

(No Model.)

2 Sheets—Sheet 1.

R. M. BEATTY.
BICYCLE ALARM.

No. 543,418.

Patented July 23, 1895.

FIG. 1.

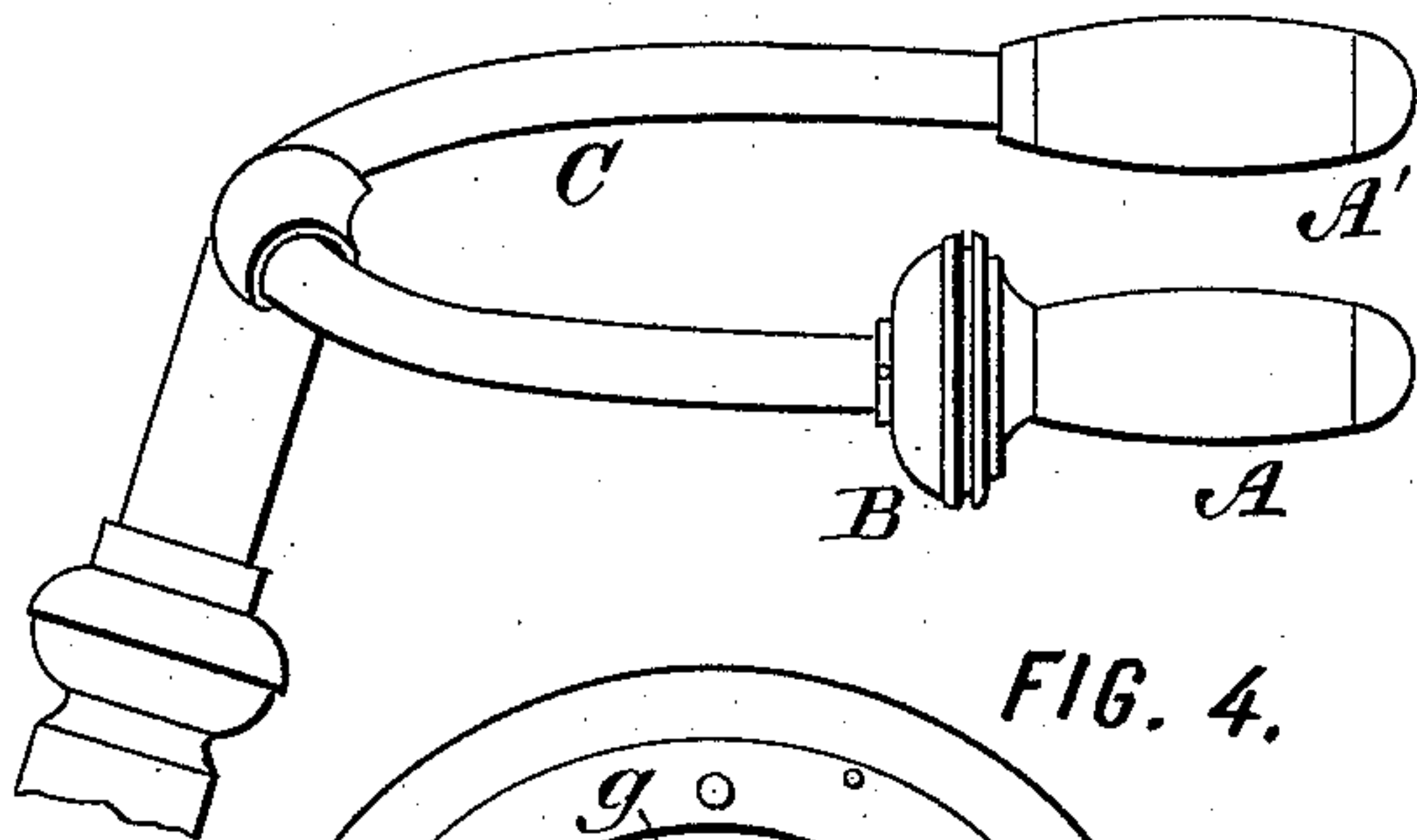


FIG. 4.

