

(No Model.)

3 Sheets—Sheet 1.

T. H. PATEE.

PORTABLE LIGHTNING ROD MACHINE.

No. 297,291.

Patented Apr. 22, 1884.

Fig. 1.

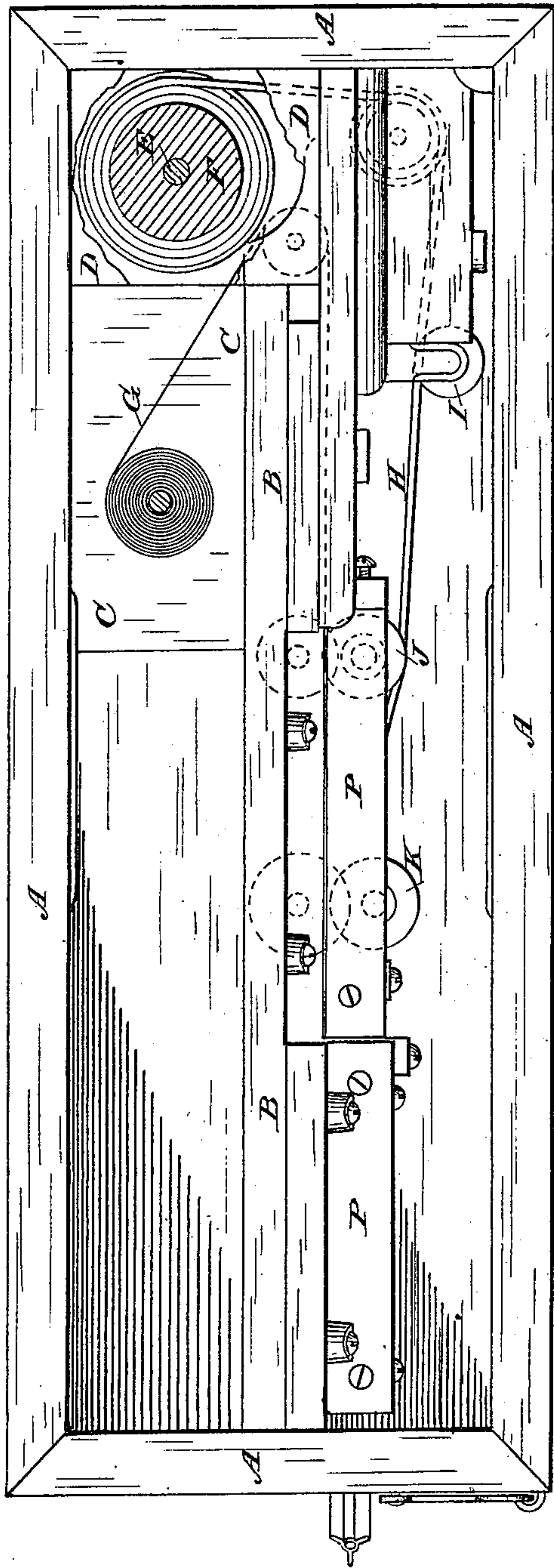
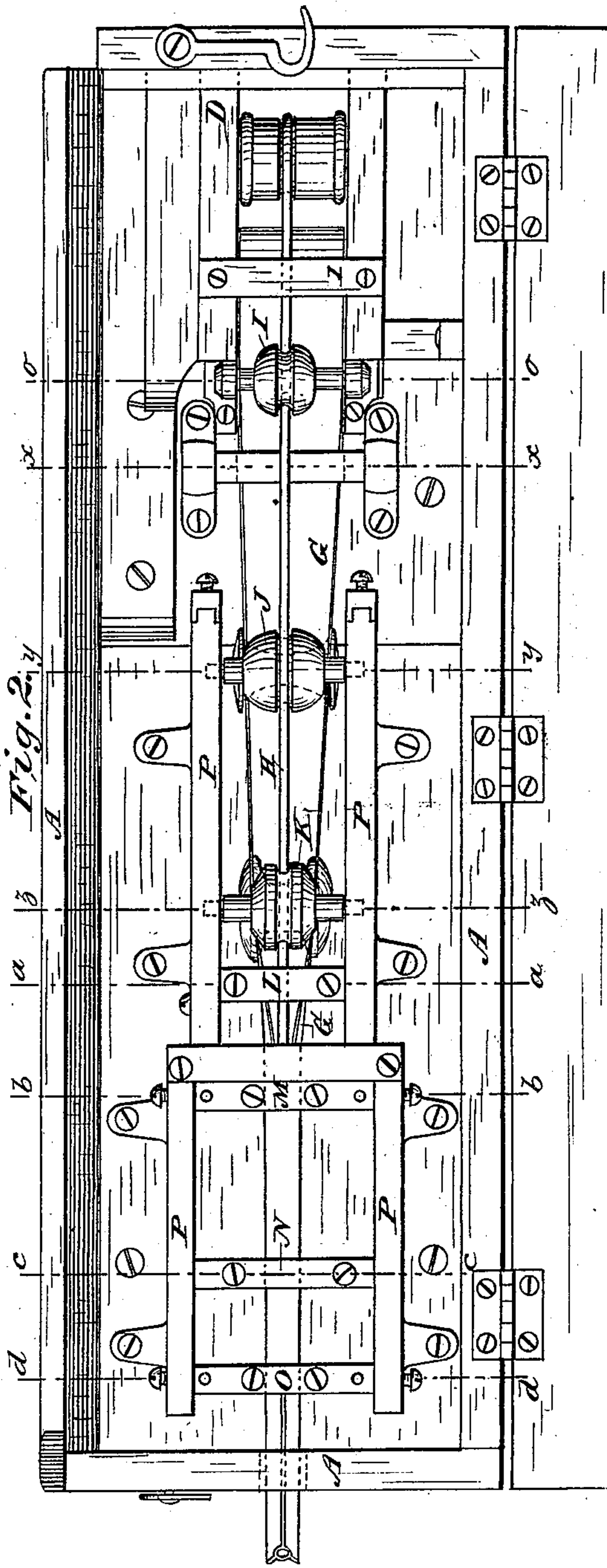


Fig. 2.



