(No Model.) 3 Sheets—Sheet 1.

W. LANG.

MACHINE FOR STRAIGHTENING AND CUTTING WIRE.

No. 346,291. Patented July 27, 1886.

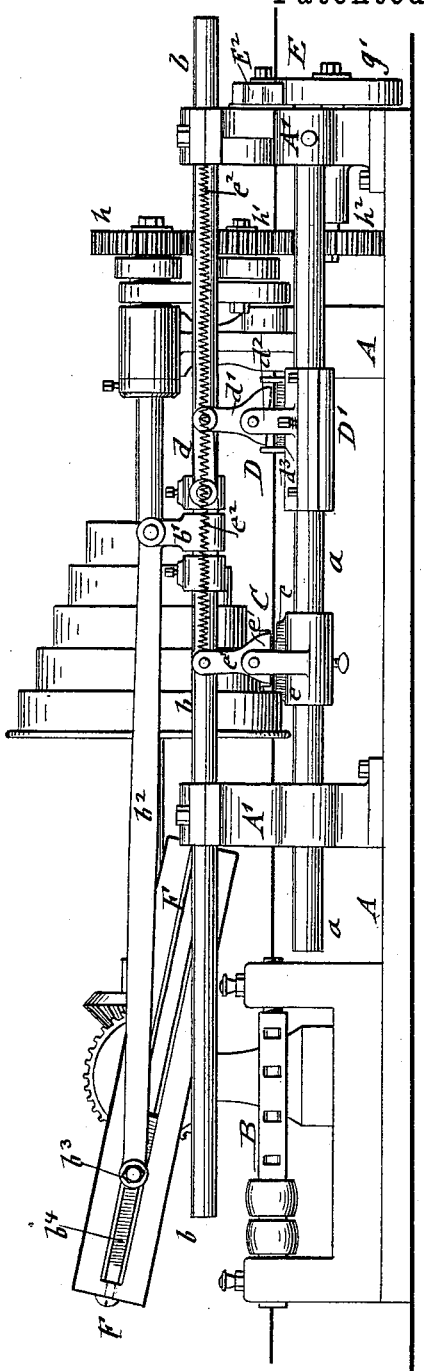


Fig. 1.

WITNESSES:

F. H. Rosenbaum.

Carl Kaeppel

INVENTOR

William Lang

BY Goepel & Raegener.

ATTORNEYS.

(No Model.) 3 Sheets—Sheet 2.

W. LANG.

MACHINE FOR STRAIGHTENING AND CUTTING WIRE.

No. 346,291. Patented July 27, 1886.

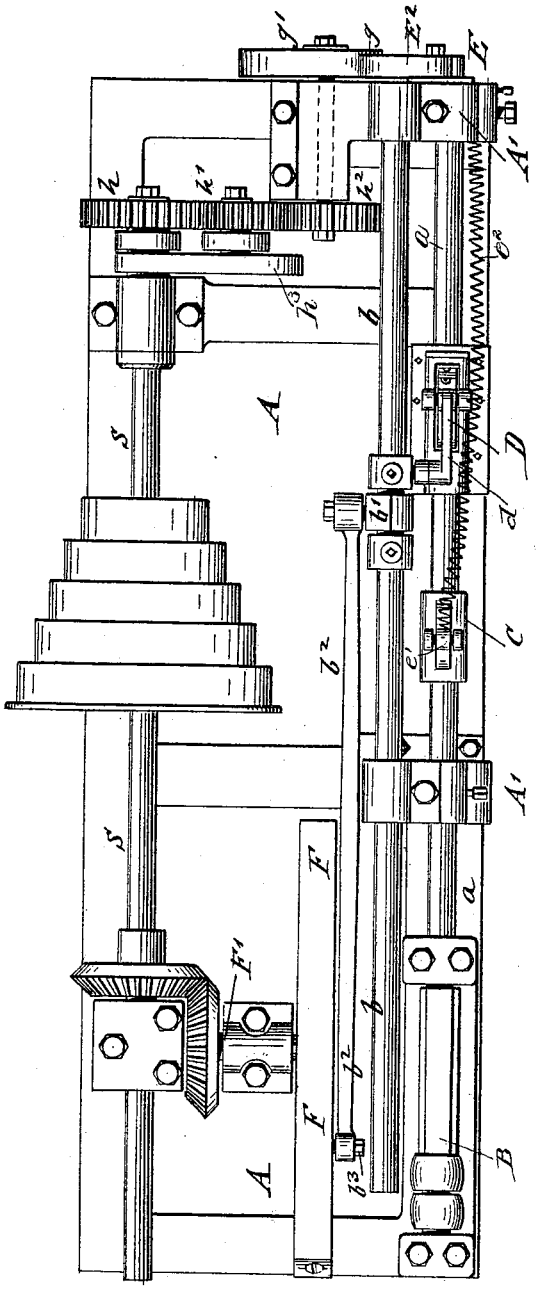


Fig. 2.

