

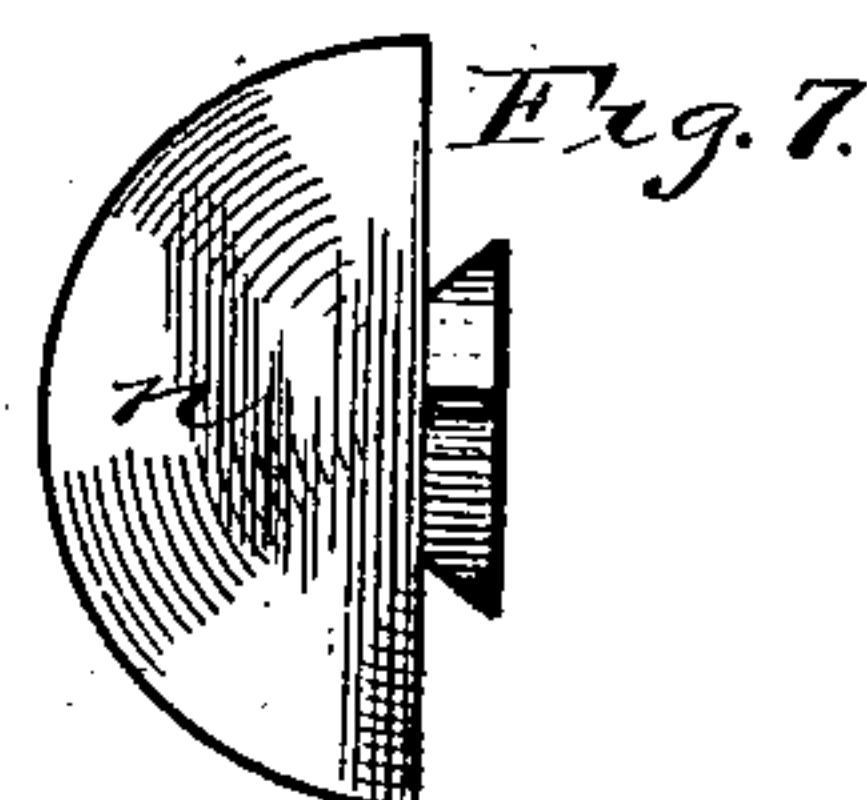