WITNESSES

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INVENTOR

Theodorus H. Patee,  
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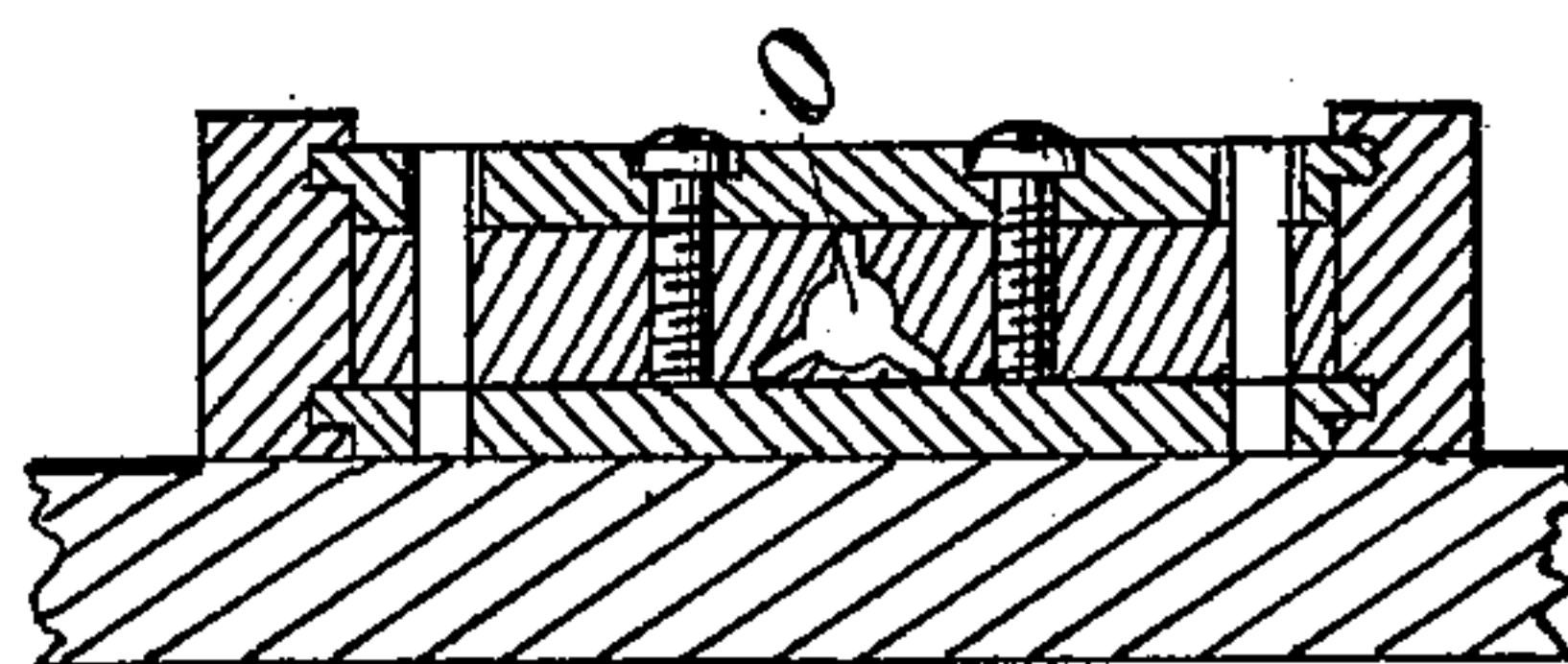
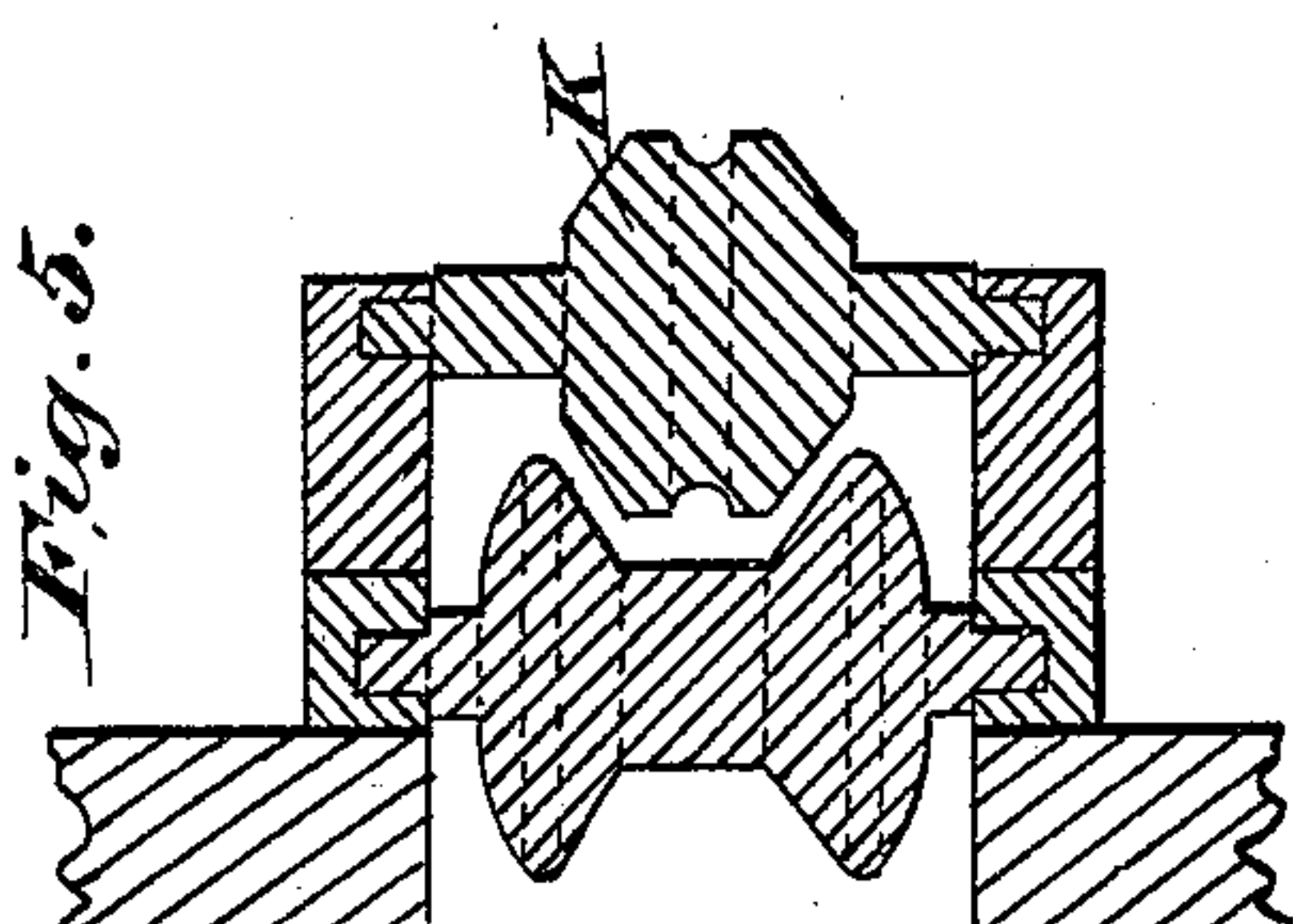
