

No. 885,220.

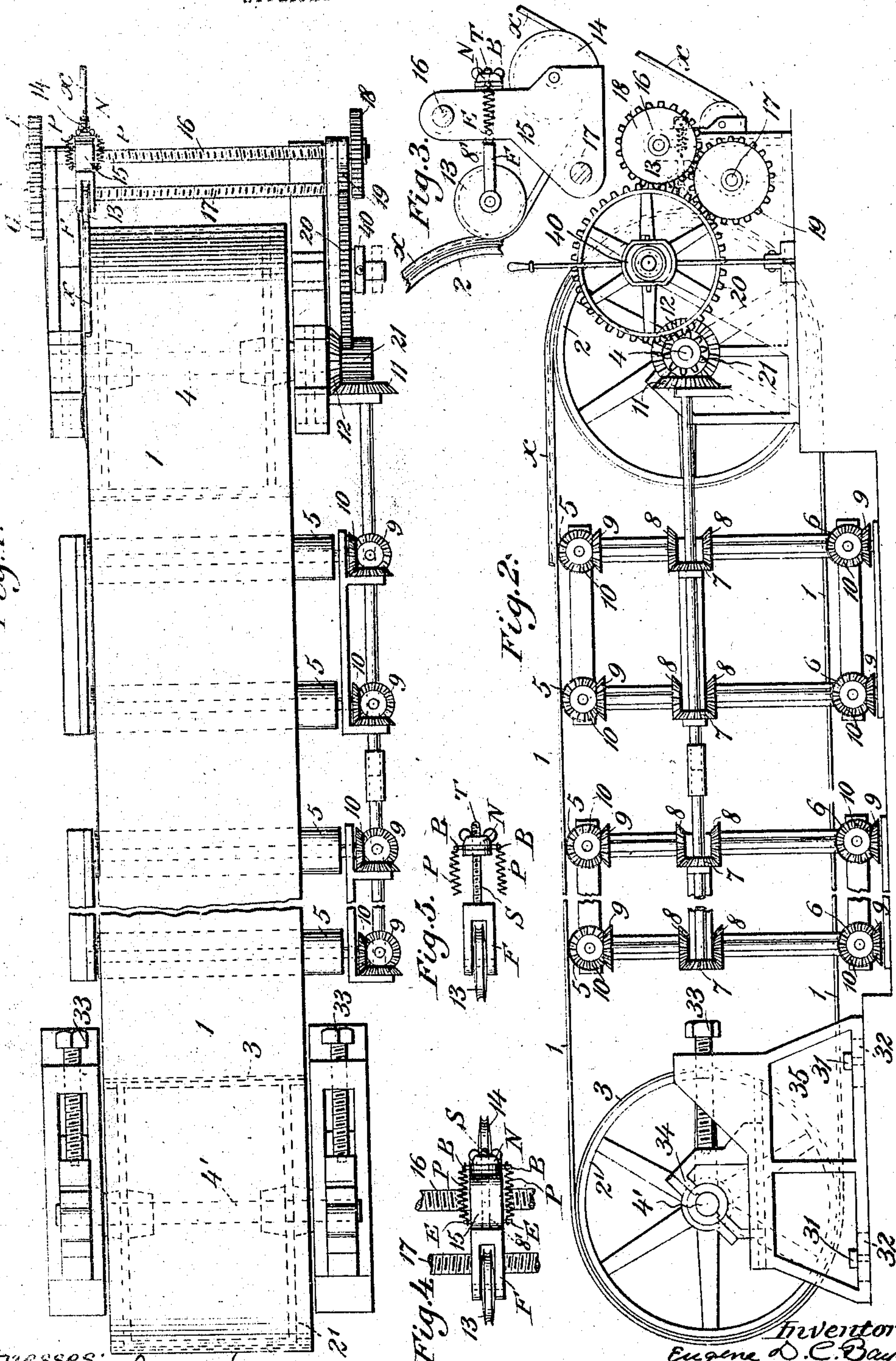
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E. D. C. BAYNE & L. A. SUBERS.

MACHINE FOR WINDING AND PLACING UNDER PRESSURE A THREAD
COATED WITH NON-FIBROUS AND ADHESIVE MATERIAL.

APPLICATION FILED MAY 10, 1907.

Fig. 1.