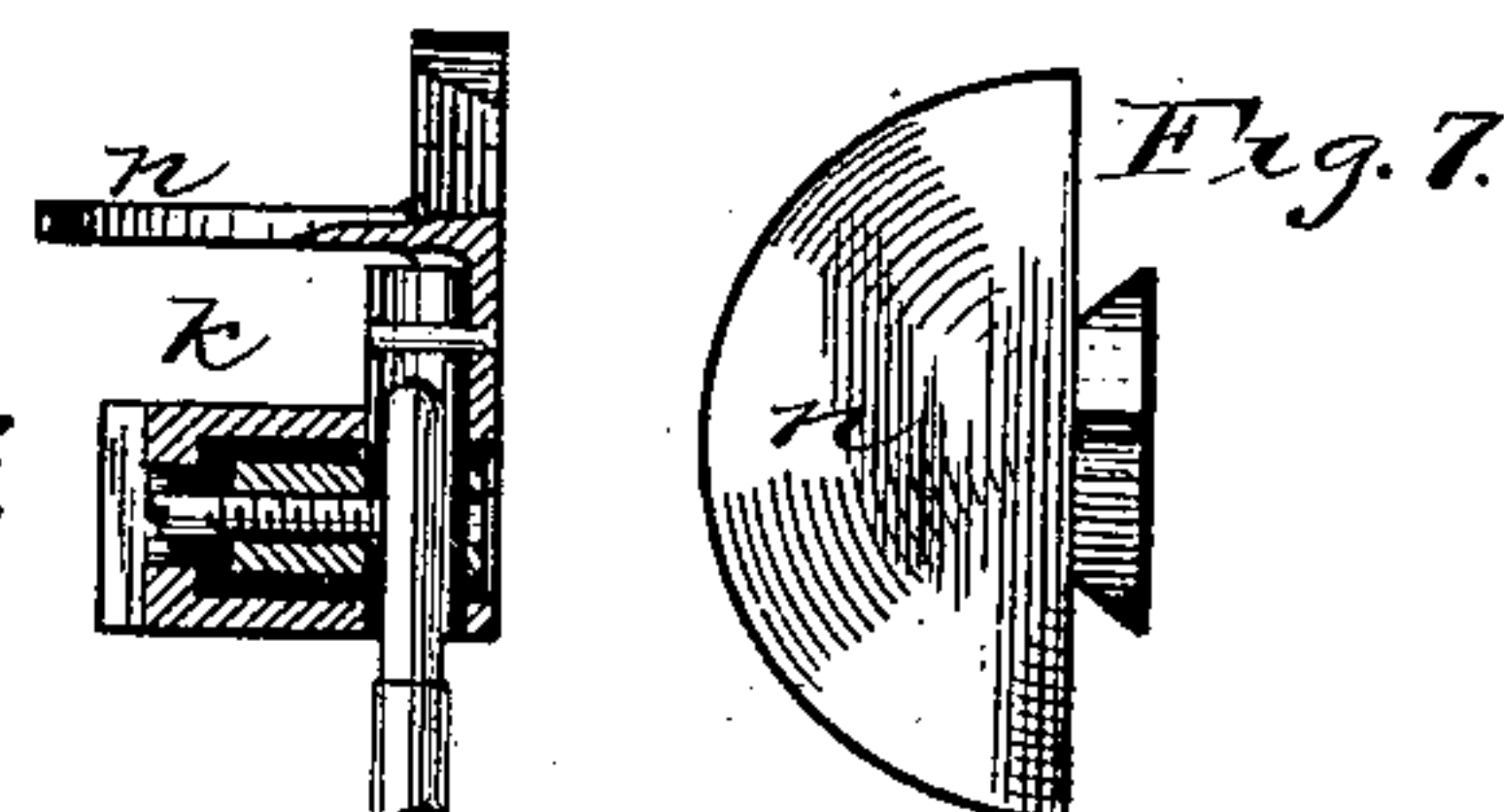
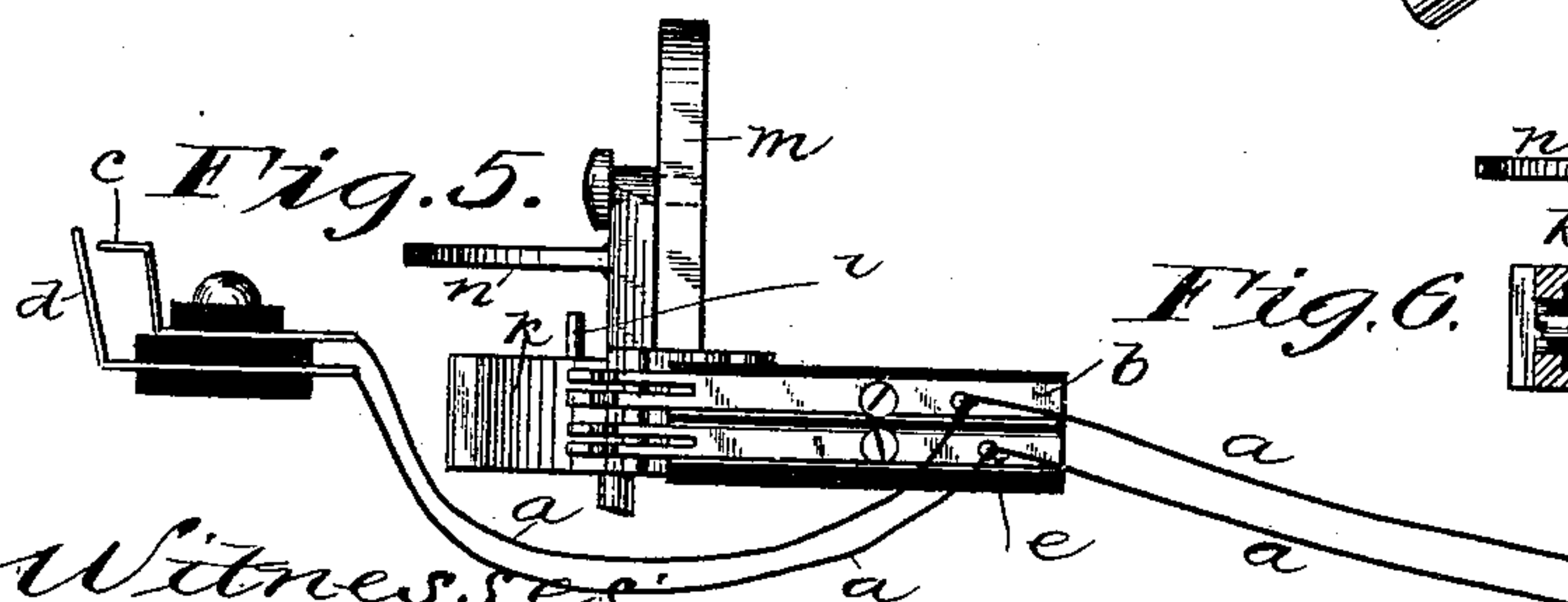