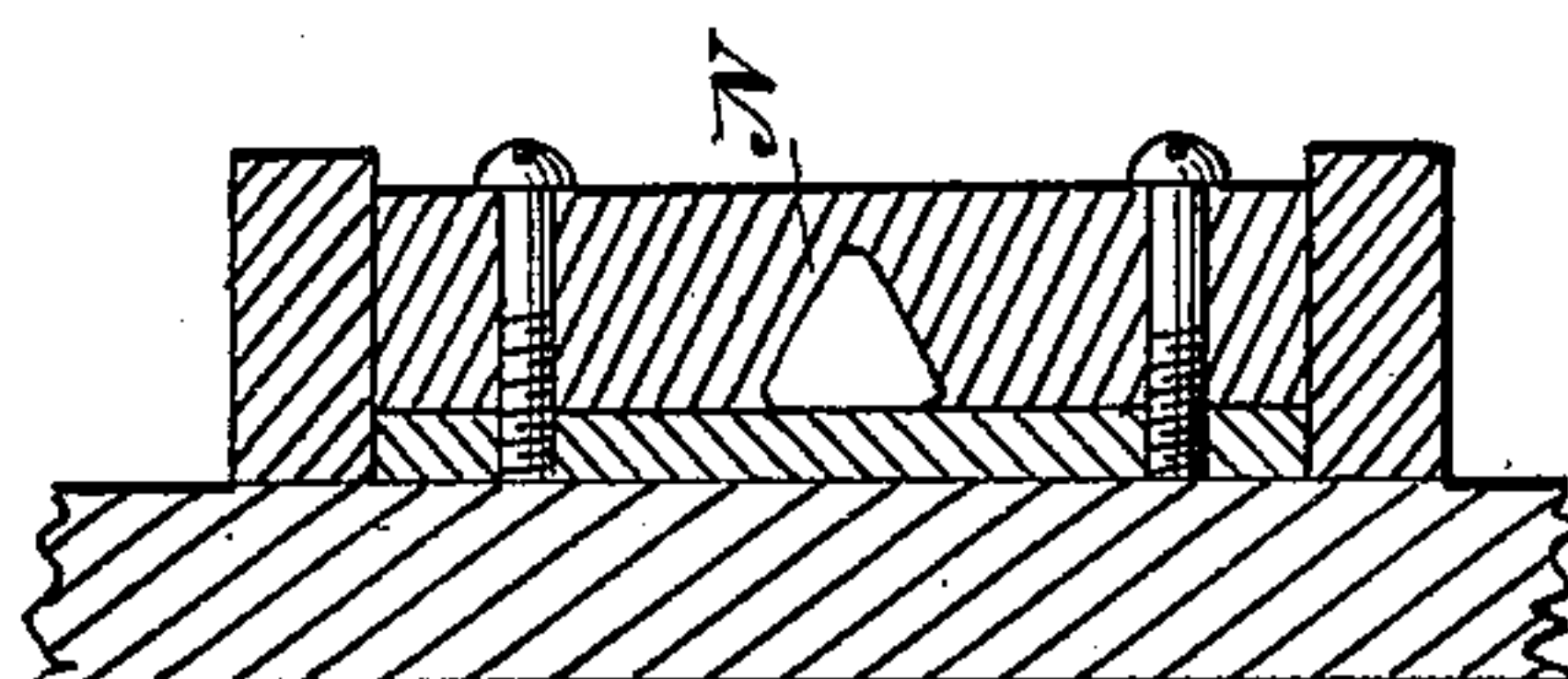
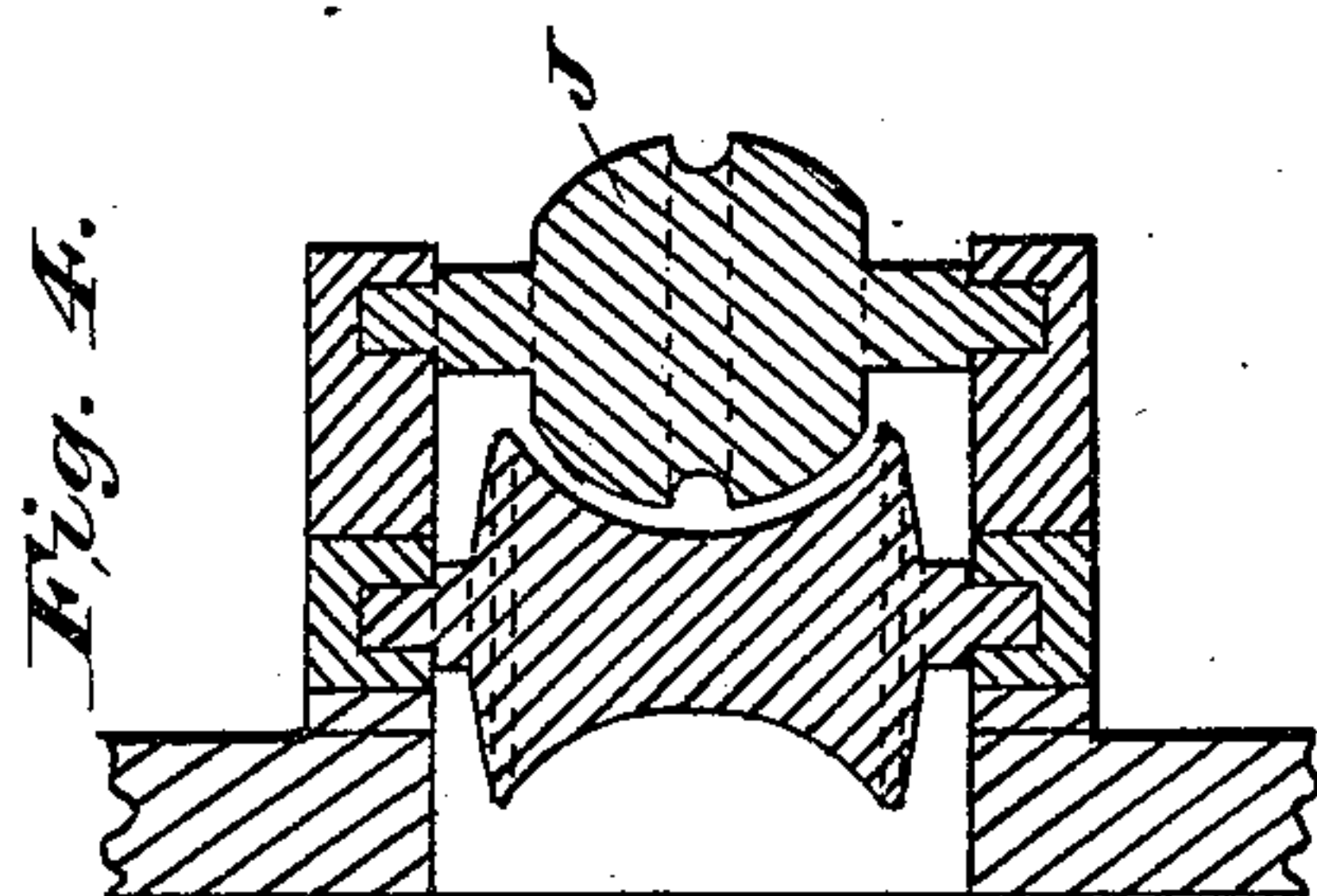
