

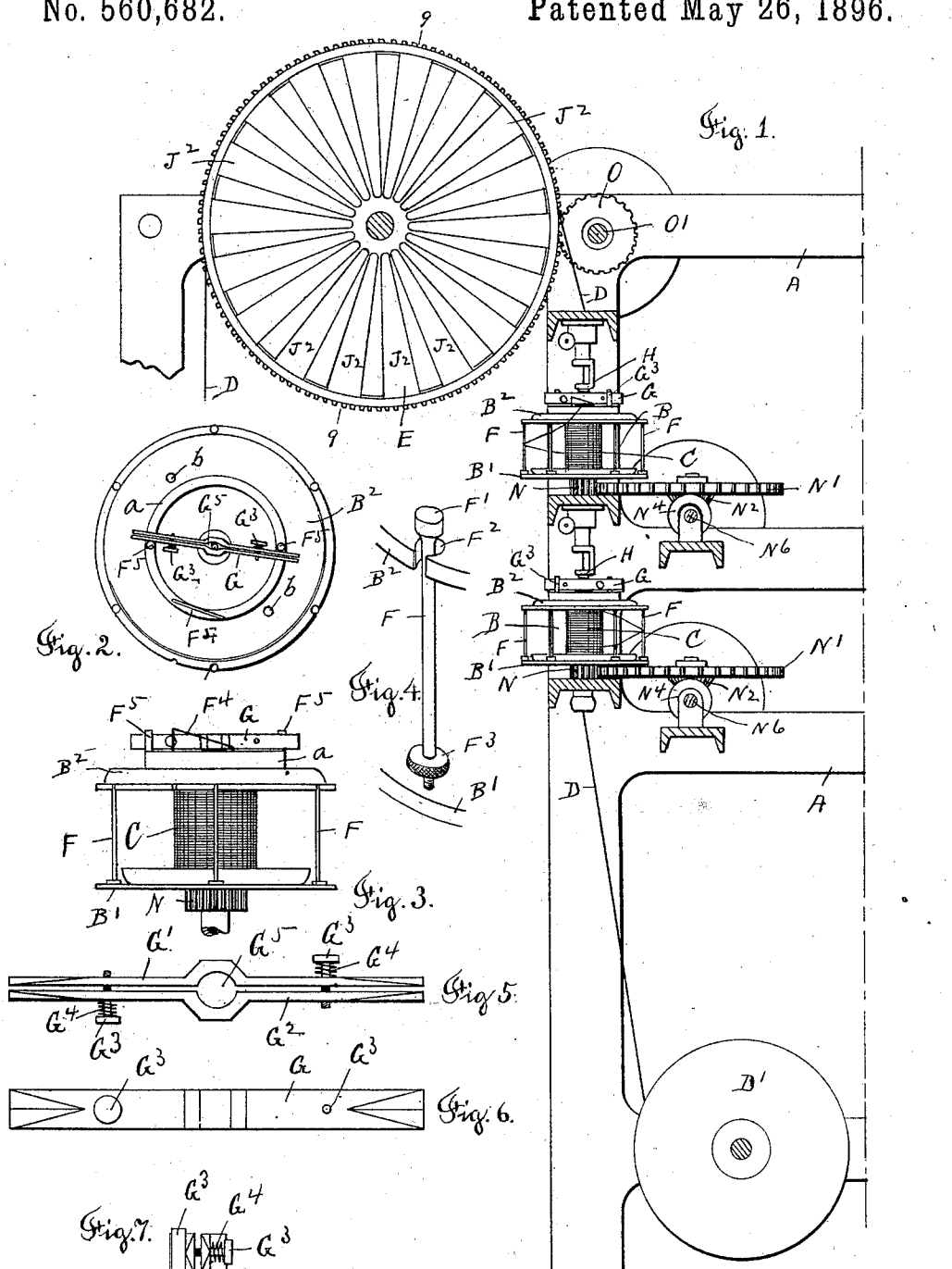
(No Model.)

2 Sheets—Sheet 1.

G. L. BROWNELL.
MACHINE FOR COVERING WIRE.

No. 560,682.

Patented May 26, 1896.



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UNITED STATES PATENT OFFICE.

GEORGE L. BROWNELL, OF WORCESTER, MASSACHUSETTS.

MACHINE FOR COVERING WIRE.

SPECIFICATION forming part of Letters Patent No. 560,682, dated May 26, 1896.

Application filed July 11, 1893. Serial No. 480,184. (No model.)

