

J. H. DALE.
CLUSTER SOCKET.
APPLICATION FILED MAY 11, 1910.

993,762.

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Fig. 1.

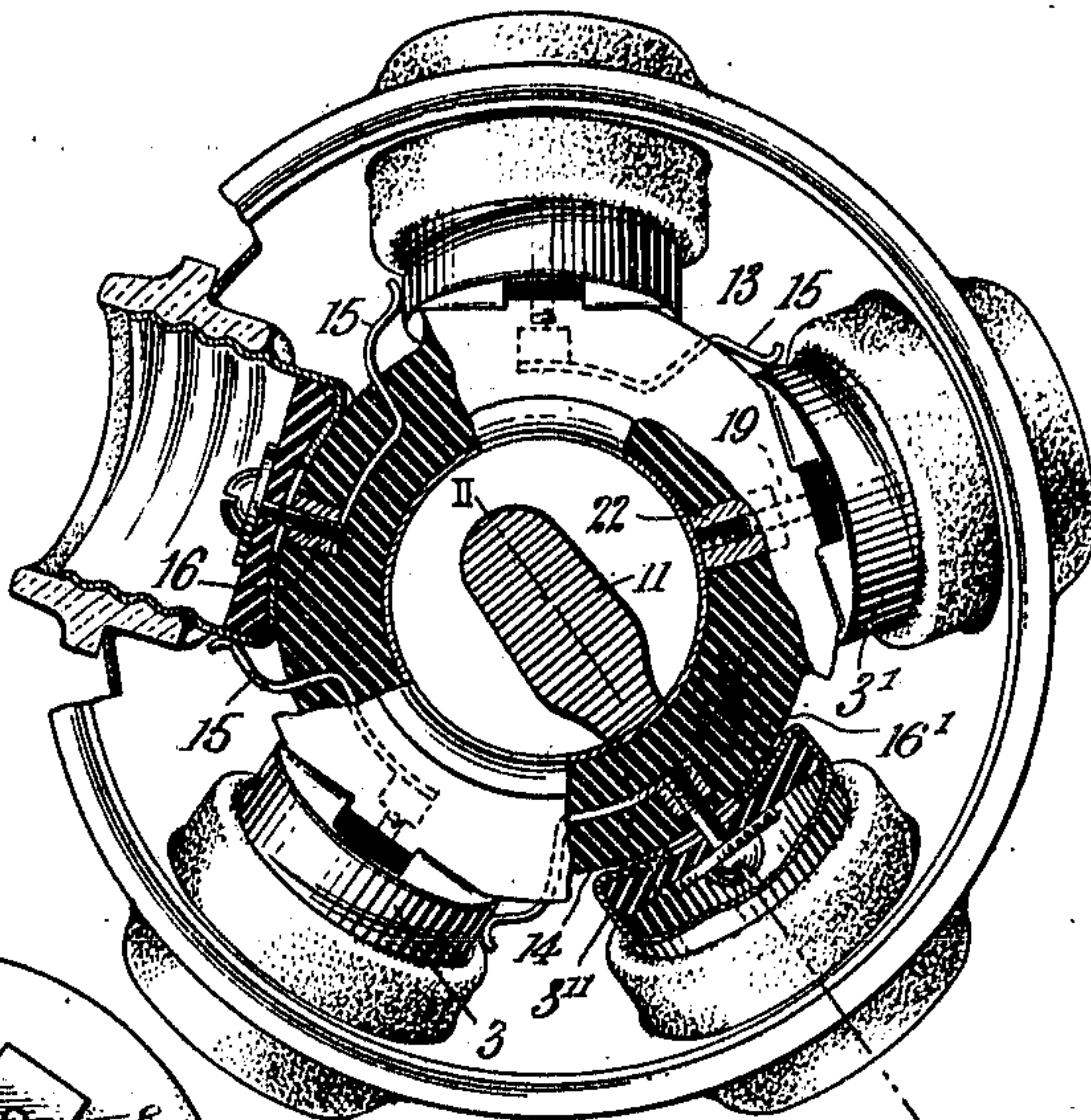


Fig. 3.

