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R. W. LYLE.

MACHINE FOR BEVELING THE INNER WALLS OF CONDUIT SECTIONS.

APPLICATION FILED OCT. 28, 1902.

NO MODEL.

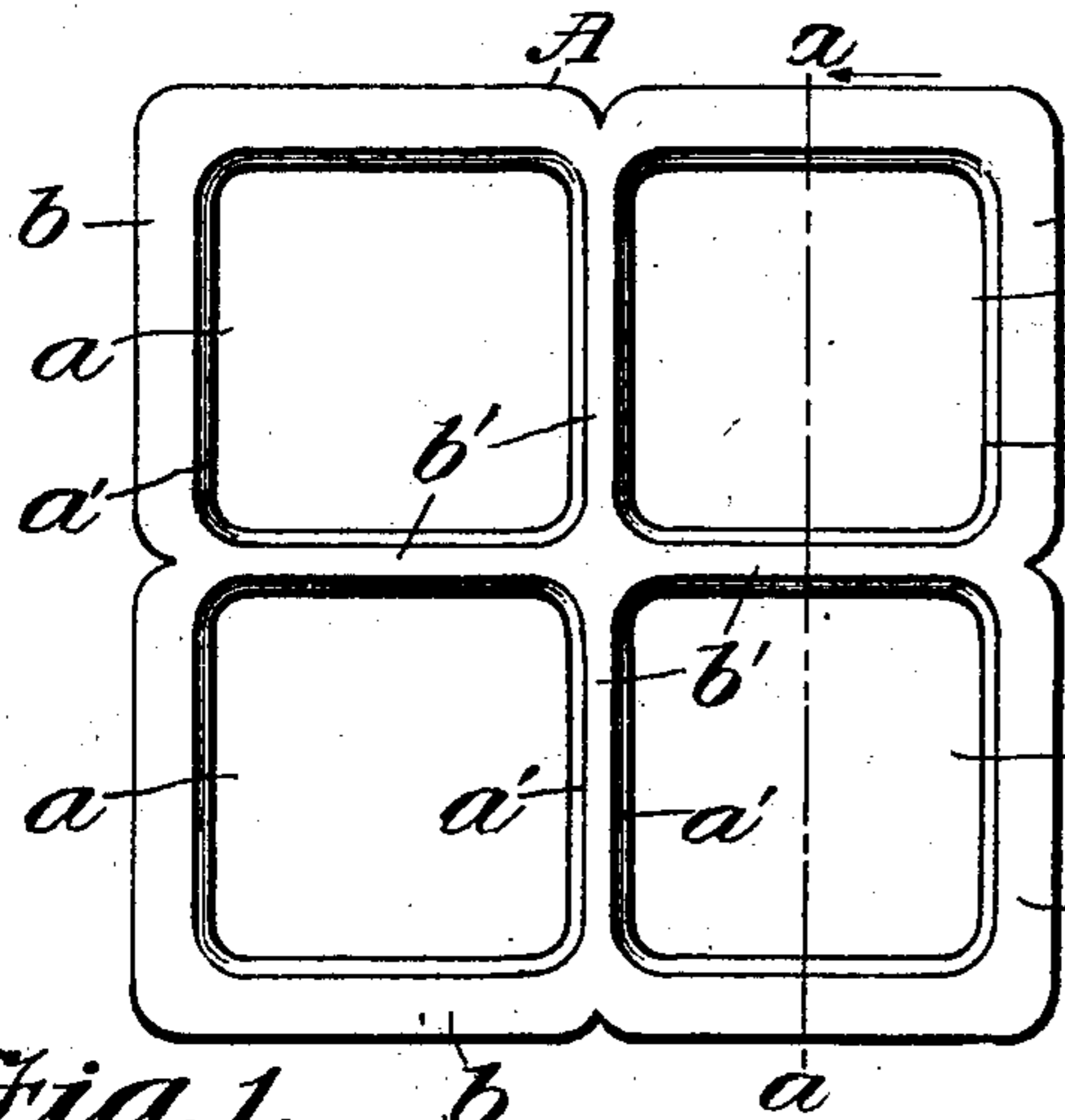


Fig. 1.

