(No Model.) 3 Sheets—Sheet 1.

J. SCHREUDER & V. SPICER.

SEMAPHORE SIGNAL.

No. 372,569. Patented Nov. 1, 1887.

Fig 1.

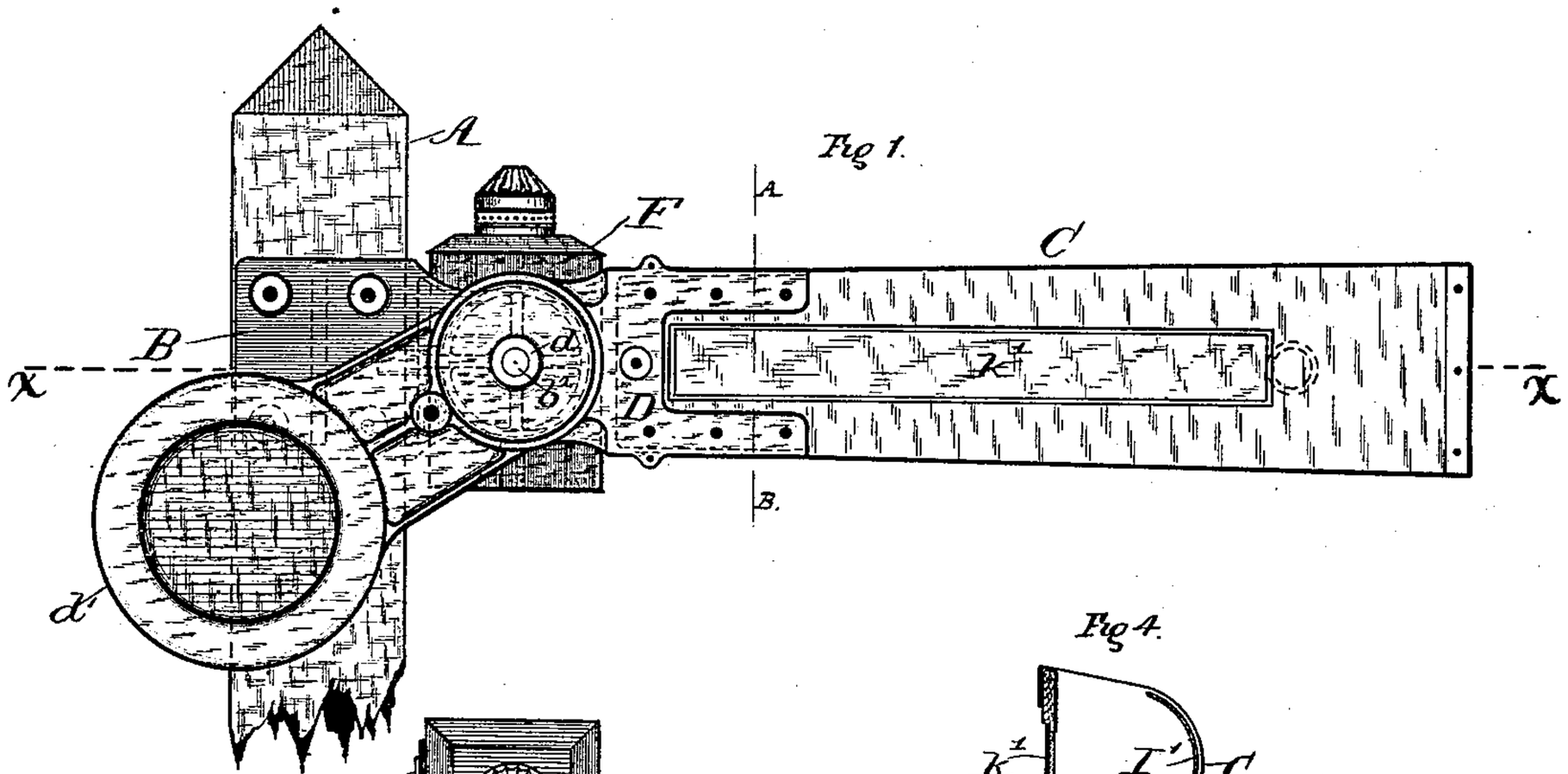


Fig 4.