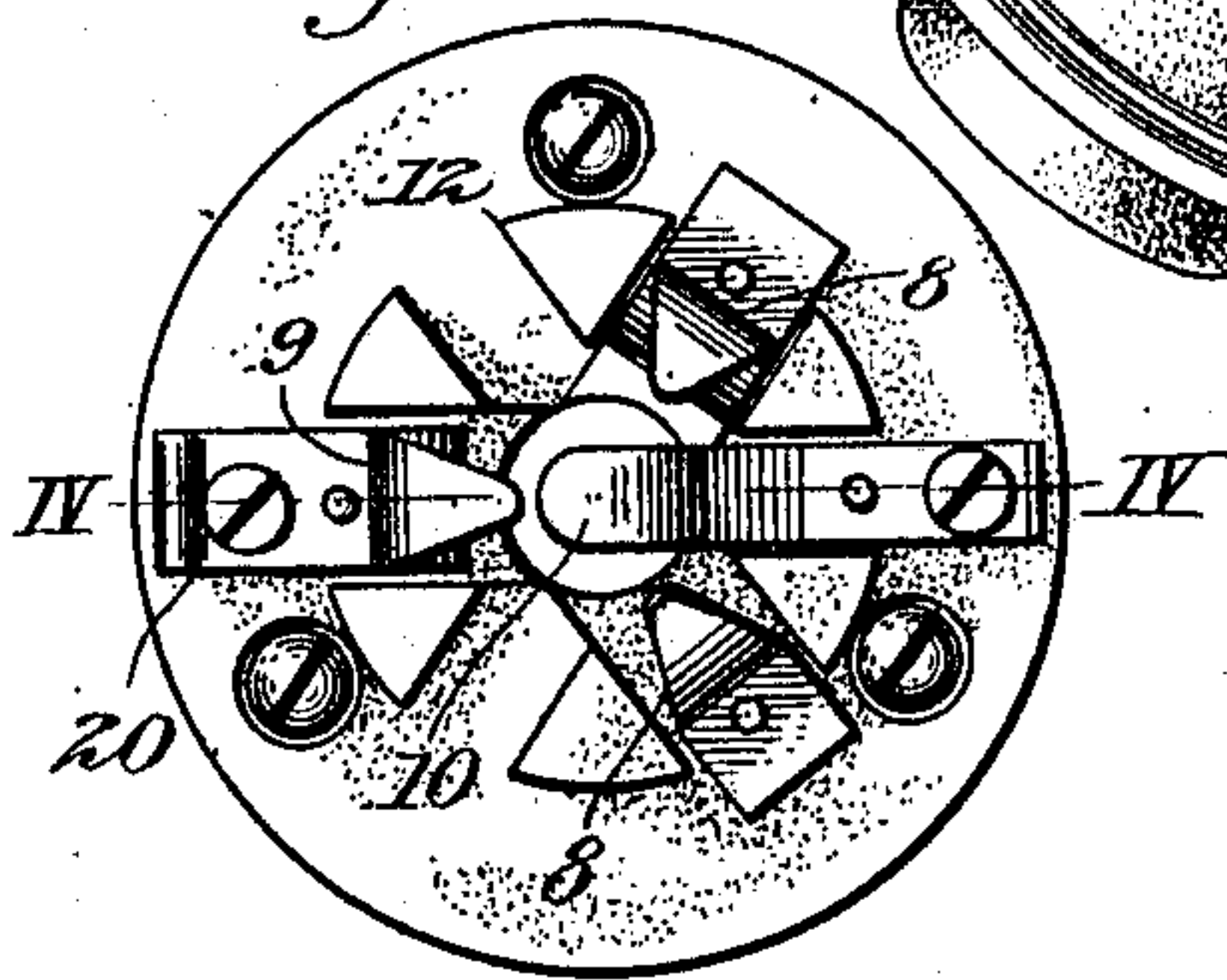


Fig. 5.