Witnesses:

E. D. C. Bayne
L. A. Subers

Fig. 4.

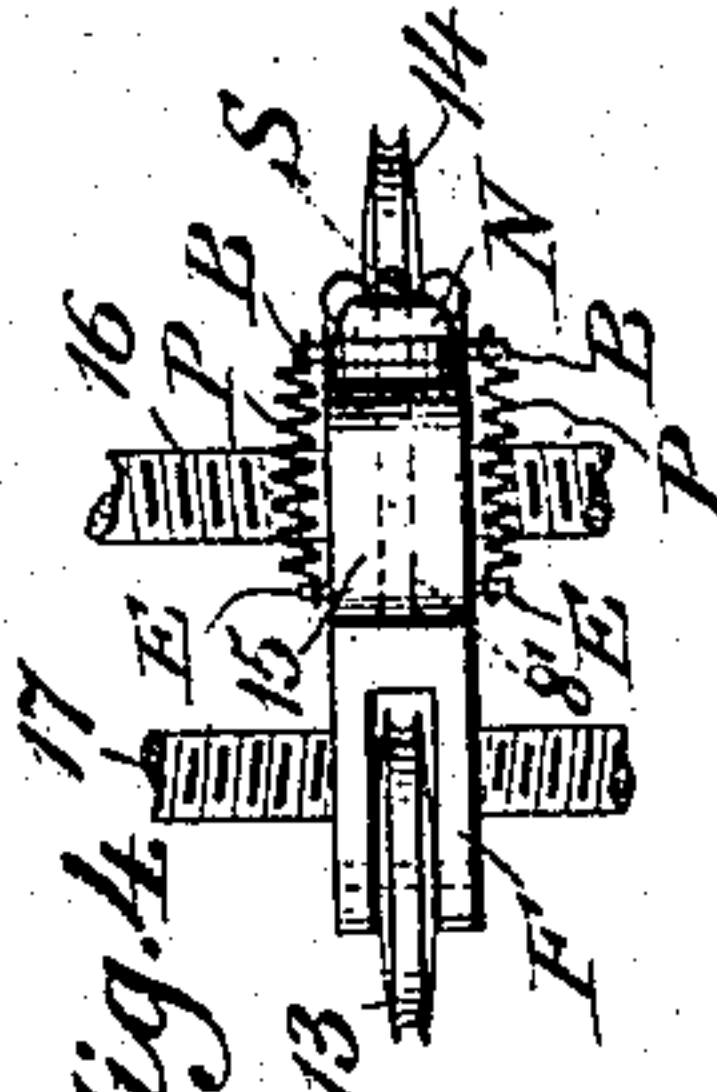


Fig. 5.