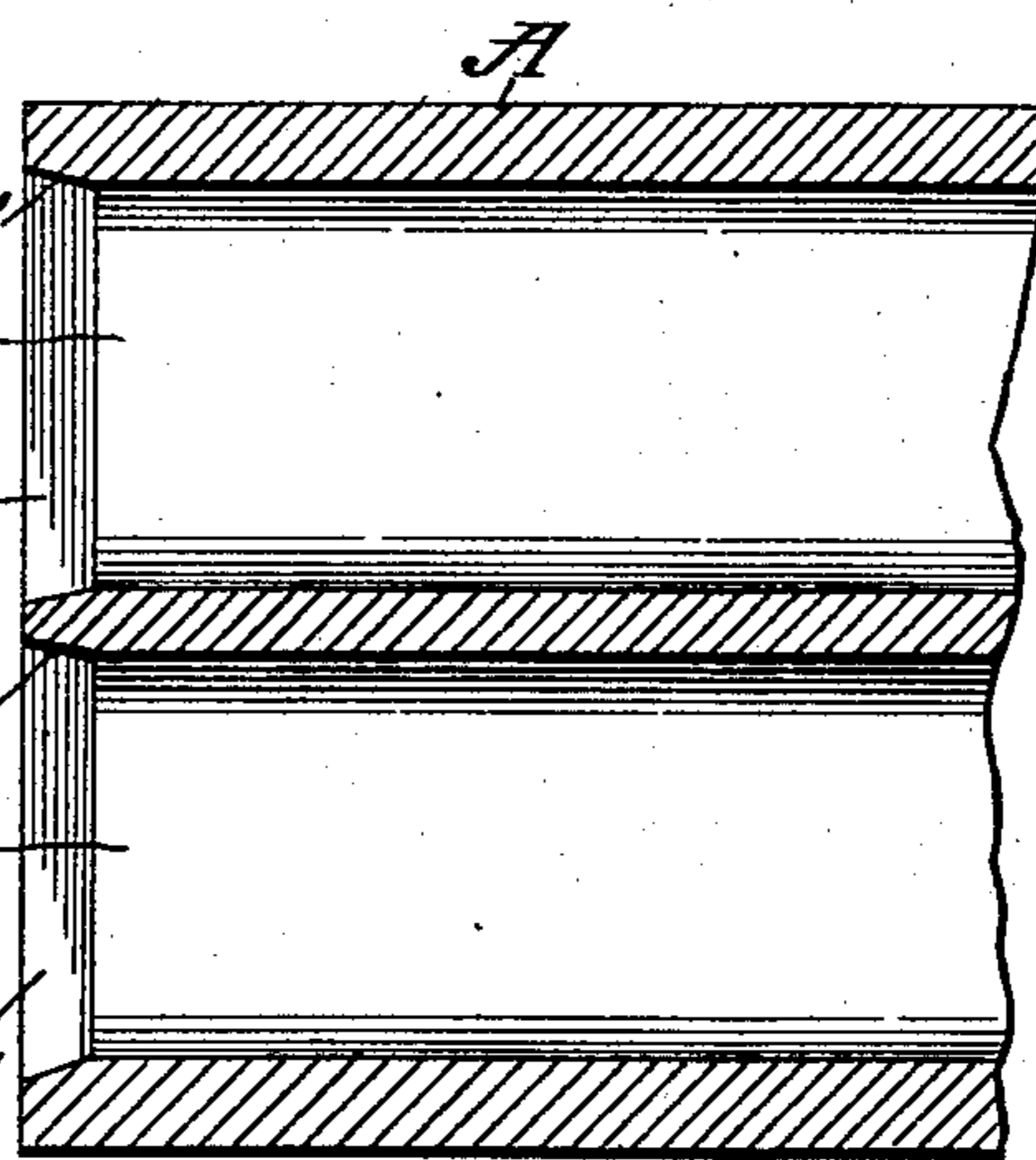


Fig. 2.

