

## **Improvements in electro-magnetic apparatus to be used for curative and remedial purposes.**

### **Contributors**

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A.D. 1886, 26th MARCH. N° 4280.

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PROVISIONAL SPECIFICATION.

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Improvements in Electro-magnetic Apparatus to be Used for  
Curative and Remedial Purposes.

I, JOSEPH RALPH CHISLETT, of No. 35, Union Street, Plymouth in the County of Devon, Machinist, do hereby declare the nature of this invention to be as follows:—

This invention relates to improvements in the construction of an electro-magnetic apparatus similar to that described in the specification of Letters Patent granted to me and dated the 8th of January 1873, No. 87, the principle objects of such improvements being to facilitate the regulation of the action of the apparatus and to reduce the noise caused by the vibration of the armature in front of the poles of the horse-shoe magnet.

Hitherto in electro-magnetic apparatus in which the intensity of the current has been controlled by the movement of a core, consisting of a bundle of soft iron wires, within the coil, considerable inconvenience has been experienced owing to the difficulty of regulating the speed, or extent, of the movement of the core, and in order to overcome this disadvantage I arrange, longitudinally along the surface of the core a rack the teeth of which gear into a toothed wheel mounted in suitable bearings in front of the coil, and on the axle of the said toothed wheel I mount a thumb screw or other suitable contrivance by means of which the wheel can be rotated at such a rate that the core is caused to travel almost imperceptibly thus avoiding the objectionable jerks or shocks to which electro-magnetic machines, as ordinarily constructed, are so liable.

The core hereinbefore mentioned is constructed of soft iron wires, in the following manner. A skeleton tube or cage is formed of flat wires, and the rack hereinbefore mentioned may be formed on the face of one of such wires, and the centre of the tube or cage is filled with wires, the ends of the core so formed being provided with suitable caps.

In electro-magnetic machines at present used for remedial or curative purposes the nerves of the person under treatment are likely to be unfavourably effected by the noise occasioned by the vibration of the armature of the magnet, and to avoid the occurrence of such noise I sink into the surface of the inner side of that pole of the magnet to which the armature is attached a buffer of india rubber or other

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analogous material, which deadens the sound and renders the working of the machine comparatively silent. The action of the buffer may, when desired, be rendered more or less effective by means of an adjusting screw which passes through a slot in the armature, and through the buffer into the magnet. In order further to reduce any sound, and, at the same time, to hide from the view of the patient the moving parts 5 of the machine, I provide the same with a cover.

The said magnet, which is formed of charcoal iron, and is of a flat horse shoe shape, is arranged in a manner similar to that shown in the drawings of the specification hereinbefore referred to. One end of the armature is attached to the lower pole of the magnet by a set screw which also confines on the outside of the armature a spring 10 which increases the stiffness of the latter so as to increase the power of electricity, as may be required. At the back of the armature I arrange an adjustable pin in such a manner that it will limit the approach of the armature to the upper pole and thereby prevent the same adhering, or sticking, thereto when a strong current of electricity is passing. 15

I find it convenient to arrange in connection with the apparatus a water trough or bath, lined with lead, for the reception of the plates of the batteries when removed from the acid cells.

The currents from the apparatus hereinbefore described are applied by the use of metallic or metal conductors or by any other suitable and desirable means. 20

VAUGHAN & SON,  
Agents for the Applicant.

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COMPLETE SPECIFICATION.

