

No. 765,064.

PATENTED JULY 12, 1904.

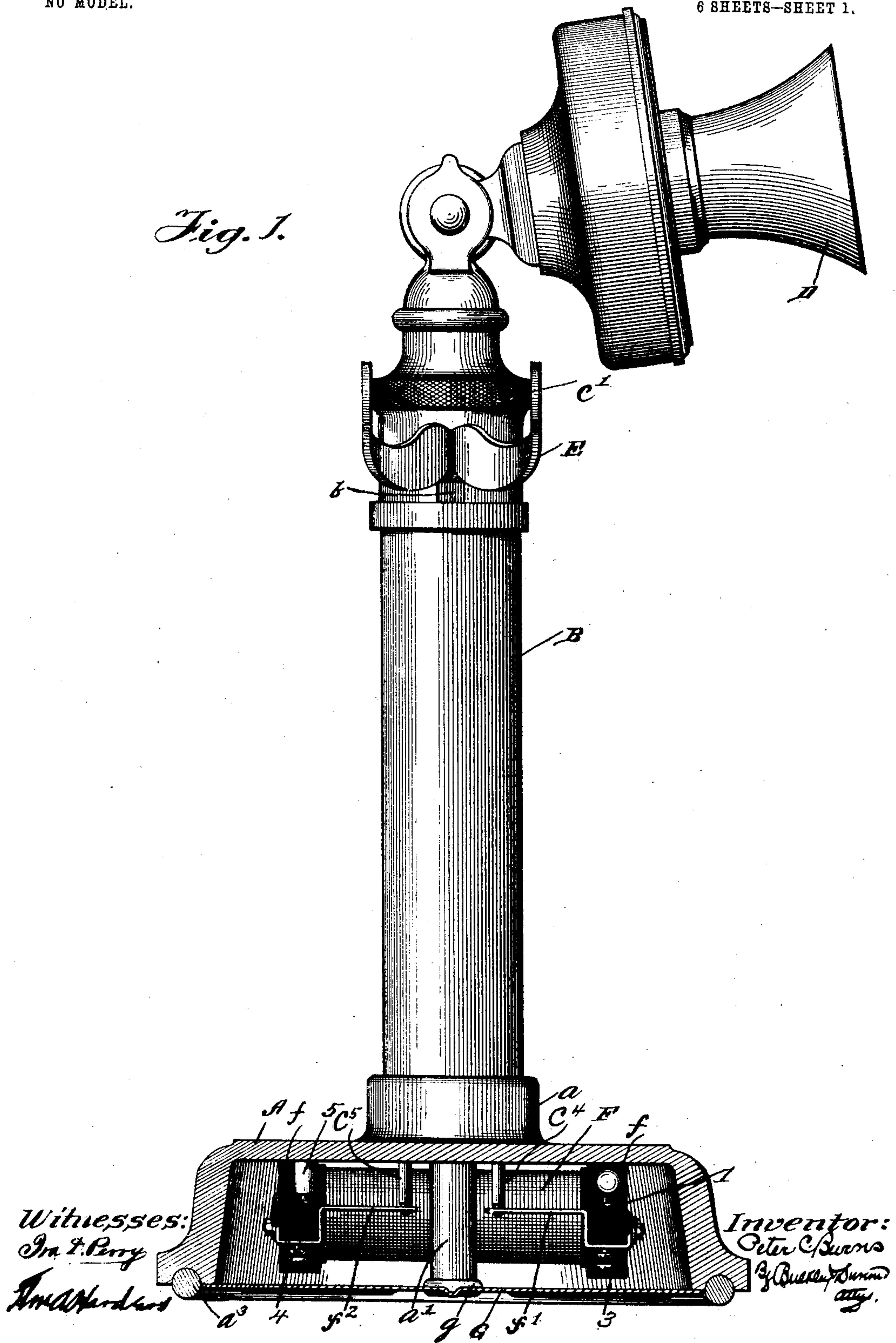
P. C. BURNS.
TELEPHONE DESK SET.

APPLICATION FILED MAR. 2, 1903.

NO MODEL.

6 SHEETS—SHEET 1.

Fig. 1.



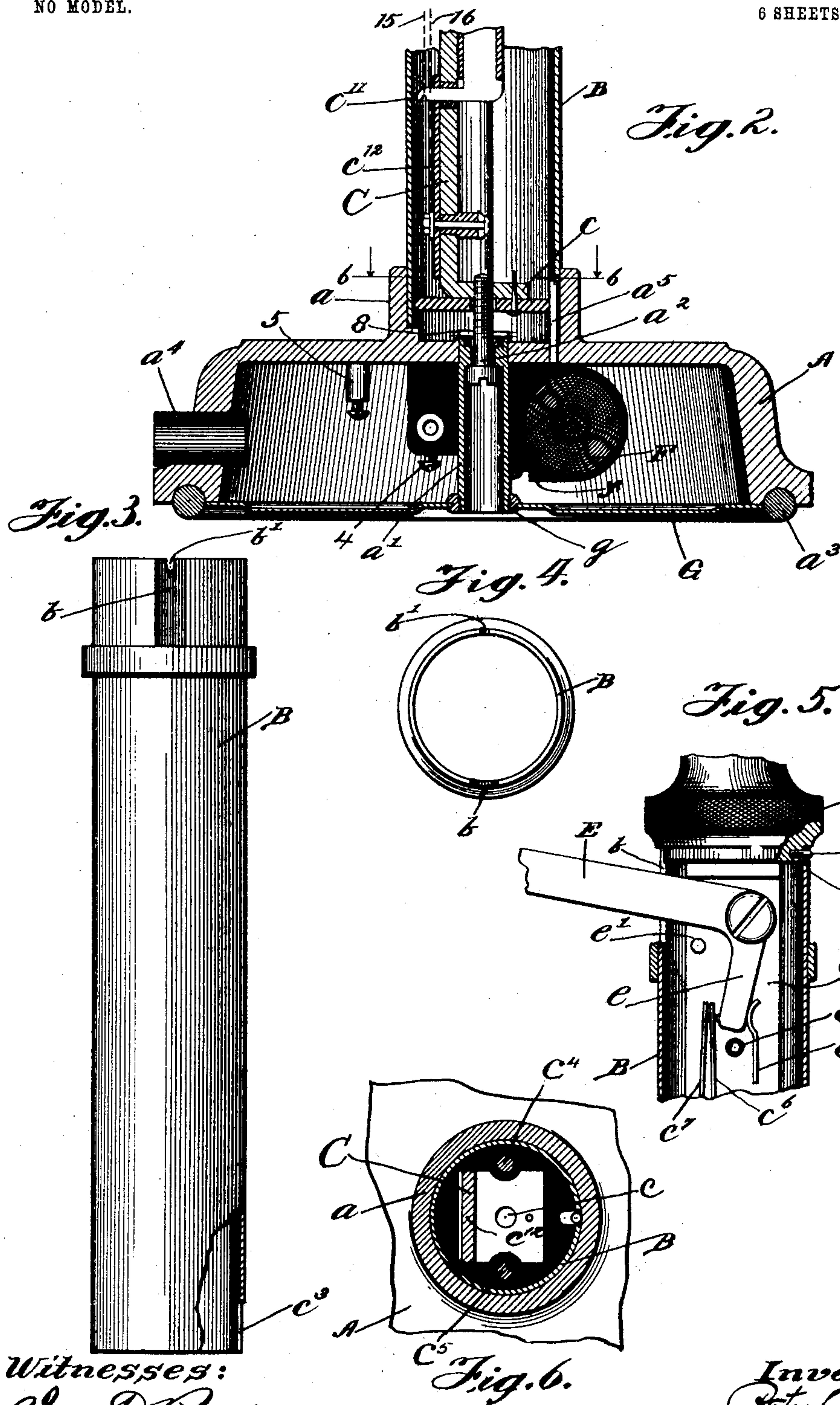
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NO MODEL.

