

(No Model.)

3 Sheets—Sheet 1.

J. WALL.
NIGHT SIGNALING APPARATUS.

No. 335,489.

Patented Feb. 2, 1886.

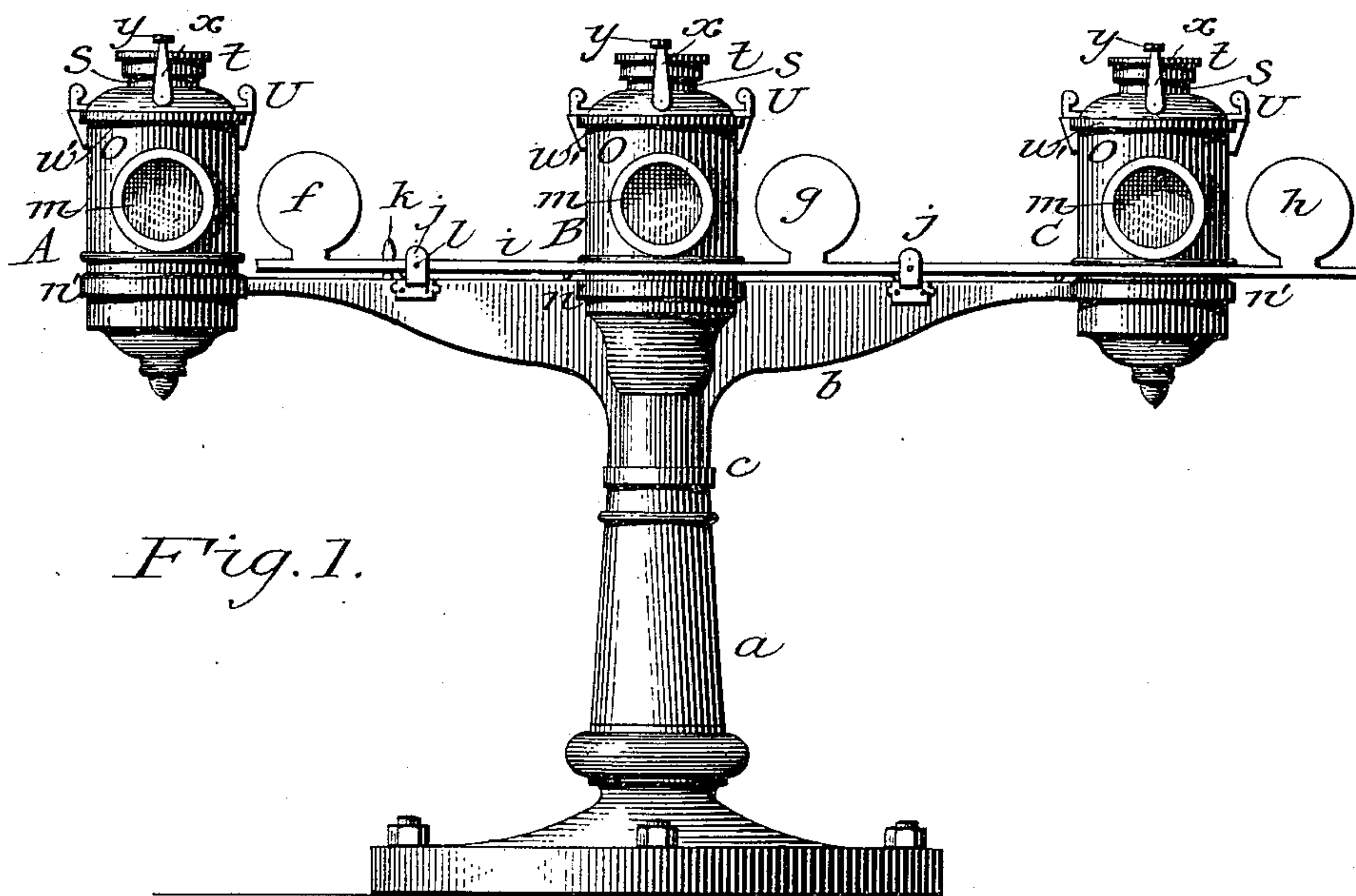


Fig. 1.

