No. 733,981. PATENTED JULY 21, 1903.

L. F. LOREE & F. P. J. PATENALL.

SEMAPHORE.

APPLICATION FILED MAR. 11, 1903.

NO MODEL.

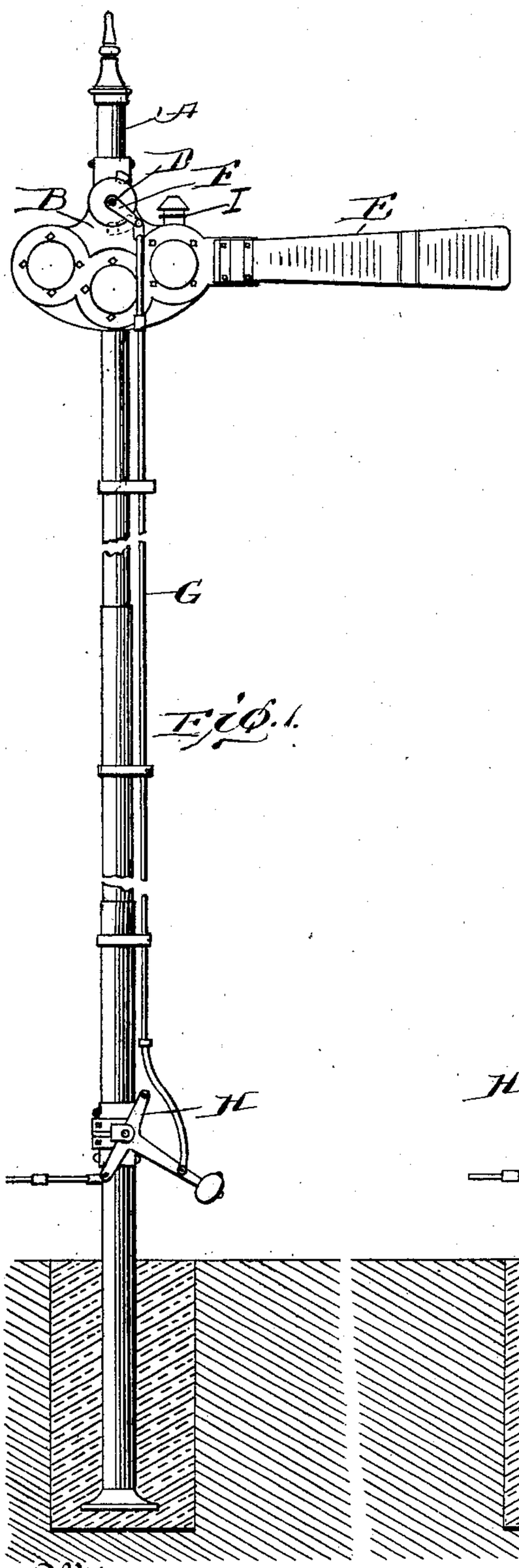

FIG. 1.

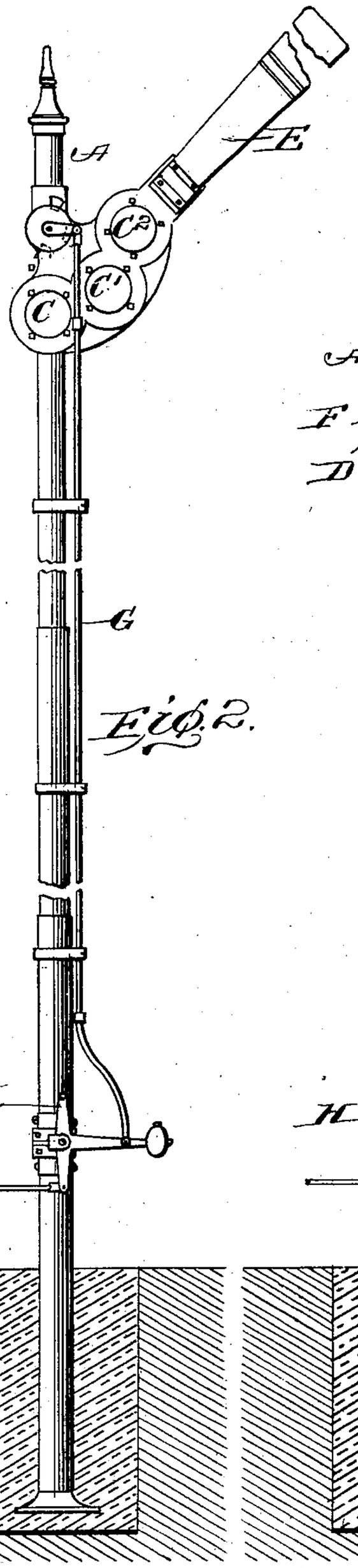

FIG. 2.

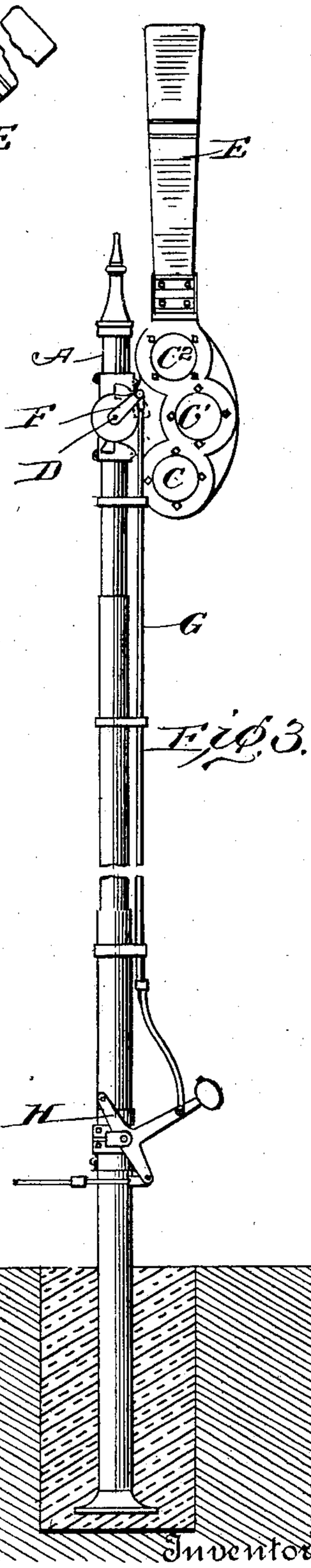

FIG. 3.

