(No Model.) 4 Sheets—Sheet 1.

P. & W. DEISSLER.

MACHINE FOR COVERING FIBROUS OR METAL CORES.

No. 540,048. Patented May 28, 1895.

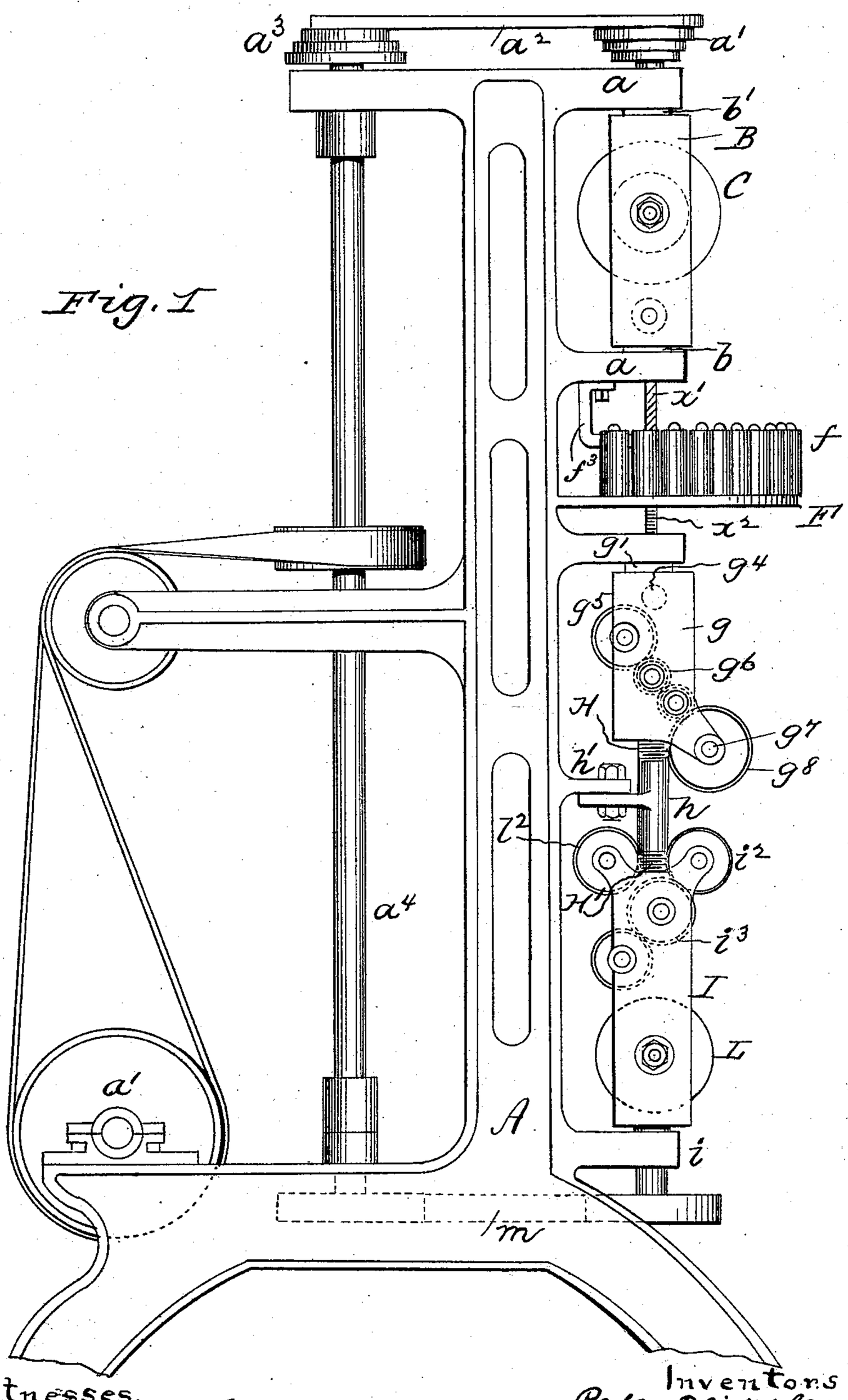

Fig. 1

Witnesses.
Homer A. Hebert
Wm A. Corbin

Inventors
Peter Deissler
William Deissler
By S. J. Vandaworker atty.

