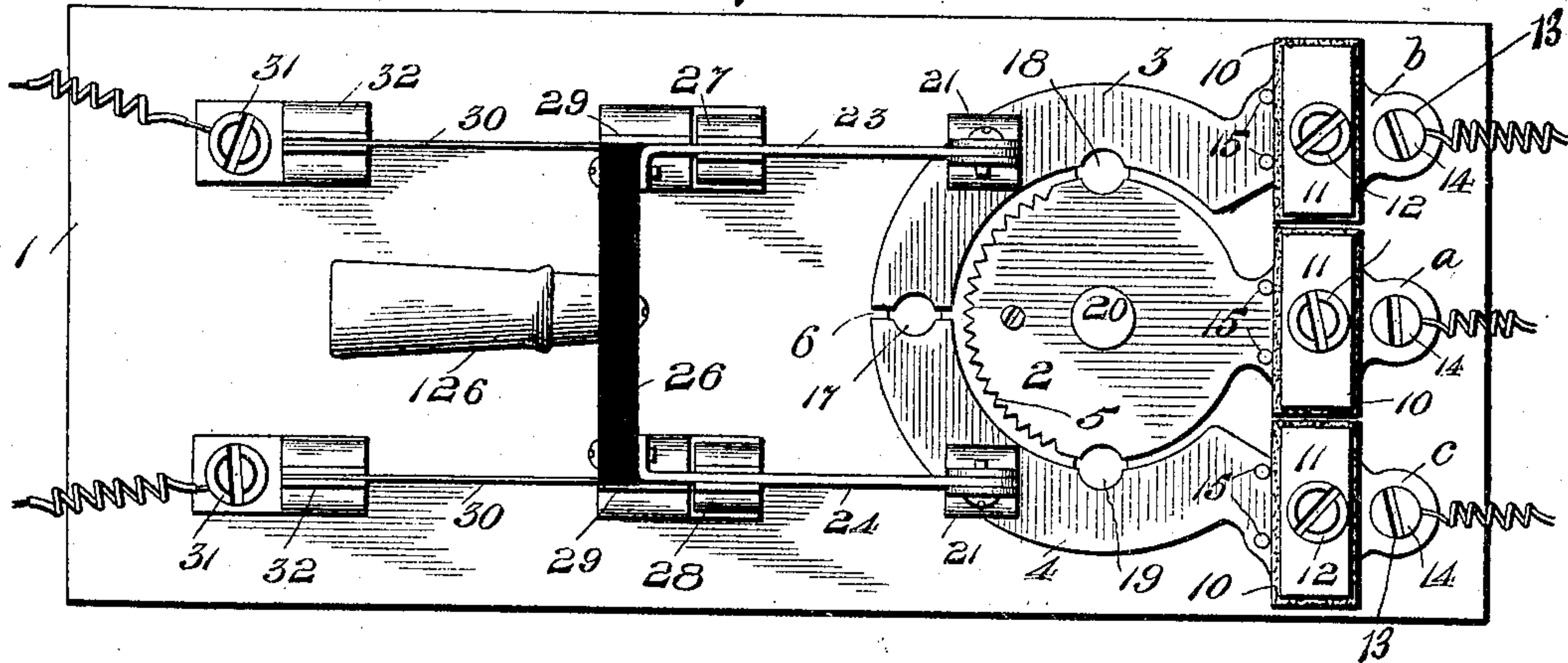


No. 796,022.

