Oct. 26, 1937. G. JACOBS 2,097,193

WIRE BENDING MACHINE

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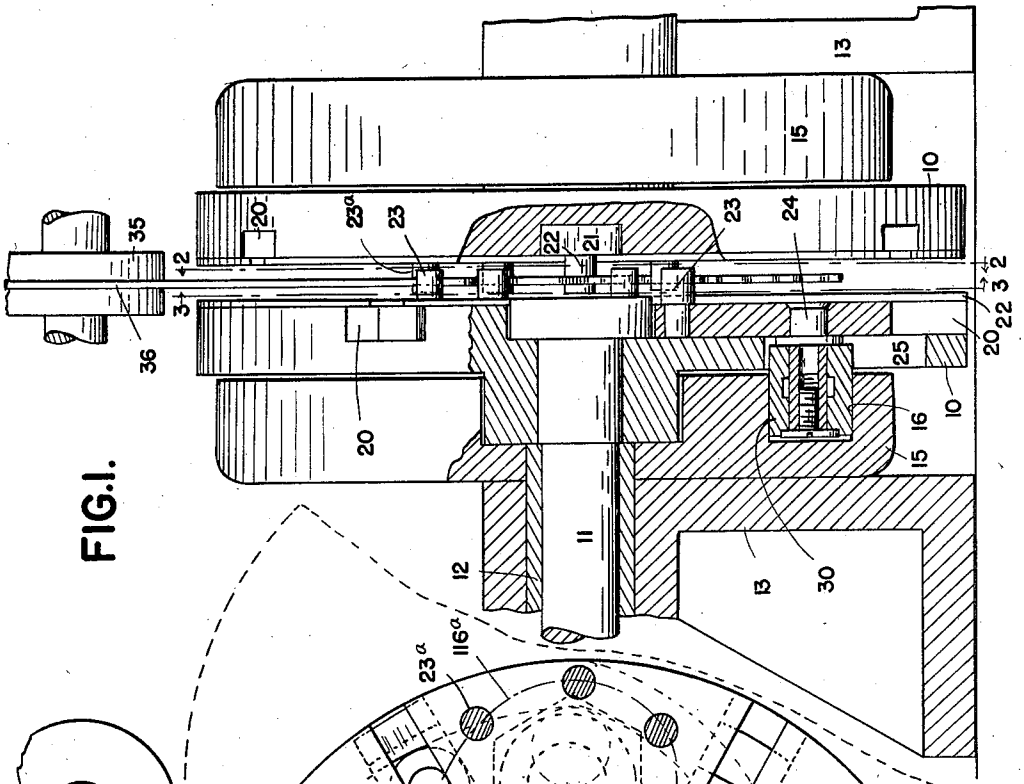

FIG. 1.

