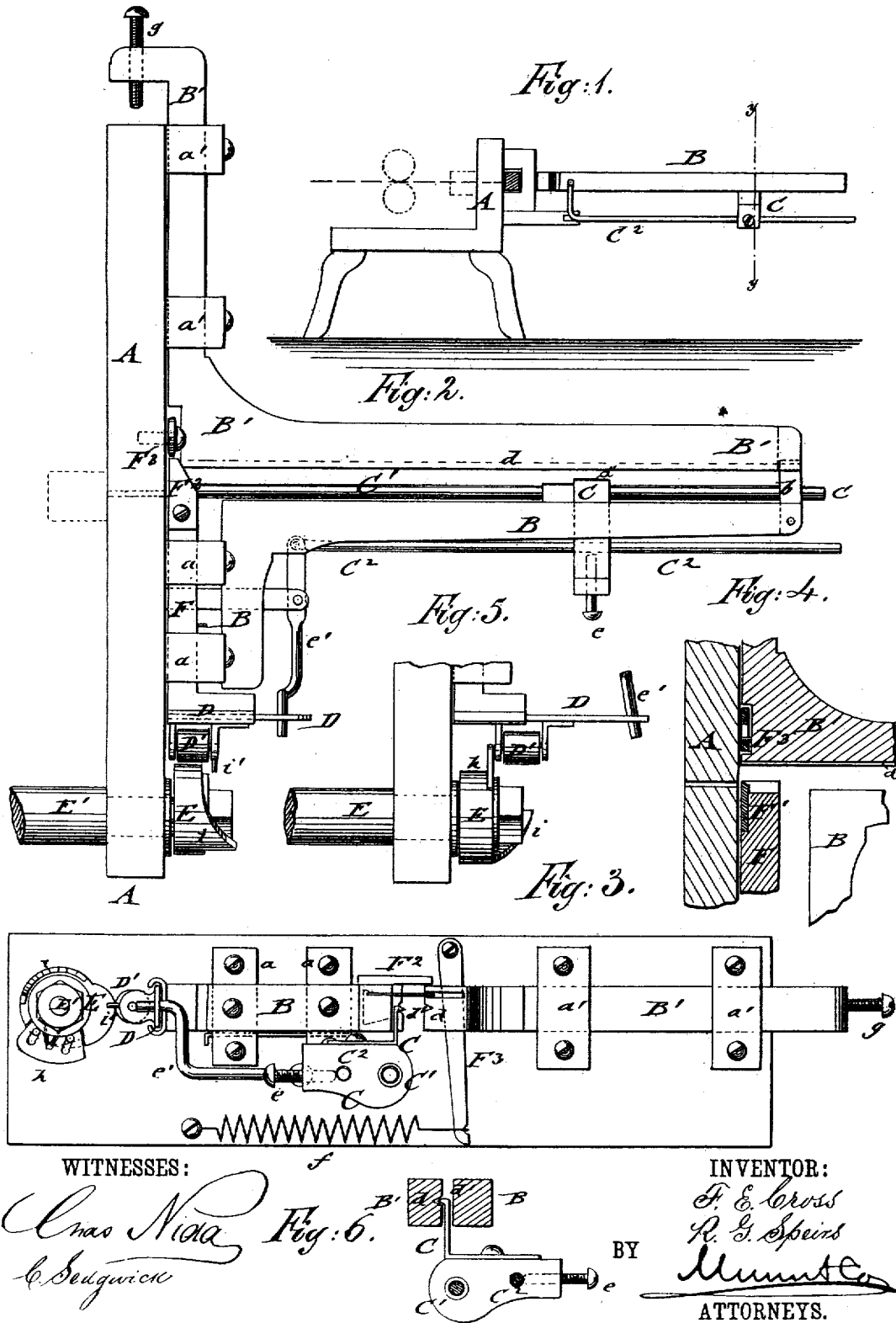


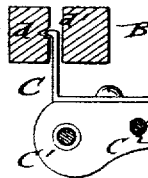
F. E. CROSS & R. G. SPEIRS.
Wire Straightening and Cutting Machines.
No. 214,630. Patented April 22, 1879.



WITNESSES:

Chas. Nida
C. Sedgwick

Fig. 6.



INVENTOR:

F. E. Cross
R. G. Speirs

BY

Mumtaz
ATTORNEYS.

UNITED STATES PATENT OFFICE.

FREDERICK E. CROSS AND ROBERT G. SPEIRS, OF WATERBURY, CONN.

IMPROVEMENT IN WIRE STRAIGHTENING AND CUTTING MACHINES.

Specification forming part of Letters Patent No. **214,630**, dated April 22, 1879; application filed September 19, 1878.

To all whom it may concern:

Be it known that we, FREDERICK E. CROSS and ROBERT G. SPEIRS, of Waterbury, in the county of New Haven and State of Connecticut, have invented a new and Improved Cutting Attachment to Wire-Straightening Machines, of which the following is a specification.

In the accompanying drawings, Figure 1 represents a side view of our improved cutting attachment to wire-straightening machines, shown on a smaller scale; Fig. 2, a top view on an enlarged scale; Fig. 3, an end elevation of the same; Fig. 4, a detail horizontal section of the cutting and clamping mechanism; Fig. 5, a detail top view of the cutter-actuating cam and slide-plate, shown with anti-friction roller drawn out; and Fig. 6 is a detail vertical transverse section of the wire-guide clamps or supports on line *yy*, Fig. 1.

Similar letters of reference indicate corresponding parts.