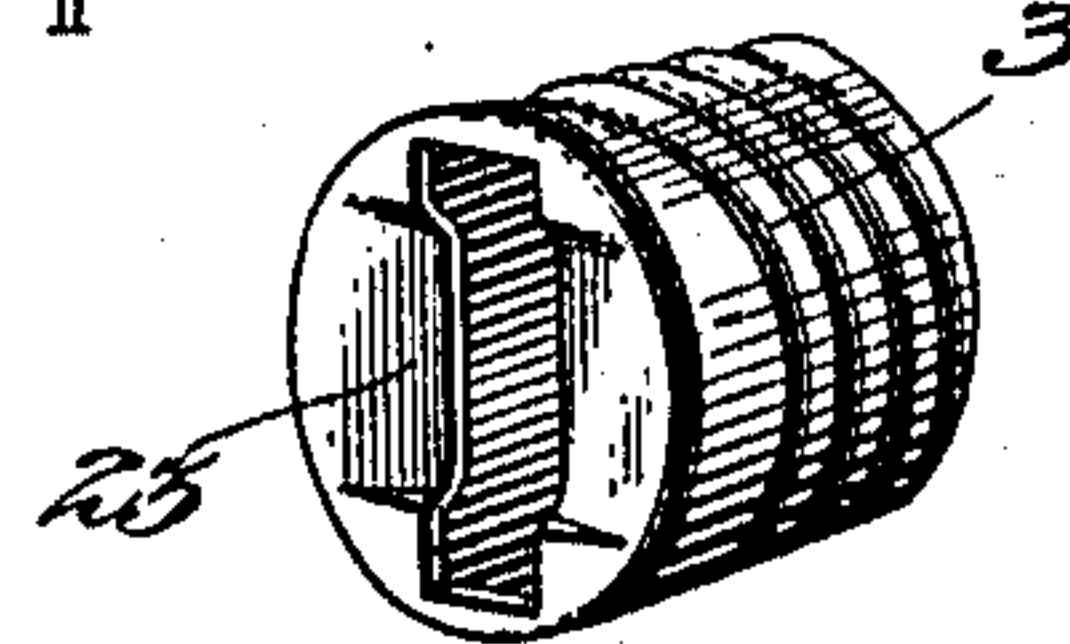


Fig. 2.

