

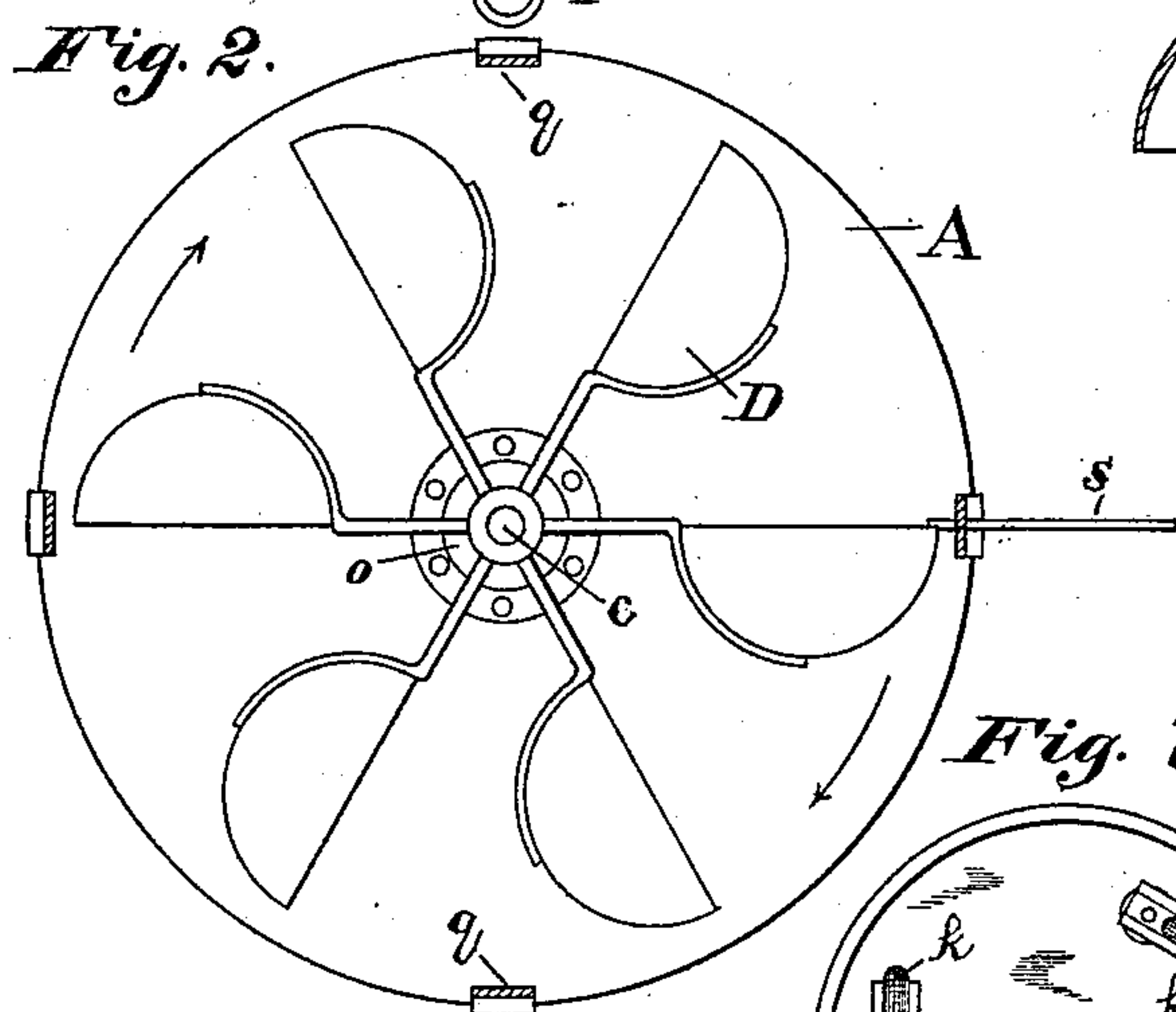
