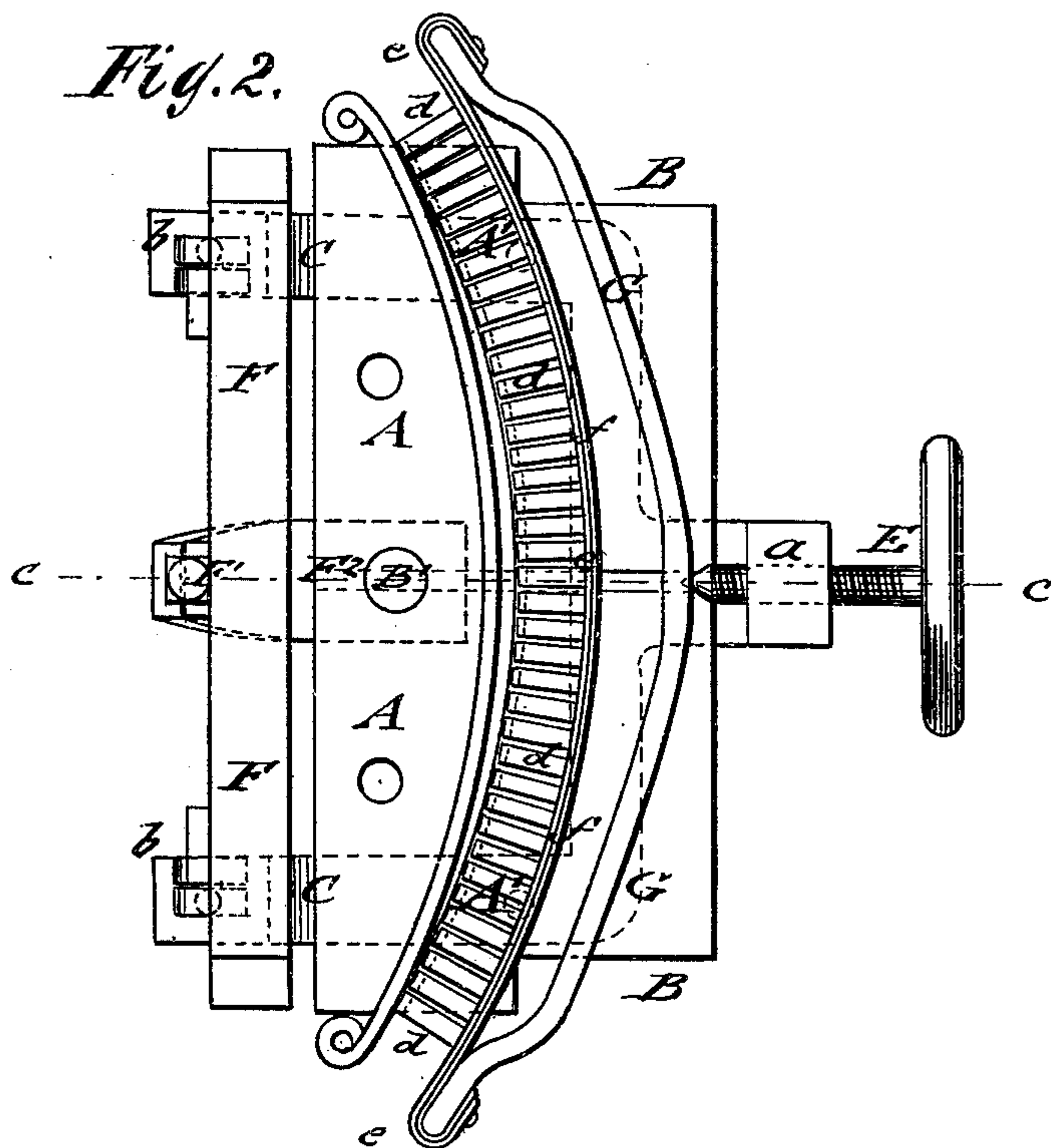
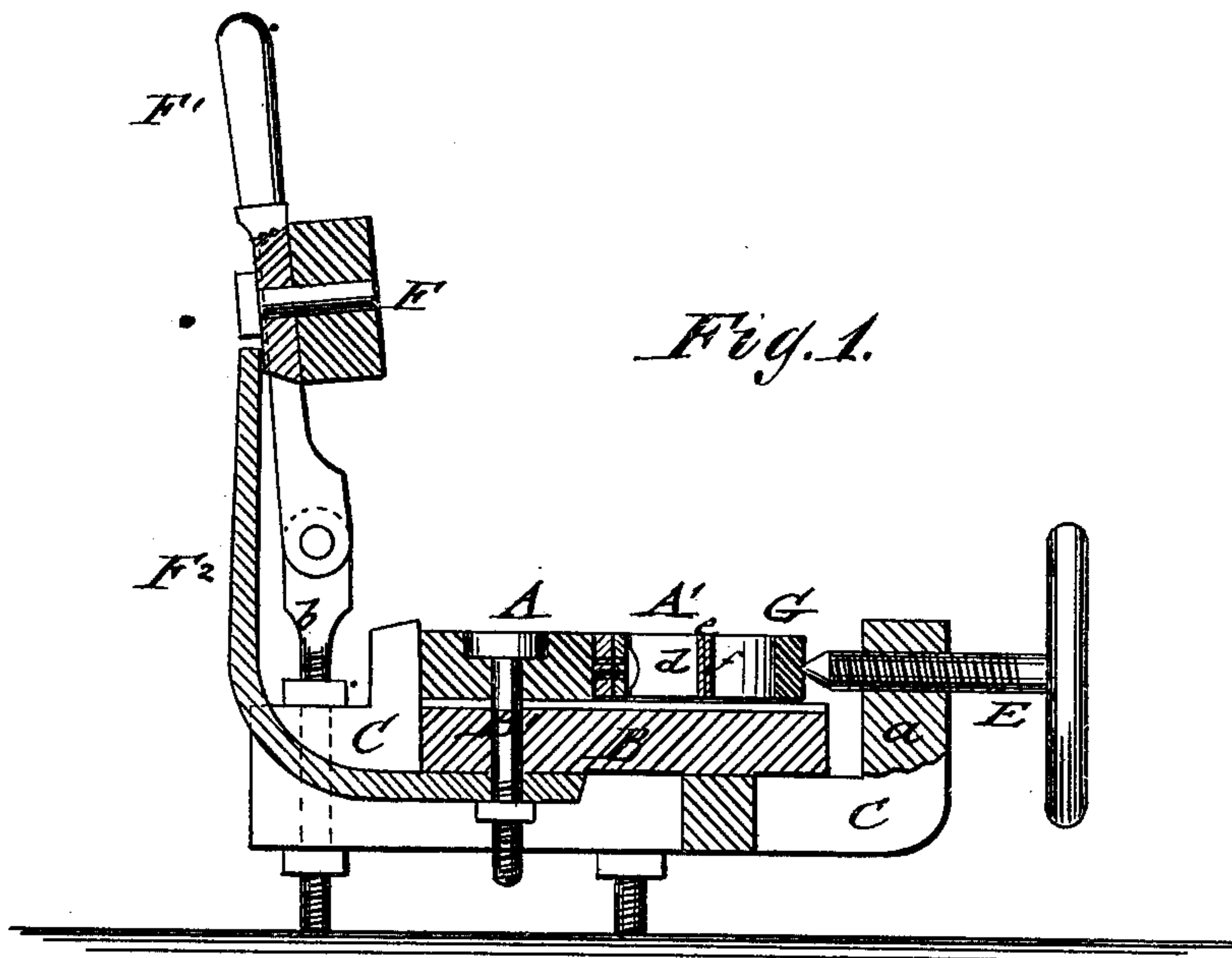


