

No. 682,350.

Patented Sept. 10, 1901.

P. H. BOLLMANN.

BOBBIN.

(Application filed May 29, 1901.)

(No Model.)

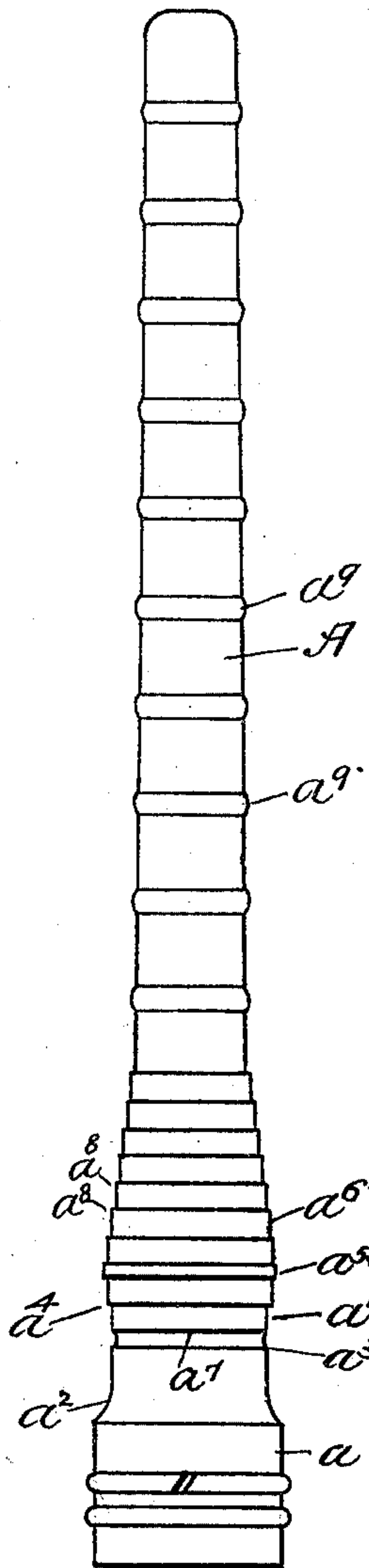


FIG. 1.

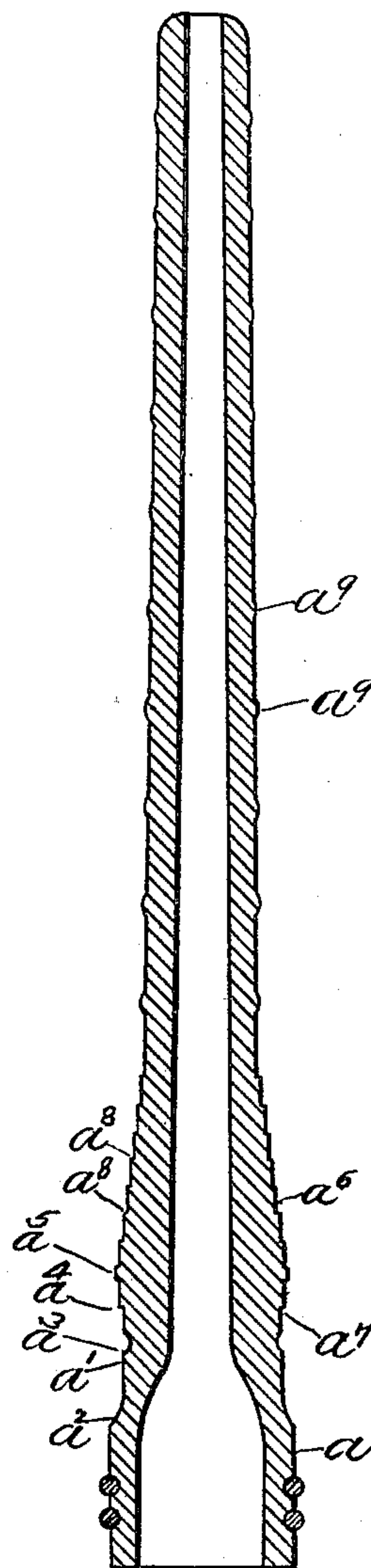


FIG. 2.

WITNESSES.

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## BOBBIN.

SPECIFICATION forming part of Letters Patent No. 682,350, dated September 10, 1901.