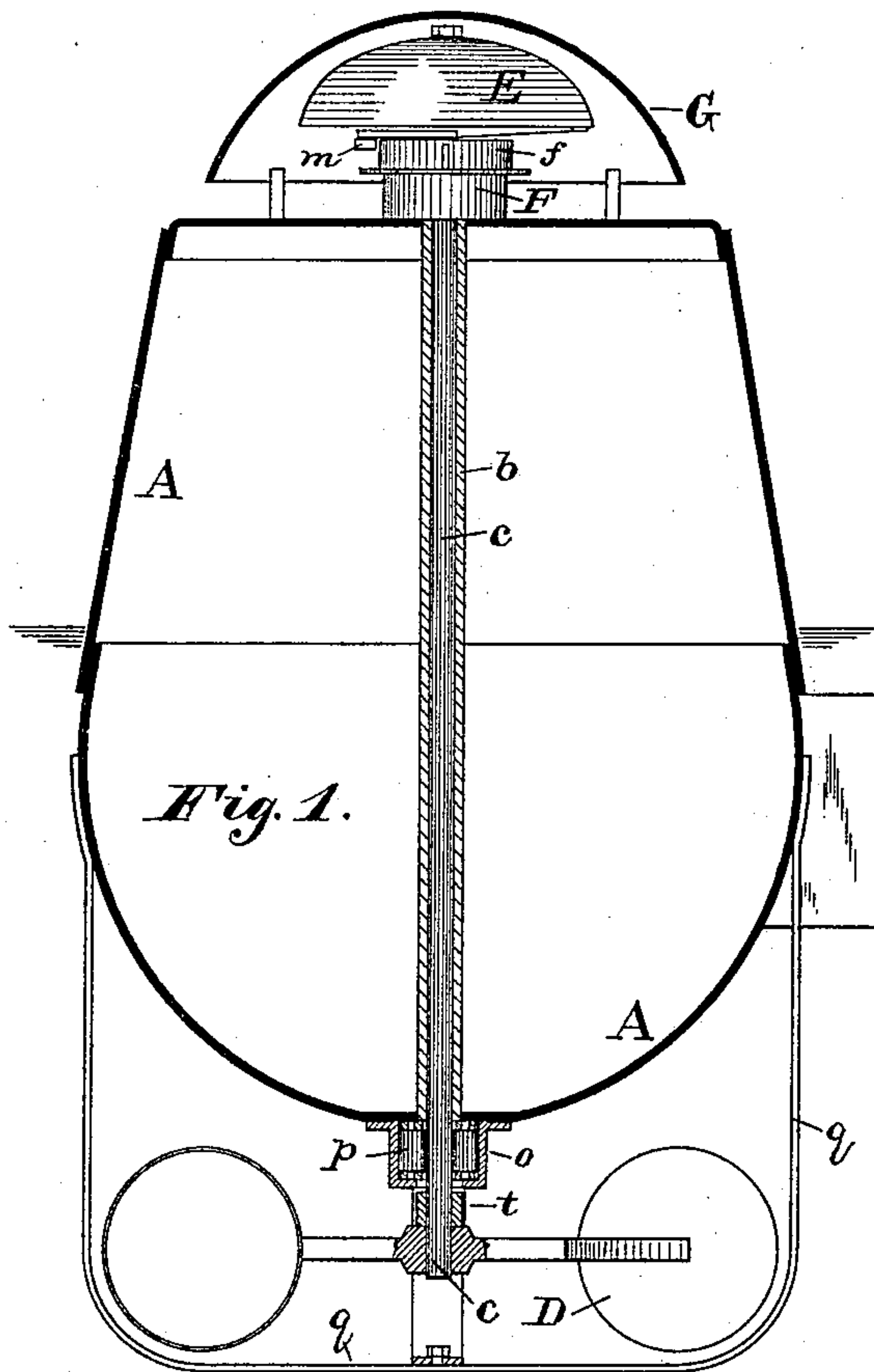
(No Model.)