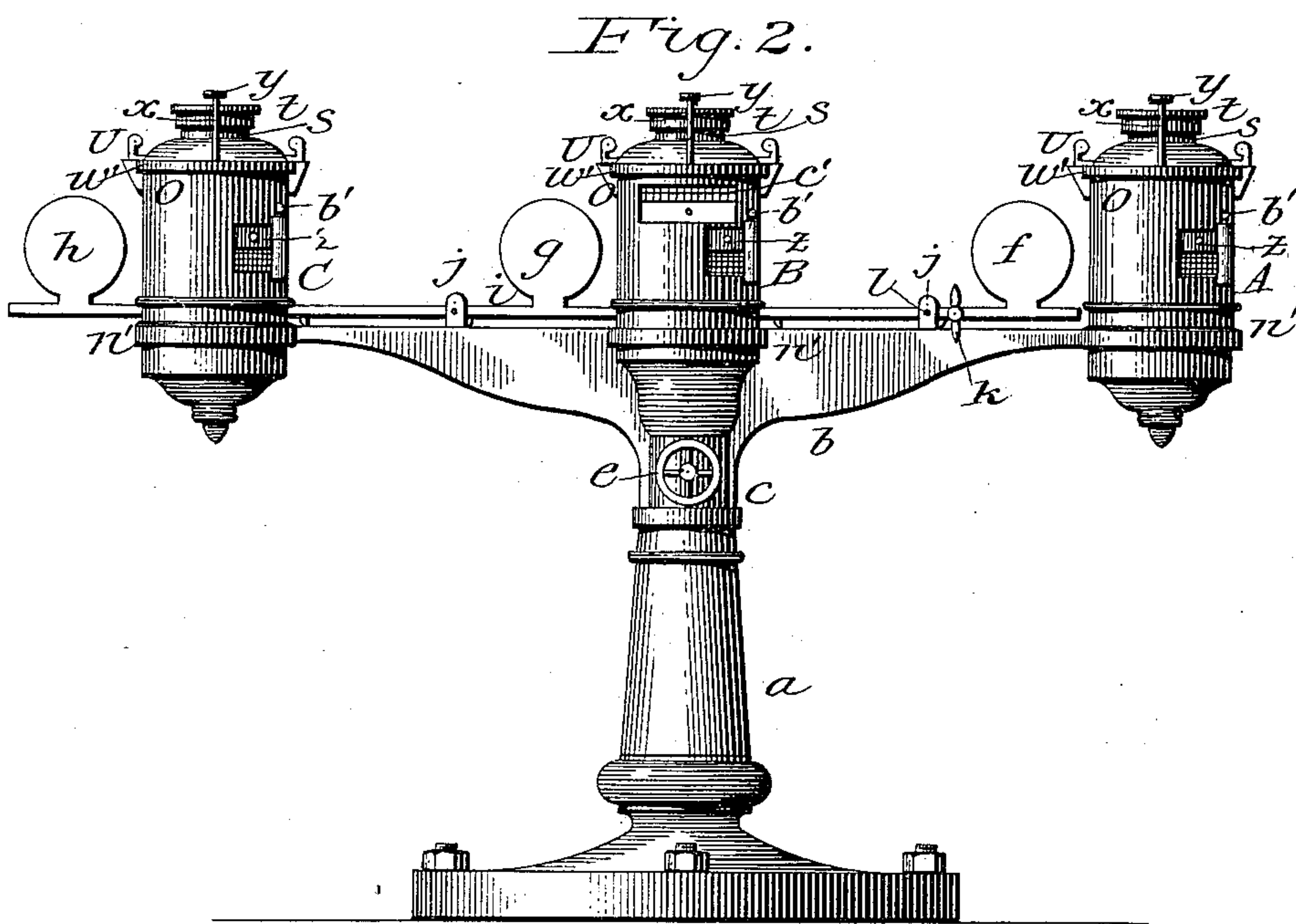


Fig. 2.

Witnesses:

A. M. Long.

Chas. H. Baker.

Inventor.