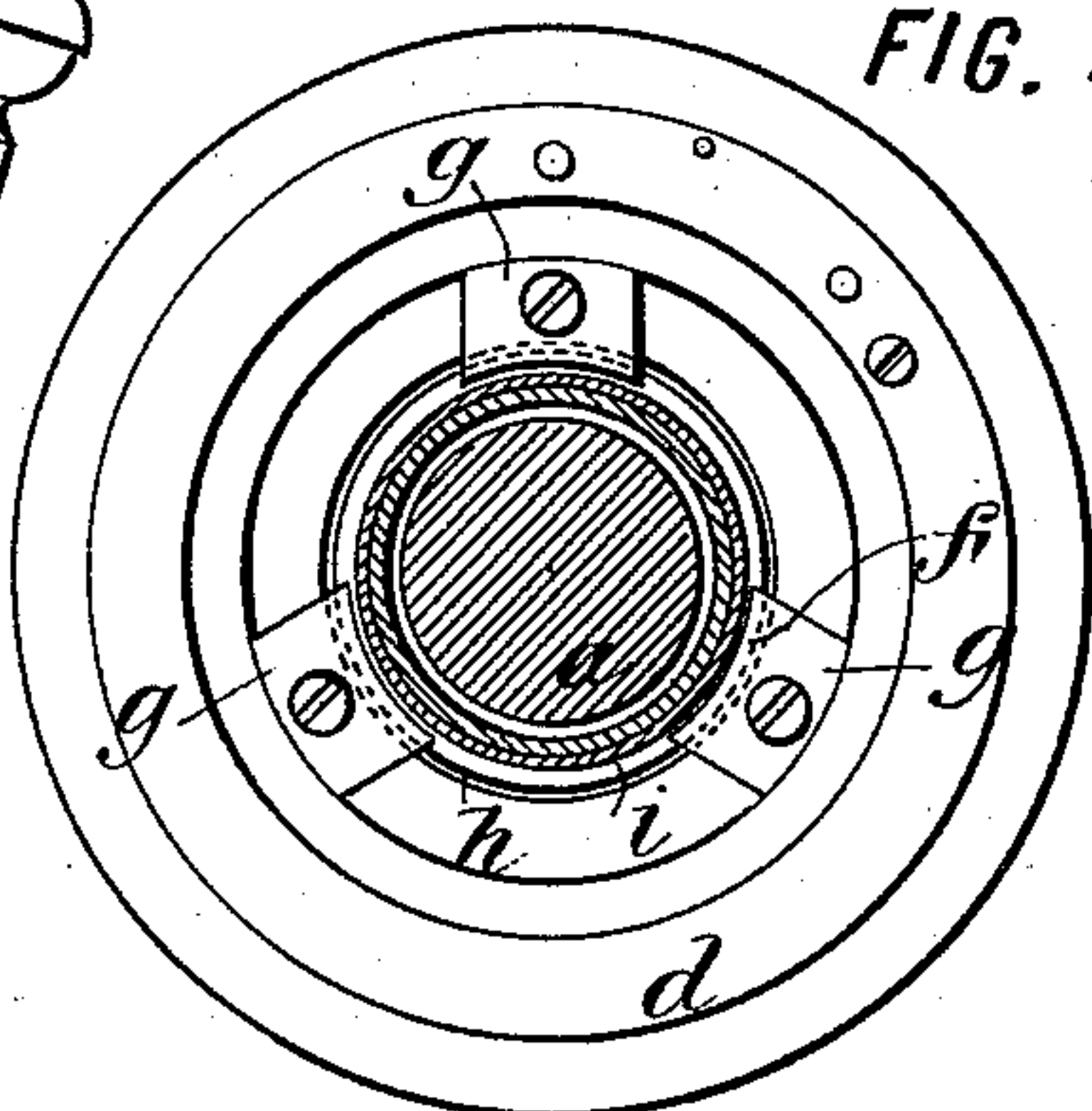