W. C. WHITTLE.

BUOY.

No. 390,050.

Patented Sept. 25, 1888.



WITNESSES:

R. L. Clemmitt.
John E. Morris

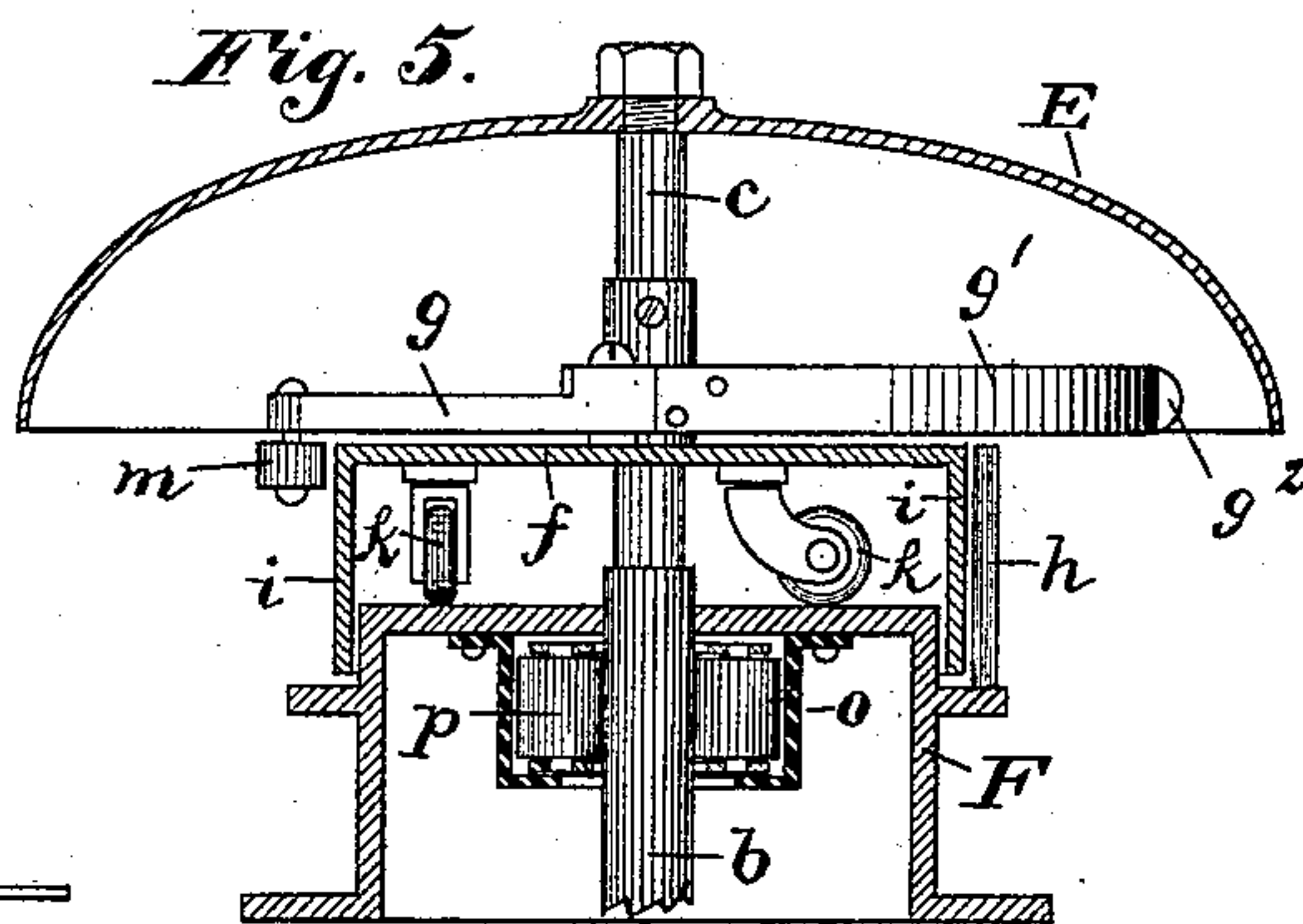
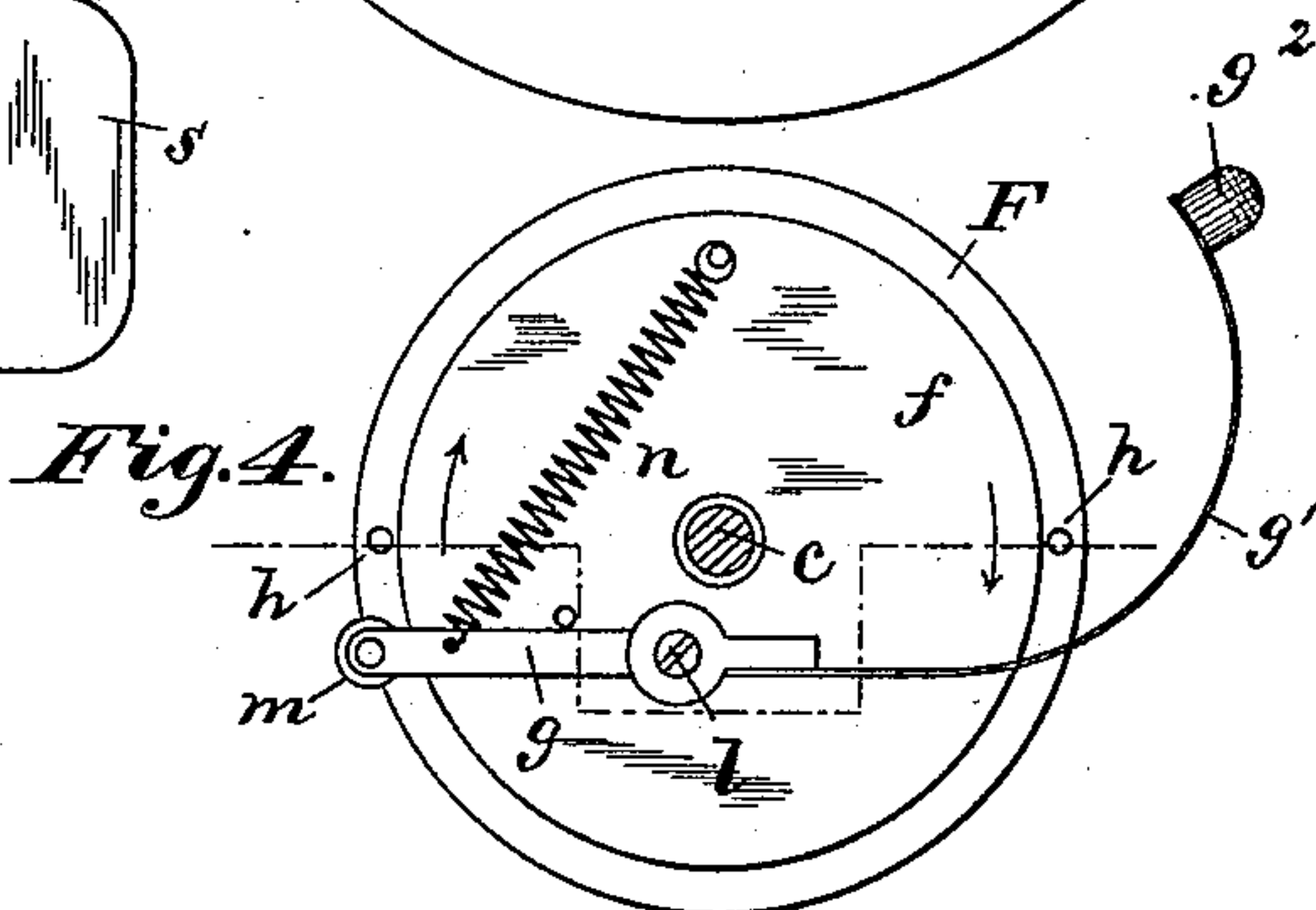
