

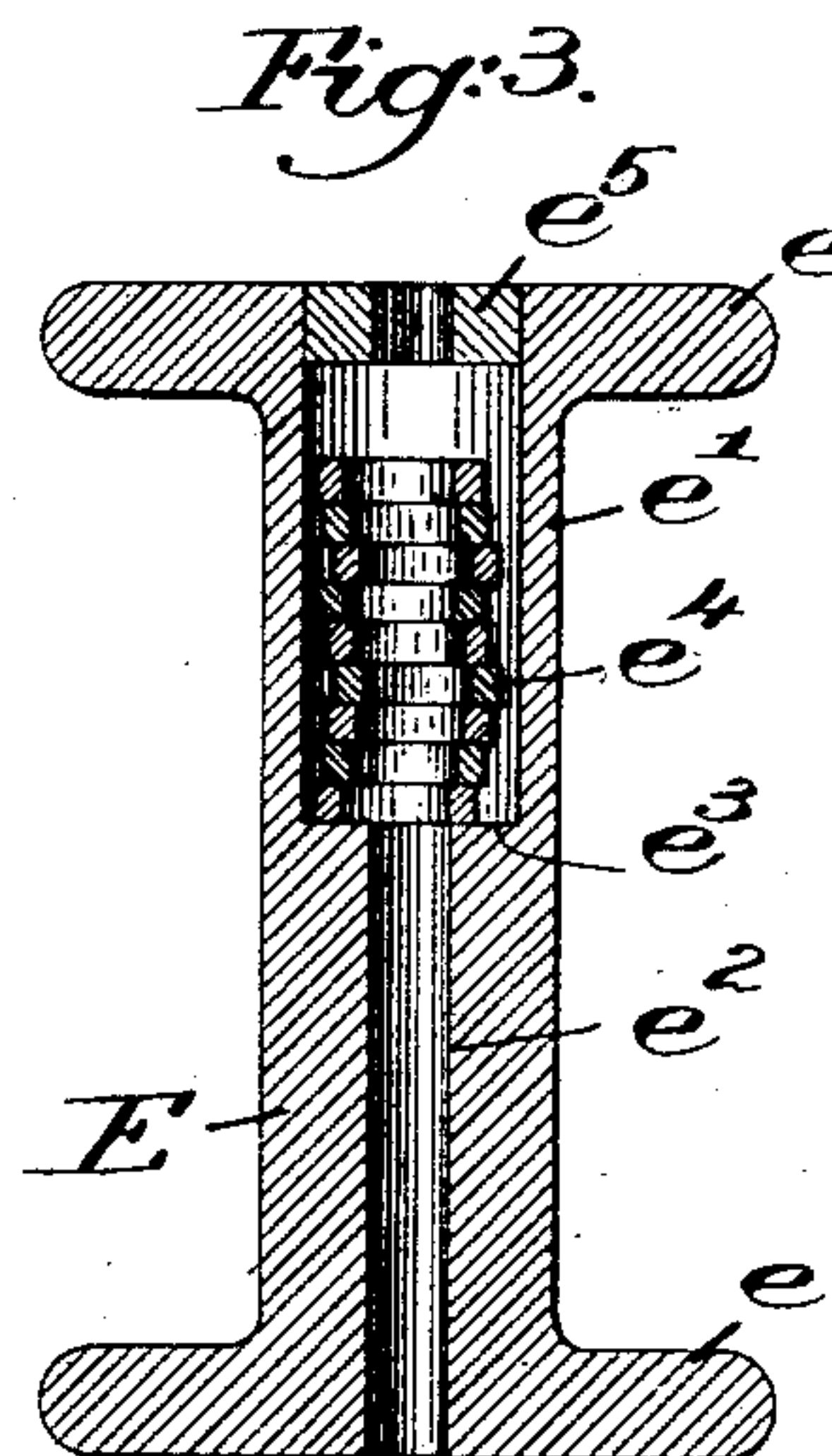
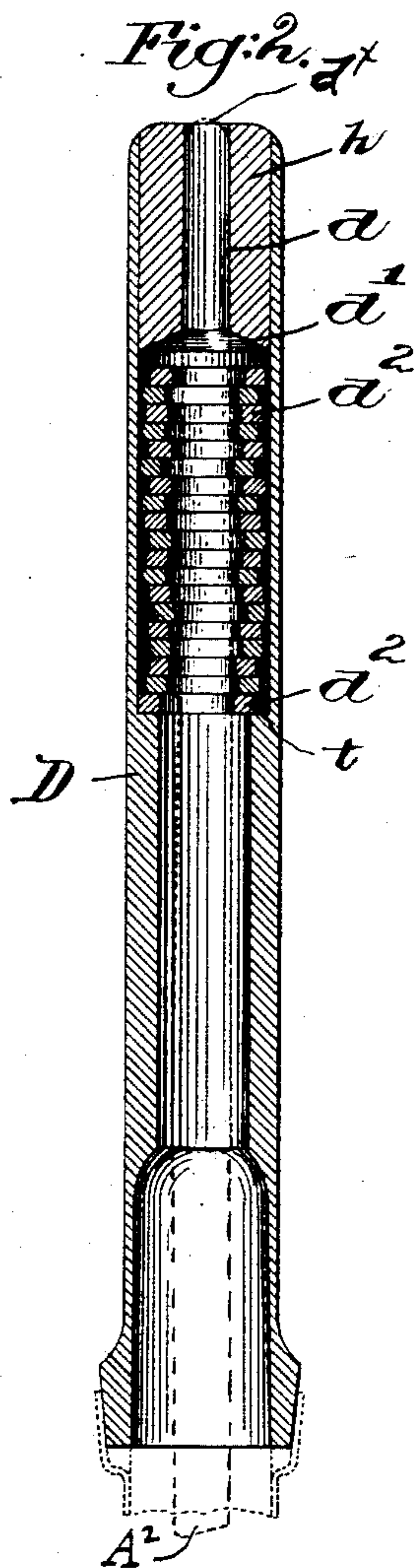