6 SHEETS—SHEET 2.



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6 SHEETS—SHEET 3.

Fig. 7.

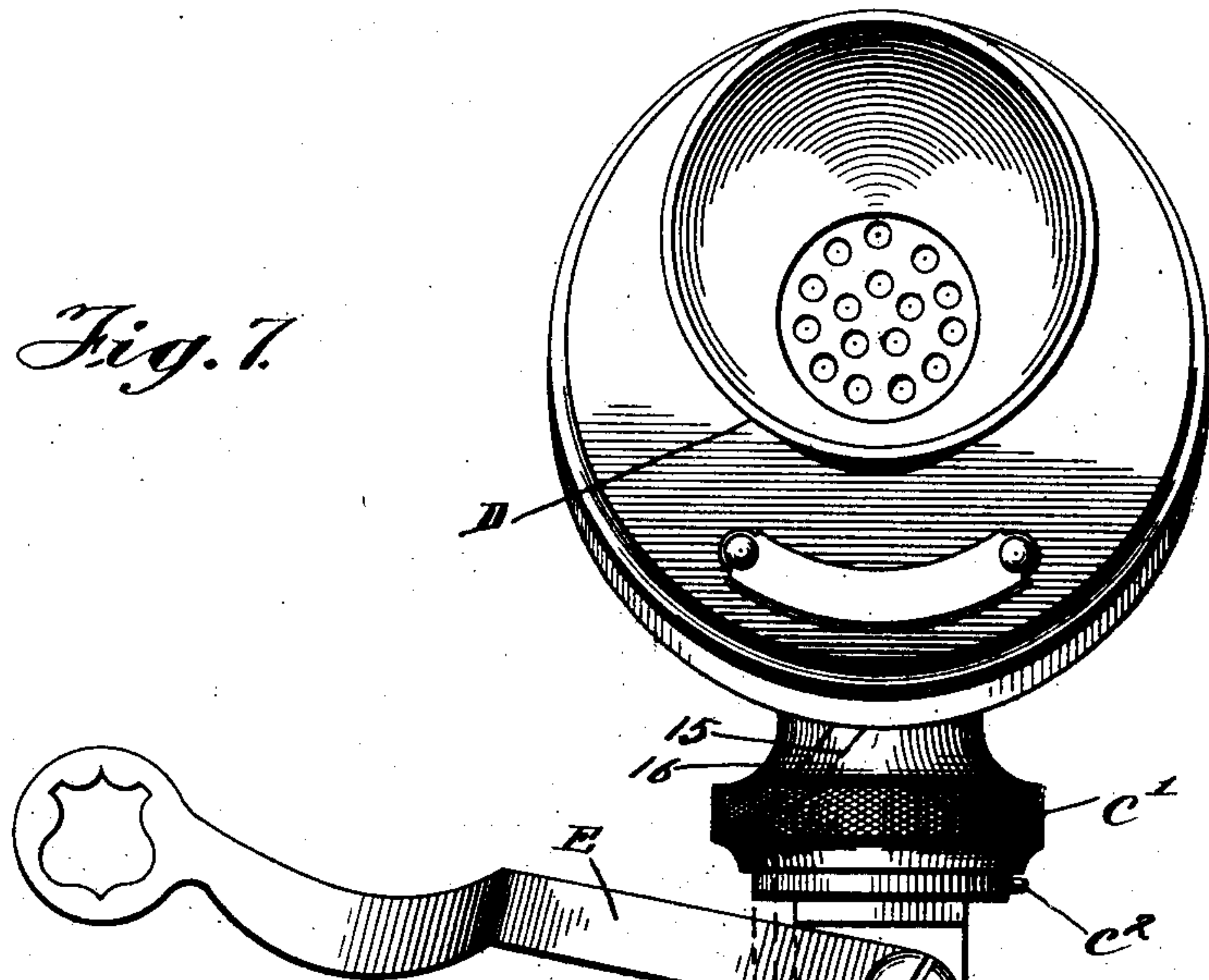
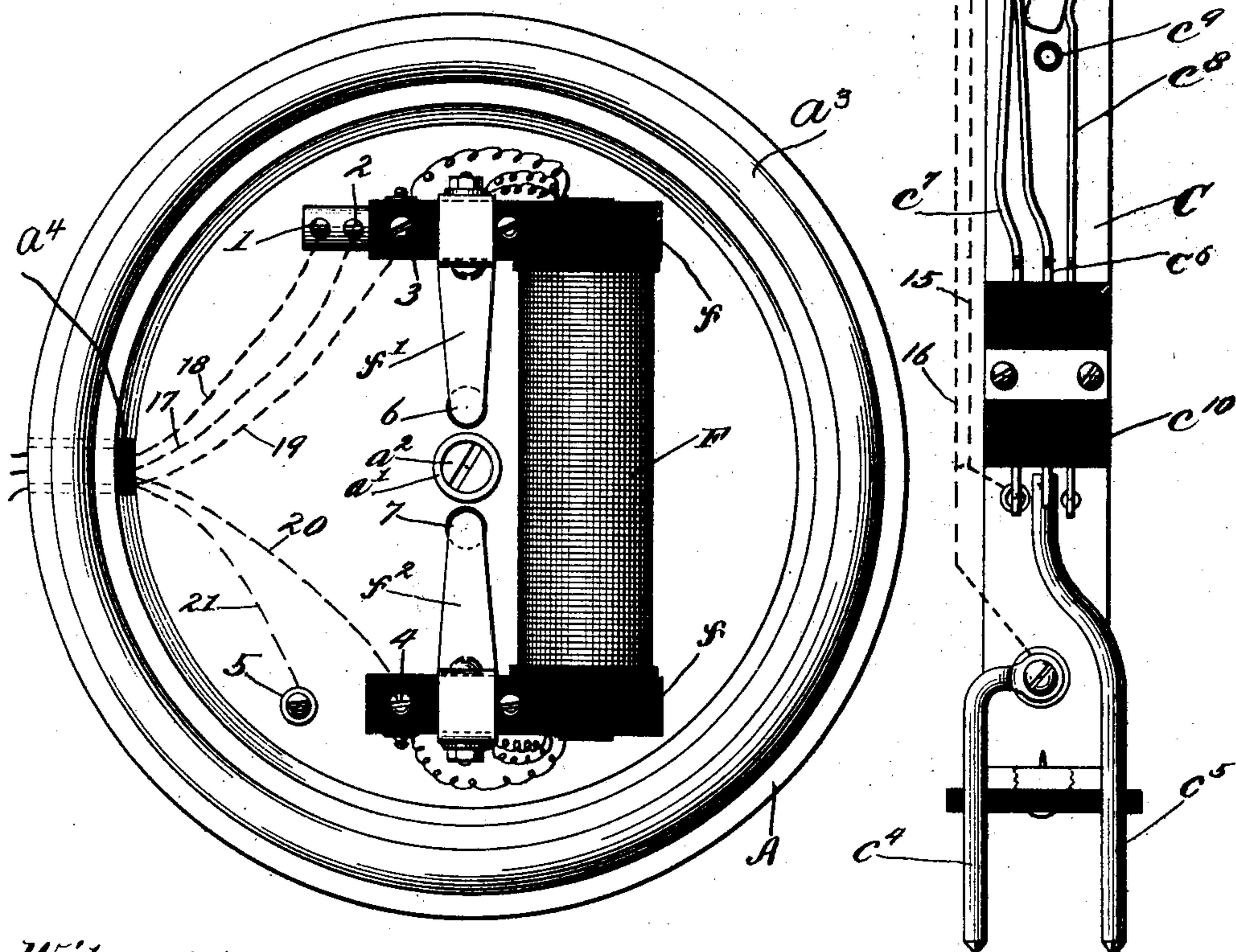


Fig. 8.