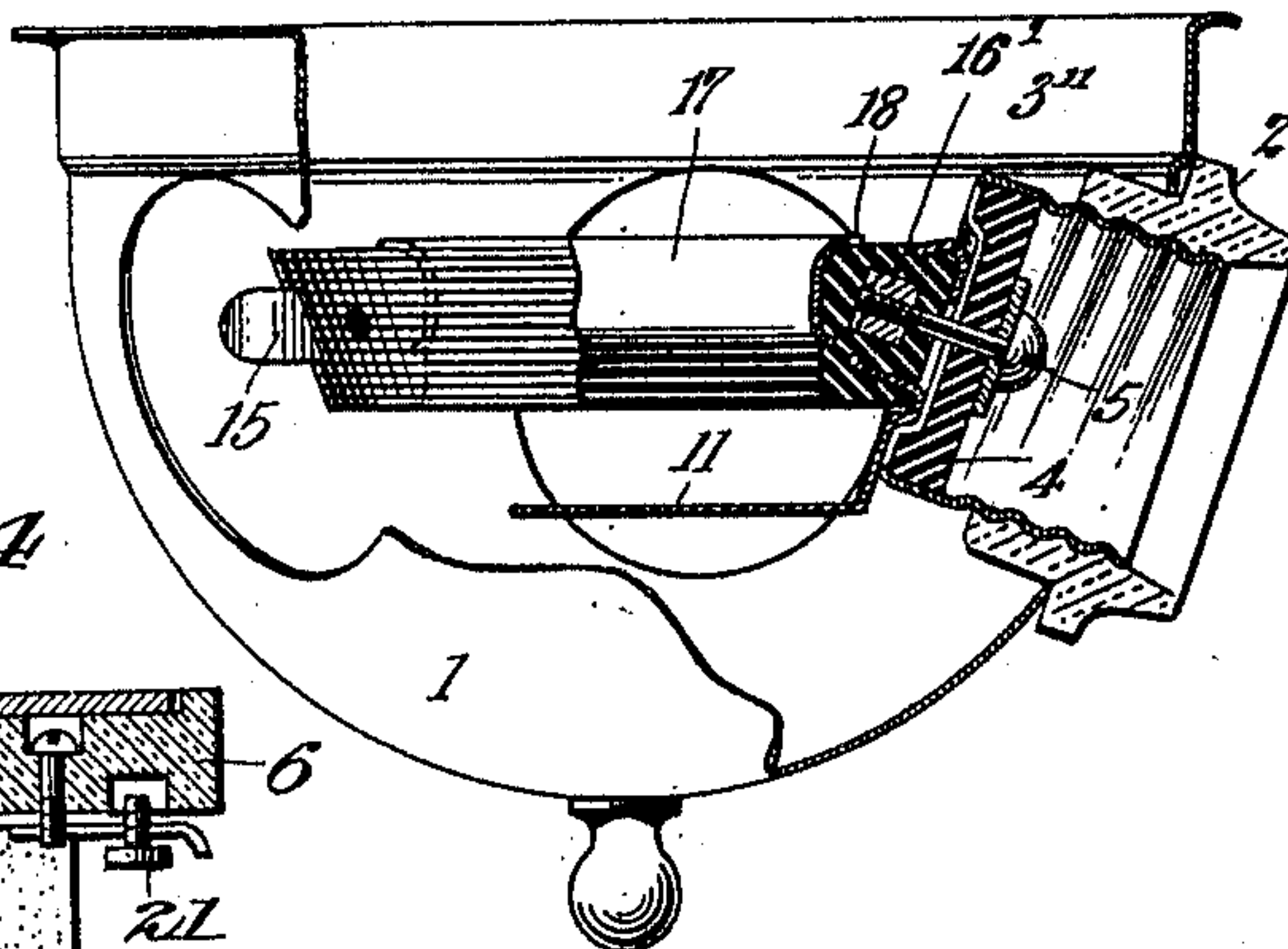
