

No. 760,896.

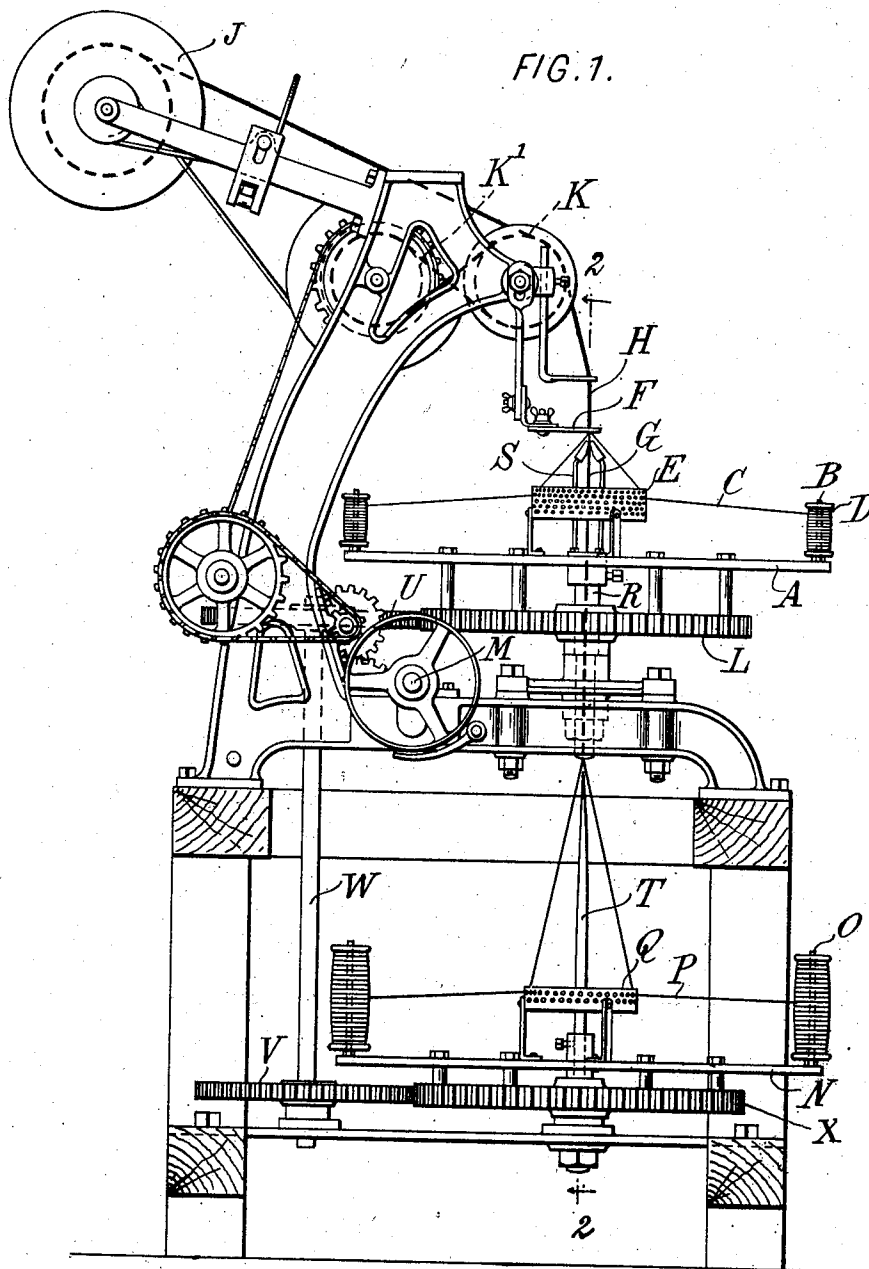
PATENTED MAY 24, 1904.

W. MEYER.
MACHINE FOR MAKING COVERED CORD.

APPLICATION FILED FEB. 18, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



WITNESSES:

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NO MODEL.

2 SHEETS—SHEET 2.

FIG. 2.

