

N.C. Perry.

Making Screw Eyes

N^o 106, 720.

Fig. 1. *Patented Aug. 23, 1870.*

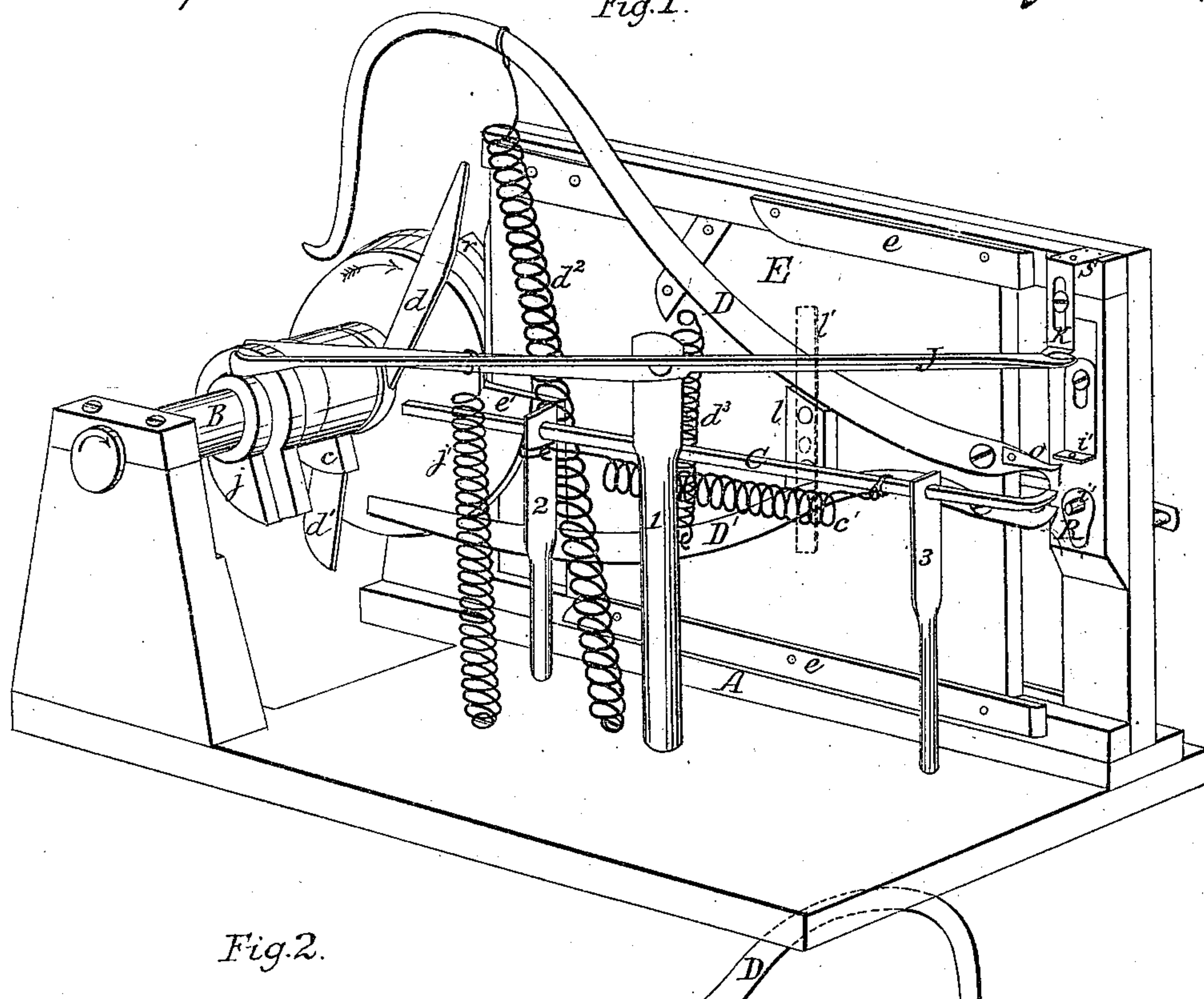
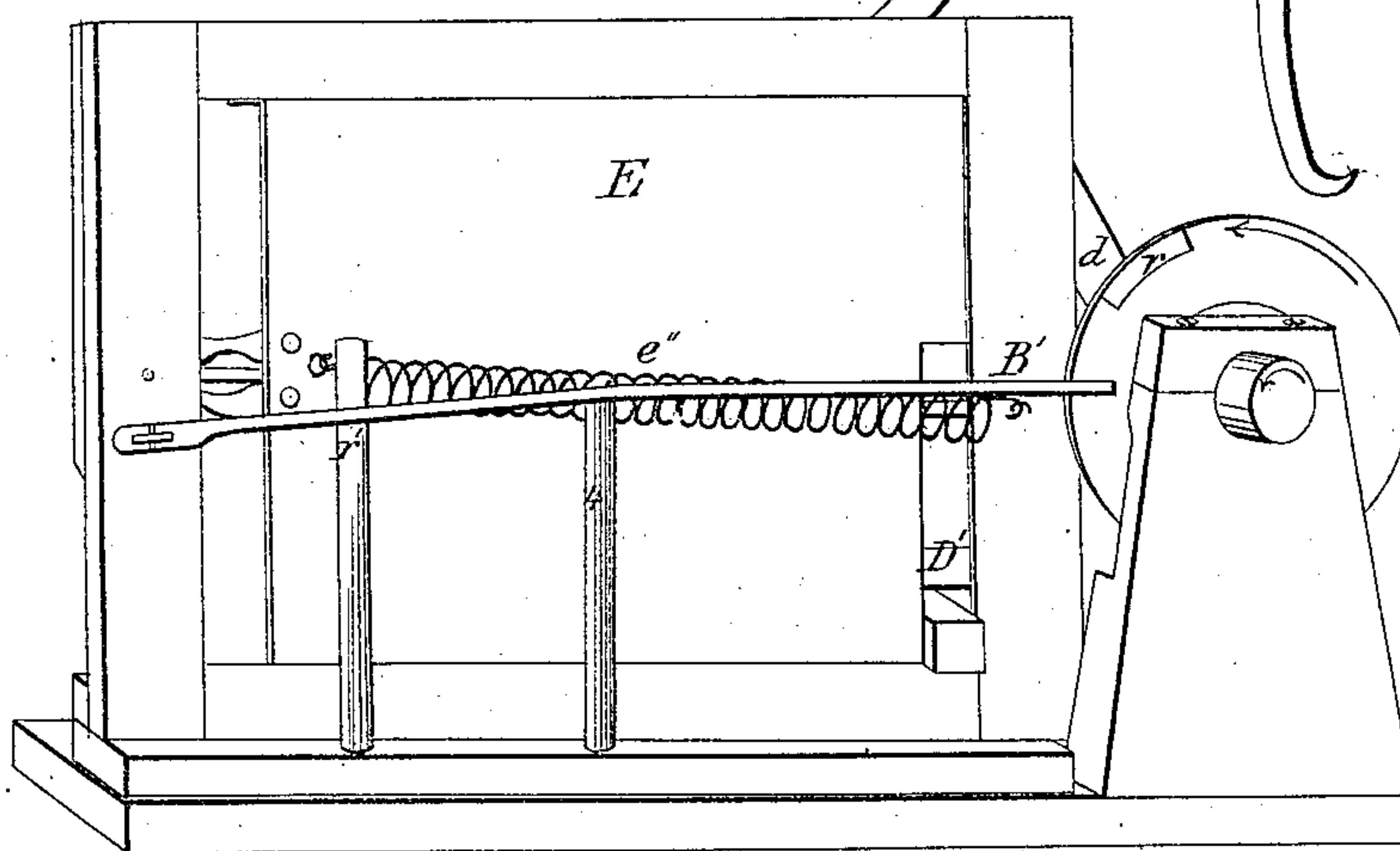