(No Model.) 4 Sheets—Sheet 2.

P. & W. DEISSLER.

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Fig. 2.

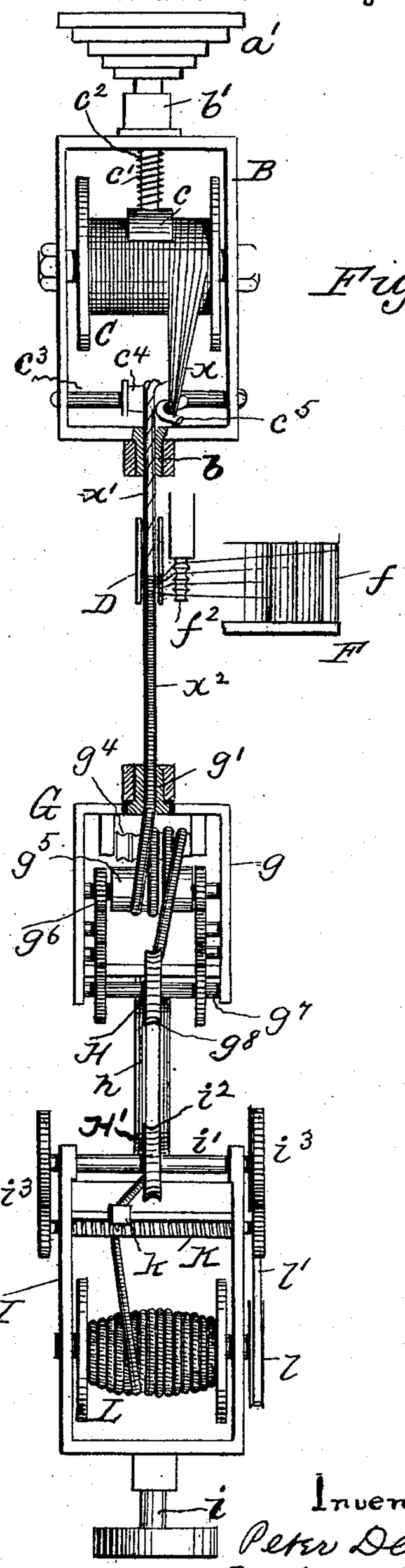


Fig. 3.

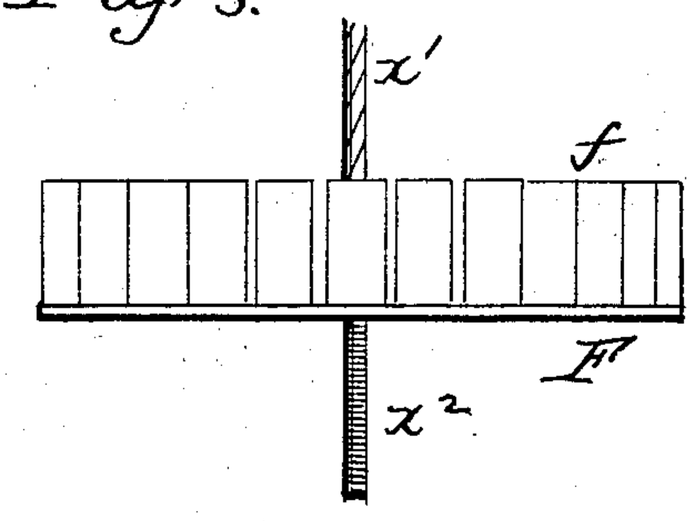
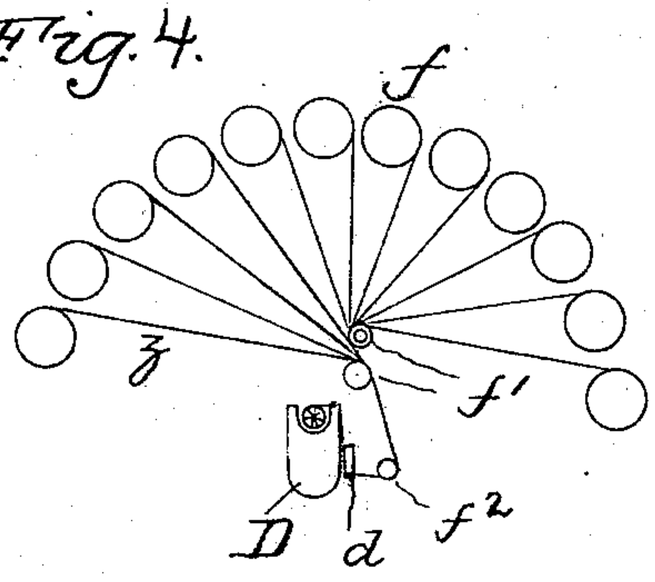


Fig. 4.



