

(No Model.)

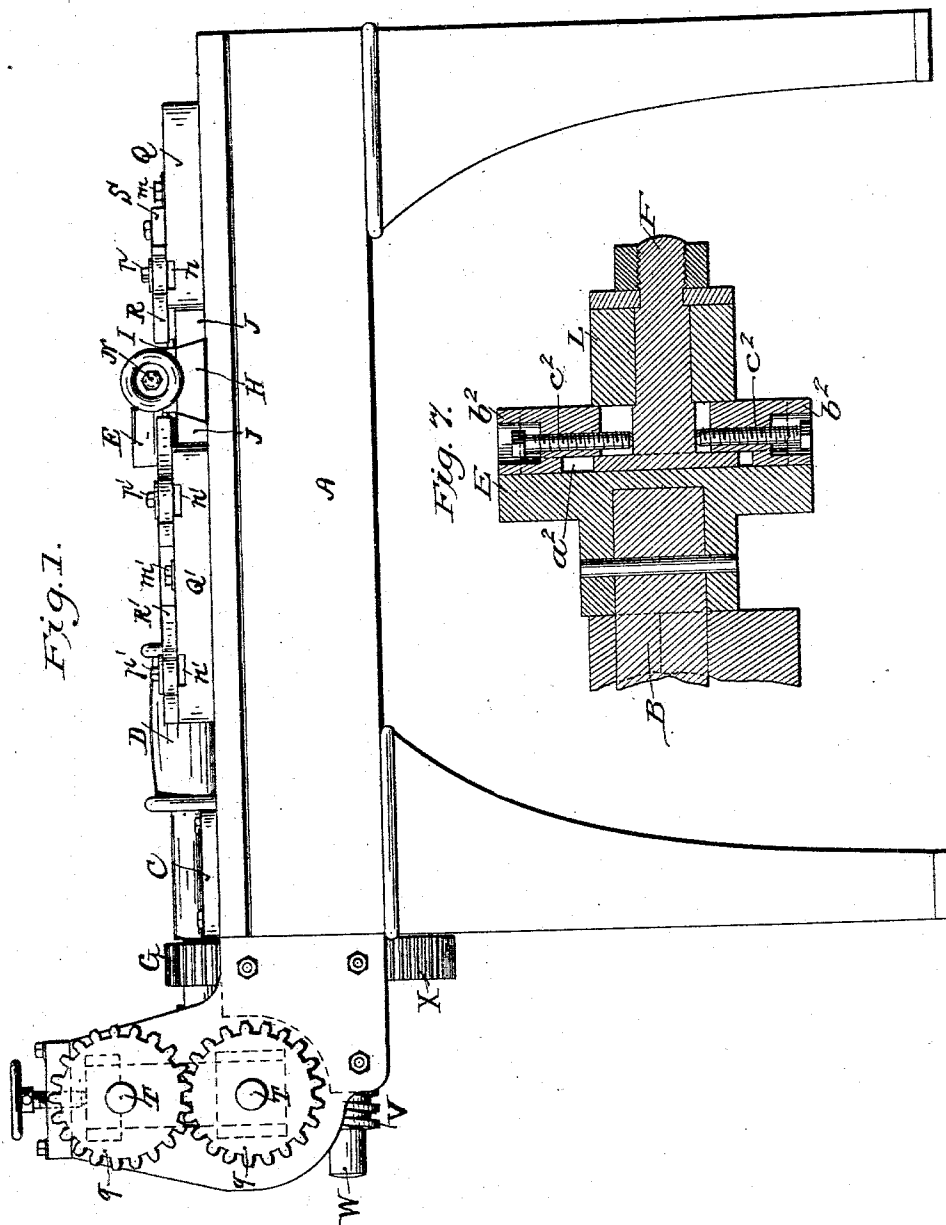
3 Sheets—Sheet 1.

W. C. STILES.

MACHINE FOR TRUING FLAT WIRE OR METAL BARS.

No. 556,724.

Patented Mar. 17, 1896.



Witnesses:

Henry J. Garceau.

James M. Bennett

Inventor:

Wallace C. Stiles

By

S. Scholfield

City.

(No Model.)

