

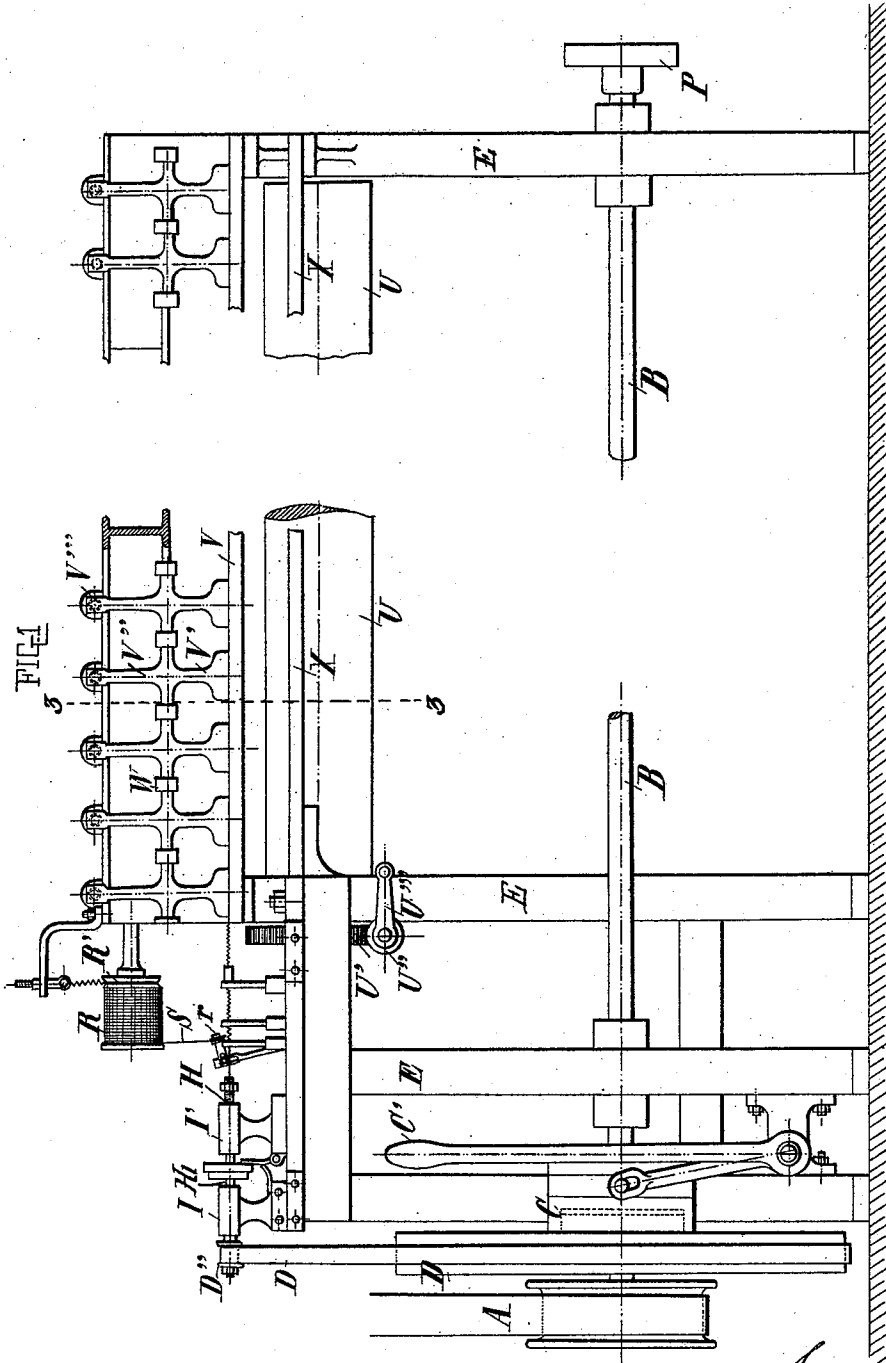
(No Model.)

3 Sheets—Sheet 1.

P. TOURASSE.
WIRE FABRIC MACHINE.

No. 499,153.

Patented June 6, 1893.



Witnesses:
J. M. Copenhaver.
Rever Lewis.

Inventor:
Paul Bourasse
by Paul Dinaus
his attorneys

(No Model.)

