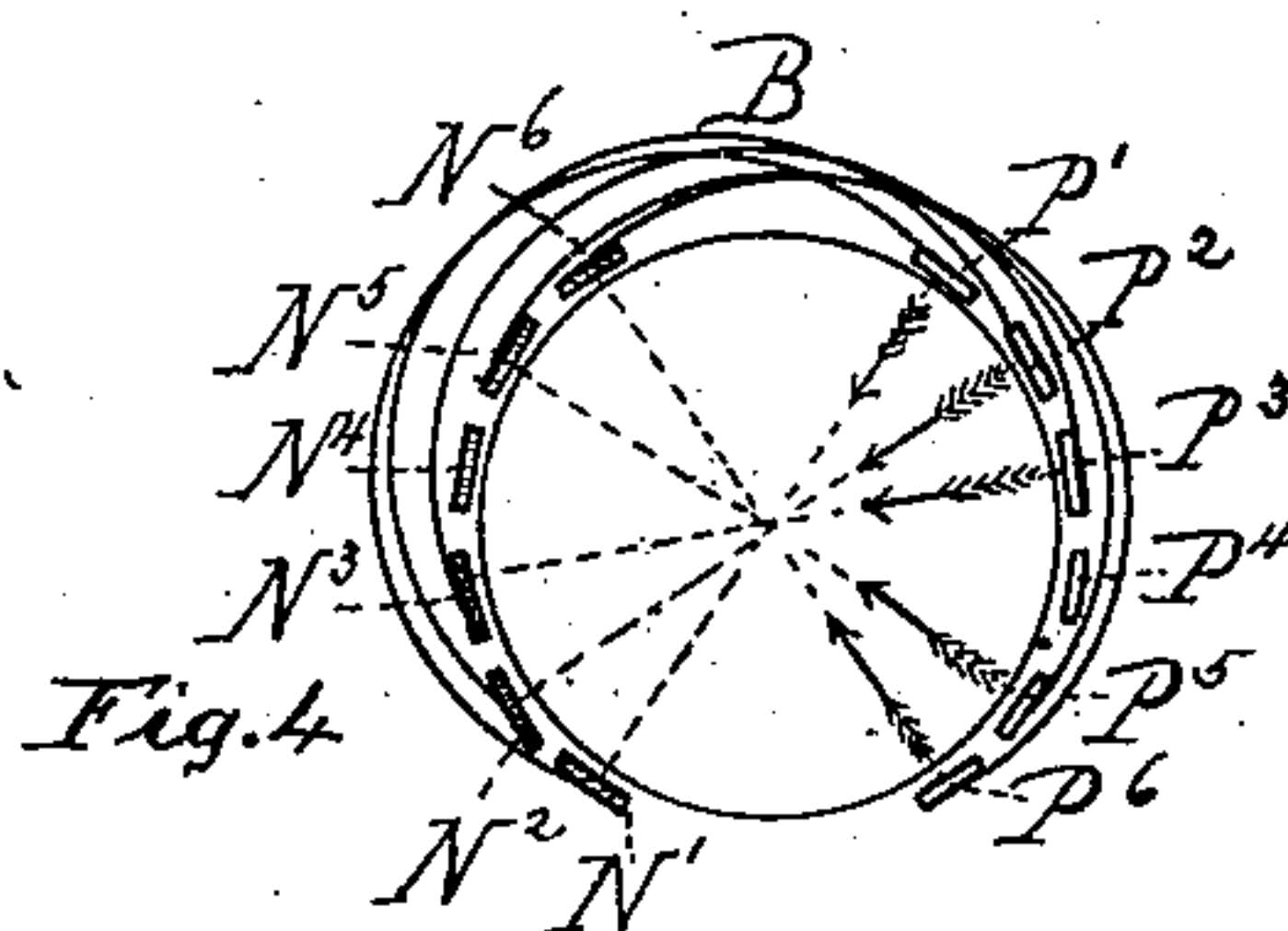