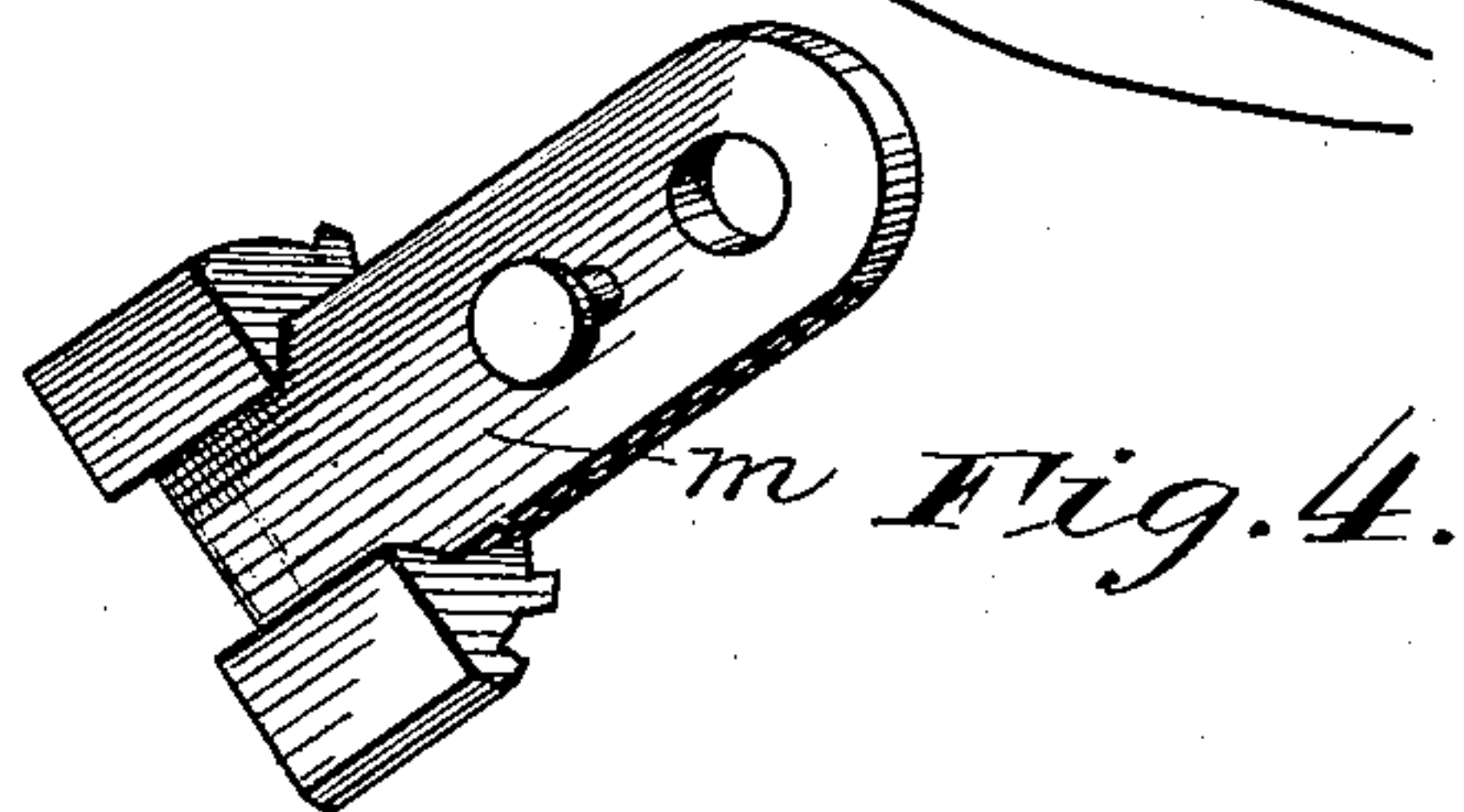