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**Improvements in Electro-magnetic Apparatus to be Used for  
Curative and Remedial Purposes.** 25

I, JOSEPH RALPH CHISLETT, of No. 35, Union Street, Plymouth, in the county of Devon, Machinist, do hereby declare the nature of this invention and in what manner the same is to be performed to be particularly described and ascertained in and by the following statement:—

My said invention relates to improvements in the construction of an electro- 30 magnetic apparatus similar to that described in the specification of Letters Patent granted to me and dated the 8th of January 1873, No. 87, the principal objects of such improvements being to facilitate the regulation of the action of the apparatus, to increase the magnetic force and to reduce the noise caused by the vibration of the armature in front of the poles of the horse-shoe magnet. 35

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Hitherto in electro-magnetic apparatus in which the intensity of the current has been controlled by the movement of a core, consisting of a bundle of soft iron wires, within the coil, considerable inconvenience has been experienced owing to the difficulty of regulating the speed, or extent, of the movement of the core, and in order to overcome this disadvantage I arrange, longitudinally along the surface of the core, a rack, the teeth of which gear into a toothed wheel mounted in suitable bearings in front of the coil, and on the axle of the said toothed wheel I attach a thumb screw or other suitable contrivance by means of which the wheel can be rotated at such a rate that the core may, when desired, be caused to travel almost imperceptibly thus avoiding the objectionable jerks or shocks to which electro-magnetic machines, as ordinarily constructed, are so liable.

The core hereinbefore mentioned is, by preference, constructed of soft iron wires, in the following manner. A skeleton tube or cage is formed of flat wires and the rack hereinbefore mentioned may be formed on the face of one of such wires, or, on a suitable strip of metal, and the centre of the tube or cage is filled with wires, the ends of the core so formed being provided with suitable caps.

In electro-magnetic machines at present used for remedial or curative purposes the nerves of the person under treatment are liable to be unfavourably affected by the noise occasioned by the vibration of the armature of the magnet, and, to avoid the occurrence of such noise, I sink into the surface of the lower pole of the magnet, to which the armature is attached, a buffer of india rubber or other analogous material, which gives elasticity to the armature and tends to render the working of the machine comparatively noiseless. The action of the said buffer may, when desired, be rendered more or less effective by means of an adjusting screw which passes through a slot in the armature and through the buffer into the magnet. By tightening the adjusting screw the armature is made stiffer, and the power of electricity thereby increased, whilst, at the same time, the adjustment of the armature to a steady and even current of electricity is greatly facilitated. In order further to reduce any sound I recess the upper pole of the magnet and tip the same with platinum.

The said magnet is formed of charcoal iron and is of a flat horse shoe shape, the effect of such construction being to produce more magnetism or magnetic force than is the case when magnets of ordinary construction are employed.

In front of the armature is arranged an adjustable pin for limiting the extent of the vibrations of the same.

I will now proceed to refer to the accompanying drawings from which the nature of my said invention will be more clearly understood. The same letters indicate like parts in all the Figures. Figures 1. and 2. are respectively a side elevation and top view of an electro-magnetic apparatus constructed as hereinbefore described. A. is the coil, B. the core. *b*. the rack on the same, and *b*<sup>1</sup> the toothed wheel gearing into the rack, C. is the flat horse shoe shaped electric magnet. D. and E. are the terminals for connecting the apparatus with the requisite battery, and F. and G. are terminals for retaining the conducting wires. Figure 3. is a detached view of the magnet C., the armature *h*. and the adjustable pin *i*.; one end of the armature is attached to the pole *c*. of the magnet by the screw *k*., *l*. is the india rubber buffer with which the said pole is furnished, and *m*. is the adjustable screw which passes through a slot in the armature and through the said buffer and screws into the magnet. The said adjustable screw serves, as hereinbefore stated, to make the armature stiffer, when desired, and to facilitate the adjustment of the same. The upper pole *c*<sup>1</sup> of the magnet is shown recessed and tipped with platinum in Figure 3. The adjustable pin *i*. is carried by the upright *i*<sup>1</sup>.

The currents from the apparatus hereinbefore described are applied by the use of metal conductors or by any other suitable and desirable means.

