June 22, 1926. 1,589,456

P. BEGHETTI

WIRE BENDING AND CUTTING MACHINE

Filed August 18, 1924

Fig. 1.

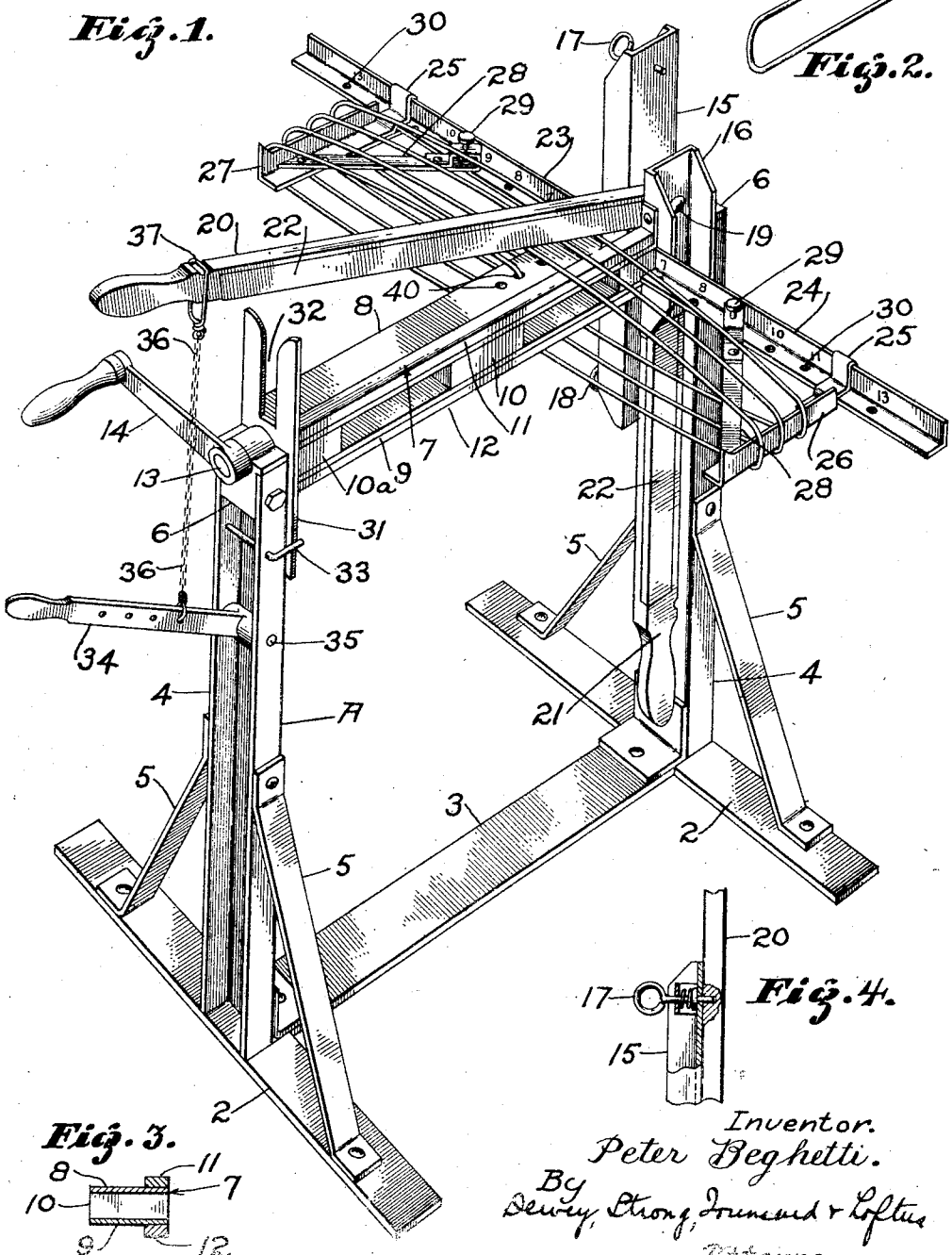


Fig. 2.

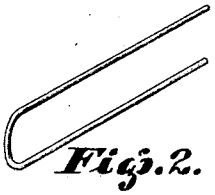


Fig. 3.

Fig. 4.

Inventor.
Peter Beghetti.
By
Dewey, Strong, Jouneau & Loftus
Attorneys.

Patented June 22, 1926.

1,589,456

UNITED STATES PATENT OFFICE.

PETER BEGHETTI, OF SAN FRANCISCO, CALIFORNIA.

WIRE BENDING AND CUTTING MACHINE.

Application filed August 18, 1924. Serial No. 732,663.

This invention relates to a wire bending and cutting machine.

In the construction of concrete buildings a great amount of wire is required, this being due to the fact that wire anchors are extensively used and that wire is employed to tie the concrete forms together and also to tie and secure the reinforcing rods and other members in place. The usual practice is to cut and bend the wire by hand as it is required. This materially slows down the work of assembling the concrete forms and placing and securing the reinforcing rods, and the cost of construction is thereby proportionately increased.