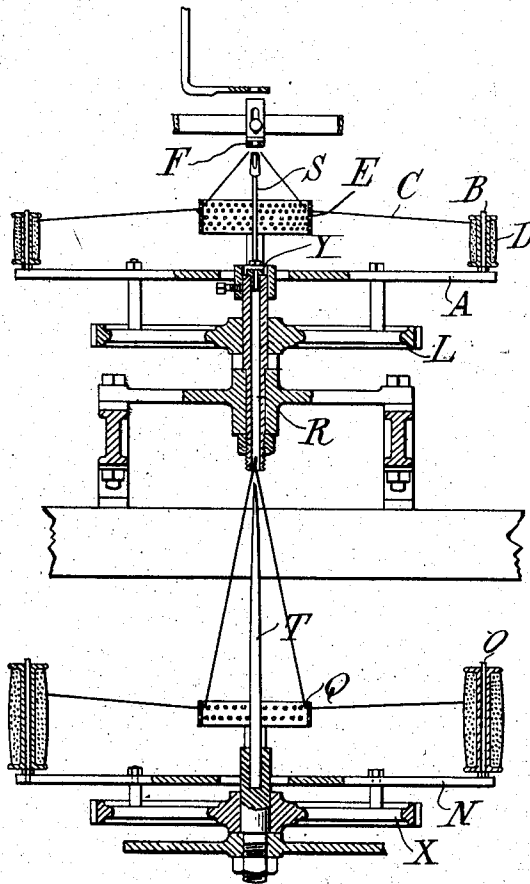
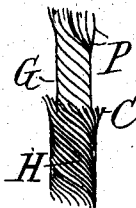


FIG. 3.



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MACHINE FOR MAKING COVERED CORD.

SPECIFICATION forming part of Letters Patent No. 760,896, dated May 24, 1904.

Application filed February 16, 1903. Serial No. 143,504. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM MEYER, a citizen of the United States, residing in the borough of Manhattan, city, county, and State of New York, have invented certain new and useful Improvements in Machines for Making Covered Cord, of which the following is a specification.

In making heavy covered cord consisting of a core formed of numerous cotton threads twisted together and covered with silk, such as is used in connection with heavy curtains and the like, it is customary to form the thick soft core by drawing out numerous cotton threads to as great a length as possible, depending on the space available, twisting them into a core, winding on a reel to prevent untwisting, and then drawing the core off this reel through the silk-covering machine, where the silk is applied. This requires a large space and involves a great deal of time in the laying out of the cotton threads and twisting them and in winding the core on a reel only to unwind it again. Especially it involves a disadvantage in that the amount of twist given to the core is very variable. Also by reason of the intermediate steps between the forming of the core and the feeding of it to the covering-machine a greater or less amount of the twist is apt to be lost, again producing irregularity in the result. By my invention I eliminate the extra time and labor of forming the cotton core, and I also insure an even twist of the core throughout its length, and which is preferably controllable, so as to adapt it perfectly to the twist of the covering-threads, so that the latter lie evenly on the former, producing a smoother cord and one in which the silk threads are not as readily displaced to betray the cotton cord beneath, as is the case with cord covered by the ordinary method.

Referring to the accompanying drawings, illustrating a machine embodying the invention, Figure 1 is a side elevation of a complete machine. Fig. 2 is a longitudinal central section on the line 2 2 of Fig. 1, omitting the central cord. Fig. 3 shows a finished

cord with the silk covering stripped from the upper portion.

The machine of my invention includes devices for winding covering-threads, such as the silk threads referred to, about a core, in combination with means for twisting numerous core-threads to form a thick soft core and feeding the core directly and continuously as it is formed from the twisting means into the covering-threads, the twisting means being operatively connected to the covering devices so as to rotate therewith. Preferably the two mechanisms operate synchronously, so as to give an absolutely even twist to the core and the covering threads to cause the latter to lie evenly on the former and produce a smoother and more durable effect than with former mechanisms.

The manufacture of small cord having a core formed of only a few threads tightly twisted together has been known for a long time; but when a thicker cord of numerous threads, such as is indicated in Fig. 3, is to be formed the difficulties in the way of guiding and forming them into a soft thick and yet smooth core have been so great as to necessitate the employment of the expensive and irregular method above referred to.

Referring to the embodiment illustrated, A is a plate carrying a number of spindles B for the covering-thread bobbins, only two of these spindles being illustrated. The covering-thread C runs from spools D through eyes in a cylindrical guide-plate E up to a guide-plate F for the finished cord, immediately below which the covering-threads meet around the core G. The finished cord H is drawn out in any suitable manner—as, for example, on the usual reel J, passing backward and forward over usual intermediate grooved rollers K K' for smoothing the cord. The reel J is continuously rotated by any suitable mechanism, a common type of such mechanism being shown, and simultaneously the plate A is rotated by means of a gear L, driven by any suitable intermediate means from the main shaft M.

The mechanism shown is well known, and therefore I have not illustrated it in any great detail.