This invention relates to an improved device for cutting wire into pieces of any desired length to be used in connection with a wire-straightening machine, the cutting of the wire and dropping of the cut-off pieces being accomplished in uniform and automatic manner; and the invention consists of adjustable wire-clamps, in connection with an adjustable stop device, and with a cam mechanism that operates the cutter, and also a spring-acted lever, which opens one of the clamps, for dropping the cut-off sections of wire. The actuating-cam mechanism operates a roller, turning in lugs of a horizontally-sliding plate, which is guided at the rear end of the cutter-bar, and connected by a lever and lever-rod with the adjustable stop device. The stop is guided along a fixed guide-rod and extended between the wire clamps or supports, so as to stop the wire and throw the roller up into contact with the cam.

Referring to the drawings, A represents a cast-metal plate or block, to which the improved wire-cutting mechanism is attached. The wire-cutting attachment is worked in connection with a wire-straightening machine, from which the wire passes between rolls (shown in dotted lines near the cutting attachment) to a die that is secured in the cast-iron supporting-plate A.

On the supporting-plate A are arranged two horizontal wire clamps or supports, B B', which are made of L shape, one of the clamps being supported by its horizontal arm in recessed guide-lugs *a* of the plate A, while the other clamp, B', is movable and guided in correspondingly-recessed lugs *a'* of plate A.

The adjoining parts of the wire-clamps B B' are of any suitable length, according to the length of the wire sections to be cut, and are connected at their outer ends by a steadying pin or plate, *b*, which is permanently attached to one clamp and extended into a recess of the movable arm, so as to guide the outer ends in conjunction with the arms, guided along plate A.

The movable clamp B' has a central guide-groove, *d*, that corresponds with the guide-hole of the plate A, through which the wire passes to the clamps. The wire, when fed forward, strikes against a stop, C, which slides on a fixed horizontal guide-rod, C', of plate A, and is attached by a clamp-screw, *e*, to a lever-rod, C², that is pivoted at its inner end to a fulcrumed lever, *e'*, which engages by its opposite end a slide-plate, D, carrying a roller, D'. The stop C extends between the faces of the clamps B and B', and by a tongue, *d'*, into the groove *d* of the movable clamp B', as shown in Fig. 5.

When the wire is fed down and forms contact with the stop C, the lever, slide-piece, and roller are moved toward the supporting-plate A, so that the latter forms contact with a revolving cam, E, of the shaft E', which is actuated by suitable transmitting-gearing of the wire-straightening machine.

The slide-plate D is guided on the rear end of a sliding cutter-bar, F, which is guided along the side of plate A by the recessed lugs *a* of the clamp B. The cutter-bar F carries at the front end a cutter, F', which cuts off the wire as soon as the roller is acted upon by the eccentric part of the revolving cam E.

A dog, F², is rigidly secured to the slide-bar F, and extended beyond the cutter, so as to engage a lever, F³, that is pivoted to the plate A and fulcrumed to the movable clamp B'. The dog F² moves the clamp B' sidewise, so as to recede from the clamp B, and drop thereby the cut-off wire into a box below.

The slide-bar F is moved only enough by the cam to cut the wire, while the dog strikes the lever at one side of the fulcrum, and opens the clamp ahead of the cutter enough to allow the wire to drop.

A spiral spring, *b*, is attached to the other end of the lever F³ and to a fixed point of plate A, so as to return the movable clamp B' again to the clamp B as soon as the wire is dropped. The pressure of the movable clamp is regulated by a set-screw, *g*, at the outer end, and adjusted to the different sizes of wire. The clamp B may also be adjustable enough to bring it in line with the die that cuts off the wire.

The actuating-cam E is provided with a projecting guard-flange, *h*, that prevents the anti-friction roller D' from moving up into position between cam and slide-bar, except when the cam has turned into such a position that the roller may reach the plate before the swell in the cam comes around.

An inclined cam-plate, *i*, at the circumference of the cam engages a pin, *i'*, of the roller slide-plate, so as to throw the roller down again out of contact with the cam.

The stop C, on which the wire rests in its downward motion, may be adjusted on the lever-rod C² to any length of wire within the limits of the clamps, the guide-rod and lever-rod extending down to the full length of the same.

The guide-flange *h* of the cam E is slotted, and slides on pins attached to the cam, and is thrown out again by a spring when the roller has been turned.

The cutting attachment may be used to cut up wire that is fed either from a wire-straightening machine or without the same, the latter case requiring, however, proper feed-rolls and an actuating mechanism for the cam-shaft.

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

1. The combination of adjustable wire clamps or supports, and of an adjustable stop device entering between the clamps, with an actuating-cam, sliding cutter-bar, and with an anti-friction roller, that is thrown by suitable mechanism of the stop device between cam and cutter-bar, substantially as and for the purpose described.

2. The combination of the adjustable wire-clamp, and of a movable clamp having longitudinal center groove, with an adjustable stop device, that enters between the clamps and into the groove, and slides on a fixed guide-rod, substantially as set forth.

3. The combination of an adjustable and a movable wire clamp or support with a revolving cam, interposed anti-friction roller, and sliding cutter-bar, engaging a spring-acted lever of movable clamp, to throw the same back simultaneously with the cutting of wire, for dropping the latter, substantially as specified.

4. The movable wire-clamp having set-screw to be adjusted to different sizes of wire, substantially as set forth.

5. The combination of the revolving actuating-cam, having guard-flange and inclined cam-plate, with the lever-actuated anti-friction roller, sliding in rear part of cutter-bar, and having projecting pin, to be thrown out of engagement with the cam, for setting stop device for next wire section, substantially as described.

FREDERICK EUGENE CROSS.

ROBERT GRAHAM SPEIRS.

Witnesses:

ROBERT M. WALKER,

EDWIN ATKINS.