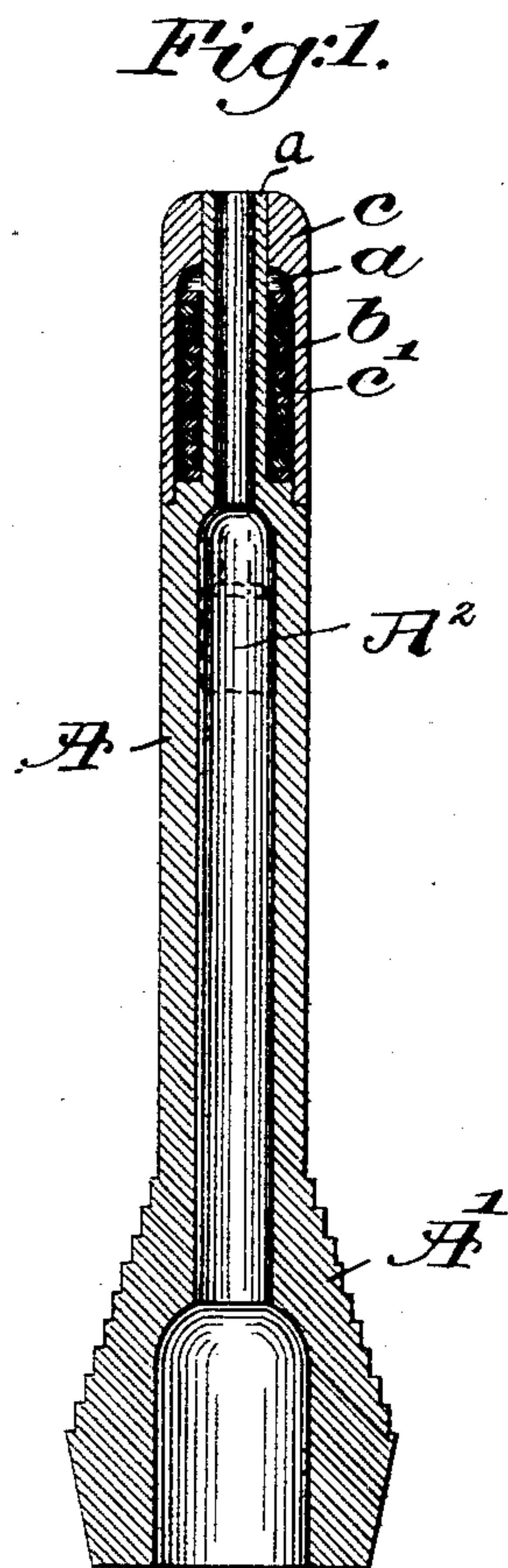
(No Model.)

