

H. E. WAITE.  
INFLUENCE MACHINE.

No. 497,226.

Patented May 9, 1893.

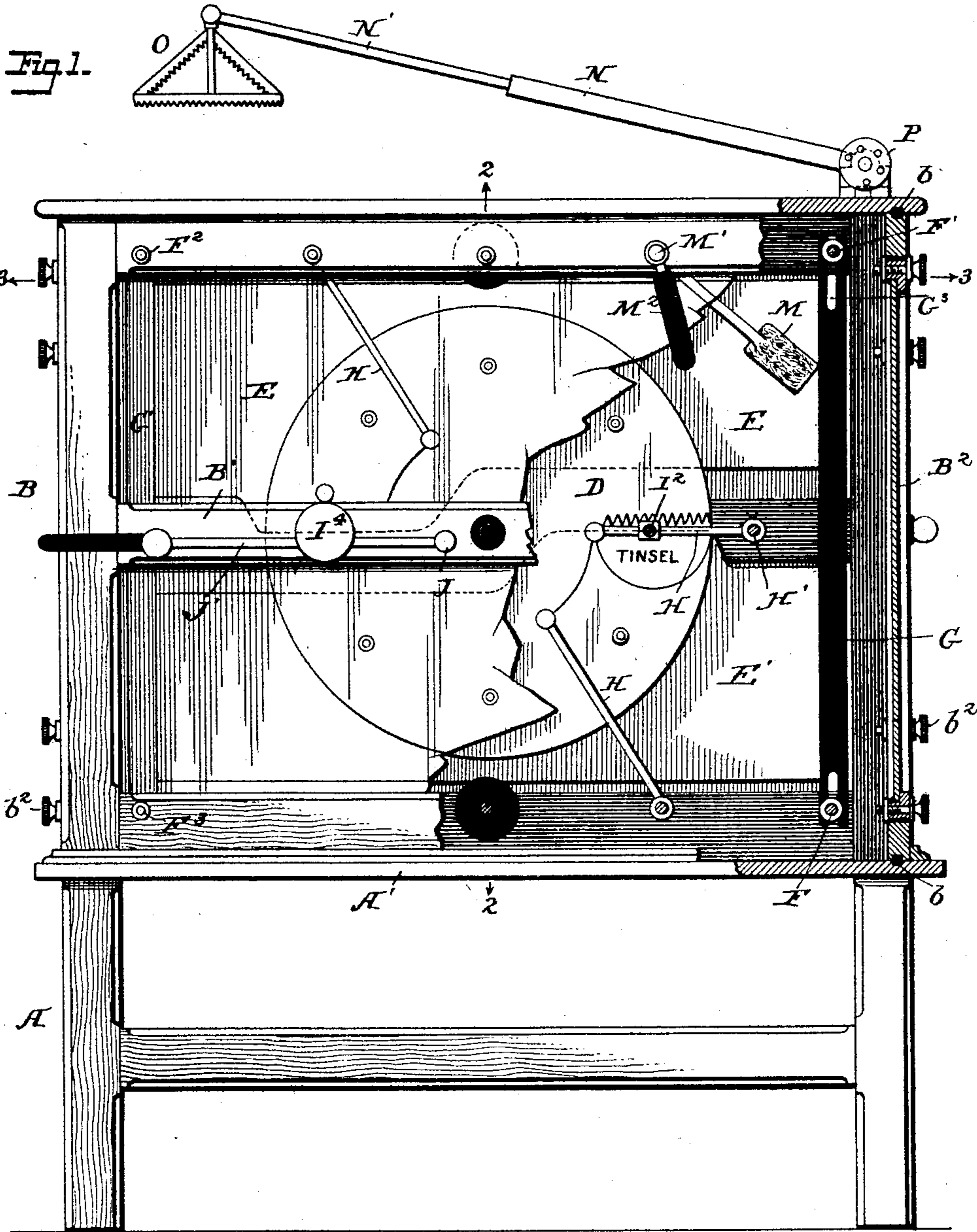
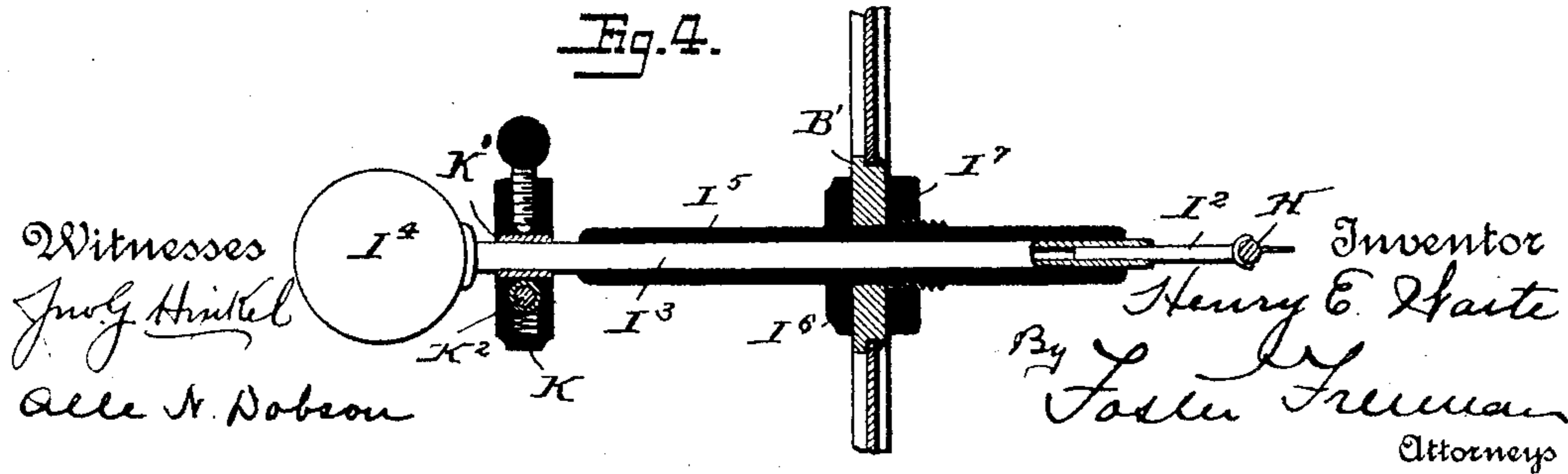