Witnesses.
Homer A. Hers.
Wm. A. Corbin

Inventors
Peter Deissler
William Deissler
By S. J. VanStavoren
attorney

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P. & W. DEISSLER.

MACHINE FOR COVERING FIBROUS OR METAL CORES.

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Fig. 6

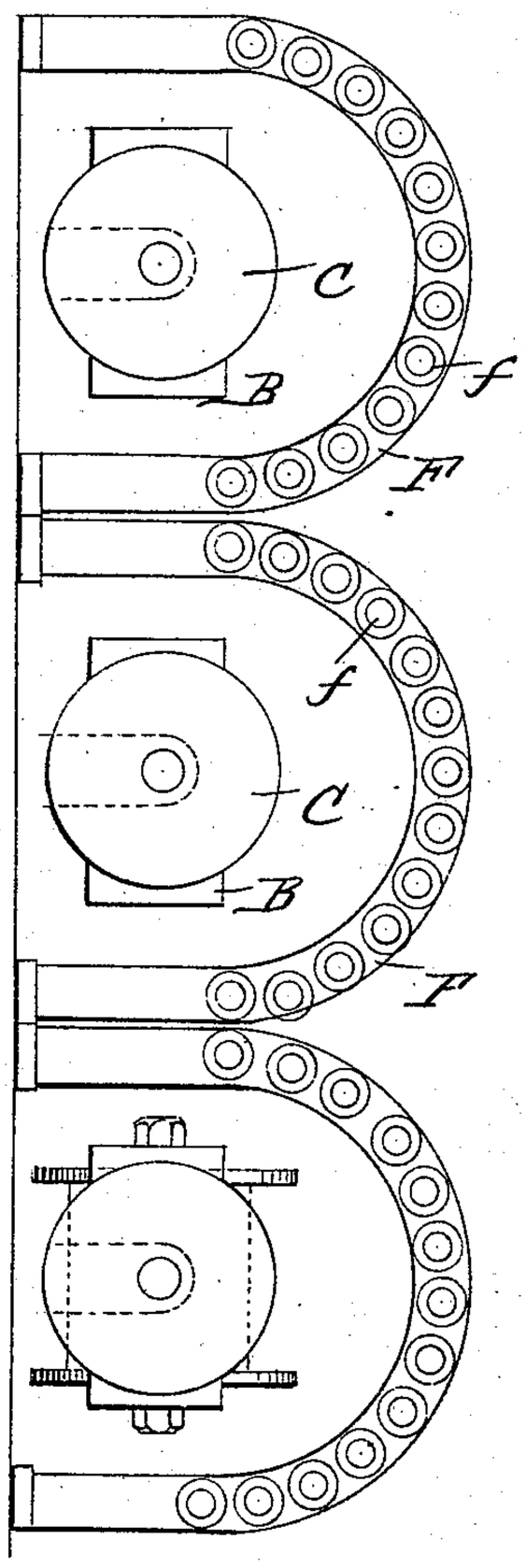
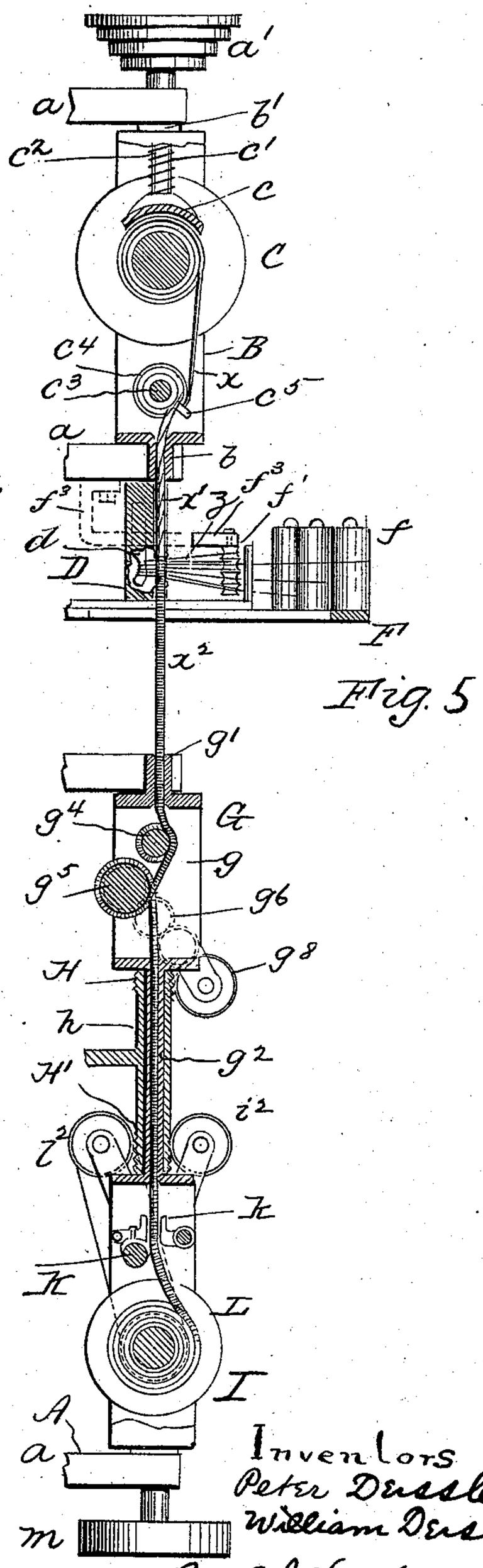