Fig.2.



Witnesses.

Franklin G. Silliman.
Joseph E. Silliman.

Inventor.

Noah C. Perry

United States Patent Office.

NOAH C. PERRY, OF CHESTER, CONNECTICUT.

Letters Patent No. 106,720, dated August 23, 1870.

IMPROVEMENT IN MACHINES FOR BENDING WIRE SCREW-EYES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, NOAH C. PERRY, of Chester, in the county of Middlesex and State of Connecticut, have invented a new and useful Machine for Bending and Shaping Wire, and other stock, for various articles of manufacture; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings making part of this specification, in which—

Figure 1 is a front elevation, and

Figure 2, a rear elevation.

The drawings represent my machine as it is arranged for shaping wire for an article known as "screw-eyes," by cutting the wire into pieces of a given length, and forming upon the end of each piece a circular eye.

A, in fig. 1, represents the frame, which is furnished with suitable elevations to support the several working parts.

B, the driving-shaft, which is made to run in the direction indicated by the arrows.

i is a horizontal circular standard, around which the eye is bent.

i', a gauge, through which the wire passes to be cut off the proper length.

J, a pair of tongs, by which the wire is carried down to the standard. One of the handles is pivoted to post 1.

j, a cam, which, in connection with the spring *j'*, operates the tongs.

K, a feed-gauge, which limits the upward movement of the tongs.

C, a holding-rod, which presses the wire against the standard, and holds it thereto before and after it is cut off.

c, a cam, which, in connection with the spring *c'*, operates the holding rod.

D and D', a pair of jaws, which bend the eye around the standard.

d and *d'*, two arms, which, with the two springs *d²* and *d³*, operate the jaws.

l, a rest for the jaws.

l' represents the position of a guide for the jaws to be attached to the rest *l*.

o, a cutter attached to the upper jaw to separate the wire.

E, a slide, to which the jaws are attached.

e e, guides of the slide.

e', a cam which moves the slide toward the standard.

