

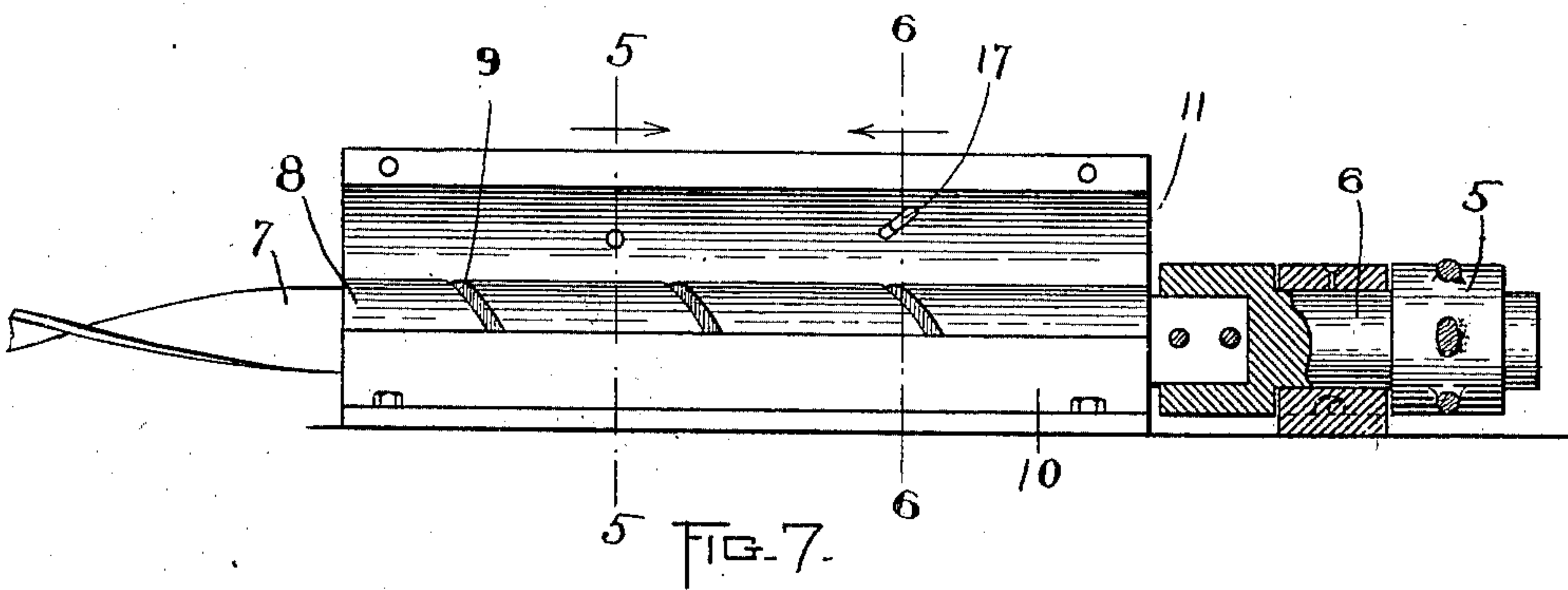
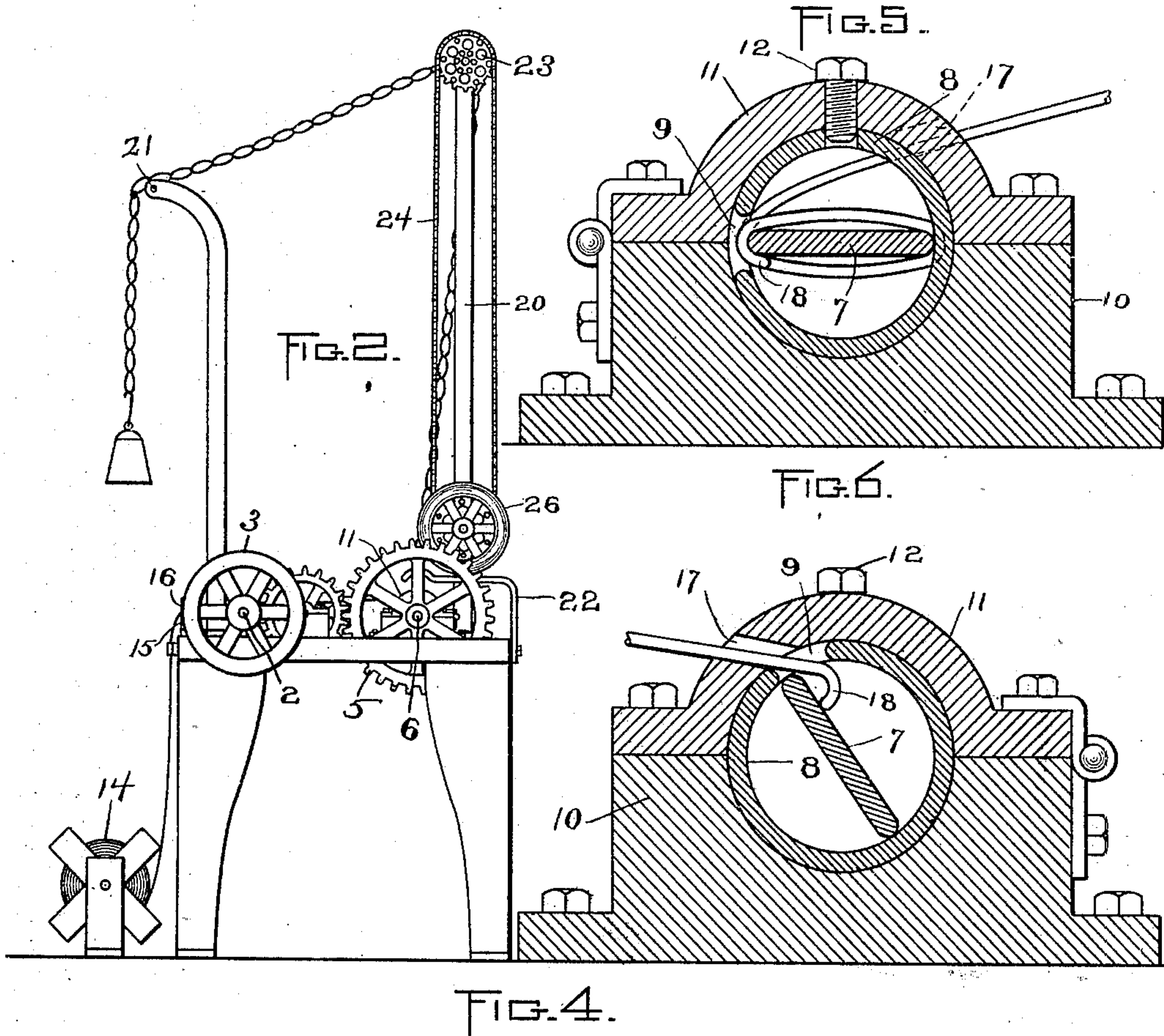
G. MAFERA.

