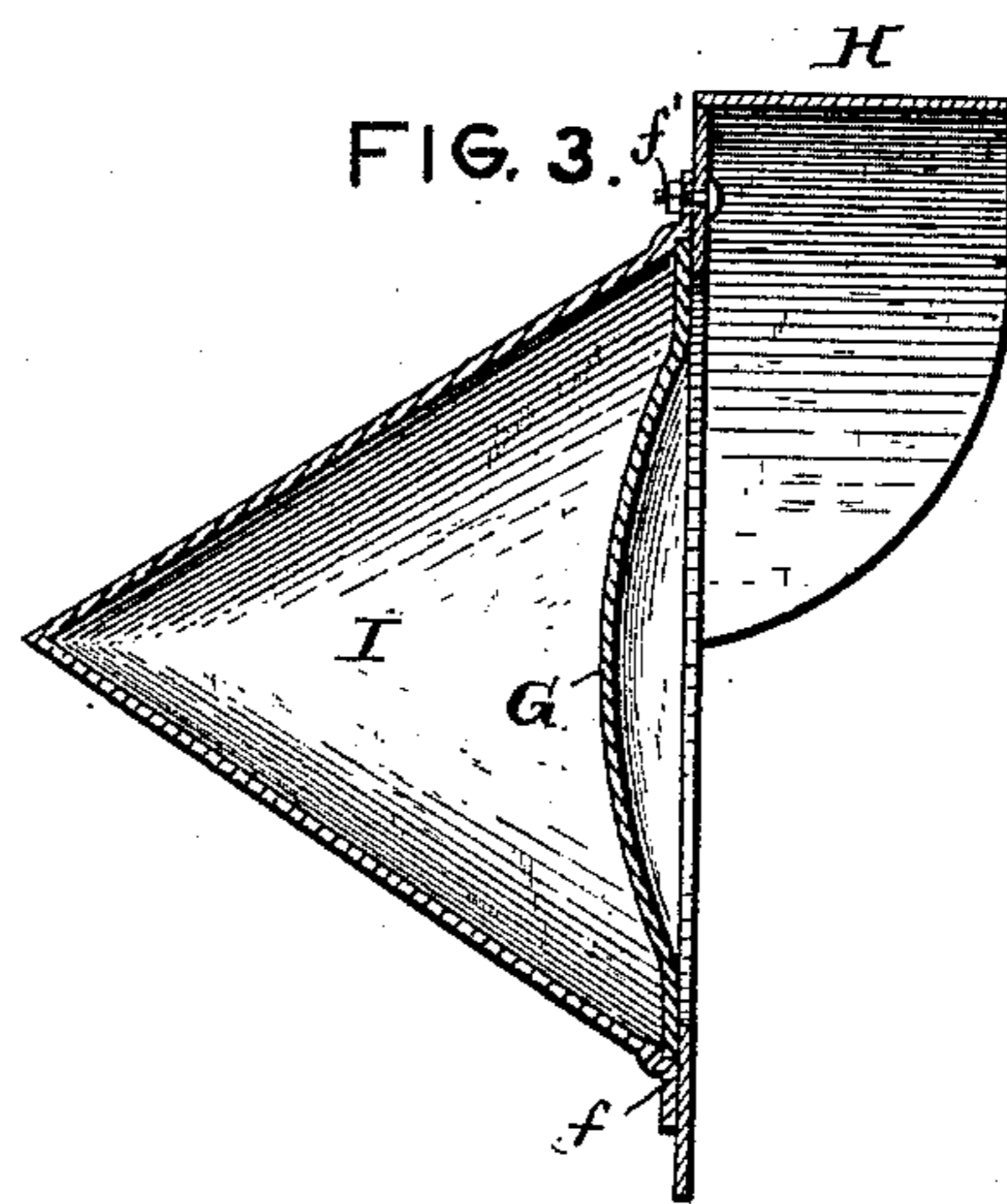