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6 SHEETS—SHEET 4.

Fig. 9.

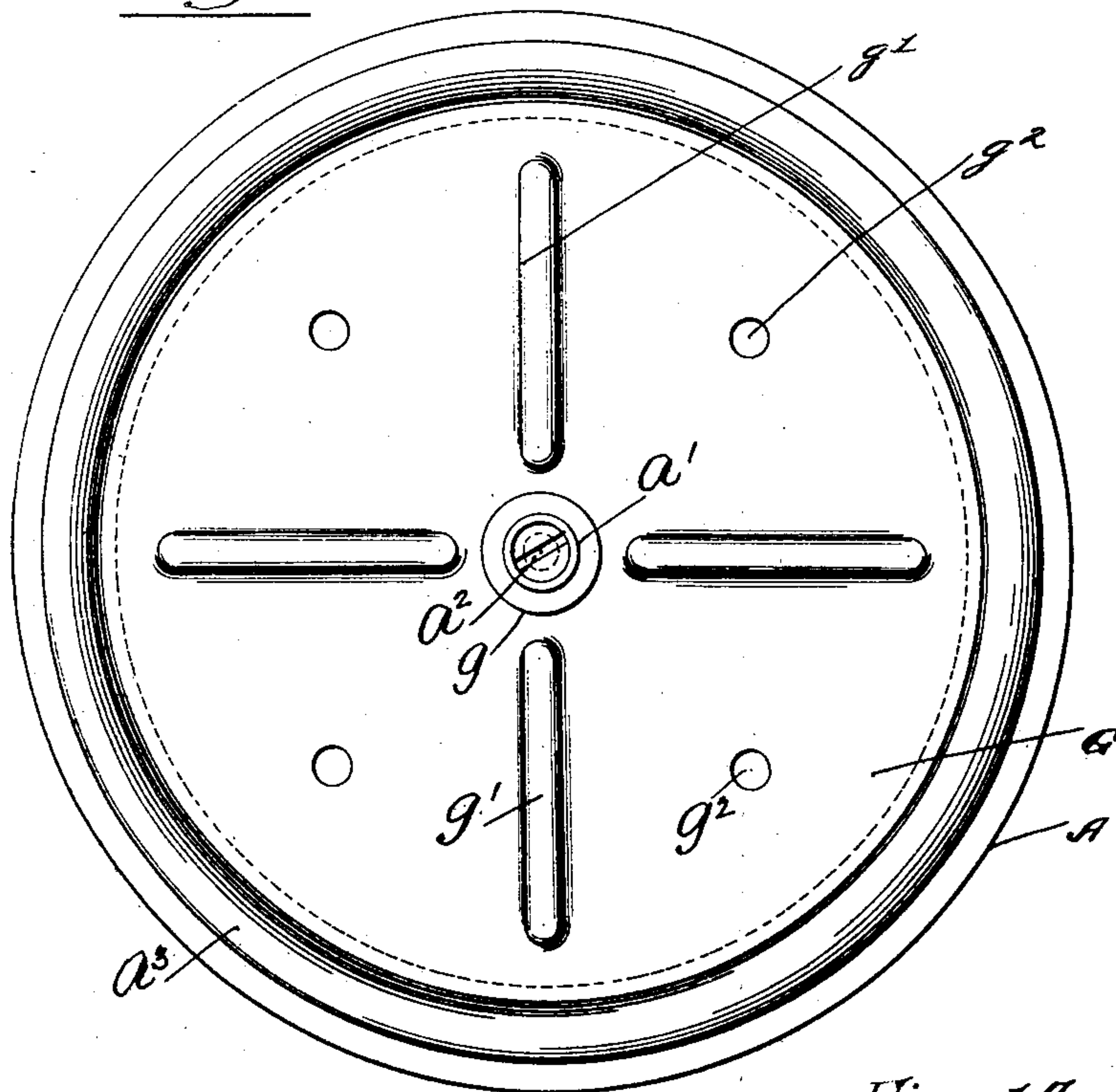
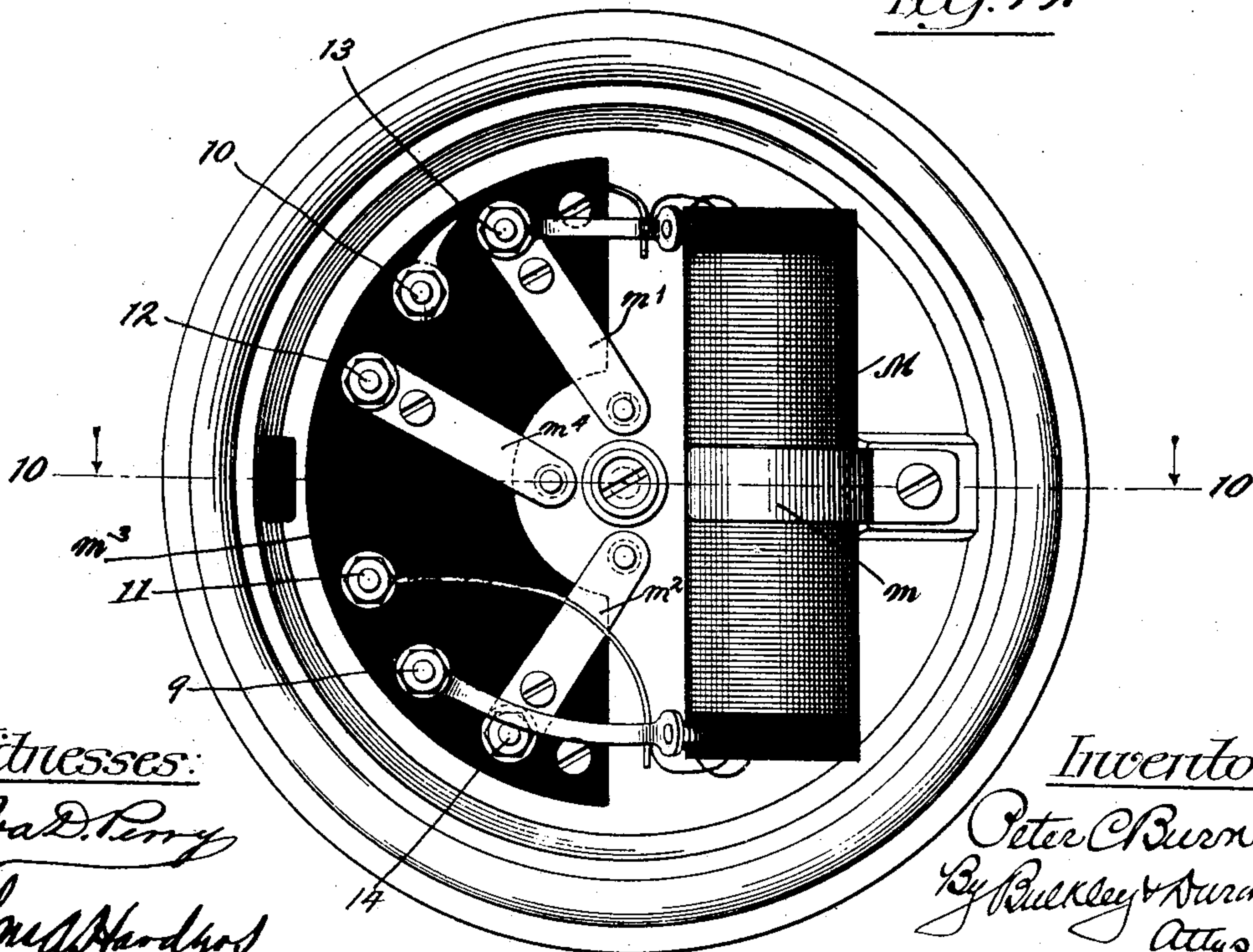


Fig. 14.