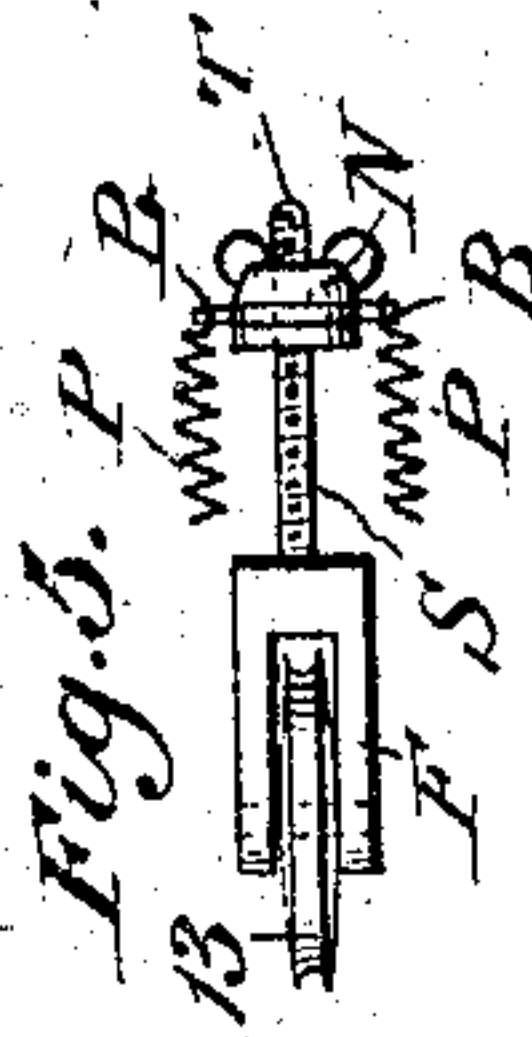
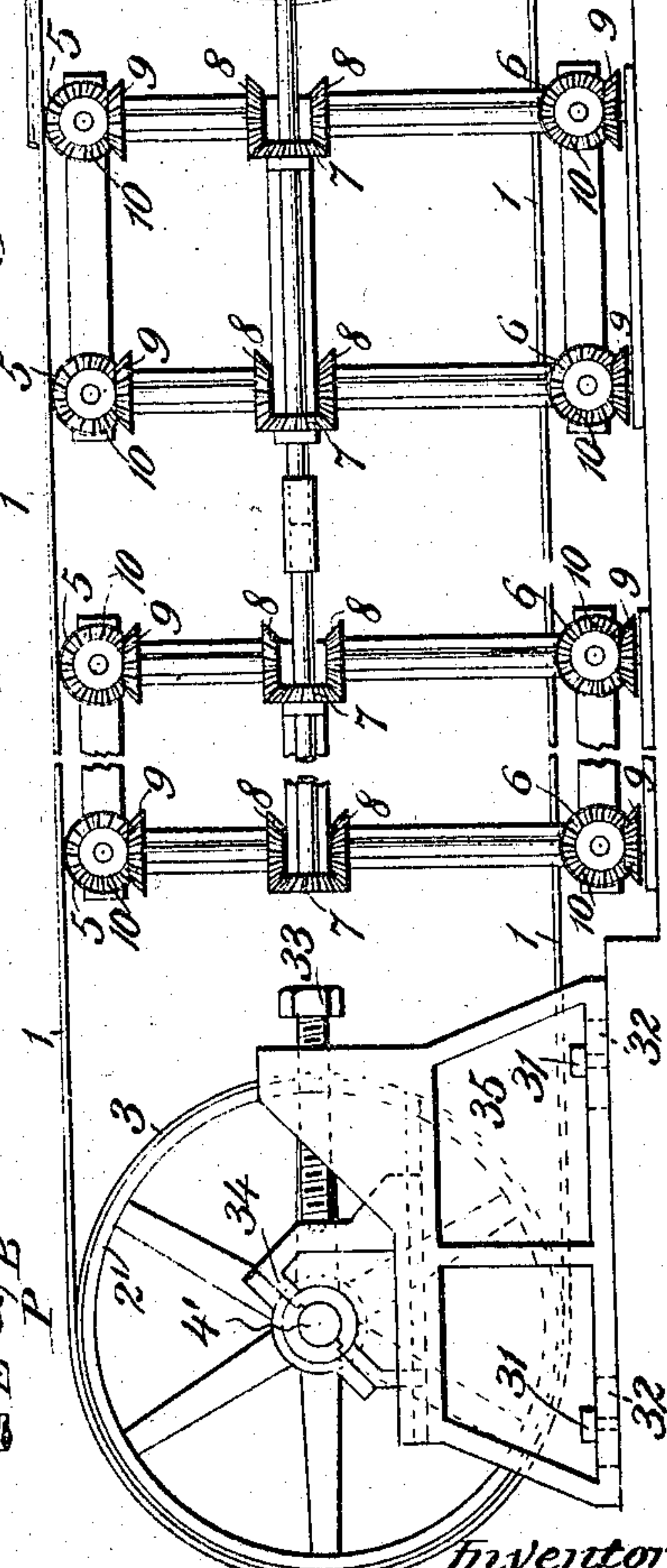


Fig. 2.



Inventors:
Eugene D. C. Bayne
and Lawrence A. Subers
By J. H. Monroe
Attorney

UNITED STATES PATENT OFFICE.

EUGENE D. C. BAYNE AND LAWRENCE A. SUBERS, OF CLEVELAND, OHIO.

MACHINE FOR WINDING AND PLACING UNDER PRESSURE A THREAD COATED WITH
NON-FIBROUS AND ADHESIVE MATERIAL.

No. 885,220.

Specification of Letters Patent.

Patented April 21, 1908.

Application filed May 10, 1907. Serial No. 373,001.

