March 24, 1925. 1,531,002

H. H. C. GRONDAHL

LOCKING DEVICE

Filed May 8, 1923

Fig. 1.

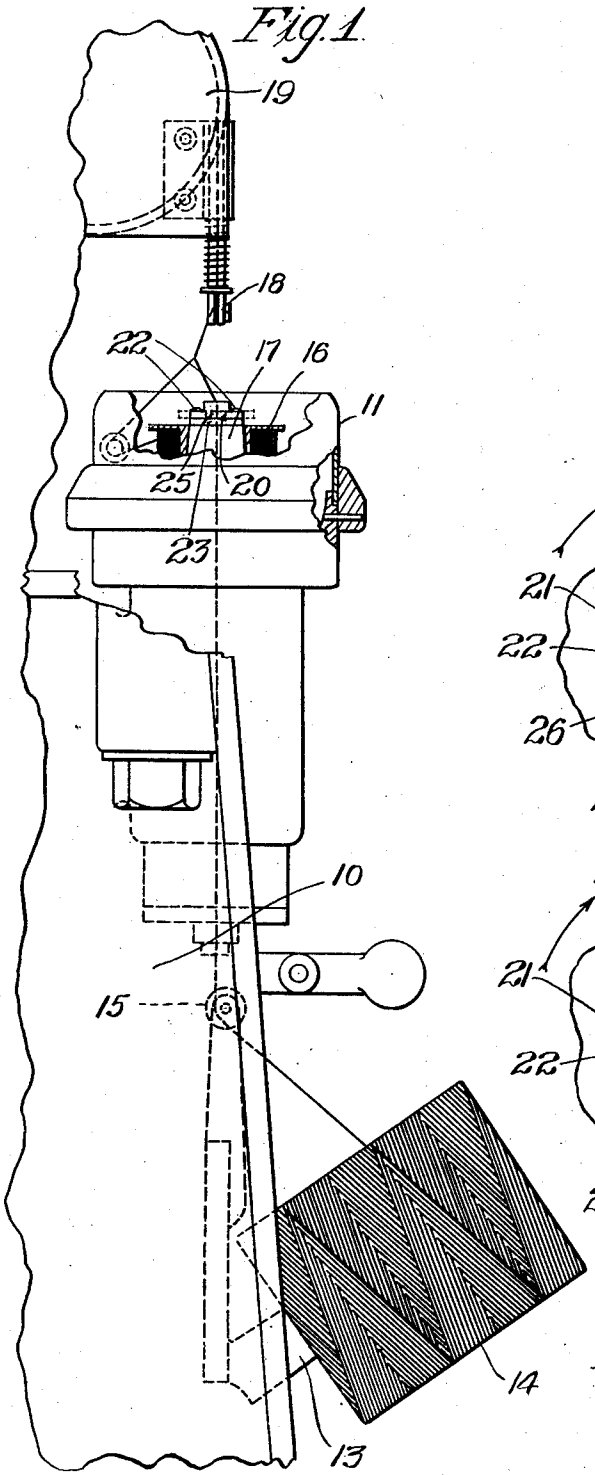


Fig. 2.

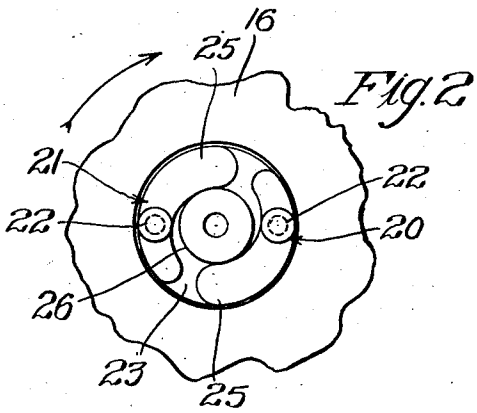
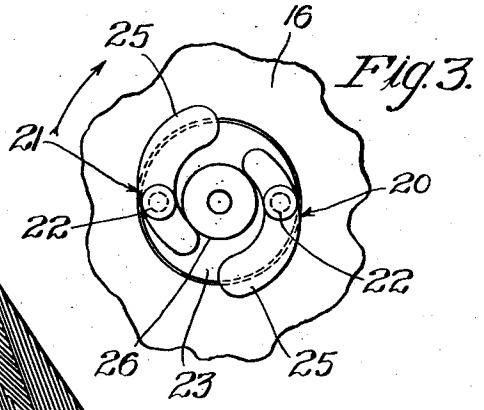


Fig. 3.



Inventor
Hans Henrik C. Grondahl
by H. A. Pattison.
Atty.

Patented Mar. 24, 1925. 1,531,002

UNITED STATES PATENT OFFICE.

HANS HENRIK C. GRONDAHL, OF CHICAGO, ILLINOIS, ASSIGNOR TO WESTERN ELECTRIC COMPANY, INCORPORATED, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

LOCKING DEVICE.

Application filed May 8, 1923. Serial No. 637,475.

To all whom it may concern:

Be it known that I, HANS HENRIK C. GRONDAHL, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Locking Devices, of which the following is a full, clear, concise, and exact description.

This invention relates to improvements in locking devices, and more particularly to such devices employed with serving, spinning, twisting, or similar spindles.

The object of the invention is to produce a locking device of this type which may be readily operated to permit the application of a spool or cop to or its removal from the spindle and which will be simple and inexpensive to manufacture.

Another object is to produce a locking device so designed that it may be applied to spindles now in use without reconstructing the same.

A still further object is to produce a locking device of this type which does not require any manual operation to dispose it in locking position and which performs its locking function responsive to centrifugal force due to the rotation of the spindle.

Other objects and advantages of the invention will more fully appear from the following description and will be particularly pointed out in the appended claims.