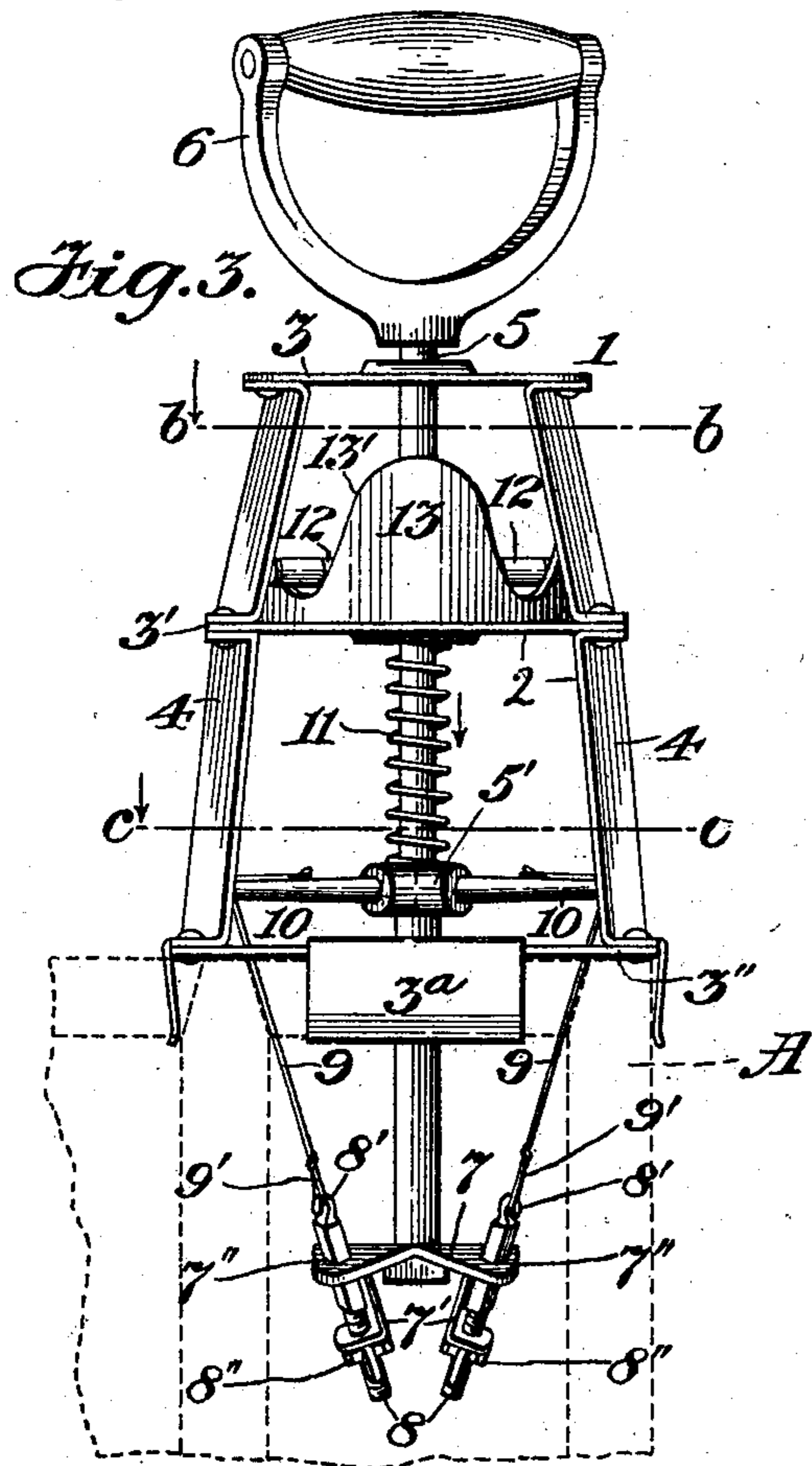


Fig. 3.