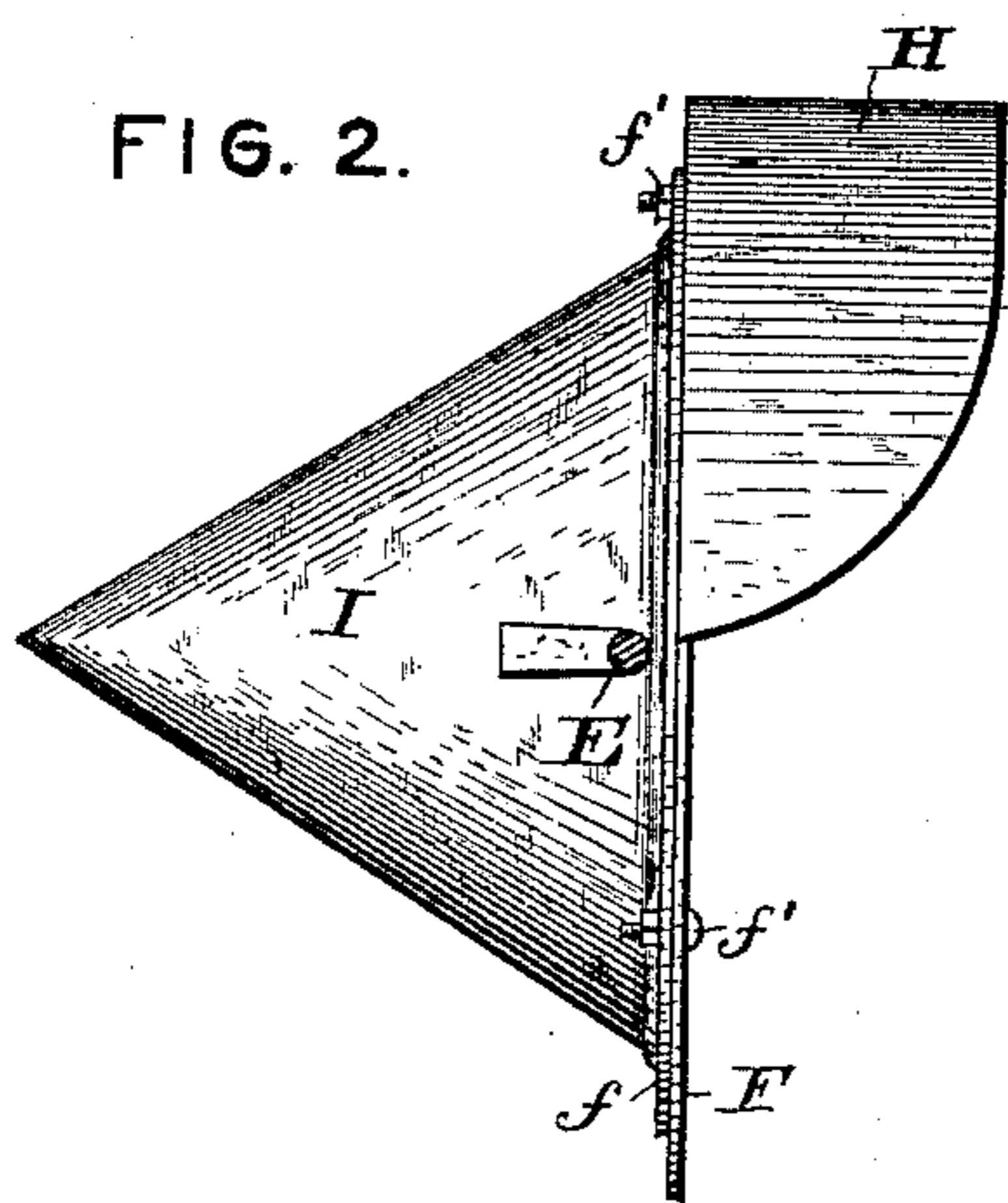