3 Sheets—Sheet 3.

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FIG. 4.

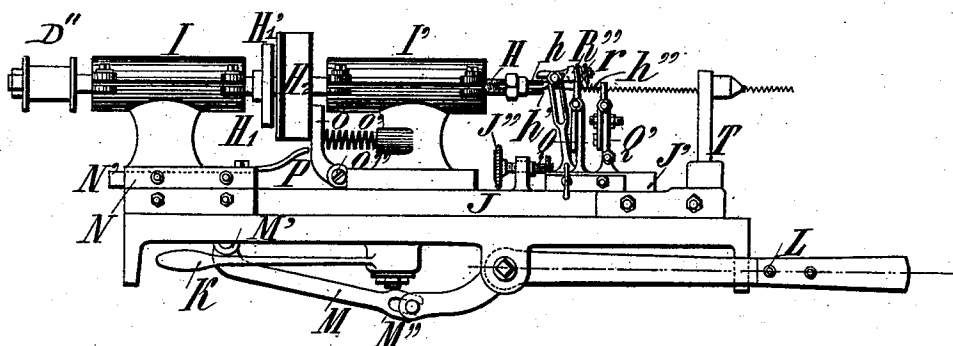


FIG. 5.

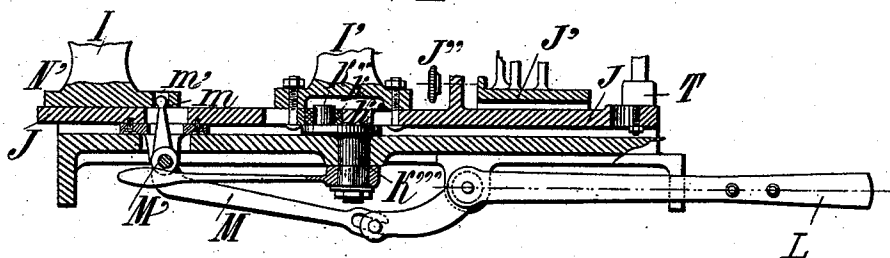
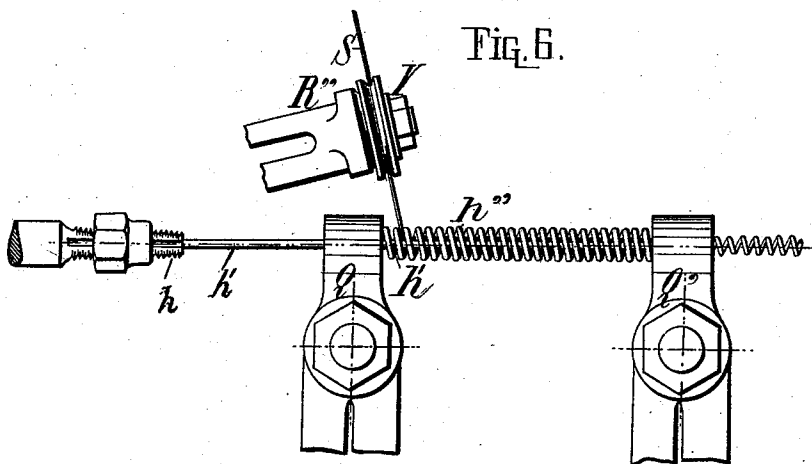


FIG. 6.



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his attorney

UNITED STATES PATENT OFFICE.

PAUL TOURASSE, OF LA BRIDOIRE, FRANCE, ASSIGNOR TO THE SOCIETY
PAUL TOURASSE & COMPANY OF THE REPUBLIC OF FRANCE, OF SAME
PLACE.

WIRE-FABRIC MACHINE.

SPECIFICATION forming part of Letters Patent No. 499,153, dated June 6, 1893.

Application filed January 19, 1893. Serial No. 458,940. (No model.)

To all whom it may concern:

Be it known that I, PAUL TOURASSE, a resident of La Bridoire, (Haute-Savoie,) France, have invented certain new and useful Improvements in Looms for Weaving Wire Fabric, which are fully set forth in the following specification.

This invention relates to improvements in machines for weaving metallic fabric, from threads or wires coiled into the shape of helices and particularly desirable for use as a substitute for the wire fabric generally used in the manufacture of paper and pasteboard.

