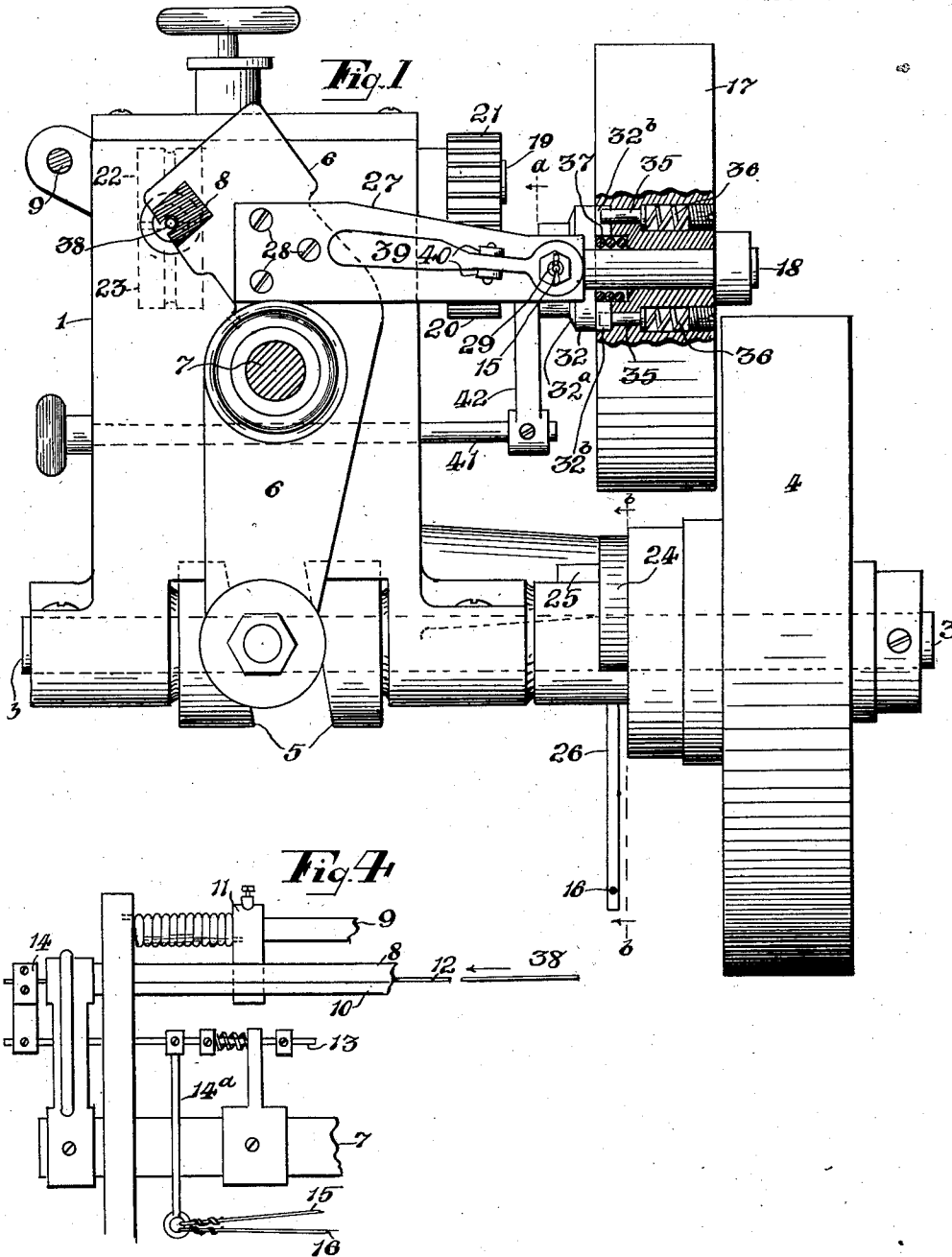


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WIRE STRAIGHTENING AND CUTTING-OFF MACHINE.
APPLICATION FILED NOV. 13, 1911.

1,022,888.

Patented Apr. 9, 1912.

2 SHEETS—SHEET 1.



WITNESSES:

H. H. Lamb.
G. H. Beckwith

INVENTOR

Elmore F. Shuster.

