

No. 714,426.

Patented Nov. 25, 1902.

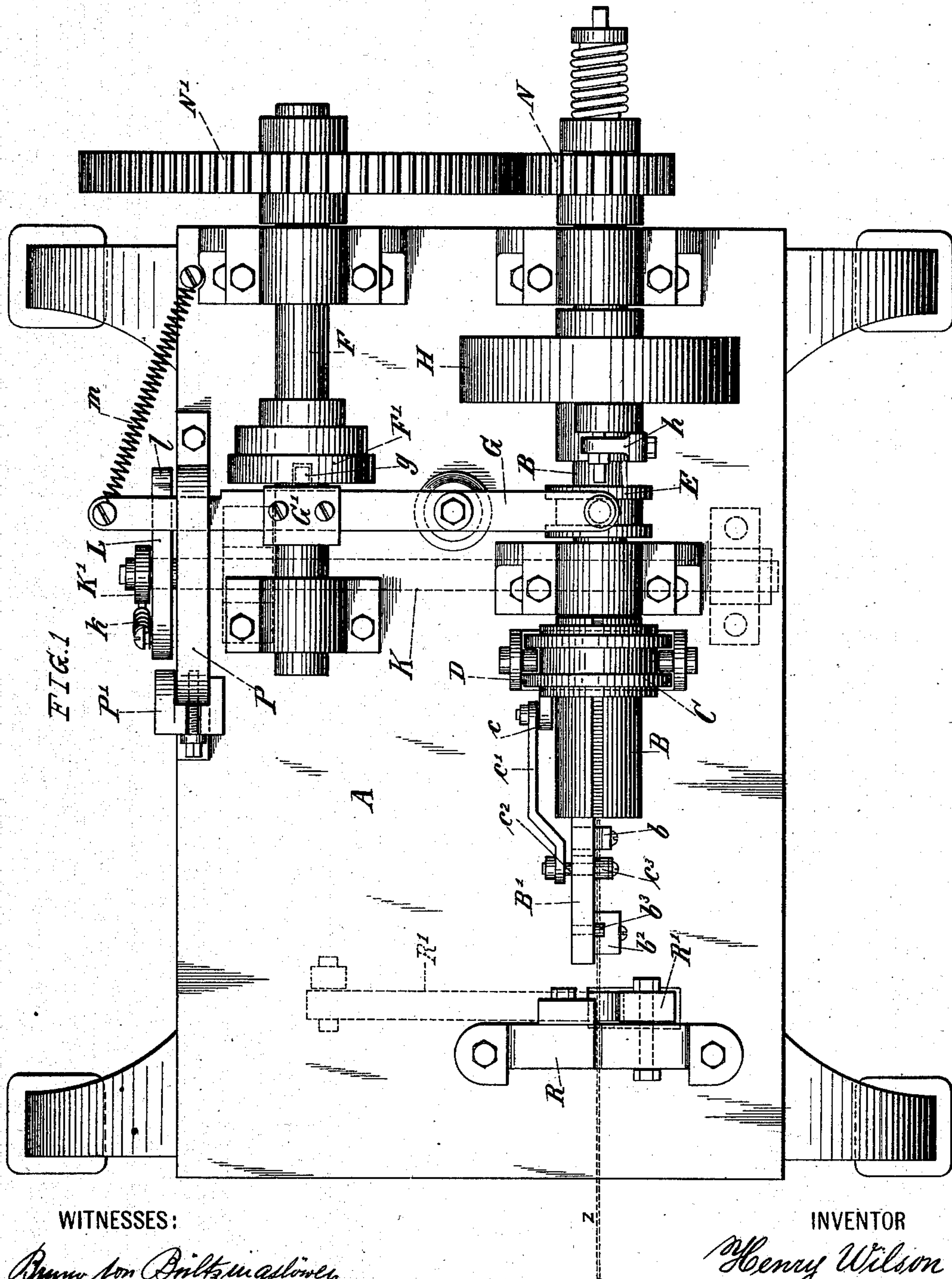
H. WILSON.