The machine constructed in accordance with my invention and adapted to make a continuous web of wire fabric, is shown in the accompanying drawings, in which—

Figure 1 is a longitudinal elevation. Fig. 2 is an end elevation. Fig. 3 is a transverse section on line 3—3 of Fig. 1, showing the fabric in the course of construction. Fig. 4 is an elevation on an enlarged scale of the wire coiling mechanism. Fig. 5 is a longitudinal section through the lower portion of Fig. 4, and Fig. 6 is an enlarged detail of the spiral coil former.

In the drawings E is the main frame of the machine which carries power transmitting means consisting of a belt A which rotates the shaft B, the latter extending from one end of the machine to the other, and terminating at one end in a coupling sleeve P, by which motion may be communicated through a similar sleeve to the corresponding shaft of an adjacently arranged machine, by which means motion may be communicated to a number of machines arranged side by side, from a single pulley A. Each machine is provided with a clutch mechanism C, operated by a lever C', whereby it may be thrown into and out of operative connection with the said shaft B. The principal shaft H' of the coiling mechanism receives its motion from the shaft B through the intermediary of pulleys D, D'', and the belt D', and owing to the difference in diameter between said pulleys, the speed of rotation of the shaft H' is very high, which is essential to the effective operation of the machine.

J is a longitudinally movable carriage resting on the main frame, and carrying the coiling mechanism, the longitudinal movement

being imparted thereto by a hand-lever K on the lower end of a shaft K'', carrying at its upper end a plate K', upon which is an eccentric pin K'', the latter engaging in an opening in a block adapted to slide laterally in a slot in the carriage J.

As before stated the disengaging of the clutch C has for its object to throw the machine out of operation, but in order to provide for the momentary and immediate stoppage of the machine while it is in use, for the purpose of cutting off the coils as they are made, &c., I provide an auxiliary clutch consisting of a friction disk H¹ at the inner end of shaft H', which is adapted to be engaged with a corresponding disk H² on the end of shaft H. The shafts H and H' are respectively supported in bearings I and I'. For the purpose of engaging and disengaging said friction disks, the bearing I is provided with longitudinally movable support having at its lower end a base plate N' which slides in block N, which latter together with the support I is secured to the carriage J. The reduced end m of a lever M, which oscillates on pin M', passes up through openings in the frame, and carriage J, into an opening m' in the base-plate N', whereby upon the oscillating of said lever M, by a hand lever L, the disks H¹ and H² are caused to move toward and away from each other. If for the purpose of throwing the coiling mechanism momentarily out of gear the plates H¹ and H² were simply separated the shaft H would continue to rotate for some time under the impulse received, and to remedy this an arm O pivoted at O'' and actuated by spring O' presses upon plate H² so as to act as a brake. When the clutch is again thrown into engagement this brake is kept out of contact with plate H² by the finger P, fixed to the base plate N' at its inner end.

The shaft H at its right extremity carries a chuck h by means of which is secured a steel rod h' so that it rotates with shaft H. This steel rod, the diameter of which determines the diameter of the helical coils to be formed passes through a helical forming coil h'' secured at its opposite ends in the jaws Q and Q', which are carried by a sliding plate J' longitudinally movable on plate J. The dis-

placement of the plate J', which has for its object to regulate the distance between the helix h'' and chuck h , is obtained by means of a thumb-screw J'.

5 It will be understood that both the rod h' and the former h'' are removable, and may be replaced by others of suitable dimensions; it being possible however to use the same former with several different sized rods, and
10 vice versa. In order to provide for the regular and symmetrical formation of the cylindrical coils it is desirable that the rod and former should be of such relative size that the coils formed on the rod, are at all points
15 retained in their proper positions by the helical former. In this manner the coils, which are more or less resilient and resistant in nature, being restrained for a sufficient period, become set, and normally retain an even and
20 regular form.

The wire S of which the fabric is made is wound upon the hobbin R, which is provided with a brake R', whence the wire passes under a pulley r of the adjustable guide R''
25 which regulates the angle of feed of the wire. The wire is wound around the rod h' between the coils of the helix h'' in such a way that the latter and the wire form between the jaws Q, Q' two helical coils in a concentrically arranged position. After the wire has
30 been coiled several times around the rod h' , the friction caused by the rapid revolution of the latter will cause the wire to be carried around with the rod; and new coils to displace
35 those previously formed, in such manner that during the operation of the machine helically coiled wire will issue from the right of jaw Q', the dimensions of which issuing coil will depend, as before stated, upon the dimensions
40 of the rod h' and the coil h'' . The issuing wire is guided to its place in the fabric by a support T.