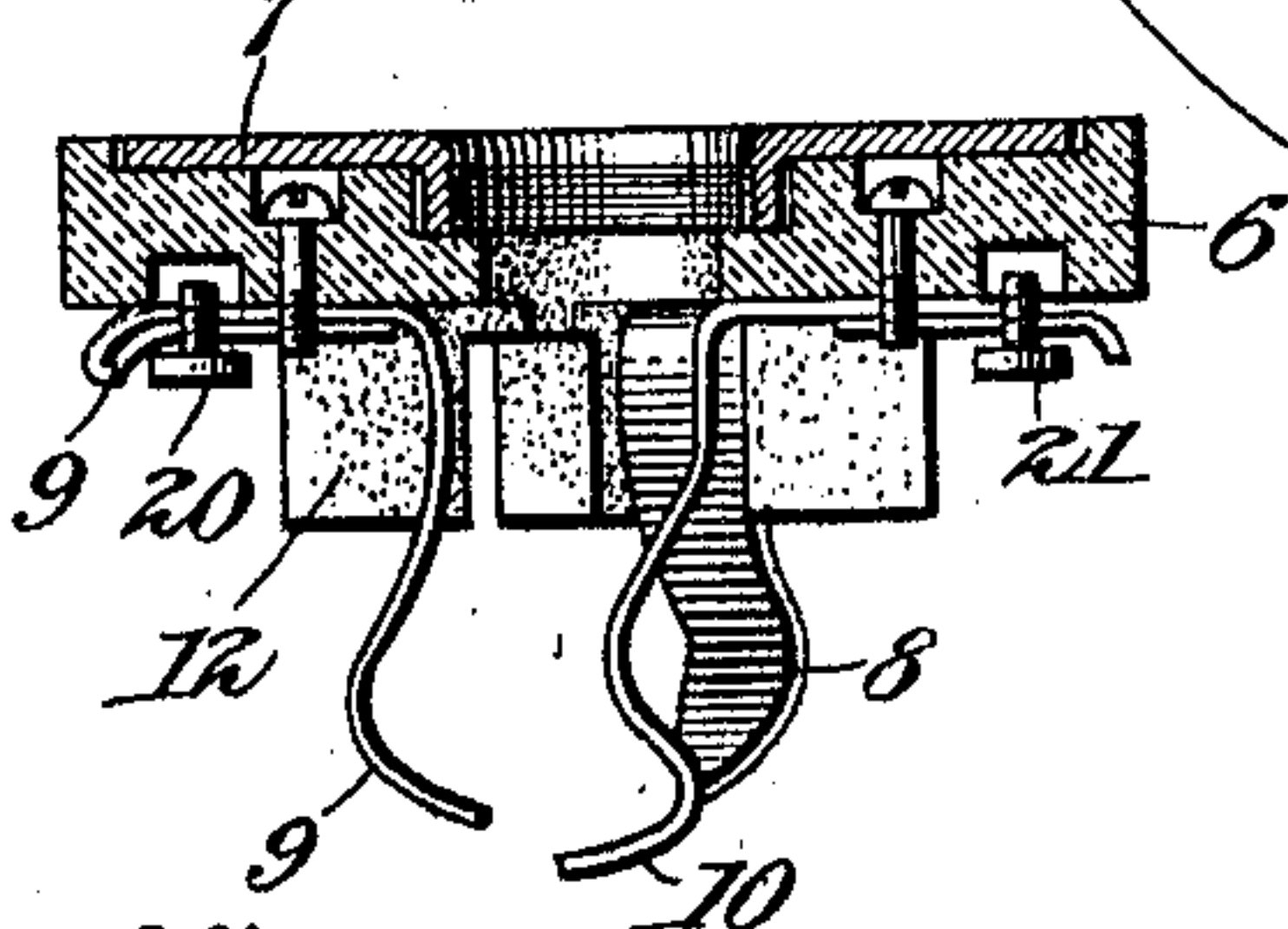


