

(No Model.)

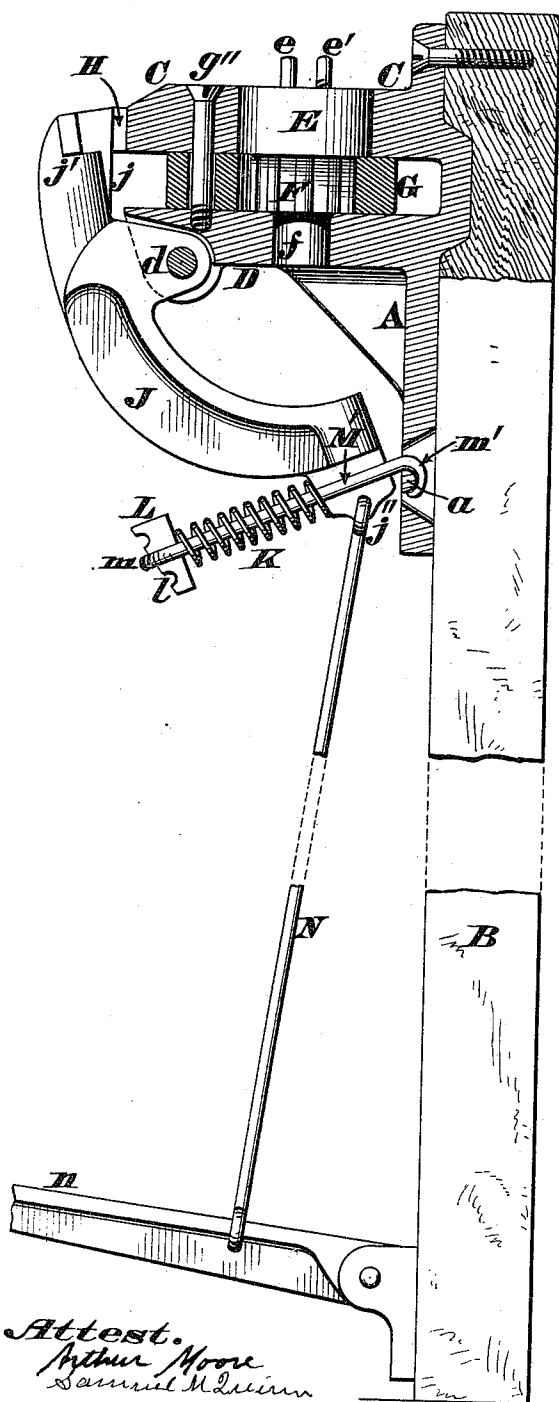
M. T. DECK.
WIRE BENDER.

2 Sheets—Sheet 1.

No. 566,379.

Patented Aug. 25, 1896.

FIG. 1.



Attest.
Arthur Moore
Samuel M. Dean

FIG. 2.

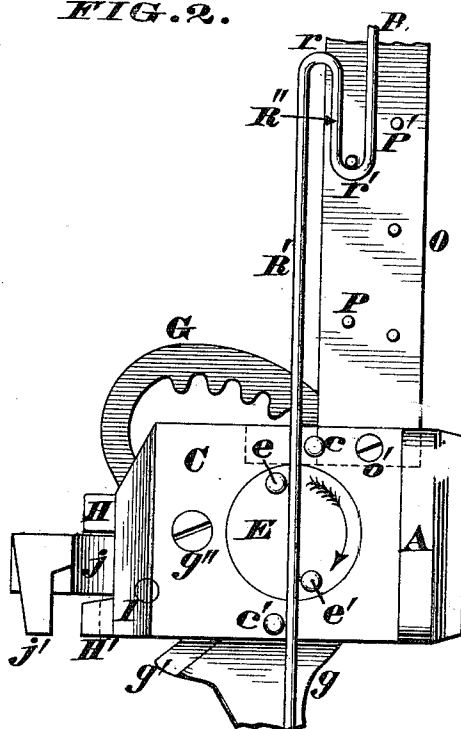
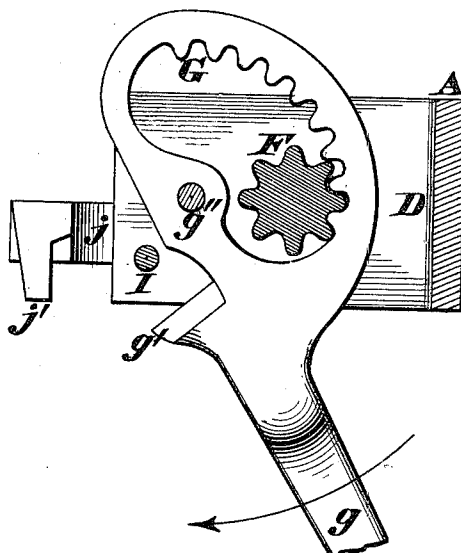


FIG. 3.



