

G. W. COPELAND.
Boot and Shoe Lasting Machine.

No. 201,914.

Patented April 2, 1878.

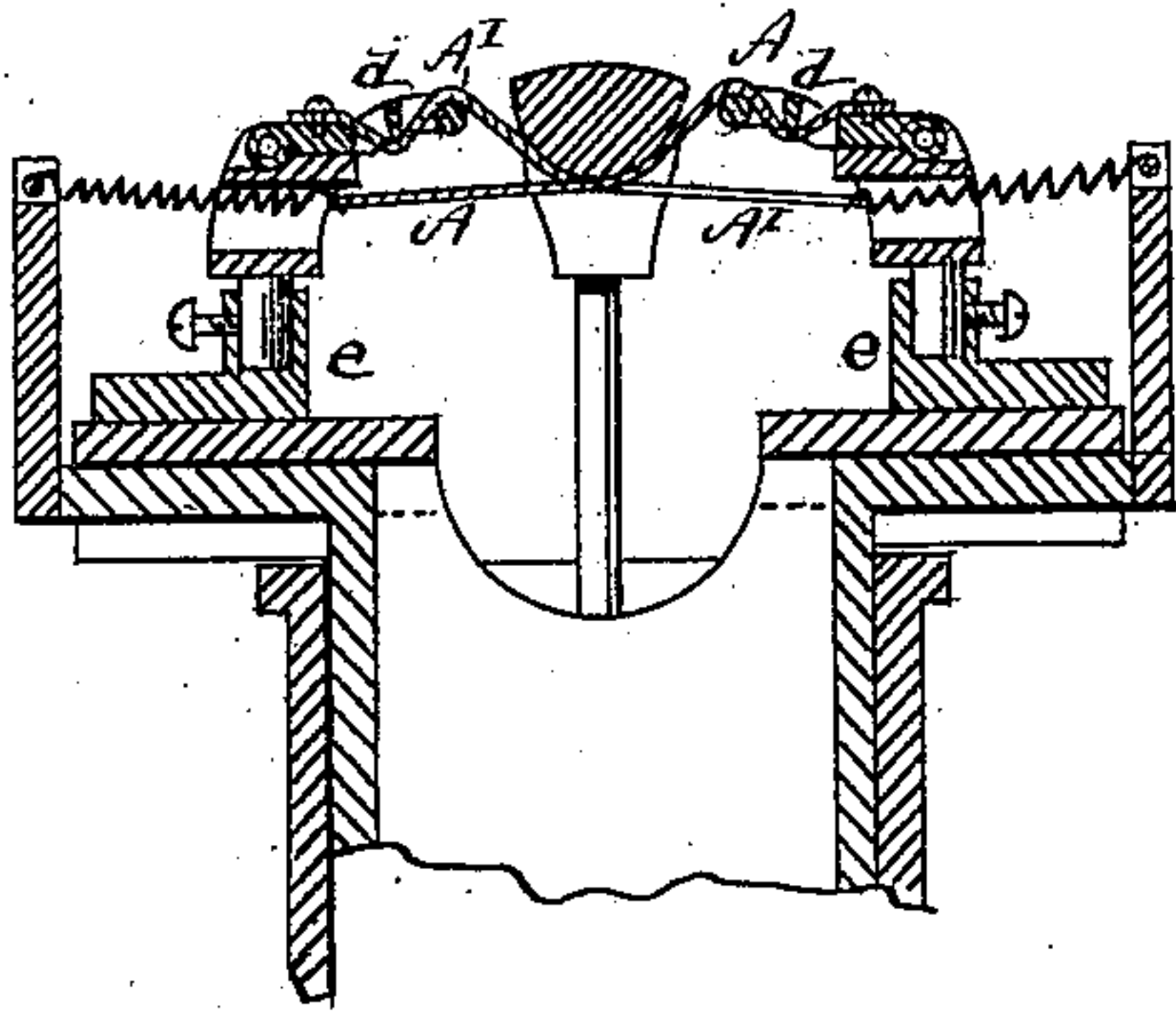


Fig. 1.