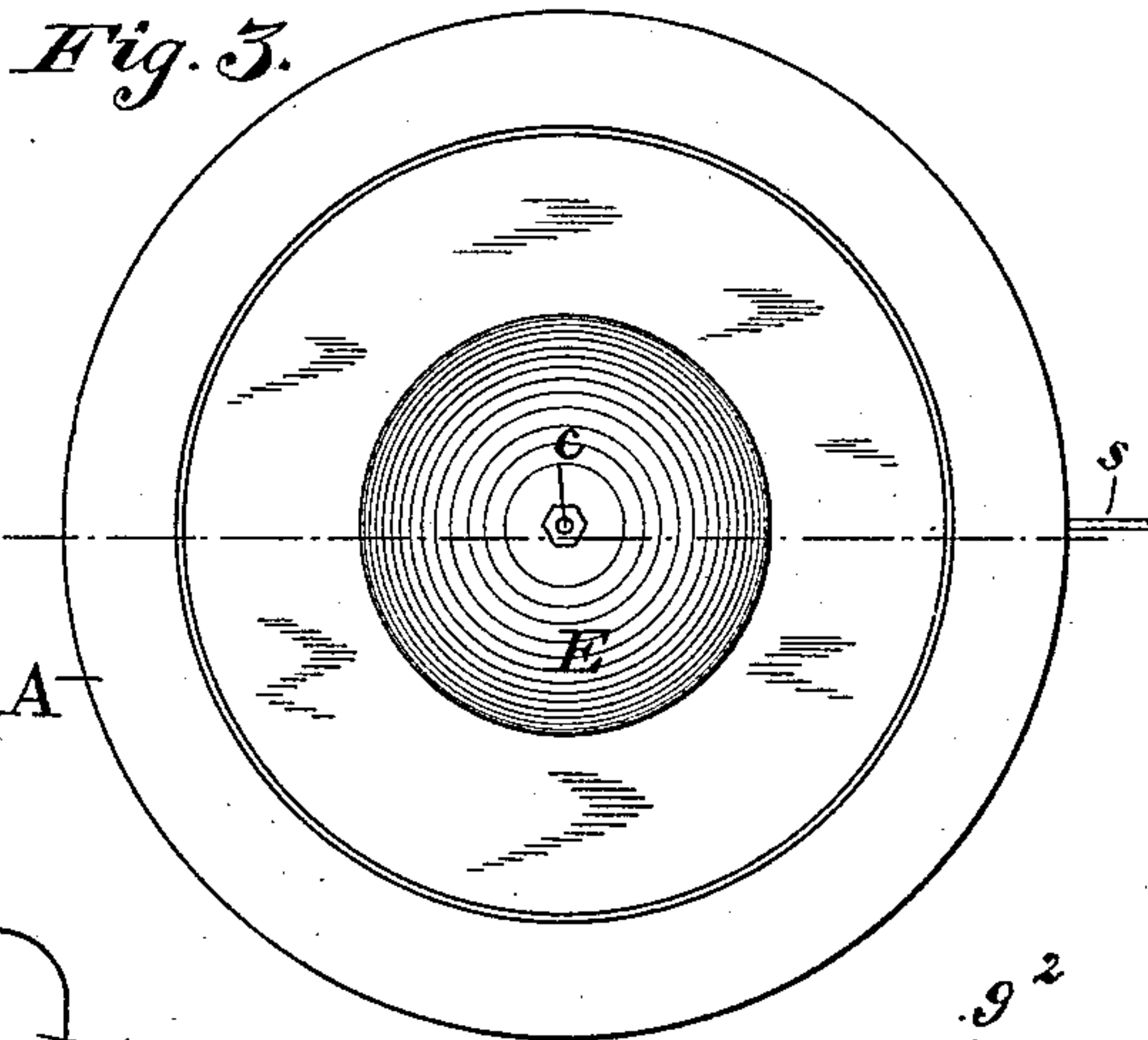
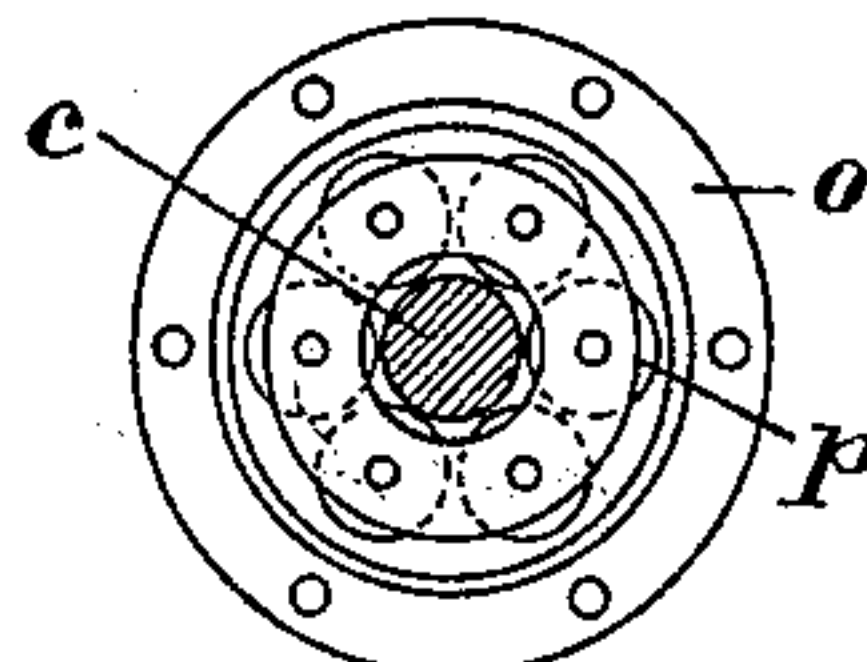