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By James H. Layman.
att'y

(No Model.)

M. T. DECK.
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FIG. 4.

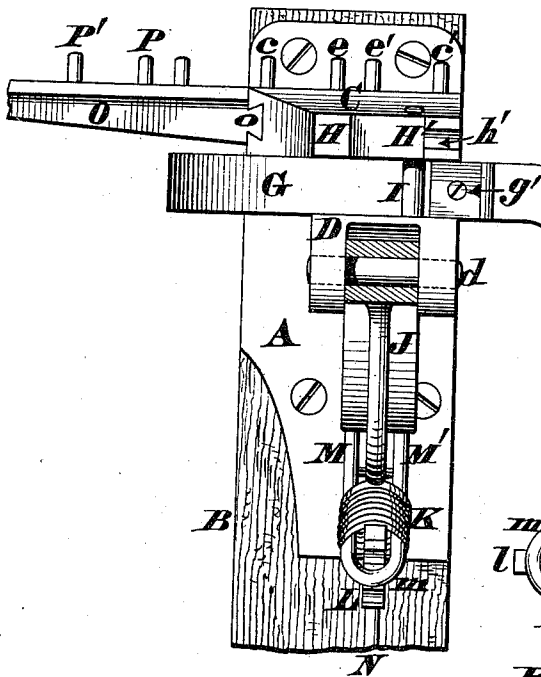


FIG. 9.

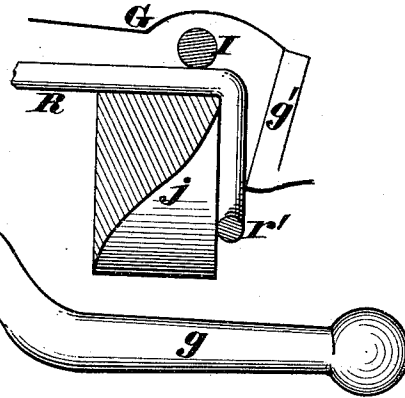


FIG. 5.

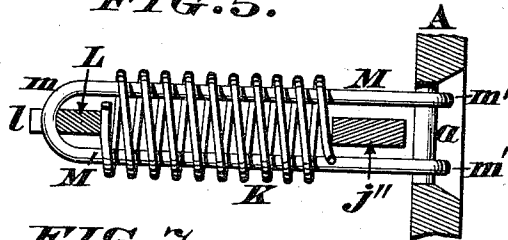


FIG. 7.

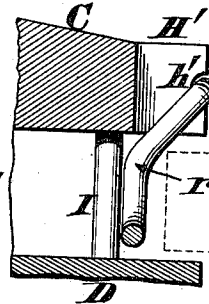


FIG. 11.

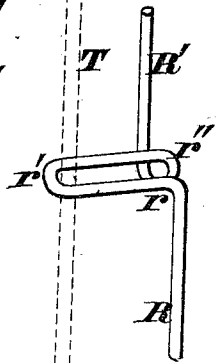


FIG. 6.

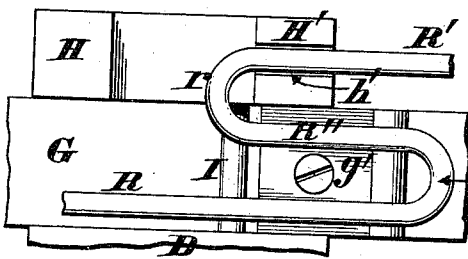


FIG. 8.

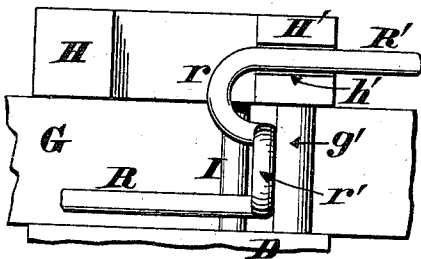
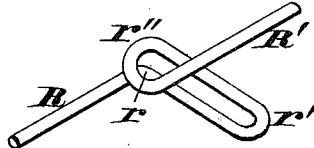


FIG. 10.



Attest.

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Att'y.

UNITED STATES PATENT OFFICE.

MARION T. DECK, OF MILTON, INDIANA.

WIRE-BENDER.

SPECIFICATION forming part of Letters Patent No. 566,379, dated August 25, 1896.