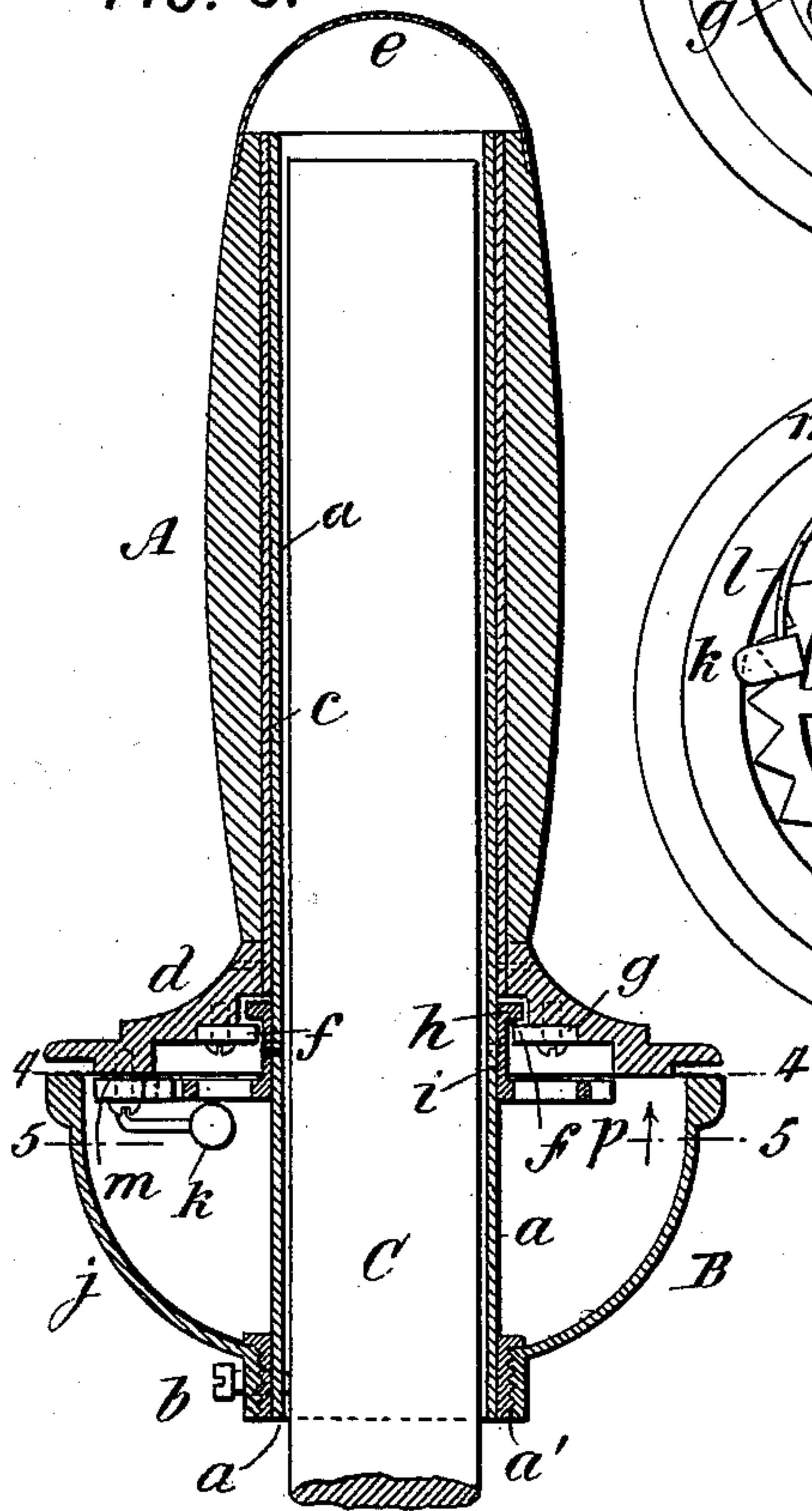