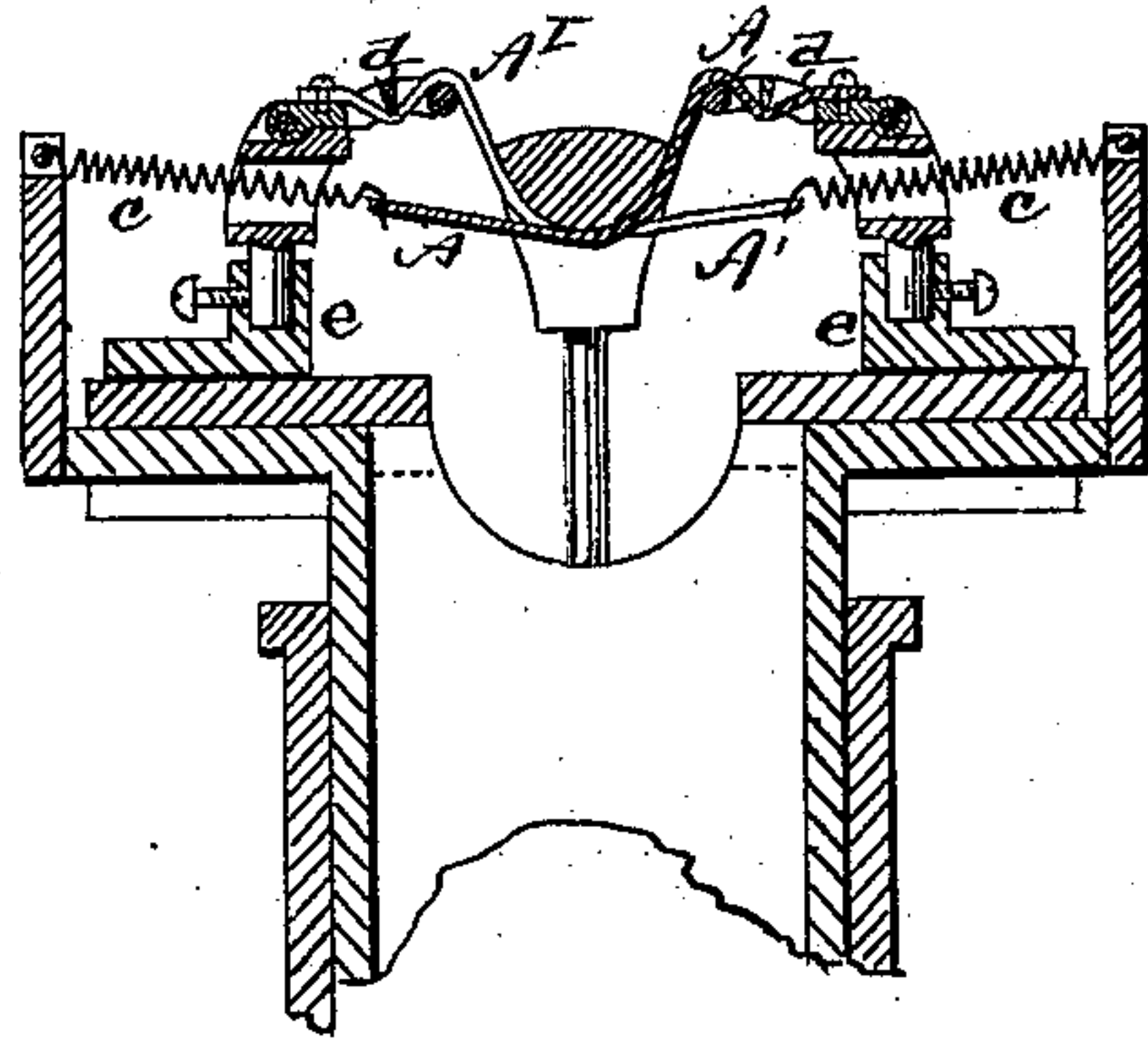


Fig. 2.