Figure 4. represents a seat conductor, Figure 5, a belt conductor which is made in two pieces and encircles the body, Figure 6, a spinal and kidney conductor which is applied by moving the piece *x*. on the swivel *x*<sup>1</sup>. Figure 7, is a female spinal conductor, and Figure 8. a female chest conductor, by moving the piece *y*. on the swivel *y*<sup>1</sup> the desired parts may be treated. Figure 9. is an electrical handle for

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connecting one of the wires to the following conductors, Figure 10, is a nose conductor, Figure 11. an ear conductor, Figure 12. a tongue conductor, Figure 13. a virginal conductor, Figure 14, an abdomen conductor and Figure 15, a rectum conductor.

Having now particularly described and ascertained the nature of my said Invention 5 and in what manner the same is to be performed I declare that what I claim is:—

First. In electro-magnetic apparatus of the nature hereinbefore referred to, providing the sliding core with a rack into which a toothed wheel is arranged to gear, substantially as, and for the purposes, hereinbefore described.

Secondly. In electro-magnetic apparatus of the nature hereinbefore referred to, 10 using a flat horse shoe shaped electro-magnet and providing the pole to which the armature is attached with a buffer of india rubber or other analogous elastic material, substantially as, and for the purposes, hereinbefore described.

And Thirdly. In electro-magnetic apparatus of the nature hereinbefore referred to, in which that pole of the electric magnet, to which the armature is attached, is 15 provided with an elastic buffer, arranging an adjustable screw so that it passes through a slot in the armature, through the said buffer and screws into the magnet, substantially as, and for the purposes, hereinbefore described.

