E. W. COOPER.

MACHINE FOR COVERING WIRE, CORD, ELASTIC, AND THE LIKE.

APPLICATION FILED APR. 7, 1915.

1,165,495. Patented Dec. 28, 1915.

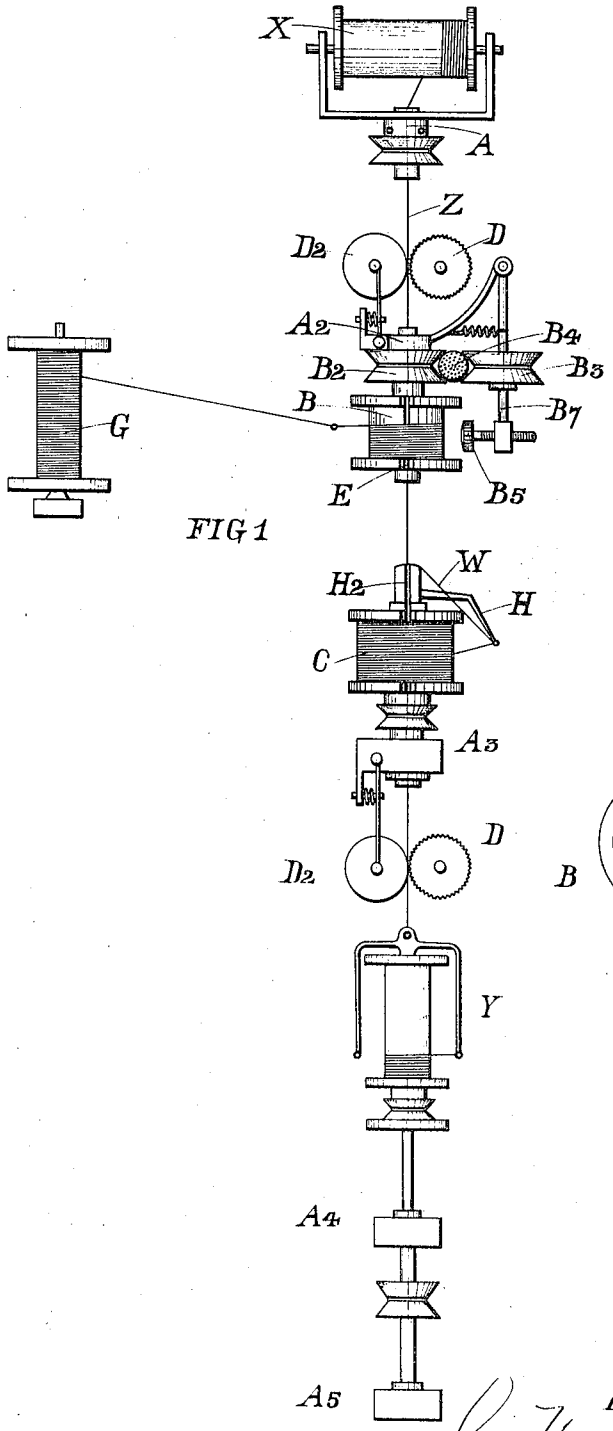


FIG 1

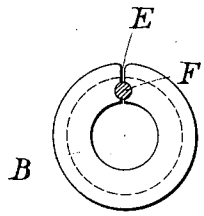


FIG 2

INVENTOR:

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UNITED STATES PATENT OFFICE.

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MACHINE FOR COVERING WIRE, CORD, ELASTIC, AND THE LIKE.

1,165,495. Specification of Letters Patent. Patented Dec. 28, 1915.

Application filed April 7, 1915. Serial No. 19,750.

To all whom it may concern:

Be it known that I, EDWARD WARD COOPER, a subject of the King of Great Britain, residing at Coventry, in the county of Warwick, England, have invented certain new and useful Improvements in Machines for Covering Wire, Cord, Elastic, and the like, of which the following is a specification.

This invention relates to machines for covering wire, cord, elastic, and the like, of the kind in which the wire, etc., commonly termed the "gut," is fed through the center of the bobbin on which the covering material is wound. This bobbin revolves, and by the aid of a flier it covers the gut. An obvious difficulty experienced with this process is that the length of gut which can be dealt with is dependent upon the capacity of the bobbin so that when a bobbin is empty the gut has to be cut and joined up again after a new full bobbin is put in place. Previously a number of bobbins have been used in succession, and as soon as one bobbin was empty it was destroyed. Or split bobbins were used, which could be removed when empty without damaging the gut. Even in such cases the length treated depends on the number and size of the bobbins.

By the present invention an indefinite length of gut is covered without the empty bobbins having to be destroyed.

According to this invention, the desired result is effected by using two bobbins of a known type which can be removed from the gut without cutting through the gut or destroying the bobbin, and I fill one while the gut is passing through it and being covered from the other bobbin. Thus when the covering bobbin is empty it is removed, and the first mentioned bobbin, which has previously been filling, is moved along the gut into the position previously occupied by the empty bobbin. The empty bobbin is put in place of the one just filled and the machine again set going so that it is refilled. Preferably special feeding mechanism is employed.