Let us suppose that a certain desired length of wire thus coiled has been obtained; the
45 machine is then stopped and the wire is cut off at the right hand side of guide T. The wire coil thus formed is then placed in such a position, by means of which I shall hereinafter indicate, that upon starting the machine
50 again, the spiral motion of the issuing wire coil, will cause it to interwind with the helical coil last formed. This operation is continued until the desired amount of fabric has been constructed. As this method of constructing wire cloth or fabric is well known
55 in the art further description thereof is considered to be unnecessary.

The fabric as it is made is wound upon a drum U, and the selvage edge is held against
60 the working table V, by a series of grippers V' (Fig. 3). These grippers are provided with angular extensions V'' subjected to the action of spring V''', which causes the gripper to be forced against the table V. These
65 grippers are all mounted on a single axis W, so that to disengage the fabric from the grippers at each new coil introduced, it is only

necessary to rotate the axis W by any suitable means, to lift all of the grippers. The drum U carries at one extremity a toothed wheel 70 U', which meshes with an endless screw U'' which is revolved by crank U'''. This arrangement admits of the web or fabric being wound upon the drum as fast as new coils are produced.

As before stated when the wire has reached the extreme border of the fabric in the course of construction, the machine is stopped and the wire cut at the opposite edge of the fabric. It then becomes necessary to arrange 80 the coil last added for the reception of a new coil, to which end the grippers are loosened and the fabric wound up slightly, the grippers are again lowered onto the fabric, and everything is ready for the introduction of a 85 new coil.

From the above description it will be seen that this machine is capable of manufacturing fabrics having larger or smaller meshes, which is regulated by the size of the rod h' 90 and the helix h'' . The table X is used for holding various tools that are used during the operation.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is— 95

1. In a machine of the kind described, the combination with a revoluble cylindrical rod removably held in place upon which the coils are wound, the diameter of the latter being 100 determined by the size of said rod, of a former consisting of a removable helix of the desired thread, through which the rod projects and in which it revolves freely and out of contact therewith, whereby different sized rods may 105 be used with the same former, the relative sizes of which rod and former are such that the coils formed upon said rod are at all points retained in their proper position by the helical former, substantially as described. 110

2. In a machine of the kind described, the combination with a shaft connected with the main driving mechanism and supported by a longitudinally movable bearing on the upper part of the machine, of an auxiliary shaft 115 carrying the coiling rod, a clutch whereby said longitudinally movable shaft is thrown into engagement with the auxiliary shaft upon the movement of the former, and a brake automatically thrown into operation upon the disengagement of said clutch, substantially as described. 120

3. In a machine of the kind described, the combination with the coiling rod and the helical coiler around the same, of a bobbin or spool upon which the wire to be used is wound, a tension device for regulating the feed of the wire on said spool, and an adjustable guide for regulating the angle of feed to the coiling mechanism, substantially as described. 125

4. In a machine of the kind described, the combination with a revoluble rod, and a helical former around the same, of grippers for holding the selvage edge or coil of the fabric 130

in the course of manufacture in a position whereby the spiral motion of the issuing coil causes the latter to interwind into said selvage coil, substantially as described.

5 5. In a machine for making coiled wire fabric, the combination with the drum upon which the fabric is wound and gripper jaws holding the selvage edge of the latter in position for the introduction of a new coil, of a
10 carriage on the main frame carrying the coil-forming mechanism movable in a direction parallel with the said selvage edge, substantially as described.

15 6. In a machine of the kind described, the combination with the frame and means for holding the selvage edge of the fabric, of a

longitudinally movable carriage on the frame, a main shaft carrying at one end the coiling rod, supported in a suitable bearing on said carriage, and an auxiliary shaft supported in 20 bearings longitudinally movable on said carriage for transmitting power to the main shaft through a suitable clutch mechanism, substantially as described.

In testimony whereof I have signed this 25 specification in the presence of two subscribing witnesses.

PAUL TOURASSE.

Witnesses:

HENRI CHRISTY,
HENRI MANIÈRE.