VAUGHAN & SON,  
Agents for the Applicant. 20

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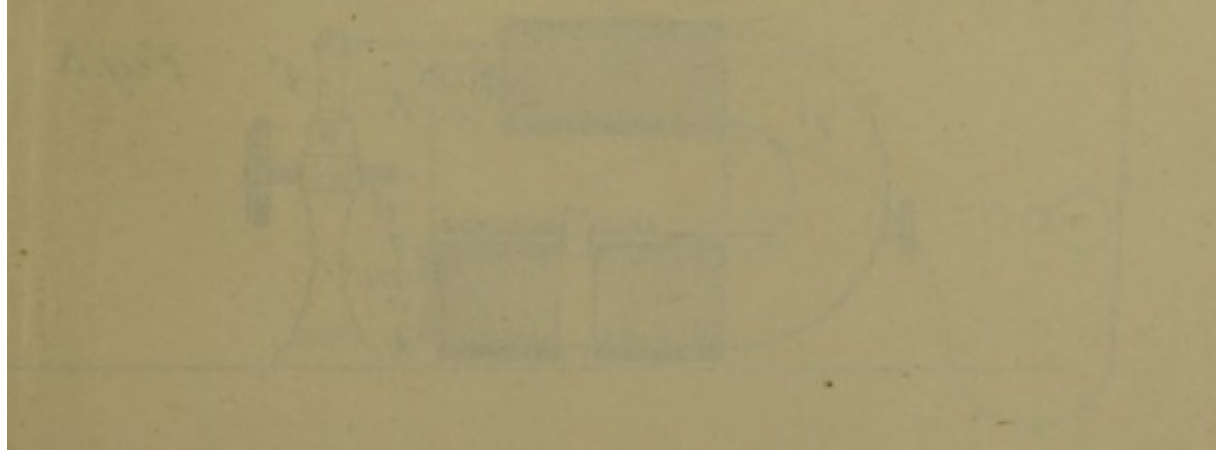
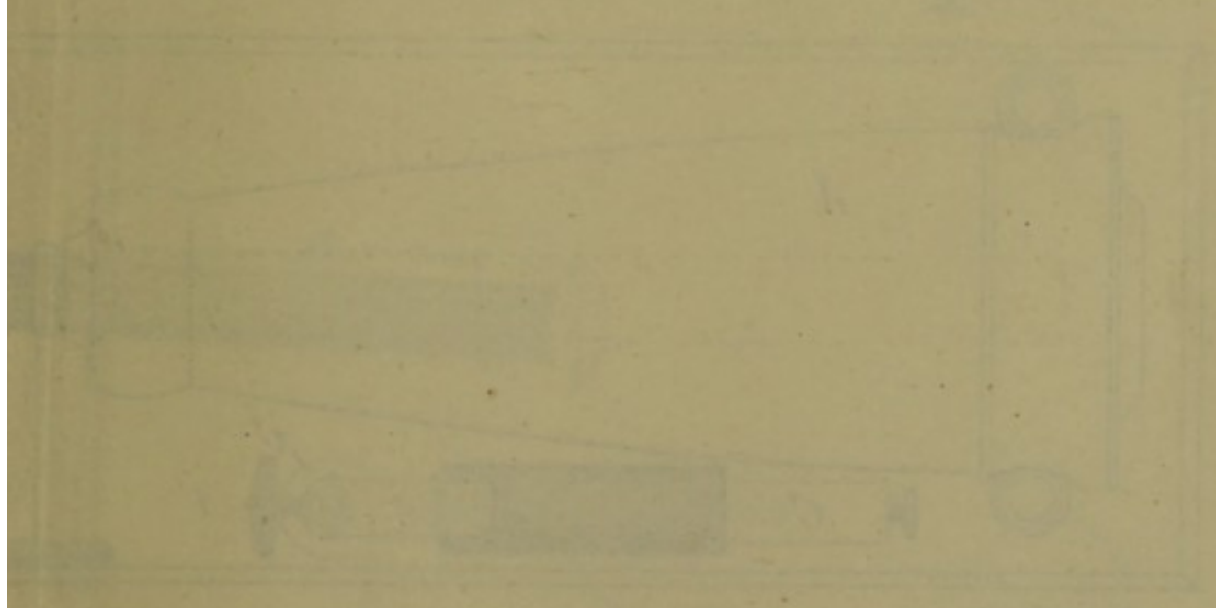
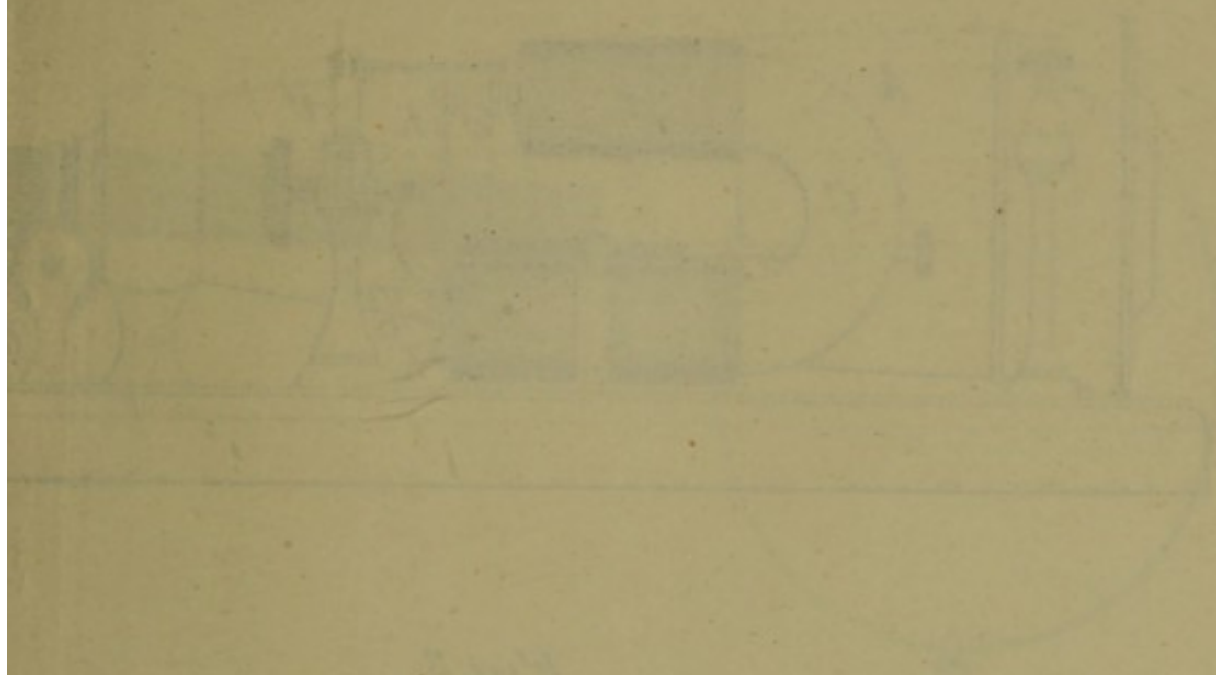