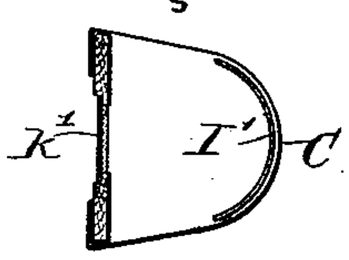


Fig 2

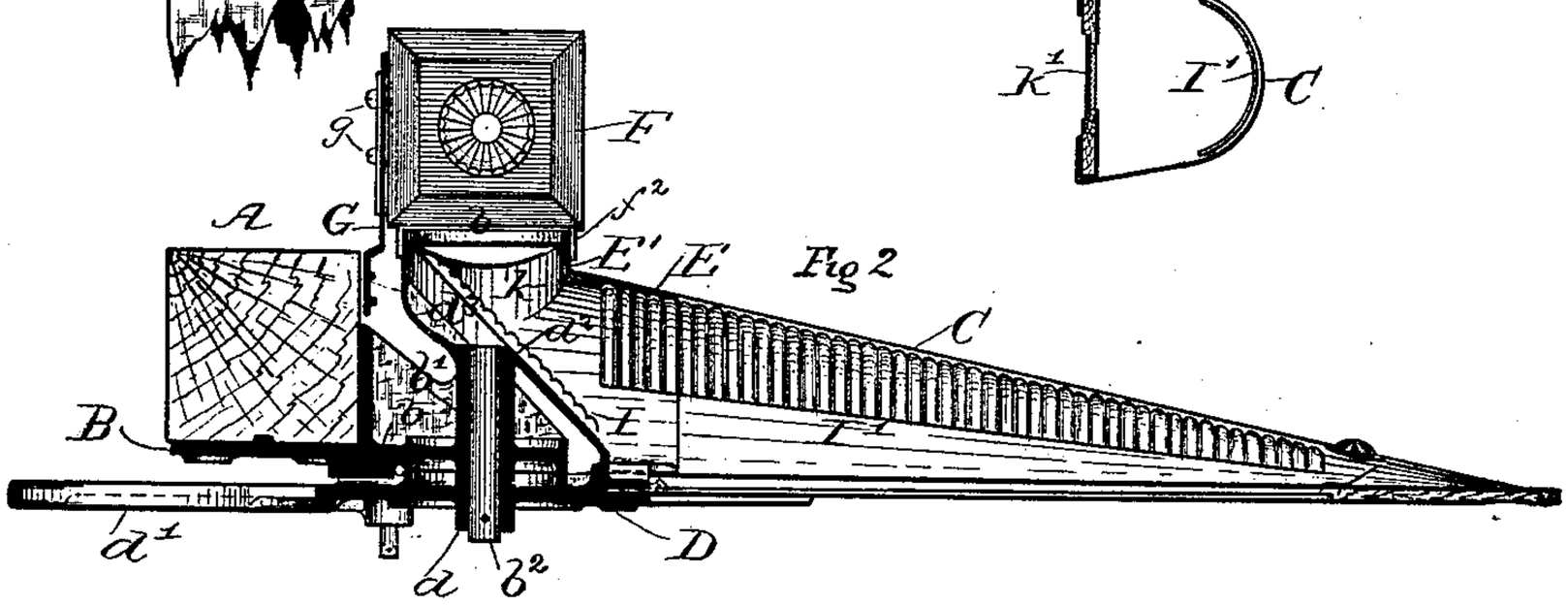
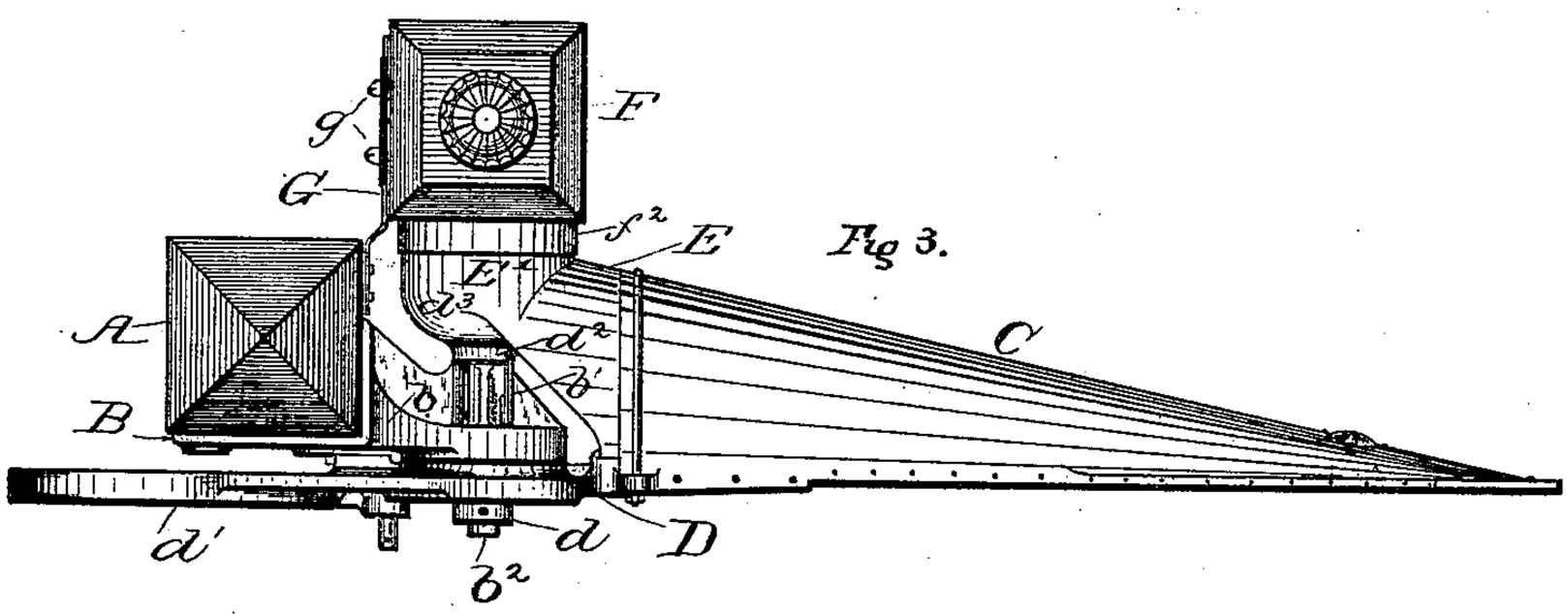


