(No Model.)

J. E. BIDWELL.

SPRING BENDING AND FITTING MACHINE.

No. 462,646. Patented Nov. 3, 1891.

Fig. 1

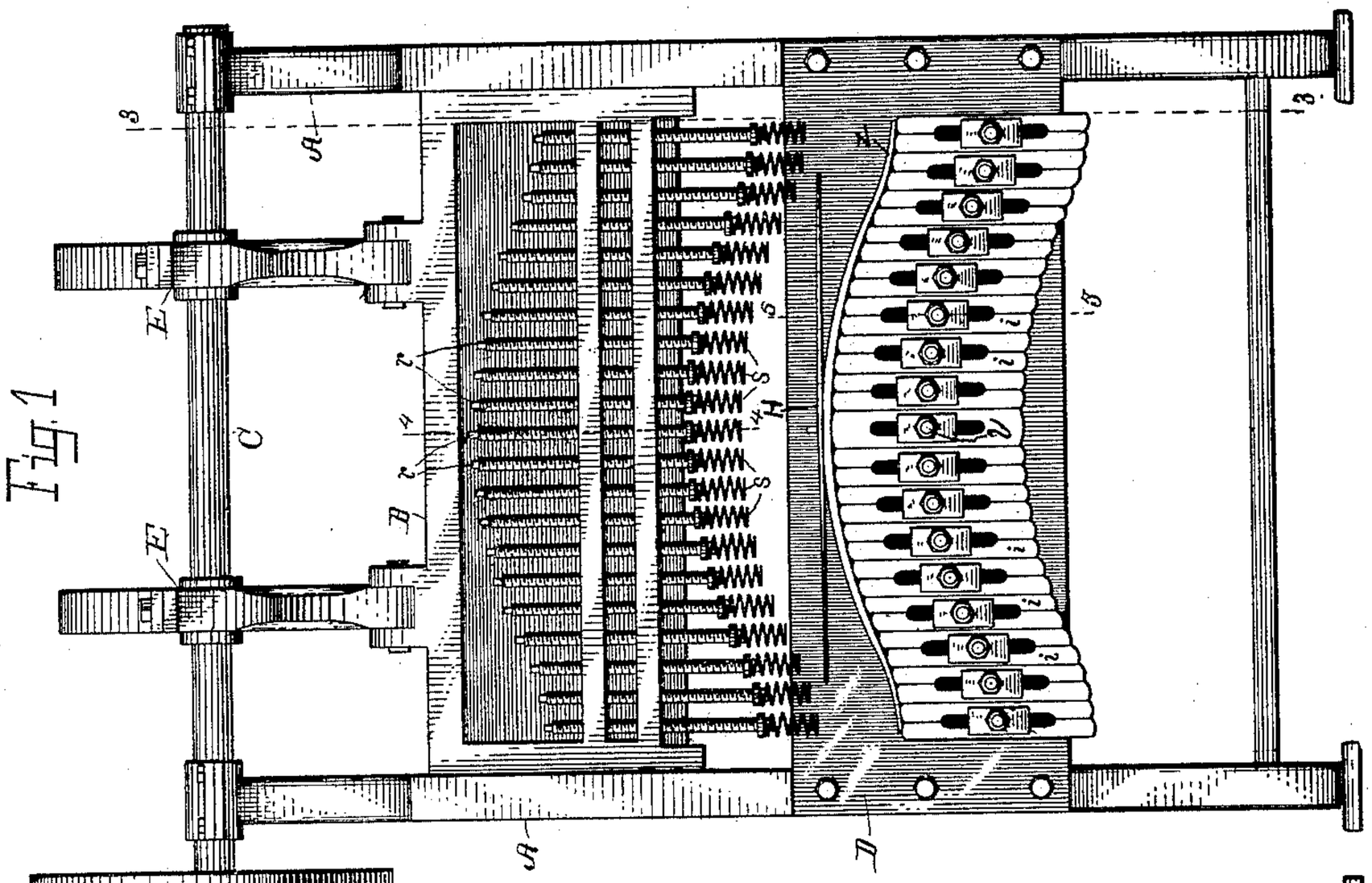

Fig. 2

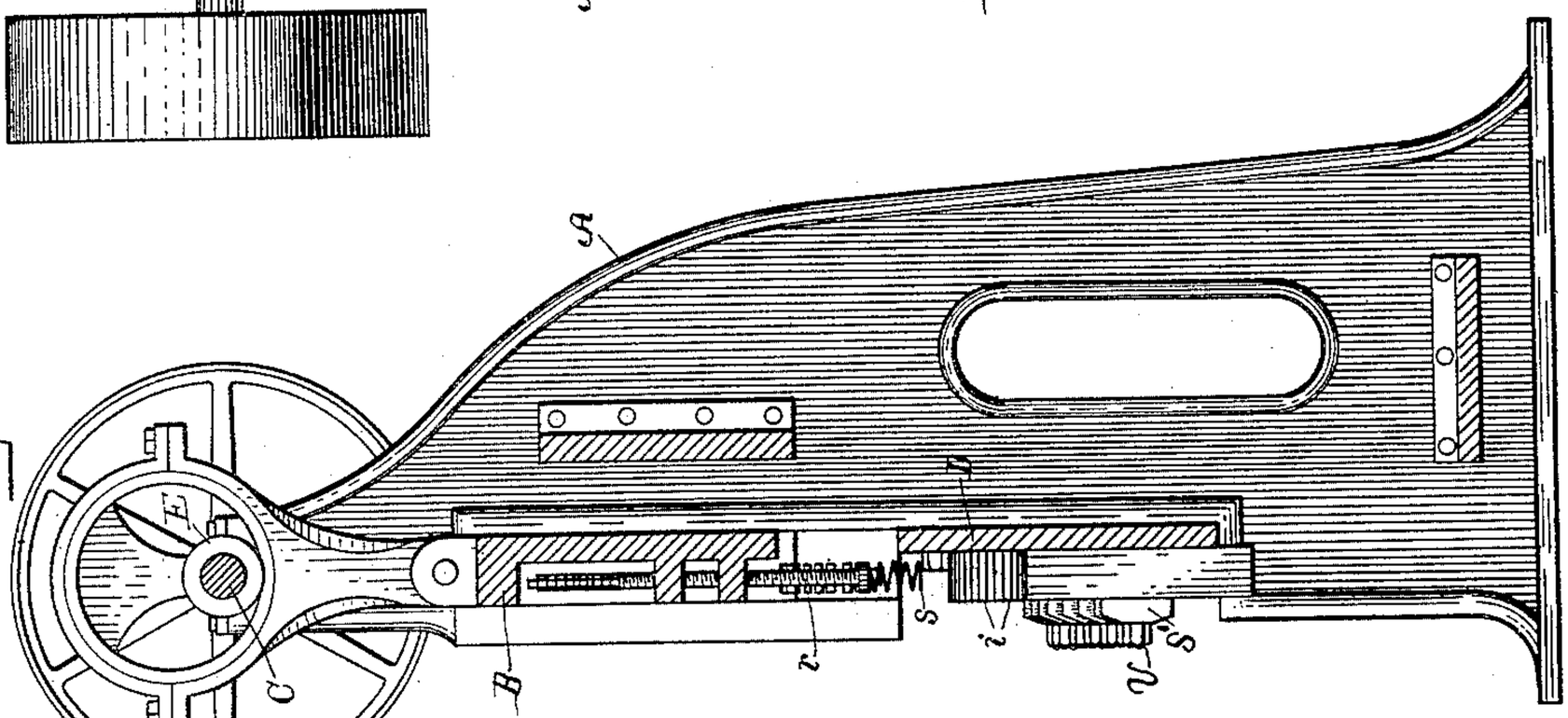

Fig. 3

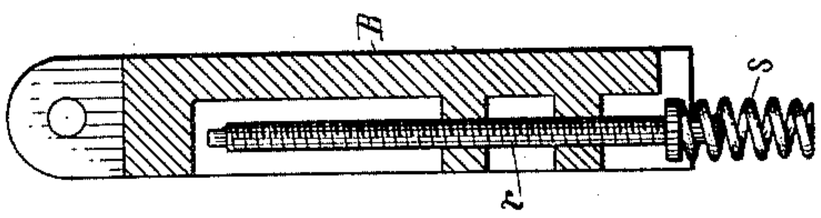

Fig. 4

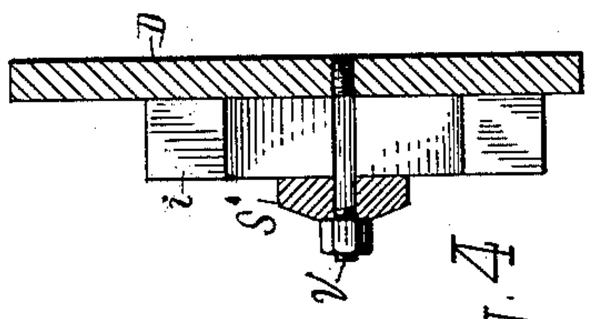

Fig. 5

Witnesses:

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Att'y.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JOSEPH E. BIDWELL, OF KALAMAZOO, MICHIGAN, ASSIGNOR TO THE KALAMAZOO SPRING AND AXLE COMPANY, OF SAME PLACE.