Fig. 1.

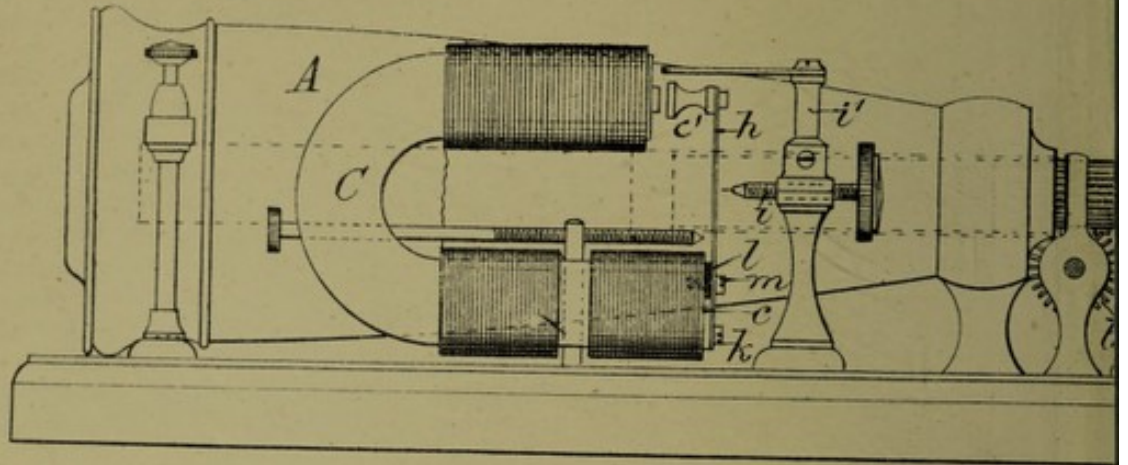


Fig. 2.

