

J. A. COCKER.
CRIMPING MACHINE.
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973,477.

Patented Oct. 25, 1910.

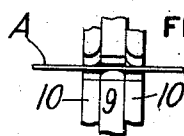
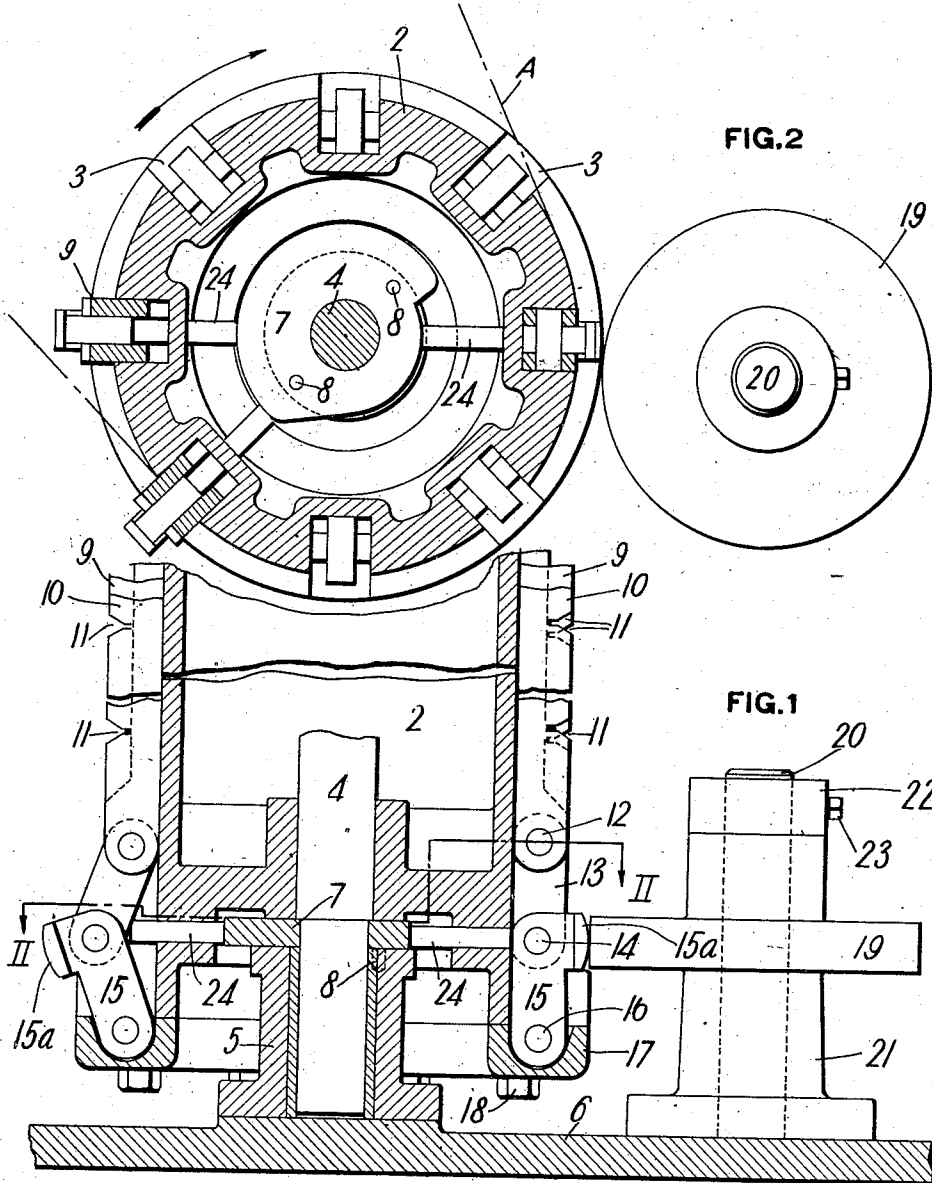


FIG. 3

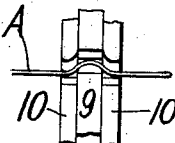


FIG. 4

WITNESSES

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UNITED STATES PATENT OFFICE.

JOHN A. COCKER, OF JOLIET, ILLINOIS, ASSIGNOR TO THE AMERICAN STEEL AND WIRE COMPANY, OF PITTSBURG, PENNSYLVANIA, A CORPORATION OF NEW JERSEY.

CRIMPING-MACHINE.

973,477.

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To all whom it may concern:

Be it known that I, JOHN A. COCKER, of Joliet, in the county of Will and State of Illinois, have invented a new and useful
5 Crimping-Machine, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to apparatus used in
10 making woven wire fencing, and more particularly relates to mechanism for making crimps or bends in the line wires of the woven fence fabric.

One object of this invention is to provide
15 a simple and effective crimping mechanism constructed and arranged to make bends or crimps in the line wires of the fence fabric after it is woven.