In the accompanying drawings, Figure 1 is a diagram showing part of a machine operating in accordance with this invention. Fig. 2 is a plan view of one form of bobbin which may be used.

Like letters indicate like parts in both views.

In Fig. 1 is shown a number of horizontal frame members A A^2 A^3 A^4 A^5 which form part of the frame of the machine, the greater part of which is omitted for the sake of clearness. Of these, the part A^2 provides a bearing for a sleeve on which the bobbin B which is being filled is mounted. The frame member A^3 carries a bearing for the covering bobbin C, and both bobbins are driven by belt or other gearing in any suitable manner. Thus the bobbin B is secured to a belt pulley B^2, between which and a second pulley B^3 runs in a horizontal plane a belt or endless band B^4 shown in section. The pulley B^3 is mounted upon a finger B^7 drawn toward the pulley B^2 by a spring. The lower end of this finger carries a set screw B^5. When the filling bobbin B is full the material on the bobbin bears against the set screw B^5 and pushes the pulley B^3 aside with a consequence that the belt B^4 ceases to drive the pulley B^2. The gut Z passes through the center of both bobbins B and C, and above the filling bobbin and below the covering bobbin the gut is engaged by feeding rollers D and D^2. The axes of these are at right angles to the gut, and the gut is gripped in each case between a driven roughened feeding roller D and a spring mounted feeding roller D^2. Thus a suitable length of gut under control is separated from the rest and the covering is effected between these two pairs of feeding rollers. In some cases, as when india rubber is being covered, the feeding rollers rotate at different speeds, so as to stretch the gut slightly.

The gut Z is shown as being supplied from a roller X and the finished material is wound on to a roller or drum Y. The material W from the covering bobbin C is wound on to the gut. This takes place at about midway between the two sets of rollers D and D^2.

The bobbins B and C are of such a nature that they can be removed from the gut. For instance, each may have a radial cut E Fig. 2 so that it can be threaded radially on to the gut, or they may be made in sections. Where a radial cut is used the incision E is supported by a plug F or wedge during covering, to prevent the cut closing up.

During normal operations of the machine the upper bobbin B would be taking on the covering material from one or more supply bobbins G. The lower bobbin C would be wrapping the gut Z, which would be slowly fed through the center of the bobbins. When the covering bobbin C is empty the

machine or any individual spindle would be stopped and the position of the bobbins interchanged.

Thus when the bobbin C is empty its plug F is pulled out and the bobbin moved radially away from the gut. The bobbin B is then lowered into the position of the bobbin C, and the latter takes the place of the upper bobbin, and is refilled. The machine or spindle could then be started up and the empty bobbin filled from the supply bobbin G in a manner which will be readily understood.

An important feature is that the gut does not require to be bent inasmuch as two or more feeding devices are used. This is important in covering wire, as two or more strands of wire can be twisted at the same time as it is being covered. The speeds of the feeding devices may be different in the two cases so as to give any required stretch, which is used in covering rubber. The two rollers X and Y may revolve or not as required. When they revolve a twist is put into the gut and then taken out again. If revolved at different speeds a certain amount of twist can be left in the gut. The speeds of feed are varied to give the desired stretch in covering rubber.

Obviously any bobbin easily removable from the gut may be used, but the radially cut bobbin illustrated is preferred.

It will be clear that the flier H used in conjunction with the covering bobbin must also be split radially as shown at H^2, or be otherwise made so that it can be removed.

What I claim as my invention, and desire to secure by Letters Patent of the United States is:—

1. In a machine for covering wire, cord, or elastic, the combination of means for feeding a length of gut, a radially split covering bobbin mounted to rotate around said gut, a radially split filling bobbin mounted to rotate around said gut, a bobbin supplying said filling bobbin, said filling and said covering bobbins being interchangeable without cutting said gut, and means for refilling the filling bobbin while the gut covering operation is proceeding, substantially as set forth.

2. In a machine for covering wire, cord, or elastic, the combination of means for feeding a length of gut, a pair of feeding rollers near one end of said gut, another pair of feeding rollers near the other end of said gut, a radially split covering bobbin through which said gut passes which is removable without cutting said gut, a radially cut filling bobbin mounted around said gut, a bobbin supplying said filling bobbin while the wire covering operation is proceeding, said filling and said covering bobbins being interchangeable without cutting said gut, substantially as set forth.

3. In a machine for covering wire, cord, or elastic, the combination of a radially split covering bobbin, means for feeding gut through said bobbin, a radially cut filling bobbin mounted around said gut, a bobbin supplying said filling bobbin, said filling bobbin and said covering bobbin being interchangeable without cutting said gut, a belt pulley on said filling bobbin, a belt bearing against the edge of said pulley, a gripping pulley pressed against said belt, means on said filling bobbin engaged by the material which removes said pressure when said bobbin is full, substantially as set forth.

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

EDWARD WARD COOPER

Witnesses:

EDGAR TERRELL,

JAMES EDWARD SEXTON.