MACHINE FOR MAKING WIRE BED BOTTOMS.

(Application filed Apr. 9, 1900.)

(No Model.)

2 Sheets—Sheet 2



WITNESSES:

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GUY MAFERA, OF BOSTON, MASSACHUSETTS.

MACHINE FOR MAKING WIRE BED-BOTTOMS.

SPECIFICATION forming part of Letters Patent No. 668,410, dated February 19, 1901.

Application filed April 9, 1900. Serial No. 12,176. (No model.)

To all whom it may concern:

Be it known that I, GUY MAFERA, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Machines for Making Wire Bed-Bottoms, of which the following is a specification.

This invention has for its object to provide a machine for making wire bed-bottoms or mattresses, the said bed-bottoms consisting of a series of intertwined or interlooped helices of wire.

The invention consists in the improvements which I shall now proceed to describe and claim.

On the accompanying drawings, Figure 1 represents a rear elevation of a wire-mattress-making machine constructed in accordance with my invention. Fig. 2 represents an end elevation thereof. Fig. 3 represents a section on the line 3 3 of Fig. 1. Fig. 4 represents an enlarged elevation of the helix-forming device with parts in section and partly opened out to expose the interior. Figs. 5 and 6 represent sections on the lines 5 5 and 6 6 of Fig. 4. Fig. 7 represents a view of the finished work.

The same reference characters indicate the same parts in all the figures.

Referring to the drawings, 1 designates a table or frame, on the upper side of which is journaled a drive-shaft 2, having a belt-pulley 3, and connected by gearing 5 with a shaft or spindle 6. Attached to said spindle is a flattened mandrel or form 7, which projects into and through a guide-cylinder 8, having a helical groove 9 formed in its wall. Said groove extends from a point near the rear end of the cylinder to its outer end, and said outer end is open to permit the outward passage of the formed helix. The end of the mandrel 7 is extended beyond the forward end of the cylinder 8 and is given a partial twist in the same direction as the twist of the helical groove 9 for a purpose to be hereinafter mentioned.

The cylinder 8 is clamped in a box or casing which consists of a lower part 10, attached to the table 1, and an upper part or cap 11, bolted to the said under part. A set-screw 12, projecting through the cap 11 and engag-

ing the cylinder 8, holds said cylinder from rotation in its bed.

The wire from which the helices are formed is unrolled from a reel 14, suitably located in proximity to the machine, and passing between guide-rollers 15 16 it enters the groove 9 in the cylinder 8 through an orifice 17, located in the wall of the cap 11 directly over the rear end of the said groove.