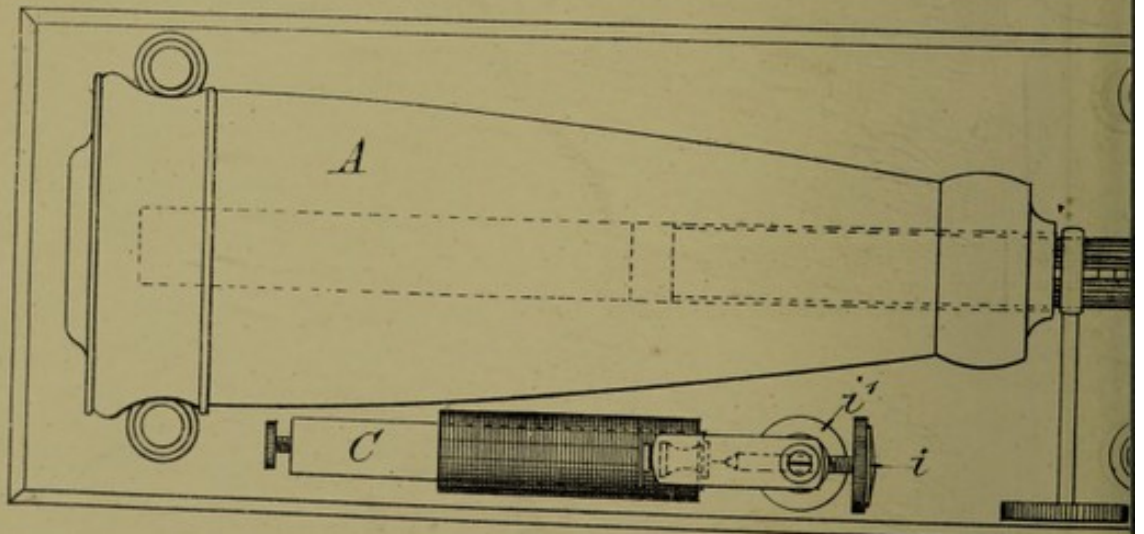
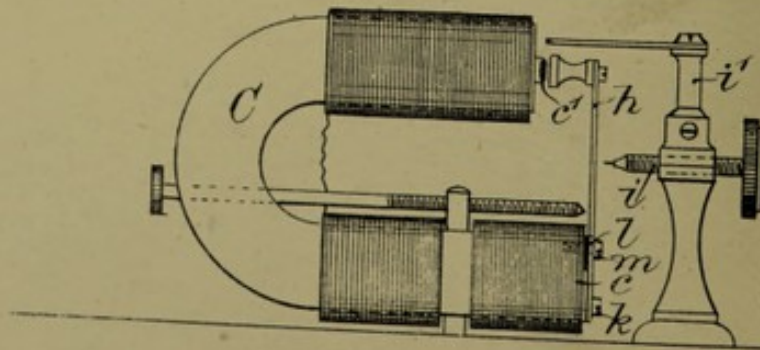
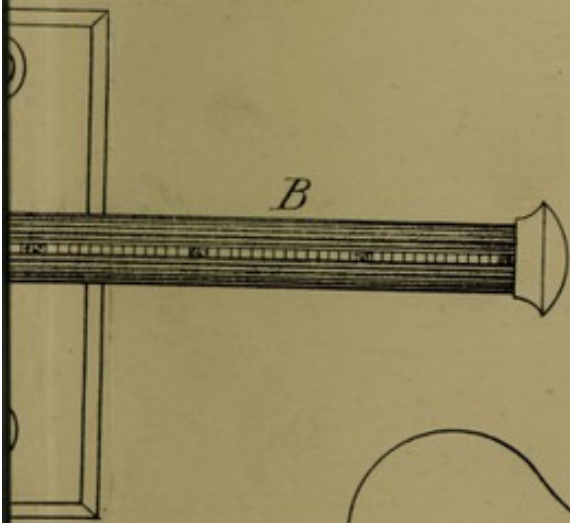
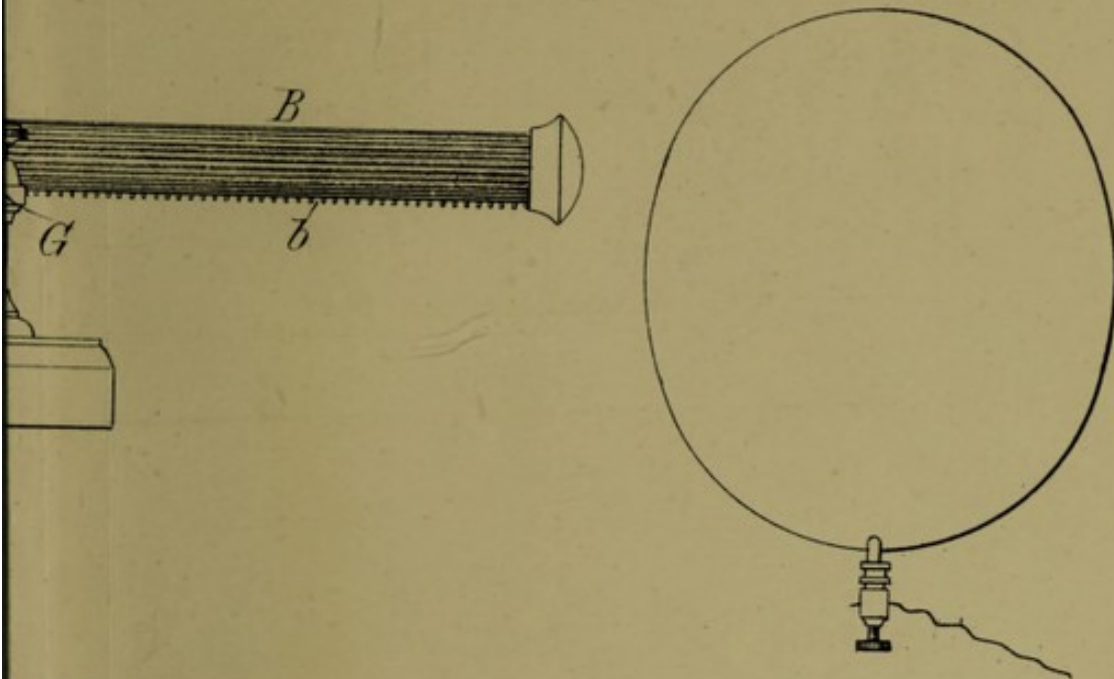