Joseph Wall

Per atty

William Henry Clifford

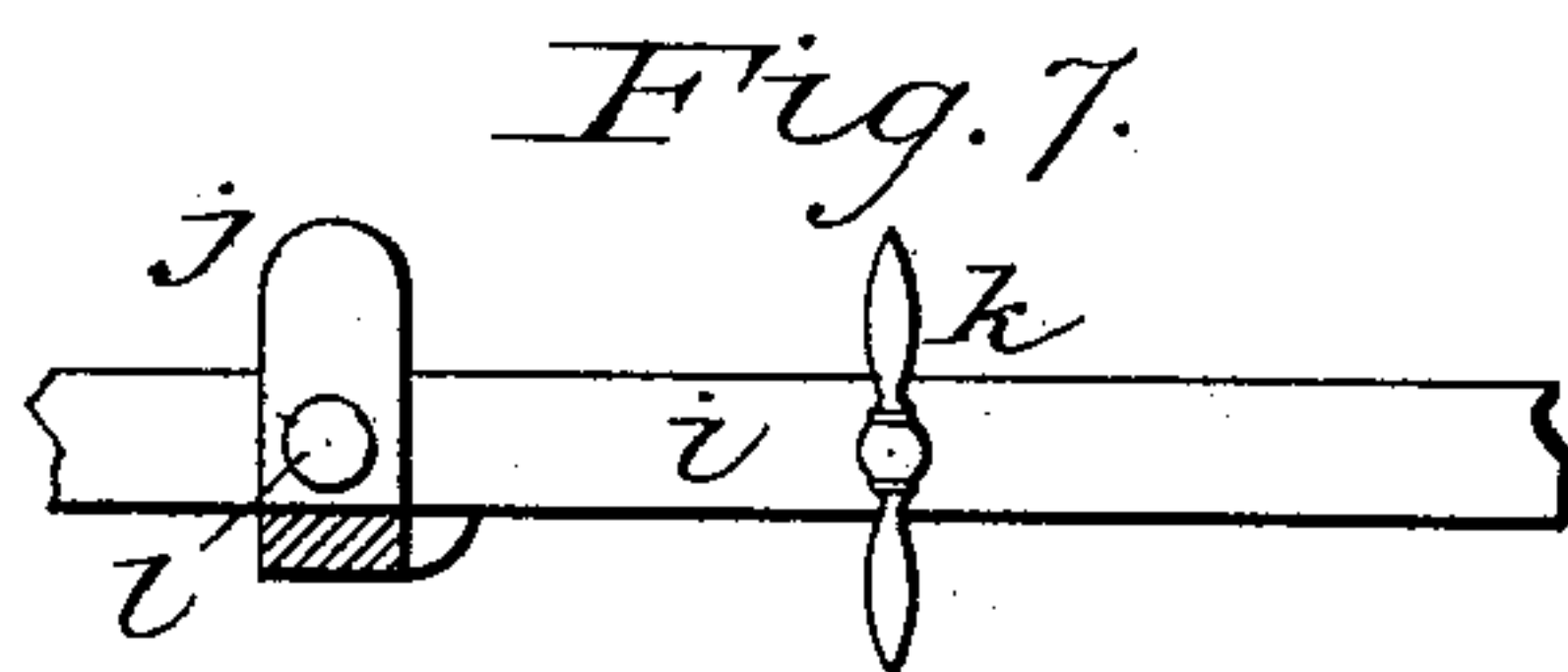
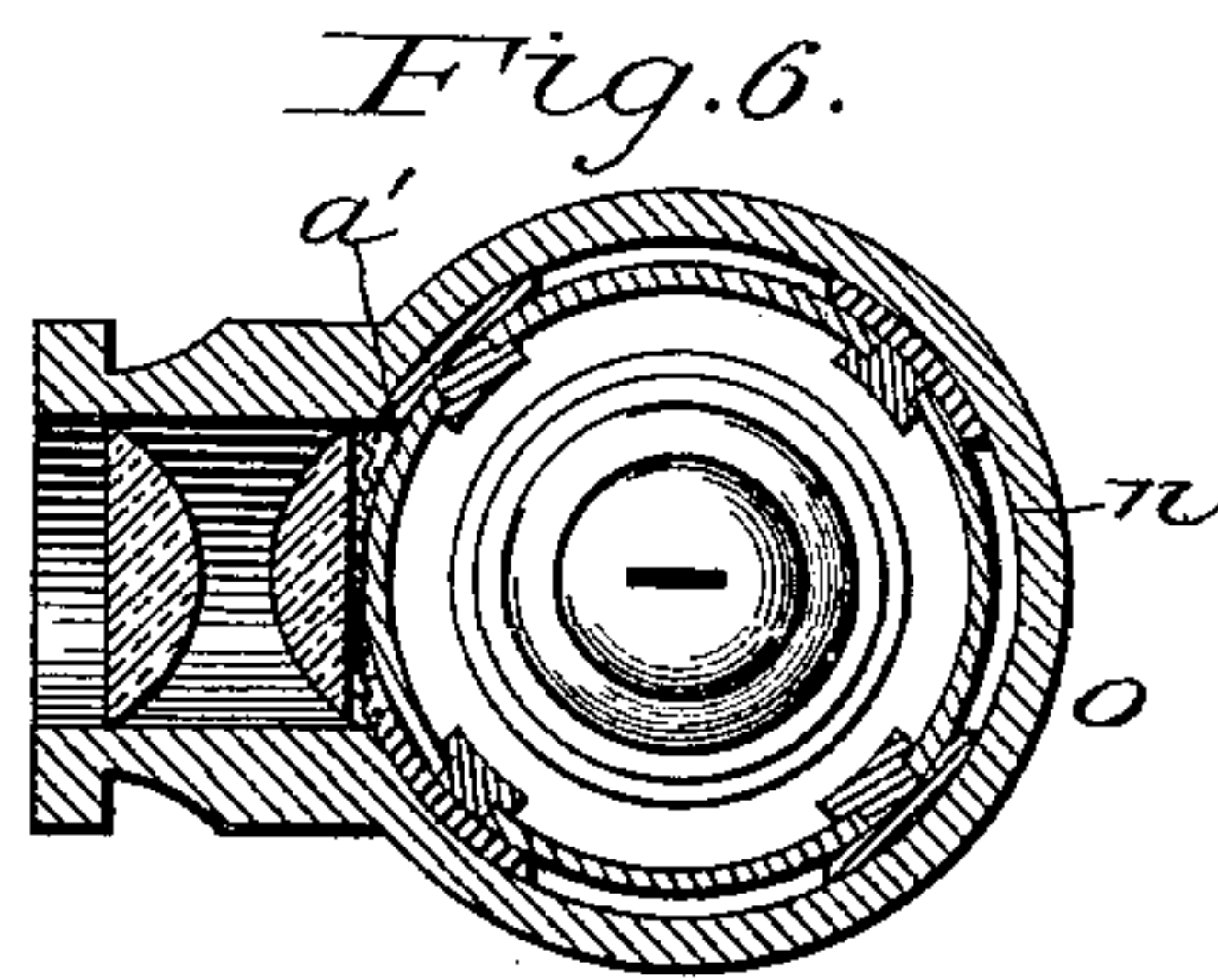