FIG. 3.



WITNESSES:

Fred White
Thomas F. Wallace

FIG. 2.

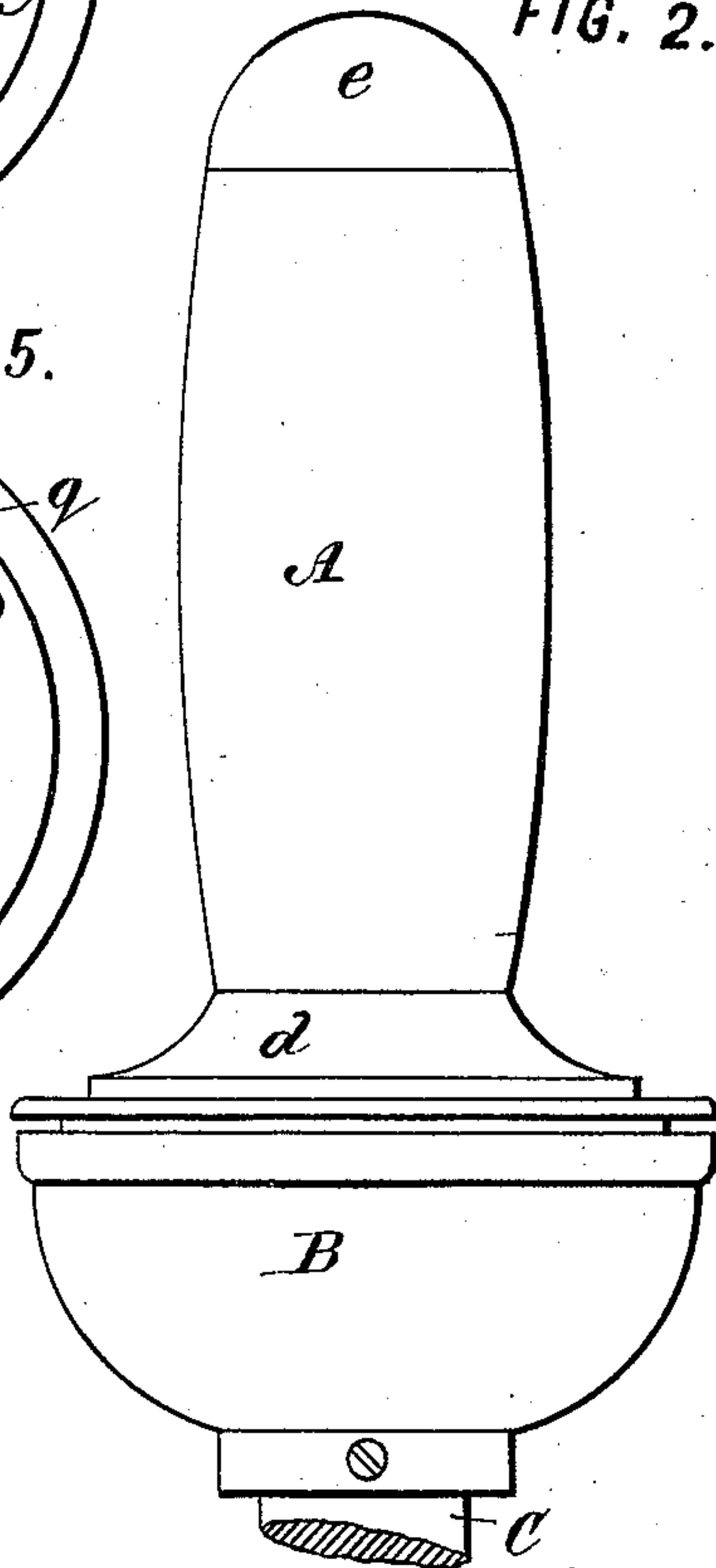
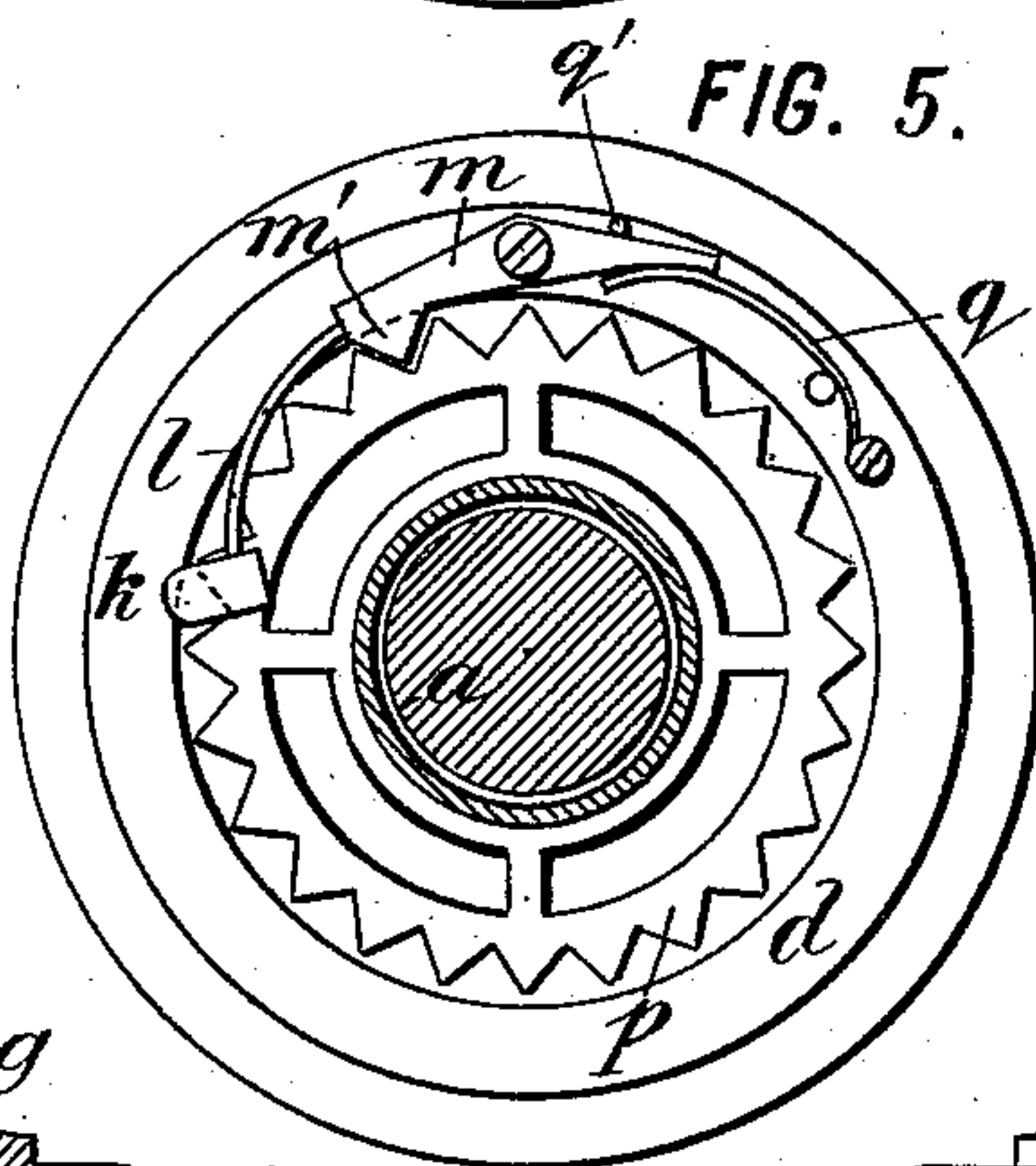