Fig. 6.



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BUOY.

SPECIFICATION forming part of Letters Patent No. 390,050, dated September 25, 1888.

Application filed June 23, 1888. Serial No. 278,036. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM C. WHITTLE, a citizen of the United States, residing at Norfolk, in the State of Virginia, have invented certain new and useful Improvements in Buoys, of which the following is a specification.

This invention relates to a buoy for indicating a navigable channel or to mark the position of an obstruction to navigation.

The object of the invention is to provide the buoy with a bell, gong, or other audible-signal device so constructed and arranged that the current of water, either of a stream or that caused by the flow of the tide, will cause the signal device to sound.

Buoys have heretofore been arranged and provided with bells and whistles to give warning of their position at night and during thick and foggy weather; but their action has been dependent on the existence of waves to give oscillation to the buoy, and thus cause the clapper to strike the bell, or, in the case of the whistling-buoy, to produce a compression of air sufficient to sound the whistle. When a calm prevails and the water has little or no wavy movement, the audible signals of such buoys cease.

My improved signal-buoy operates on a different principle. I provide means whereby the current of water will set in motion the hammer which strikes the bell or signal device, and thus, even in a perfect calm, the buoy will give audible signals.

The invention is shown in the accompanying drawings, in which—

Figure 1 is a vertical section of the buoy and its attachments made in accordance with my invention. Fig. 2 is an inverted or bottom view to show the propeller, the rods to which the mooring-chain is attached being removed. Fig. 3 is a top view with the hood removed. Figs. 4, 5, 6, and 7 are views of the signal device and connected parts.

The shape, size, and construction of the buoy-float A are immaterial. Any of the well-known structures now in use will answer. A tube, *b*, extends axially or vertically through it and opens through each end, so as to make the buoy air-tight. A shaft, *c*, occupies the tube, and its ends project above and below the

buoy-ends, and it is free to turn in the tube. The lower end of the shaft has a wheel or propeller, *D*, of suitable character to be turned in one direction by the current of water, and its upper end carries a gong or bell, *E*, and a head, *f*, on which a hammer, *g*, is pivoted, and the parts are so constructed and arranged that when the said shaft *c* turns the hammer *g* will strike the gong.

It is obvious that the particular construction of the mechanism for actuating the hammer to cause it to strike may vary from that shown in the drawings. In the present instance studs *h*, two in number, are placed in position on the perimeter of a turret or stand, *F*, secured to the buoy's top around the shaft *c*, and the aforesaid head *f* has a cylindric flange, *i*, which takes around the turret *F*. The head *f* on the shaft *c* has friction rollers or casters *k*, (see Figs. 5 and 7,) which travel around on the top of the turret and sustain the weight. The hammer *g* is pivoted at *l* to the head *f*, and one end projects beyond the head-rim and has on its under side a roller, *m*, which impinges against the studs *h* when the said head and hammer rotate. A spiral spring, *n*, serves to draw the roller end of the hammer to one side—that is, toward the direction in which the said roller end moves. As the head *f* rotates, the roller *m* of the hammer will come in contact with the said studs, and the spring *n* thereupon will yield sufficient to allow the roller to escape or pass the stud. The moment it passes the spring *n* will retract and draw on the pivoted hammer, thereby causing the spring end *g'* of the hammer (which has a striker-head, *g'*) to strike on the inner side of the gong *E*. As the roller *m* of the hammer passes each stud *h* the signal will sound. The studs which operate the signal-striker may be placed so as to give to each buoy an individuality, in order that one buoy may be distinguished from another. For instance, one stud alone may be used, or two close together, or three close together, or one alone and then two close together, and so on *ad infinitum*.