To all whom it may concern:

Be it known that I, GEORGE L. BROWNELL, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Improvement in a Machine for Covering Wire, of which the following is a specification, accompanied by drawings representing such portions of the machine as embody my invention, and in which—

Figure 1 represents a portion of the supporting-framework and so much of the mechanism as is concerned in winding a continuous strip of wire with the covering material and also the mechanism for drawing wire through the winding mechanism. Fig. 2 is a top view of one of the fliers. Fig. 3 is a side elevation of the same. Fig. 4 represents one of the tension-pins carried by the edge of the flier, the pin being shown in a raised position, in which it is disengaged from the flier. Fig. 5 is a top view of the compressor. Figs. 6 and 7 represent side and end views of the compressor. Fig. 8 is an elevation of the draft-wheel by which the wire is drawn through the fliers. Fig. 9 is a central sectional view on line 9 9, Fig. 1. Fig. 10 is a similar sectional view of the draft-wheel on a larger scale. Fig. 11 is a side elevation of one of the fliers, showing the driving mechanism by which it is capable of being rotated in opposite directions. Fig. 12 is a detached view of cam K' and hand-wheel P, showing the pivoted block and connecting-chain by which the rotation of the hand-wheel P is limited to one-half a revolution.

Similar letters refer to similar parts in the different figures.

My present invention relates to a machine for covering wire by winding it with a thread, cord, or similar material.

Referring to the drawings, A denotes a portion of the supporting-framework. B B are revolving fliers carrying spools C C, holding the thread which is to be wound upon the wire. The wire D to be covered is carried upon a reel D' and conducted through the center of the fliers B B in the usual manner to a draft-wheel E, by which the wire is drawn off the reel D' and delivered to winding mechanism by which it is wound upon a reel. The winding mechanism, however, being of the

common form, is not shown in the accompanying drawings. The fliers B B consist, in the machine shown in the drawings, of two disks B and B², attached to a central hollow spindle through which the strand of wire passes. Between the disks B' and B² is held the spool C, capable of turning within the flier and containing the winding material with which the wire is to be covered. The lower disk B' is provided with a series of screw-threaded holes to receive the ends of tension-pins F, which are provided at their upper ends with enlarged sections or heads F', which fill circular notches F² in the edge of the upper disk B², the notches F² being cut away, allowing the pin to be raised in the position shown in Fig. 4 and withdrawn from the disk B²; but when the tension-pins F are screwed into the disk B' the head F' will be brought into the circular portion of notch F², filling the same and holding the upper end of the pin in position. Near the lower end of the pin is a milled flange F³, by which the pin is turned in order to unscrew it from the lower disk B'.

The upper surface of the disk B² is provided with an inclined wire F⁴, Fig. 3, forming a rest over which the winding material passes from the tension-pins F to the wire. The disk B² also carries two driving-screws F⁵ F⁵, by which the compressor G is rotated.

The compressor G is formed of two bars G' and G², held together by screws G³, and between the head of the screws and the bar G' are placed springs G⁴, which press the bars together. Between the bars G' and G² is an oblong opening G⁵, through which the wire passes, and the sides of the openings G⁵ are firmly clamped upon the strand of wire by means of the springs G⁴. From the fliers B the strand of wire D is carried through dies H in the usual manner to the draft-wheel E, which is provided with a face I, over which the wire passes in contact with a shoulder I'. The dies H are placed just above the compressors G and serve to prevent the compressors from being carried along by the moving wire and lifted out of the path of the driving-pins F² F², held in the fliers B. Arranged concentrically around the wheel E are a series of eyebolts J, carrying adjusting-nuts J', and to each of the eyebolts J is pivoted a radial lever J², provided with a lip J³ at right

angles to the lever and projecting over the face I of the draft-wheel. At the hub of the draft-wheel is a concentric row of sliding pins K, which bear against the inner ends of the radial levers J² and which are carried by the rotation of the draft-wheel around in contact with the face of the cam K', by which the pins K are pushed against the levers during the upper third of their revolution, thereby rocking the levers J² and carrying the edges of the lips J³ toward the shoulder I', securely clamping the strand of wire between the shoulder I' and the edges of the lips J³, and causing the strand of wire to be drawn forward by the rotation of the draft-wheel.

As the levers J², which engage the strand of wire, move downward the pins K move off the cam-surface K', allowing the motion of the levers J² to be reversed by the action of the spiral springs held in the rim of the wheel E, thereby releasing the strand of wire.