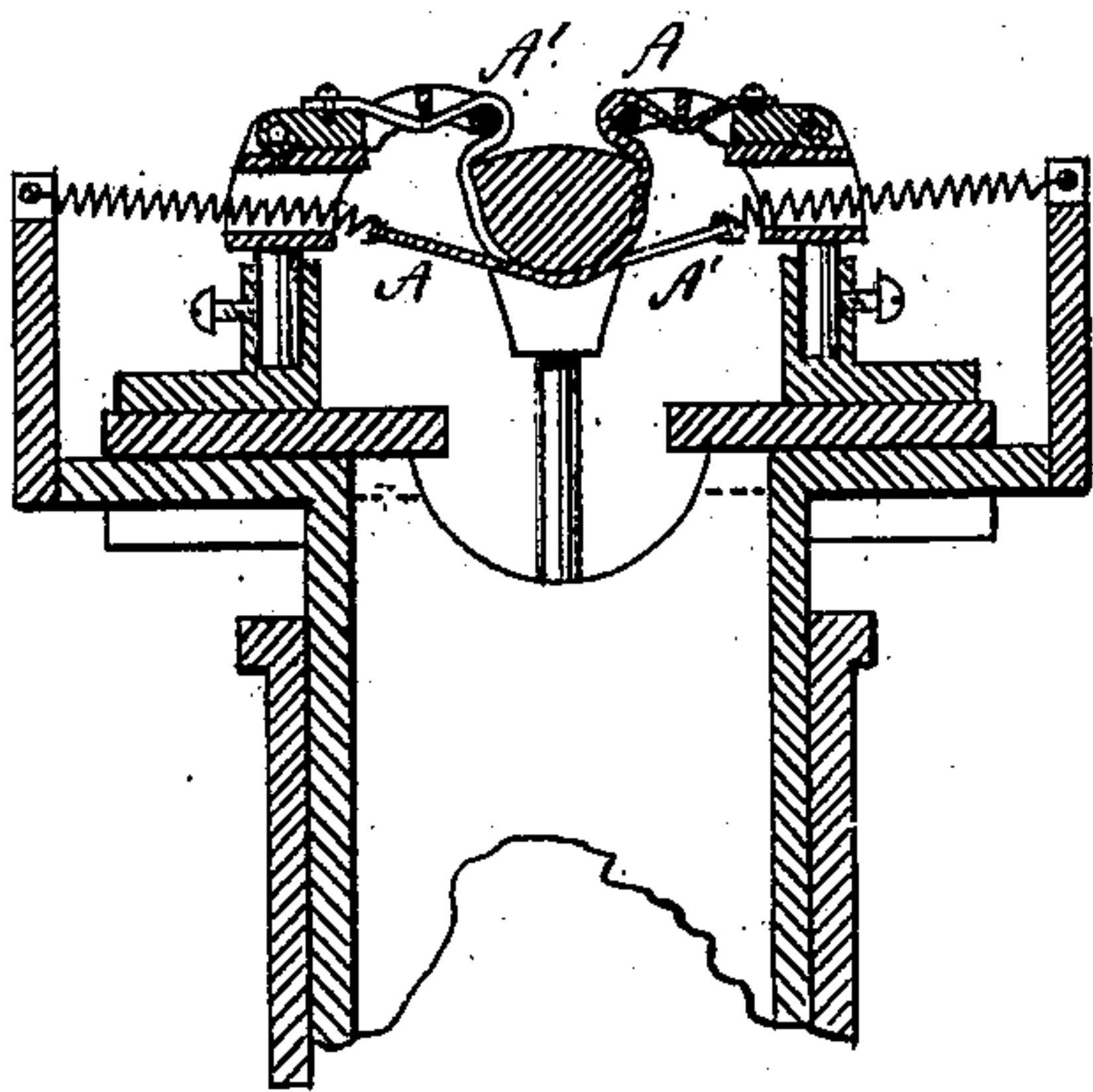


Fig. 3.