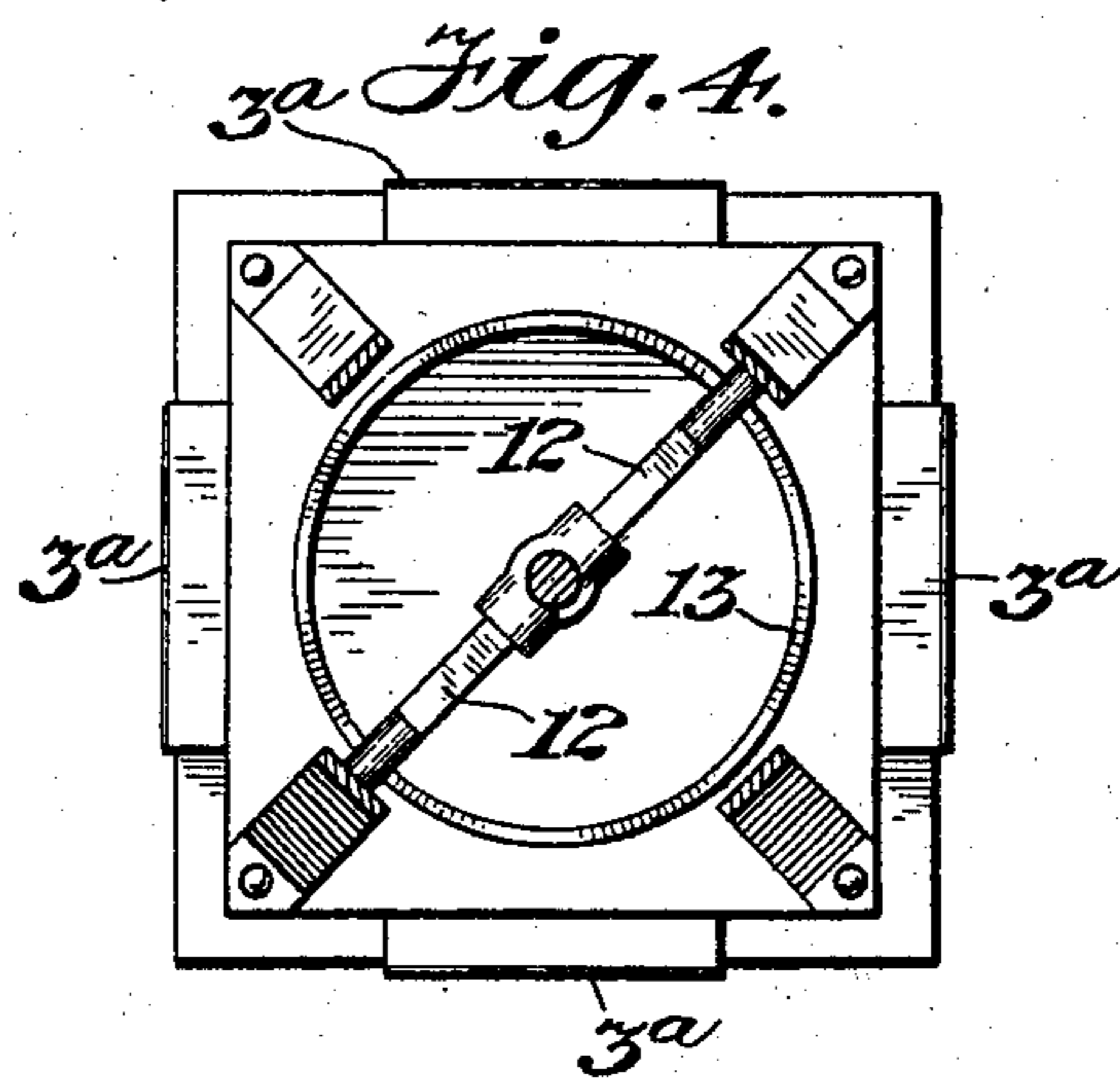


Fig. 4.