Fig. 5



Witnesses.
Homer A. Herr.
Wm A Corbin

Inventors
Peter Deissler
William Deissler
By J. J. Vanstavoren
attorney

(No Model.) 4 Sheets—Sheet 4.

P. & W. DEISSLER.

MACHINE FOR COVERING FIBROUS OR METAL CORES.

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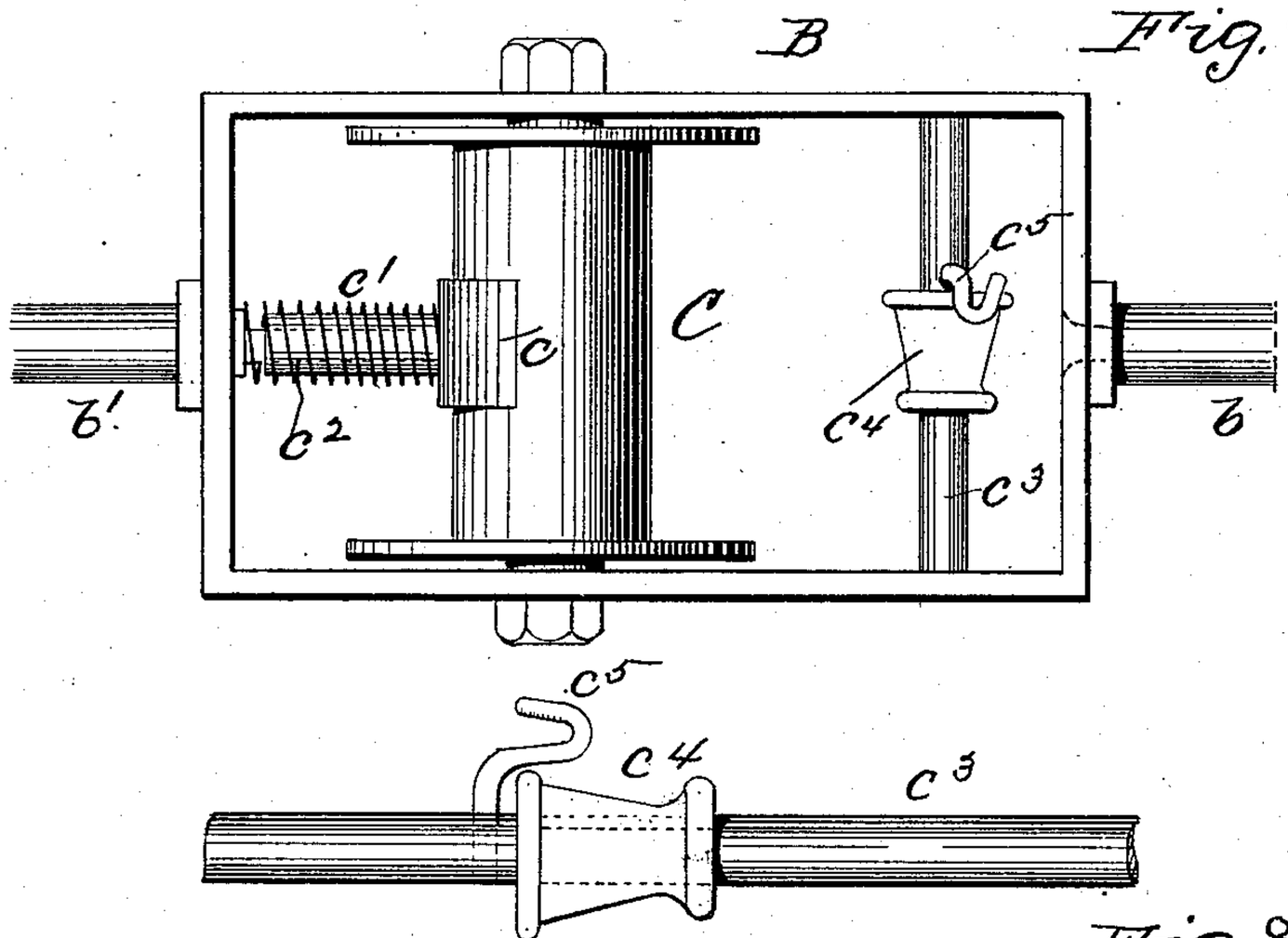