Fig 3.



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(No Model.) 3 Sheets—Sheet 2.

J. SCHREUDER & V. SPICER.

SEMAPHORE SIGNAL.

No. 372,569. Patented Nov. 1, 1887.

Fig. 5

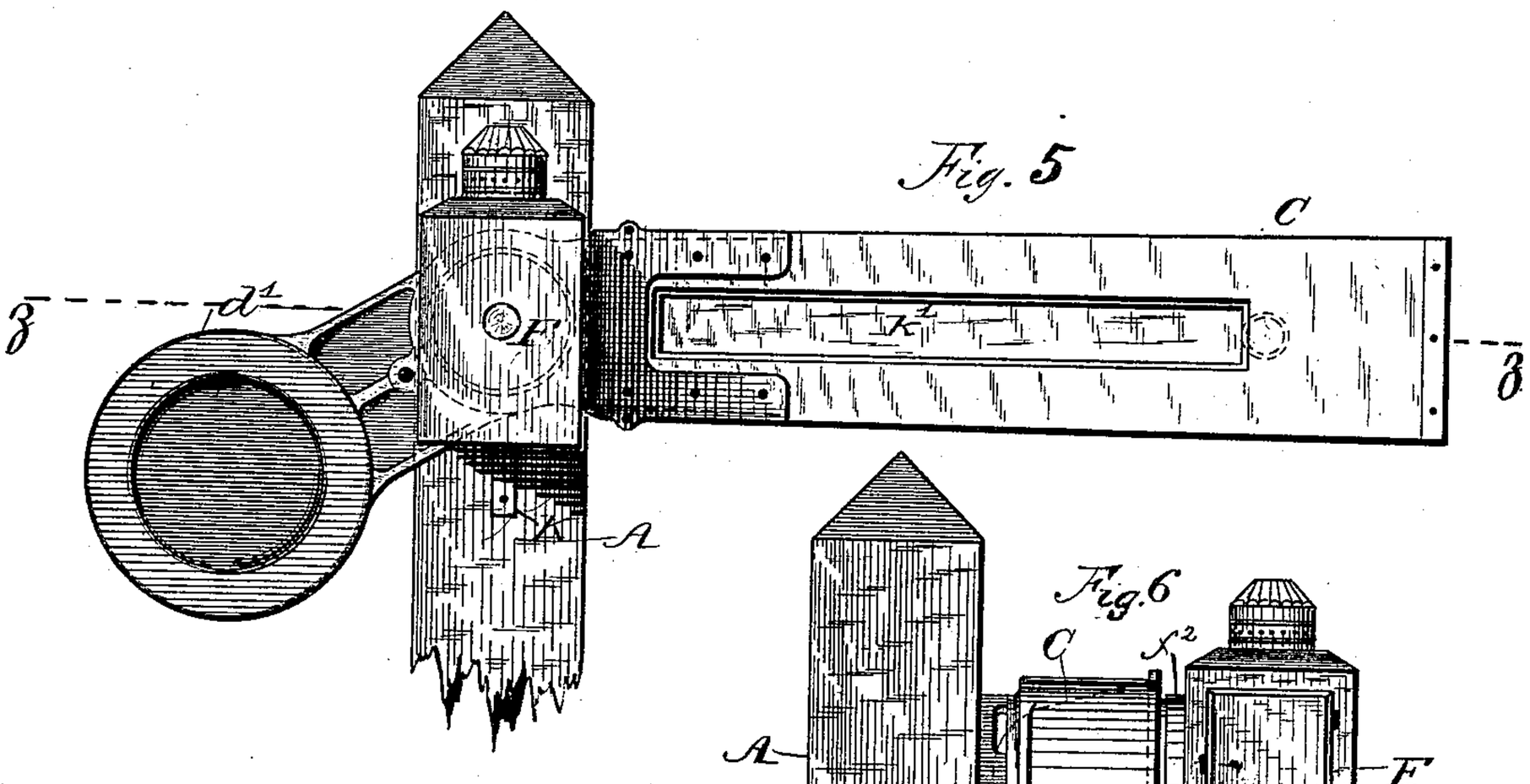


Fig. 6

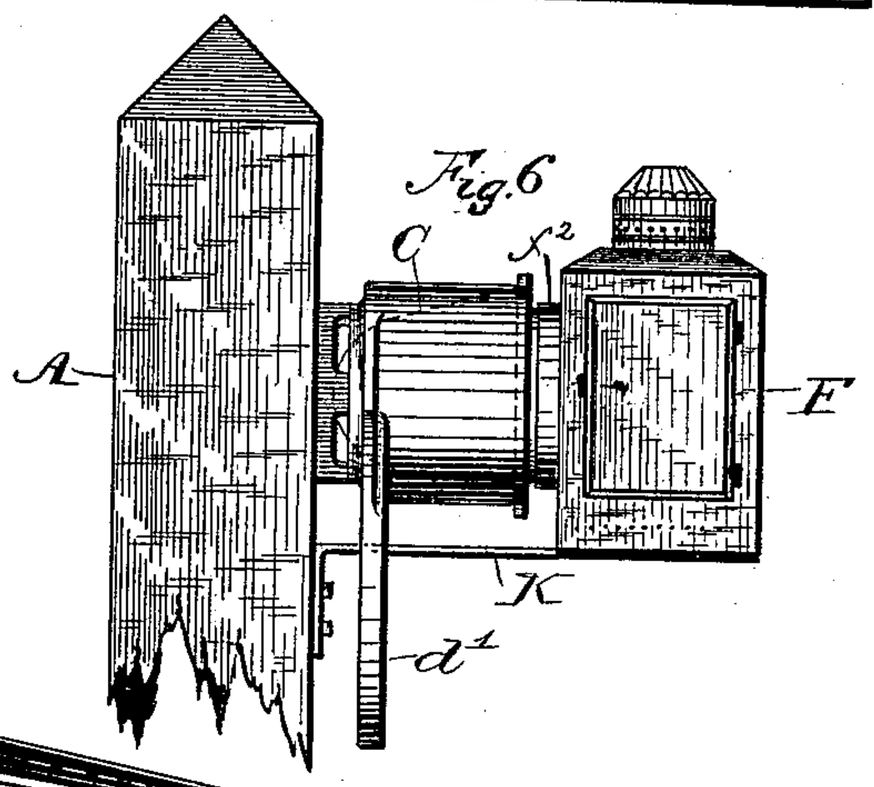
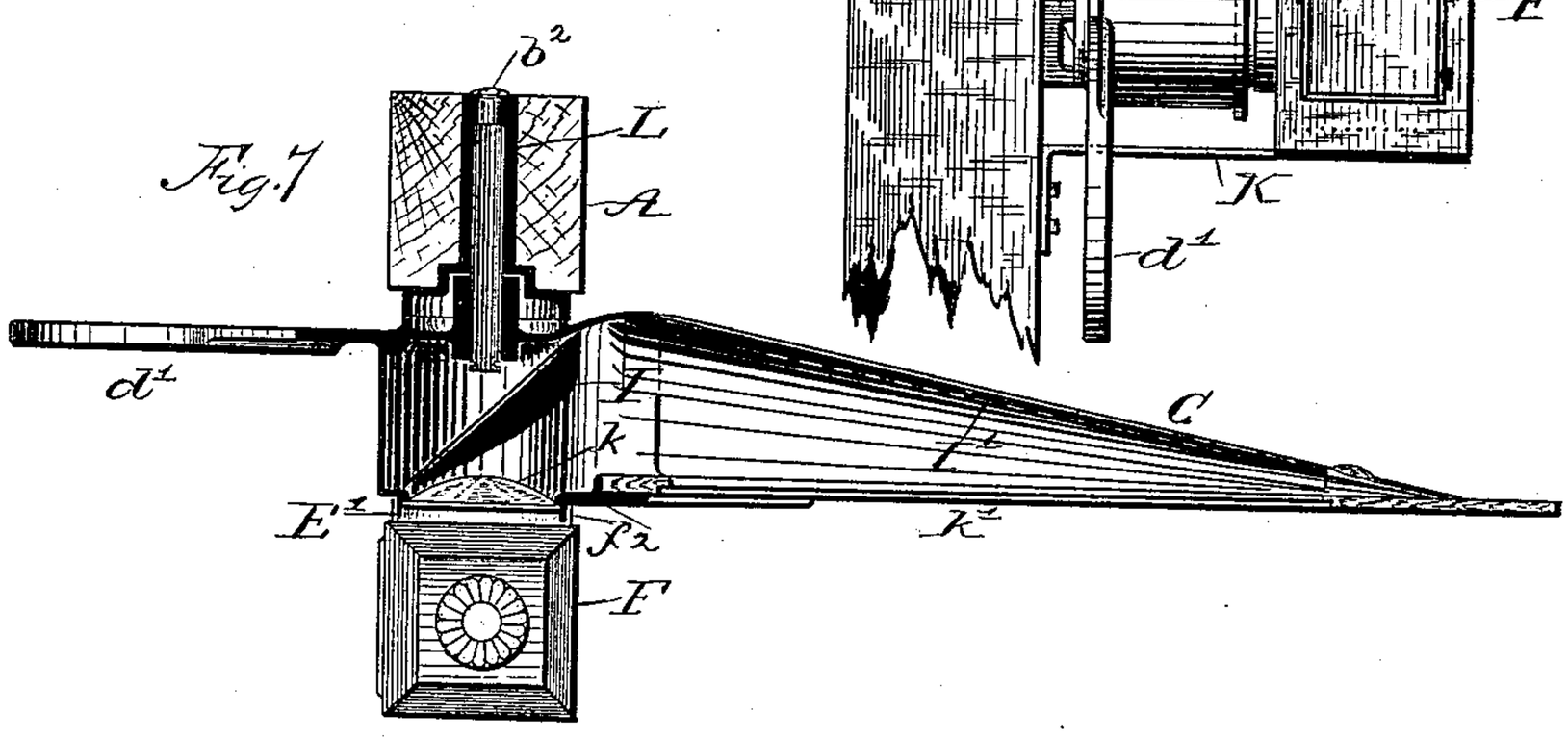


Fig. 7



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(No Model.)