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6 SHEETS—SHEET 5.

Fig. 10.

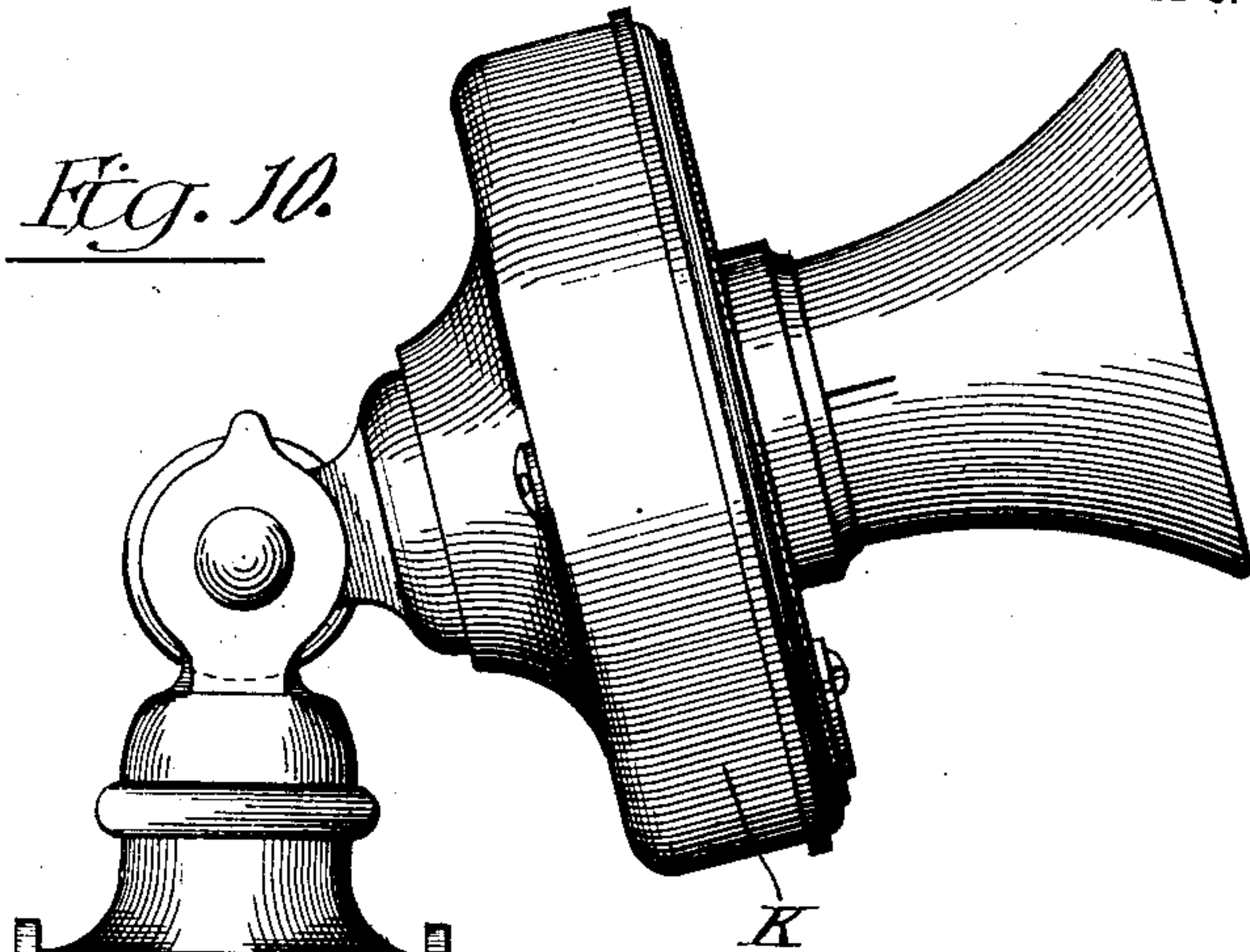
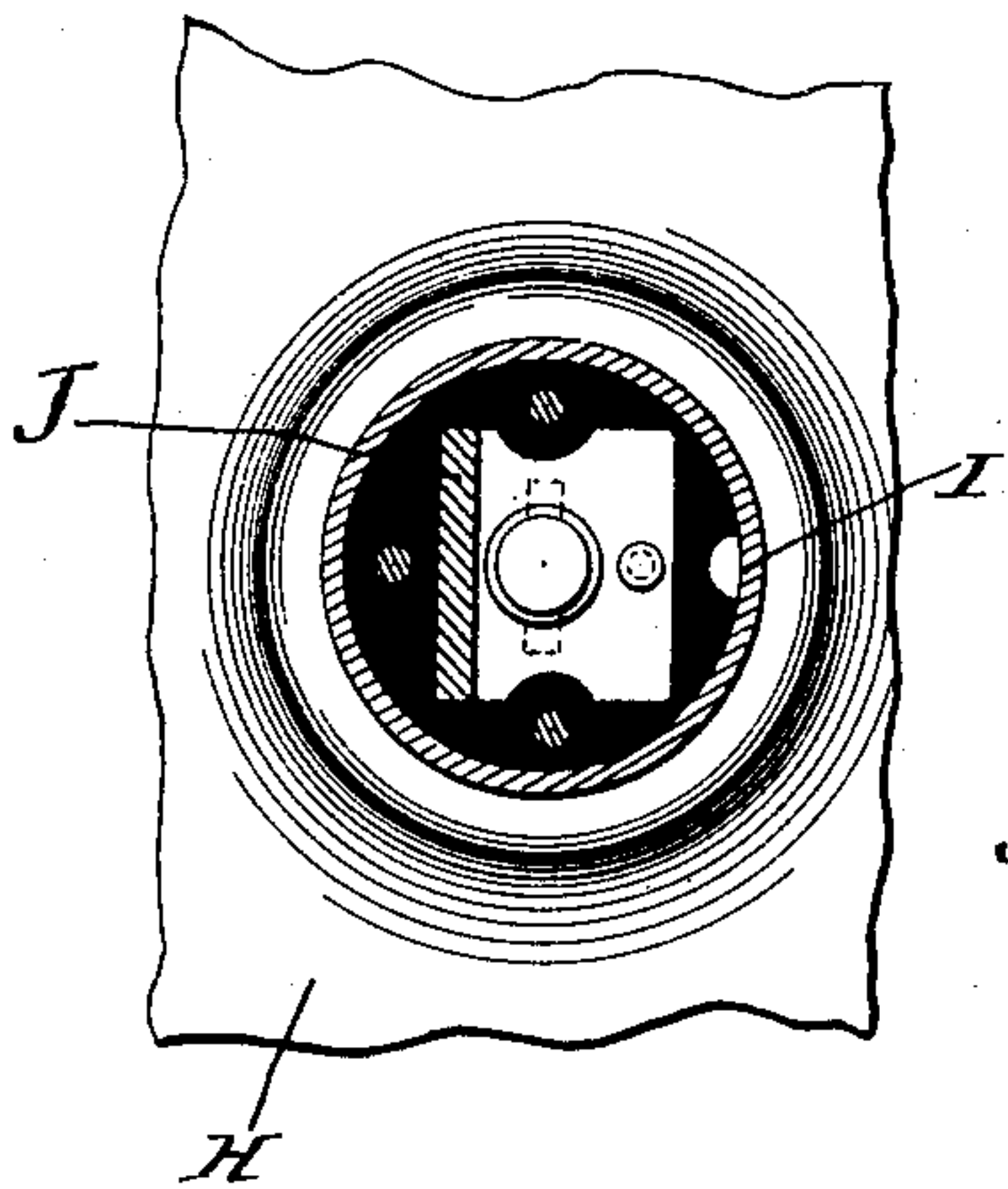
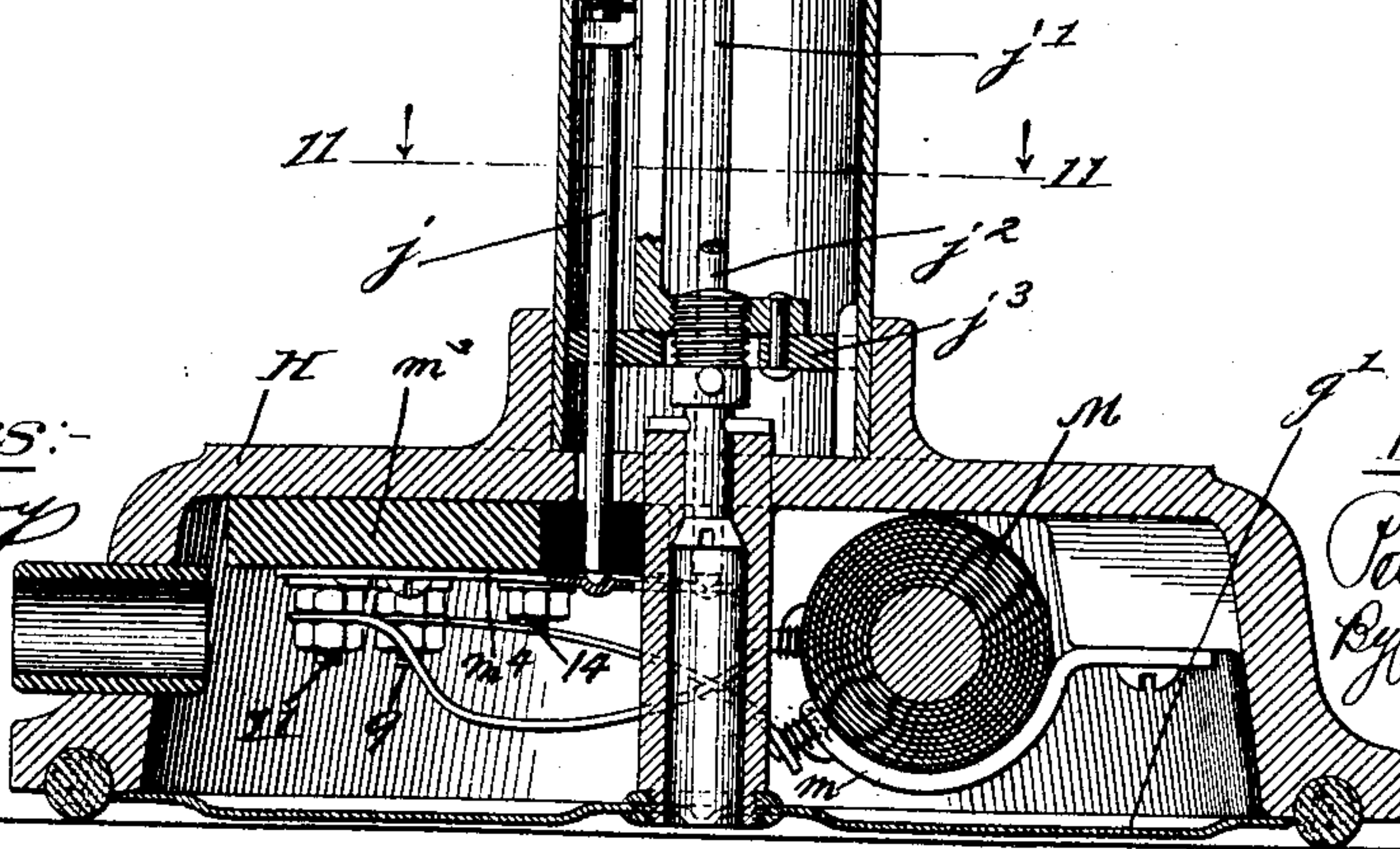