FIG. 5.



INVENTOR

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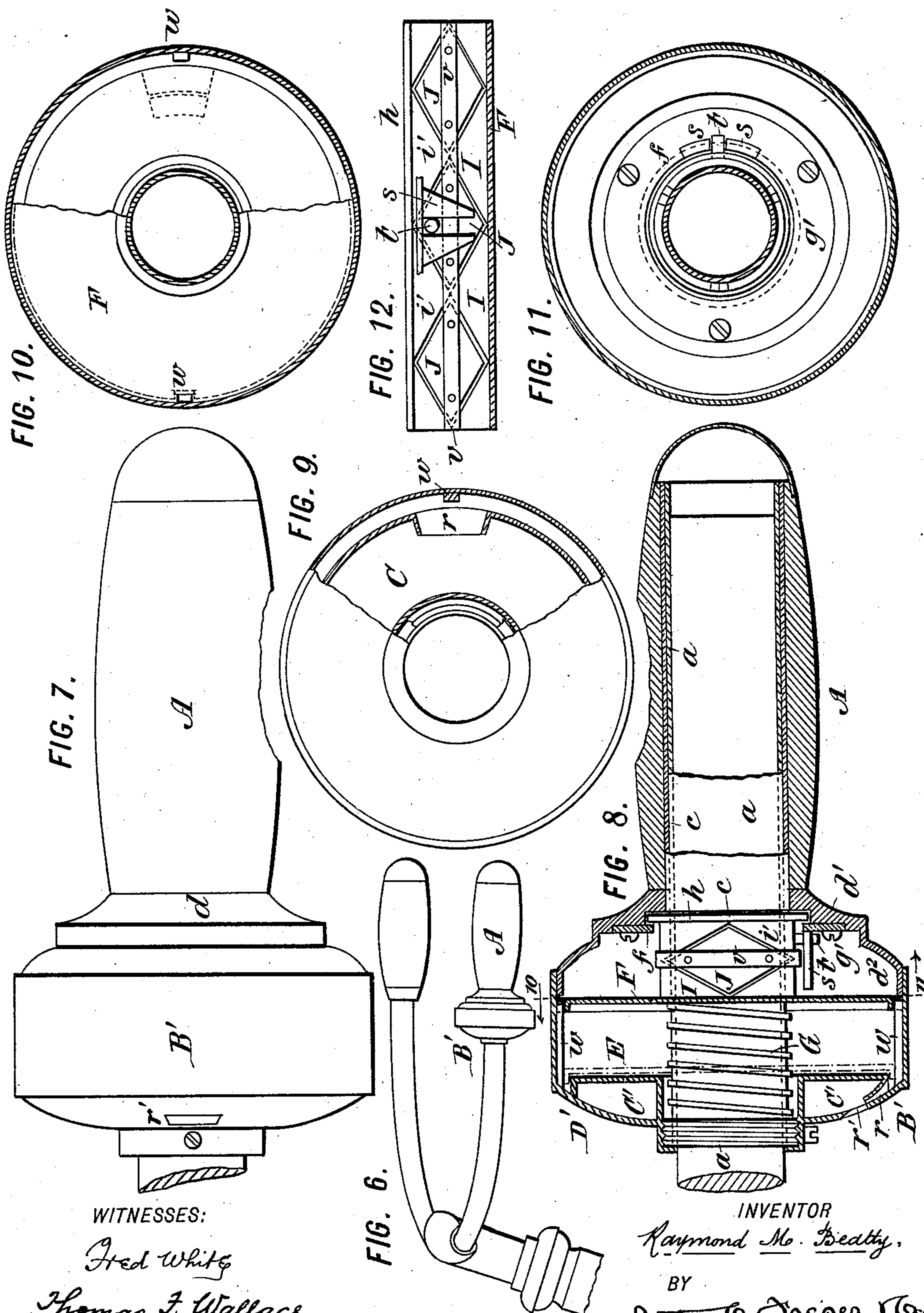
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2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