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SEMAPHORE SIGNAL.

No. 372,569. Patented Nov. 1, 1887.

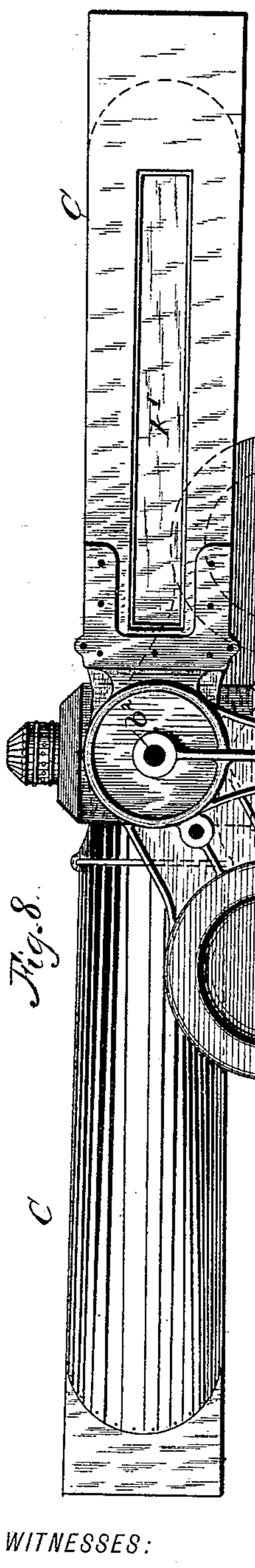

Fig. 8.

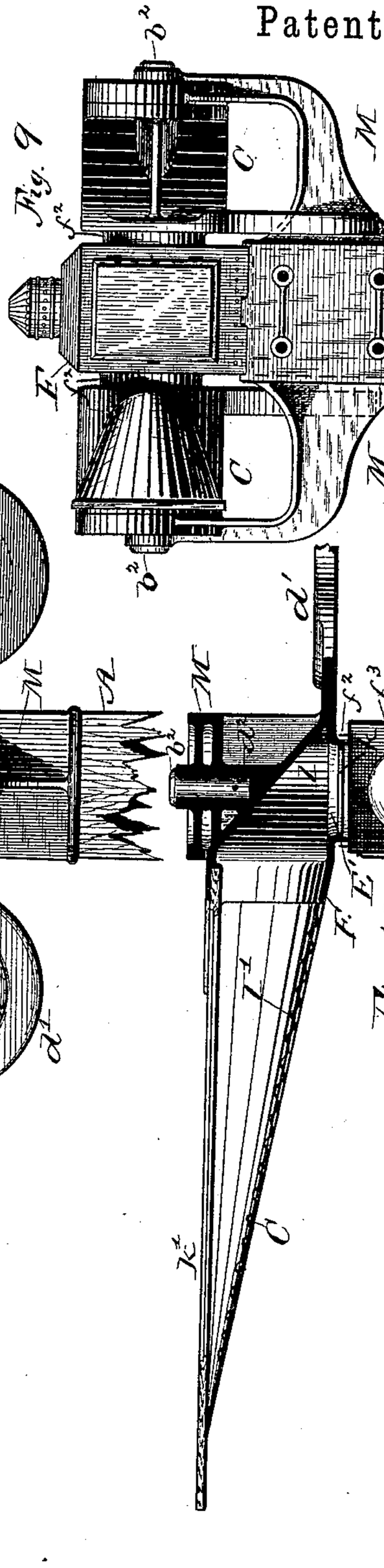

Fig. 9.