Another object of the invention is to
20 provide a crimping mechanism of improved construction having novel means for kinking or bending the line wires of the fence fabric by the use of which all stresses due to the crimping operation are transmitted
25 to and carried by the pull-out drum forming part of the crimping mechanism, and abrasion of the spelter coating on the wires of the fence fabric is prevented.

Referring to the drawings, Figure 1 is a
30 sectional elevation of a portion of the pull-out drum of a fence machine having crimping mechanism mounted thereon constructed and arranged in accordance with my invention. Fig. 2 is a sectional plan on the line
35 II—II of Fig. 1 showing the sets of crimping bars and the bar actuating mechanism in place upon the drum. Fig. 3 is a detail side elevation of a portion of the apparatus showing a set of the crimping bars having the
40 transverse notches in the bars in alinement, the position assumed just prior to the crimping operation. Fig. 4 is a view similar to that shown in Fig. 3, showing a set of crimping bars with the transverse crimping
45 notches in the position assumed at the completion of the crimping operation, a wire being shown in the notches illustrated in Figs. 3 and 4, the wire in Fig. 4 being shown crimped or bent.

In the drawings 2 designates the cylindrical pull-out drum of a woven wire fence machine having as shown eight longitudinally
50 extending grooves or slots 3 arranged radially around the periphery of the drum and in which the sets of relatively movable crimp-

ing bars are mounted. While eight slots are shown, obviously the number may be increased or decreased, as is found necessary or desirable.

The drum 2 is keyed or otherwise secured
60 to a driving shaft 4 rotatably mounted in the step bearing 5, which is rigidly secured to the base or sole-plate 6 of the fence machine. A cam 7, having a cam surface which
65 surrounds the shaft 4, is secured by the dowel pins 8 to the top of the step bearing 5 so as to prevent rotation of the cam.

Mounted in the slots 3 in the periphery of the drum 2 are sets of crimping bars 9 and
70 10 having at separated intervals in their length transverse notches or slots 11. As shown in the drawings, a longitudinally movable crimping bar 9 is located between
75 two crimping bars 10 which are fixed in position in the slots or grooves 3.

The lower ends of the crimping bars 9 are
80 pivotally connected by the pins 12 to one end of the toggle levers 13, the opposite end of the levers 13 being pivotally connected by pins 14 to the upper ends of the toggle levers
85 15. The lower ends of the toggle levers 15 are pivoted by the pins 16 to the ring 17, which is secured by means of the bolts 18 to the lower end of the drum 2, so as to form part of and rotate therewith.

The upper end of each of the toggle levers 15 is provided with a face portion 15^a
90 which is arranged to contact with and be moved in one direction by the anti-friction roller 19 which is mounted on the pin or stub shaft 20 which is secured by the support 21 to the base 6 of the fence machine. A collar 22, secured by the set screw 23 to the top of the shaft 20, is provided to maintain the rotatable roller 19 in place on its
95 shaft.

Located in and extending through the bottom wall of the slots 3, are radially extending openings in which the longitudinally movable pins 24 are mounted. One
100 end of these pins engages with the upper ends of the toggle levers 15, the other end of the pins 24 engaging with the cam face on the cam 7.

As shown, but two sets of transverse
105 notches are provided in the sets of crimping bars 9 and 10. It is to be understood, however, that these bars can be made as long as desired and the number of sets of transverse notches can be increased or decreased de-
110

pending upon the width of the fence being woven and the number of line wires in such fence.

In the operation of a fence machine 5 equipped with my improved crimping mechanism the line wires A of the fence are carried around the drum 2, which is arranged to be positively driven through the shaft 4 by any suitable prime mover (not shown), 10 or by the pull of the line wires of the fabric engaging with the drum, in the direction indicated by the arrow in Fig. 2. As the drum is rotated the line wires A pass into the slots or notches 11 in the crimping bars, as is shown in Figs. 3 and 4 and on the right 15 hand side of Fig. 1.

The rotation of the drum brings the faces 15^a on the toggle levers 15 successively into engagement with the antifriction roller 19, 20 and contact with this roller causes the toggle levers to move each crimping bar 9 relatively to the other bars 10 in its set of crimping bars out of the position shown in Fig. 3 in which the notches are in alinement into 25 that shown in Fig. 4 in which the notches are out of alinement. The crimping bars remain with the notches out of alinement until the longitudinally movable pins 24 by engagement with the surrounding cam face 30 on the cam 7 are moved outwardly as the drum is rotated. The outward movement of the pins 24 causes their outer ends, by engagement with the upper ends of the toggle levers 15, to move the toggle levers 13 35 and 15 from the position shown on the right hand side into that shown on the left hand side of Fig. 1. When such movement of the toggle levers occurs, the crimping bar 9 is again moved so as to bring the transverse slots or notches 11 from the position 40 out of alinement shown in Fig. 4 and at the right hand side of Fig. 1 into that shown in Fig. 3 and on the left hand of Fig. 1, in which the slots are again in alinement. 45 This movement of the movable crimping bars releases the fence from the winding drum 2 and permits it to freely pass out of contact with the drum. The crimping bars with their slots again in register then remain in this position until they have 50 reached the opposite side of the center of rotation of the drum, when they are again caused to successively engage with the line wires of the fence fabric being crimped as it is being removed from the fence machine 55 by the pull out drum, and in this way crimp the line wires of the fence at intervals in the length of the fence as it is removed from the machine and is formed into a bundle or 60 coil.

