

(No Model.)

A. A. DAVIS.

BOBBIN.

No. 371,827.

Patented Oct. 18, 1887.

Fig. 1.

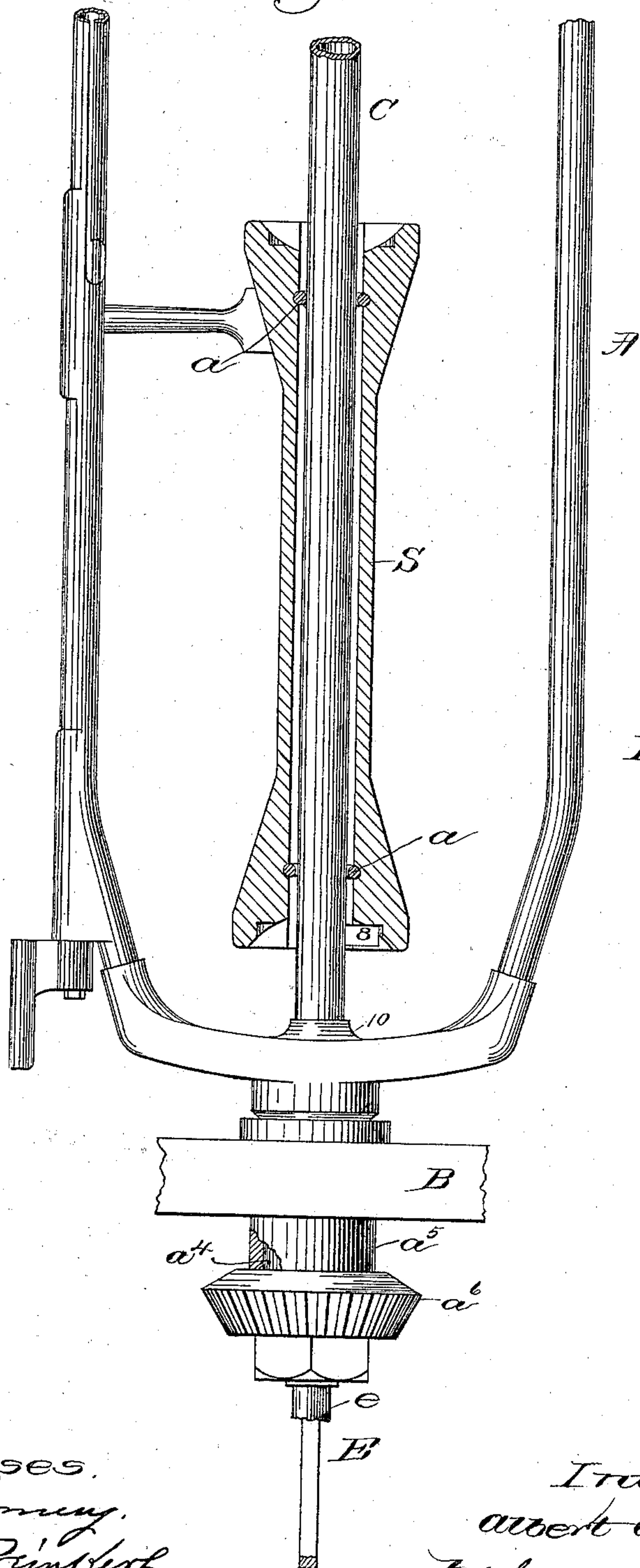


Fig. 2.

Witnesses.
John L. Conroy.
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Inventor.
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UNITED STATES PATENT OFFICE.

ALBERT A. DAVIS, OF LOWELL, ASSIGNOR OF THREE-FOURTHS TO GEORGE DRAPER & SONS, OF HOPEDALE, AND O. H. MOULTON, OF LOWELL, MASSACHUSETTS.

BOBBIN.

SPECIFICATION forming part of Letters Patent No. 371,827, dated October 18, 1887.

Application filed June 15, 1885. Serial No. 168,760. (No model.)

To all whom it may concern:

Be it known that I, ALBERT A. DAVIS, of Lowell, county of Middlesex, State of Massachusetts, have invented an Improvement in Bobbins, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

In fly and other roving frames the spools or bobbins surrounding the spindles or the quills within the fliers are reciprocated longitudinally with relation to the spindles, in order to place them in proper position with relation to the presser of the flier to have the twisted roving or yarn wound uniformly thereon.

The holes bored longitudinally in the spools or bobbins are just enough larger in diameter than the spindles or quills to let each spool or bobbin descend by gravity as the traverse mechanism is lowered.

Spools or bobbins frequently warp or twist, and sometimes they swell so that the holes made in them to receive the spindles or quills loosely are thrown out of true or become other than perfectly straight, and thereafter the spools or bobbins bind on the spindles or quills and fail to descend, as intended, by gravity, and being detained by friction or otherwise, the roving is destroyed. With certain forms of presser the head in which the eyelet is placed presses against the bobbin or the roving on it so hard while the bobbin is nearly empty and not heavy enough to follow down on the spindle as to cause the bobbin to stick and so spoil the roving.