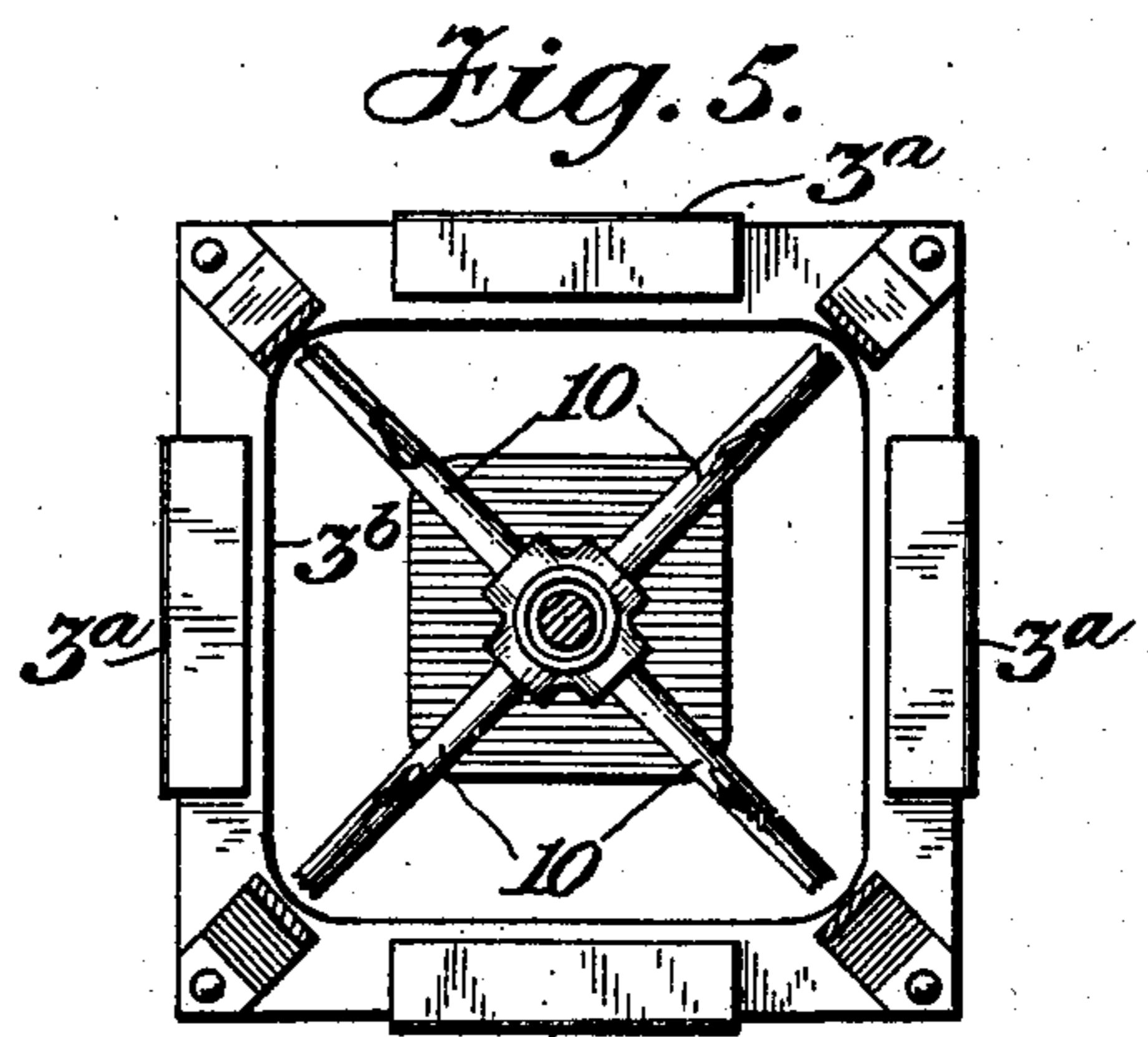


Fig. 5.

Witnesses  
Chas. J. Clagett  
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By his Attorney,

Robert W. Lyle,  
Inventor  
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# UNITED STATES PATENT OFFICE.

ROBERT W. LYLE, OF NEW YORK, N. Y.

MACHINE FOR BEVELING THE INNER WALLS OF CONDUIT-SECTIONS.

SPECIFICATION forming part of Letters Patent No. 720,717, dated February 17, 1903.

Application filed October 28, 1902. Serial No. 129,075. (No model.)

*To all whom it may concern:*

Be it known that I, ROBERT W. LYLE, a citizen of the United States, residing at New York, in the county and State of New York, have invented certain new and useful Improvements in Machines for Beveling the Inner Walls of Conduit-Sections, of which the following is a specification.