Application filed April 10, 1896. Serial No. 586,907. (No model.)

To all whom it may concern:

Be it known that I, MARION T. DECK, a citizen of the United States, residing at Milton, in the county of Wayne and State of Indiana, have invented certain new and useful Improvements in Wire-Benders; and I do hereby declare the following to be a full, clear, and exact description of the invention, reference being had to the annexed drawings, which form a part of this specification.

My invention comprises a cheap and simple machine which is operated both by hand and foot for the purpose of bending a peculiarly-shaped stay used in connecting the stringer-wires of a fence, the details of said machine and the manner of working it being hereinafter more fully described.

In the annexed drawings, Figure 1 is a sectioned side elevation of my wire-bender, a portion of a post to which it is attached being broken away. Fig. 2 is a plan of the machine, a wire being applied thereto and the free end of the hand-lever being broken away. Fig. 3 is a horizontal section of the bender, taken in the plane of said lever. Fig. 4 is a front elevation of the machine, a jaw of the same being sectioned vertically in the plane of its pivot. Fig. 5 is an enlarged section of a spring-stirrup that retains said jaw in its normal or open position. Figs. 6, 7, 8, and 9 are diagrams showing the successive operations of bending a wire in the machine. Figs. 10 and 11 are perspective views of this bent wire or stay.

The housing of the bender is a vertical plate A, capable of being fastened to a post or other support B, and C D are parallel flanges projecting horizontally from said plate, and preferably integral therewith, the upper flange C being provided with a circular bore to admit a cylindrical hub E. This hub is integral with a pinion F, having a gudgeon *f*, journaled in the lower flange D, the upper end of said hub being armed with a pair of pins *ee'*, that perform the initial bending of a wire.

Adapted to swing freely between the two flanges and engage with the pinion F is a segmental rack G, having a hand-lever *g* and shoulder *g'*, the latter being a small steel plate properly fastened to said lever.

g'' is a pivot around which the rack G swings in a horizontal plane.

cc' are pins projecting vertically from flange C, and H H' are lugs at the front of said flange, the lug H' being grooved horizontally at *h'* for a purpose that will presently appear.

I is a stop located near the lug H' and connecting the flanges C D.

J is a jaw pivoted to the lower flange at *d* and having its upper end *j* so shaped as to enter between the lugs H and H', while a lateral projection *j'* of said jaw bears against the grooved lug H'. *j''* is a lug at the lower end of the jaw, and K is a coiled spring, one end of which bears against this lug *j''*, while the other end of said spring is in contact with a tapering key or wedge L. The front edge of this key is notched at *l*, so as to be readily adjusted within the bend *m* of two rods M M', as more clearly seen in Fig. 5, the rear ends of these rods being hooked at *m' m'* to engage with a bar or bars *a* of the plate A.

N is a rod connecting the lug *j''* with a treadle *n*, the latter being suitably hinged to the post or other standard B.

O is a gage-plate having a dovetail tenon *o* fitted within a mortise of the flange C, as seen in Fig. 4, in order that said plate can be readily adjusted back and forth, as occasion requires. After being thus adjusted the plate is held in place by a screw *o'*. (Seen in Fig. 2.) This plate may be about one foot long, and its upper surface is armed with two rows of stop-pins P P', the pins P' being nearer together than the pins P.

My machine is operated in the following manner, the normal position of its various parts being seen in Figs. 1, 2, and 3, reference to which illustrations show that the jaw J is now open and the pins *ee'* of the bending-hub E are disposed as shown in Fig. 2. A wire R is then laid flatly upon the upper flange C, and its advancing end is carried along the gage-plate O a greater or less distance, according to circumstances. If the first bend in the wire is to be made quite near this advancing end, the wire will be brought to bear against a stop P or P', that is the proper distance from the center of the hub E; but if the bend is to be more remote from this center the advancing end of the wire is drawn still farther along the plate O until it reaches a stop that is six, eight, or ten inches from said center. The distance having been

thus readily gaged the operator then grasps the handle *g* and swings it horizontally in the direction of the arrow seen in Fig. 3, the result being a half-revolution of the hub E.