BY Geo. D. Phillips

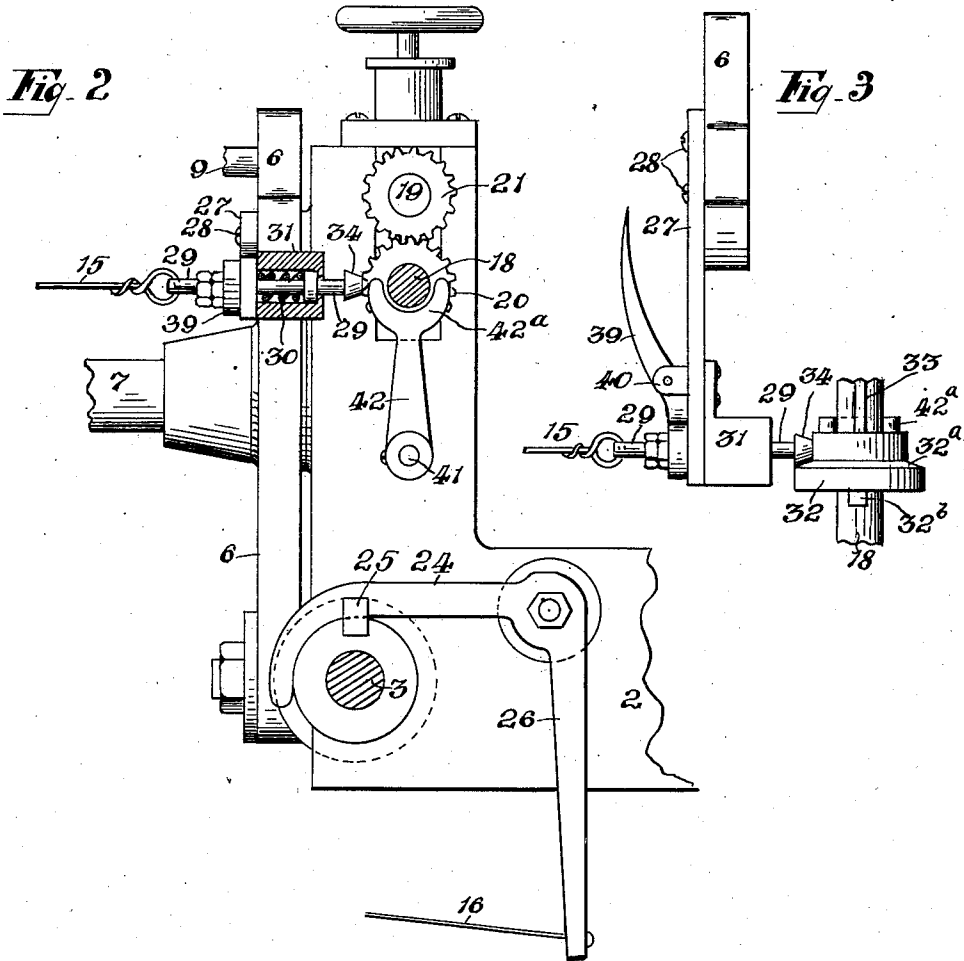
his ATTORNEY

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UNITED STATES PATENT OFFICE.

ELMORE F. SHUSTER, OF NEW HAVEN, CONNECTICUT.

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1,022,888.

Specification of Letters Patent.

Patented Apr. 9, 1912.

Application filed November 13, 1911. Serial No. 659,935.

To all whom it may concern:

Be it known that I, ELMORE F. SHUSTER, citizen of the United States, residing at New Haven, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Wire Straightening and Cutting-Off Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to wire straightening and cutting-off machines, and particularly to means for actuating the cutting-off and feed-roll mechanism.

Referring to the drawings wherein the same figures and letters of reference indicate like parts throughout the several views: Figure 1 represents a front elevation of the machine partly in section; Fig. 2 is a side elevation of the machine; broken view of the bed; sectional view of one of the feed roll shafts on line *a* of Fig. 1 and the cam shaft on line *b*; and broken view of the cutting off lever rock shaft and apron shaft; Fig. 3 is an upper plan view of the cutting off lever and mechanism connected thereto, and broken view of one of the feed roll shafts; and, Fig. 4 is a reduced broken view of the forward part of the machine.

A description of the well known parts of the machine will be briefly set forth to show the relation of my improvements thereto.

1 is the machine head, 2 the bed, 3 the cam shaft journaled in the bed, 4 the continuously running balance wheel pulley for said shaft, cam 5 for actuating the cutting off lever 6 secured to the shaft 7, 8 the guide bar secured to the upper end of the cutting off lever, 9 the apron rock shaft, 10 guide bar apron carried by the lever 11 on said shaft, 12 the gage rod adapted to be actuated by the end of an incoming wire to set in motion mechanism for stopping the feed roll mechanism and starting the cutting off mechanism.

13 is the trip rod connected to the gage rod by the clamp 14.

14^a is a finger depending from the trip rod which is connected to the trip wires 15 and 16 connecting, respectively, with the feed roll and cutting off mechanism presently to be described.

17 is a continuously running balance wheel on the lower feed roll shaft 18.

19 is the upper feed roll shaft rotated from the shaft 18 through the medium of the gears 20 and 21.

22 and 23 are the feed rolls.

The clutch lever has the horizontal arm 24 adapted to engage with a notch in the key 25, and the lower depending arm 26 to which is connected the trip wire 16.

The improved features are as follows:

27 is an arm secured to the cutting off lever by screws 28.

29 is a longitudinally operating trip rod adapted to be actuated in one direction by the trip wire 15, and in the opposite direction by the spring 30 in the housing 31 of the arm 27.