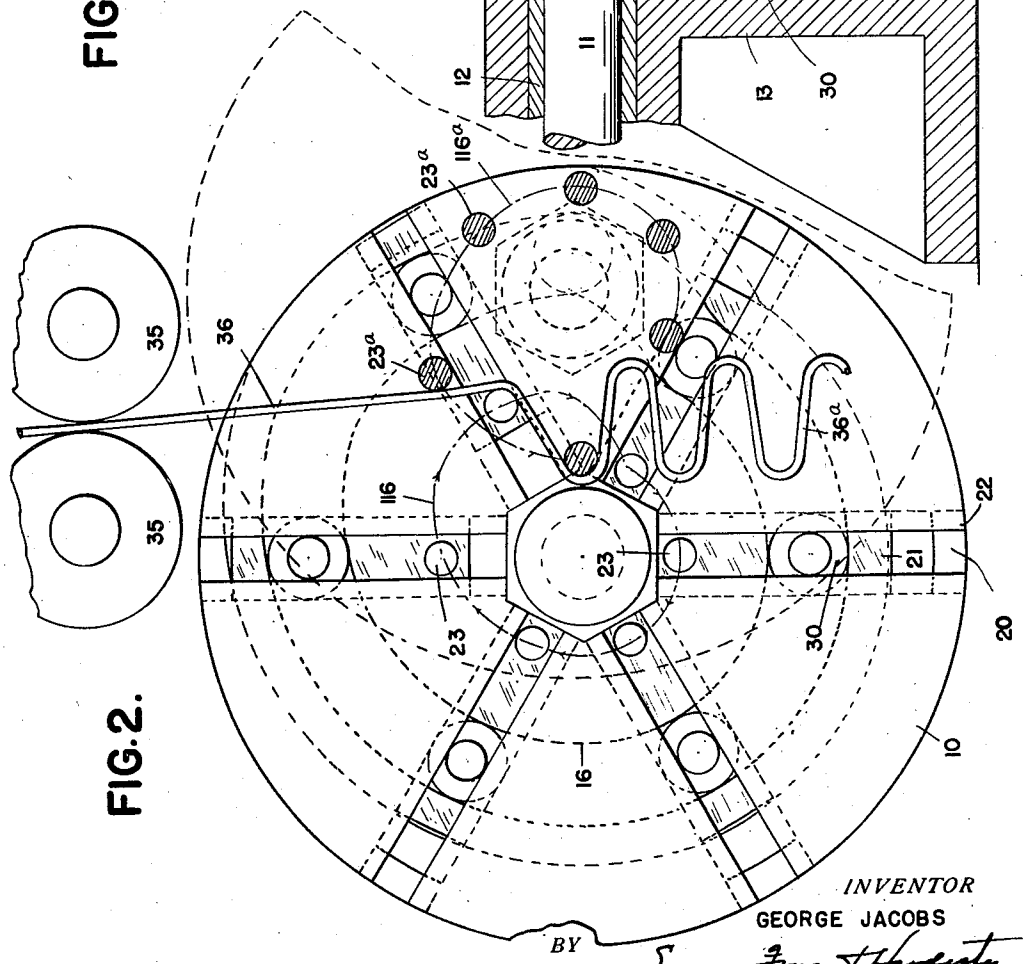

FIG. 2.

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FIG. 4.

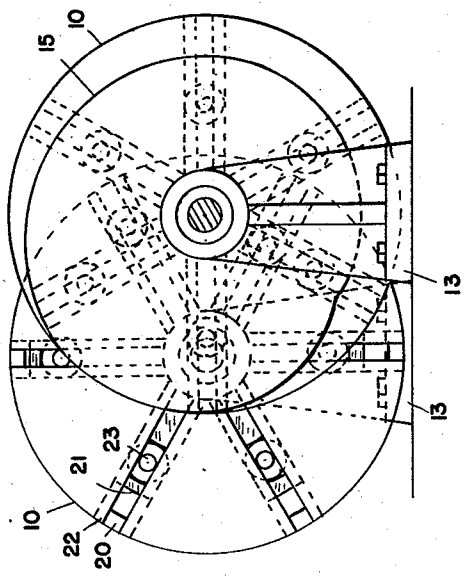
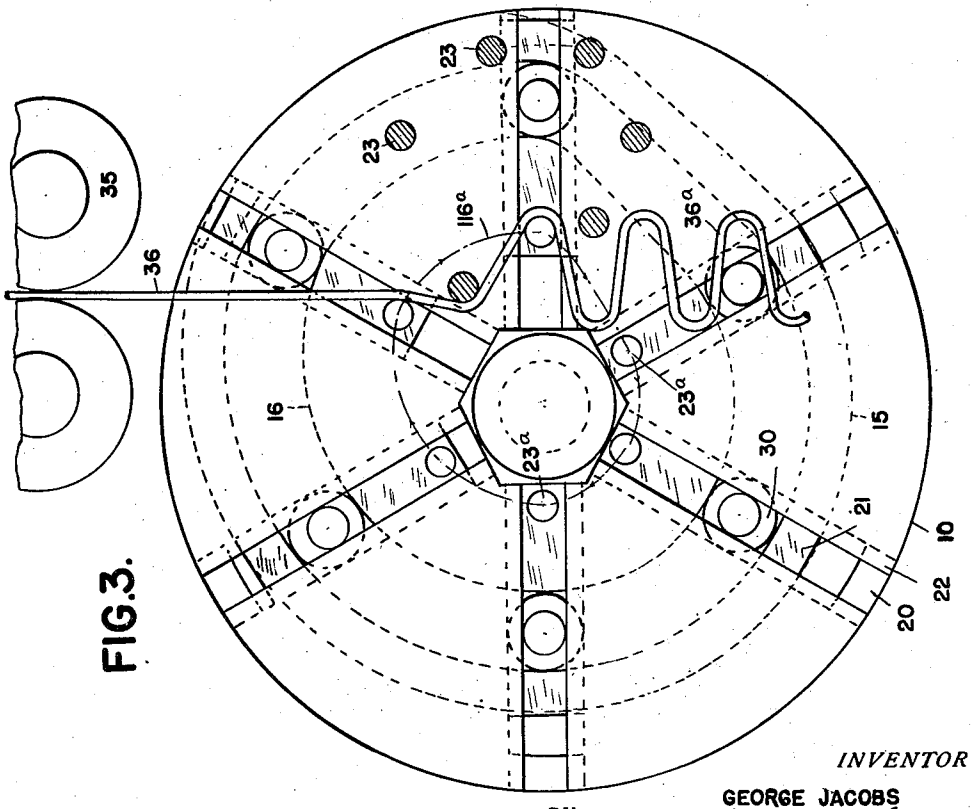