MACHINE FOR FORMING LOOPS ON WIRE ENDS.

(Application filed Apr. 9, 1902.)

(No Model.)

4 Sheets—Sheet 1.



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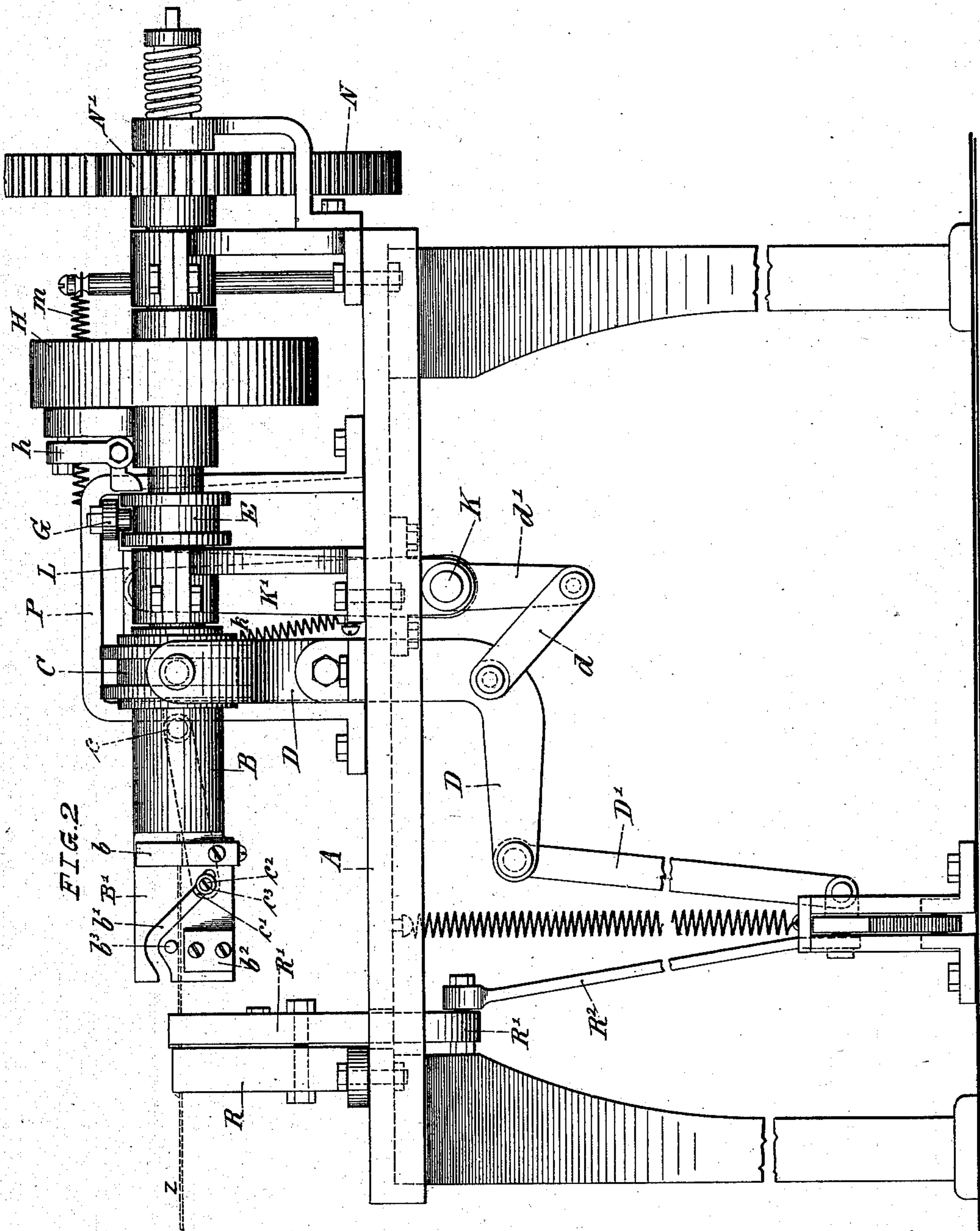
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WITNESSES:

Bruno von Billzingslowe
Paul Ladisch

INVENTOR

Henry Wilson

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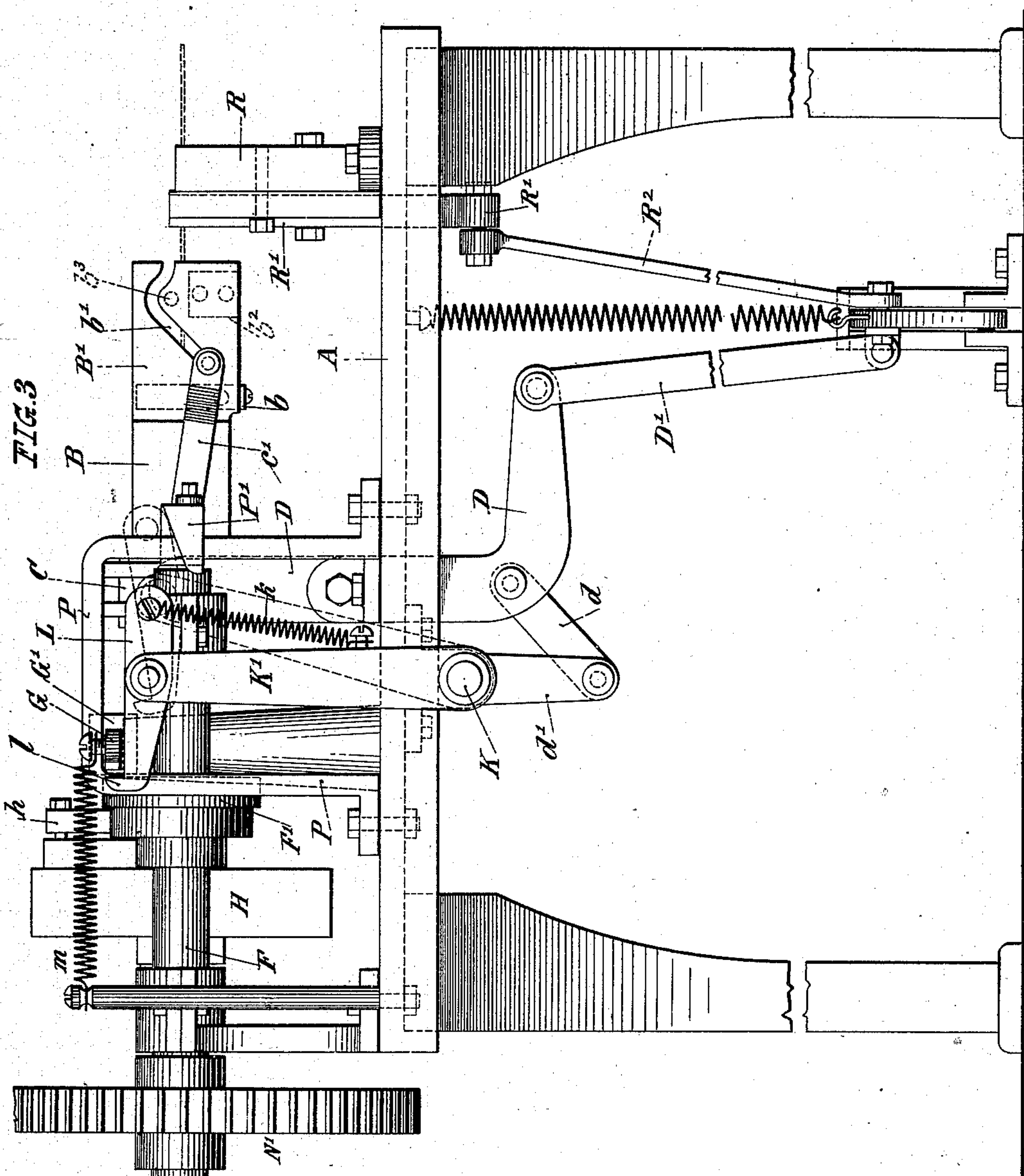
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UNITED STATES PATENT OFFICE.