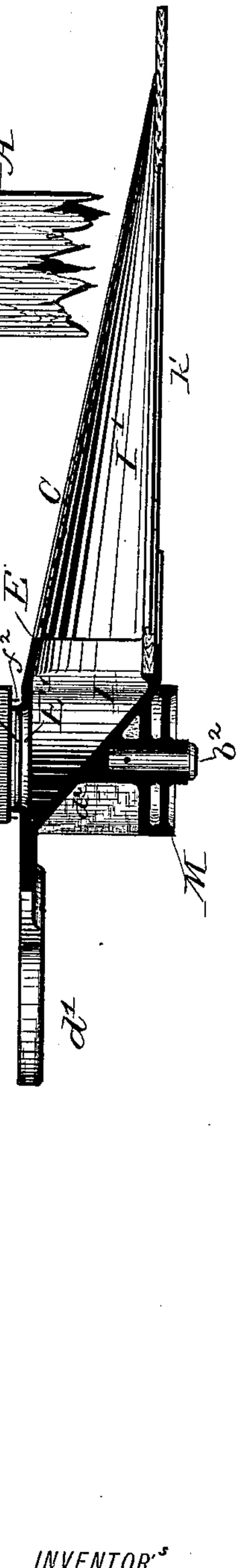

Fig. 10.

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UNITED STATES PATENT OFFICE.

JENS SCHREUDER AND VIBE SPICER, OF PITTSBURG, PENNSYLVANIA.

SEMAPHORE-SIGNAL.

SPECIFICATION forming part of Letters Patent No. 372,569, dated November 1, 1887.

Application filed April 19, 1887. Serial No. 235,405. (No model.)

To all whom it may concern:

Be it known that we, JENS SCHREUDER, a subject of the King of Norway, and VIBE SPICER, a citizen of the United States, both residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Semaphore-Signals; and we do hereby declare the following to be a full, clear, and exact description of the invention, reference being had to the accompanying drawings, which form part of this specification.

This invention has relation to illuminated semaphore-signals, and relates particularly to that class of signals in which is employed a hollow box-like swinging arm or blade having a transparent or open face and lighted interiorly—such, for example, as the signal shown and described in our Letters Patent No. 346,387.

Our invention has for its object the provision of novel means for illuminating movable semaphore-blades; and our invention consists in the combination, with a hollow swinging signal arm or blade having a transparent front, of a lamp or other light arranged exteriorly to said blade, and means for reflecting the light into the hollow or cavity of the blade and out through the front of the same.

Our invention further consists in the combination, with two movable semaphore-blades, of a single lamp and means, substantially as hereinafter described, for illuminating both said blades by means of the light from said lamp.

Our invention further consists in the novel construction, combination, and arrangement of parts, hereinafter described and claimed.

Referring to the accompanying drawings, Figure 1 is a front elevation of a semaphore-signal constructed according to our improvements; Fig. 2, a horizontal sectional view on the line *x x* of Fig. 1; Fig. 3, a top view; Fig. 4, a vertical transverse sectional view on the line A B of Fig. 1; Fig. 5, a front elevation of a modified form of our improvement; Fig. 6, an end elevation of the same; Fig. 7, a sectional view on the line *z z* of Fig. 5; Fig. 8, an elevation of another form showing two blades lighted from a single lamp; Fig. 9, an end view of the device shown in Figs. 8; and 10 a horizontal sectional view of the same.

A designates the post upon which the signal is mounted, and B the casting secured to said post upon which the movable blade is pivoted. Said casting is formed with an inwardly-projecting arm or bracket, *b*, having a box or bearing, *b'*, for the passage of the shaft or spindle b^2, upon which the signal-arm turns. The signal-arm (marked C) consists of a hollow box-like structure of the general form and character of that shown in said Letters Patent No. 346,387, and is secured to the casting D, which carries the hub *d* and counterbalance-weight *d'*. The shaft b^2 passes through the center of this hub, and is secured in a boss or bearing, d^2, formed in said plate or casting d^3, which closes and constitutes the inner or rear end wall of the signal-arm. Said shaft is also secured to the hub *d* and moves with the signal-arm. The plate or casting d^3 is oblique, or lies at an angle with the face of the signal-arm, being so shaped as to conform to the shape of the arm or bracket *b*. The plate d^3 and back wall, E, of the signal-arm are combined and connected back of the shaft b^2, and are formed as to produce a cylindrical tubular flange, E', for connection with the lamp or lantern, and for the passage of the rays of light therefrom into the cavity of the signal-arm and to protect the glass. A lens, *k*, is situated in the opening formed through said flange.