Fig. 1.

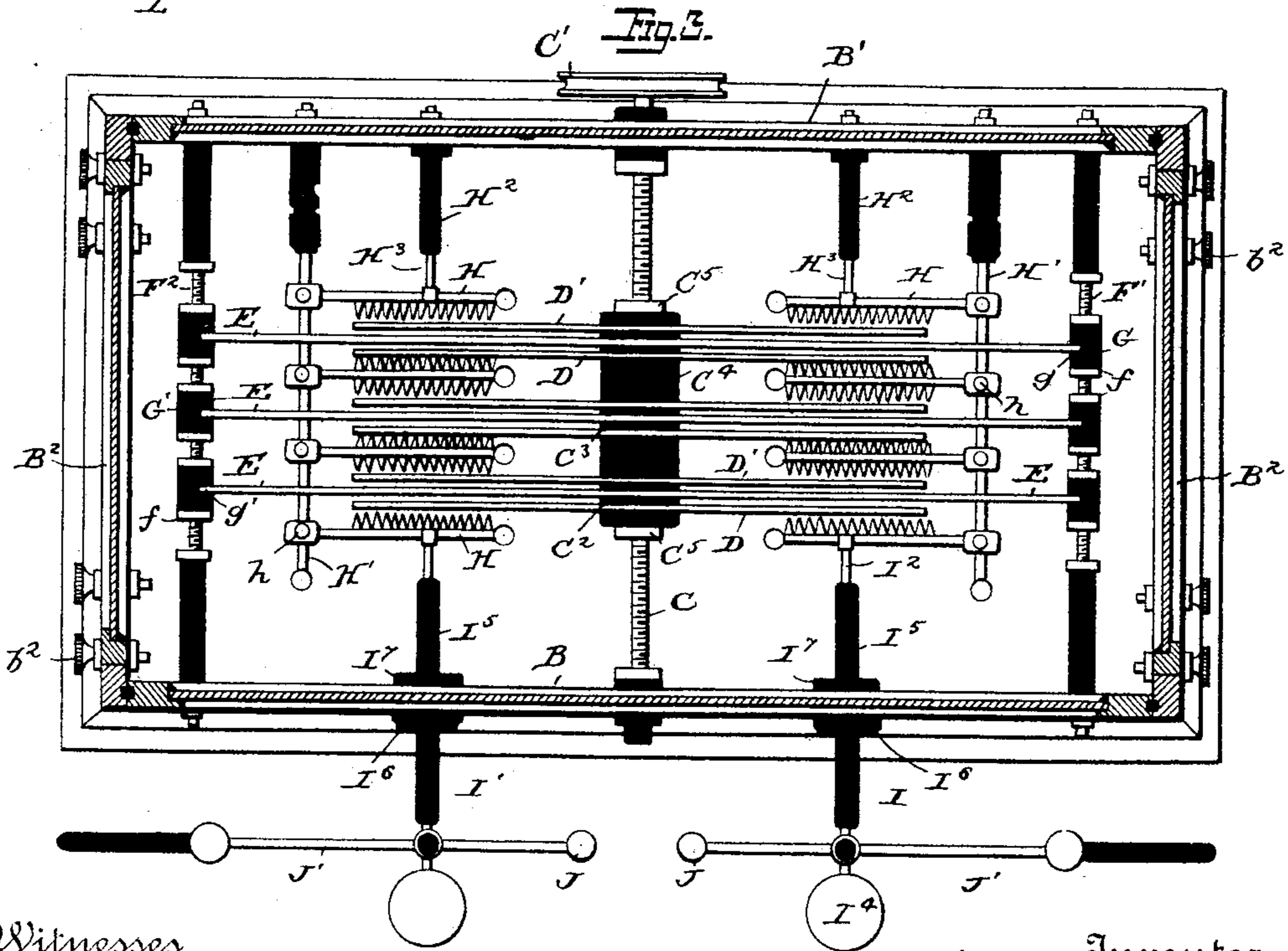