Fig. 11.



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APPLICATION FILED MAR. 2, 1903.

NO MODEL.

6 SHEETS—SHEET 6.

Fig. 12.

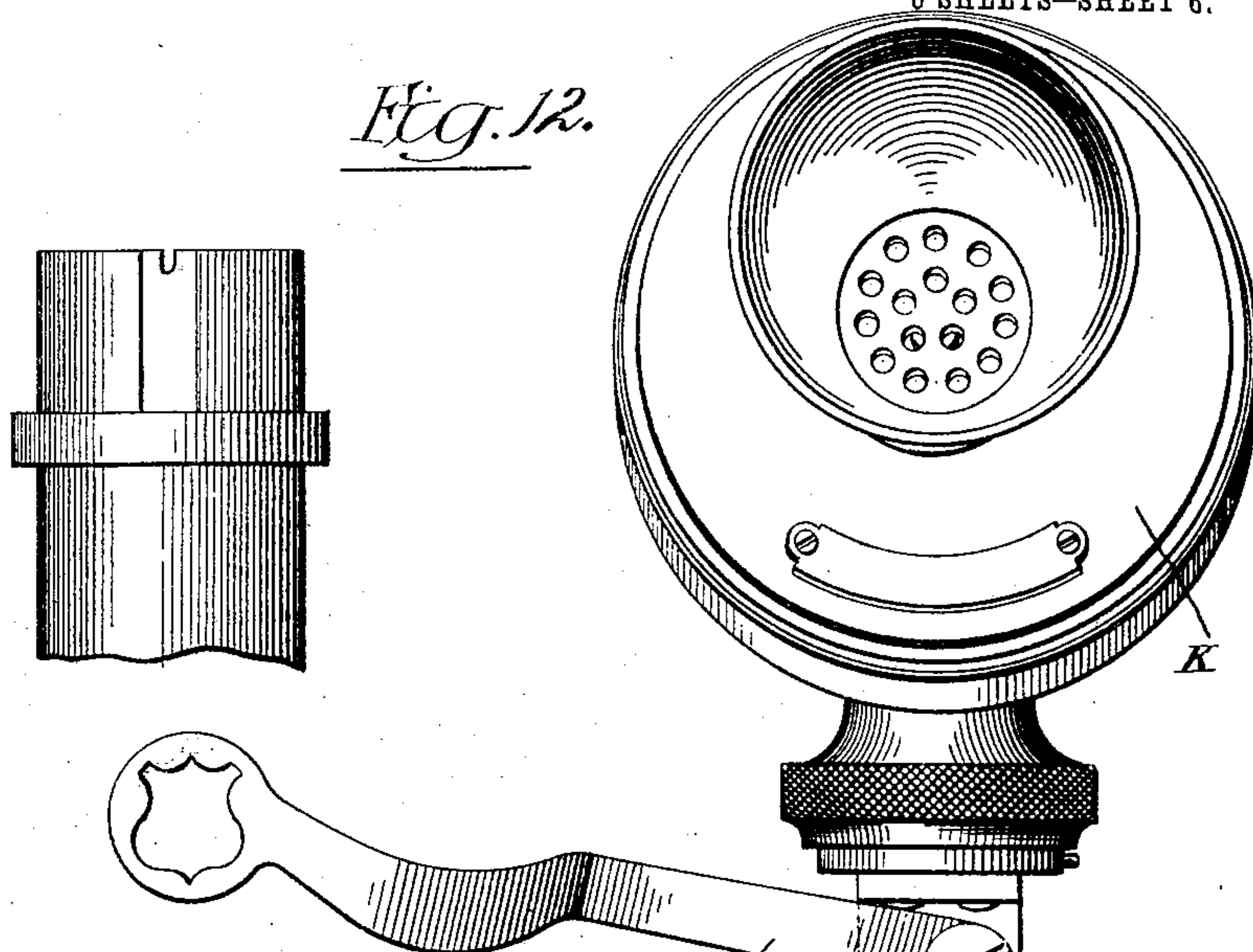
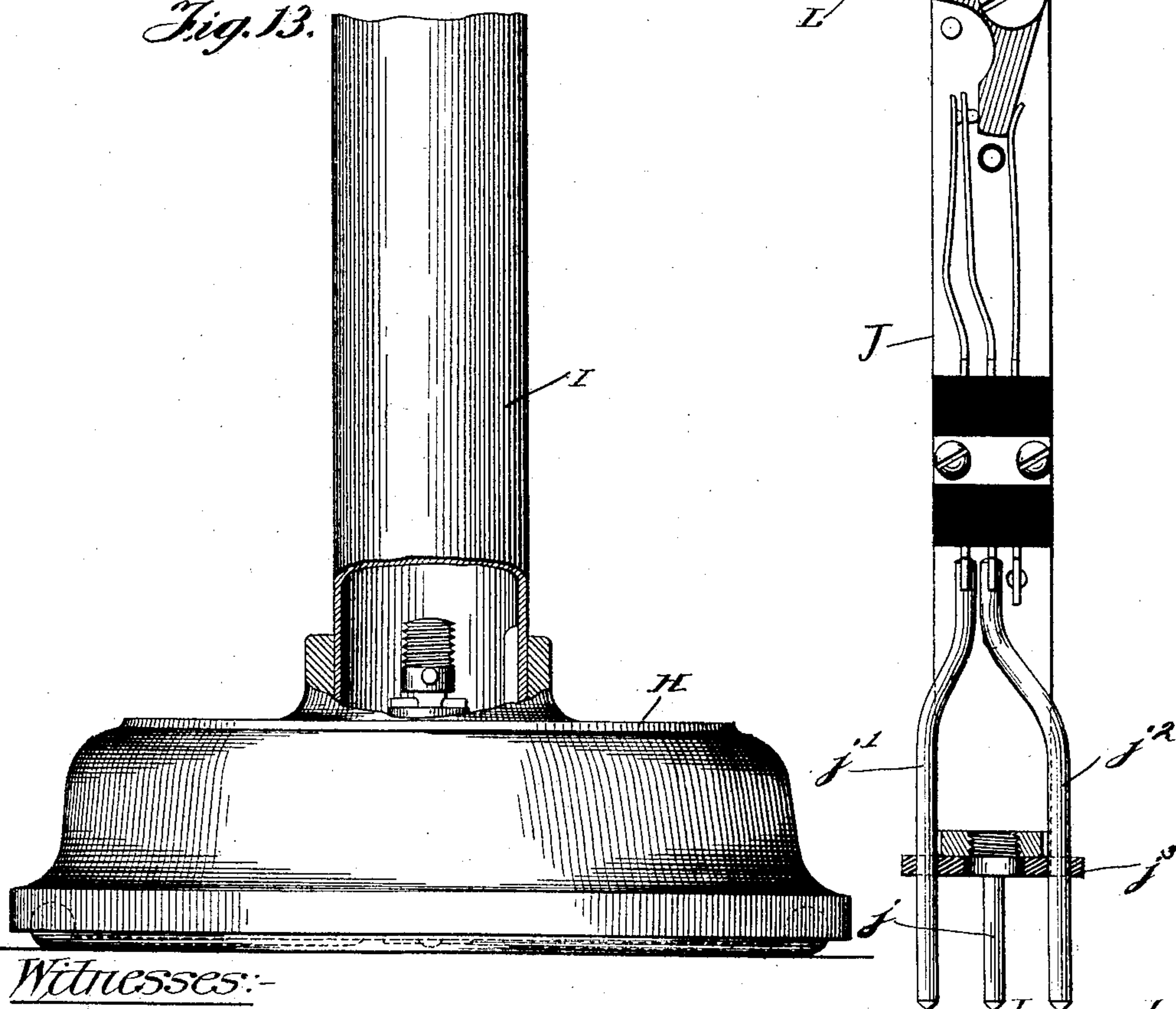


Fig. 13.



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UNITED STATES PATENT OFFICE.

PETER C. BURNS, OF CHICAGO, ILLINOIS, ASSIGNOR TO AMERICAN ELECTRIC TELEPHONE COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION.

TELEPHONE DESK SET.

SPECIFICATION forming part of Letters Patent No. 765,064, dated July 12, 1904.

Application filed March 2, 1903. Serial No. 145,625. (No model.)

To all whom it may concern:

Be it known that I, PETER C. BURNS, a citizen of the United States of America, and a resident of Chicago, Cook county, Illinois, have
5 invented a certain new and useful Improvement in Telephone Desk Sets, of which the following is a specification.

My invention relates to telephone apparatus of that character known as "desk sets." Ordinarily a desk set comprises a portable base
10 adapted to rest upon a desk or table, a standard rising from said base, a transmitter suitably mounted upon the upper end of the standard, a hook-switch projecting laterally from
15 the upper portion of the standard, and a receiver normally resting upon said hook-switch, together with binding-posts and contacts, and the various connections inclosed within the base and standard.

20 Generally stated, the object of my invention is to provide a simple and comparatively cheap and highly efficient construction of telephone desk set.

A special object is to provide an improved
25 construction involving a single screw adapted for holding all of the different parts together and arranged so as to be accessible at the bottom of the base.

Another object is to provide an improved
30 construction whereby the induction-coil may be included within the base rather than mounted upon a separate support, as has heretofore been the practice.

A further object is to provide an improved
35 construction and arrangement whereby the act of tightening the said screw will also serve to automatically establish connection between the induction-coil and the instruments—that is to say, to provide one or more pressure-