E. C. LEWIS.

MACHINE FOR SHAPING SPRINGS.

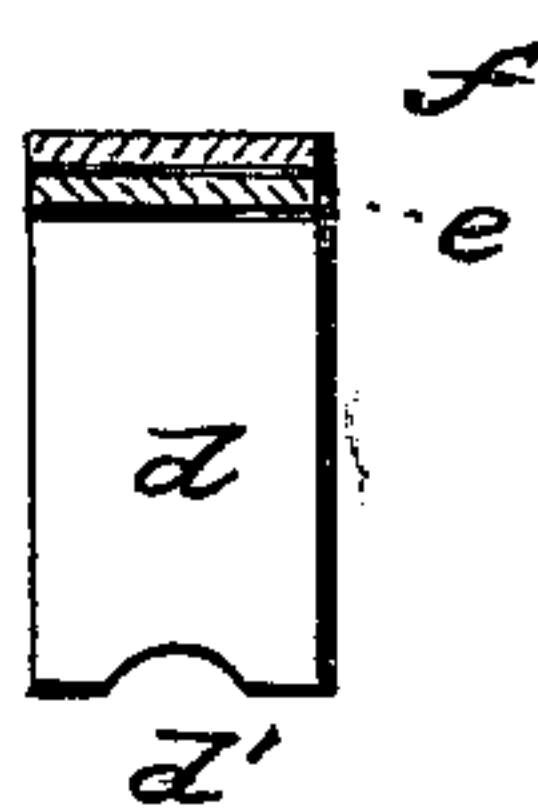
No. 188,922.

