Thus better results are obtained than heretofore, and at reduced cost, by using a plain spindle and a tight-fitting whirl with a long re-enforcing sleeve, as described.

Having thus fully described my invention, I claim—

1. In combination with a live spindle made without shoulders, as described, the whirl B, provided with a long re-enforcing sleeve, b, fitting tightly upon said spindle, substantially as and for the purpose set forth.

2. The combination, with the top and bottom rails of a double-rail spinning-frame and a bolster and step secured to said rails, of a live-spindle made without shoulders, as described, and a whirl provided with a long re-enforcing sleeve, fitting tightly upon said spindle, to strengthen and stiffen it adjacent to the point at which the driving-power is applied, substantially as specified.

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