HENRY WILSON, OF NEW YORK, N. Y.

MACHINE FOR FORMING LOOPS ON WIRE ENDS.

SPECIFICATION forming part of Letters Patent No. 714,426, dated November 25, 1902.

Application filed April 9, 1902. Serial No. 102,059. (No model.)

To all whom it may concern:

Be it known that I, HENRY WILSON, a citizen of the United States of America, residing at New York, in the county and State of New York, have invented certain new and useful Improvements in Machines for Forming Loops on Wire Ends, the following being a complete specification of such machine with reference to the accompanying drawings.

My invention relates to the same type of machines as described in my application, Serial No. 86,286, filed December 17, 1901, for improvements in machines for forming the cross-heads of hay-bale wires; and the object of the present improvements is to arrange the bending mechanism in such manner that the bending operation of the wire for forming the loop and the twisting operation of the ends of the latter are successively and automatically effected.

In the accompanying drawings, Figure 1 is a plan view of my machine in its inoperative position, the inserted wire being shown in dotted lines. Fig. 2 is a side elevation of the same looking toward the front of Fig. 1. Fig. 3 is another side elevation looking toward the back of Fig. 1. Fig. 4 is a detail side elevation showing the flattened head of the main shaft with the bending mechanism, the wire being inserted and all parts in their inoperative position. Fig. 5 shows the same view as Fig. 4, the bending mechanism being in its position after effecting the bending of the wire. Fig. 6 is a plan view of Fig. 4. Fig. 7 shows the completed wire loop.

The same letters of reference indicate corresponding parts of my machine throughout the drawings.

Referring to the drawings, A indicates the base-plate of the machine, which is suitably supported, so as to bring the machinery in a proper position for use.

B indicates the main shaft, which is journaled in two bearings upon the base-plate A. The forward end B' of this shaft has a square flattened form. b is a lug secured upon this flattened head B' and provided with a recess, so as to support the inserted wire z before the bending operation is started. b' is an angular cut-out guide-groove in said flattened head B', the latter carrying a second lug b^2 , which also serves as support for the wire z .

Above lug b^2 a pin b^3 is secured to the head portion B', laterally projecting from the same. Another pin c^2 , guided by said angular groove b' and projecting from both sides of the flattened head B', carries at one end a friction-roll c^3 , while the other end is pivotally attached to a connecting-rod c' , the other end of which is fulcrumed at an arm c , secured at a sliding ring C upon the main shaft B.

The means for operating the machine are exactly the same as in my aforesaid prior application and consist of the following parts:

H is a disk loosely mounted upon the main shaft B and driven by any suitable power.

h indicates a coupling device for throwing disk H into engagement with the main shaft. This coupling is operated by a foot-lever which at the same time effects the shifting of the aforesaid sliding ring C by means of a connecting-rod D' and lever D. The upper end of the latter forms a fork embracing said sliding ring, which, although loosely mounted upon shaft B, so as to allow the sliding motion, is engaged with the same by a spline connection.