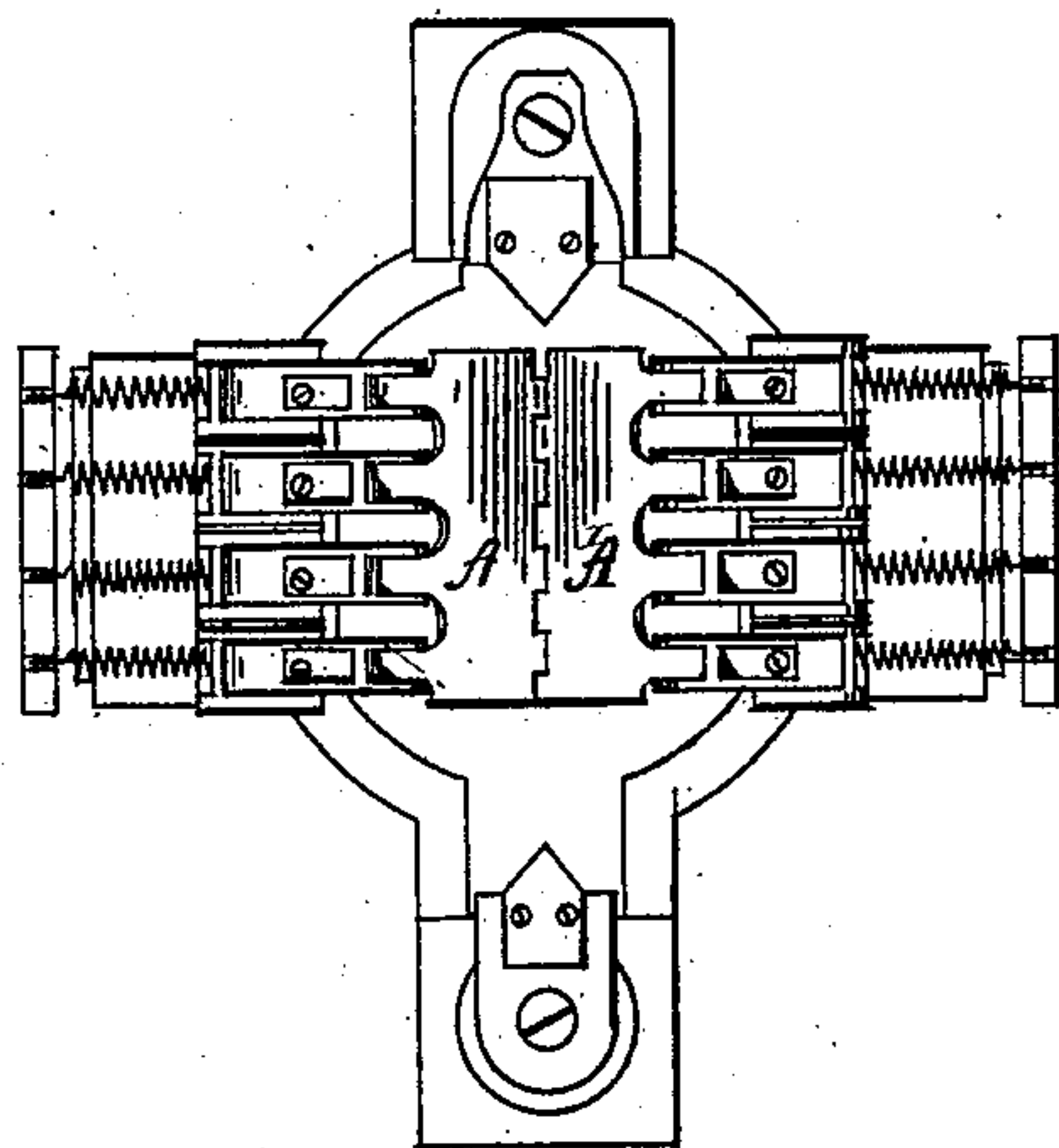


Fig. 4.

WITNESSES.

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INVENTOR.

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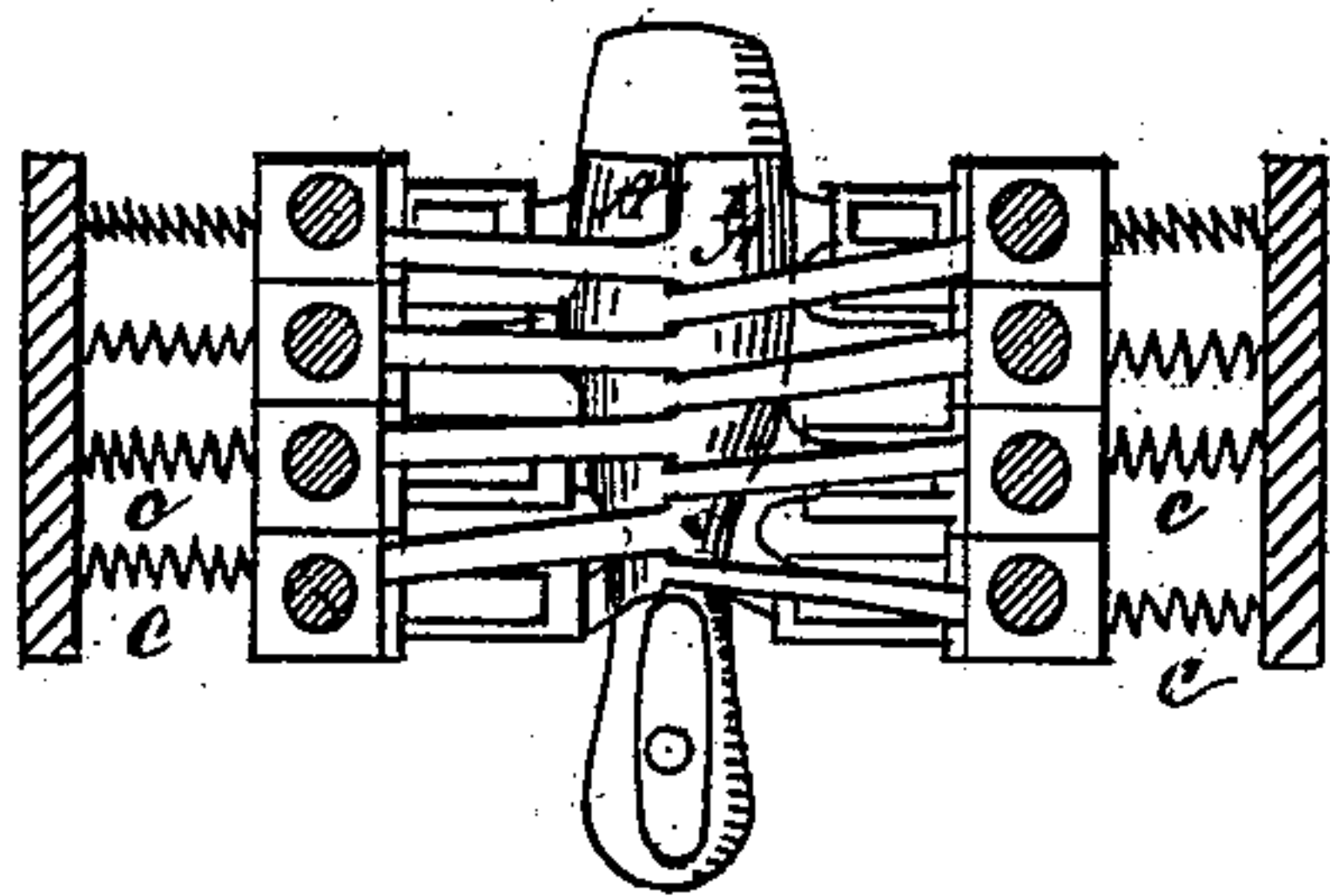