32 is a clutch sleeve slidably mounted on the feed roll shaft 18, and is rotatively connected thereto by the key 33. The incline face 32^a of said sleeve is adapted to be engaged by the taper roll 34 on the end of the trip rod 29 for the purpose presently to be described.

The continuously running balance wheel pulley 17 has the clutch sleeve driving pins 35 backed up by the springs 36.

32^b are lugs on the clutch sleeve adapted to be engaged by the before mentioned driving pins.

37 is a spring adapted to throw out the clutch sleeve and stop the rotation of the feed rolls when the engagement between the roll 34 and the clutch sleeve is broken.

When the end of the incoming wire 38 contacts with the end of the gage rod 12, Figs. 1 and 4, the trip wires 15 and 16 will be simultaneously actuated, the former to break the engagement between the trip rod 29 and the clutch sleeve 32 to stop the feed rolls, and the latter to actuate the clutch lever and release the key 25, which key will then be forced by the usual spring (not shown) toward the continuously running balance wheel pulley 4 and be engaged thereby to start the rotation of the cam shaft 3, and, by means of the cam 5, actuate the cutting off lever 6 to sever a section of straightened wire. Notwithstanding that both trip wires are simultaneously actuated, the feed rolls are stopped, as they should be, before the cutting off lever is actuated, and this by reason of the fact that the cutting off lever must of necessity be slower in its movement than the action of the mechanism for stopping the feed rolls. As soon as the roll 34 of the trip rod 29 is disengaged from the

clutch sleeve 32, the spring 37 will instantly throw said sleeve out of contact with the driving pins 35, and cause the feed rolls to stop; but with respect to the cutting off lever it is quite evident that the balance wheel must travel a variable distance before the cutting off shaft is brought under its rotative influence, so that the cutting off lever will not act until after the feed rolls have stopped.

Whenever rough spots occur in the wire, or rough ends are to be severed, means are provided for manually stopping the feed rolls as follows: 39 is a handle lever pivotally supported between the ears 40 projecting from the arm 27. One end of this lever embraces the trip rod 29, so that, when the handle portion of this lever is depressed, the clutch sleeve 32 will be released and the feed rolls stopped. The trip wire 16 can then be manually operated to actuate the cutting off lever. Restarting the feed rolls is effected by means of the rod 41 projecting through the bed whose inner end carries the arm 42 having an upper forked end 42^a embracing the feed roll shaft 18. By means of said rod and its arm, the clutch sleeve is pushed back into reengagement with the clutch pins 35 and the roll 34 of the trip rod 29.

When all parts of the machine are running automatically, the roll 34 will be placed in advance of the open position of the clutch sleeve 32 when the cutting off lever 6 is in its extreme forward position, so that, when said cutting off lever returns, the clutch will be carried back with it.

I am aware that heretofore the clutch mechanism of one of the feed roll shafts has been directly connected with an arm carried by the cutting off lever, but with such a construction the feed roll shaft clutch can only be actuated by the cutting off movement of said lever, and as this movement is slight, it is quite apparent that the stoppage of the feed rolls is later than the severance of the wire or, at least, it could not be in advance of such severance. In my improved construction, the cutting off lever is not directly connected with the clutch mechanism of the feed roll shaft so that, both the clutch sleeve 32 and the cutting off lever can move independently, and must of necessity do so in

order to stop the feed rolls before the action of cutting off takes place.

Having thus described my invention, what I claim is:

1. A machine of the character described comprising a cam shaft, a clutch lever associated therewith and a continuously running balance wheel mounted thereon, a cutting off lever actuated by said shaft, feed rolls and their shafts, a continuously running balance wheel pulley and a sliding clutch sleeve mounted on one of the feed roll shafts, an arm carried by the cutting off lever, a spring actuated trip rod mounted in said arm and connecting with the clutch sleeve, and means for actuating said rod.

2. A machine of the character described comprising a cutting off lever and its actuating mechanism, feed rolls, feed roll shafts and their actuating mechanism comprising a continuously running balance wheel pulley and a sliding clutch sleeve, an arm carried by the cutting off lever, a trip rod mounted in said arm and adapted to engage with the clutch sleeve, means for actuating said trip rod to disengage the clutch sleeve and stop the feed rolls, and means for automatically reengaging the trip rod with the clutch sleeve.

3. A machine of the character described comprising a cutting off lever and its actuating mechanism, feed rolls, feed roll shafts and their actuating mechanism comprising a continuously running balance wheel pulley and a sliding clutch sleeve mounted on one of the feed roll shafts, an arm carried by the cutting off lever, a movable trip rod mounted in the arm, means for actuating said rod in one direction to disengage the clutch sleeve and stop the feed rolls, and a spring for actuating said rod in the opposite direction, means on said arm for manually operating the trip rod to stop the feed rolls, and means for manually actuating the sliding clutch sleeve to start the feed rolls.

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

ELMORE F. SHUSTER.

Witnesses:

E. L. SIMPSON,
J. OLSON.