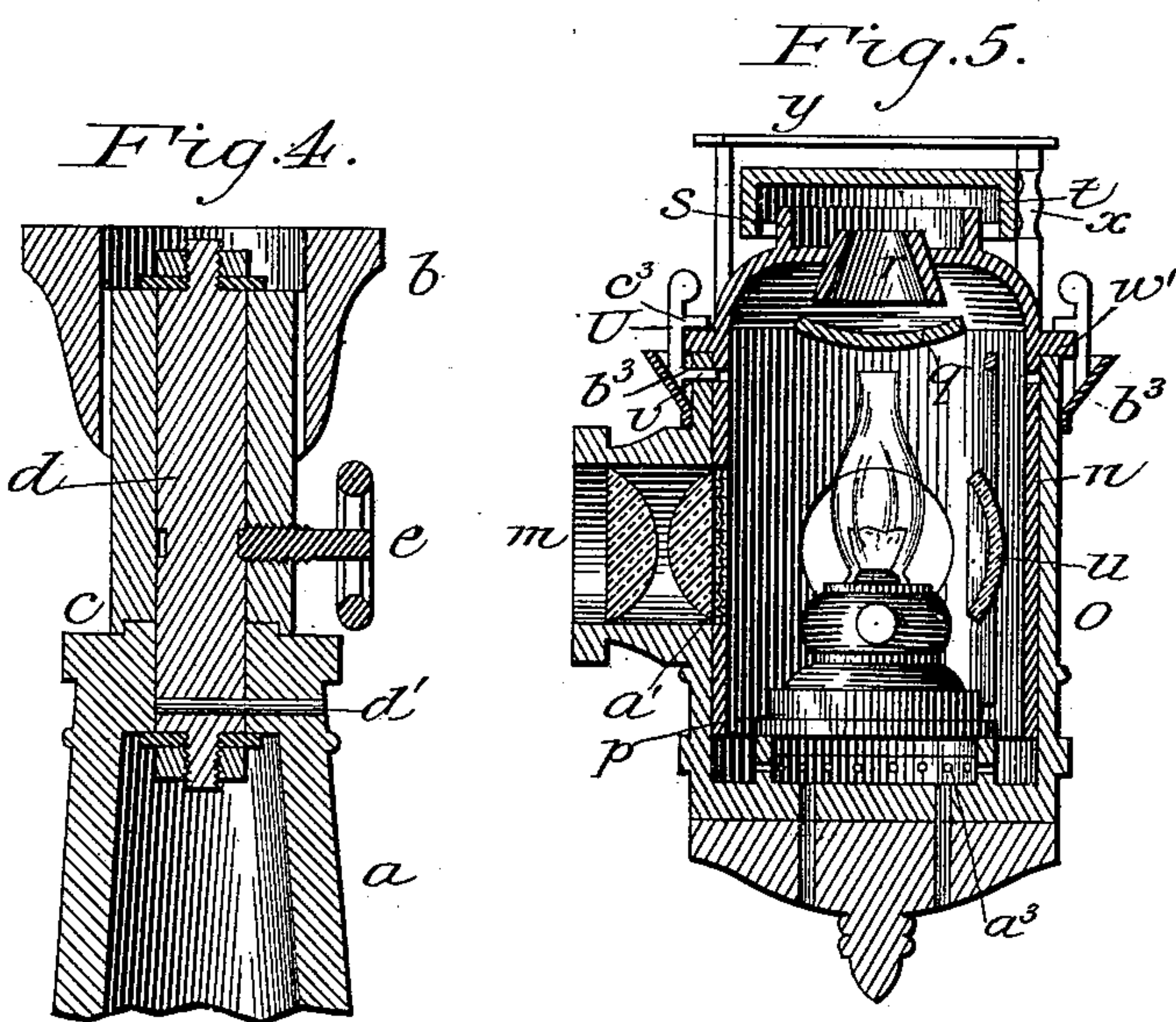
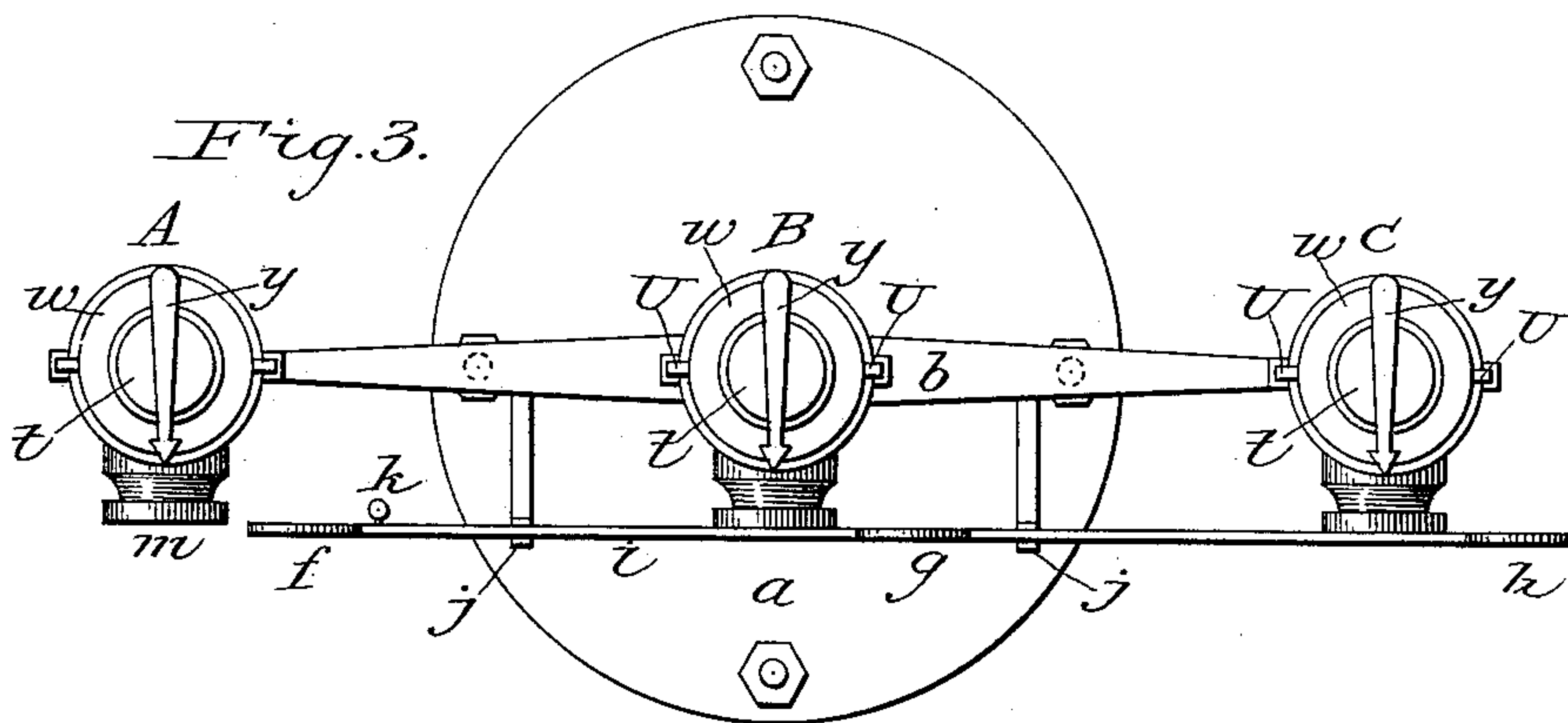
(No Model.)