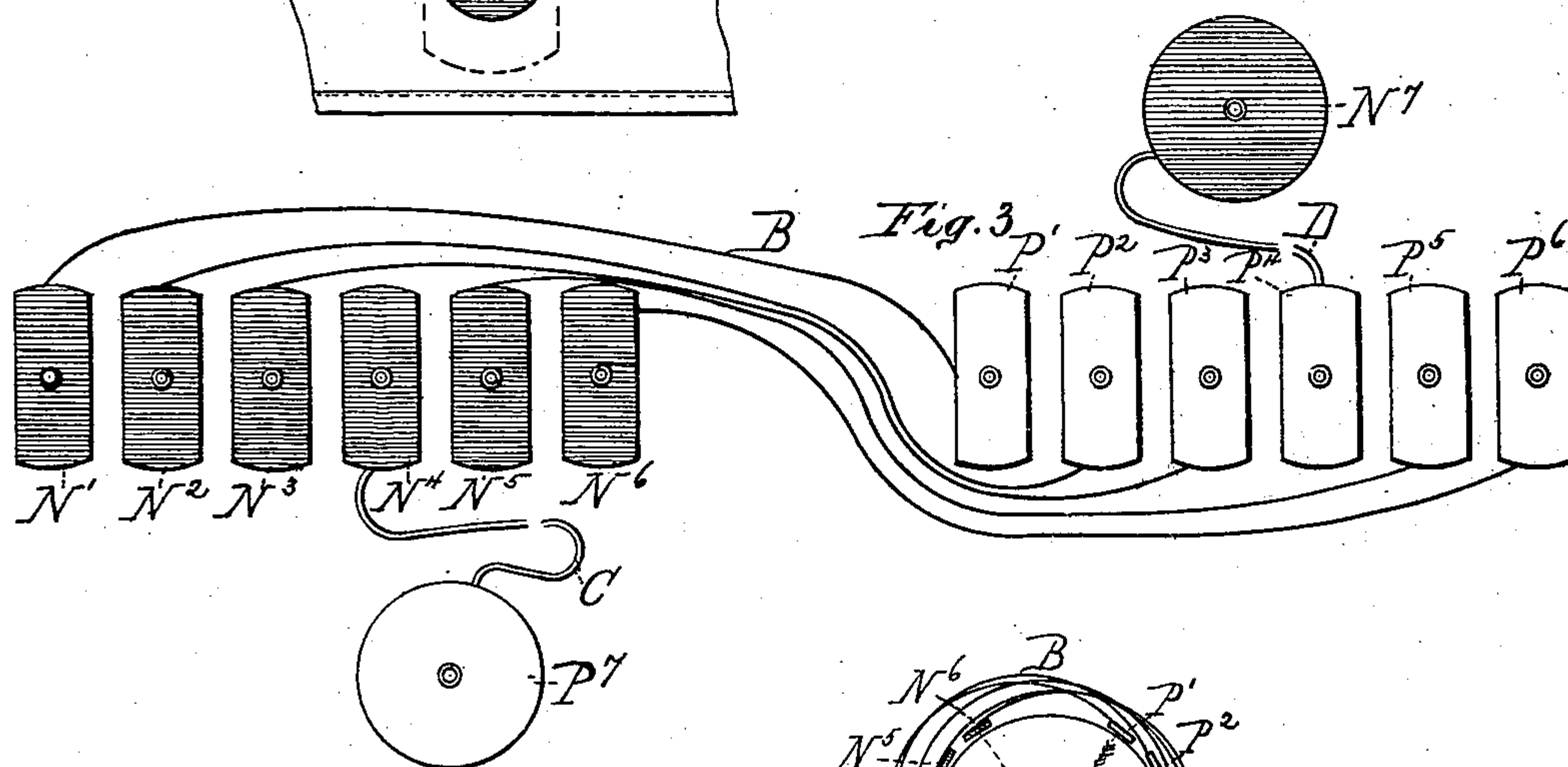
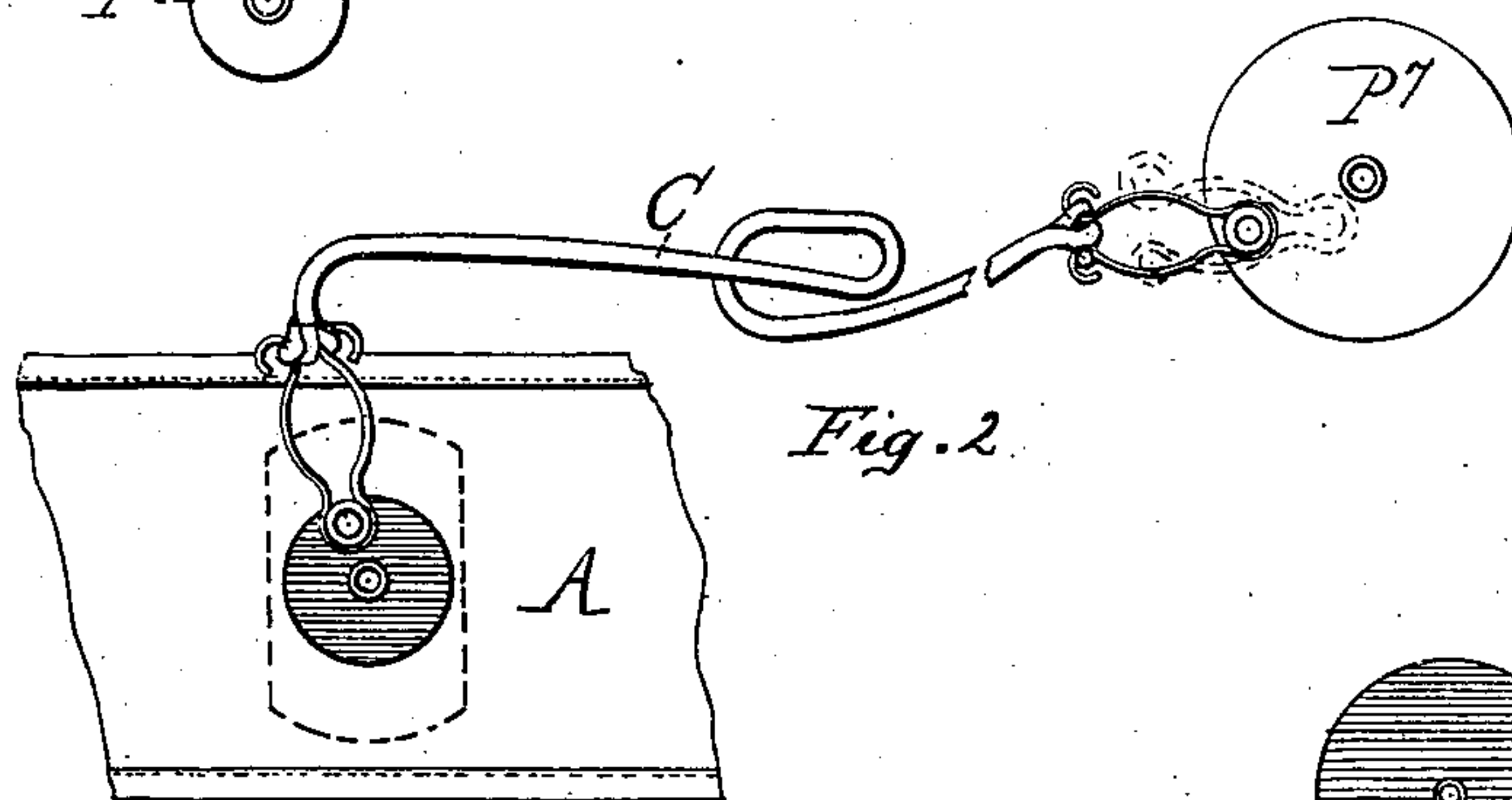