Application filed May 29, 1901. Serial No. 62,343. (No model.)

*To all whom it may concern:*

Be it known that I, PHILIP H. BOLLMAN, a citizen of the United States, and a resident of Abbeville, in the county of Abbeville and State of South Carolina, have invented a new and useful Improvement in Bobbins, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in explaining its nature.

The invention relates to the improvement in bobbins hereinafter described.

The object of the invention is to provide a construction of bobbin adapted to be used in a shuttle and prevent the waste of filling or yarn which is now common.

The invention is especially adapted to use upon the type of loom having automatic means for supplying the filling or yarn. In such machines the filling or yarn is wound upon bobbins so constructed at their butts and so combined with shuttle-springs that quite a quantity or bunch of filling or yarn at the butt is not drawn from the bobbin. This is due to the shape of the bobbin at the butt, it being so constructed or formed as to provide a short reduced section or neck, which ends upon its outer side abruptly in a shoulder or neck, the shoulder being so related to the shuttle-springs when the bobbin is in place that the yarn or filling does not render freely from the neck when it begins to pull over the shoulder. To overcome this difficulty, I have provided a bobbin which has a neck which does not terminate in a shoulder, but which, on the contrary, is shaped not only to avoid a shoulder, but also to prevent the filling or yarn from bunching or rising upon it under tension or as it is drawn from the bobbin. This result is achieved by giving the neck a long rise into the main part of the bobbin and by providing this part of the neck with steps reversely arranged with respect to the steps upon the bobbin beyond the neck.

I will now describe the invention in conjunction with the drawings, wherein—

Figure 1 is a view in elevation of a bobbin having the features of my invention. Fig. 2 is a view in vertical central section thereof.

Referring to the drawings, A represents the bobbin.

a is the butt of the bobbin.

a' is the neck in the butt. It has the tapering section  $a^2$ , extending outward from the butt to about the point  $a^3$ , and also the reverse tapering section  $a^4$ , extending from the base  $a^5$  of the conical section  $a^6$  of the butt to the point  $a^3$ . This reverse tapering section  $a^4$  is of a slighter angle than that of the tapering section  $a^2$ . Its purpose is to prevent the formation of an abrupt shoulder between the neck  $a'$  and the conical section  $a^6$ , so that there shall be no barrier to prevent the desired and unrestrained unwinding of the filling from the bobbin either by the shape of the bobbin or by the shape or position of the bobbin-holding springs or arms. This produces in the bobbin between its butt and the base of the conical section  $a^6$  a relatively wide and shallow neck as distinguished from a short and deep one, and to prevent the filling from riding outward in the neck the reverse tapering section  $a^4$  is provided with steps  $a^7$ , reversely arranged to the steps  $a^8$  upon the conical section  $a^6$ , these steps serving to hold the filling in the neck during the unwinding of the last portion thereof in the neck and to prevent its slipping in the neck during said final delivery or unwinding of the filling from the bobbin. A bobbin of this structure I have ascertained by practical experiment in a large number of automatic looms avoids the wastage which occurred with the bobbins having the old form of neck and which rendered them objectionable and the automatic feeding of filling expensive because of the loss occasioned by the waste.

The portion of the spindle beyond the stepped conical section  $a^6$  may have the narrow cylindrical enlargements  $a^9$  in lieu of annular curves as a means for preventing the filling from slipping on the bobbin.

Having thus fully described my invention, I claim and desire to secure by Letters Patent of the United States—

1. The bobbin herein described, the same having a butt provided with a shallow neck and a conical section  $a^6$  the outer part of which neck merges gradually into the said conical section  $a^6$  and has means for preventing the outward movement or slipping of the



filling in the neck while it is paying therefrom.

2. A bobbin having a butt provided with a shallow neck and a stepped conical section  
5  $a^6$ , the portion of the neck inclined from the conical section toward the butt having steps reversely arranged with respect to those of the conical section.

3. The improved bobbin herein described  
10 having a butt provided with a shallow neck and the stepped conical section  $a^6$ , the neck

merging gradually into the conical section and being reversely stepped with respect to the stepping of the said conical section, said bobbin also having circular enlargements 15 upon its extension from the said stepped conical section.

PHILIP H. BOLLMAN.

In presence of—

J. L. PERRIN,

C. J. LYON.