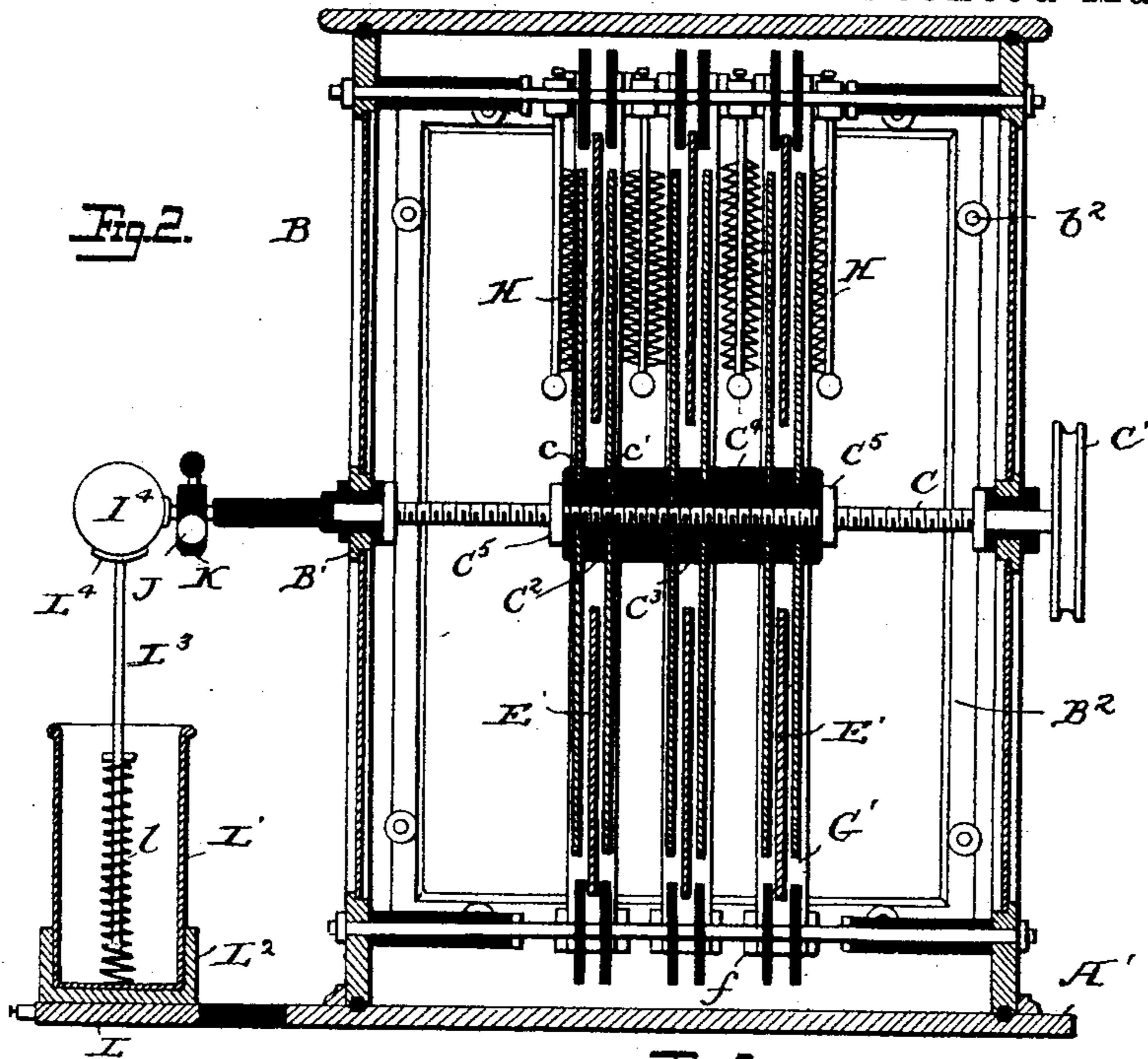
Fig. 4.