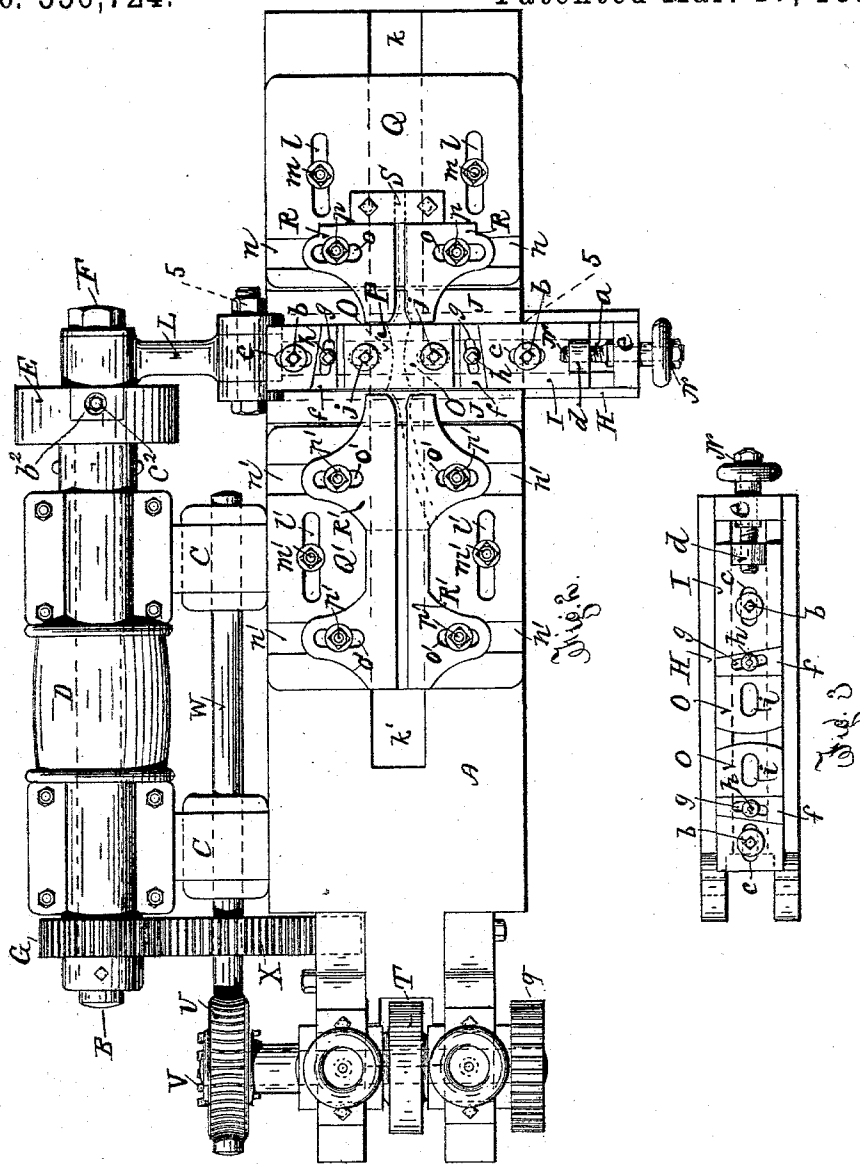
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Harry J. Garceau

James W. Brewster

Inventor.

Wallace C. Stiles

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Cran

Going

(No Model.)

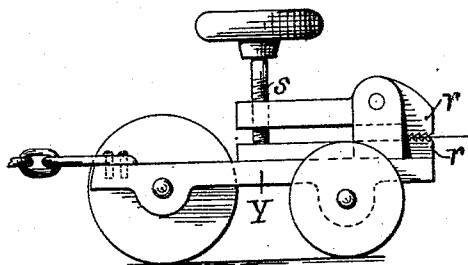
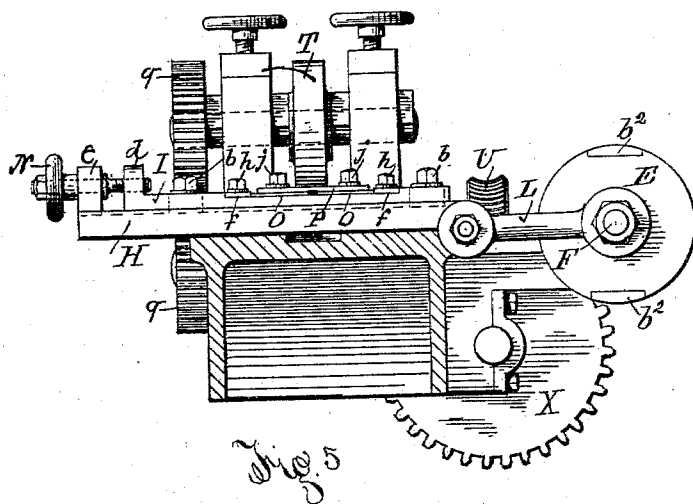
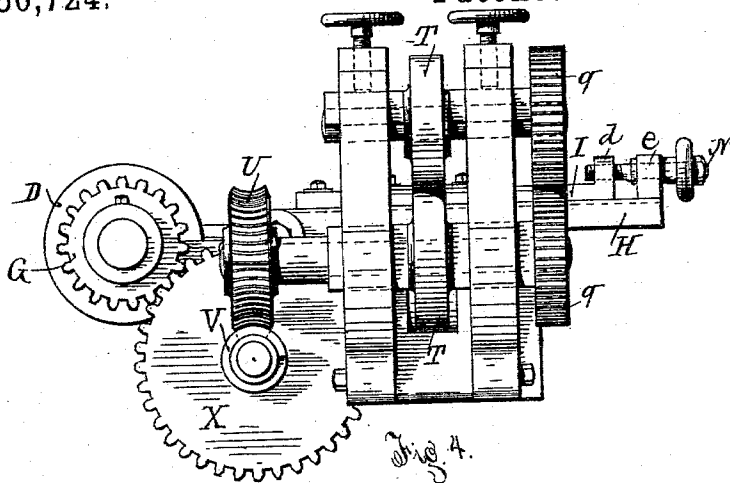
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Witnesses:

Henry J. Carreau
James W. Brown

Fig. 6.

Inventor:

Wallace C. Stiles

By S. Scholfield
Atty

UNITED STATES PATENT OFFICE.

WALLACE C. STILES, OF AUBURN, MASSACHUSETTS.

MACHINE FOR TRUING FLAT WIRE OR METAL BARS.

SPECIFICATION forming part of Letters Patent No. 556,724, dated March 17, 1896.

Application filed October 9, 1893. Renewed August 22, 1895. Serial No. 560,173. (No model.)

To all whom it may concern:

Be it known that I, WALLACE C. STILES, a citizen of the United States, and a resident of Auburn, in the county of Worcester, State of Massachusetts, have invented a new and useful Improvement in Machines for Truing Flat Wire or Bars of Metal, of which the following is a specification.

In rolling flat bars of metal or wire the action of the rolls upon the metal is such as to produce slight curves or crooks, which are very hard to remove by ordinary means and which add materially to the expense of working up such stock for various purposes; and it is the object of my invention to provide a machine for truing up flat wire or bars of metal edgewise, so as to take out the short kinks or curves of the same, and leave the wire or bar in either a uniformly straightened or curved condition; and it consists in the combination, with suitable side guides, of an intermediate adjustable vibrating die, as hereinafter fully set forth.

In the accompanying drawings, Figure 1 represents the side elevation of a machine for truing flat wire embodying my improvement. Fig. 2 represents a top view of the same. Fig. 3 represents a top view of the reciprocating die and its holder with the covering top plate removed. Fig. 4 represents an end view showing the rolls for drawing the wire through the machine. Fig. 5 represents a transverse section taken in the line 5 5 of Fig. 2. Fig. 6 represents a side view of the separately-operated buggy employed in many cases for drawing the bar or wire through the machine, as in ordinary wire-drawing machines. Fig. 7 represents an enlarged axial section of the rotary head which carries the adjustable eccentric-pin.

Referring to the drawings, A is the bed-frame of a machine adapted for truing flat wire, and B the driving-shaft, supported at one side of the machine by means of the bearing-brackets C C, and upon the shaft B is placed the driving-pulley D. Upon the forward end of the shaft B is secured the head E, which carries an adjustable eccentric-pin F, and to the opposite end of the shaft B is secured the pinion G.

The adjustable eccentric-pin F may be held to slide in a T-formed groove a^2 , extending

diametrically across the face of the head E, as shown in Fig. 7, the outer ends of the said groove being closed by the pieces $b^2 b^2$, which are provided with the set-screws $c^2 c^2$, by means of which the position of the eccentric-pin F may be varied as desired.

The reciprocating bed H for the adjustable die-holder I is held in suitable ways J J, attached to the bed A, and is connected with the eccentric-pin F by means of the connecting-rod L.

Within the guiding-groove a of the reciprocating bed H is placed the die-holder I, the said die-holder being secured to the bed H by means of the screws $b b$, which pass through the slots $c c$ in the said die-holder, and the forward end of the die-holder is provided with the lug d , adapted to receive the thread of the adjusting-screw N, which is held to turn loosely in the lug e upon the bed H, the proper adjustment of the die-holder I relatively to the bed H being made by first loosening the screws $b b$ and then turning the screw N, and upon effecting the proper adjustment of the die-holder the said die-holder is to be again clamped to the bed H by tightening the screws $b b$.

Upon the die-holder I are placed the wedges $f f$, provided with slots g , in which are placed the tightening-screws $h h$, which serve to clamp the wedges to the die-holder, and between the said wedges are placed the steel plates O O, which form the bending-die and which are made slightly thicker than the wire to be acted upon, and are provided with the slots $i i$, the said plates being held firmly against the flat surface of the die-holder I by means of the covering top plate P and the screws J J, which pass through the slots $i i$ and enter the die-holder, the curved inner faces of the said plates O O being properly set from each other at about the width of the flat wire to be operated upon.