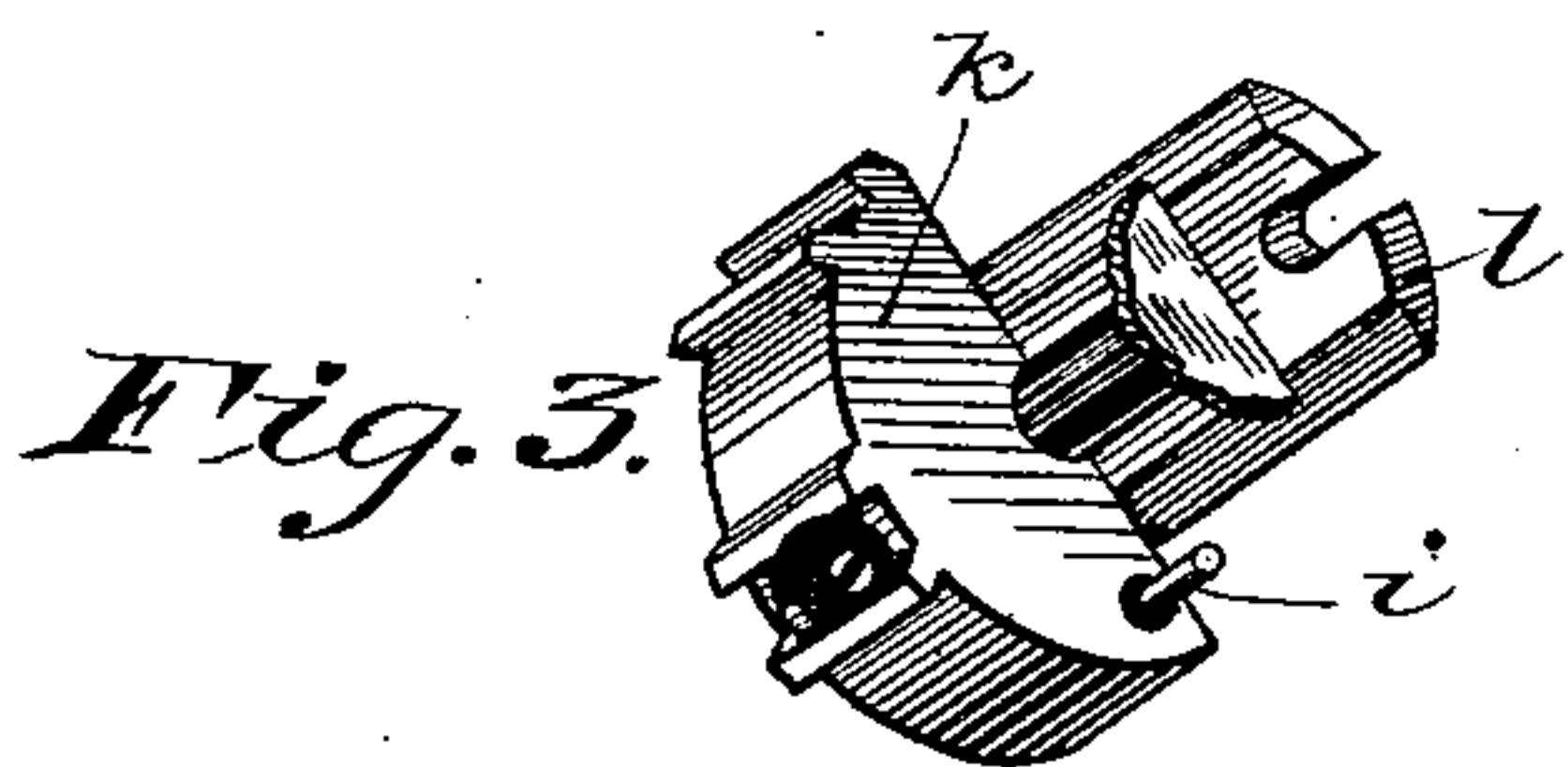
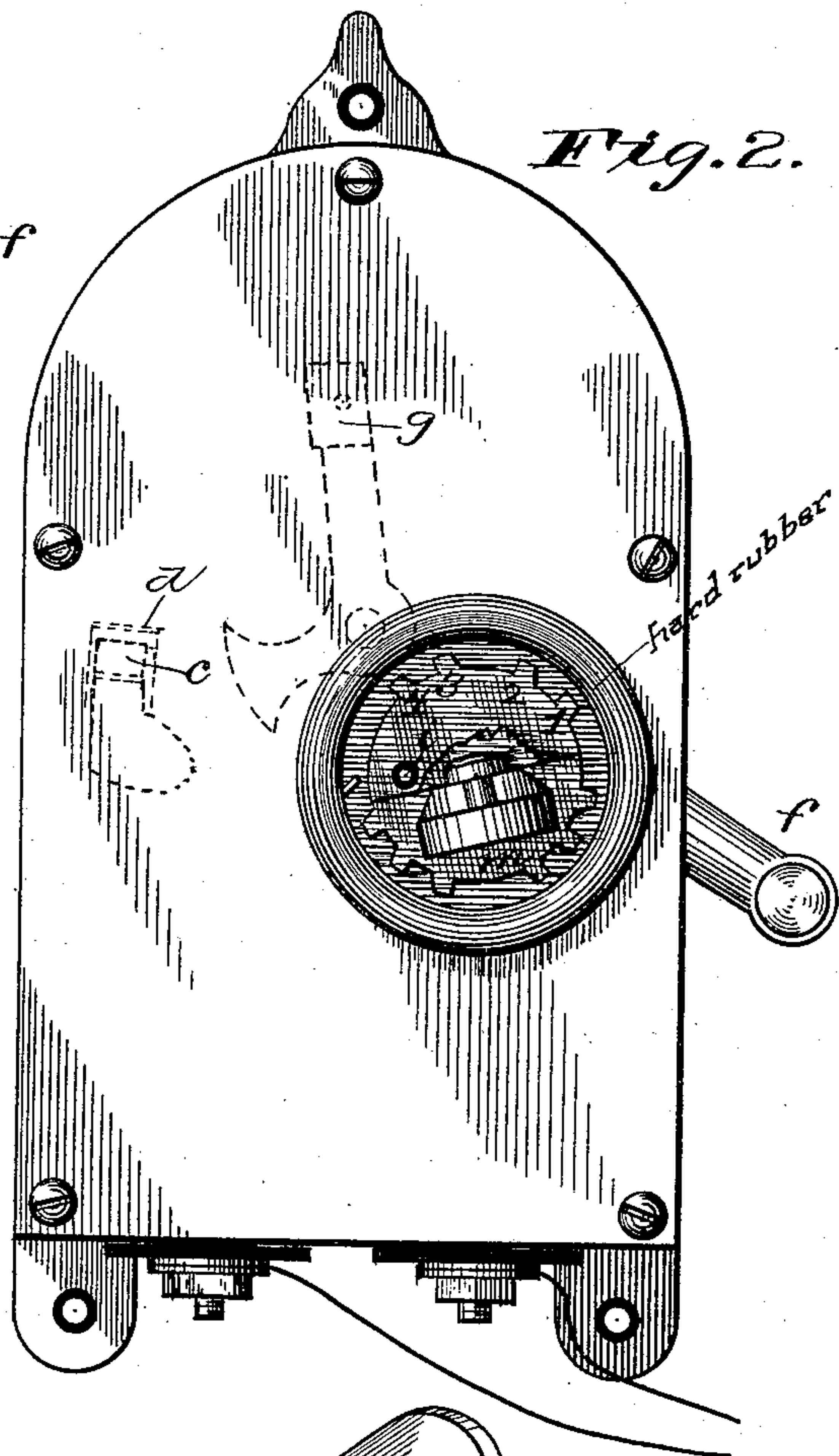