Fig. 4.



Witnesses:

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CLUSTER-SOCKET.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JOHN H. DALE, a citizen of the United States, residing at the city of New York, in the borough of Manhattan and State of New York, have invented certain new and useful Improvements in Cluster-Sockets, of which the following is a full, clear, and exact description.

This invention relates to an improvement in cluster sockets for electric lamps, and has for its object the reduction in the cost of these appliances and the lessening of the number of separate parts thereof by the provision of a contact supporting base in which the various contacts carried thereupon are united into a unitary structure, the several contacting parts being properly insulated from each other and such parts being arranged to the end that lamps carried by my receptacle are electrically connected in series. It has been customary heretofore in constructions of this type to provide a base of some description, preferably of insulating material, and to secure thereto in their proper positions the respective contact pieces and connecting parts by means of screws, clips, or the like. This obviously entails considerable work in the assembling of such structures; and furthermore there is liability of the uniting and connecting screws becoming loose or the clips becoming unfastened. In addition to this, owing to the amount of conductive material exposed around such base, there is the possibility of loose parts causing short circuit.

I do not claim herein the general arrangement of the socket in so far as the canopy and disposition of sockets thereon is concerned, nor do I make claim to the fixed support to which the receptacle is adapted to be secured; but I have made a distinct improvement in the contact supporting base aforesaid and the description herein will hence be substantially confined to a description of this structure.

Referring to the accompanying drawings, which form a part hereof and in which like reference characters designate like parts throughout the several views: Figure 1 is a plan view of my improved cluster socket with portions thereof broken away to better illustrate the connections. Fig. 2 is a fragmentary section taken on line II—II of Fig. 1; but showing a portion of the casing and base ring in elevation. Fig. 3 is a bottom view of the fixed support preferably used

in connection with my socket. Fig. 4 is a section on line IV—IV of Fig. 3. Fig. 5 is a perspective view of a lamp socket or thimble.

The usual canopy 1 is provided, which carries therein suitable insulating sleeves 2 into which are screwed the threaded metallic thimbles or sockets 3, such sockets carrying insulating washers 4 in the bottom thereof which are held therein by means of the usual centrally disposed contact making screws 5. The fixed support shown in Figs. 3 and 4 comprises a porcelain base 6 with threaded metallic base plate 7 therein, and said base carries the spring contacts 8, 9 and 10; the central contact 10 being adapted to engage a resilient element or tongue 11 supported from my improved base in the manner hereinafter described. A series of substantially triangular lugs 12, the outer lateral surfaces of which are preferably disposed in a circle, extend downwardly from the insulating support 6 and may be integrally united thereto.

Referring now more particularly to the portion wherein my invention resides: A preferably annular base, which has been broadly designated 13, is formed of insulating material 14 with a series of contacts embedded therein. These contacts preferably comprise a plurality of resilient strips 15, one end of each of which projects through the periphery of the annulus and is adapted for engagement with the outer side of the inner end of a socket 3. The inner extremity of each of these resilient strips has preferably united thereto a threaded sleeve or nut 16. I prefer to secure these nuts by soldering them to the strips; but it will be evident from the method of constructing my base, hereinafter described, that the nuts need not be initially secured to such strips, but may be merely disposed thereagainst to afford proper electrical contact. I prefer however to solder the nuts to the resilient elements and to extend the screw receiving apertures in such nuts entirely therethrough and through the ends of the elements 15, so that the extremities of the screws 5 project into said strips.

A metallic annulus 17 which may be of cast or spun metal, and which preferably has a section similar to that shown at 18 in Fig. 2, is carried by the upper and inner side of the insulating base ring. In forming the unitary structure, the contacts 15 and 16

and this metallic ring are disposed in a suitable jig preparatory to assembling, and plastic insulating material, such as cellulose, micanite, rubber or the like is pressed there-
 5 around to firmly embed portions of such metallic parts therein; the plastic material hardening or being hardened to form therewith the unitary structure above described. It is obvious that by so uniting these parts
 10 displacement of any of the contacts becomes substantially an impossibility. Furthermore, the major portion of each of the strips 15 and nuts 16, is entirely inclosed by and embedded in the insulating mass. I
 15 may entirely inclose the nut or sleeve in the manner shown at 16', in such case providing a threaded aperture through the layer of insulating material which covers the outer side of such nut. This is readily accom-
 20 plishable when the parts are being assembled by supporting the nuts upon screws which are thereafter withdrawn so that contact with the nut may be made by merely inserting one of the screws 5 thereinto.
 25 By the expression,—exposed for electrical connection, as used in the claims, it will be understood that either of the constructions just described may be referred to. The contact carrying annulus supports the lamp
 30 sockets by reason of its engagement with the inner extremities of the threaded thimbles and by the engagement of the screws 5 with the contact nuts in the manner aforesaid; the canopy, in turn, being supported by the
 35 insulating sleeves 2, which are threaded upon said thimbles. The disposition of the ring 17 is such that when the cluster socket is snapped up in position against its fixed support, the contacts 9 of the latter engage the
 40 ring 17 thereby supporting the cluster and affording electrical contact with said ring. A screw 19 of one of the sockets which may be somewhat longer than the corresponding screws 5 of the remaining sockets, is in elec-
 45 trical connection with the ring 17; being insertible into a threaded aperture provided in the insulating mass. Assuming therefore that current is led in from the binding post
 50 pass down through contact 9, through ring 17 and screw 19 to the lamp carried in the socket 3'; and thence out through said socket 3' and through the corresponding contacting strip 15. The current then passes through
 55 the nut 16 which is in contact with the said strip to the screw 5 of the adjacent socket and in corresponding fashion around successively to each lamp in series, until all of the lamps have been traversed. Current then
 60 leaves the socket 3'' and passes downwardly into the resilient tongue 11 which is in electrical contact with such socket; being disposed between the inner end of the socket and the supporting ring. The central con-
 65 tact 10 of the fixed support is normally en-