F designates the lamp or lantern, consisting of the rectangular casing of metal, in front of which is formed an opening, *f*, encircled by a flange, f^2, within which fits and turns the flange E'.

The lamp is supported on the post A by means of a horizontal arm, G, which is formed with an open slot for the passage of screws *g*, and for the purpose of allowing the lamp to be removed and replaced without disturbing or interfering with the signal arm.

The light from the lantern is displayed through and by means of a double reflection, the signal-arm being provided with the reflectors I I', the first, I, being arranged obliquely at the rear end of and within the signal-arm, so as to receive the direct rays from the lamp, while the other, I', is situated at the back of the signal-arm, so as to receive the indirect reflected rays, which are then further reflected out through the glass face or window *k'* of the signal-arm.

As will be observed, the axis of the pivot upon which the signal-arm turns is in line with the center of the opening in the face of the lamp, this arrangement being necessary in order that the signal-arm may turn while the lamp remains stationary.

In the modified form illustrated in Figs. 5, 6, 7 a somewhat different construction of the parts is employed, the principle, however, being the same. In this case the lantern F is supported upon a bracket, K, projecting out from the front of the post A, and the semaphore-blade is pivoted upon the shaft b^2, which in this case is journaled in a box, L, which passes through the post A. The flange E is formed upon the flat face of the blade, instead of being upon the back of the same, as in Figs. 1, 2, and 3. The reflector I and the lens *k* are also changed in position, so as to reflect the light in upon the reflector I′ from the lantern in front.

In Figs. 8, 9, and 10 we have illustrated an arrangement wherein two swinging semaphore-blades are illuminated by means of a single lantern. In the arrangement the lantern F, which contains a lamp, f^3, is mounted upon top of the post, instead of being in front or to one side of the same, as in the other constructions hereinbefore described, and has at each side a flange, f^2, said flange embracing, respectively, the flanges E of two independently-operating semaphore-blades. These blades are constructed substantially in the manner of the blades shown in Figs. 1, 2, and 3, and are journaled in the brackets M M, fixed upon opposite sides of the post. As will be observed from the illustration, the two blades extend out in opposite directions and also face oppositely, the apparatus being designed for use as a "station-signal"—that is, where two parallel tracks are used for trains running in opposite directions.

In the construction last described it will be noted that both the swinging blades are adapted to be independently operated, while both receive light from the same source.

Having described our invention, we claim—

1. The combination, in a semaphore-signal, of a hollow box-like swinging arm blade, a stationary lamp fixed outside of the blade, and reflectors arranged substantially as described, so as to project the light from said lamp within the hollow of the blade, as set forth.

2. In a semaphore-signal, the combination, with a stationary lamp or lantern adapted to project its light through a flanged opening, of a hollow or box-like swinging arm or blade having a transparent face and containing the direct and indirect reflectors, said blade being mounted upon a horizontal shaft or pivot in line with the lamp burner, and formed with a tubular extension or flange which coincides with the flanged opening of the lamp.

3. In a semaphore-signal, the combination, with the hollow box-like swinging arm or blade C, having a transparent front, of angularly-arranged reflectors I I′, a tubular rearwardly-extending portion, E, and transparent partition or lens *k*, with stationary lamp or lantern F, substantially as described.

4. The combination, in a semaphore signal, of two hollow box-like swinging arms or blades having their pivotal points in alignment, a lamp or lantern also in alignment with said pivotal points, and suitable reflectors arranged substantially as described, whereby the light from said lantern is projected into both said blades, as set forth.

In testimony that we claim the foregoing we have hereunto set our hands this 16th day of April, 1887.

JENS SCHREUDER.
VIBE SPICER.

Witnesses:
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JOS B. CONNOLLY.