The fliers B are provided with pinions N, which are driven by gears N', having attached thereto a beveled pinion N², which is engaged by the beveled pinions N³ and N⁴ upon the shafts N⁵ and N⁶, which are driven through a belt connection in the usual manner.

The purpose of the two shafts N⁵ and N⁶, with their driving-pinions N³ and N⁴, is to provide means for rotating each of the fliers B in opposite directions, in one direction in order to wind the twine from the spool C upon the strand of wire and when the spool becomes empty to rotate the flier in the opposite direction in order to refill it. When the spool C is to be refilled, the power is disconnected from the shaft N⁵ and applied to the shaft N⁶, the screws F⁵ are removed from the annular flange a and inserted in the holes b b in the disk B³, the screws passing through the upper disk against the head of the spool C, causing the spool to be rotated with the flier, the tension-pins F are then removed, a full spool c is placed upon a stud d, and the winding material unwound from the spool c onto the spool C without requiring the removal of the spool C from the flier.

During the operation of winding the strand of wire by the rotation of the fliers B the compressor is carried by the strand of wire itself and is driven by the contact of the driving-screws F⁵ against the ends of the compressor-bars, allowing the compressor G to assume a position relative to the flier as determined by the wire, so that the compressor will be rotated concentrically with the axis of the wire whether the wire be concentric with the flier or otherwise.

The draft-wheel E is driven by a pinion O on the shaft O', rotated through a belt connection in the usual manner.

The cam K' is held upon the shaft carrying the draft-wheel and has attached thereto a hand-wheel P, connected with a chain P' and rod P² with a pivoted block P³, held by the framework of the machine, the chain and rod holding the hand-wheel from rotating,

except through a half-revolution, as illustrated in Fig. 12, by which the cam K' is turned, so as to release the wire at the top of the wheel E.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a machine for covering wire, the combination with a revolving flier, having a hole concentric with its axis, through which the wire to be covered passes, said hole being larger than said wire, a pair of screws as F⁵, projecting from said flier and a compressor having an opening G⁵ to inclose the wire, whereby said compressor-opening is held concentric with said wire, the ends of said compressor projecting into the paths of said screws, but being unattached thereto, whereby said compressor is rotated about said wire, but is capable of an independent radial movement relative to said flier, as determined by the position of the wire, substantially as described.

2. In a machine for covering wire, the combination with a flier provided with a concentric hole, through which the wire to be covered passes, screws, as F⁵, projecting from said flier, a compressor provided with an opening for the wire to be covered, the ends of said compressor extending into the paths of said screws F⁵, but unattached thereto, whereby said compressor is held with its opening concentric with the wire, and capable of a radial movement relative to said flier, and means by which said compressor is held from movement in the direction of the axis of the wire, substantially as described.

3. In a machine for covering wire, the compressor consisting of the bars G' and G² and having an opening G⁵ to receive the wire to be covered, screws G³, G³ each of said screws passing through one of the bars G', G² and held in the opposite bar and spring G⁴, carried upon said screws, whereby said bars are pressed together and are capable of yielding to resistance brought against either of said bars, substantially as described.

4. In a machine for covering wire, the combination of revolving disks B' and B³, disk B² having a series of notches F² in its edge, pins F provided with enlarged heads F', said pins being screwed into said disk B' with the heads F' held in said notches F², substantially as described.

5. In a machine for covering wire, the combination of disks B' and B³ united to a common hollow spindle, removable tension-pins F held by the edges of said disks, a spool C carried between said disks, means for attaching said spool to one of said disks and means for rotating said disks in opposite directions, substantially as described.

6. In a machine for covering wire, the combination of a wheel E, provided with a face I and shoulders I', a series of pivoted levers carried by said wheel and having lips overlapping its face, an actuating-cam on the side of said wheel opposite said levers, a series of

sliding pins carried by said wheel, parallel with its axis and having their ends arranged to bear against the ends of said levers and their opposite ends to bear against said cam, by which said levers are moved in one direction and means for reversing the motion of said levers when released by said cam, substantially as described.

7. The combination with a draft-wheel having a clamping mechanism, by which the wire is alternately clamped and released, of a cam

by which said levers are actuated to clamp the wire hand-wheel attached to said cam, and means for limiting the movement of said hand-wheel to a half-revolution, substantially as described.

Dated this 6th day of July, 1893.

GEORGE L. BROWNELL.

Witnesses:

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