In order to reduce friction of the turning shaft *c*, the top and bottom of the buoy is provided with a box, *o*, containing rollers *p* and constituting a friction-roller bearing.

A suitable hood or bonnet, G, is supported on top of the buoy and covers the bell or signal device, as shown in Fig. 1, and protects it from the weather. This hood may be secured
5 in any desired or convenient manner, and preferably in such way as will admit of its ready removal, so as to afford access to the signal device or the connected mechanism.

Rods *g* are attached to the buoy's bottom
10 and project down and surround the propeller-wheel D, and have a swivel-eye, *r*, for attaching the mooring-chain.

To prevent the buoy from revolving, which it has a tendency to do, from the fact that the
15 wheel D turns in a horizontal plane, it is provided at one side with a stiff wing or vane, *s*, which projects laterally.

A sleeve, *t*, loosely surrounds the lower end of the shaft *c* between the propeller and the
20 lower bearing, *o*, and serves to prevent grass or weeds from entangling the shaft.

It is obvious that the number of rods *g* at the bottom may be increased to form a screen, or that a wire-net screen may be secured around
25 the rods *g* at the bottom, and be so placed as to prevent trash of any kind from clogging the propeller-wheel D.

It will be seen that, however calm and free of waves the water may be, if the tide is run-
30 ning at all the signal will sound.

Having described my invention, I claim—

1. A buoy provided with a bell or other audible-signal device, a hammer or striker at-
35 tached to a revoluble head above the buoy-float, a wheel or propeller below the buoy-float, and a vertical shaft to which both the said hammer-head and wheel are attached, whereby when the buoy is moored the flow of the tide will revolve the wheel and cause the signal to
40 sound.

2. In a buoy, the combination of a bell or other signal device, a tube extending through the buoy, a shaft occupying said tube and pro-
jecting above and below the buoy-ends, a

wheel or propeller on one end of the said shaft, 45 and a hammer or striker operated by the other end of the shaft.

3. In a buoy, the combination of a bell or other signal device, studs fixed stationary, a revoluble head carrying a pivoted hammer, 50 which in turning impinges against the said studs, and a wheel or propeller connected with said revoluble head, as set forth.

4. The combination of the buoy, a revolu- ble shaft, a wheel or propeller on one end of 55 the said shaft, a signal-bell or other like device attached to the other end of the said shaft, and a hammer or striker operated by the revolution of the shaft.

5. The combination of the buoy, a turret, 60 F, secured to the buoy and provided with studs *h*, a revoluble head, *f*, carrying a pivoted hammer, *g*, which impinges against the studs, a signal-bell or like device, a wheel or propeller, and means connecting the latter with the 65 revoluble head.

6. In a buoy, the combination of a bell or other signal device, studs fixed stationary, a revoluble head carrying a pivoted hammer, which in turning impinges against the said 70 studs, rollers or casters attached to the said head, a wheel or propeller, and a shaft connecting the revoluble head and wheel, as set forth.

7. In a buoy, the combination of a bell or 75 other signal device, a box attached to the buoy and containing friction-rollers, a shaft extending through the buoy and said friction-rollers, a wheel or propeller on one end of the said shaft, and a hammer or striker operated by the 80 other end of the shaft.

In testimony whereof I affix my signature in the presence of two witnesses.

WM. C. WHITTLE.

Witnesses:

JOHN E. MORRIS,
CHAS. B. MANN.