FIG. 3.



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2,097,193

WIRE BENDING MACHINE

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7 Claims. (Cl. 140—105)

The present invention relates to machines for bending wire and more particularly to wire bending machines for producing springs, for cushions and the like, in the form of zigzag bent wire.

Among the objects of the present invention is a machine of the class described through which the wire progresses continuously as distinguished from a step-by-step or intermittent motion.

Another object is a machine which, because of the continuous movement of the stock and the means for producing it, is of much larger capacity than those heretofore used for the same purpose.

Still another object is to greatly simplify the construction of such machines and thereby reduce the cost thereof.

Other objects and advantages will be apparent from the following description, wherein reference is made to the accompanying drawings illustrating a preferred embodiment of my invention and wherein similar reference numerals designate similar parts throughout the several views.

In the drawings:

Figure 1 is a side elevation of the operating parts of the machine with parts in section.

Figure 2 is a section on line 2—2 of Figure 1.

Figure 3 is a section on line 3—3 of Figure 1.

Figure 4 is a diagrammatic end elevation on a smaller scale.

Referring first to Figures 1 and 4, it will be seen that the machine comprises two discs 10, each fixed upon a drive shaft 11 supported in suitable bearings 12 in a supporting member 13, the two discs 10 being arranged face to face but spaced a short distance and also arranged out of line with each other as shown in Figure 4. Fixed upon each support 13 behind its disc 10 is a face cam member 15 having a cam groove 16.

Each of the discs, as shown best in Figures 1 and 3, is slotted radially, as at 20, six of such slots, equally spaced, being shown. Each of the slots receives a block 21, slidable therein, which blocks are maintained in the slots by the edges of the segmental cover plates 22 held upon the discs by suitable means such as screws (not shown).

Each of the blocks 21 carries upon its face near the inner end a pin 23 and upon its back toward the outer end a pin 24 which extends through a suitable opening 25 in disc 10 and upon which is mounted a roller 30 lying in a cam groove 16 and adapted to coact with the cam surfaces thereof.