Spools or bobbins which are warped or twisted so as to stick on the spindles or quills are either thrown away or are rebored or reamed out, the longitudinal or spindle-receiving openings being made true or straight and larger in order to enable them to be used, which is an expensive operation and injures the bobbins. To provide for this warping and twisting, surplus spools or bobbins are kept in store.

To obviate wasting and the reboring of spools or bobbins and to enable them to warp or twist to a limited extent without injuriously interfering with their operation, I have discovered that it is only necessary to bore the longitudinal hole of greater diameter than heretofore, or large enough to provide for the

average amount of warping or twisting without touching the spindle; but were only this done the spool or bobbin would not be up to the standard strength and would be so loose on the spindle that it could not be used; so to strengthen the bobbin and at the same time provide it with bearing-points which will come against the spindle and yet not be liable to be broken off and which cannot of themselves be changed by oil or moisture, I have provided each spool or bobbin with metallic rings or bearings which come in contact with the spindle, the inner diameter of the bearings being a little greater than the external diameter of the spindle, the bearings being of such size as to prevent the contact of the wood or other non-metallic spool or bobbin with the spindles, the bearings being convex in cross-section to enable them to preserve uniform contact with the spindle, even when the spool or bobbin twists or warps within the limits provided for, and having such a small true surface-contact with the spindles as to materially reduce the friction between them, so that any form of presser may be safely used.

Figure 1 shows a sufficient portion of a roving-frame to illustrate my invention, my improved bobbin or spool being shown in section, some of the parts being broken away to save room on the drawings, and Fig. 2 shows one of the bobbin-bearings removed.

The rail B, bolster a^5 , flier A, sleeve a^4 , gear a^6 , connected therewith and to drive the flier, the quill C, having the bushing 10, and the tubular shaft e to rotate it, and the flattened spindle E, having the projection 8, are all as in United States Patent No. 317,323, dated May 5, 1885, where like parts are designated by like letters.

The invention herein contained relates wholly to the spool or bobbin, and the other parts of the drawings are shown only to enable the invention to be more easily comprehended, it being understood that the bobbin or spool may, if desired, be employed in any fly-frame or speeder, it surrounding the spindle rather than a quill.

Spools or bobbins S of the class herein shown are composed of wood, a material which is liable to warp and twist out of true straight line and also to swell under the action of moisture, and in either event the spool or bobbin will

stick on the spindle and will not descend thereon by gravity when the device or projection which engages and rotates the spool or bobbin is lowered by the traverse mechanism, 5 and when the spool or bobbin sticks or fails to descend the roving is spoiled.

The spool or bobbin S, of wood, is bored longitudinally to receive the quill C, which is virtually a prolongation of the spindle, the bore 10 of the bobbin being, however, somewhat larger in diameter than the quill, so that under the average maximum warping or twisting the interior of the spool or bobbin will not come in contact with the quill extended through it.

15 The spool or bobbin near its upper and lower ends is provided with an annular seat to receive the metallic bearings *a a*, preferably made from wire bent to form rings with ends nearly touching, such construction providing 20 bearings which may be easily sprung into and removed from the spool or bobbin without the employment of bushings, the inner diameter of the bearings being less than the diameter of the bore in the bobbin and a little greater in 25 diameter than the quill; or such rings may be made solid.

A spool or bobbin provided with metal bearings to surround the quill, as stated, and to establish the effective bearings for the spool 30 or bobbin with relation to the quill or spindle, will never catch or stick on the quill or spindle and will never need re boring, as is the common practice with spools or bobbins now in common use, and will not cause the breaking 35 of the roving or yarn, as heretofore.

I do not claim a ring or wire sprung into a groove of a bobbin merely to strengthen it or to prevent it from being split.

40 I am aware that a bobbin has been provided at its inner side with wooden bushings, as in United States Patent No. 145,009, and that a

spool has been provided with inwardly-extended projections, as in United States Patent No. 79,687.

I do not broadly claim a bushing; but I am 45 not aware that, prior to my invention, a metallic bushing has ever been used in a bobbin or spool, as provided for in this my invention.

I am aware that a spool or bobbin has been provided internally with projecting bushings, 50 and at some distance therefrom but nearer the ends of the spool, with annular metallic spring-bearings of the same internal diameter as the bushings, as in patent to Ramsdell, No. 79,687, the said spool containing a packing between 55 its bushings, the bushings, bearings, and packing all coming in contact with the spindle; but I am not aware that, prior to my invention thereof, a spool or bobbin has been made which has a single bearing near each end and 60 at no other place, the interior surfaces of the said bearings being rounded and both being extended bodily into the bore of the bobbin or spool. Such construction allows the spool or bobbin to run freely on its support when 65 warped or twisted without binding.

I claim—

A wooden spool or bobbin grooved internally near its ends, combined with wire-like annular metallic spring-bearings fitted into 70 the said grooves, the interior surfaces of the said bearings projecting into the bore of the spool or bobbin and forming the only bearings for the spool or bobbin upon its spindle or other support. 75

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ALBERT A. DAVIS.

Witnesses:

ISAAC ALLARD,

ALBERT W. BRACKETT.