Patented March 27, 1877.



WITNESSES:
E. Wolff.
J. H. Scarborough
 ©

Fig. 3.



INVENTOR:
E. C. Lewis.
 BY *Munnell*
 ATTORNEYS.

UNITED STATES PATENT OFFICE.

EDWARD C. LEWIS, OF AUBURN, NEW YORK, ASSIGNOR TO HIMSELF AND
CHARLES E. TAFT, OF SAME PLACE.

IMPROVEMENT IN MACHINES FOR SHAPING SPRINGS.

Specification forming part of Letters Patent No. **188,922**, dated March 27, 1877; application filed
December 18, 1876.

To all whom it may concern:

Be it known that I, EDWARD C. LEWIS, of Auburn, in the county of Cayuga, and State of New York, have invented a new and Improved Machine for Shaping Springs, of which the following is a specification:

In the accompanying drawing, Figure 1 represents a vertical transverse section on line *c c*, Fig. 2; Fig. 2, a top view of my improved machine for shaping springs, and Fig. 3 a detail side view of one of the shaping-lugs.

Similar letters of reference indicate corresponding parts.

The object of my invention is to furnish an improved machine for automatically shaping or fitting springs in perfect and quick manner, by any unskilled workman, so as to supersede the present imperfect method of pinching the heated spring leaves or plates into form by means of tongs, operated by skilled workmen.

The invention consists of an interchangeable solid former in connection with a flexible former, and a hinged drop for straightening the edges of the leaves or plates. The flexible former is composed of lugs, which are channeled along the center in the direction of the longitudinal axis of the same.

In the drawing, *A* represents the solid former, and *A'* the flexible former, which are both supported on a bed-plate, *B*, the solid former being secured thereto by a screw-bolt, *B'*. The bed-plate *B* rests on suitable supporting-standards *C*, which carry at one side an upright arm or post, *a*, with screw-cam or knuckle device *E*, and at the opposite side posts *b*, to which a solid drop, *F*, with handle *F*¹, to operate the same, is hinged, and supported in upright position by an arm, *F*², of the bed-plate. The drop-block serves to straighten the edges of the plates in conjunction with the bed-plate, while they are shaped by the formers. The solid former *A* may be interchanged for the purpose of shaping springs of different sizes, while the flexible former *A'* is adapted to fit any size and shape of springs. The flexible former is constructed of a number of steel lugs, *d*, which are riv-

eted to a band, *e*, or when the shaping machine is made in larger size the lugs are connected in such a manner as to form a continuous chain, each lug forming a link. A second band, *f*, bears on the back of the first band, or directly on the connecting-links of the lugs, and is attached at the ends to a rigid bow-shaped bar, *G*, to the center part of which the compressing screw-bolt or equivalent mechanism is applied.

The lugs *d* of the flexible former are channeled along the center, the channels *d'*, running in the direction of the longitudinal axis of the former. The object of the channels is to produce the instant chilling of the edges of the leaves or plates, while leaving them slightly warm at the center to draw down the temper somewhat. The heated plates are placed on a center pin of the solid former, and then exposed to the action of the cold formers, which are strongly pressed together by the screw, so as to shape, chill, and temper the hot plate, as firmly as by the present method of dipping them in water, by which they are always more or less warped. The plates when taken from the shaping machine are ready to be bolted, and require no further manipulation, being shaped and tempered in a superior, quick, and economical manner.

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

1. The combination, with rigid former *A*, of the flexible former *A'*, consisting of the metallic lugs *d* riveted to an elastic band, *e*, as shown and described.

2. The combination, with the shaping formers *A A'* and bed *B*, of a drop, *F*, attached to a hinged arm, *F'*, as and for the purpose set forth.

3. The combination, with flexible former *d e*, of the band *f*, rigid bow *g*, and screw *E*, arranged as and for the purpose specified.

EDWARD C. LEWIS.

Witnesses:

WILLIAM F. LEWIS,
HORACE T. COOK.