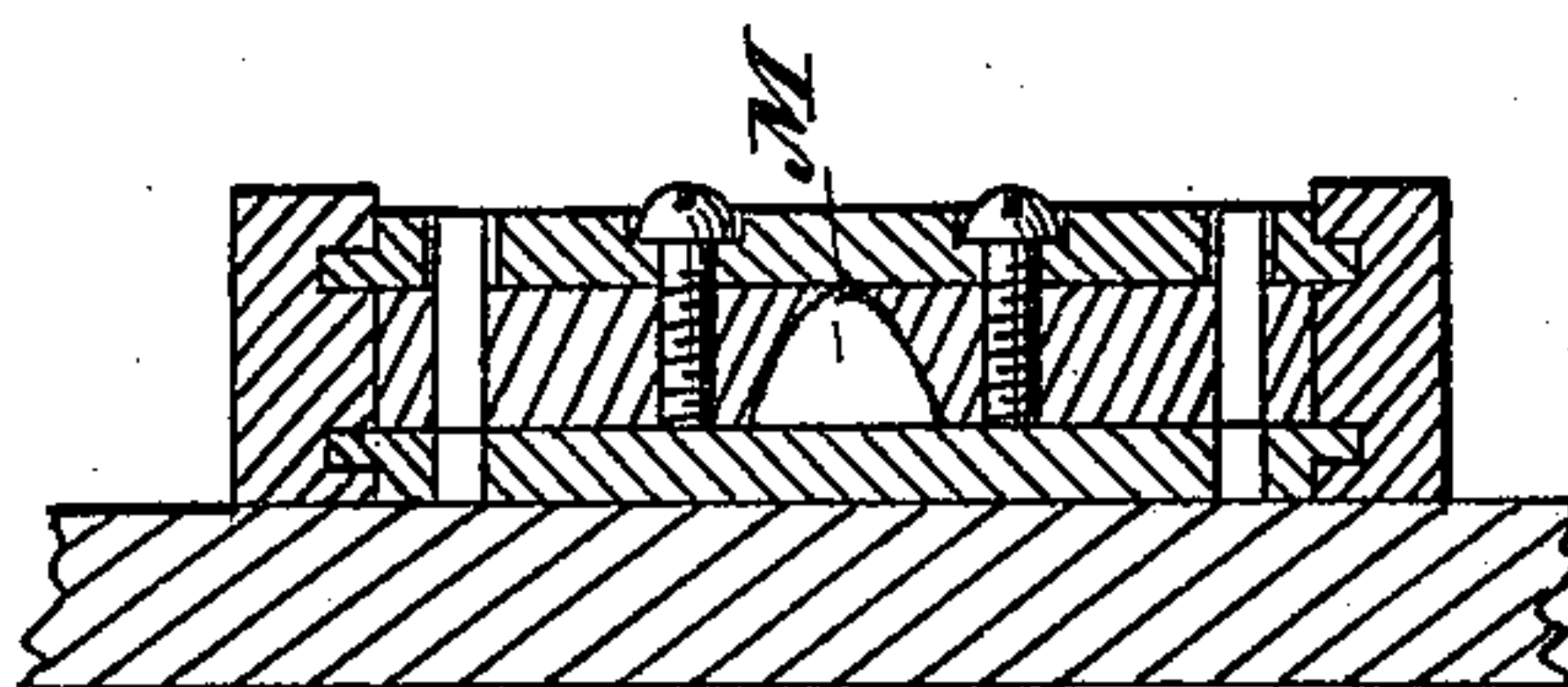
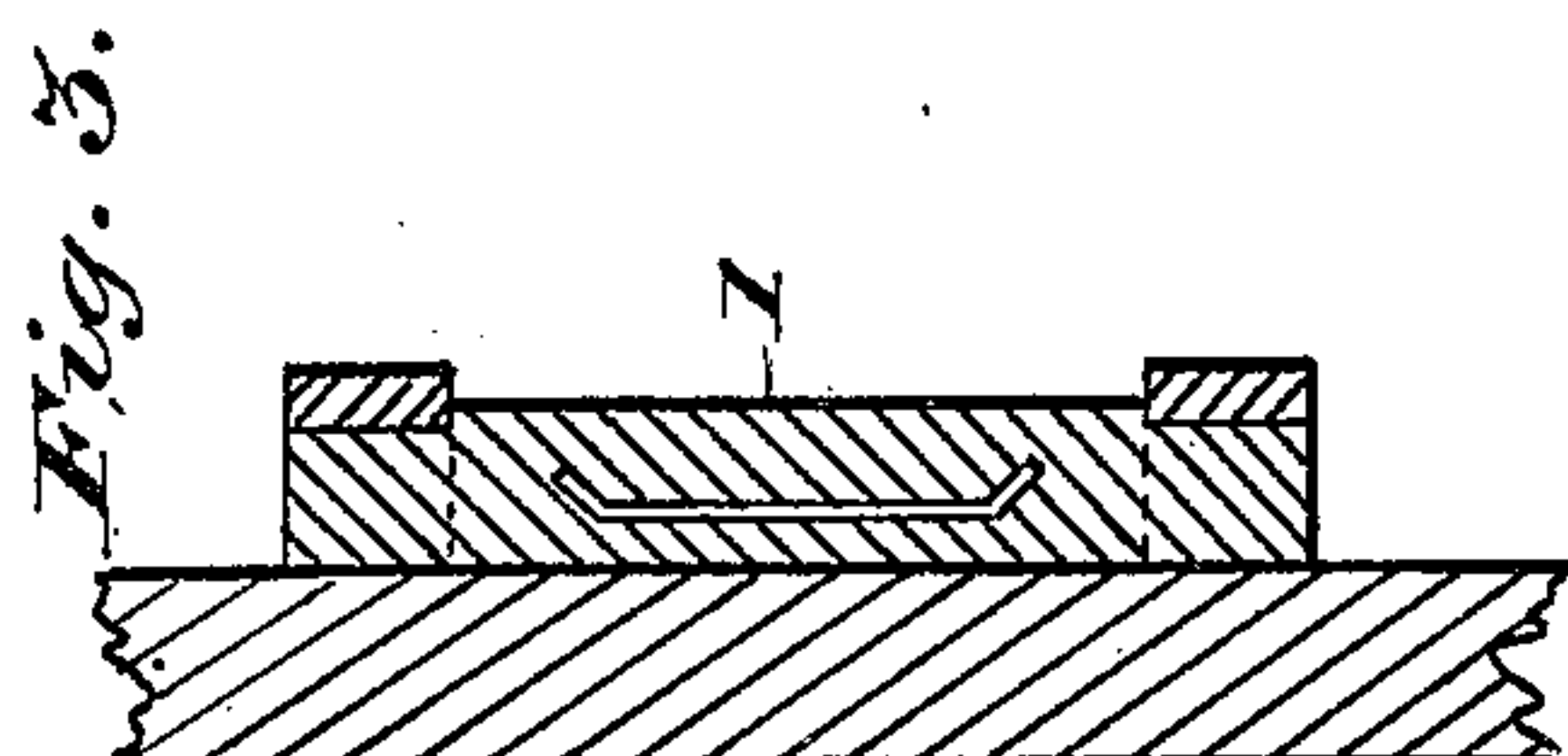
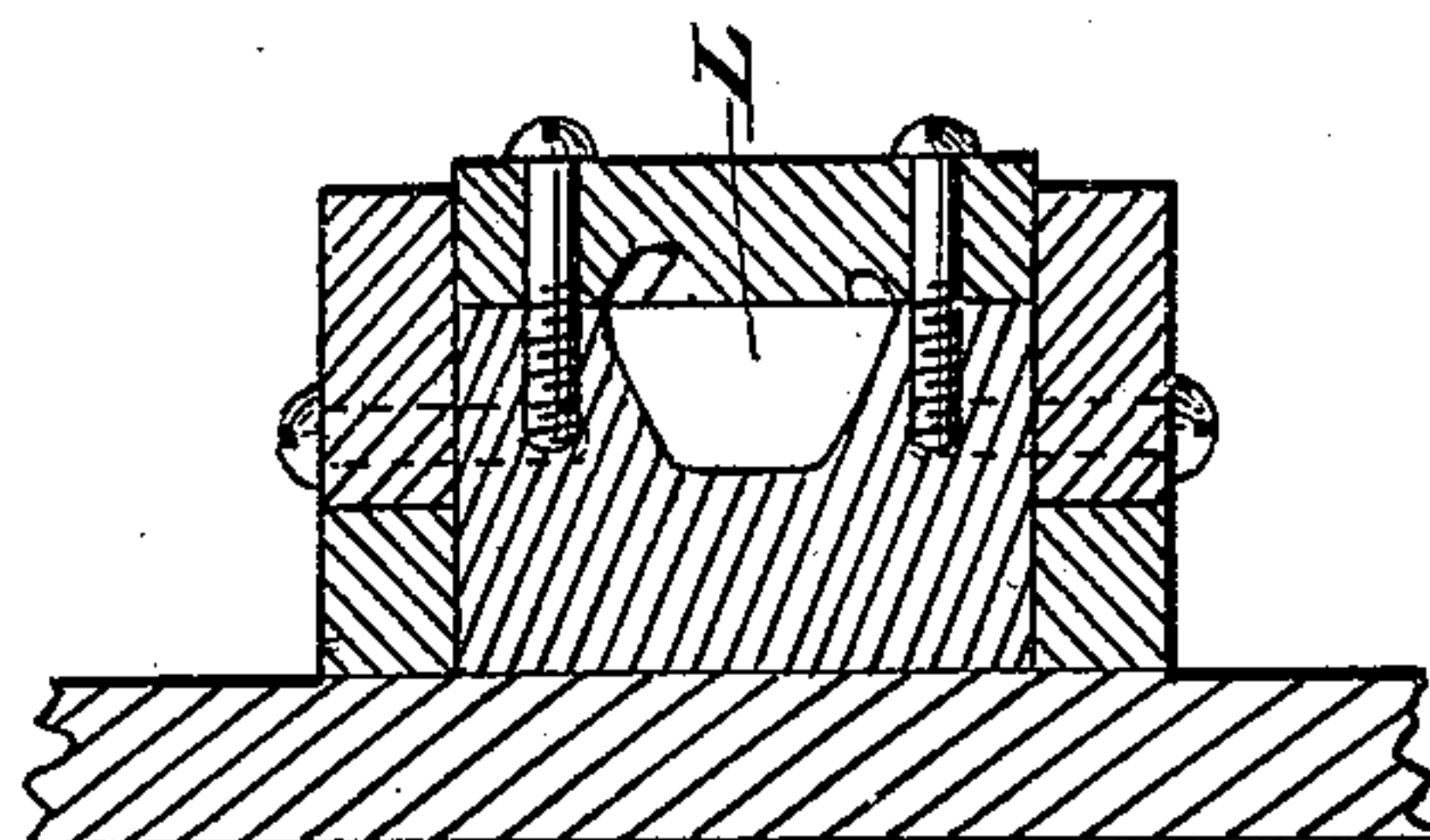