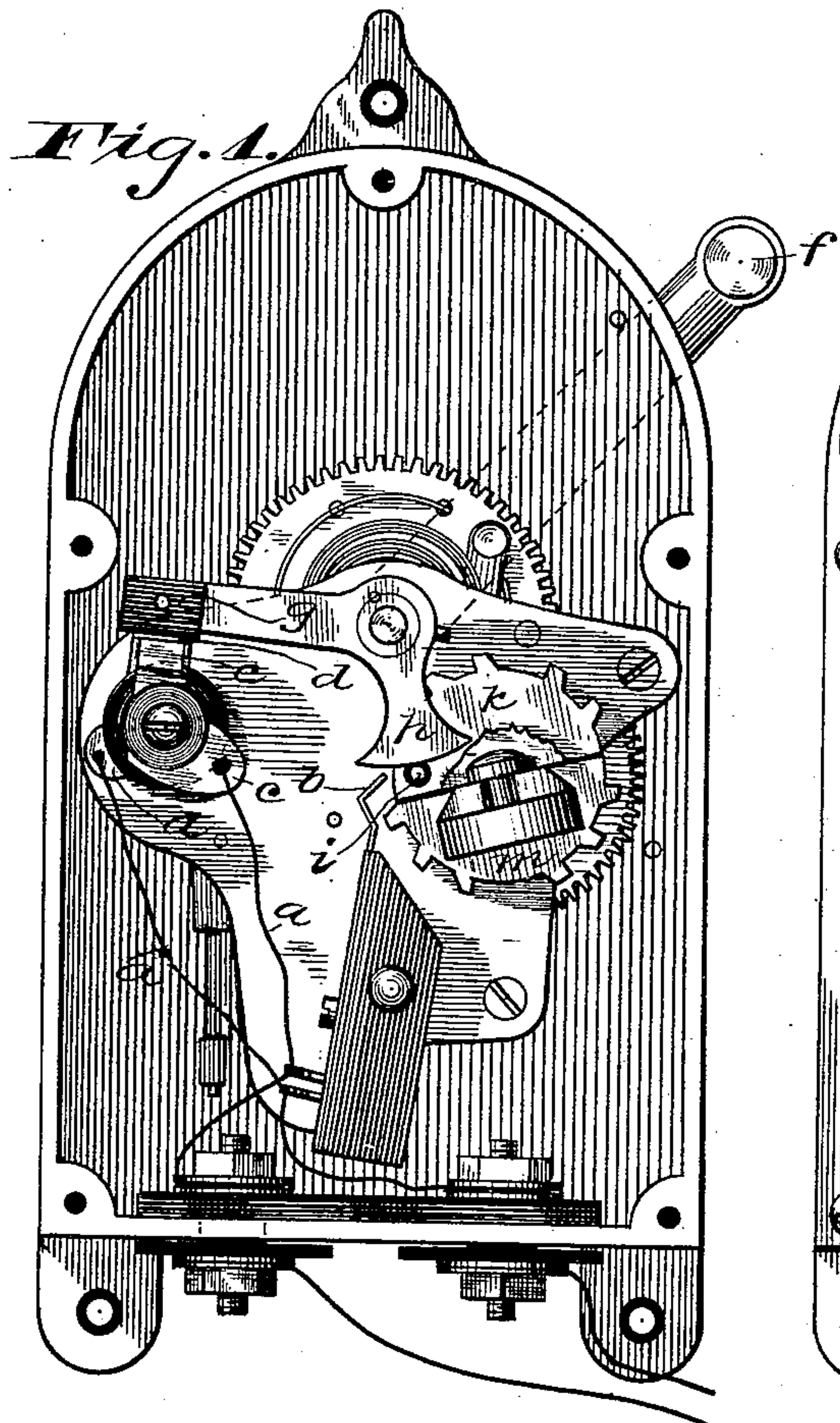
(No Model.)