The arrangement of the mandrel 7 within the cylinder 8 is such that the edges of said mandrel follow the walls of the cylinder closely without any appreciable intervening space between said edges and the walls. It is therefore apparent that if the strands of wire be wound about the mandrel 7 and caused to closely conform to the cross-sectional contour of said mandrel the corners of said strand, where it turns the edges of the mandrel, can be accommodated only in the groove 9.

To operate the machine, the driving mechanism is set in motion and the mandrel 7 is caused to rotate within the cylinder 8 in a right-hand direction, corresponding to the twist of the helical groove 9. The end of the wire 18 being unwound from the reel 14 and passed between the guide-rolls 15 16 is hooked and introduced through the orifice 17 and the groove 9 into the interior of the cylinder 8. As the mandrel rotates one of its edges will catch the hooked end of the wire and said end will be compelled to follow the groove 9 out to the open end of the cylinder. Sufficient tension is maintained on the wire to closely wind it around the mandrel 7, and as the two edges of the mandrel come successively beneath the point where the wire enters the groove 9 the wire is bent around the edge of the mandrel, and the corner thus formed is compelled to travel through the length of the helical groove. Thus a continuous flattened helix of wire passes off of the end of the mandrel 7 so long as the wire continues to be fed and the mandrel rotated, as described.

By forming the grooved cylinder 8 separate from the outer casing 10 11 I provide for renewing this part of the machine with but little expense when it becomes worn out from continued use, which it does in practice because of the stiffness of the wire used in making the form of bed-bottom herein described. When the

cylinder is in place, it is prevented by the surrounding casing from springing or increasing its diameter, due to the strains imparted by the passage and bending of the wire. To
 5 remove the cylinder, it is merely necessary to unbolt and throw back the cap 11 of the casing, as shown in Fig. 4.

Were the mandrel perfectly straight, without any twisting of its plane, the formed helix after leaving the mandrel would have a
 10 tendency to spring somewhat and take a twist contrary in direction to the twist of the spiral groove 9. To correct this tendency, I twist the end of the mandrel 7 in the same direc-
 15 tion as the twist of the groove 9, as shown, and thus bring the wire helix out with straight parallel edges.

19 is a roll or beam elevated in bearings on suitable supports or standards 20 20 and lo-
 20 cated directly above and parallel to the line of delivery of the wire helix from the mechanism hereinbefore described.

21 is a second roll or beam located at a point above and beyond the rear edge of the table 1.
 25 In practice the finished web, which is to form the body of the mattress, is hung across the beams 19 21, with its lower front edge in line with the mandrel 7 and its rear portion below the beam 21, preferably hung with
 30 weights, which tend to elevate the lower front edge which is being added to.

22 22 are hooked arms attached to the table 1, upon which the lower front portion of the finished web is hooked while the strands
 35 are being added. As each strand is put in place the web is unhooked from the arms 22 and the edge of the web is allowed to rise a distance of one strand, when it is again hooked upon the said arms. Assuming the web to
 40 be in the last-described position, the mechanism for rotating the mandrel is started and the wire helix begins to feed along the lower edge of the web. Its end is guided by the op-
 45 erator until it catches in the first loop of the last-formed strand of the web, after which the rotating helix will automatically inter-
 twinne itself with the said last-formed strand until a length has been fed equal to the width

of the web. The operator then stops the machine, cuts off the strand, allows the web to
 50 take up, as described, and repeats the described operation to form another strand. The formation of the web in this manner may proceed indefinitely, the formed web being
 55 subsequently separated in desired length sufficient to form the individual bed-bottoms or mattresses.

The upper beam or roll 19 is shown as flattened in cross-section, so as to give it a hold
 60 or propelling power upon the web. The end of the roll - trunnion is provided with a sprocket-wheel 23, connected by a chain 24 with a sprocket-wheel 25, which is provided with a hand-wheel 26, placed within reach
 65 of the operator. By rotating the hand-wheel 26 the web can be taken up or fed, as described.

Having thus explained the nature of the invention and described a way of construct-
 70 ing and using the same, although without having attempted to set forth all of the forms in which it may be made or all of the modes of its use, I declare that what I claim is—

1. In a machine for forming a flattened-wire helix, the combination of an internally-cylindrical outer casing, a guide-cylinder remov-
 75 ably mounted and confined therein and having a relatively thin wall and a helical groove extending completely through said wall, and a mandrel mounted to rotate within said
 80 guide-cylinder.

2. In a machine for forming a flattened-wire helix, the combination of an internally-cylindrical outer casing comprising a bed and a
 85 cap separably attached thereto, a guide-cylinder held between said bed and cap and having a relatively thin wall and a groove extending completely through said wall, and a mandrel mounted to rotate within said guide-cyl-
 90 inder.

In testimony whereof I have affixed my signature in presence of two witnesses.

GUY MAFERA.

Witnesses:

R. M. PIERSON,
 C. F. BROWN.