The bed A of the machine is provided at its forward end with the shallow groove k for holding an adjustable plate Q, having slots $l l$, in which are placed the screws $m m$ for fastening the said plate to the bed, and the plate Q is also provided with the shallow transverse groove n for holding the adjustable side guide-plates, R R, which serve to support the wire laterally and guide the entrance of the same

properly to the bending-die. The side guide-plates, R R, are provided with slots *o o*, by means of which they are made adjustable, and are secured to the plate Q in proper position by means of the screws *p p*, and to the plate Q may be attached an initial guide S, which serves to cover the wire and hold the same in proper flat contact with the surface of the said plate. The bed A of the machine is also provided with the shallow groove *k'* for holding the adjustable plate Q', having slots *l' l'*, in which are placed the screws *m' m'* for fastening the said plate to the bed, and the plate Q' is also provided with the shallow transverse grooves *n' n'* for holding the adjustable side guide-plates, R' R', which serve to support and guide the wire at the rear of the bending-die. The side guide-plates, R' R', are provided with slots *o' o'*, by means of which they are made adjustable, and are secured to the plate Q' in proper position by means of the screws *p' p'*.

Suitable adjustable rolls T T may be provided for drawing the wire through the bending-die, the said rolls being connected by the gears *g g* and driven by means of the worm-gear U upon the shaft of the lower roll, the said worm-gear engaging with the worm V upon the shaft W, upon which is held a gear X engaging with the pinion G upon the driving-shaft B.

When the machine is set in operation and the wire is being passed through the rapidly-reciprocated bending-die a great number of opposite edgewise bends will be imparted thereto, the wire being held against lateral edgewise movement with the die by means of the oppositely-arranged side guide-plates, and the continued operation of the machine will result in the truing and straightening of the wire edgewise.

If the bending-die is caused to reciprocate at one side of the axial line of the side guides formed by the plates R R and R' R', as indicated by the dotted lines of the front side guide, R R, Fig. 2, a permanent curve will be imparted to the trued wire, and in that case the rear side guide, R' R', may be shortened and curved, as indicated by the curved dotted line in said Fig. 2, to allow the trued wire to properly curve from the machine, and in this case it may be desirable to push the wire through the bending-die instead of pulling the same, the rolls T T being placed in front of the die instead of at the rear, and employed as feeding-in rolls.

In many cases it is desirable to employ the ordinary buggy and chain Y, Fig. 6, as in wire-drawing machines, for drawing the wire through the bending-die, the said buggy being constructed to run upon a bench, and

having jaws *r r*, which are adjusted to hold the wire by means of the screw *s*.

I have preferred to illustrate the bending-die and the side guides as made in two parts; but it is evident that in case the wire to be operated upon by the machine is entirely of one size the said die and guides may be profitably made in one piece.

I claim as my invention—

1. In a machine for truing a flat wire or bar of metal, edgewise, the combination with a reciprocating bending-die having an adjustable opening for embracing the opposite edges of the wire or bar, of the side guides which serve to retain the wire or bar in position against the back-and-forth bending action of the die, and the adjustable eccentric-pin for varying the throw of the bending-die, substantially as described.

2. In a machine for truing a flat wire, or bar of metal, edgewise, the combination with the side guides, of the intermediate reciprocating bending-die, set for action, at one side of the axis of the side guides, whereby the trued wire, or bar, may be delivered in a curved condition, edgewise, substantially as described.

3. In a machine for truing a flat wire, or bar of metal, edgewise, the combination with the side guides, of the intermediate reciprocating bending-die, and means for adjusting the die, laterally of the axis of the side guides, whereby the trued wire, or bar, may be delivered in a curved condition, edgewise, substantially as described.

4. In a machine for truing a flat wire or bar of metal, edgewise, the combination with the adjustable eccentric-pin, the reciprocating bed operatively connected with the said eccentric-pin, and the adjustable die-holder held upon the reciprocating bed, of the bending-die attached to the die-holder, and the side guides for holding the wire or bar in position against the back-and-forth bending action of the die, substantially as described.

5. In a machine for truing a flat wire or bar of metal, edgewise, the combination with the adjustable eccentric-pin, the reciprocating bed operatively connected with the eccentric-pin, and the adjustable die-holder held upon the reciprocating bed, of the opposite plates for forming the die, the wedges for adjusting the plates of the die, and the side guides for holding the wire or bar in position against the back-and-forth bending action of the die, substantially as described.

WALLACE C. STILES.

Witnesses:

JOHN M. GOODHUE,
JOHN A. DANA.