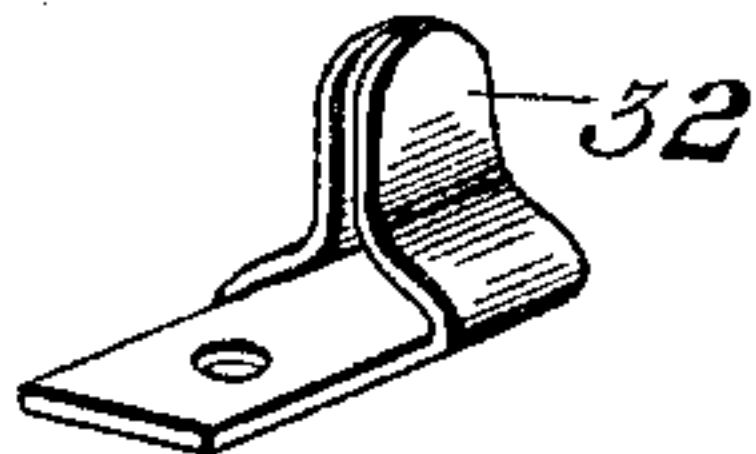
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J. A. TORNQUIST.  
CUT-OUT FOR TELEPHONES.  
APPLICATION FILED OCT. 6, 1904.