gageable when the parts are assembled with this tongue 11 and hence current passes up therethrough and out at the binding post 21.

It will be observed that when the screws 5 and 19 are withdrawn, the individual sockets 70 may be removed and the annular base may then be withdrawn from the canopy; and this arrangement of parts is hence most readily assembled or disassembled. In order to facilitate the assembling of the device and
 75 enable the use of securing screws all of the same length, I may secure to the inner side of the ring 17 a sleeve or nut 22 into which the screw 19 is adapted to thread in corresponding fashion to the manner in which 80 screws 5 engage the nuts 16. This sleeve of course being embedded in the insulating material in corresponding fashion. If then the tongue 11 be permanently secured to the insulating ring which obviously may also be
 85 accomplished by embedding portions thereof in the insulating mass when the ring is being formed, it becomes immaterial where the tongue is disposed in the cluster when the several parts are assembled. As a con- 90
 sequence of this construction, it will be observed that with the exception of the screws 5 and 19, all contacts are intimately united into a unitary structure, and the possibility of short circuiting therebetween is absolutely 95
 prevented.

The projecting ends of the strips 15 may be soldered to the corresponding thimbles if desired to improve connection therebetween; and I prefer to groove or recess the inner 100
 ends of said thimbles as shown in Fig. 5, where the slotted end of the thimble has formed therein a depression 23 which is designed to neatly receive the abutting portion of the supporting ring, thereby relieving 105
 the contact making screw 5 from any possible lateral thrust or stress. The inner faces of the washers 4 are correspondingly arcuately recessed as shown in Figs. 1 and 2, so that each may snugly engage portions of 110
 the slotted walls of its corresponding thimble.

Having thus described my invention, what I claim is:

1. A cluster socket comprising an insulat- 115
 ing base having a plurality of conducting strips portions of which are embedded within the same and arranged with their ends projecting in succession around the edge of the base, in combination with a plurality of 120
 lamp sockets mechanically secured to said base, one terminal of each socket being in electrical connection with the exposed end of one strip, while its other terminal is in electrical connection with the opposite end 125
 of the next adjacent strip, substantially as described.

2. A cluster socket comprising an insulat-
 ing base having a plurality of conducting
 strips, one end of each of which is embedded 130

in the base while the other ends are exposed, in combination with lamp sockets mechanically secured to said base and having center contacts electrically connected with said embedded ends of the strips respectively, and side contacts electrically connected with said respective exposed ends, substantially as described.

3. A cluster socket comprising a plurality of lamp sockets having the metallic thimble thereof grooved, a contact carrying supporting base for said sockets, portions of the

periphery of which neatly engage the grooves in said thimbles, and screws for retaining said parts in position, the engagement of said base with said grooves relieving said screws from lateral thrust.

In witness whereof, I subscribe my signature, in the presence of two witnesses.

JOHN H. DALE.

Witnesses:

WALDO M. CHAPIN,
WILLIAM C. LAW.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