2 Sheets—Sheet 1.

D. A. PALMER.
ELECTRIC SIGNAL BOX.

No. 408,042.

Patented July 30, 1889.



Witnesses:
Chas. G. Hawley.
Ella Edler

Inventor.
D. A. Palmer.
By George P. Barton
Attorney.

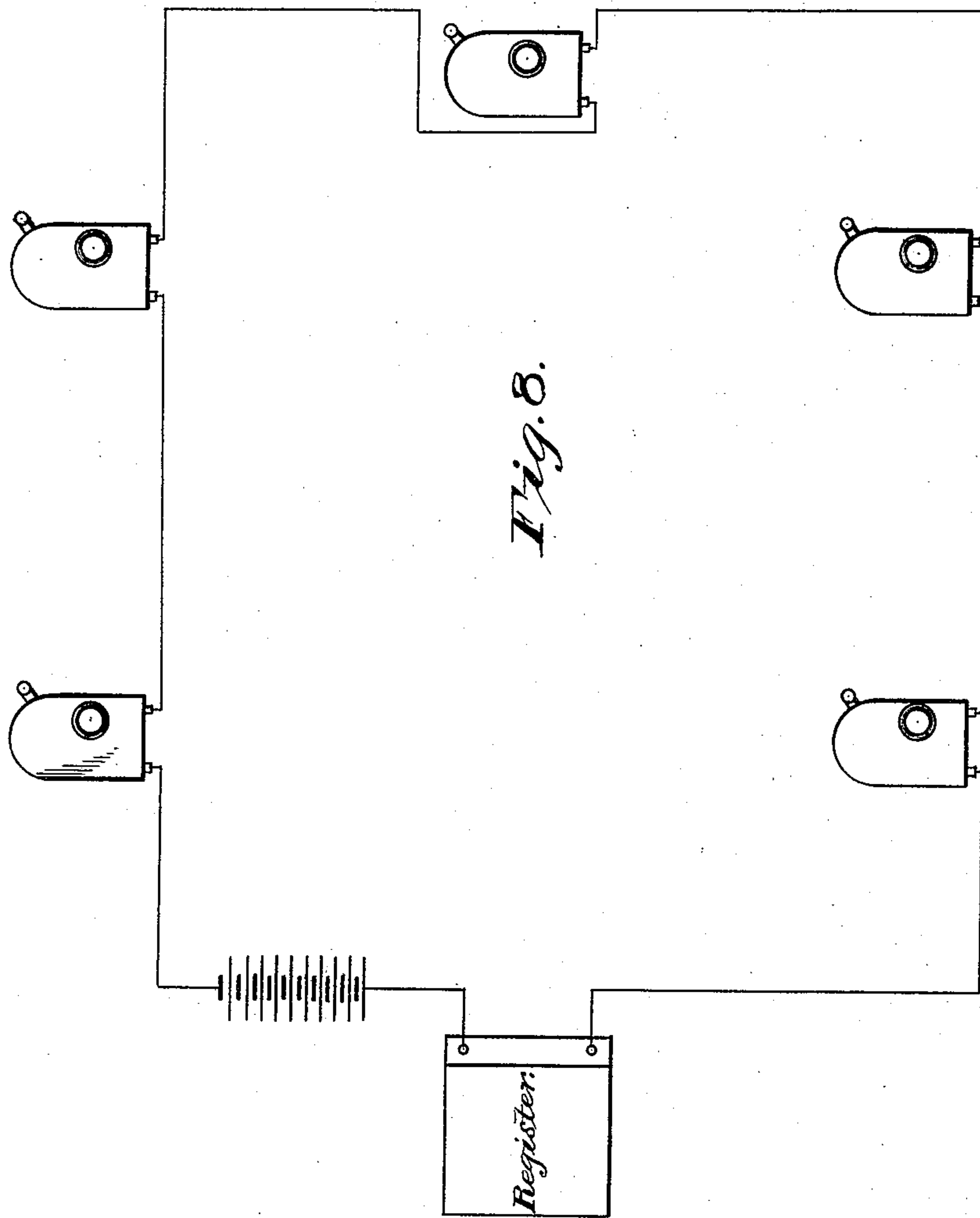
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2 Sheets—Sheet 2.