Fig. 5.

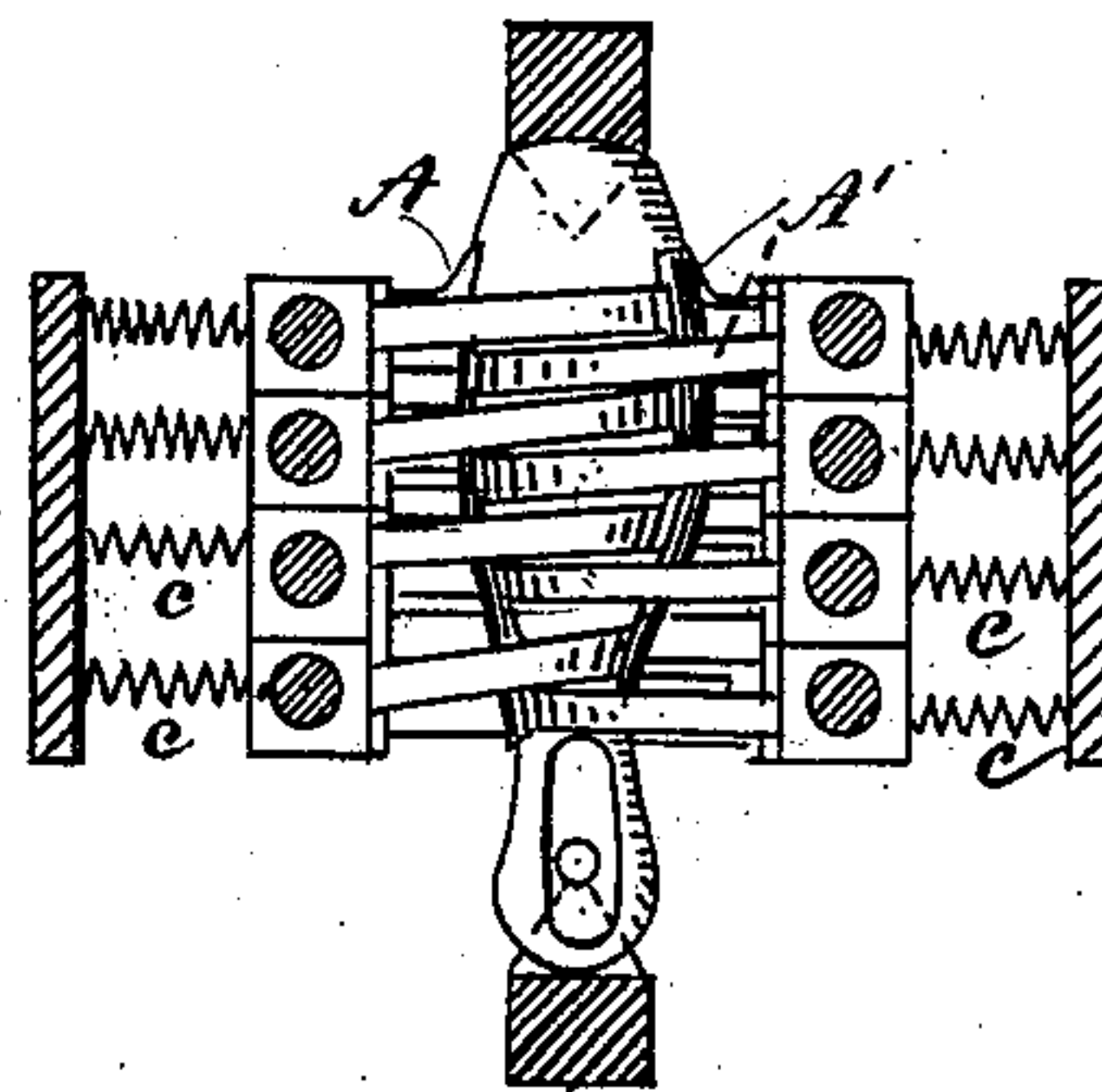