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FOURTHS TO MICHAEL TRACY, THOMAS GEREHART, AND WILLIAM J.
FRANSIOLI, OF BROOKLYN, NEW YORK.

BICYCLE-ALARM.

SPECIFICATION forming part of Letters Patent No. 543,418, dated July 23, 1895.

Application filed October 29, 1894. Serial No. 527,252. (No model.)

To all whom it may concern:

Be it known that I, RAYMOND M. BEATTY, a citizen of the United States, residing in Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Alarms for Velocipedes, of which the following is a specification.

This invention relates to alarms in the nature of bells, whistles, &c., used on bicycles or other velocipedes.

The object of the invention is to provide an improved construction of alarm mechanism which shall present a more workman-like appearance on the handle-bar of the machine, and be more easy and certain in operation than the alarm devices heretofore used.

To this end according to my invention I construct one of the handles to be movable upon the handle-bar, preferably by rotating thereon, and I construct the alarm mechanism to be actuated by such movement of the handle relatively to the handle-bar. The alarm mechanism is constructed so as to be mounted concentrically upon the bar, appearing as an annular concentric projection therefrom.

Figures 1 to 5 of the accompanying drawings show my invention as applied to an alarm-bell. Fig. 1 is an elevation of the head and handle-bar, showing the loose handle A and the alarm mechanism B as applied thereto. Fig. 2 is an elevation of this handle and alarm upon a larger scale. Fig. 3 is a longitudinal mid-section thereof. Fig. 4 is a transverse section on the line 4 4 in Fig. 3. Fig. 5 is a transverse section on the line 5 5 in Fig. 3, the bell being removed. Figs. 6 to 12 illustrate a modification wherein the alarm mechanism is a whistle. Fig. 6 is a side elevation of a handle-bar, handles, and alarm mechanism. Fig. 7 is a side view of the movable handle A and alarm mechanism B' on a larger scale. Fig. 8 is a longitudinal mid-section thereof. Fig. 9 is an end elevation, partly in section, through the reverberatory-chamber C'. Figs. 10 and 11 are transverse sections on the line 10 11, Fig. 10, looking to the left in Fig. 8, and Fig. 11 looking to the right in

that figure. Fig. 12 is a development or plane projection of the annular or cylindrical arrangement of cams shown in Fig. 8.

I will first describe the construction shown in Figs. 1 to 5, where the alarm consists of a bell. On the handle-bar C of a bicycle or other velocipede are arranged two handles A and A', differing from the usual construction solely in that the handle A instead of being fixed to the handle-bar as usual, is so mounted as to be capable of a movement relatively to the handle-bar in any suitable direction, but preferably a rotative movement.