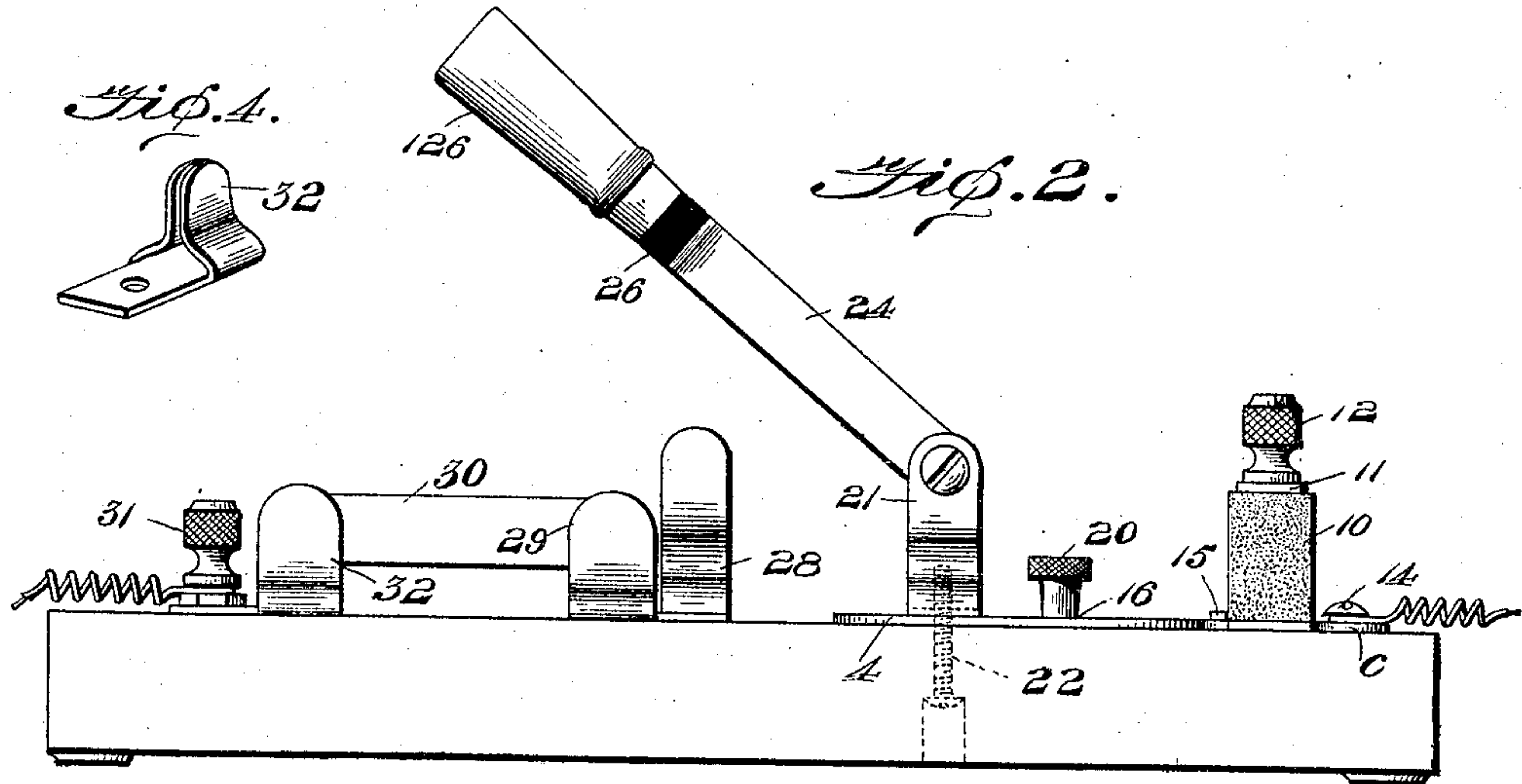
*Fig. 1.*



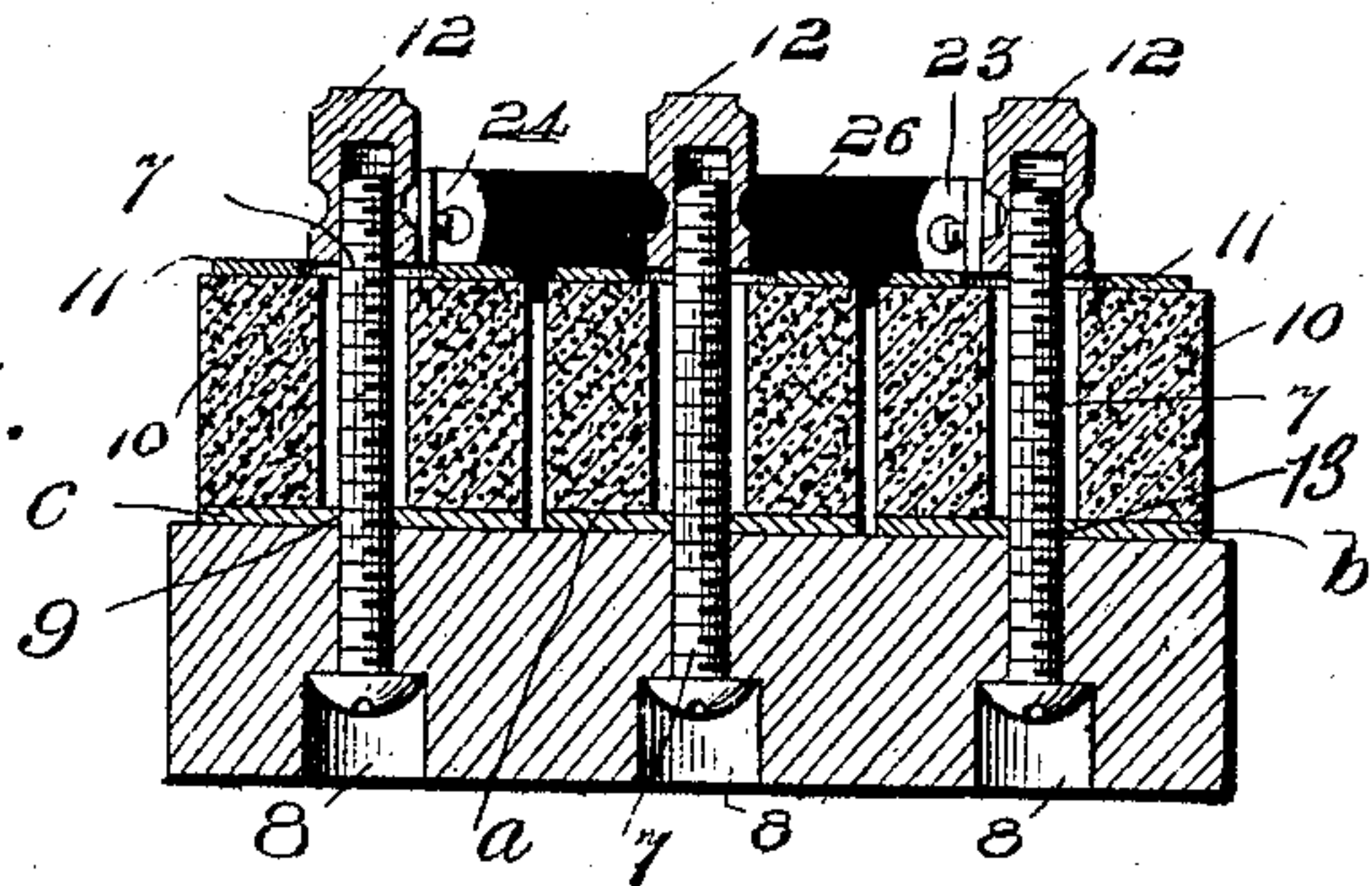
*Fig. 4.*



*Fig. 2.*



*Fig. 3.*



Witnesses  
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# UNITED STATES PATENT OFFICE.

JOHN ANDREW TORNQUIST, OF CLINTON, IOWA, ASSIGNOR TO TORN-  
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## CUT-OUT FOR TELEPHONES.

No. 796,022

Specification of Letters Patent.

Patented Aug. 1, 1905.

Application filed October 6, 1904. Serial No. 227,453.

*To all whom it may concern:*

Be it known that I, JOHN ANDREW TORN-  
QUIST, a citizen of the United States, residing  
at Clinton, in the county of Clinton and State  
of Iowa, have invented certain new and useful  
Improvements in Cut-Outs for Telephones;  
and I do declare the following to be a full,  
clear, and exact description of the invention,  
such as will enable others skilled in the art to  
which it appertains to make and use the same.

My invention is an improved lightning-ar-  
rester, ground switch and fuse, and lever cut-  
out for telephones and telegraph instruments  
by means of which a telephone or other in-  
strument may be cut out without interfering  
with the action of the other instruments on  
the same line and preserved from injury from  
lightning and without injury to the cut-out.

The object of my invention is to provide a  
cheap, simple, and efficient instrument of this  
character which when it receives attention  
will operate to protect the telephone or tele-  
graph instrument from injury by currents of  
dangerous force without injury to itself and  
which when neglected will nevertheless be  
equally efficient in protecting the telephone  
or other instrument without further injury  
to itself than the burning out of one or more  
inexpensive fuses, which may be readily re-  
placed.

To this end my invention consists in the  
combination and arrangement of devices here-  
inafter described and claimed.

In the accompanying drawings, Figure 1 is  
a plan view of a cut-out embodying my im-  
provements, showing the switch-lever in  
closed position. Fig. 2 is a side elevation of  
the same, showing the switch-lever in open  
position; and Fig. 3 is a transverse sectional  
view taken on the plane intersecting the car-  
bon blocks. Fig. 4 is a detail perspective  
view of one of the clamp-springs to which the  
fuse-conductors are attached.

In the embodiment of my invention I em-  
ploy a base 1 of porcelain or other suitable  
non-conducting material, on which, near one  
end, are conducting-plates 2, 3, and 4. The  
former is circular with serrations 5 at one  
side, and the latter two are segmental in form  
and are disposed concentrically with reference  
to the plate 2, near but out of contact with  
each other and with their opposing inner ends  
near but out of contact with each other, as at  
6. The plate 2 is provided at its outer side