To all whom it may concern:

Be it known that we, EUGENE D. C. BAYNE and LAWRENCE A. SUBERS, citizens of the United States, and residents of Cleveland, county of Cuyahoga, State of Ohio, have invented certain new and useful Improvements in Machines for Winding and Placing Under Pressure a Thread Coated with Non-Fibrous and Adhesive Material, of which we hereby declare the following to be a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same.

The objects of the invention are to provide an automatically acting device by means of which a fabric composed of threads coated with an adhesive and vulcanizable material can be wound and simultaneously placed under pressure.

The fabric comprises a layer of threads laid parallel to each other and with their coatings in close contact with each other so that they will adhere together and so laid as when completed to be perfectly smooth and without irregularities of surface and without weaving or other connection of the several threads than such as is obtained by adhesion of the several coatings thereon. This layer of adhering threads is then employed to form portions of the various fabrics, or of fabrics analogous to those described in our former applications, Serial Nos. 347,840, 347,839, 344,093, and 370,139, in which both tubular and flat fabrics are shown. It is also applicable to a multiple number of other uses.

The invention comprises a table or surface upon which the thread is applied and a spring pressed director wheel adapted to come into contact with all parts of the table in such a manner as to apply the coated thread directly thereto with pressure.

The invention is exemplified in the device of a table comprising, an endless band of polished metal to which the tenacious coating will not adhere. This table is maintained in constant longitudinal motion by means of rotatable wheels or drums upon which it is extended and supported upon rotating rollers, and a spring pressed director wheel is mounted upon a transversely moving carriage, the movements of which are cooperative with those of the table, so that a thread is applied thereto in a continuous spiral until all the surface thereof is evenly covered.

The invention also comprises the various detail forms of construction and combination and arrangement of parts as hereinafter described, shown in the accompanying drawings and specifically pointed out in the claims.

In the accompanying drawings, Figure 1 is a plan view of the device; Fig. 2 is a side elevation thereof; Fig. 3 is an enlarged side elevation of the director wheel and its traveling carriage; Fig. 4 is a plan view thereof; Fig. 5 is an enlarged view of the director wheel and spring pressed bearing.

In these views, 1 is an endless band or belt of polished metal mounted upon the band wheels 2, 2', on shafts 4 and 4'. The band wheels are preferably coated with a friction surface 3 such as leather, which the metal belt engages. These wheels are rotated by means of the main shaft 4, and intermediate rollers 5 and 6 upon which the belt rests are rotated to assist in feeding the belt by means of bevel gears 7, 7, and 8, 8, and 10, 10 and 11 and 12, so that the belt will maintain a perfectly level surface and will be assisted in its movements thereby.

The coated thread X is fed to the director wheel 13 by means of a guide wheel 14 and both guide and director wheels are mounted in a carriage 15 which moves transversely of the table, and is secured upon and is operated by the screw threaded shafts 16 and 17 rotated by means of a train of gears 18, 19, 20 and 21 and connecting gears G & I.

To feed the movable carriage 15 the screw threaded shafts 16 and 17 have right and left hand threads since the driving gears 18 and 19 rotate in opposite directions. The use of two feed shafts increases the positiveness and accuracy of the feed. These screw threaded shafts move the carriage and the director wheel in a continuous manner transversely across the belt, and apply the coated thread in a close spiral thereon, and the movement of the carriage is so proportional and correlated to the longitudinal movement of the belt that the belt will be closely covered with a layer of adhering coated threads at the time that the carriage has completely traversed it.

The thread is coated with a compressible somewhat gelatinous and tenacious material such as unvulcanized rubber and the director wheel is adapted to lay the same upon the polished belt with regular pressure and thus pro-

vide an even and regular layer of coated threads. The polished surface prevents the coating from adhering thereto. To obtain this pressure the director wheel is mounted upon a fork F which swivels in the carriage at 8 and springs P provide an elastic pressure the tension of which can be regulated as desired by means of a nut N upon the screw threaded extremity T of the fork F. The springs are attached at one end at E to the carriage and at the other end to the cross bar B upon the screw threaded portion of the fork. The rollers 6 underneath the band 1 come directly in contact with the coated thread and hence must be formed of polished metal while the rollers 5 are preferably coated with a friction surface such as leather to engage the lower surface of the band 1. It is obvious that the spring pressed director wheel could move longitudinally and transversely of the band 1 and the band or other supporting table for the thread could be stationary without departing from the spirit of the invention.