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No. 733,981. Patented July 21, 1903.

UNITED STATES PATENT OFFICE.

LEONOR F. LOREE AND FRANK P. J. PATENALL, OF BALTIMORE, MARYLAND.

SEMAPHORE.

SPECIFICATION forming part of Letters Patent No. 733,981, dated July 21, 1903.

Application filed March 11, 1903. Serial No. 147,310. (No model.)

To all whom it may concern:

Be it known that we, LEONOR F. LOREE and FRANK P. J. PATENALL, of Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Semaphores; and we do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the letters of reference marked thereon.

This invention relates to improvements in semaphores of that type commonly employed for controlling the running of railway-trains by the block system, the objects of the invention being to provide a device of this character which will have the capacity for indicating a large number of conditions to be noted by the engineer of the running train, the construction being such that the danger from accidental breakage or the accumulation of snow, sleet, or ice on the apparatus, such as would prevent a correct or cause a wrong positioning of the arm, is eliminated or reduced to a minimum.

The invention consists in certain novel details of construction and combinations and arrangements of parts, all as will be now described, and pointed out particularly in the appended claims.

Referring to the accompanying drawings, Figures 1, 2, and 3 are elevations of a semaphore embodying the present improvements, the arm being shown in three different signaling positions.

Like letters in all the figures indicate the same parts.

As illustrated in the drawings and as usually arranged, the semaphore is mounted at the top of a mast A, although it will be understood that any other preferred or common form of support may be employed, the invention herein residing in the operative portions of the apparatus, as will now appear. At the proper point on the mast or other support there is pivoted a part which I shall herein term a "spectacle-casting," such part being designated generally by the letter B, and in the preferred construction consisting of a casting or frame having two or more—preferably three—openings C C′ C^2, arranged in circular series around a center D, forming the pivotal axis on which the spectacle-casting turns. The spectacle-casting, it will be noted, is located practically all at one side of its pivotal center D. Thus under the influence of gravity it will hang beneath the said center. At one end it is adapted for the reception of the end of the blade or arm E, the latter projecting horizontally when the spectacle-casting hangs beneath the center D, as in Fig. 1. In this preferred construction the weight of the parts is preferably so proportioned that if left entirely free, as would be the case should any of the operating connections become broken or disarranged, the spectacle-casting and blade or arm will of themselves assume the horizontal position or position of danger, thus blocking the track until the apparatus is again put in order.

For operating the semaphore it is preferred that a crank-arm F be attached to the spectacle-casting and connected by a rod G with a counterweighted double bell-crank lever H at the bottom of the mast, the push or pull rods extending to the tower, switch, or other control point being connected with the bell-crank lever.

In operation it is designed that the blade or arm shall be extended horizontally for "danger," or upwardly inclined to indicate "caution," or vertically upward to indicate "safety" or "clear track," and it will be noted that because of the location of the spectacle-casting and arm or blade all at one side of the pivotal axis of the semaphore not only is the normal tendency to return to danger position, but accumulations of snow or ice on the blade and casting increase this tendency, and consequently should such accumulations be sufficient to break or distort the operating mechanism the result will be to set the semaphore to "danger" or "caution," thereby preventing collisions or accidents from this cause.

The three apertures C C′ C^2 are for night signaling in connection with a light or lantern, as indicated at I, said openings being adapted for the reception of transparent disks. Thus the opening C may show a white light, the opening C′ a green light, and the opening

C^2 a red light, these lights being brought into position before the lantern by the movements of the semaphore.

Obviously, if so desired, the arm may be swung below the horizontal, especially where it is desired to increase the number of signals, and consequently it is entirely practicable to set the semaphore to five distinct positions.

It will be particularly noted in connection with the present invention that no counterweight is necessary to carry the semaphore to "danger," the weight of the casting and arm themselves serving to perform this function, and as a consequence weight added to these parts, as by the accumulation of ice, sleet, or snow, assists rather than retards the movement of the parts to the danger-signal.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination with a semaphore-support, of a semaphore-arm and casting to which it is secured pivotally mounted on the support on a center at one side of said arm and casting, whereby the weight of both the arm and casting tend to move the arm around its pivotal center from its vertical position into position to indicate "danger."

2. The combination with a semaphore-support, of a casting pivotally connected with the support on a center at one side of its center of gravity when the semaphore is in position to indicate "safety" and a semaphore-arm rigidly connected with said casting and projecting in a plane passing to one side of the pivotal axis of the casting, whereby the combined weight of the casting and arm, together with the weight of accumulations of ice, &c., thereon, tend to move the arm from its vertical position indicating "safety" into a position indicating "danger;" substantially as described.

3. The combination with a semaphore-support, of a semaphore embodying a spectacle-casting having a series of apertures therein disposed in circular series, an arm or blade carried by said spectacle-casting, a pivot for the casting and blade located at one side of the casting and blade whereby both said parts tend to gravitate around the pivot in the same direction, a crank connected with the casting and an operating-rod for simultaneously moving the casting and blade around the pivot from a lower to a higher elevation.

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