My present invention relates to means for beveling the inner surfaces of the walls of conduits at the openings of conduit-sections, such as are used for electric conductors or for any cognate purpose, and it is more especially adapted to the process above mentioned when the conduit-sections to be operated upon are manufactured of clay or similar material. The openings are beveled in order to assure the passage therethrough from section to section of the conduit of cables, wires, or other bodies which it may be necessary to position therein, the passage of such bodies being frequently retarded by the abrupt angles formed by the ends of the sections where the conduits in such sections are not properly beveled, as aforesaid. The sections used are generally fired or baked and in some instances are glazed both interiorly and exteriorly; but the beveling process before mentioned may be accomplished while the clay or other material of which the sections are composed is green or to some extent plastic or at any other suitable stage in the process of manufacture.

In the drawings, Figures 1 and 2 are respectively an end elevation of a conduit-section in which four separate conduits are formed and a vertical longitudinal section thereof, taken on the line *a a*, Fig. 1. Fig. 3 is a side elevation of a beveling device. Fig. 4 is a transverse horizontal section of said device through the line *b b*, Fig. 3; and Fig. 5 is a similar section through the line *c c*, Fig. 3.

Corresponding parts in all the figures are denoted by the same reference characters.

Referring to the drawings, A designates a conduit-section in which is formed four conduits *a a* parallelly of each other, collectively surrounded by the walls *b b* and separated by walls *b' b'*. At each mouth or opening of each conduit *a* the walls *b* and *b'* are respectively chambered or beveled, as at *a' a'*. The conduits *a a* are rectangular in cross-section; but the matter of transverse form, as well as in

that of number, has no bearing whatever upon the subject of my invention, as the latter is susceptible of modification to adapt it for use with conduit-sections having any number of conduits of whatsoever cross-sectional form the latter may be.

A beveling device 1 comprises a frame 2, consisting of plates 3 3' 3'' and connecting-pieces 4 4, rigidly attached thereto and holding the plates 3 3' 3'' in their relatively proper positions. A rotatable spindle 5 is journaled in the plates 3 and 3' and is free to move axially thereof. To one end of the spindle 5 is rigidly attached a handle 6, preferably of the "spade" form, so called, and to the other end of said spindle is rigidly attached a plate 7, bearing brackets 7' 7'', through perforations in which respectively pass tension-adjusting screws 8 8, which also pass through angular perforations 7'' 7''' in the plate, a portion of the body of each screw being so formed as to engage in a perforation 7'', and thus be prevented from rotating. At one end of each tension-adjusting screw 8 is a hook 8', on which is hooked a loop 9', which is formed on a piece of wire 9, the other ends of the several wires 9 being respectively similarly secured to the outer ends of arms 10 10, which are four in number and project radially from the spindle 5, being secured to the latter by means of a cross-armed hub 5'. Thumb-nuts 8'', respectively mounted upon the tension-screws 8, serve to tension the wires 9 to whatever extent may be required. A helical spring 11, surrounding the spindle 5 and impinging at one end against the plate 3' and at the other end against the hub 5', urges the spindle 5 and the parts mounted thereon in the direction indicated by an arrow in Fig. 3.

Arms 12 12, rigidly secured opposite to each other on the spindle 5, are urged against a side cam 13 by the spring 11. The cam 13 should have as many operative faces 13' as there are conduit-faces to be operated upon at one time, and therefore said cam-faces 13' are herein shown as four in number in order to correspond in that respect with the conduits *a a* in the conduit-section A. The cam 13 may be of a generally cylindrical form, and the faces 13' are formed transversely thereof and are in contour of such form that when

the spindle 5 be rotated—as, for instance, by means of the handle 6—the faces 13', engaging the arms 12 12, operate with the spring 11 in such a manner as to reciprocate the spindle 5, so that the paths of the respective wires 9 9 will describe a rectangular quadrangle, the latter having in this case rounded corners, and thus corresponding in form with the required bevels to be produced in the conduit-walls  $b$  and  $b'$ . A continuous face 3<sup>b</sup> of the form just described is formed internally of the plates 3'' and serves as a rigid guide for the wires 9 9. Depending flanges 3<sup>a</sup> 3<sup>a</sup>, rigidly attached to the plate 3'', embrace the outer surfaces of the conduit-walls  $b$   $b'$ , and thus serve to position the device when the latter is operated.