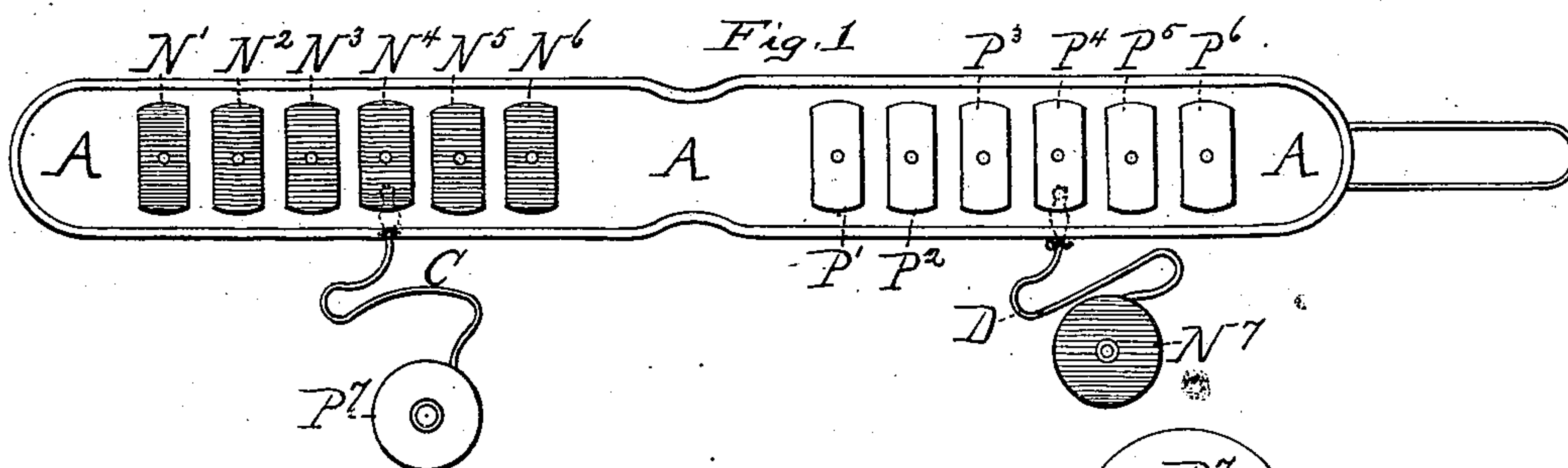