D. A. PALMER.
ELECTRIC SIGNAL BOX.

No. 408,042.

Patented July 30, 1889.



Witnesses:
Chas. G. Hawley.
Ella Edder

Inventor:
Don A. Palmer.
By George M. Barton
Attorney.

UNITED STATES PATENT OFFICE.

DON A. PALMER, OF ENGLEWOOD, ASSIGNOR OF ONE-HALF TO BERNARD E. SUNNY, OF CHICAGO, ILLINOIS.

ELECTRIC SIGNAL-BOX.

SPECIFICATION forming part of Letters Patent No. 408,042, dated July 30, 1889.

Application filed December 12, 1888. Serial No. 293,350. (No model.)

To all whom it may concern:

Be it known that I, DON A. PALMER, a citizen of the United States, residing at Englewood, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Electric Signal-Boxes, (Case 1,) of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to combined fire-alarm and police electric signal-boxes, and its object is to provide such a construction of the character-wheels of the different boxes within a given district that each box may be operative for fire-alarm and police signal purposes, and at the same time adapted to receive an additional portable segment provided with suitable characters to permit of sending in, in addition to the particular number of the box, the special number indicated upon the portable segment.

My invention also consists in a shield placed over the fixed or permanent portion of the character-wheel in such manner as to guide the portable portion to its proper position when inserted.

Each policeman may be provided with a complementary portable segment provided with suitable characters to indicate his individual number. This portable portion I have sometimes termed a "key," since it is adapted to be carried about and inserted in any one of several boxes to bring the particular box in which it may be inserted into condition to indicate over the circuit upon the register the particular number of the key, as well as the particular number of the box.

I have described my invention herein as applied to a signal-box through which the circuit is normally closed. When the handle of the box is pulled down, the circuit is opened, except when the different teeth or characters are passing over the spring-finger contacts. Many such boxes may be placed upon the same circuit and so arranged as to indicate their special numbers upon a suitable register placed at the central station. I preferably use a chemical register.

My invention, however, may be applied to

boxes used in connection with different circuit systems, as will be readily understood.

My invention is illustrated in the accompanying drawings, in which—

Figure 1 is a front elevation showing the interior of a signal-box embodying my invention in its normal position, the shield being broken away and the front of the case removed. Fig. 2 is a front elevation showing the lever or handle pulled down as in the act of sending in a signal. Fig. 3 is a detailed perspective view of the character-wheel, showing the guide adapted to receive the key, the guard or shield being shown broken away. Fig. 4 is a perspective view of the key or portable segment. Fig. 5 is a diagram illustrative of the circuits through the box. Fig. 6 is a vertical central sectional view of the character-wheel, the shield provided thereon, and the shaft upon which the wheel is mounted. Fig. 7 is a plan view of the same, showing the shield in detail. Fig. 8 is a diagram showing several signal-boxes in series upon the same circuit, together with the register or receiving-instrument at the central office.

Like parts are indicated by similar letters of reference throughout the different figures.