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# UNITED STATES PATENT OFFICE.

HENRY E. WAITE, OF NEW YORK, N. Y.

## INFLUENCE-MACHINE.

SPECIFICATION forming part of Letters Patent No. 497,226, dated May 9, 1893.

Application filed December 5, 1892. Serial No. 454,181. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY E. WAITE, a citizen of the United States, residing in New York city, county and State of New York, have invented certain new and useful Improvements in Influence-Machines, of which the following is a specification.

My invention relates to influence machines, and has for its object to provide an improved machine, and the invention consists in the features of construction, arrangement and having the mode of operation herein set forth.

Referring to the accompanying drawings, Figure 1, is a side elevation partly in section of a machine embodying my invention. Fig. 2, is a vertical transverse section on the line 2—2 Fig. 1. Fig. 3, is a horizontal transverse section on the line 3—3, Fig. 1. Fig. 4, is a sectional view showing details of construction.

Heretofore influence machines, especially the so-called Holtz induction machines have been made, and it has generally been found difficult to operate the machine to produce the desired spark or electrical potential under all circumstances. Moreover machines as heretofore made have been subject to objections in their mechanical construction, which render them more or less liable to breakage, and more or less inefficient in operation, and it is the object of my invention to overcome the well known disadvantages inherent to most machines of this class, and to provide a machine which will answer all the requirements, be ready at all times to operate, and not be liable to injury or derangement from continued use.