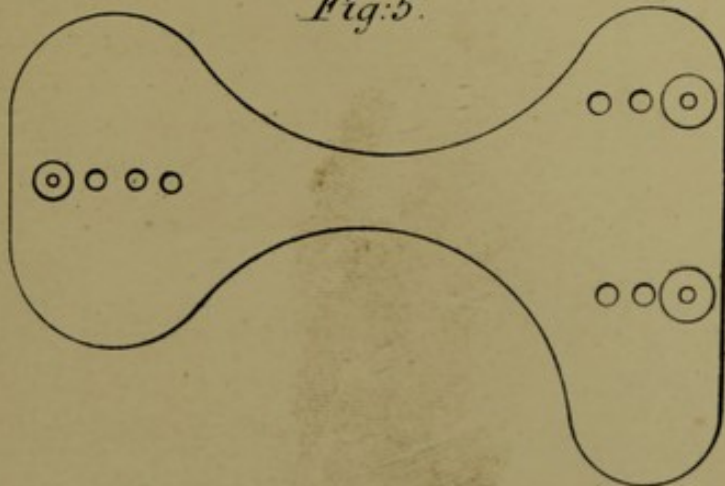
Fig. 3.



*Fig:1.*

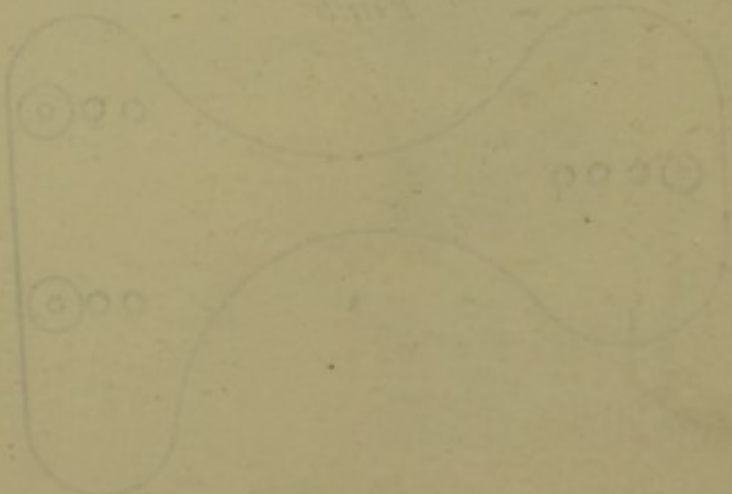
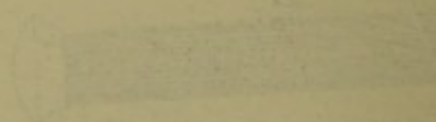
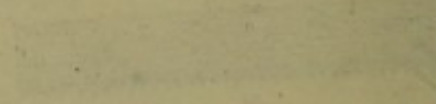