3 Sheets—Sheet 2.

J. WALL.
NIGHT SIGNALING APPARATUS.

No. 335,489.

Patented Feb. 2, 1886.



Witnesses:

A. M. Long-

Chas. H. Baker.

Inventor.

Joseph Wall

Per atty

William Henry Clifford

(No Model.)

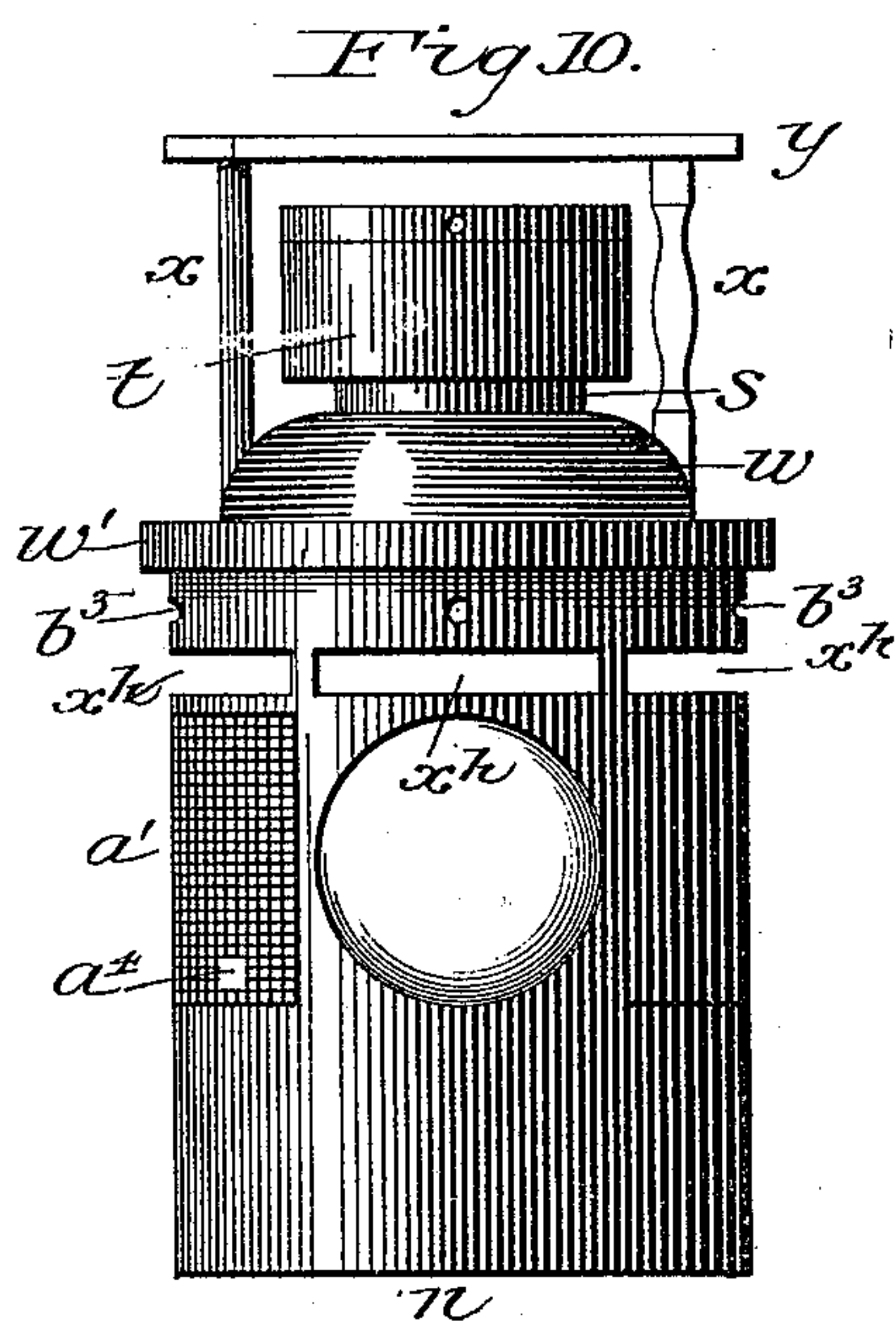
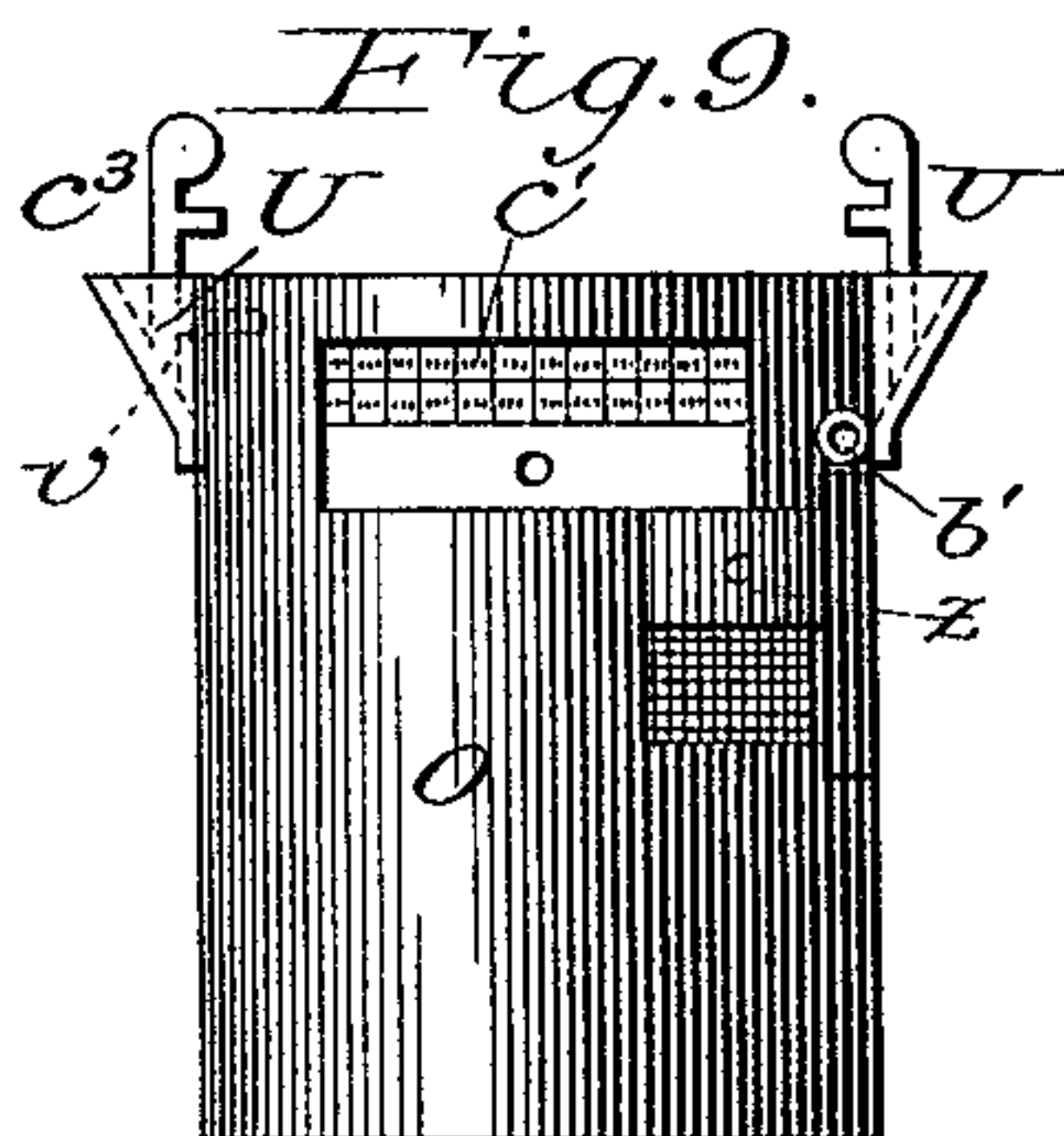
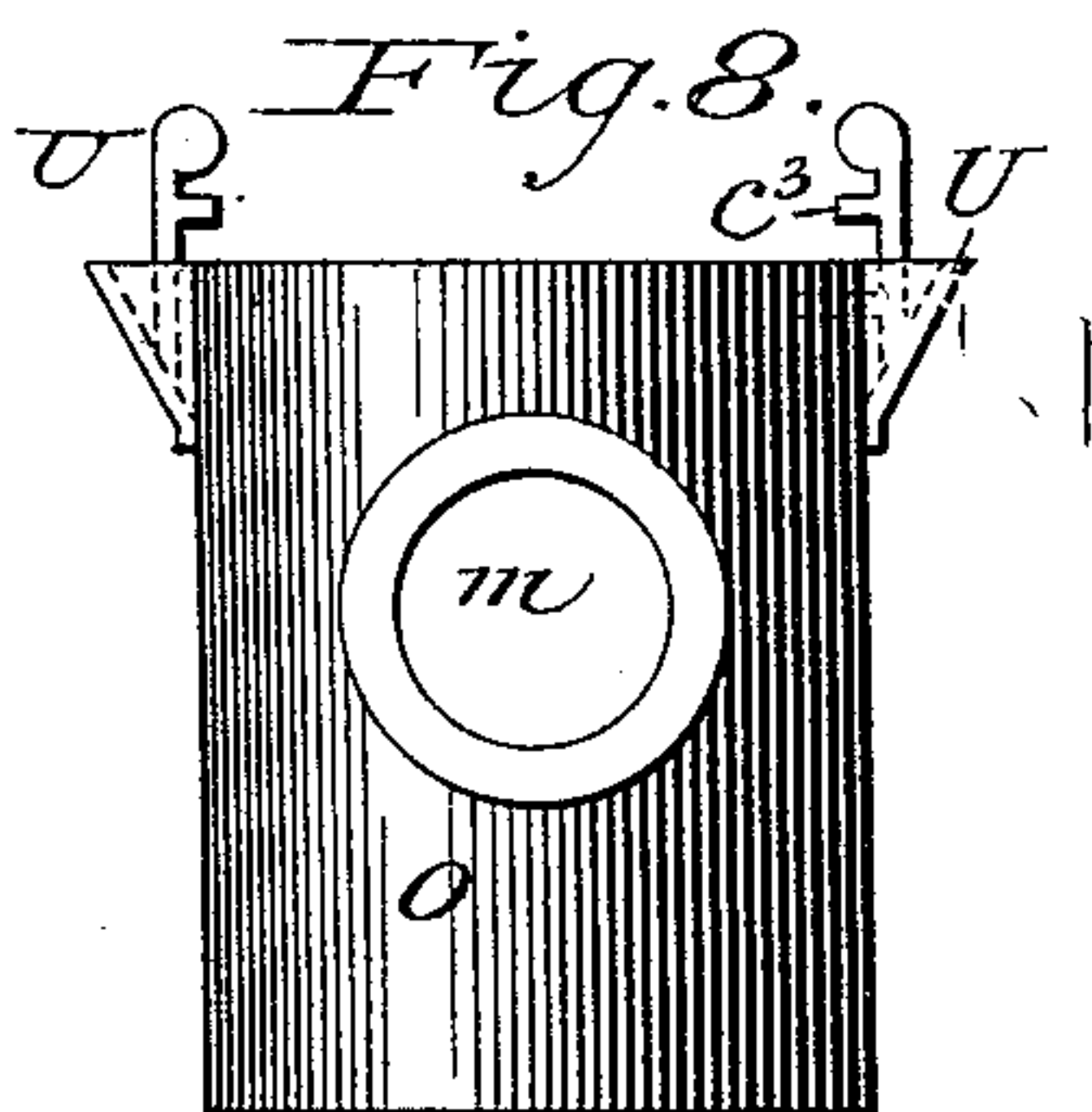
3 Sheets—Sheet 3.