The object of the present invention is to do away with the hand-cutting and bending as much as possible by providing a machine whereby the wire may be rapidly bent into suitable shapes and cut into lengths as required.

One form which my invention may assume is exemplified in the following description and illustrated in the accompanying drawings, in which—

Fig. 1 is a perspective view of the wire bending and cutting machine.

Fig. 2 is a perspective view of one of the wire shapes obtained by the bending and cutting machine.

Fig. 3 is a cross-section of the shear head.

Fig. 4 is an enlarged cross-section on line 4—4 of Fig. 1.

Referring to the drawings in detail, and particularly to Fig. 1, A indicates in general a frame comprising a pair of base members 2 tied together by a cross-plate 3. Mounted on the base members 2 is a pair of standards 4, and also carried by the base members 2 are angularly disposed brace bars as indicated at 5. Bearing members 6 are carried by the upper ends of the standards and a shear-head, generally indicated at 7, is journalled therein.

The shear-head consists of a pair of plates 8 and 9, which are interspaced by means of blocks 10. The upper plate 8 supports a shear-plate 11 and the lower plate supports a shear-plate 12. The end spacing blocks indicated at 10^a carry shafts 13, which extend into the bearings 6, and a trunnion-like support is thus provided for the shear-head which permits rotation thereof in the bearings. One of the shaft extensions 13 is provided with a hand-crank 14 and this serves the function of manually rotating the shear-head when desired.

Secured at one end of the shear head is a pair of channel bars, such as indicated at 15 and 16. The bar 15 is longer than the bar 16 and it serves the function of forming a support for a pair of spring-actuated lock pins generally indicated at 17 and 18. Pivotally mounted between the channel bars, as indicated at 19, is a pair of levers 20 and 21, and secured to each lever is a cutter bar or blade 22. Also secured to the shear-head, adjacent the channel bars 15 and 16 and on the inner side of the same, is a pair of radially disposed angle bars or arms 23 and 24. Slidably mounted thereon are bearing brackets 25, and suitably secured to each bearing bracket are right-angularly disposed forming heads 26 and 27. The forming heads in this instance consist of sections of angle-iron.

The forming heads together with the bearing brackets, are adjustable on the arms 23 and 24 and they may be moved in and out on the same, each forming head being provided with an arm 28, on the inner end of which is mounted a spring-actuated locking pin 29. The base section of the angle bars 23 and 24 is perforated at intervals, as shown at 30, and the lock-pins 29 may thus register with any perforation, thus permitting inward and outward movement of the forming heads on the bars 23 and 24.

The end of the shear-head opposite the angle bars 23 and 24 is provided with a plate 31. This plate is slotted at opposite ends as indicated at 32 and these slots form guides for the levers 20 and 21. The plate 31 also serves the function of a lock to secure the shear-head against rotation, the plate 31 being locked by means of a pin 33, which may be swung into and out of engagement with the plate. The pin 33 is journalled in the standard 4. A secondary lever 34 is also journalled in the standard 4, as at 35, and a chain 36 forms a connection between this lever and either of the levers 20 and 21. A link 37 is attached to the upper end of the chain and the chain may thus be readily engaged or disengaged as required.

The operation of the machine will be as follows: By referring to Fig. 2 a section of wire capable of being bent and cut by the machine is illustrated. A wire of this shape is usually employed for the purpose of ty-

ing concrete forms together. If it is desired to bend and cut wire sections such as shown in Fig. 2, it is only necessary for the operator to insert the free end of the wire in a perforation 40 formed in the shear-head, and to there secure it. He next raises the lever 20 to a vertical position and locks it by means of the pin 17. He also releases the locking pin 33, which engages the plate 31, and the shear-head is thus free to rotate. He then rotates the shear head, together with the arms 23 and 24 and the forming heads 26 and 27, and the wire is thus wound about the forming heads, as on a reel. When a suitable number of turns has been wound thereon, he again locks the shear-head by throwing the pin 33 into engagement with the plate 31. He next hammers down the corners of the wire over the forming head to produce sharp corners, if desired, and next releases lever 20 by retracting the pin 17. The lever 20 is then pulled downwardly over the wires, so that the cutter blade 22 engages the same. Chain 36, or rather the link 37, is next slipped over the outer end of the lever 20 and a downward pressure is exerted on the lever 34. A compound lever action is in this manner produced and the wires are cut by the blade 22 which cooperates with the shear blade 11. He next disengages the links 37 and raises the lever 22 to vertical position and locks it by means of the pin 17. He again releases the locking pin 33 and rotates the shear head a one-half revolution by means of the link 14. Lever 21 is thus brought to the position formerly assumed by the lever 20. He then locks the shear-head by means of the pin 33 and releases the lever 21 and swings it downwardly against the wires. Chain 36 is attached to the lever 21 and a downward pull on lever 34 will cause the cutting blade 22 to cooperate with the shear-plate 12 and thus sever the wires. Both sides are in this manner cut and a number of wires bent and cut as shown in Fig. 2 are obtained.