5 Now, as the wire passes diametrically across said hub between its pins *e e'*, it will be understood that the circularly-moving pin *e* brings one side of said wire in contact with the fixed pin *c*, while the other moving pin, *e'*, brings

10 the opposite side of the wire against the other fixed pin, *c'*. Consequently the wire now assumes the **S** shape, more clearly seen in Fig. 6, where *R* is the advancing portion of said wire, *R'* the trailing portion, *R''* an intermediate part, and *r r'* the two bends formed by the action of the various moving and fixed pins of the machine. Attention is here called to the fact that these parts *R R' R'' r r'* are

15 all in the same plane, and the straight portions *R R' R''* of the wire are parallel with each other. Having thus formed one of the **S**-shaped portions, the wire is raised clear of the pins and moved forward until the bend *r'* comes in contact with the proper gage-

20 pin *P*, as seen in Fig. 2, after which act the lever *g* is swung back, so as to restore the hub E to its normal position. The wire is then reengaged with the hub-pins, and the above-described operations are repeated as

25 often as required, the jaw *J* being inactive while the bending devices are at work; but after bending a sufficient number of wires one of their **S**-shaped portions is inserted in the machine in the manner seen in Fig.

30 6, the part *R'* of said portion being now seated within the groove *h'*, while the bend *r'* projects somewhat beyond the right side of the lug *H'*. The treadle *n* is then depressed, thereby closing the jaw *J* and causing its

35 lateral projection *j'* to grasp the wire *R'* and clamp it within the groove *h'*. At the same time the part *j* of the jaw acts against the wire, as indicated by the dotted line in Fig. 7. This pressure causes the wire to be bent back

40 at *r''* until it comes in contact with the stop *I*, and the wire, being still held in this position, is next subjected to the action of the lever *g*, the latter being swung forward by the hand of the operator. This swinging

45 movement causes the shoulder *g'* of said lever to bear against the portions *R R''* of the wire and bend them against the upper part of the jaw until said portions are practically at right angles to their former positions. (See

50 Figs. 8 and 9.) This act completes the formation of the peculiarly-shaped bend, and the jaw being opened by the action of spring *K* the wire is liberated, moved forward, and the second bent portion thereof is operated

55 on in the above-described manner. The wire now has the shape seen in Fig. 10, the loop *r''* having been formed by the operation seen in Fig. 7. When this wire is used as a fence-stay, a stringer of the fence is passed

60 through the loop *r''*, and the portions *R R'* of said wire are about vertical. A key (in-

dicated by the other dotted line *T*, Fig. 11) may be passed down through the bend *r'*, or the two horizontal portions of the wire may be twisted around a stringer-wire. Finally,

70 by simply forcing the wedge *L* down within the stirrup *M M'* the stiffness of the spring *K* can be increased to any desired degree.

I claim as my invention—

1. A wire-bender housing having a pair of 75 pins *c, c'*, and a single reciprocating rotary hub *E* journaled in it, the hub being provided, near its periphery, with a pair of pins *e, e'*, and the housing-pins *c c'* being situated on opposite sides of said hub, all as herein de-

80 scribed, and for the purpose stated.

2. The combination, in a wire-bender, of a housing *A, C, D*, having a pair of pins *c, c'*, a hub *E* turning in the plates *C, D* of said housing, and having a pair of pins *c, c'*, a pinion *F* 85 integral with said hub; and a segmental rack *G* gearing with said pinion, for the purpose described.

3. The combination, in a wire-bender, of a housing, having a lug *H'*, grooved at *h'*, and 90 a jaw *J* pivoted to said housing, and adapted to hold a wire within said groove, as described.

4. The combination, in a wire-bender, of a housing *A, C, D*, a lever *G* swinging between the plates *C, D* of said housing, and a stop *I* 95 uniting said plates, for the purpose described.

5. The combination, in a wire-bender, of a housing; a jaw pivoted thereto; a stirrup *M M'*, between which the lower portion of said jaw swings; a coiled spring *K*, surrounding 100 said stirrup; and a wedge *L* applied to the latter, the edge of said wedge being provided with a series of notches *l*, to engage with the bend *m* of said stirrup, and thereby regulate the tension of said spring, all as herein de-

105 scribed.

6. The combination, in a wire-bender, of a housing and a laterally-adjustable gage-plate *O*, provided with stops *P*, for the purpose 110 described.

7. The combination, in a wire-bender, of the housing *A C D c c'*, the bending device *E e e'* *F f* journaled therein; the segmental rack *G* gearing with the pinion *F*; the jaw *J*, and a treadle for operating said jaw, in the manner 115 described.

8. The combination, in a wire-bender, of a housing having a pair of parallel flanges *C, D*; a jaw *J* pivoted to the lower flange *D*, and adapted to clamp a wire against the end of 120 the upper flange *C*; and a lever *g*, swinging between said flanges and having a lateral shoulder *g'*, that operates against said clamped wire, in the manner described, and for the purpose stated.

125

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

MARION T. DECK.

Witnesses:

JAMES H. LAYMAN,
JOHN C. ROGERS.