The machine comprises a case which is shown as preferably having feet or legs A, forming a table or base A', upon which the machine proper is erected. This is inclosed in a framework B, preferably of wood, the joints being made air tight by rubber gaskets b. The sides are of glass plates divided horizontally by the central partition B', which not only serves to allow smaller plates of glass to be used, but also prevents the liability of breaking the glass, and serves as a support for the electrodes and shaft of the plates, as well as bearings for the collectors and other appurtenances. The case is provided with doors B<sup>2</sup>, preferably at each end, and these

doors are mortised, so as to fit closely, and the joints are provided with suitable gaskets, preferably of soft rubber, and they are further secured by means of mill screws b<sup>3</sup>, by means of which the parts can be brought closely together, so as to make a practically air tight joint, the ends consisting preferably of a frame inclosing a glass plate secured by putty. In this way I am enabled to provide a substantial and perfectly air tight case for the operating or generating plates, so that they will be surrounded by dry air at all times.

Mounted in the cross bars B, is a shaft C, the bearings of which are made air tight, and is shown as provided with a crank or wheel C', by which it may be rotated. Mounted on this shaft C, are the rotating glass plates D, D', &c., six being shown in the present instance, and these plates are mounted on suitable hubs of insulating material, and while they may be variously mounted, I have shown the hubs C<sup>2</sup>, as having reduced portions c, c', fitting in central openings in the two adjacent plates. A similar hub C<sup>3</sup>, supports two other plates, and so on for as many plates as are desired. Between these hubs are placed separating blocks C<sup>4</sup>, of insulating material, which bear upon the outer edges of the central perforated glass plates and serve to secure them on the hubs, as well as to maintain the pairs of plates at their proper distances apart. The hubs are held together by screw nuts C<sup>5</sup>, on the shaft C, and by this means not only can the plates be securely clamped together, but their relative position on the shaft can be adjusted. It is also well known that in machines of this character there are large stationary plates of glass arranged adjacent to the rotating plates, and in the arrangement shown, I provide two stationary glass plates between each pair of rotating plates, these stationary plates being indicated at E, E', and shown in side view in Fig. 1. In order that these plates may be accurately adjusted, I mount at each end of the case, the rods F, F', F<sup>2</sup>, F<sup>3</sup>, and upon these rods are supported the bars G, G', the bars being grooved at g, g', to receive the ends of the plates as clearly shown in Fig. 3. The bars are also slotted as at G<sup>3</sup>, to permit of vertical adjustment on the rods F, F', &c., and the

rods are provided with a screw thread upon which move nuts *f*, by means of which the position of the bars *G*, can be accurately adjusted, and the bars secured in position to hold the plates in proper alignment between the rotating glass plates. The collectors *H*, which are arranged between the sets of rotating plates and outside thereof, are mounted upon a rod *H'*, which is secured to one of the cross bars *B'*, and these collectors are adjusted thereon by any suitable means, as the screws *h*. The rear outer collectors are also preferably supported by the hollow studs *H<sup>2</sup>*, in which slides a rod *H<sup>3</sup>*, connected to the outside collector, and this aids in steadying the collector, and holding it in nice adjustment with relation to the rotating plates.

The poles *I*, *I'* pass through the cross bar *B'*, of the frame, and are insulated therein, and I have shown in Fig. 4, a detail view showing the preferred construction. It will be seen that the collectors *H*, slide through an eye on the rod *I<sup>2</sup>*, and this slides frictionally in a hollow or tubelike extension or pole piece *I<sup>3</sup>*, which is provided with the ball *I<sup>4</sup>*, at its extreme end, and covered through the greater portion of its length by the insulating material *I<sup>5</sup>* in the shape of a tube, and held in the cross piece *B'*, by suitable washers and nuts *I<sup>6</sup>*, *I<sup>7</sup>* of insulating material. This permits the ready adjustment of the pole pieces, as well as of the collector.