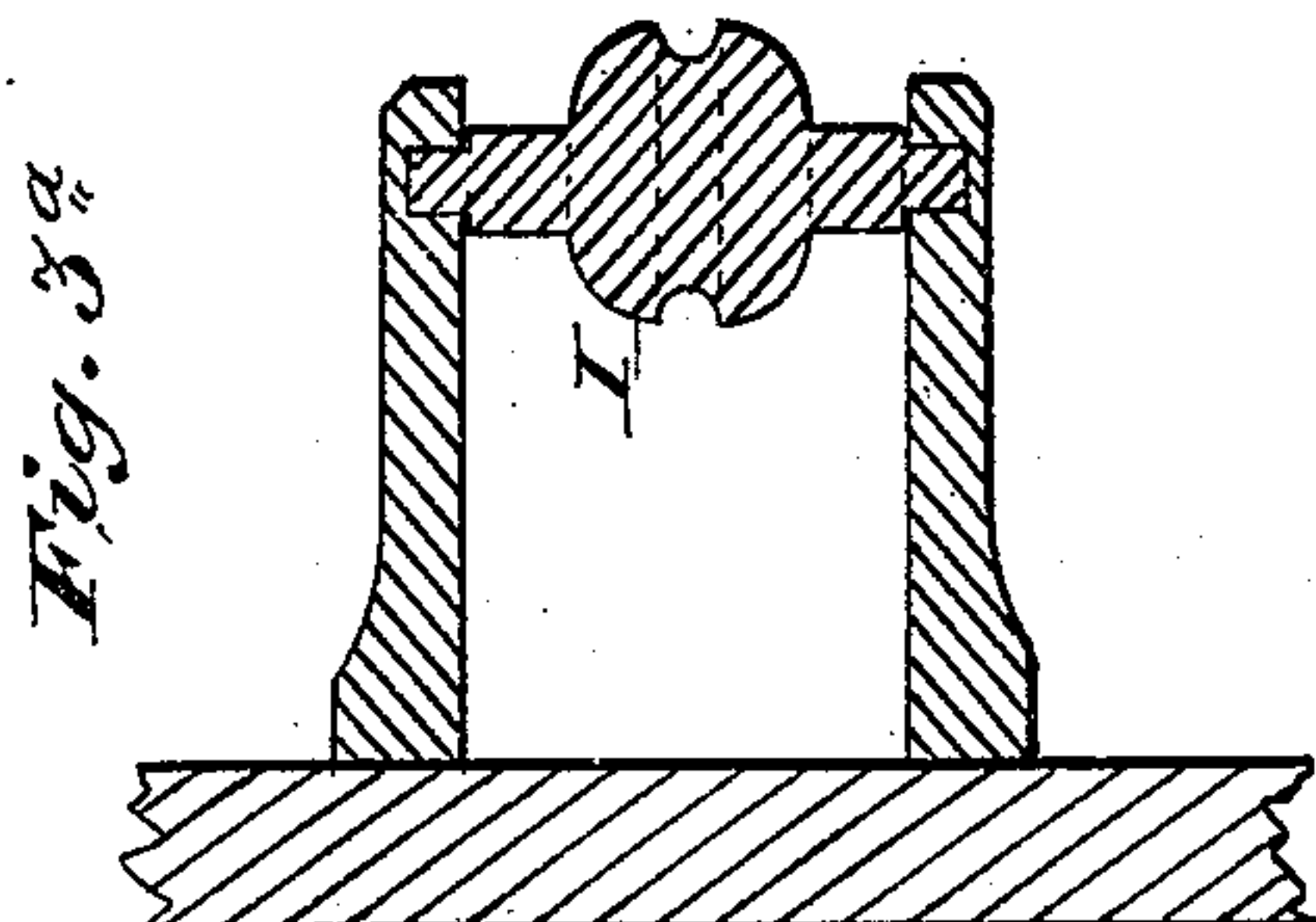
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