The coupling h is operated through the following combination: A link d is pivotally connected to the lever D and to a crank-arm d' , secured upon shaft K, which is journaled in bearings downwardly projecting from the base-plate A. On one side of this shaft K an arm K' is secured, carrying a swinging lever L, one end of which is connected with the arm K' by a spring k , while the other end is formed to a hook l . A horizontal lever G, fulcrumed upon the base-plate A, is placed so as to be engaged by said hook l . This horizontal lever G is drawn toward hook l of the swinging lever L by means of a spring m . In order to raise the spring-connected end of the swinging lever L for releasing lever G when sufficiently drawn back, as indicated in dotted lines in Fig. 3, a block P', with a suitable cam surface, is provided on a frame P, which is screwed upon the base-plate A. The other end of this lever G is connected with a sliding ring E by means of a pin projecting from said lever and loosely engaged by the projecting side flanges of said sliding ring, which operates the coupling h of the driving-disk H.

The amount of revolutions of the main shaft is limited by the following means: A pinion

N is mounted upon the outer end of shaft B, meshing with a gear N' upon another shaft F, also journaled in bearings projecting from the base-plate A. This gearing may be of any
5 suitable ratio, so as to allow several revolutions of the main shaft B during one revolution of shaft F. A disk F' is secured on shaft F, having a suitable recess for a pin g, laterally projecting at G' from the horizontal lever G.

The clamp device for tightly pressing the free end of the wire z after bending a loop to the long end of the wire body, so as to allow the twisting operation, is of the same construction as in my aforesaid prior application, and
15 comprises a support R, screwed upon the base-plate A, a fixed block laterally projecting from this support, and an oscillating clamp-lever R', fulcrumed at the support R, so as
20 to form a clamp with said fixed block. R² is a connecting-rod pivoted to the oscillating clamp-lever R' and to the foot-lever, thereby effecting the operation of the clamp device by depression of the latter.

The bending of the loop is effected in the following manner: The wire z is inserted in a position as indicated in Figs. 4 and 6. In depressing the foot-lever the upper forked end of the lever D operates the sliding ring
30 C, thus shifting pin c², through the medium of connecting-rod c', upwardly in its guide-groove b', whereby friction-roll c³ forces wire z around pin b³, and during the last part of its motion toward the long end of the wire
35 body to a position as shown in Fig. 5. In this moment the clamp device comes into effect, thus holding the two wire ends of the so-formed loop tightly together, while at the same time the coupling throws the driving-
40 disk H into engagement with the main shaft B, thereby starting the twisting operation, which is limited by pin g entering the recess in disk F' after a single revolution of the same has been effected.

45 Having now fully described my invention

relating to improvements in forming loops on wire ends, what I claim, and desire to secure by Letters Patent, is—

1. In combination with a machine for forming loops on wire ends, a wire-bending device, comprising a shaft, a flattened head on
50 said shaft, an angular cut-out guide-groove in this flattened head, a pin sliding in said groove and projecting with both ends from the flattened head, one of these projecting ends
55 of said pin carrying a friction-roll, so as to effect bending of the wire, a fixed pin, laterally projecting from the flattened head to resist this bending operation, a lug secured
60 below said pin so as to support the wire before and during the bending operation, and means for operating this wire-bending device comprising a connecting-rod and a sliding
ring on said shaft, substantially as and for the purpose set forth.

2. In combination with a machine for forming loops on wire ends, a wire-bending device, comprising a shaft, a flattened head on
70 said shaft, an angular cut-out guide-groove in this flattened head, a pin sliding in said
75 groove and projecting with both ends from the flattened head, one of these projecting ends of said pin carrying a friction-roll, so as to effect bending of the wire, a fixed pin, laterally projecting from the flattened head to
80 resist this bending operation, a lug secured below said pin, another lug having a suitable recess and being also laterally secured upon the flattened head, both lugs being arranged
85 so as to support the wire before and during the bending operation, and means for operating this wire-bending device comprising a connecting-rod and a sliding ring on said shaft, substantially as and for the purpose set forth.

New York, N. Y., 24th day of March, 1902.
HENRY WILSON.

Witnesses:

BRUNO VON BÜLTZINGSLÖWEN,
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