WITNESSES:

F. W. Rosenbaum.
Carl Kayn

INVENTOR
William Lang
BY Goepel & Raegener
ATTORNEYS

(No Model.) 3 Sheets—Sheet 3.

W. LANG.

MACHINE FOR STRAIGHTENING AND CUTTING WIRE.

No. 346,291. Patented July 27, 1886.

Fig. 3.

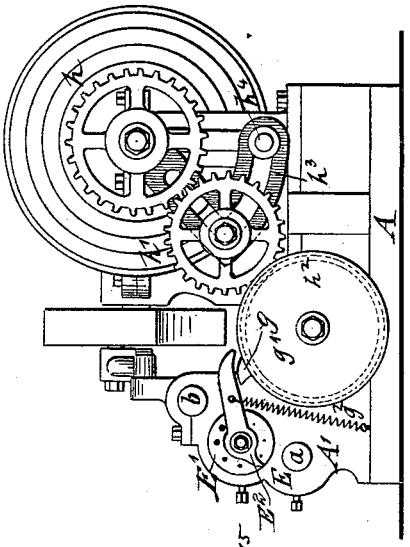


Fig. 4.

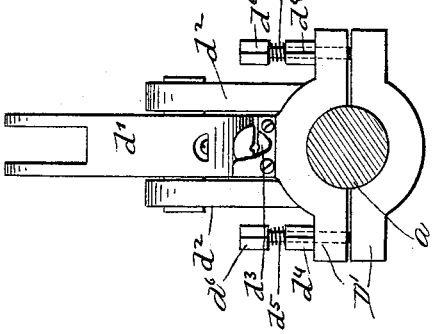
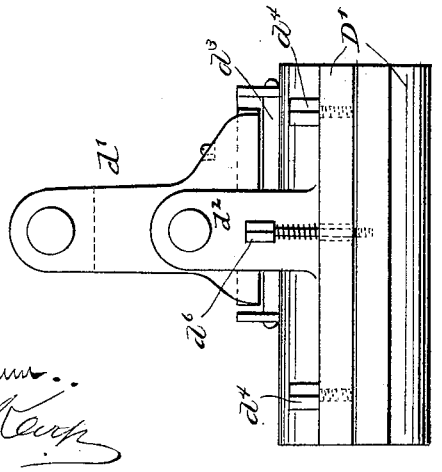


Fig. 5.



WITNESSES:

F. W. Rosenbaum.

Carl Kemp

INVENTOR

William Lang

BY Goepel & Paegener

ATTORNEYS.

UNITED STATES PATENT OFFICE.

WILLIAM LANG, OF BROOKLYN, NEW YORK.

MACHINE FOR STRAIGHTENING AND CUTTING WIRE.

SPECIFICATION forming part of Letters Patent No. 346,291, dated July 27, 1886.

Application filed May 8, 1886. Serial No. 201,518. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM LANG, of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Machines for Straightening and Cutting Wire, of which the following is a specification.

This invention relates to an improved machine for straightening wire and cutting it into pieces of different lengths; and it consists of the combination of a wire-straightening device, a check-gripper, a feed-gripper, and a cutting device, with mechanism for imparting reciprocatory motion to the feed-gripper and cutting device, all as will be described more fully hereinafter, and finally be pointed out in the claims.

In the accompanying drawings, Figure 1 represents a side elevation of my improved machine for straightening and cutting wire. Fig. 2 is a plan; Fig. 3, an end elevation of the same, showing the cutting device; and Figs. 4 and 5 are respectively a side view and an end view of the reciprocating feed-gripper, drawn on a larger scale.

Similar letters of reference indicate corresponding parts.

A in the drawings represents the bed-plate of my improved machine for straightening and cutting wire, along the front part of which plate are arranged in proper alignment with each other a wire-straightening device, B, a stationary check-gripper, C, a reciprocating feed-gripper, D, and a cutting device, E.