Fig. 6.

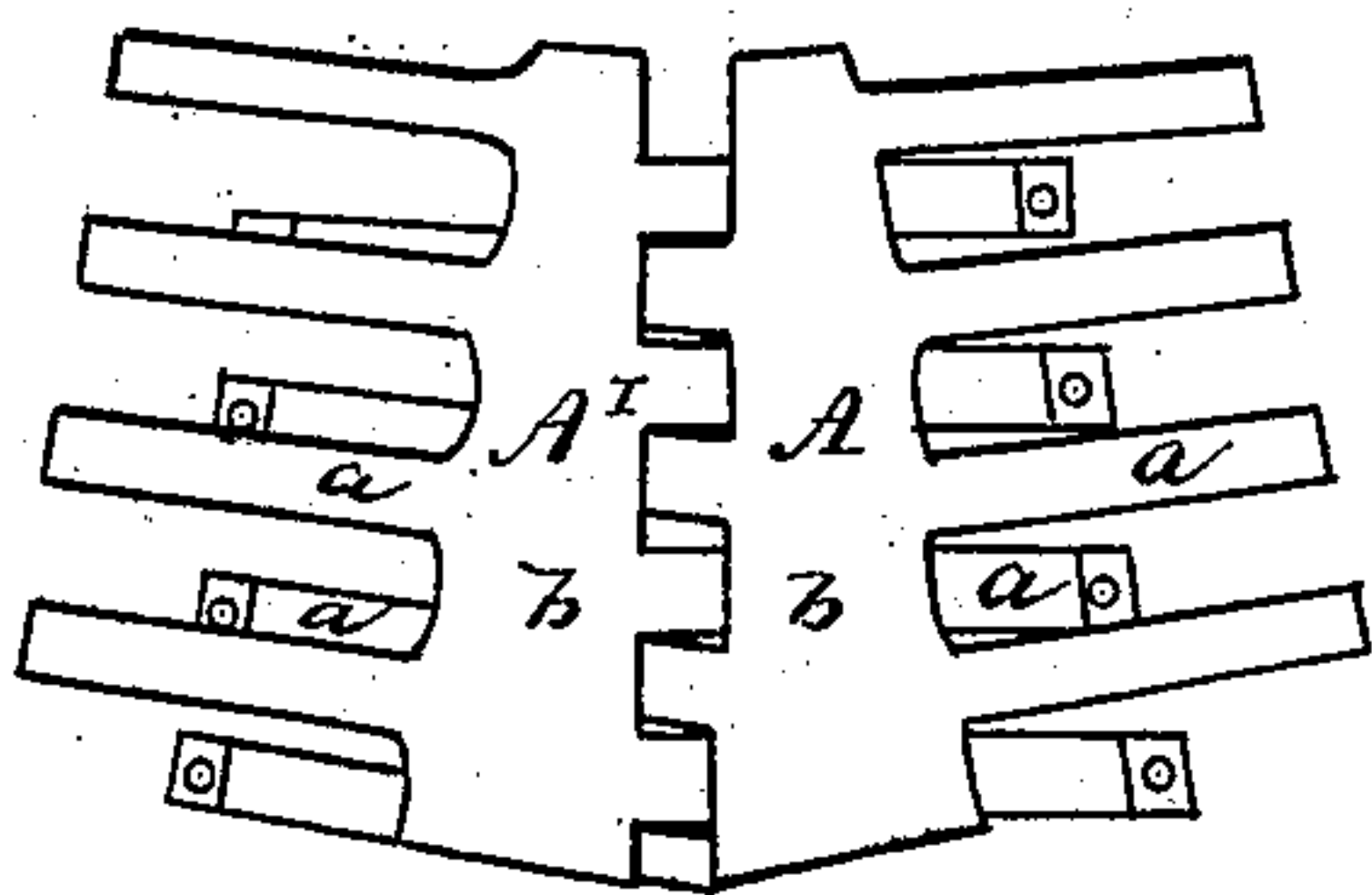


Fig. 7.