40 contact devices, whereby it is unnecessary to attach the flexible cords or leading-in conductors directly to the mounting inclosed by the standard, as has heretofore been the practice in certain constructions, and whereby the said
45 mounting or supporting strip on which the transmitter and hook-switch are preferably carried may be lifted out of the tubular standard without disturbing any of the wiring or binding-post connections and without dis-

turbing the flexible cords leading to the set. 50

It is also an object to provide certain details and features of improvement tending to increase the general efficiency and serviceability of telephone apparatus of this particular character. 55

To the foregoing and other useful ends my invention consists in matters hereinafter set forth and claimed.

In the accompanying drawings, Figure 1 is a side elevation of a telephone set constructed
60 in accordance with my invention, the base thereof being shown in vertical section. Fig. 2 is a section through the base and lower portion of the standard shown in Fig. 1, the section being taken on a line at right angles to
65 the section-line in Fig. 1. Fig. 3 is a side elevation of the tubular standard shown in Fig. 1, a small portion of the lower end being broken away for the purpose of showing the notch. Fig. 4 is a top plan of the tubular
70 standard shown in Fig. 3. Fig. 5 is a view, partly in elevation and partly in section, of the upper portion of the standard. Fig. 6 is a horizontal section on line 6 6 in Fig. 2. Fig. 7 is a side elevation of the transmitter, switch-
75 hook, and the mounting-strip which constitutes the core or inner member of the standard. Fig. 8 is a bottom plan of the base, showing the removable plate removed. Fig. 9 is a bottom plan of the base. Fig. 10 is a
80 view, partly in side elevation and partly in section, of the modified form of desk set. Fig. 11 is a horizontal section on line 11 11 in Fig. 10. Fig. 12 shows the transmitter, switch-hook, and the mounting-strip, the lower end
85 of the latter, partly in section, removed from the desk set shown in Fig. 10. Fig. 13 is a side elevation of the base and tubular standard shown in Fig. 10, the lower end of the standard and a portion of the base being shown
90 in section and a portion of the standard being broken away for convenience of illustration. Fig. 14 is a bottom plan of the base shown in Fig. 10 with the removable bottom plate removed. 95