The mechanism for forming the core is arranged below the mechanism just described. It comprises a horizontal rotating plate carrying numerous spindles for the bobbins, which plate constantly rotates to twist the threads, a central pin extending approximately to the meeting-point of the several threads to guide the same and form an even regular core, the core being drawn out centrally of the plate, as by means of the driven reel J. The spindle-carrying plate N and spindles O are similar to those for the covering-thread, except in size, and the core-threads P are guided by a similar perforated cylinder Q. The plate carries a number of spindles, as above stated, all but two being omitted for the sake of clearness. The cylinder Q is provided with numerous perforations to guide the threads from the numerous bobbins on the plate. From the guide Q the core-threads converge to the lower end of a central fixed tube R, through which they are led into the covering-threads at the meeting-point of the latter. The usual or other suitable guides S for the core are provided at the upper end of the tube R adjacent to the meeting-point of the covering-threads. A central pin T is provided, having a pointed upper end extending approximately to the meeting-point of the threads to guide the same and prevent the formation of an irregular cord, which might otherwise be caused by the slightly-varying tension on the threads of the different spools. The interposition of the pin T causes the tighter threads to be twisted around in a circular direction instead of cutting across somewhat diametrically from one point to another, a point distinctively of value in making a soft core of numerous loosely-twisted threads.

Any suitable mechanism may be used for driving the plate N. Preferably this plate is driven synchronously with the plate A for the reasons explained, and a simple mechanism for connecting the two plates to move synchronously comprises a pair of pinions U V on a vertical shaft W, the upper pinion U engaging the gear L and the lower pinion V engaging the gear X, which is connected to the lower plate N, and the pinions and gears having, respectively, the same number of teeth.

The finished cord is shown in Fig. 3 with the covering H of the silk threads C stripped from a portion of the core G of coarser cotton threads P. This figure indicates the composition of the thick core and the exact parallelism of the core-threads and covering-threads which may be secured by my improved machine.

The guide Q is placed low, as near the plate

as convenient and within the core-thread bobbins, so as to direct the threads in a nearly-vertical line into the lower end of the tube R, thus minimizing the tension on the threads and reducing their liability to be drawn diametrically through the core instead of being twisted around the same and contributing to the regularity and softness of the core and also maintaining the direction of the threads at their converging point uniform for all the individual threads and throughout the length of the core in spite of the variation of the heights at which they are drawn from their several bobbins. This arrangement, in connection with the pin T, makes it possible to form a soft even core of a very large number of threads, as great as the number of holes in a horizontal row of the guide Q, rapidly and without tangling or other interruption. The tube R being open at its lower end admits the core freely and without excess of strain on any of the threads which might draw one tighter than the others, and so spoil the shape and smoothness of the core. Being stationary it insures that the twisted core shall be substantially completely formed at the lower end of the tube. A thimble Y is preferably introduced at any suitable point—as, for example, at the upper end of the tube R—fitting the core closely to smooth down the rough places before the covering-threads are applied. In making a cord with such a loose soft core as is desired, with very little twist as compared with that needed for rope or hard cord, the stationary tube and thimble have been found most effective in insuring a uniform product of exactly the amount of twist necessary. In fact, it is found that this arrangement gives results quite as good as the system of handwork formerly universal, as I believe, in this field. The product of my entirely automatic mechanism is fully equal to that of the best handwork or combined hand and machine work.

Though I have described an apparatus embodying my invention with sufficient detail to enable one skilled in the art to make or use the apparatus, yet it is to be understood that the invention is not limited to the specific machine shown. Various modifications thereof in detail and in the arrangement and combination of the parts may be made by those skilled in the art without departure from the invention.

What I claim is—

In a machine for making thick covered cord consisting of a soft core formed of numerous core-threads loosely twisted together and covered with covering-threads, the combination with devices for winding covering-threads about a core, of a horizontal rotating plate N carrying numerous spindles for core-thread bobbins, a stationary central vertical tube R

open at its lower end and through which the
core is drawn, a guide rotating with and ad-
jacent to said plate and within the bobbin-
spindles thereon for guiding the core-threads
5 to said tube in a nearly-vertical direction and
substantially without tension, a central pin T
extending nearly to the mouth of said tube to
guide said threads and form an even regular
core, and means for feeding said core directly

and continuously as it is formed into said cov- 10
ering-threads.

In witness whereof I have hereunto signed
my name in the presence of two subscribing
witnesses.

WILLIAM MEYER.

Witnesses:

THOMAS F. WALLACE,
FRED WHITE.