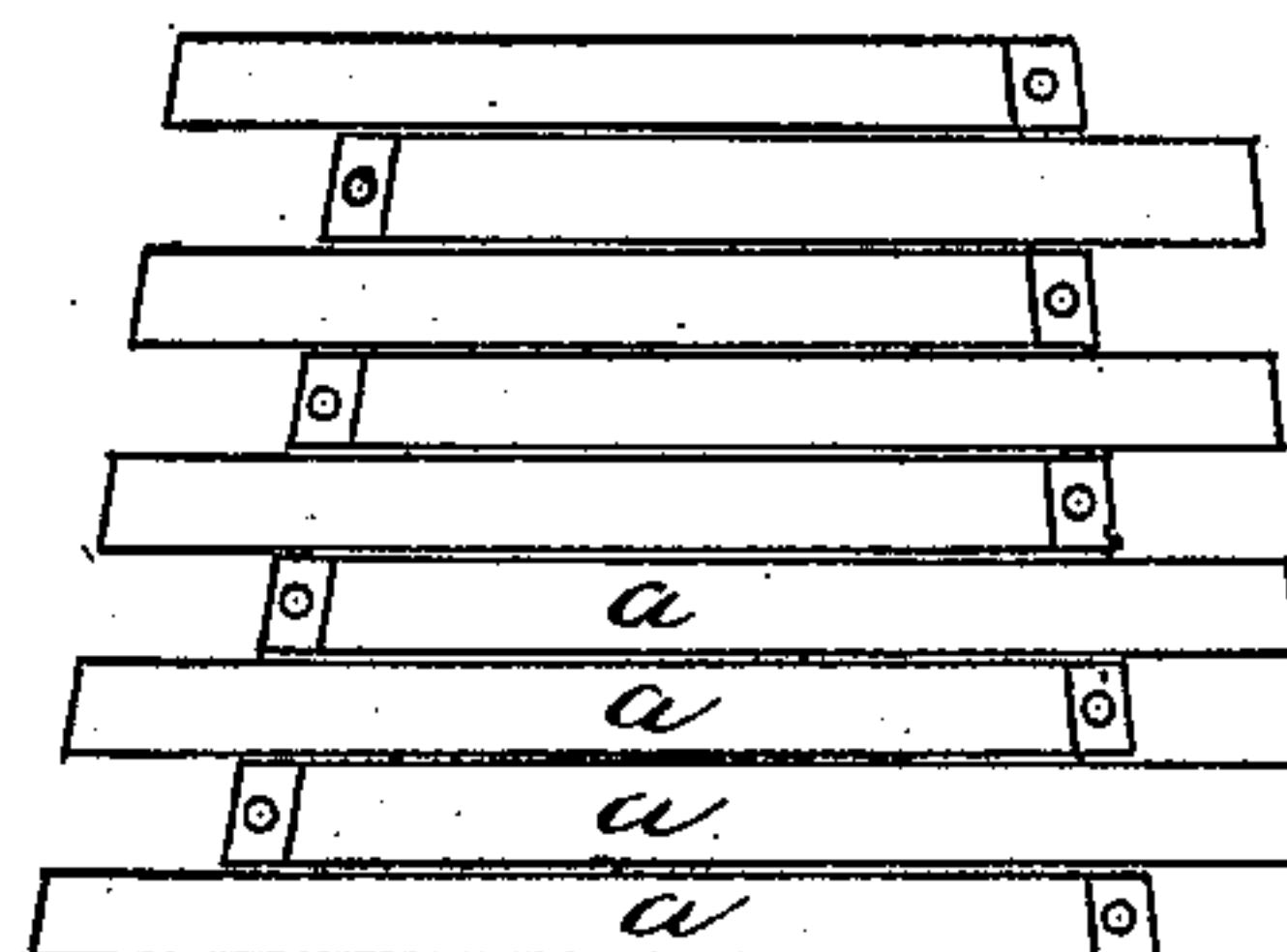


Fig. 8.

WITNESSES.

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UNITED STATES PATENT OFFICE.