It is usually important that the fabrics should be made accurately in a predetermined length and for this reason the shaft 4' of the idler band wheel 2' is adjustable relative to the drawing wheel 2 by means of bolts 31 and slots 32. A very fine adjustment can be made by means of the adjusting screws 33, operating upon the sliding bearing 34 moving upon the bed plate 35.

In order to keep the machine in continuous use it is desirable that the screw shafts 16 and 17 should be reversed in movement when the carriage has traversed the moving table from one side to the other and feed it back again to form another layer. This reverse movement may be accomplished in any desired manner and is exemplified in Fig. 2 where a clutch 40 is shown operating to throw the spur gears 18 and 19 alternately into engagement with the idler 20 and thus reverse the movements of the feed screws without reversing the direction of rotation of the driving wheel or drum 2. Any number of director and guide wheels may be mounted in the carriage 15 that may be desired.

Having described the invention, what we claim as new and desire to secure by Letters Patent is:

1. In a device for the purpose set forth, a longitudinally movable table comprising an endless metal band having a polished surface, band wheels upon which said band is mounted, a transversely movable carriage and director and guide wheels therein, and means for rotating said band wheels and for feeding said carriage transversely to said endless metal band, substantially as described.

2. In a machine for the purpose described, in combination an endless band having a polished surface, rotatable shafts and drums upon which the band is supported, a carriage

transversely movable thereto, director and guide wheels therein, a swiveled and spring pressed support for said director wheel in said carriage, a pair of right and left feed screws in said carriage, gearing operatively connecting one of said drum shafts with said feed screws, and supports for said drums, gears and feed screws, substantially as described.

3. In a machine for the purpose described, an endless horizontal band having a polished surface, rotatable drums supporting said band, shafts therefor, intermediate sets of rollers supporting said band, one set supporting the upper side of the band and the lower set supporting the lower side thereof, gearing operatively connecting one of the drum shafts and supporting rollers, a carriage transversely movable relative to said band, a director wheel swiveled therein, a feed screw passing through said carriage, and gearing operatively connecting said feed screws with one of said drum shafts, substantially as described.

4. The combination with a pair of right and left feed screws, of a carriage mounted thereon, a director wheel and a swiveled support therefor in said carriage, a screw threaded swivel rod on said support, a spring connection between said rod and support, and an adjusting nut therefor on said screw threaded rod, substantially as described.

5. In a machine for the purpose described, an endless metal band having a polished surface, rotatable drums supporting said band, a carriage movable transversely to said band, a spring pressed and swiveled director wheel and a guide wheel in said carriage, a feed screw therefor, gearing operatively connecting the movements of said drums and feed screw and means for adjusting the tension upon the spring pressed director wheel, substantially as described.

6. In a machine of the character described, in combination, an endless band having a polished surface, drums upon which said band wheels are mounted, one of said drums being an idler and the other a driving drum, supporting shafts and bearings for said drums, the idler bearing being adjustable towards and from the other, means for adjusting said adjustable bearing, director and guide wheels, a carriage in which said wheels are mounted and instrumentalities for moving said carriage transversely of said endless band, said instrumentalities operatably connected with the movements of said shaft for said driving drum, substantially as described.

7. In a machine for the purpose set forth, an endless metal band having a polished surface, rotatable drums supporting said band, shafts for said drums, a carriage movable transversely of said band, a spring pressed director wheel in said carriage, reversible mechanism for operating said carriage to

apply said director wheel continuously to said endless band during the rotation thereof, said reversible mechanism being operatively connected with one of said drum shafts.

- 5 8. In a machine for the purpose set forth, an endless metal band having a polished surface, rotatable drums upon which said band is mounted, shafts for said drums, one being a driving shaft, a carriage and a spring
10 pressed director wheel therein, said carriage being movable transversely to the said drums, a pair of right and left hand screw shafts passing through said carriage transversely

of said band wheel, supports for said band wheel shafts and screw shafts and gearing 15 connecting said screw shafts and connecting said screw shafts with said driving shaft and means for reversing said gearing.

In testimony whereof we hereunto set our hands this 8th day of May, 1907, at Cleveland, 20 Ohio.

EUGENE D. C. BAYNE.
LAWRENCE A. SUBERS-

In presence of—

AL. T. OSBORN,
ED. O. PEETS.