Fig. 7

Fig. 8

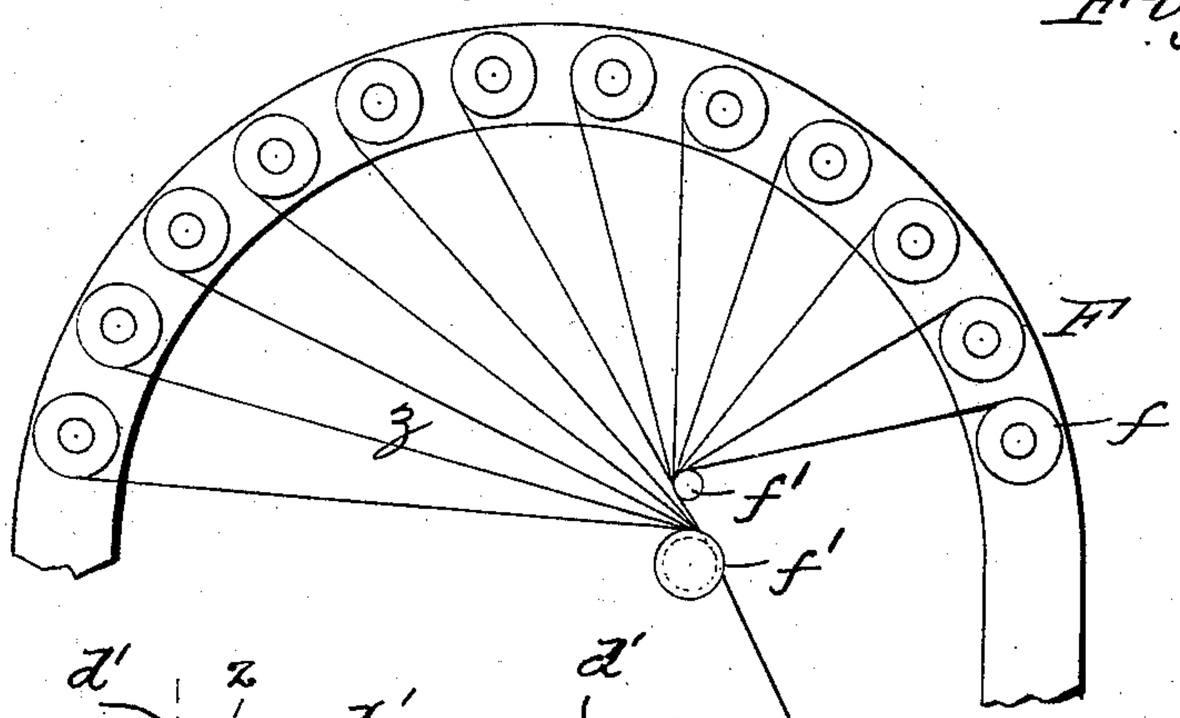

Fig. 9

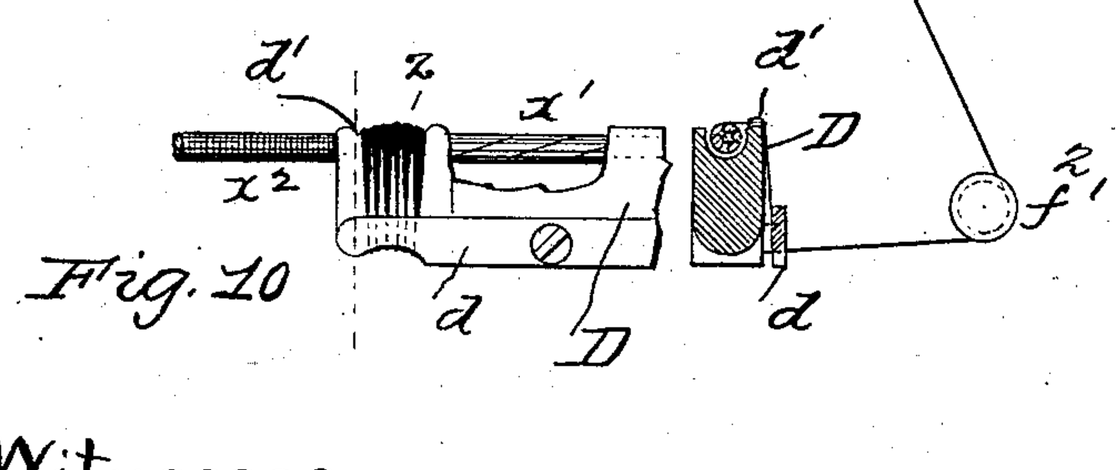

Fig. 10

Witnesses.
Homer A. Hoeer
Wm A Corbin

Inventors
Peter Deissler
William Deissler
By A. J. VanSteenbergen
attorney

UNITED STATES PATENT OFFICE.

PETER DEISSLER AND WILLIAM DEISSLER, OF PHILADELPHIA, PENNSYLVANIA.

MACHINE FOR COVERING FIBROUS OR METAL CORES.

SPECIFICATION forming part of Letters Patent No. 540,048, dated May 28, 1895.

Application filed May 17, 1892. Serial No. 433,364. (No model.)

To all whom it may concern:

Be it known that we, PETER DEISSLER and WILLIAM DEISSLER, citizens of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Machines for Covering Fibrous or Metal Cores; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention has relation to covering cores of fiber or metal with suitable material such as making gimps, cords or other like articles; and it has for its object a simple and efficient machine for covering the cores or material to be operated on, which admits of economically producing a better and more even article and a greater output than heretofore, and by means of which a large variety of different kinds of goods can be turned out by one or the same machine.

Our invention accordingly consists of the combinations, construction, and arrangement of parts, as hereinafter more particularly set forth in the specification and pointed out in the claims.

Reference is had to the accompanying drawings, wherein—

Figure 1 is an end elevation of a gimping-machine embodying our improvements. Fig. 2 is a sectional front elevation of part of the machine, showing the operation of gimping. Fig. 3 is an elevation of the thread or bobbin holder for the core-cover threads, detached from the machine. Fig. 4 is a plan of such spools or bobbins with a form of guide-rolls or appurtenances conducting the threads on the bobbins or spool to the contractor or the core-guide. Fig. 5 is a transverse vertical section; Fig. 6, a partial plan. Fig. 7 is a plan, drawn to an enlarged scale, of the core or warp spool-holding frame, with tension device for the core and guide-hook and roller for preventing the twist in the warp or core passing back to the threads or the core on the bobbin, said warp spool-holder being detached from the machine. Fig. 8 is an elevation of said guide-hook and roller detached from said warp-spool-holding frame. Fig. 9 is a view similar to Fig. 4 drawn to an enlarged scale and partly sectional. Fig. 10 is a partial side elevation of the core-guide, partly broken away, and showing more plainly the contractor thereon for the cover-threads for the core.