R, a scraper, which throws the eye from the standard after it is bent.

r, a cam which operates the rod to which the scraper is attached.

In figure 2—

e'' represents a spring which draws back the slide E after it has been thrown forward by the cam *e'*.

R¹, a rod to which the scraper is attached. It is pivoted to the top of post 4.

r', a spring which draws the scraper back after it has been thrown forward by the cam *r*.

I construct the frame of my machine of iron, and provide the driving-shaft with a balance-wheel to insure steady motion, and drive it with a belt and pulley. I couple the feeding-tongs J to close on the wire by spreading the handles, and provide the jaws of the same with a circular groove where the wire passes between them, to steady the wire, and prevent it from flinching, or from being flattened.

The inner handle of the tongs is attached to post 1 by a pivot, and the end of the same so bent and shaped by cutting out a piece on the lower side that the extension left on the upper side will ride the cam *j*, and the lower part follow the side of the cam. I make the outer handle follow the side of the cam only, and bevel the cam to enable the handle to slip out on the side, so that the cam shall close the tongs on the wire before it raises the handles.

The feed-gauge K consists of a plate of steel, bent outwardly on the lower end to a right angle. It is attached to the frame by a bolt passed through a slot in the vertical part, which allows it to be adjusted with the horizontal part extending over the tongs, and limiting their upward movement.

As the feed-gauge is raised or lowered, a longer or shorter length of wire will be passed down by the tongs. The gauge *i'* is similar in construction to the feed-gauge, but as it constitutes a part of the means for cutting off the wire which passes through an orifice in the horizontal part of it, I temper this part, and attach and adjust the gauge in a recess provided for it in the frame, by which it is backed and prevented from moving when the wire is separated by the cutter *o*.

The holding-rod C passes through square openings in post 2 and 3, to which it is fitted. The bend represented in the end toward the standard enables the rod to spring a little, and to further guard it against marring the wire, and to enable it to hold the wire in a vertical position, I make a slight groove for the wire to enter, and furnish the end toward the cam with a slide and set-screw, (not represented in the drawings,) by which the holding-rod may be lengthened or shortened to accurately adjust it to different kinds of work.

I adjust the bending-jaws D D' by pieces of leather held on each or either end of the rest *l*, by the guide to be attached thereto, as indicated at *l'*, cutting suitable openings in the pieces, and slipping them down or up on the guide, as they are required for the upper or lower jaw. I make a groove in the beak of the jaws, where they come in contact with the wire, to guide

the wire around the standard, and to prevent it from being flattened by the jaws.

The arm *d* raises the upper lever of the jaws, and passes inside of the lower lever without contact, and the arm *d'* presses down the lower lever, and passes outside the upper.

The standard *i* is fitted to a slightly tapering socket extending through the frame, into which it is driven so as to be firmly held by friction.

The scraper *R* is attached to the rod *R'* by a pin, which allows it sufficient play to move easily upon the standard.

I attach the ordinary straightening apparatus to the top of the machine, and pass the wire through it into an aperture, shown at *S*, and down through the opening made for it in the tongs, and through the orifice in the gauge *i'*. On setting the driving-shaft in motion, the cam *j* closes the tongs on the wire, and raises the handles by which the wire is drawn down and passed in front of the standard *i*. The cam *c* now strikes one end of the holding-rod, and the wire entering the groove in the opposite end is held firmly against the standard. The cam *j* then passes the handles of the tongs, and the spring *j'* carries the tongs up against the feed-gauge, and there holds them for another operation. The cam *c* now advances the slide *E*, the cutter *o* separates the wire, and the piece, held vertically against the standard by the holding-rod, enters the groove in the beaks of the bending-jaws as they advance, and is bent around one side of the standard, when the arm *d* strikes the upper, and,

at the same time, the arm *d'*, the lower lever of the bending-jaws spreading them apart, and causing the beaks to close the wire into an eye around the standard, with the surplus wire projecting beyond. The spring attached to the respective parts carries each back to its place for another operation, after it has performed its work, and the cam *r* strikes the rod *R'*, and the eye is thrown from the standard by the scraper.

Machines constructed according to my invention are not limited to the bending of circular forms; but, by variations, which the work to be done readily points out, a variety of forms may be made by a single machine.

Where there is much difference in the size of the work, or size of the material from which it is to be formed, I place in the machine a set of bending-jaws adapted to the work to be done.

What I claim as my invention, and desire to secure by Letters Patent are the following combinations—

1. The jaws *D D'*, in combination with the slide *E*, and standard *i*, for the purpose of bending, when said jaws are operated by arms *d* and *d'*, substantially as shown and described.

2. In combination with the above, the tongs *J*, cutters *o*, and gauge *i'*, holding-rod *C*, and scraper *R*, arranged and operated in the manner described.

NOAH C. PERRY.

Witnesses:

FRANKLIN Y. SILLIMAN,
JOSEPH E. SILLIMAN.