GEORGE W. COPELAND, OF MALDEN, MASSACHUSETTS, ASSIGNOR TO THE
COPELAND LASTING MACHINE COMPANY, OF HARTFORD, CONN.

IMPROVEMENT IN BOOT AND SHOE LASTING MACHINES.

Specification forming part of Letters Patent No. **201,914**, dated April 2, 1878; application filed
February 16, 1878.

To all whom it may concern:

Be it known that I, GEORGE W. COPELAND, of Malden, in the county of Middlesex and State of Massachusetts, have invented an Improvement in Boot and Shoe Lasting Machines, of which the following is a specification:

This invention relates to lasting-machines in which an upwardly-moving conformable surface or surfaces are caused to act upon the sides of a last from the median line from instep to toe, or from surfaces immediately adjacent thereto, in lifting, straining, stretching, and fitting an upper thereon by the continuous vertical movement of said surface or surfaces upon the sides of a last, perfectly fitting the upper thereon, and conforming it thereto in constantly-succeeding areas; and it consists in the peculiarly-constructed girth, hereinafter described, and in the combination of said girth with proper actuating mechanism.

In the drawings, Figure 1 is a transverse vertical section of the upper portion of the machine, with the jaws and girth in position preparatory to lifting; Fig. 2, a transverse vertical section, showing the jaws lifted, the girth under strain, and the upper partially fitted to the last; Fig. 3, a transverse vertical section, showing the jaws closed, the edge of the girth lapping upon the insole, and the fitting of the upper completed; Fig. 4, a plan of the girth, girth-supporting finger, and actuating-jaws with the last removed; Fig. 5, an inverted view of the girth, showing its position and operation in relation to the last at the commencement and at the end of its action; Fig. 6, a plan of the two portions of the girth, separated to more clearly show the shape of each part; and Fig. 7, a modification of the particular girth herein set forth.

The girth herein described is an improvement on the various girths heretofore patented to me, and fully set forth in Letters Patent Nos. 156,405, 181,772, 182,560, 183,539, in that it conforms more completely to the inequalities and varying curvatures of a last's surface, and is not dependent upon the correct shaping of every part to insure its perfect working as a whole—that is, each section of the girth performs its work without relying upon or substantially influencing the action of the adja-

cent sections—and therefore the complete girth possesses a greater range of adaptation and adjustment than would be the case if it were formed from one piece possessing inherent elasticity.

My improved girth is constructed in two parts, or rather sections, A A', almost exact counterparts, as shown in Fig. 6. These sections are adapted to act on opposite sides of a last, and consist of the straps *a*, either with or without the connecting portion *b*, graduated in length and width to conform to the surface to be operated upon, and fastened at their lower end to coiled or other springs, or their equivalents, *c*, and at their upper ends to the adjustable fingers *d*, projecting from the jaws *e*, in such a way that the lower portions of the two sections interlace or draw by each other as the girth-supporting fingers are raised. The jaws *e* are provided with the lifting and closing movements already patented to me, and the girth-carrying fingers may be given any of the adjustments enumerated therein.

It is intended that the two sections of the girth shall be of some inelastic, or comparatively inelastic, material, and that the necessary yielding property shall be derived from the springs, weights, or other equivalent.

It will be seen that each section of the girth extends diagonally downward across the machine from the end of the girth-supporting fingers on one, and the upper side to the springs or other yielding device on the other and lower side.

It will also be observed that in locating the two sections of the girth or series of straps in the manner set forth, the lower parts thereof must interlace or cross each other, and that the girth is so cut or the straps so arranged that the space between the straps on one section of the girth are opposite the straps of the other section.

It will be observed, further, that the line from which the straps draw should be a line substantially coincident or parallel with the median line from instep to toe of the last upon which they operate.

In operation the girth fulfills the function required of it in a superior manner. Its parts are inexpensive and of great durability, and

if any of them should be injured, or otherwise become unfit for use from any cause, they can be readily replaced and adjusted.

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

1. A girth for lasting the vamps of boots and shoes, consisting of unyielding straps, connected or disconnected, rigidly secured at one end to the fingers of the vamp-lasting apparatus, and at the other end to a set of springs or weights on the opposite side of the machine, substantially as described.

2. In a lasting-machine, the combination of unyielding straps, connected or disconnected, and interlaced, as described, means for lifting the same against the sides of a last in straining and fitting the upper thereon, and yielding devices for opposing said lifting movement, all arranged to operate substantially as described.

GEO. W. COPELAND.

Witnesses:

F. F. RAYMOND, 2d,
A. J. OETTINGER.