(No Model.)

C. J. HEYLMANN.  
Galvanic Appliance.

No. 243,558.

Patented June 28, 1881.



WITNESSES

*J. W. Kasehagen*  
*Oliver W. Marble*

INVENTOR

*Chas. J. Heylmann*  
By *L. J. Dyer*  
attorneys



# UNITED STATES PATENT OFFICE.

CHARLES J. HEYLMANN, OF CHICAGO, ILLINOIS.

## GALVANIC APPLIANCE.

SPECIFICATION forming part of Letters Patent No. 243,558, dated June 28, 1881.

Application filed October 26, 1880. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES J. HEYLMANN, of Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Galvanic Belts, of which the following is a specification.

The object I have in view is to produce a galvanic belt for medicinal purposes, by which a number of independent quantity-currents will be established directly through the center of the body, and which will have means for making two or more local applications from the belt, so that independent quantity-currents can be transmitted through ailing parts without interfering with the action of the main currents of the belt.

My invention therein consists in the peculiar means employed by me to accomplish this object, as fully hereinafter explained, and pointed out by the claim.

In the accompanying drawings, forming a part hereof, Figure 1 is an elevation of the belt from the inner side; Fig. 2, an elevation of a portion of the outside of the same, showing the manner of attaching the plate or other device for local application; Fig. 3, a skeleton view, showing the arrangement of the plates and connecting-wires; and Fig. 4, a view illustrating the course of the main currents of the belt.

Like letters denote corresponding parts.

A is the covering material of the belt, of two or more thicknesses, and made of suitable length and width. The ends of the belt are provided with a strap and buckle or other suitable device for holding the belt in place upon the body of the person wearing it. To the inner side of one horizontal half of the belt are secured a number of negative plates,  $N^1$ ,  $N^2$ ,  $N^3$ , &c., while to the other half are secured a similar number of positive plates,  $P^1$ ,  $P^2$ ,  $P^3$ , &c. There are preferably five or more plates of each set, which are insulated or separated, so as not to touch each other or to influence each other's currents. The two sets of plates are separated by a larger space at the center of the belt, in order to prevent any local action between the negative and positive plates nearest the center. The negative and positive plates are connected together in pairs by the insulated conductors B, which extend between the thicknesses of the covering material A of

the belt, and are preferably arranged one above the other, as shown in Fig. 2, so as not to cross. Each negative plate is connected with the positive plate, which is located directly opposite on the other side of the body when the belt is in position. Thus the plate  $N^1$  nearest one end of the belt is connected with the plate  $P^1$  nearest the center of the belt, the plate  $N^2$  with  $P^2$ , and so on.

When the belt is in position the moisture of the body excites the plates and a galvanic action takes place, establishing a number of independent quantity-currents directly through the center of the body—from the plates  $P^1$ ,  $P^2$ , &c., through the body to  $N^1$ ,  $N^2$ , &c., and back through the insulated conductors B to  $P^1$ ,  $P^2$ , &c., as shown in Fig. 4. In this action the body forms the moist conductor between the pairs of oppositely-polarized elements. The plates of one pair, however, are not connected together, ( $N^4$  and  $P^4$  of the belt shown,) but are removably connected with flexible insulated conductors C D. These conductors have removably attached to their outer ends the movable elements  $N^7$  and  $P^7$ , the movable element  $P^7$  being connected with the plate  $N^4$ , while the element  $N^7$  is connected with the plate  $P^4$ . These movable elements may be plates adapted to be secured in position to the part which it is desired to act upon; or other elements, constructed for application to special parts, may be substituted for the movable plates. An independent current is established between each movable element and the plate on the belt with which it is connected, the stationary element, the movable element, the flexible conductor, and the body forming the parts of the circuit, and the body acting as the moist conductor which excites the elements. The current passes through the body toward the belt or toward the movable element, according to whether the movable element is positive or negative.

The same features of construction could also be applied to a chest-protector made in two parts and connected by straps passing over the shoulders. Each part of the chest-protector would be provided with a set of insulated plates, each of which plates would be connected by an insulated conductor passing through one shoulder-strap with the opposite

plate on the other part of protector; and on each part of the protector one of the plates would be connected with a movable element in the same manner as described for the belt.

5 What I claim as my invention is—

A medical galvanic appliance having a number of oppositely-polarized elements connected in independent pairs by insulated conductors, the elements of each pair being situated on opposite sides of the body when the appliance is  
10 in use, in combination with movable elements of opposite polarity, connected with stationary

insulated elements on the appliance, whereby a number of independent quantity-currents will be established through the body and special parts thereof, and the body will form the moist conductor between the elements of all  
15 said independent pairs, substantially as described and shown.

CHARLES J. HEYLMANN.

Witnesses:

F. W. KASEHAGEN,  
O. W. MARBLE.