The advantages of my invention will be apparent to those skilled in the art. The apparatus is simple and is easily kept in repair. By the rotation of the pull out drum 65 the line wires of the fence are successively

crimped; at the desired separated points in the length of the fence. The sets of crimping bars are successively caused to move by a powerful toggle action so as to bring the transverse notches in these bars into and out 70 of alinement in forming the crimps or bends in the fence fabric. The line wires are crimped without scratching or abrading the coated surface of the wires.

Modifications in the construction and arrangement of the parts may be made without departing from my invention, as defined 75 in the claims.

I claim:—

1. In a fence machine, a rotary pull-out 80 drum, a plurality of crimping bars mounted to reciprocate therein, toggle levers connected to said drum and crimping bars, and means for positively actuating said toggle levers to move the crimping bars lengthwise 85 in opposite directions; substantially as described.

2. In a fence machine, a rotary pull-out drum having in its outer surface a slot extending lengthwise thereof, a plurality of 90 crimping bars having transverse notches in one edge mounted in the slot, toggle levers in said slot connected to one of said crimping bars, and means for actuating said toggles to relatively move the crimping bar 95 in said slot; substantially as described.

3. In a fence machine, a rotary pull-out drum having a slot extending lengthwise of the drum on the outer surface thereof, a plurality of crimping bars having registering 100 notches in one side mounted in the slot, toggle levers connected to one of said crimping bars, and means for actuating said toggles to relatively move the crimping bar lengthwise when the drum is rotated; sub- 105 stantially as described.

4. In a fence machine, a hollow rotary pull-out drum having slots extending lengthwise on the outer surface of the drum, crimping bars having registering notches in 110 one side thereof mounted in the slots, means for actuating the movable crimping bars longitudinally in one direction, a stationary cam mounted within the hollow drum and operatively engaging with the bar actuating 115 means when the drum is rotated, and independent means for moving the bars in the opposite direction; substantially as described.

5. In a fence machine, a rotary pull-out 120 drum having a plurality of slots extending lengthwise on the outer surface thereof, a plurality of sets of crimping bars mounted in said slots, said crimping bars having registering crimping notches in one side thereof 125 for bending the fence wire, toggle levers connected to at least one of each set of crimping bars, and means contacting with the toggle levers for actuating the movable crimping bars in moving the notches into 130

and out of alinement; substantially as described.

6. In a fence machine, a rotary pull-out drum having a plurality of slots extending
5 lengthwise on the outer surface thereof, a plurality of sets of crimping bars mounted in said slots, said crimping bars having registering crimping notches in one side thereof for bending the fence wire, toggle levers
10 connected to at least one of each set of crimping bars, means contacting with the toggle levers for actuating the movable crimping bars in moving the notches out of alinement when the drum is rotated, and independent means for actuating the toggles
15 to move the crimping bars in the opposite direction during the rotation of the drum; substantially as described.

7. In a fence machine, the combination
20 with a rotary drum having slotted openings extending lengthwise in its outer surface and relatively movable crimping bars mounted in said slots having crimping notches in the side thereof, of toggle levers connected
25 to the movable bars, and means contacting with said toggle levers arranged to move the notched bars lengthwise; substantially as described.

8. In a fence machine, the combination
30 with a rotary pull-out drum having a recessed end and having a series of slots extending lengthwise on its outer surface, a series of sets of crimping bars mounted in

the slots having registering crimping notches in one side thereof, of a cam in the recessed
35 end of the drum operatively connected to the crimping bars and arranged to move in one direction at least part of said bars when the drum is rotated; substantially as described.

9. In a fence machine, a rotary pull-out drum having a recessed lower end, a crimping bar mounted thereon adapted to reciprocate in a path parallel to the axis of the drum, and means including a stationary
40 cam actuated by rotation of the drum for moving the crimping bar in one direction, said drum being rotated by the pull of the wire fabric passing around the drum; substantially as described.

10. In a fence machine, a rotary pull-out drum, a plurality of crimping bars mounted to reciprocate thereon, toggle levers connected to said drum and crimping bars, and means for positively actuating the toggle
55 levers to move the crimping bars lengthwise, said rotary pull-out drum being rotated by the pull of the fabric passing around the drum; substantially as described.

In testimony whereof, I have hereunto set
60 my hand.

JOHN A. COCKER.

Witnesses:

GEO. M. HOGMIRE,
J. P. MITCHELL.