The operation and advantages of my present invention will be readily understood by those skilled in the art to which it appertains. The device being adjusted to the ends of the walls  $b$   $b'$  of a conduit, with the flanges 3<sup>a</sup> 3<sup>a</sup> embracing said walls and properly positioning the device, the handle 6 is then so operated as to rotate the spindle 5, with the wires 9 9, and the latter serve to cut away the clay or other material from the inner angles at the end faces of the walls  $b$   $b'$ , and said wires being properly reciprocated by means of the cam-faces 13' 13' and guided by the guiding-face 3<sup>b</sup> in the plate 3'' the surfaces thus formed by the operation of the wires 9' 9' will be of the angular form required to produce the beveled faces  $a'$   $a'$ . Any required form of cutters may be used in lieu of the wires 9 9 to adapt the device to operate upon material different from that above mentioned.

I do not desire to be understood as limiting myself to the details of construction and arrangement as herein described and illustrated, as it is manifest that variations and modifications may be made in the features of construction and arrangement in the adaptation of the device to various conditions of use without departing from the spirit and scope of my invention and improvements. I therefore reserve the right to all such variation and modification as properly fall within the scope of my invention and the terms of the following claims.

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

1. A machine for forming beveled faces to intersect end faces and inner faces of conduit-sections, and comprising a supporting-frame, a rotatable spindle journaled in said frame, means for rotating the spindle, flexible beveling means mounted on and rotated by said spindle and arranged to form bevel-faces of conduit-sections, means for tensioning the beveling means.

2. A machine for forming beveled faces to intersect end faces and inner faces of conduit-sections, and comprising a supporting-frame, a reciprocatable and rotatable spindle journaled in said frame, means for rotating

the spindle, flexible beveling means mounted on and rotated by said spindle and arranged to form bevel-faces of conduit-sections, means for tensioning the beveling means.

3. A machine for forming beveled faces to intersect end faces and inner faces of conduit-sections, and comprising a supporting-frame, a reciprocatable and rotatable spindle journaled in said frame, means for rotating the spindle, beveling means mounted on and rotated by said spindle and arranged to form bevel-faces of conduit-sections, and a cam operative to reciprocate the spindle.

4. A machine for forming beveled faces to intersect end faces and inner faces of conduit-sections, and comprising a supporting-frame, a reciprocatable and rotatable spindle journaled in said frame, means for rotating the spindle, beveling means mounted on and rotated by said spindle and arranged to form bevel-faces of conduit-sections, and a fixed cam operative to reciprocate the spindle.

5. A machine of the class described, comprising a frame adapted to position the machine upon a conduit-section, rotatable beveling means mounted in said frame, and means for so operating said beveling means that the effective operation of said beveling means is adapted to coincide with the various forms of the conduit-faces operated upon.

6. A machine of the class described, comprising a frame adapted to position the machine upon a conduit-section, reciprocatable beveling means mounted in said frame, and means for so operating said beveling means that the effective operation of said beveling means is adapted to coincide with the various forms of the conduit-faces operated upon.

7. A machine of the class described, comprising a frame adapted to position the machine upon a conduit-section, rotatable and reciprocatable beveling means mounted in said frame, and means for so operating said beveling means that the effective operation of said beveling means is adapted to coincide with the various forms of the conduit-faces operated upon.

8. A machine for forming beveled faces to intersect end faces and inner faces of conduit-sections, and comprising a supporting-frame, a rotatable spindle journaled in said frame, means for rotating the spindle, flexible beveling means mounted on and rotated by said spindle and consisting of a plurality of wires converging axially of the spindle and arranged to form bevel-faces of conduit-sections, and means for tensioning said wires.

9. A machine for forming beveled faces to intersect end faces and inner faces of conduit-sections, and comprising a supporting-frame, a reciprocatable and rotatable spindle journaled in said frame, means for rotating the spindle, flexible beveling means mounted on and rotated by said spindle and consisting of a plurality of wires converging axially of the spindle, and arranged to form bevel-faces of

conduit-sections, and means for tensioning said wires.