Referring to Figs. 1 to 9, inclusive, my improved telephone desk set preferably comprises a base A of any suitable material, pref-

crably metal, a tubular standard B rising perpendicularly from said base, a mounting-strip or core portion C, inclosed within the tubular standard, a transmitter D, suitably mounted upon the upper end of the said mounting-strip or core portion, a pivoted switch-hook E, also mounted upon the said mounting-strip or core portion, and the induction-coil F, suitably secured to and inclosed within said base. As will be observed, the said base A is preferably hollow and adapted to provide a chamber for the said induction-coil. This induction-coil is preferably supported by a couple of blocks of insulation f , which are secured to the under side of the top wall of the base and which are provided with the spring contact-fingers f' and f'' . Binding-posts 1, 2, 3, 4, and 5 are also inclosed within the chamber of the base and associated with the said induction-coil. The upper portion of the base is preferably provided with a boss a , adapted to provide a socket for the tubular standard B. A tube a' preferably extends through the upper wall of the base, is rigid with the said base, and has its lower end threaded. A single fasteningscrew a'' is mounted for rotation on the upper end of this tube and projects upwardly in such manner as to engage a threaded socket c on the lower end of the mounting-strip or core portion C. As a simple and effective arrangement for inclosing the induction-coil and other devices in the base the bottom plate G can be provided with a central opening having threads g , adapted to engage the lower threaded end of the tube a' . As shown in Fig. 9, this removable bottom plate for the base can be provided with both projections g' and openings g'' , the former permitting the plate to be removed by simply placing the hand on its lower surface and the latter being adapted to receive a tool in case the bottom plate becomes screwed on too tightly to admit of its being removed in the ordinary manner. The ring, of leather, rubber, or other like fiber, a''' , permits the base to be placed upon a disk or table without scratching or marring the surface of the latter. The said cushioning-ring encircles the bottom plate, but is applied or secured to the base independently of said plate, thereby making it possible to remove the plate and obtain access to the interior of the base without the necessity of removing the ring. A tube a^4 of insulating material inserted laterally through the base affords an opening through which the connections can be made with the induction-coil, transmitter, receiver, &c., through the medium of the said binding-posts. The upper end of the mounting strip or core portion C is preferably provided with a head c' , adapted to act as a shoulder and rest upon the upper end of the tubular standard B. The upper end of this standard is preferably provided with a notch b , through which the hook-switch E projects, and with a similar notch b' , which

engages a pin c^2 , projecting laterally from the head or shoulder c' . The lower end of the tubular standard is provided with a notch c^3 , adapted to engage a pin a^5 , extending upwardly from the base immediately inside of the tubular boss a . The downwardly-projecting contacts c^4 and c^5 , which are carried by the lower end of the mounting-strip or core portion C, are adapted to project downwardly through the openings 6 and 7 in the top wall of the base, and their lower ends are adapted to be brought automatically into engagement with the spring contact-fingers f' and f'' when the parts are assembled and brought tightly together by the adjustment of the screw a'' . These rod-like contacts c^4 c^5 are, it will be seen, thus adapted, through the cooperation of the spring-fingers f' and f'' , to serve as a means for establishing connection between the instruments or devices of the structure in any suitable or desired manner. With respect to the method of making the connections the upper end portion of the contact c^4 can be suitably secured to but insulated from the mounting-strip, while the upper end of the contact c^5 can be electrically connected with the lower end of the switch-spring c^6 . Normally the said switch-spring is out of contact with the other switch-spring, c^7 ; but when the receiver is removed from the hook-switch in the usual manner the spring c^8 then tilts the lever-like switch upward at its outer end and at the same time causes its inner and downwardly-projecting end portion e to press the two switch-springs into contact with each other. When the receiver is on the hook-switch, the spring c^6 is out of contact with the spring c^7 and rests normally against the insulated stop c^9 . All three springs are preferably mounted in the block of insulation c^{10} . An ordinary stop c' , mounted on the bar or mounting-strip C, serves to limit the downward movement of the hook-switch.

It will be readily understood that the wiring or connections between the various instruments or devices and the binding-posts, switch-springs, &c., can be made in any suitable or desired manner and according to any particular way in which it may be desired to connect up the different instruments and devices in the circuit, and with respect to such wiring the lower end of the switch-spring c^7 can be provided with a portion c^{11} , adapted to extend laterally through the mounting-strip C and through a strip of insulation c^{12} , secured to the back of said mounting strip or core.

Thus it will be seen that by my invention I provide a simple, compact, and comparatively cheap construction of telephone desk set, the arrangement involving but a single screw for holding the base, standard, and core together, and in addition the construction is such that the induction-coil is conveniently and advantageously arranged within the hollow base,

thereby obviating the necessity of mounting the coil on a separate block or support, as is usually the practice. Furthermore, the core portion of the desk set may be removed from the tubular standard without removing the bottom plate from the base, and at the same time the screw for securing the different parts together is accessible, whether the bottom plate be removed or in place. Other advantages will be obvious to those skilled in the art.

Preferably the screw a^2 is provided with a pin 8, which prevents the screw from falling out when the core is removed from the tubular standard.

In Figs. 10 to 14, inclusive, I have illustrated a modified form of my invention, the construction involving a somewhat different arrangement of the induction-coil and the contacts. In this form of the invention the base H is similar to the one described in connection with Fig. 1. The tubular standard I is also similar to the one previously described. The mounting-strip or core portion J is similar to the one previously described and has its upper end provided with the transmitter K, with a pivoted hook-switch L, also similar to those described in connection with 1 and 7. In this case, however, the mounting-strip is provided with a third contact rod or finger j , the contacts j^1 and j^2 being similar to those described, except that the contact j^1 is connected at its upper end directly to one of the switch-springs instead of to the insulated binding-post shown in Fig. 2. As in the previous construction, however, a disk or plate of insulation j^3 serves as a means for preserving the proper relative arrangement of the rod-like contacts secured to the lower end of the mounting-strip or core portion. This plate of insulation can be secured in any suitable manner to the lower end of the mounting-strip. As a further distinction, the induction-coil M in Figs. 10 to 14 is supported centrally by a metal bracket m and is arranged parallel with the hook-switch rather than at right angles, as in Fig. 1. Again, the two spring contact-fingers m^1 and m^2 , which correspond to the fingers f^1 and f^2 of Fig. 8, are mounted upon a separate or independent block of insulation m^3 rather than upon the end blocks of the induction-coil. With respect to the third contact on the mounting-strip, the third spring contact-finger m^4 is mounted on this block of insulation m^3 and adapted to engage the lower end of the said third contact rod or finger j . The binding-posts 9, 10, 11, 12, 13, and 14 are provided and arranged, as shown, for making the various connections.

With respect to the arrangement of contacts and binding-posts shown in the preferred and modified forms of my invention the wiring can be made in any suitable and desired manner and in accordance with any of the known or approved methods of connecting up the instruments and devices involved in a sub-

scriber's telephone set. For example and with respect to the construction shown in Figs. 1 to 9, inclusive, one terminal, 15, of the transmitter can be connected with the switch-spring c^1 , while the other terminal, 16, can be connected with the contact rod or finger c^4 . The terminals of one winding of the induction-coil can be connected, respectively, with the springs f^1 and f^2 , while the terminals of the other winding of such coil can be connected, respectively, with the insulated binding-posts 3 and 4. The conductor 17 can connect the binding-post 2 with a condenser. One terminal of the receiver can be connected with the binding-post 1 through the medium of the conductor 18. The other terminal of the receiver can be connected with the binding-post 3 by means of the conductor 19. The line-conductors 20 and 21 can be connected, respectively, with the binding-posts 4 and 5. In the modified construction, and as illustrated by Figs. 10 to 14 inclusive, the transmitter may have one terminal electrically connected with the metallic structure, and the other terminal can be connected with the contact-finger j through the medium of an insulated conductor. The terminals of one winding of the induction-coil can be connected, respectively, with the binding-posts 9 and 13, while the terminals of the other winding may be connected, respectively, with the binding-posts 10 and 11. The terminals of the receiver can be connected, respectively, with the binding-posts 10 and 14. The condenser can be connected with the binding-post 11. The line-conductors may be connected with any of the binding-posts which are available for that purpose. As previously stated, however, the wiring and connections can be made in any suitable or desired manner consistent with the construction and arrangement of the various contacts.