with an extension *a*, and the plates 3 4 are  
provided, respectively, at their outer ends  
with extensions *b c*. Each of said extensions  
is formed with an enlarged central portion  
forming a base on which bears a carbon block  
10. The said carbon blocks are here shown  
as of oblong rectangular form and are dis-  
posed in line with one another and are nearly  
in contact with one another. Each of the  
carbon blocks is provided with a central open-  
ing through which extends a bolt 7. The  
heads of said bolts are countersunk in recesses  
8, with which the base 1 is provided on its un-  
der side. The stems of the bolts pass through  
and engage screw-threaded openings 9, with  
which the extensions of the plates 2, 3, and 4  
are provided, the said bolts serving to secure  
the said plates on the base 1. Said bolts are  
passed through the central opening in the  
carbon block, and on the latter are placed  
metallic plates 11, which have adjusting-slots  
through which said bolts extend. On the pro-  
jecting ends of the said bolts are screw-nuts  
12, which serve to clamp the plates on the  
carbon blocks and to clamp the latter firmly  
on the base portions of the extensions of the  
plates 2, 3, and 4. Hence the said bolts and  
the said nuts serve not only to secure the ex-  
tension portions of the plates 2, 3, and 4 on  
the base 1, but also serve to secure the car-  
bon blocks on the said extension portions of  
said plates. The openings in the carbon  
blocks, through which the said bolts extend,  
exceed the diameter of said bolts, and hence  
the said carbon blocks may be adjusted on the  
bolts as may be required to widen or con-  
tract the spaces between their contiguous ends.

The extensions of the plates 2, 3, and 4 are  
provided at points beyond the outer sides of  
the carbon blocks with screw-threaded open-  
ings 13, which receive shanks of binding-  
screws 14. The latter serve to secure the  
line-wires and the ground-wire to the plates  
2, 3, and 4, the line-wires being attached to  
the plates 3 4 and the ground-wire to the  
plate 2. To facilitate the disposition of the  
carbon blocks in exact alinement with one an-  
other, the extensions are provided on their  
upper sides with stops 15, against which the  
said carbon blocks are caused to bear. A  
switch-plug 20 is adapted to be placed in an  
opening 16 in the plate 2 or in any of the  
openings 17, 18, and 19 between the plates  
3 4, 2 3, and 2 4, respectively.



The plates 3 4 are respectively provided with conducting-posts 21, which are secured thereon by means of screws 22, the latter serving also to secure the plates 3 4 to the base 1. Switch-bars 23 24 are respectively pivotally connected to the said posts and are connected together by a non-conducting yoke 26, to which is attached a handle 126. The switch-bars make and break in connection with posts 27 28, respectively, each of which has a pair of clamp-springs 29 and fuse-conductors 30, which have one end secured to one of the said conducting clamp-springs. The opposite ends of these conductors are connected similarly to binding-posts 31 by clamp-springs 32, which are similar to those shown at 29. The telephone or other instrument is connected by conducting-wires to the posts 31.

The operation of my invention is as follows: When the switch-plug is in the opening 16 and the switch-lever is closed, as in Fig. 1, the telephone or other instrument is included in the line-circuit, as will be apparent. By moving the switch-lever to open position the instrument is cut out of the main circuit, and this should be done on the approach of a thunder-storm to protect the instrument from injury. If the instrument is in use on a series line, the plug should also be removed from the opening 16 and placed in the opening 17 to short-circuit through the conducting-plates 3 4 and avoid interruptions of the working of the line. When the switch-lever is thus open, injury either to the instrument or to the cut-out is absolutely prevented. Should the lever not be open and the instrument hence continued in the line-circuit, a current of dangerous force will fuse one or both of the fuse-conductors, thus cutting out

the instrument without injury thereto and with no further damage to the cut-out than the burning of the fuse or fuses, which may be readily and inexpensively replaced or repaired.

The openings 18 19 in connection with the switch-plug enable either side of the circuit to be cut out at will should this at any time become desirable for any reason. The carbon blocks serve to short-circuit currents of abnormal strength. The juxtaposition of the plates 2 3 4 and the serrated edges of the latter effect a like operation between said plates.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. An instrument of the class described, having a base, lightning-arresting plates thereon having extensions bearing on the base, carbon blocks on the said extensions, and bolts securing the extensions on the base and the carbon blocks on the extensions, substantially as described.

2. An instrument of the class described, having a base, lightning-arresting plates thereon having extensions bearing on the base, carbon blocks on the said extensions, and bolts securing the extensions on the base and the carbon blocks on the extensions, said carbon blocks being adjustable on the said bolts toward and from one another.

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

JOHN ANDREW TORNQUIST.

Witnesses:

L. W. BARKER,  
E. EWING.