J. WALL.

NIGHT SIGNALING APPARATUS.

No. 335,489.

Patented Feb. 2, 1886.



Witnesses:

A. M. Long.

Chas. H. Baker.

Inventor:

Joseph Wall.

Per atty

William Henry Clifford

UNITED STATES PATENT OFFICE.

JOSEPH WALL, OF BOOTLE, COUNTY OF LANCASTER, ENGLAND.

NIGHT SIGNALING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 335,489, dated February 2, 1886.

Application filed March 23, 1885. Serial No. 159,869. (No model.) Patented in England May 8, 1884, No. 7,391.

To all whom it may concern:

Be it known that I, JOSEPH WALL, of Bootle, in the county of Lancaster, England, have invented certain new and useful Improvements in Night Signaling Apparatus, (for which I have received a patent in Great Britain, No. 7,391, of date May 8, 1884;) and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Figure 1 is a front elevation of my invention. Fig. 2 is a rear elevation of the same. Fig. 3 is a top plan. Fig. 4 is a detail showing the means of holding the frame stationary at any point. Fig. 5 is a vertical section of one of my lamps. Fig. 6 is a transverse section of the outer and inner cylinders of my lamp. Fig. 7 is a detail showing the rod for moving the obscuring-disks with its handle and the set-screw for holding it fixed at any point. Fig. 8 is a front view of the outer cylinder of a lamp, showing the springs for holding it and the inner cylinder together, and the pin for holding the inner cylinder fixed at any point. Fig. 9 shows a back view of the outer cylinder of the middle lamp with the door and a direction-plate indicating the various signs or signals of a code to be used in the signaling set therein. Fig. 10 is a side view of one of the inner cylinders, showing the shades.

Same letters show like parts.

My invention relates to night signaling apparatus for ships, light-ships, vessels, &c., and also for land use, as from light-houses, towers, &c.

My invention is mounted upon a proper base or support, *a*. Upon this base *a* is mounted a table, *b*, capable of being revolved upon the base *a*. The base and table are placed together at *c*, and are held by a bolt, *d*. (See Fig. 4.) The bolt is rigid on the base, and the table revolves thereon. A pin, *d'*, prevents rotation of the bolt. The revolving table *b* is held at any point by the set-screw *e*,

passing through a hole in the lower part of the table *b*, and, when screwed up, bearing against the bolt *d*. This set-screw is on the rear side of the table *b*, turns with it, and is thus always convenient for the signaler who stands behind the table. The turning of the table *b* is for the purpose of keeping the signaling apparatus properly fronted or focused toward the vessel being signaled, no matter how the two vessels may change position while communication is going on. The set-screw is plainly for holding the table in any desired position. The table *b* carries also three obscuring-disks, *f g h*. These are attached to a horizontal sliding rod, *i*, and so move simultaneously. The rod runs through guides *j*, and is worked by a handle, *k*. A set-screw, *l*, in one of the guides enables the operator to hold the rod fixed at any point of its motion.

The purpose of the obscuring-disks *f g h* is to shut off, when desired, the light emitted from the lenses of the lamps A B C, thus separating or dividing the different signals made.

The lamps A B C are composed of two cylinders—an outer and an inner one. The outer one is opaque, made of metal or any proper material, and has the aperture *m*, for the emission of horizontal rays of light. This cylinder is set and secured into a socket prepared for its reception, (illustrated at *n'* in Figs. 1 and 2.) The three lamps are thus located on the table *b*. The inner cylinder is placed within the outer or opaque one, and is supported by a shoulder, *w'*, which is arranged to overlap and rest upon the upper edge of the outer cylinder, and bears thereon during the rotation of the inner cylinder within the outer cylinder. The inner cylinder is provided with four equal portions, made up, respectively, of red glass, green glass, a wire-gauze, and an opaque portion. As this inner cylinder is turned within the outer one, when the lamp is lighted within the two, the lamp shows such a colored light as the glass before the aperture *m* of the outer cylinder would emit. The wire-gauze shows the white light, and the gauze is used in order to so tone it down as that it will not be so brilliant as to eclipse at a distance the other and softer colors, when

used with it—that is to say, when the white is used in one lamp and the red or green, or both, in the others.