The electrodes *J*, are mounted on the pole pieces, so that they can be readily adjusted, and I have shown a block of rubber *K*, having a metallic bearing *K'*, fitting the hollow tube *I<sup>3</sup>*, and provided with a tube *K<sup>2</sup>* in good electrical contact with the sleeve, through which slides the metallic portion *J'* of the electrode *J*, and in this way not only do I get good electrical contact, but the edges of the metal are protected and covered, so that there is little or no waste or leakage of electricity, and no sharp or projecting edges are exposed, while the whole is firmly mounted in position on the cross bar of the case.

In this class of machines it is common to support a Leyden jar or condenser upon the pole pieces, which are liable to swing or injure the other parts of the machine, and in order to prevent this, I preferably extend the base of the case, as at *L*, and upon this support the jar *L'*, a suitable socket *L<sup>2</sup>*, preferably being provided to receive the jar. One terminal of the jar *L<sup>3</sup>*, is provided with a curved piece *L<sup>4</sup>*, which bears against the ball *I<sup>4</sup>*, of the pole piece, and is held under tension as by a spring *l*, so that not only is good electrical contact maintained, but the spring tends to keep the jar steady in its proper position.

The machine is preferably provided with an exciter *M*, which may be made of fur, cat's-skin or the like, and which is pivoted as at *M'*, and provided with a handle *M<sup>2</sup>*, by means of which the exciters can be brought into con-

tact with the outer plates so as to insure the operation of the machine in case it is otherwise inoperative.

Mounted on top of the case is an arm *N*, which is preferably telescopic, so that the portion *N'*, will slide freely therein, and can be adjusted to any desired position, and a suitable crown or other form of electrode *O*, is attached by means of which the so-called electric breeze can readily be applied to the patient. The arm *N*, is provided with a plate *P*, having a series of holes in its side, by means of which it can be adjustably connected to a similar plate pivotally mounted on top of the machine, so that the arm can be swung around to any desired position. As thus constructed, it will be seen that not only are the parts completely inclosed and protected from air and moisture, but all the parts are readily adjustable with relation to each other, and can be fixed accurately in position, and there is little or no chance of leakage or escape of electricity.

What I claim is—

1. In an influence machine an air tight case comprising a frame having longitudinal cross pieces on the sides for supporting the operating parts, and the removable doors at the ends, substantially as described.

2. In an influence machine as a means for supporting the rotary plates, a screw threaded shaft, hubs mounted on the shaft engaging the plates, space blocks between the hubs, and means for clamping and adjusting the hubs and space blocks, substantially as described.

3. In an influence machine as a means of supporting the stationary plates, the rods, the bars to which the plates are connected mounted on the rods, and means for adjusting the bars vertically and laterally, substantially as described.

4. In an influence machine, the combination with the case, of the transverse rods, the vertical bars having slots in which the plates are secured, and the adjusting nuts mounted on the rods for adjusting and securing the bars in position, substantially as described.

5. In an influence machine, the combination with the frame having the central side cross pieces, of the collectors, the rods adjustably mounted thereon, the tubular pole pieces adjustably mounted on the rods, and supported in the side pieces, substantially as described.

6. In an influence machine the combination with the pole pieces, of the electrodes, a metallic sleeve fitting the pole pieces, and a metallic tube electrically connected to the sleeve and supporting the electrode, substantially as described.

7. In an influence machine the combination with the pole pieces, of the Leyden jar, a support for the jar, and one portion of the jar being under tension and bearing against the pole piece, substantially as described.

5 8. In an influence machine the combination with the frame, of an extension, a socket mounted thereon, a Leyden jar supported in the socket, one portion of the jar being under tension, and bearing against the pole piece of the machine, substantially as described.

9. In an influence machine the combination with the frame, of the pivoted and adjustable telescopic arm mounted thereon, carrying

rying a breeze electrode, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HENRY E. WAITE.

Witnesses:

ROBERT E. WESSON,  
WM. H. WOODHULL.