G. W. KNIGHT.

THREAD RECEIVER FOR SPINNING AND TWISTING FRAMES.

No. 525,464.

Patented Sept. 4, 1894.



Witnesses.

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GEORGE W. KNIGHT, OF HOPEDALE, MASSACHUSETTS, ASSIGNOR TO
GEORGE DRAPER & SONS, OF SAME PLACE.

THREAD-RECEIVER FOR SPINNING AND TWISTING FRAMES.

SPECIFICATION forming part of Letters Patent No. 525,464, dated September 4, 1894.

Application filed February 8, 1894. Serial No. 499,443. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. KNIGHT, of Hopedale, county of Worcester, State of Massachusetts, have invented an Improvement in Thread-Receivers for Spinning and Twisting Frames, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

10 Inventors have for a long time aimed to provide improved bearings for spindles of spinning and twisting frames in order that such spindles may be run steadily at high speed and remain in substantially upright position to thus obviate injury to the thread or yarn being spun or twisted. I am aware, prior to my invention, that James H. Northrop has devised means to secure this desired steadiness in rotation, or freedom from trembling, such means being denominated as a load equalizer, said equalizer being adapted to shift automatically by or due to centrifugal force. In the specific form shown by said Northrop the load equalizer is carried by the spindle. My improvement differs from the construction of the said Northrop, inasmuch as I apply shifting weights to the bobbin, spool, or equivalent thread-receiver on which the yarn or thread is spun or wound instead of directly to the spindle. I in my invention attain substantially the same results, but in, as I consider, a better manner, as I consider it the more desirable to support the weights loosely by or through the bobbin, spool, or thread-receiver.

35 One part of my invention, therefore, consists in a bobbin or thread-receiver combined with a loose weight or weights carried thereby and adapted to shift or move laterally under the influence of centrifugal force developed by the rotation of the bobbin.

Other features of my invention will be hereinafter described and defined in the specification and claims.

45 Figure 1, in section, shows one form of bobbin for spinning machines, together with my improvement part of the spindle being shown by dotted lines. Fig. 2 shows a different form of bobbin or device upon which thread is wound as it is spun a part of the spindle being shown therein by dotted lines. Fig. 3

shows yet another modification of my invention.

Referring to Fig. 1, the bobbin A has a conical base A' of usual construction, and is bored out to surround the spindle A², shown partially in dotted lines Fig. 1, said spindle being constructed in the usual manner. My improved bobbin is, however, preferably somewhat reduced in diameter at or near its upper or tip end, so as to form a tubular portion *a*, about which I arrange one or more,—preferably a series,—of weights *b*, made as rings and preferably of metal, the rings being maintained upon the spindle by means of a suitable collar as *c* preferably chambered, so that a portion *c'* thereof may fit down over and inclose within it the said weights. In practice, these weights will be so applied to the bobbin that they may shift or change their position under centrifugal action, to thus counteract by their change of position unequal loading of the bobbin.

In the form in which I have shown my invention in Fig. 1, the holes made through the weights are of larger diameter than the reduced tubular extension *a* of the bobbin, but the particular shape of the weight, so long as it is borne by and adapted to move on the bobbin under the action of centrifugal force and thereby aid in counterbalancing any inequality of load on the bobbin or spindle, or any inequality of running of the spindle, is immaterial.