The lamps or illuminating agents, electric or other, are placed within the inner cylinders, *n*, as illustrated in Fig. 5.

I will letter the outer cylinders *o*.

The lamp is carefully protected from gusts of air likely to diminish its brilliancy or extinguish it. This is accomplished as follows: The body *p* is slightly raised from the floor of the outer cylinder. In the floor are made little holes *a*³, to admit currents of air. (See Fig. 5.) These strike against the bottom of the body *p*, and then pass off horizontally into the lamp and around the flame, so that their force is thus destroyed. Over the lamp-chimney is the disk *q*. Then comes the chimney of the inner cylinder. This chimney of the inner cylinder is composed of the parts *r*, *s*, and *t*, as illustrated in Fig. 5. The lantern has also the aperture *m*, with a proper lens therein for emitting parallel rays of light, and a reflector, *u*, within. The two cylinders *n o* are held together by the springs *U* on the outer cylinder. These have shoulders *c*³, which pass over the top edges of the two cylinders, when one is placed within the other, and thus unite them. One of these springs also carries a small pin, *v*, which penetrates holes *b*³ in the inner and outer cylinders, to hold the inner one, *n*, at any position into which it has been turned in signaling. When the inner cylinder is to be turned, the spring which carries the pin *v* is drawn back, in order to draw the pin out of one of the holes *b*³ in which it may happen to be. This allows the operator to turn the inner cylinder by grasping the arrow *y* in his hand, and so turning it as he may wish.

w is the top or cover, and is connected with the inner cylinder, *n*. Rising from this top of the inner cylinder and turning with it are up-rights *x*, which carry the horizontal arrow *y*. This, besides serving as a handle, instructs the sailor how to turn the inner cylinder to show the signal desired. He has only to remember the ship's lights—bright ahead, green to the right, red to the left. If it is desired to show green, so turn the inner cylinder as that the arrow of that lamp points to his right as he stands behind the apparatus. If he wants to show red, arrow must be turned to left; if bright, arrow must point in front of him, and if dark, the arrow must point toward himself.

Each lamp is furnished with a little door, *z*. This door can be raised, so as to enable the operator to examine the condition of the lamps. This is done through the gauze of the inner cylinder, which is turned against the aperture of the outer cylinder when an examination is to be made. The aperture left open by the raising of the door is guarded with a wire-gauze, *a'*, of the inner cylinder. A pin, *b'*, attached to the outer side of the outer cylinder, *o*, enables the operator to trim the lamps

without taking them off the table *b*. When the wire-gauze is turned up to the little door *z*, the pin *b'* can be thrust through a hole, *a'*, of the gauze, to pick or trim the wicks. The middle lamp has on the back side an illuminated direction-plate, *c'*, to guide the operator and prevent mistakes. This direction-plate embraces all the combinations of lights and colors required for signaling. These colors are produced on some translucent substance, and are lighted up by the light within the lamp. The openings *x*^h are seen in Fig. 10 below the holes *b*³. They are four in number, and are to admit light to the direction-plate *c'*, and are arranged quartering, so as to correspond to the four working positions of the cylinder, and so that one of them can perform its office when the cylinder is in any one of said four working positions. The display of the three or more differently-colored lights is intended to be simultaneous, produced by the removal or withdrawal of the opaque obscuring-disks from in front of the lenses.

Each combination of colors—one in each lamp—may refer to a letter which has a peculiar phrase for its meaning. For instance, a vessel might show two red lights with a white in the center, and then another showing two greens with a black at center, which would be the letters N C, meaning "In distress—want assistance."

My code of signals is adapted to the Commercial Code-Book of Day-Signals, and each signal from the apparatus is to be read as a flag would be by day. It will be recognized that in nights, especially the long winter nights of the higher latitudes, navigation stands in need of night-signals adapted to the commercial code of day-signals.

I do not desire to limit myself to the particular code of signals I have used herein as an illustration.

I reserve the right to use in combination with the devices I have herein described any code or system of signals useful for the purpose or which I may originate.

What I claim as my invention, and desire to secure by Letters Patent of the United States, is—

1. In combination with the lamps A B C, the support *a*, table *b*, with its sockets for the reception of the lamps, and the sliding rod *i*, with its obscuring-disks *f g h*, as herein set forth.

2. In combination, the lamps A, B, and C, each having an inner cylinder, *n*, and an outer cylinder, *o*, provided with a shoulder-spring, *U*, as set forth.

3. In combination, the lamps A, B, and C, having outer and inner cylinders, *o n*, provided with holding-pins and formed with holes therefor, as set forth.

4. The lamps A B C, having outer and inner cylinders, in combination with arrows *y*, attached to the inner cylinders, as set forth.

5. The combination, with the outer cylin-

ders, *o*, each provided with an aperture, *m*,
and a lens, of the inner cylinders, *n*, rotatable
within the outer, and having the colored
glasses, wire-gauze, and opaque part, as set
5 forth.

6. The lamps A C, in combination with the
middle lamp, B, having on the rear side the
direction-plate *c'*, as set forth.

In testimony that I claim the foregoing as
my own I affix my signature in presence of 10
two witnesses.

JOSEPH WALL.

Witnesses:

FRANK W. ROBINSON,
JOHN P. KERRIGAN.