10. A machine for forming beveled faces to intersect end faces and inner faces of conduit-sections, and comprising a supporting-frame, a reciprocable and rotatable spindle journaled in said frame, means for rotating the spindle, beveling means mounted on and rotated by said spindle and consisting of a plurality of wires converging axially of the spindle and arranged to form bevel-faces of conduit-sections, and a cam operative to reciprocate the spindle.

11. A machine for forming beveled faces to intersect end faces and inner faces of conduit-sections, and comprising a supporting-frame, a reciprocable and rotatable spindle journaled in said frame, means for rotating the spindle, beveling means mounted on and rotated by said spindle and consisting of a plurality of wires converging axially of the spindle and arranged to form bevel-faces of conduit-sections, and a fixed cam operative to reciprocate the spindle.

12. A machine of the class described, comprising a frame adapted to position the machine upon a conduit-section, rotatable beveling means consisting of converging wires mounted in said frame, and means for so operating said beveling means that the effective operation of said wires is adapted to coincide with various forms of the conduit-faces operated upon.

13. A machine of the class described, comprising a frame adapted to position the machine upon a conduit-section, rotatable and reciprocable beveling means consisting of converging wires mounted in said frame, and means for so operating said beveling means that the effective operation of said wires is adapted to coincide with the various forms of the conduit-faces operated upon.

14. A machine for forming beveled faces to intersect end faces and inner faces of conduit-sections, and comprising a supporting-frame, a rotatable spindle journaled in said frame, means for rotating the spindle, beveling means mounted on and rotated by said spindle and consisting of a plurality of wires converging axially of the spindle and arranged to form bevel-faces of conduit-sections, and a guide arranged to retain said wires in their path of operation.

15. A machine of the class described, comprising a frame adapted to position the machine upon a conduit-section, reciprocable beveling means consisting of converging wires mounted in said frame, and means for so operating said beveling means that the effective operation of said wires is adapted to coincide with the various forms of the conduit-faces operated upon.

16. A machine for forming beveled faces to intersect end faces and inner faces of conduit-sections, and comprising a supporting-frame, a reciprocable and rotatable spindle journaled in said frame, means for rotating the

spindle, beveling means mounted on and rotated by said spindle and consisting of a plurality of wires converging axially of the spindle and arranged to form bevel-faces of conduit-sections, and a guide arranged to retain said wires in their path of operation.

17. A machine for forming beveled faces to intersect end faces and inner faces of conduit-sections, and comprising a supporting-frame, a reciprocable and rotatable spindle journaled in said frame, means for rotating the spindle, beveling means mounted on and rotated by said spindle and consisting of a plurality of wires converging axially of the spindle and arranged to form bevel-faces of conduit-sections, a cam operative to reciprocate the spindle, and a guide arranged to retain said wires in their path of operation.

18. A machine for forming beveled faces to intersect end faces and inner faces of conduit-sections, and comprising a supporting-frame, a reciprocable and rotatable spindle journaled in said frame, means for rotating the spindle, beveling means mounted on and rotated by said spindle and consisting of a plurality of wires converging axially of the spindle and arranged to form bevel-faces of conduit-sections, a fixed cam operative to reciprocate the spindle, and a guide arranged to retain said wires in their path of operation.

19. A machine of the class described, comprising a frame adapted to position the machine upon a conduit-section, rotatable beveling means consisting of converging wires mounted in said frame, means for so operating said beveling means that the effective operation of said wires is adapted to the form of the conduit-faces operated upon, and a guide arranged to retain said wires in their path of operation.

20. A machine of the class described, comprising a frame adapted to position the machine upon a conduit-section, reciprocable beveling means consisting of converging wires mounted in said frame, means for so operating said beveling means that the effective operation of said wires is adapted to the form of the conduit-faces operated upon, and a guide arranged to retain said wires in their path of operation.

21. A machine of the class described, comprising a frame adapted to position the machine upon a conduit-section, rotatable and reciprocable beveling means consisting of converging wires mounted in said frame, and means for so operating said beveling means that the effective operation of said wires is adapted to the form of the conduit-faces operated upon, and a guide arranged to retain said wires in their path of operation.

In testimony whereof I have signed my name in the presence of the subscribing witnesses.

ROBERT W. LYLE.

Witnesses:

W. J. BURKE,

J. R. LITTELL.