In the modification Fig. 2, D represents a different but well known form of bobbin or thread receiver, it having at its upper end a bore as *d*, to fit the blade *d'* of the spindle shown by dotted lines adhesively, and below said bore it has a chamber *d'* in which is placed a series of weights *d'* the same in character as those marked *b* in Fig. 1, the undermost weights of the series of weights *d'* resting upon a shoulder *t* at the bottom of said bobbin chamber, said chamber being shown as closed by a bushing *h*, the lower end of which constitutes an overlapping shoulder.

The shoulder *t* and the lower end of the bushing *h* serve to contract the chamber in the bobbin at bottom and top to a diameter less than that of the main body of the said chamber, so that if said bobbin is removed

from the spindle the weights will be contained in position in the chamber of the bobbin.

As the bobbin is put upon the spindle blade, the point of the latter will readily pass through the holes in the weights, and preferably the holes will be of such size as to present more or less looseness between the weights and the outside of the spindle, and there will also be looseness between the interior of the bobbin chamber and the peripheries of the weights. The weights will act if the holes through the center are so large that they will not contact at all with the spindle, provided they are loose in the chamber.

In Fig. 3 I have shown a spool E, it having two heads e and a chambered barrel e' , the said chamber having a smaller bore as e^2 to fit the spindle with which it is to co-operate. This spool has a shoulder at e^3 upon which rests the lowermost weight of the pile of weights e^4 , said weights being prevented from falling out of said chamber by a suitable bushing e^5 placed therein.

The weights e^4 operate as described of the weights d^2 and b , and these weights, more or less in number, are all, it will be noticed, carried by and removable with the bobbin or device upon which the thread is to be wound, and the weights are not connected to the spindle.

It will be obvious that my invention is applicable equally to any usual form of bobbin or spool upon which thread or yarn is wound, the said bobbin or device being carried by a high speed spindle, and therefore the said bobbin or spool of whatever form constitutes what I may denominate as a thread receiver, and by this latter term I intend, therefore, to include any usual bobbin or spool adapted to be put upon and rotated by a spindle, and whether the said thread receiver has one or two heads, or no head at all, and under the term "thread," I also intend to include yarn, and the thread or yarn may be of any usual kind or material.

The weight or weights carried by the bobbin or thread-receiver of whatever form constitute a load equalizer.

I am aware prior to my invention that a spindle has had applied to it adhesively a wooden sleeve provided at its upper end with

a notch adapted to engage the inner notched end of a plug inserted in the top of the bobbin surrounding said bushing loosely and adapted to move laterally with relation to said bushing and spindle as required by an unbalanced load, the bushing itself acting as a driver to the bobbin through the plug driven into the upper end of the bobbin. In my invention, however, the bobbin fits the spindle adhesively, is driven thereby, and the bobbin is not intended to move laterally on or with relation to its driving means, but on the contrary, the loose weights carried wholly by the bobbin shift freely thereon outside of the spindle and counterbalance in all directions any unequally balanced load.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A bobbin or thread-receiver, combined with a loose weight or weights carried thereby and adapted to shift or move laterally thereon in all directions under the influence of centrifugal force developed by the rotation of said bobbin or thread-receiver, for the purposes set forth.

2. The combination with a rotatable spindle, and a bobbin or thread-receiver mounted thereon and driven thereby adhesively, of a weight or weights carried by said bobbin or thread-receiver and adapted to shift laterally thereon automatically to counteract in all directions the influence of an unbalanced load, substantially as described.

3. A thread or yarn receiver bored to fit a spindle and to be rotated thereby, said receiver having a tubular extension and an external shoulder, combined with a series of weights surrounding said extension and adapted to be shifted in their position thereon by centrifugal force, said weights being carried wholly by said receiver and being removable therewith from the spindle, substantially as described.

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

GEORGE W. KNIGHT.

Witnesses:

E. D. BANCROFT,
LINCOLN WRIGHT.