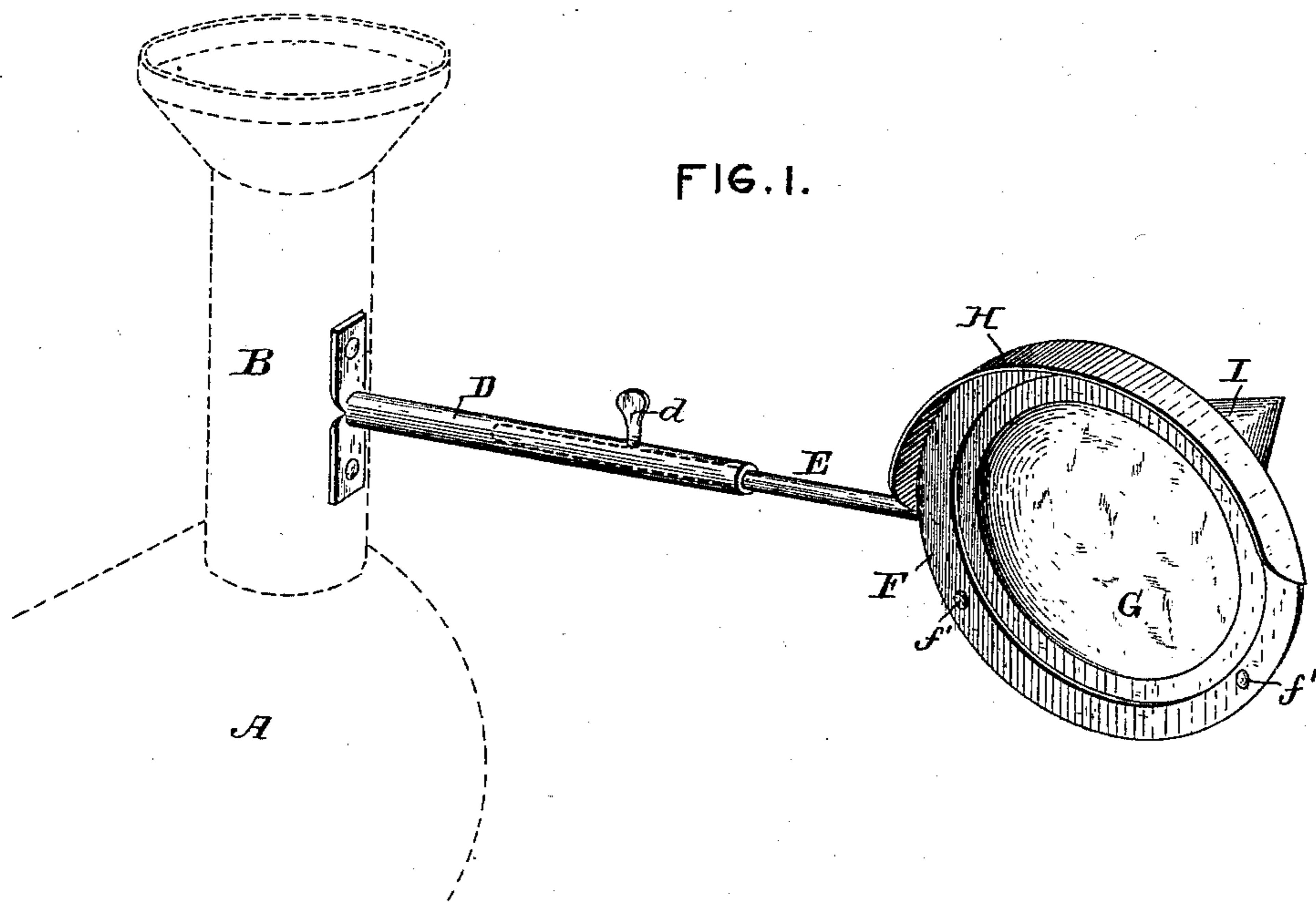