The wire is fed to the straightening device B, which may be of any approved construction, and then conducted from the same to the check-gripper C, one jaw of which is clamped by a sleeve to a fixed horizontal guide-rod, *a*, that is supported in bearings in upright standards A′, which carry at their upper ends a second rod, *b*, that slides in bearings in the standards. Reciprocating motion is imparted to the slide-rod *b* by means of a fixed arm, *b′*, on the same, which is connected by a rod, b^2, with an adjustable crank-pin, b^3. A slotted crank-bar, F, having a set-screw, b^4, is applied centrally to a horizontal shaft, F′, that is rotated by a bevel-gear transmission from the driving-shaft of the machine, as shown in Fig. 2. The rotary motion of the crank-bar F imparts reciprocating motion to the slide-rod *b*, which reciprocating motion may be greater or smaller, according to the distance of the adjustable crank-pin b^3 from the center of the crank-bar F. The reciprocating slide-rod *b* is connected by a pivot-link, *d*, with the oscillating jaw *d′* of the feed-gripper D, which jaw is fulcrumed in upright lugs d^2 of a supporting-sleeve, D′, to which the lower jaw, d^3, is applied. The sleeve D′ is placed loosely on the lower fixed guide-rod, *a*, so as to slide readily over the same. It is made of two semi-sections, which are connected by pins d^6, extending loosely through the upper semi-section and screwing into the lower. Between the upper semi-section and the heads of the pins, spiral friction-springs d^5 are interposed. Screws d^4 also pass through threaded holes in the upper semi-section and bear against the upper face of the lower, by which the easy sliding motion of the sleeve D′ in the guide-rod *a* is obtained, as shown in Figs. 4 and 5. The check-gripper C is constructed also of a stationary lower jaw, *e*, and oscillating upper jaw, *e′*, which upper jaw is connected by a spiral spring, e^2, to the standard A′ at the right-hand end of the bed-plate, so that the oscillating jaw *e′* is drawn by the spring toward the stationary jaw, so as to bite the wire and hold it in position when the feed-gripper is released from the wire and moved in backward direction along the same. When the feed-gripper is moved forward, the wire is drawn readily through between the jaws of the check-gripper. The alternating action of the reciprocating feed-gripper and stationary check-gripper produces the intermittent forward feeding of the wire to the cutting device E, which is arranged with a cutting-disk, E′, that has holes of different sizes for the different sizes of wire to be cut. The cutting-disk E′ is arranged on the standard A′, and capable of axial adjustment, so that any one of the holes can be adjusted in line with the straightening device B and the check and feed grippers C D.

When the required length of wire is fed through the hole of the cutting-disk E′, the wire is cut off by an oscillating cutter, E^2, and dropped. The cutting-tool E^2 is oscillated by a nose, *g*, of a rotary disk, *g′*, which nose engages the curved rear end of the arm of the cutting-tool E^2. The lever-arm of the cutting-tool E^2 is acted upon by a spiral spring,

g^2, and kept thereby in contact with the circumference of the disk g', as shown in Fig. 3. The disk g' is rotated by a variable gear-wheel transmission from the driving-shaft S, as shown in Figs. 2 and 3, so that the action of the cutter E^2 takes place at the proper time. For this purpose the transmitting gear-wheels h, h', and h^2 are made detachable from their respective shafts and interchangeable with as many sets of different sizes, each set imparting the required motion to the cutter for cutting off a certain fixed length of wire. The intermediate gear-wheel, h', is supported by a slotted angular frame, h^3, that is placed loosely at one end on the driving-shaft and guided by means of a clamping-screw and nut, h^4. (Shown in Fig. 3.) The frame h^3 serves to adjust the axis of the intermediate gear-wheel into line with the axis of the outer gear-wheels, h and h^2, by adjusting first the shaft of the gear-wheel h' in the radial slot of the frame h^3 farther from or nearer to the axis of the gear-wheel h, according to the respective sizes of the wheels h' and h^2, and setting then the frame itself by its arc-shaped slot along the fixed screw h^4. In this manner pieces of wire of different length may be quickly and automatically cut off by the machine, the wire being fed from a suitable reel (not shown in the drawings) to the straightening device, and then by the alternating action of the feed and check grippers to the cutting tool, which is actuated at the proper time by the motion imparted thereto by the variable transmitting gear-wheels.

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

1. In a wire straightening and cutting machine, a feed-gripper composed of a stationary jaw and an oscillating jaw, and a sleeve comprising two semi-sections connected by headed pins passing loosely through one semi-section and screwing into the other, and springs interposed between the first-mentioned semi-section and the heads of the pins, substantially as set forth.

2. In a wire straightening and cutting-machine, a feed-gripper composed of a stationary jaw and an oscillating jaw, and a sleeve comprising two semi-sections connected by headed pins passing loosely through one semi-section and screwing into the other, springs interposed between the first-mentioned semi-section and the heads of the pins, and set-screws on each side of said pins screwing through one semi-section and against the other for spreading them apart, substantially as set forth.

3. In a machine for cutting wire, the combination, with the cutting-tool and a disk having a nose for tripping said tool, of a removable gear-wheel on the shaft of said disk, a gear-wheel on the main driving-shaft, and a removable idle gear-wheel between them, substantially as described.

4. In a machine for cutting wire, the combination, with the cutting-tool and a disk having a nose for tripping said tool, of a removable gear-wheel on the shaft of said disk, a gear-wheel on the main driving-shaft, a slotted frame supported in a radial line from said main driving-shaft, and a removable idle gear-wheel pivoted in said slotted frame between said gears above mentioned, substantially as described.

5. In a machine for cutting wire, the combination, with the cutting-tool and a disk having a nose for tripping said tool, of a removable gear-wheel on the shaft of said disk, a gear-wheel on the main driving-shaft, a supporting-frame hung loosely on the main driving-shaft at one end, and provided with a slot on a radial line from said main driving-shaft, a curved frame extending from the other end having a slot therein on an arc of a circle around said main driving-shaft, a fixed clamping-screw engaged by said curved slot, and an idle gear-wheel pivoted in said supporting-frame between said gears above mentioned, substantially as described.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

WILLIAM LANG.

Witnesses:
PAUL GOEPEL,
MARTIN PETRY.