It should be noted that the discs 10 and their associated parts are identical but that when in position to operate the shafts are displaced laterally from each other and that the slots 20 in one of the discs are advanced radially to a position 30 degrees ahead of the other. The cam grooves 16 are of the form shown in Figures 2 and 3, which provides for a path for the pins 23 and 23*a*, such as is indicated by the lines 116 and 116*a*, respectively. When the discs are face to face, with the pins 23 and 23*a* overlapping, as in Figure 1, these paths 116 and 116*a* intersect as shown in Figure 2, the pins 23 and 23*a* passing each other.

Suitable drive means (not shown) will be provided to rotate the discs 10 over the cam members 15 at equal speed in opposite directions and also to actuate feed rolls 35 by means of which wire 36 is fed between the discs 10 and pins 23—23*a*. As the wire 36 passes between discs 10, it is caught on alternate sides by the pins 23 and 23*a* and bent to the form shown, the pins first forming the bends and then moving out of the way by virtue of the rather abrupt turn of the cam groove toward the center.

As the wire passes out through the space between the discs, it will have the form indicated at 36*a* and may be cut off in suitable lengths by any suitable means.

While it will be apparent that the illustrated embodiments of my invention herein disclosed are well calculated to adequately fulfill the objects and advantages primarily stated, it is to be understood that the invention is susceptible to variation, modification and change within the spirit and scope of the subjoined claims.

What I claim is:

1. A wire bending machine comprising a pair of rotatable discs in face-to-face and spaced relation, said discs being fixed to drive shafts whose axes extend in parallel directions but are displaced laterally from each other, radially slidable elements carried in the faces of said discs, said elements each carrying wire engaging means, means for sliding said elements as said discs are rotated and means for rotating said discs.

2. A wire bending machine comprising a pair of rotatable discs in face-to-face and spaced relation, said discs being fixed to drive shafts whose axes extend in parallel directions but are displaced laterally from each other, radially slidable elements carried in the faces of said discs, said elements each carrying wire engaging means, means for sliding said elements as said discs are rotated, the path of the wire engaging means on one disc intersecting the path of the said means on the other disc and means for rotating said discs.

3. A wire bending machine comprising two substantially identical assemblies mounted in op-

posed but laterally displaced relation with wire engaging means in overlapped relation, each of said assemblies comprising a disc having radially movable pins to engage wire, blocks carrying said pins and slidable in suitable slots in said discs, a roller fixed to each block and projecting through said disc, a face cam with which said rollers coact to cause the radial movement of said blocks, said cam being fixed behind said disc, and means for rotating said discs.

4. In a wire bending machine a support having a shaft bearing therein, a face cam fixed thereto with the cam face away from the support, a shaft rotatable in said bearing, a disc fixed to said shaft and against the face of said cam, said disc having radially arranged elongated openings therethrough and radially arranged channels in the outer face thereof, blocks slidable in said channels and carrying cam followers projecting through said openings into engagement with the face cam, wire engaging elements carried by said blocks and means for rotating said disc.

5. A wire bending machine comprising a pair of rotatable discs in face-to-face and spaced relation, said discs being fixed to drive shafts whose axes extend in parallel directions but are displaced laterally from each other, wire engaging elements carried by each of said discs and movable in a radial direction, means for so moving said elements when said discs are rotated whereby each travels in an orbit, the said elements on one disc projecting into the plane of the elements on the other disc and the orbit of one set intersecting the orbit of the other and means for rotating said discs.

6. A wire bending machine comprising a pair of rotatable discs in face-to-face and spaced relation, said discs being fixed to drive shafts whose axes extend in parallel directions but are displaced laterally from each other, wire engaging elements carried by each of said discs and movable in a radial direction, means for so moving said elements when said discs are rotatable whereby each travels in an orbit and means for rotating said discs.

7. A wire bending machine comprising a pair of rotatable discs in face-to-face and spaced relation, said discs being fixed to drive shafts whose axes extend in parallel directions but are displaced laterally from each other, wire engaging elements carried by each of said discs and movable toward and away from the center thereof, cam means for directing such movement and means for rotating said discs and causing such movement.

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