In the drawings, the twisting, covering, feed-regulating and take-up mechanism are shown arranged in a vertical position in a housing or frame A, a preferable form, on account of compactness, ease of handling by and less liability of danger to the operator, and ease of motion for obtaining higher speed of said parts. If desired, however, said parts may be horizontally or otherwise arranged as desired.

The core or warp spool frame B, as shown more plainly in Figs. 2, 5 and 7, has tubular journals b and b' mounted in brackets a a at the top of the frame A; the upper journal b' of which has, as shown, a cone pulley and belt connection a' and a^2 respectively, with a like pulley a^3 on a driving- or counter-shaft a^4.

Suitably mounted in frame B so as to be readily detached therefrom is the warp or core spool C having a reciprocating tension plate c with actuating spring c' surrounding the rod c^2 which passes through the tubular shaft or journal b'. The tension-plate c bears directly on the warp core or threads preferably, and its action is direct so that it prevents the warp or core threads passing off of the bobbin C faster than the take-up of the finished product, as hereinafter described, and thereby avoid imperfection in the formation of the goods.

In the form of tension device in the drawings, variation in spring-pressure is obtained by substituting springs of varying strengths on the rod or stem c^2.

Beneath the bobbin or spool C on frame B is a rod c^3 upon which is loosely mounted a guide-roller c^4 and a fixed hook c^5. The roller c^4 preferably has end flanges or is grooved, and the hook c^5 is in line with and projects within or over part of the groove or one end of the roller as shown, so as to contract and guide the warp threads or core x from spool C to the roller c^4 around which they pass once and are then conducted through the tubular journal b of frame B as indicated more plainly in Fig. 5. After emerging from said journal,

the condensed or formed core or warp x' is conducted to a fixed guide D, carrying a contractor of wire or other formation d as deemed suitable, and having at the covering point thereof for the core, a curved surface or surfaces d' d' which form spreaders for obtaining a more even layer and larger spread of the cover threads for the core as they are wound or spun thereon.

Adjacent to the core guide D is a suitable fixed frame F for holding the cover thread bobbins or spools f from which threads z are conducted by suitably located guide-rollers f' f^2 to the contractor d on the core guide D, said threads being spread out over the core by the curved surface d' of the guide for being wound upon the warp or core passing through or over the guide and rotating thereon. The said frame F and the guide rollers f' f^2 are secured to the housing or frame of the machine in any desired manner. In this instance the studs of the rollers are supported in the horizontal limb of a depending L-shaped bracket f^3 which is secured to an adjacent part of the frame. By this construction it will be noted that the cover threads do not revolve around the core or warp threads as heretofore, but that the core or warp is positively rotated, and in doing so winds or spins the cover threads z upon it, the point of winding of the cover threads upon the core being at the curved surfaces or spreaders d' on the guide D. The finished goods x^2 after leaving the guide D is conducted to the feed regulating device G which controls the amount of core or warp threads withdrawn from the bobbin C at each revolution of the frame B.

The form of feed device G consists of a frame g having tubular end journals g' g^2 through which the finished fabric x^2 passes. In the frame G are mounted a series of grooved guide-rollers g^4, a plain roller g^5 around which the gimp or finished stock is conducted or wound, as shown more plainly in Fig. 2, or as desired. The plain roller g^5 has at each end preferably a gear or train of gear connection g^6 with a shaft g^7 mounted on frame g provided with a worm wheel g^8 meshing with a fixed screw H whereby as frame g rotates the worm-wheel g^8 is actuated to impart a feed motion to the roller g^5 to feed the warp threads from the spool C in frame B and over the guide D as the core or warp threads are covered.