If a rounded loop is desired at the end of the shape shown in Fig. 2, in place of the squared corners, rounded forming heads may be applied as a substitute for those indicated at 26 and 27, and if other shapes are desired other types of forming heads may be applied. If a series of long and short shapes, such as shown in Fig. 2, are desired, the forming head 27 may be moved outwardly on the angle bar 23 and the forming head 26 inwardly. Half of the wires will thus be short and the other half long. It is thus possible to obtain two different forms or lengths in one operation, and if exceedingly short lengths are required, for instance for wire anchors, it is possible to remove the forming heads entirely and to wind the wire about the shear head.

A wire bent by the machine will have a uniform shape in each instance, and will have a uniform length. This is quickly and readily accomplished and the cost of bending and cutting the wires is thus materially reduced. The workmen when supplied with wire shapes of this character do not have to stop to bend and cut the wires, and their work is thus facilitated and the cost of construction proportionately reduced.

While the levers 20 and 21 are here shown as supported by the shear-head, so as to rotate in unison therewith, it is obvious that they might be supported on one of the bearing standards 4. Their function and operation would be the same in either instance.

While certain features of the present invention are more or less specifically illustrated, I wish it understood that various changes in form and proportion may be resorted to within the scope of the appended claims. I similarly wish it understood that the materials and finish of the several parts employed may be such as the experience and judgment of the manufacturer may dictate or various uses may demand.

Having thus described my invention, what I claim and desire to secure by Letters Patent is—

1. A wire bending and cutting machine comprising a frame, a shear-head journalled therein, a pair of arms secured to one end of the shear-head and extending radially therefrom, the shear-head being disposed centrally of said arms, a wire bending head on each arm, means for rotating the shear-head, the arms and the bending heads in unison to wind wire about the bending heads and the shear-head, and cutting means movable toward opposite sides of the shear-head to sever the wire.

2. A wire bending and cutting machine comprising a frame, a shear-head journalled therein, a pair of arms secured to one end of the shear-head and extending radially therefrom, a wire bending head on each arm, means for rotating the shear-head, the arms and the bending heads in unison to wind wire about the bending heads and the shear-head, means permitting inward and outward movement of the bending heads with relation to the arms supporting the same and the shear-head, means for locking the bending heads against movement, and a knife movable toward the shear-head to sever the wire.

3. A wire bending and cutting machine comprising a frame, a shear-head journalled therein, a pair of arms secured to one end of the shear-head and extending radially therefrom, a wire bending head on each arm, means for rotating the shear-head, the arms and the bending heads in unison to wind wire about the bending heads and the shear-head, means permitting inward and

outward movement of the bending heads with relation to the arms supporting the same and the shear-head, means for locking the bending heads against movement, a knife movable toward the shear-head to sever the wire, and means for locking the shear-head and the bending heads against rotation.

4. A wire bending and cutting machine comprising a frame, a shear-head journalled therein, means for rotating said head, means for locking the head against rotation, a pair of arms secured to the shear-head and rotatable in unison therewith, said arms being disposed at right-angles to the shear-head, bearing brackets slidably mounted on each arm, a wire bending head carried by each bearing bracket, means for securing the bearing brackets against sliding movement on the arms, and a knife movable toward the shear-head.

5. A wire bending and cutting machine comprising a frame, a shear-head journalled therein, means for rotating said head, means for locking the head against rotation, a pair of arms secured to the shear-head and rotatable in unison therewith, said arms being disposed at right-angles to the shear-head, bearing brackets slidably mounted on each arm, a wire bending head carried by each bearing bracket, means for securing the bearing brackets against sliding movement on the arms, a pair of knives pivotally mounted on the shear-head and rotatable in unison with the same, and means for locking the knives against movement about their pivots and in a right-angular position with relation to the shear-head.

6. A wire bending and cutting machine comprising a frame, a shear-head journalled therein, means for rotating said head, means for locking the head against rotation, a pair of arms secured to the shear-head and rotatable in unison therewith, said arms being disposed at right-angles to the shear-head, bearing brackets slidably mounted on each arm, a wire bending head carried by each bearing bracket, means for securing the bearing brackets against sliding movement on the arms, a pair of knives pivotally mounted on the shear-head and rotatable in unison with the same. means for locking the knives against movement about their pivots and in a right-angular position with relation to the shear-head, and means for imparting a compound lever movement to the knives when released.

7. A wire bending and cutting machine comprising a reel, a shear-head disposed centrally thereof, said reel adapted to receive wire which is bent about the reel to form a plurality of elongated loops, and means carried by the shear-head for severing the loops at opposite sides intermediate their ends.

PETER BEGHETTI.