B is the alarm mechanism, in this case consisting of a bell and the means for ringing it. The construction is such that in order to ring the bell the rider has only to rotate the handle in either direction for a portion of a revolution, which is easily and conveniently done by a twisting movement of the hand which grasps the handle. A turn of from one-fourth to one-third of a revolution will cause the bell to be struck several times in quick succession, giving a sharp and distinct alarm, which is repeated if the rider carries the handle back by a return movement of his hand.

The construction shown is that which is preferred, but may be greatly varied in practice. The handle and bell mechanism are mounted on a tube or sleeve a, Fig. 3, which tube is detachably secured to the handle-bar C by any suitable means, preferably by a set-screw b. The handle A is mounted on a sleeve c, which fits freely over the tube a, so as to be turned easily thereon. On this sleeve c is also mounted a disk d, which is fixed thereto so that through the medium of the sleeve the handle A and disk d are connected together, so that by the turning of the handle the disk also is turned. The other end of the handle is closed by a cap e, as usual. To keep the handle from slipping off or moving longitudinally it is held in place by means of an internal flange f on a plate g fixed to the disk d, which flange engages an outwardly-projecting flange h on a sleeve i, which is fastened by pins or otherwise to the sleeve a. In other words, the flange h is an outwardly-projecting flange entering a groove in the disk d, one

side of this groove being formed by the over-
hanging flange *f*. This flange may be con-
tinuous or intermittent, it being shown as in-
termittent, being formed on three separate
5 plates *g g* fastened by screws to the disk *d*.
The opposite end of the sleeve *a* is preferably
thickened by having a ring *a'* attached to it
by brazing or otherwise, on which ring is
screwed the hub of a bell or gong *j*. The
10 open mouth of this bell or gong is nearly
closed by the disk *d*, which, however, does not
touch it. For ringing the gong a hammer *k*
is provided, mounted on a flexible arm *l* pro-
jecting from a cam-lever *m* having a V tooth
15 or projection *m'*, which is acted upon by the
teeth of a cam-wheel *p*. When pressed out
by any of the teeth of this wheel to throw the
hammer against the gong it is retracted by a
spring *q*, being stopped by a pin *q'*. The
20 lever *m* and spring *q* are both mounted on the
disk *d*, so that by the rotative movement of
the handle *A* they are carried around inside
the bell, and the tooth *m'* is consequently
moved past the cam-teeth of the wheel *p*,
25 which is held immovable by being attached
to the sleeve *a*, preferably by being formed
integrally with the sleeve *i* which is fastened
thereto.

A bicycle-bell thus constructed has a very
30 neat and compact appearance, having the
effect of being a part of the machine, rather
than being a mere attachment thereto. It is
operated with the greatest ease and safety, as
the rider does not have to remove his hand
35 or any portion thereof from the handle, so
that in an emergency requiring the ringing
of the alarm he retains full control of his
machine.

I will now describe the modification illus-
40 trated in Figs. 6 to 12. The movable han-
dle *A* is here of the same construction al-
ready described, being mounted on a tubu-
lar sleeve *a* in the same manner. The alarm
mechanism, here lettered *B'*, consists of a
45 whistle or whistling device. On the inner
end of the sleeve *a* is fixed a shell *D'*, which
may be formed of stamped-up sheet metal,
while to the rotary sleeve *c* is fixed a disk
d' having a flange *d''* which meets and fits
50 within the shell *D'*, turning freely thereon
as the handle is oscillated. Within the shell
D' is partitioned off an annular chamber *C'*,
constituting a reverberatory-chamber, and
back of this is a piston-chamber *E* in which
55 works a piston-plate or diaphragm *F*, which
normally occupies the position shown in full
lines, but which may be pressed forward to
the position shown in dotted lines, being then
returned by the tension of a spiral spring *G*.
60 This movement of the plate *F* to the dotted-
line position compresses the air in the cham-
ber *E* and expels it through a minute outlet-
nozzle *r*, which directs the jet of air through
the outlet-opening *r'*, causing the air in cham-
65 ber *C'* to vibrate, thereby producing a sharp
loud musical note, after the manner well un-

derstood in the art of whistle construction.
By giving the reverberatory-chamber *C'* con-
siderable capacity, the strength of this note
is greatly augmented.