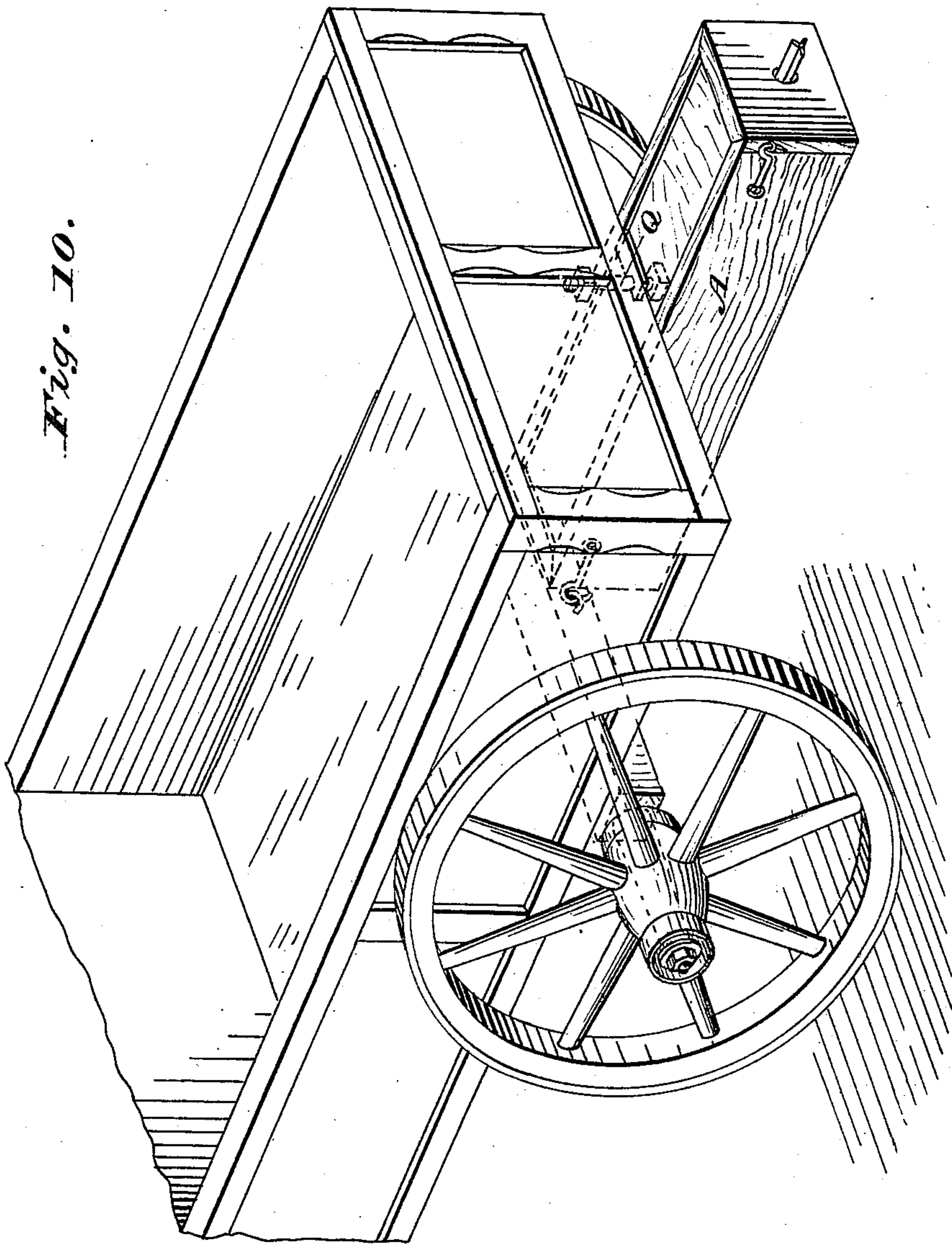
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# UNITED STATES PATENT OFFICE.