The worm H is secured to or forms a part of a tubular bracket h surrounding journal g^2 of frame G, and is secured to the housing A as indicated at h'. The journal g^2 is continued through bracket h and joins the take-up frame I to connect it rigidly to said frame G so that both will revolve in unison. The frame I has a step bearing at i in housing A as shown more plainly in Fig. 1. The frame I at its upper end on one side carries a shaft i' provided with a worm wheel i^2 engaging with a fixed worm H' on the tubular bracket h. See more plainly Fig. 2. Shaft i' has preferably at each end a gear or train of gear connection i^3 with a double reverse screw shaft K energizing a movable eye or carrier k hung or loosely supported upon a cross-bar or bars so that a rotary movement of shaft i' imparts by means of screw K a to and fro motion transversely to eye or carrier k to permit the bobbin L in said frame to properly wind or take up the finished product as said bobbin is rotated by means of a grooved or other wheel and belt connection l and l' with a second worm wheel shaft l^2 on the other side of frame I engaging with the opposite side of worm H' on bracket h. See more plainly, Fig. 5. Respecting the belt connection the belt will slip as the coils of finished fabric progressively increase upon the bobbin L.

The action of the machine is as follows: The feed device G and take-up I rotate together at one speed, by means of a belt connection m from shaft a^4. If the core or warp is not to be twisted, the warp-holding spool-frame B revolves at the same rate of speed as that of the feed and take-up devices. If the core or warp is to be twisted, then the frame B is rotated at a slower or greater speed than the devices G and I, this difference in the speed producing the twist in the core or warp, the differences of the slower or greater rate of speed producing right or left twist of the warp or core.

The covering can be wound on the core from either side of the guide or spreader for producing right or left hand goods. The twist in the warp or core is made between the curved surface or spreader d' of the guide D or the point of covering of the core or warp and the roller c^4 and hook c^5 on the frame B, and as such twist cannot extend beyond said hook the warps on the bobbin C are therefore not subject to the twisting action (see Fig. 2) and coming straight or untwisted from the bobbin to the hook they do not pick up any unnecessary threads, thus avoiding making imperfect and uneven work; and further, as the twist does not extend back of roller c^4, a more even core is produced to make a correspondingly finished fabric.

As the covering threads z do not revolve, and are conducted to and over the curved surface or spreader d' on guide D, they are evenly held and spread upon such surface to produce good and accurate winding for fully covering the core without crowding, lumping or attenuation of the cover.

A large variety of goods can be produced by changing the relative speeds of the warp-spool and take-up and feed devices. Hence pearl, spiral or plain gimps can be made, or the warp may be covered and a second spiral cover be put on at the same time by providing a suitable guide therefor.

In some cases, if desired, the curved surfaces or spreaders d' may be dispensed with, and straight or other suitable edges substituted, but where straight edges are used, the

cover threads are apt and in most cases crowd up in the middle, thereby producing uneven covering, and hence the curved form of spreader as it prevents such uneven covering as heretofore described, such even spreading resulting also in saving cover-thread stock and cheapening the cost of the goods.

What we claim is—

1. In a core covering machine, the combination of a revoluble warp spool frame, having hollow journals at its ends, through one of which journals the core passes, a core spool journaled in said frame, a tension device therefor having a stem carried by the other of said journals, a guide roller loosely mounted in said frame, the fixed hook overhanging said guide roller, the trough-shaped core guide D, having a spreader for the covering yarns, a fixed covering yarn spool holder, a revolving feed regulating device, and a revolving take up, substantially as specified.

2. In a core covering machine, the combination of a revoluble frame B, having hollow journals mounted in brackets of the main frame, one of said journals forming a guide for the core the spool journaled in said frame, the tension plate for said spool, said plate having a stem carried by the other of said journals the loosely mounted guide roller c^4, its hook c^5, the trough-shaped guide D, into which the core passes from the journal of the frame B, the fixed covering yarn spool holder, the revoluble frame g, having hollow journals and feed regulating devices, and the revoluble frame I and carrying take up devices and means for driving said frames I and g at the same speed, substantially as specified.

In testimony whereof we affix our signatures in presence of two witnesses.

PETER DEISSLER.
WILLIAM DEISSLER.

Witnesses:
S. J. VAN STAVOREN,
WM. A. CORBION.