The circuit of the box, as shown in Figs. 1 and 5, may be traced by wire *a* to contact-spring *b*, and thence to contact *c*, and thence to contact *d*, and thence to contact-spring *e* and out. The contact-springs *d c*, as shown in Fig. 1, are closed when the lever or handle *f* is up in its normal position, as in Fig. 1, the shorter arm *g* of the lever, resting upon spring *d*, serving to hold the same in contact with contact *c*. Thus the circuit is normally closed through all the boxes included in the series. When, however, the handle *f* is drawn down, as shown in Fig. 2, the arm *g* is lifted from spring *d*, and spring *d* by its own tension is separated from contact *c*, as shown in Figs. 2 and 5, thus opening the circuit. The pulling down of the handle at the same time moves the stop *h* away from the pin *i*, thus releasing the character-wheel *k*. The clock-train is thus set in motion and the character-wheel *k* is revolved, the characters or teeth thereon each closing successively upon the free ends of the spring-fingers *b e*. Thus the character-wheel *k*, be-

ing provided with four teeth or projections 1
2 3 4, would in its revolution close the circuit
a between springs b e four times. There be-
ing a space between the characters 2 and 3,
5 the number thus indicated upon the register
would be 22. This is the ordinary operation
of signal-boxes of this class.

By making the character-wheel k of such
form that other characters may be added
10 thereto I am enabled to send in the special
number thus added as well as the particular
number of the box. The portable portion
may be of any form which is adapted to be
connected with the fixed portion of the char-
acter-wheel in such manner that the two sig-
15 nals may be sent in one after the other. The
construction which I preferably use for the
fixed portion is shown most clearly in Fig. 3,
the character-wheel k being semi-cylindrical
20 and being provided with a guide l, adapted to
receive the key or portable portion m.

Each policeman is provided with a key m,
provided with specific characters. In order
to report his presence at any particular box,
25 he has only to insert the key m over the guide
l, as shown in Figs. 1 and 2, and then pull the
box. The key m, as shown, is provided with
characters adapted to send in the number 33.
Thus when the box is turned in after the key
30 is inserted, as shown in Fig. 2, the numbers
sent in would be 33 and 22. The first num-
ber 33, being the policeman's number, would
indicate what officer was at the box, while the
number 22 would indicate what box had been
35 pulled. As shown most clearly in Figs. 6 and
7, the shield n is provided upon the guide l
and serves to cover up the half-wheel k, and
prevents the policeman from making any mis-
take in inserting the key m.

40 As shown in the drawings, the character
device k is insulated from the circuit, except
when in its revolution its wings or teeth are
in contact with the springs b e. When the com-
plemental portion m is placed upon the guide
45 l, the two parts act together, and are in the
same manner both disconnected from the cir-
cuit, except when the teeth or wings are brush-
ing against the springs. The construction
shown is such that the character-wheels of
50 signal-boxes heretofore used may be readily
replaced by my character devices illustrated
herein, a suitable opening being provided in
the front case of the box, as shown in Fig. 2.
In this opening I preferably place a bushing
55 of hard rubber or its equivalent in order that
there may be no electrical contact between
the character device and the box.

A portable key designed to be used in con-
nection with signal-boxes is not broadly new
in the art, as will be seen by reference to Let- 60
ters Patent No. 366,154, granted Henry A.
Chase July 5, 1887, and No. 378,927, granted
Edward T. Gibson March 6, 1888. My key,
however, as described and adapted to be com-
bined with the permanent character-wheel to 65
form a disk, each portion of which is provided
with character-teeth, is new in the art, as far
as I know. This new construction, as before
stated, enables me readily to change existing
boxes, of which there are many thousands in 70
use, so as to include therein my invention
and new mode of operation.

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

1. The combination, in an electric signal- 75
box, of a character-wheel consisting of two
portions, each portion being provided with
character-teeth, and one portion being fixed
and the other removable, whereby on insert-
ing the removable portion the number thereon 80
and the number upon the fixed portion will
be transmitted successively on turning in the
box, substantially as and for the purpose speci-
fied.

2. In an electric signal-box, the combina- 85
tion, with the character device k, provided
with a guide l, of the portable complemental
segment m, adapted to be inserted upon said
guide to act in conjunction with the portion
k, said character device and complemental 90
segment being each provided with character-
teeth, and when united forming a disk, sub-
stantially as and for the purpose specified.

3. The character device k, insulated from
its shaft, in combination with the comple- 95
mental segment m, adapted to be temporarily
joined to the segment k, whereby the char-
acter devices are insulated from the circuit
and from the box, substantially as and for the
purpose specified. 100

4. An electric signal-box provided with an
insulated permanent character-segment k and
a removable segment m, in combination with
a bushing provided about the opening in the
case of the box in front of said segments, sub- 105
stantially as shown and described.

In witness whereof I hereunto subscribe my
name this 7th day of December, A. D. 1888.

DON A. PALMER.

Witnesses:

GEORGE P. BARTON,
ELLA EDLER.