SPRING BENDING AND FITTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 462,646, dated November 3, 1891.

Application filed May 25, 1891. Serial No. 393,930. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH E. BIDWELL, a citizen of the United States, residing at Kalamazoo, county of Kalamazoo, State of Michigan, have invented a new and useful Spring Bending and Fitting Machine, of which the following is a specification.

This invention relates to that class of spring bending and fitting machines in which two sets of dies are employed, each arranged to present a surface between which the springs are to be compressed, which surfaces conform to the general configuration of the springs to be fitted.

The main object of this invention, as contrasted with cushioned hammers disclosed in an application made by me bearing even date herewith, is to make the hammers themselves elastic by making them out of spiral springs.

In the drawings forming a part of this specification, Figure 1 is a front elevation. Fig. 2 is a sectional elevation on line 3 3 in Fig. 1, looking from a point at the right. Fig. 3 is an enlarged section on line 4 4 in Fig. 1, looking from a point at the right. Fig. 4 is a section on line 5 5 in Fig. 1, looking from a point at the right; and Fig. 5 is an enlarged perspective of a lettered detail from Fig. 1.

Referring to the lettered parts of the drawings, A is a frame-work of the machine, upon which is mounted in suitable bearings a power-shaft C.

At *i i* is shown a series of dies mortised in the side, as in Figs. 4 and 5, so that when placed by the side of another like die there will be an elongated slot between the two contiguous dies. These dies are attached to a plate or bar D (which bar is secured to the frame A) by means of screw-bolts *v*, which bolts pass through washers S′ and through the slots and screw into the plate D. The object of these elongated mortises is to enable the operator to adjust the dies so that their upper ends will present a configuration in keeping with the desired shape of the spring to be acted upon. To illustrate, referring to Fig. 1, at *z* is shown a form made out of a metal bar conforming to the desired shape of the spring, said form resting upon the ends of the dies *i*. If another form of spring were to be made the screw-bolts *v* would be loosened and the dies adjusted in accordance with the peculiar shape of the spring desired. This series of dies *i* constitutes a bed or base against which the springs are compressed.

At B is shown a frame which has vertical slide bearings in a frame A. Arranged in this frame B is a series of screw-threaded stocks *r*, terminating at the lower end in spiral-spring hammers *s*. These stocks are adjustably screw-threaded in a bar of the frame B, so that they may be raised and lowered to adjust the hammers in accordance with the desired configuration of the springs to be fitted and in keeping with the desired stroke of the perspective hammers.

In the operation the spring H to be "fitted" is placed upon the form *z*. Then the sliding frame B, with its hammers, is lowered by means of the eccentrics E of the power-shaft C, said spring-hammers striking upon the spring H and pressing it between said hammers and the dies *i*, and fitting said spring in effect the same as though "pinched" by hand. Good effective work is secured by means of this construction with greater simplicity, and the hammers by virtue of their construction are their own cushion.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a spring bending and fitting machine, a suitable bed and a series of hammers formed from spiral springs, between which hammers and the bed the spring to be fitted is compressed, substantially as set forth.

2. The combination of a suitable supporting-frame, a series of dies attached thereto and constituting a bed upon which the spring to be fitted is placed, and a vertically-playing frame bearing a series of spiral-spring hammers, and means for operating said hammer-frame, substantially as set forth.

3. The combination of a supporting-frame,

a series of vertically-adjustable dies attached thereto and constituting the bed upon which the spring to be fitted is placed, a vertically-playing frame above said bed, means for operating the same, and a series of screw-threaded stocks vertically adjustable in said frame and terminating at the lower end in the spiral-spring hammers, substantially as set forth.

In testimony to the foregoing I have hereunto subscribed my name in the presence of two witnesses.

JOSEPH E. BIDWELL.

Witnesses:
F. V. WICKS,
JENNIE S. GOULD.