The accompanying drawings illustrate one embodiment of the invention and show it as applied to a tinsel serving machine.

In the drawings,

Fig. 1 is a fragmentary side elevation of a tinsel serving machine, part of the serving head being broken away to show the improved locking device applied to the serving spindle;

Figs. 2 and 3 are fragmentary and enlarged top plan views showing the locking device in its unlocked and locked positions respectively.

Referring now to the drawings in detail in which like reference numerals designate similar parts throughout the several views, 10 indicates the framework of a tinsel serving machine within which the serving head 11 is rotatably mounted, said head being driven by suitable gearing devices (not shown) connected with a source of power (not shown). Mounted upon the framework 10 is an inclined stud 13 adapted to support the supply cop 14 of the material to be served—in this instance a cotton strand. This strand is fed from the cop 14 through suitable tension devices indicated at 15 and through the serving head 11 where it is served with tinsel in the usual manner, said tinsel being supplied from a spool 16 rotatably mounted upon an arbor 17 carried by the serving head. From the serving head the cotton strand with its tinsel wrapping is drawn through a suitable guiding device 18 by a capstan 19 and then stored in the usual manner on a take-up spool (not shown).

The improved locking device comprises a pair of semi-circular arms 20 and 21 pivoted on studs 22 mounted in a circular cap-like member 23 suitably secured to the upper end of the arbor 17, the said studs 22 having their ends flattened to hold the arms in place upon the cap 23. Each of the arms is pivoted to its associated stud nearer one end than the other and a portion 25 of each arm is slightly enlarged so as to form a weight. A stop for the arms 20 and 21 while they are either in their normal or inoperative positions is provided by the vertical wall of a reduced circular portion 26 of the cap 23 as clearly shown in Figs. 2 and 3. In Fig. 2 the portions 25 of the arms are in engagement with the vertical wall of the portion 26, which positions the arms so that they normally lie wholly within the hub of the tinsel supply spool 16 whereby the said spool may be readily applied to or removed from the arbor 17 when said arms are in their normal and unlocked position. When the serving head 11 is in motion and has reached a speed less than that required to lift the tinsel spool 16 on the arbor, due to the centrifugal force of the head, the weighted portions 25 of the arms 20 and 21 will be thrown outwardly due to the centrifugal force caused by the rotation of the serving head 11 and will occupy the positions shown in Fig. 3 in which they are positioned over the upper face of the tinsel spool 16 and will prevent the said spool from being thrown upwardly off of its arbor 17. When the serving head 11 is brought to rest, the arms 20 and 21 will occupy the positions shown in Fig. 3, and to replace the tinsel spool it is merely necessary for the operator to press the portions 25 of the arms 20 and 21 inwardly until they engage the portion 26 of the cap 23. The arms 20 and 21 will then be disposed

within the hub of the tinsel spool 16 so that the said spool may be readily lifted free of the arbor 17.

As the arms 20 and 21 are thrown outward by centrifugal force and over the upper face of the spool 16, any movement upward of the spool on the arbor into engagement with the underside of the arms will tend to throw them further into a locking position.

What is claimed is:

1. The combination with a spindle upon which a spool may be mounted, of a locking member pivotally mounted to swing in a plane at right angles to the longitudinal axis of the spindle and so associated with said spindle as to be thrown by centrifugal force into a position to prevent the removal of the spool from the spindle.

2. The combination with a spindle upon which a spool may be mounted, of a locking member associated with said spindle as to normally be so positioned that it lies within the hub of the spool, and said member being so weighted as to be thrown by centrifugal force into a position to prevent the removal of the spool from the spindle.

3. The combination with a spindle upon which a spool may be mounted, of an arm pivotally mounted intermediate its ends to the upper end of said spindle, said member being so weighted as to be thrown by centrifugal force into a position wherein it engages a face of said spool to prevent removal thereof from the spindle.

4. The combination with a spindle having an arbor upon which a material supply may be mounted, of a locking member pivotally mounted to swing in a plane at right angles to the longitudinal axis of the arbor so associated with said arbor as to be thrown by centrifugal force into a position to prevent the removal of said material supply from the spindle.

5. The combination with a spindle having an arbor upon which a spool may be mounted, of a locking member so associated with said arbor as to be thrown by centrifugal force into a position wherein it engages a face of said spool to prevent removal thereof from the arbor.

6. The combination with a spindle having an arbor upon which a spool may be mounted, of a plurality of locking members pivotally mounted upon the upper end of said arbor in such manner as to be thrown by centrifugal force into a position wherein it engages a face of said spool to prevent removal thereof from said arbor.

7. The combination with a spindle upon which a spool may be mounted, of a plurality of members associated with said spindle as to normally be so positioned that they lie within the hub of the spool, said members being so weighted as to be thrown by centrifugal force into a position above a transverse face of said spool.

8. The combination with a spindle having an arbor upon which a spool may be mounted, of a plurality of members pivotally mounted upon the upper end of the arbor, said members so shaped as to normally lie within the hub of the spool, and so weighted as to be thrown by centrifugal force into a position over a transverse face of said spool.

9. The combination with a tinsel serving spindle having an arbor upon which a supply spool of tinsel may be mounted, of a plurality of locking members pivotally mounted upon the upper end of said arbor and normally disposed within the hub of said spool, said members being so weighted as to be thrown by centrifugal force into a position over the upper face of said spool to prevent its removal from the arbor.

10. The combination with a vertically disposed spindle upon which a spool may be mounted, of a locking member pivotally mounted on the spindle and so weighted as to be thrown by centrifugal force into a position wherein it engages the upper end surface of the spool to prevent removal thereof from the spindle.

In witness whereof, I hereunto subscribe my name this 28 day of April A. D., 1923.

HANS HENRIK C. GRONDAHL.