70 For repeatedly forcing the piston *F* from
its normal position to that shown in dotted
lines and then releasing it and permitting it
to be pressed back by the spring, I employ
the cam mechanism, which I will now de- 75
scribe. The disk *d'* is held from slipping off
the sleeve *a* in order to retain the handle in
place in the same manner as in the construc-
tion first described—that is to say, I provide
80 an inwardly-projecting flange *f*, engaging an
outwardly-projecting flange *h*. The former
is constructed on a plate or ring *g'*, fastened
by screws to the disk *d'*, and formed at one
side with a projecting fork *s*, between the
85 arms of which is embraced a movable pin *t*.
The flange *h* projects from a ring or sleeve *i'*
fixed to the sleeve *a*. This ring *i'*, however,
is cut or notched on its front edge in zigzag
fashion with alternately outwardly and in-
wardly progressing inclines or cam-faces. 90
On the rear side of the piston *F* is fastened
a similar ring or cam *I*, the rear edge of which
is formed with like angular cam-faces. Be-
tween these two rings *i'* and *I* are arranged
95 successive diamond-shaped cams *J J*, which
are connected together through the medium
of a ring *v*, extending outside of them and
riveted or otherwise fastened to them. The
cam-plates *J J* are cut as segments of a tube
100 closely fitting the sleeve *a*, so that the inner
faces of the cam-plates are seated and guided
thereon. The pin *t* projects from one of the
plates *J*, or it might project from the ring *v*.
The piston *F* is guided and prevented from
105 revolving by longitudinal ribs or keys *w w*,
fixed on the inner side of the shell *D'*.

The operation is as follows: By turning the
handle *A* the disk *d'* and fork *s*, fixed there-
to, are caused to revolve around the sleeve
a, and by the action of the fork against the 110
pin *t* this revolving motion is communicated
to the cam-plates *J J* and their connecting-
ring *v*. As the cam-rings *i'* and *I* cannot re-
volve and as the former is immovable, the
effect of this movement of the cam-plates *J J* 115
is to cause them to act as wedges, pressing
between the oblique cam-faces of the rings *i'*
and *I*, so that the latter ring is forced forward
against the tension of the spring *G*, the rota-
tion of the ring and piston being prevented 120
by the ribs *w*. This motion continues until
the widest portions of the diamond-plates *J*
have passed the most salient portions of the
projections on the cam-rings *i'* and *I*, where-
upon by the continued rotation the pressure 125
is relaxed and the spring is permitted to press
back the piston *F* to its normal position. If
three cam-plates *J J* are employed, as indi-
cated, then one-sixth of a revolution of the
handle in either direction will impart the 130
necessary motion to the piston to cause one
blast to be blown by the whistle, and the

movement may then be continued in the same direction to restore the piston, or it may be restored by an equal return movement.

I make no claim in the present application to a cycle-bell having a large central opening and a sleeve passing axially through said opening on which the bell is fixed, said sleeve being adapted to fit over the handle-bar with means for attachment thereto, and a movable actuating part mounted on the exterior of said sleeve; nor to such a bell mounted on the handle-bar and having an alarm mechanism comprising an actuating part mounted to turn axially around the handle-bar; nor to such a bell with its alarm mechanism comprising a rotary actuating-disk mounted around the handle-bar to close the mouth of the bell, as these features in substance constitute the subject of another application for patent filed by me January 21, 1895, Serial No. 535,589.

I claim as my invention the following-defined novel features, substantially as hereinbefore specified, namely:

1. The combination with the handle-bar of a velocipede, of a handle movable thereon, and an alarm mechanism constructed annularly with an axial opening through it to receive the handle bar and mounted to concentrically surround the handle-bar, at the end of the handle and connected to the handle to be actuated by the movement of the latter.

2. A combined velocipede handle and alarm mechanism adapted for attachment to the handle-bar of a velocipede, and constructed with an inner sleeve having means for attachment to the handle-bar, the inclosing shell of the alarm mechanism fixed upon said sleeve, the handle mounted rotatively upon said sleeve, and the alarm mechanism adapted to be operated by the rotative movement of the handle.

3. The combination with the handle-bar of a velocipede, of a bell constructed to annularly surround the handle bar and fixedly mounted thereon, a handle rotatively mounted thereon, and an intervening bell ringing mechanism adapted to be actuated by the rotative movement of the handle.

4. The combination with the handle-bar of a velocipede, of a handle rotatively mounted thereon, a bell fixedly mounted thereon, a cam-wheel *p* fixedly attached to said handle-bar, and a hammer lever *m* acted on by said cam and pivotally connected to said handle so as to be revolved therewith to ring the bell.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

RAYMOND M. BEATTY.

Witnesses:

ARTHUR C. FRASER,
THOMAS F. WALLACE.