In both the preferred and modified constructions it will be seen that the three elements, the base, the tubular standard, and core, are all held together by a single screw and that this screw is accessible through the removable bottom plate of the base. Furthermore, this screw does not fall out or become detached from the structure when it is adjusted so as to release the lower end of the core or mounting-strip. Again, the construction in both cases is such as to afford a suitable chamber for the induction-coil. Other advantages which are common to both constructions will be obvious to those skilled in the art. In either construction, as described, the usual flexible cords leading to the desk set can be brought into the base and fastened to the binding-posts, the cords entering the base through the rubber tube or bushing a^4 . With this arrangement and with the provision of the contacts c^4 , c^5 and f^1 , f^2 , which constitute the medium of electrical connection between the cord-fixtures and the transmitter, the mounting can be readily withdrawn from the tubular stand-

ard I without the necessity of disturbing any of the cord connections. In fact, to do so it is obviously only necessary to rotate the screw at the bottom of the base, and for this reason
 5 it is obvious that both the assembling and the taking apart of the desk set are greatly facilitated.

I claim as my invention—

1. A telephone desk set comprising a suitable base, a tubular standard having its lower end removably engaging said base, a core or mounting-strip extending vertically within said standard, said core or mounting-strip being provided at its upper end with a shoulder
 15 resting on the upper end of the tubular standard, a screw extending upwardly through the base and engaging the lower end of the core or mounting-strip, so as to clamp the base and standard and core tightly together, and a
 20 pin inserted transversely through said screw to prevent it from dropping out when the core is removed from the standard, said base being provided with a downwardly-extending portion having a bore through which the head of
 25 said screw is accessible.

2. A telephone desk set comprising a suitable base, a tubular and removable standard rising from said base, a core or mounting-strip inclosed within said standard, a single fastening-screw inserted upwardly through the base and engaging the lower end of said core or mounting-strip, so as to hold the base and standard and mounting-strip tightly together, and lateral projections on said screw to prevent the latter from dropping out when the
 35 core or mounting-strip is removed from the standard, said base being provided with a downwardly-extending portion having a bore through which the head of said screw is accessible.
 40

3. In a desk set, the combination of a suitable base, a tubular standard removably mounted on said base, a core or mounting-strip extending vertically within said standard,
 45 a tube depending from the upper wall of said base, a single fastening-screw inserted through the upper end of said tube for engaging the lower end of said core or mounting-strip, and a bottom plate screwed onto the
 50 lower end of said tube.

4. In a telephone desk set, the combination of a hollow base, an upright standard rising from said base and adapted to support a transmitter and a hook-switch, a threaded member
 55 depending centrally from the upper wall of said base, and a bottom plate screwed onto the lower end of said member.

5. In a telephone desk set, the combination of a suitable base, a suitable standard for supporting a transmitter and hook-switch, said
 60 base being provided with a downwardly-extending threaded portion, and a bottom plate provided with a centrally-arranged threaded opening adapted to engage the lower end of
 65 said threaded portion on the base.

6. In a telephone desk set, the combination of a hollow base, one or more spring-contacts suitably mounted within said base, a tubular standard rising from said base, a mounting-strip extending vertically within said standard and provided at its lower end with one or more metallic fingers adapted to extend through the top of the base and engage said spring-contacts, and a single fastening device securing the base and standard and mounting-strip together.
 75

7. In a telephone desk set, the combination of a hollow base, a tubular standard removably mounted on said base, a plurality of spring-contacts mounted within said base, a mounting-strip extending vertically within said standard and provided at its lower end with a plurality of metallic fingers adapted to extend downwardly through the upper wall of the base and engage said spring-contacts,
 85 and a single fastening-screw extending upwardly through the base and engaging the lower ends of said mounting-strip, the upper end of the mounting-strip being provided with a shoulder bearing on the upper end of said
 90 standard, whereby the base and standard and mounting-strip are all clamped tightly together by the said screw.

8. In a telephone desk set, the combination of a hollow base, an induction-coil inclosed within said base, a tubular standard rising from said base, a transmitter and a hook-switch carried at the upper portion of said standard, separable contacts serving as means of connection between the transmitter and the
 100 induction-coil, and a single screw adapted and applied for drawing the base and standard and contacts together.

9. In a telephone desk set, the combination of a hollow base, an induction-coil mounted within the base, a standard adapted to support a transmitter and a hook-switch, separable contacts adapted to serve as medium of connection between the transmitter and the induction-coil and a hook-switch and transmitter arranged a suitable distance above said contacts.
 110

10. In a telephone desk set, the combination of a hollow base, a standard rising from said base, a transmitter and a switch-hook suitably carried by said standard, an induction-coil mounted within the base, spring-contacts mounted within the base and serving as a medium of connection between the transmitter and the induction-coil, and normally open spring-contacts within the standard adapted to be operated by the switch-hook for the purpose of closing the connection between the transmitter and the induction-coil.
 120

11. In a telephone desk set, the combination of a suitable base, a tubular standard rising from said base, one or more spring-contacts mounted in said base, a mounting-strip extending vertically in said standard and provided at its upper end with a transmitter and
 130

a hook-switch, the lower end of said mounting-strip being provided with one or more metallic fingers adapted to engage said spring contact or contacts, and means for holding the said base and standard and mounting-strip together.

12. In a telephone desk set, the combination of a suitable base, a standard rising from said base, a mounting-strip in said standard provided with one or more contacts, an induction-coil provided with end blocks secured to the base, and one or more spring-contacts on said end block adapted to engage the contact or contacts on the said mounting-strip.

13. In a telephone desk set, the combination of a hollow base, an induction-coil provided with end blocks secured to said base, one or more spring-contacts and one or more binding-posts suitably mounted on said end blocks, a standard rising from said base, a mounting-strip inclosed within the standard, one or more contacts on said mounting-strip adapted to engage the contact or contacts carried by the induction-coil structure, and a fastening device extending upwardly through the base and engaging said mounting-strip to draw the contacts together.

14. A telephone desk set, comprising a suitable base, a tubular standard, a mounting inclosed within said standard, a transmitter and a hook-switch carried by said mounting, binding-posts in the base adapted to be connected with the flexible cords leading to said desk set, mutually-engaging contacts carried by the

base and said mounting and adapted to serve as medium of electrical connection between said cords and the transmitter, and means for holding said contacts in engagement with each other, whereby the said mounting can be withdrawn from the tubular standard without disturbing any of the cord connections.

15. A telephone desk set, comprising a hollow base and standard, a transmitter and a hook-switch supported by the standard, a removable bottom plate for said base, and a cushioning-ring encircling said plate but secured to the bottom of said base independently of the plate, whereby the said bottom plate can be removed and access obtained to the interior of said base without removing said ring.

16. In a telephone desk set, the combination of a plurality of members forming a structure for supporting a transmitter and a receiver fork or lever in a suitably-elevated position, mutually-engaging electrical contacts carried respectively by different members of the supporting structure, and a single clamping-screw applied to the bottom of the said structure and constituting the sole means of drawing and holding said members tightly together, and for keeping said contacts in engagement with each other.

Signed by me at Chicago, Cook county, Illinois, this 25th day of February, 1903.

PETER C. BURNS.

Witnesses:

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WM. A. HARDERS.