THEODORUS H. PATEE, OF GREENCASTLE, INDIANA.

## PORTABLE LIGHTNING-ROD MACHINE.

SPECIFICATION forming part of Letters Patent No. 297,291, dated April 22, 1884.

Application filed May 31, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, THEODORUS H. PATEE, a citizen of the United States, residing at Greencastle, Putnam county, Indiana, have invented new and useful Improvements in Portable Machines for Making Lightning-Rods, of which the following is a specification.

My invention relates to certain new and useful improvements in portable lightning-rod machines, and more particularly to that class described in Letters Patent granted to me on the 16th day of April, 1878, No. 202,578.

The object of my present invention is to adapt the machine to use not only with the body of an ordinary wagon, but also with any sort of movable support.

It also has for its object the formation of a special design of lightning-rod which forms the subject-matter of a separate application for Letters Patent.

My invention consists, therefore, of the combination and arrangement, with a wagon-body or other movable support or carriage, of a frame or box provided with compartments or supports for wire and strip metal, and provided with wire-straightening mechanism and a series of forming-dies, whereby the core and wings of a lightning-rod are formed, as will be hereinafter explained.

My invention further consists of the peculiar form of the dies employed, whereby a special design of rod is produced.

My invention further consists of the combination, with a movable carriage or support, of wire-straightening mechanism; and my invention further consists in certain other details of construction and arrangement, hereinafter fully described and specifically claimed:

In order that those skilled in the art to which my invention relates may know how to make and use the same, I will proceed to describe the same, referring by letters to the accompanying drawings, in which—

Figure 1 is a plan view of box or frame and its contained mechanism for forming a lightning-rod with cover removed. Fig. 2 is a front elevation with one side of the box or frame removed. Fig. 3 is a cross-section taken at the line *x x* of Fig. 1, and Fig. 3<sup>a</sup> on line *o o*. Fig. 4 is a similar view taken at line *y y*, Fig. 1; Fig. 5, a similar view taken at *z z*, same figure; Fig. 6, a similar view

taken at *a a*, same figure; Fig. 7, a similar view taken at *b b*, same figure; Fig. 8, a similar view taken at *c c*, same figure; Fig. 9, a similar view taken at *d d*, Fig. 1; Fig. 10, a perspective view, showing the machine connected to the rear end of the ordinary wagon-body, and secured in working position by ordinary hooks, shown in dotted lines.

Similar letters indicate like parts in the several figures.

A represents the frame of the machine, which I prefer to make in the form of a box, with the front adapted to swing vertically upon hinges, and the top removable, to afford ready access to the mechanism and material.

B is a longitudinal vertical partition, to which are rigidly secured by screws or bolts the forming-dies and wire-straightening devices.

C is a raised platform in rear of and at one end of the partition B, upon which is erected a post or pin to support a coil or rope of sheet-copper to be used in making the rod, the platform being raised in order to bring the strip to the proper height to be operated on by the dies.

Above the platform C is a shelf, D, between which and the platform are arranged a post or spindle, E, for supporting a coil of core-wire, and a spool or pulley, F, to properly direct the wire to the straightening mechanism.

G represents the sheet-copper covering, and H the wire core, the former being led around a suitable spool or pulley under the shelf D, and through the first of the series of formers 1, (shown in section at Fig. 3,) where the edges are slightly turned. The wire H, after passing around the spool F, traverses behind a grooved pulley, I, thence over the front of a similar pulley, J, thence behind another grooved pulley, K, the axes of the several pulleys being such that the wire is strained and straightened in its passage from the first to the last. In passing behind the pulley K, the wire is laid centrally against the copper strip G, which, after having its edges turned by the first die, is compressed between the pulley J and a rotary former in rear thereof of the same form, (minus the groove,) and is curved slightly at the center, the strip passing thence between the pulley K and a revolving support in rear thereof, to still further



bend the strip into shape to enter the stationary die L, which (as will be seen at Fig. 2) is elongated and converging, to draw the copper closer around the core-wire, and present both  
 5 to the next die, M, thence to die N, and thence to the finishing-die O. The several dies and pulleys or rolls employed in forming the rod and straightening the wire core are shown in section at Figs. 3, 4, 5, 6, 7, 8, and 9, and they  
 10 are secured adjustably in a metallic frame or frames, P, which in turn are secured to the partition of the box.

Arranged centrally through the box or frame-work of the machine is a hanger-rod,  
 15 Q, upon which the machine is free to rotate, and by which it may be hung to the under side of the rear end of the wagon or other movable support, and when it becomes necessary to have access to the interior of the machine it is swiveled upon its hanger-rod Q to  
 20 a position at right angles to that shown at Fig. 10 and the hinged front opened in an obvious manner.

When the machine is in use, it is closed up  
 25 and turned into the position shown at Fig. 10, and hooked or otherwise locked against rotary movement.

It will be seen that the pulleys used for straightening and directing the wire I have so  
 30 constructed and arranged that they may be used as preliminary formers for pressing the sheet-metal covering into shape; but I do not wish to be confined in this respect, as I may provide independent "formers," and place  
 35 the wire-straightening mechanism in rear thereof.

It will of course be understood that the end of the rod, after emerging from the final finishing-die, is to be firmly grasped and held by  
 40 some suitable device while the machine is being drawn away.

I am aware, of course, that in my patent hereinbefore referred to a special form of portable machine is shown for making lightning-rods, and that such machine is adapted  
 45 to be secured within a wagon-body and transported; and I do not therefore wish to lay

claim to any such construction. I am not, however, aware that a machine embodying the peculiar characteristics of my present machine has ever been arranged in the compact form shown, and adapted to be hung by a vertical pivot or hanger to the rear end of a wagon-body, or to a simple running-gear or other movable support; nor am I aware that the wire-straightening mechanism has ever been  
 55 secured to any sort of movable support as described.

What I claim as new, and desire to secure by Letters Patent, is— 60

1. The combination, with a suitable vehicle or other movable support, of the frame or box A, lightning-rod-forming mechanism, and the wire-core-straightening mechanism, substantially as described. 65

2. The combination of the dies for forming the sheet-metal covering with the rolls or guides for straightening and directing the wire core rigidly secured to a frame or box in compact form, as hereinbefore set forth. 70

3. The wire straightening and guiding rolls, in combination with the formers arranged in rear thereof, whereby the guide-rolls perform the double function of guiding and straightening the core-wire, and partially forming the copper covering, substantially as described. 75

4. The peculiar form of the die shown at Fig. 7, substantially as and for the purpose set forth.

5. The peculiar form of the die shown at Fig. 8, substantially as and for the purpose set forth. 80

6. The peculiar form of the die shown at Fig. 9, with the three radial slots for forming the wings of the rod, and a central orifice for the passage of the core, substantially as set forth. 85

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses. 90

T. H. PATEE.

Witnesses:

WM. C. MCINTIRE,  
 W. A. LACKEY.