*Fig:5.*



[This Drawing is a reproduction of the Original on a reduced scale]





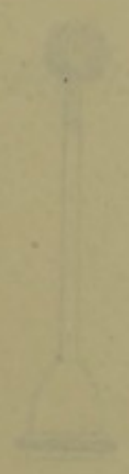
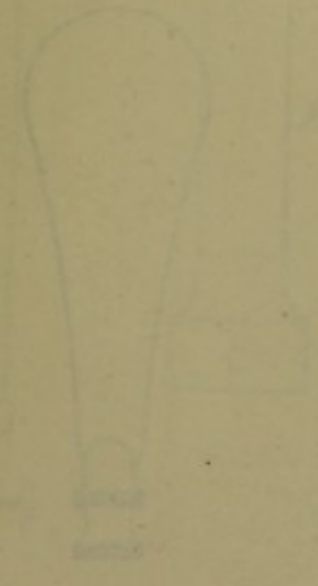
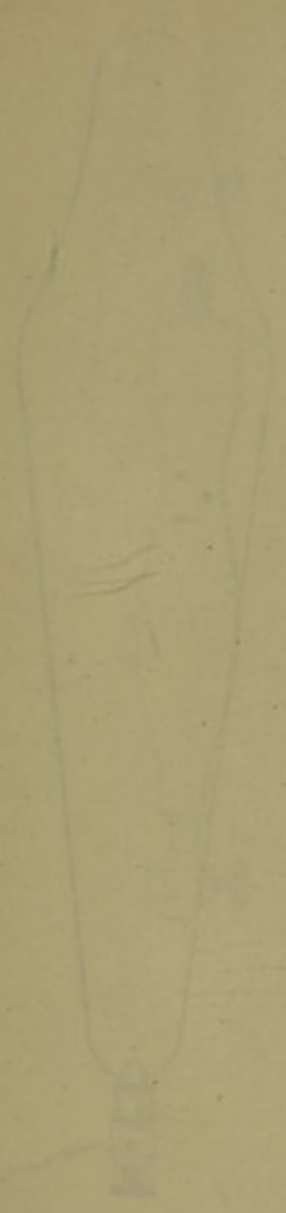


Fig. 1

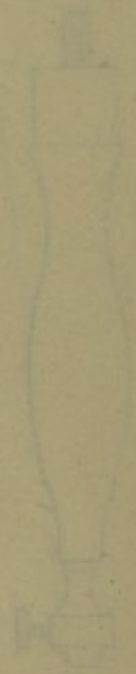
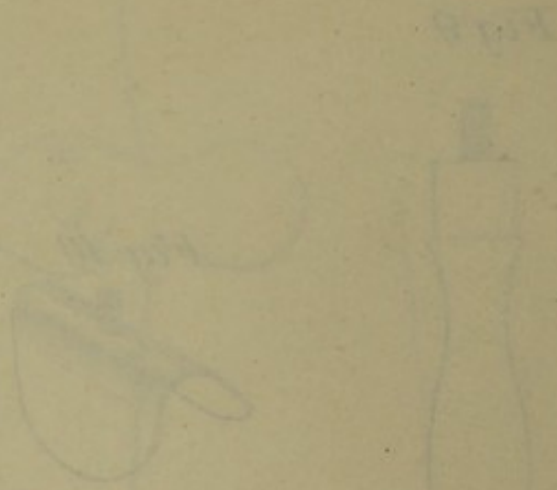


Fig. 2