(No Model.)

G. W. MORRIS.
TRAIN OR BOAT REFLECTING DEVICE.

No. 440,493.

Patented Nov. 11, 1890.



ATTEST.

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GEORGE W. MORRIS, OF RICHMOND, VIRGINIA.

TRAIN OR BOAT REFLECTING DEVICE.

SPECIFICATION forming part of Letters Patent No. 440,493, dated November 11, 1890.

Application filed March 29, 1889. Serial No. 305,306. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. MORRIS, a citizen of the United States, residing at Richmond, in the county of Henrico and State of Virginia, have invented certain new and useful Improvements in Train or Boat Reflecting Devices; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improved train or boat reflecting device adapted to be used more particularly upon railway-trains, but which may also be used upon tug-boats used in towing; and it has for its object to provide a signal which will at all times indicate to the engineer of a train or the pilot of a tug-boat the condition of the train or tow and immediately call to his attention any signals from the rear or any break or parting of said train or tow.

My said invention consists, essentially, of a suitable reflector secured to the smoke-stack or forward portion of a locomotive or to the bow flag-staff of a tug and arranged so that its reflecting-surface faces the engineer's cab or the pilot-house of a tug and will reflect the rear of a train or tow.

It further consists in certain novelty in the construction, arrangement, and combination of the various parts of the same and the means employed in attaching it to a locomotive or tug-boat, all of which I will now proceed to point out and describe, reference being had to the accompanying drawings, the invention being illustrated as in use upon a railway-train, and in which—

Figure 1 illustrates the outline of the smoke-stack of a locomotive, my invention being shown in perspective attached to the smoke-stack. Fig. 2 is a side elevation of the same, and Fig. 3 is a vertical central section of said reflector.

Referring to said drawings, A indicates the locomotive; B, the smoke-stack, the engineer's cab being in the usual position.

D is a hollow rod or arm secured in any convenient manner to the smoke-stack and preferably attached to the right-hand side of the same. As shown, the rod projects at right angles from said smoke-stack.

E is a rod mounted in the rod or arm D, and is capable of being longitudinally adjusted therein or of being turned in said rod, for a purpose hereinafter set forth.

d is a set-screw, by means of which the rod E is secured to the rod or arm D at the desired adjustment.

F is a frame attached to the outer end of the rod E, and is preferably circular in form.

G is a reflector mounted in said frame F and having a concave reflecting-surface, and is formed of looking-glass, polished metal, or any other suitable reflecting material. Said reflecting-surface faces the engineer's cab and the rear of the train, and is arranged to reflect the rear of said train and at the same time to be in view of the engineer when looking forward.

H is a protecting-hood secured to the top of the frame and projecting back over the face of said reflector. Said hood serves to protect the reflector from rain, dust, the rays of the sun, &c.

I is a conically-shaped back secured to the frame of the reflector, which serves to lessen the force of the current of air against said frame and reflector when the train is in motion. The frame and back may be attached in any desired manner to the rod E. In the present instance I secure the conical back directly to the rod E and provide said back with a flange f, to which the frame is secured by screws or bolts f'. Instead of attaching the rod or arm D to the smoke-stack, it may be attached to any portion of the forward part of the locomotive. I prefer, however, to secure it to said smoke-stack.

In practice the reflector is made about fifteen inches in diameter, having its outer edges flat, and its concave portion about twelve inches in diameter.

For convenience I have described my invention as being attached to a locomotive and to be used with a railway-train. It is apparent, however, that it can be used with equal effect upon a tug-boat which is employed in towing. When used with a tug-boat, it is attached to the bow flag-staff.

The operation of my invention will be readily understood. The reflector or signaling device, being in front of the engineer's cab and facing the same, reflects the rear of the train.

As the engineer looks forward he is at all times informed as to the condition of the train, and is enabled to detect immediately should the train break or part and also to see any signals which may be made from the rear, thus enabling him to take proper precautions to protect himself and the lives and property in his charge. This feature of the invention will be appreciated as of the greatest importance by all persons employed upon railways. At night the signal will reflect the dome-light of the rear car or caboose and certain of the side lights, the concave surface of the reflector being of great advantage, as it gives the same a much wider range than a flat reflecting-surface would have. By means of the adjustable rod E the reflector may be moved in or out from the smoke-stack, so as to adjust it for short or long trains, and by turning said rod E in the rod D the reflecting-surface may be adjusted at the desired vertical angle.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

- 25 1. A reflecting device for railway-trains or boats, consisting of a reflector attached to and facing the rear of said train or boat and provided with a conical back, substantially as shown and described.
- 30 2. A reflecting device for railway-trains or boats, consisting of a reflector attached to and

facing the rear of the train or boat and provided with a protecting-hood extending over the top of the reflector, and a conical back, substantially as shown and described. 35

3. In a reflecting device for railway-trains or boats, the combination, with a hollow arm adapted to be secured to the train or boat, of an adjustable rod mounted in said hollow arm, a reflector secured to said rod and facing the rear of the train or boat and having a protecting-hood extending over the top of the reflector, and a conical back, substantially as shown and described. 40

4. In a reflecting device for railway-trains or boats, the combination, with a hollow rod or arm adapted to be secured to the locomotive or boat in front of the cab or pilot-house, of an adjustable rod mounted in said hollow arm, a reflector secured to said adjustable rod and having a concave reflecting-surface facing the rear of the train or boat, a protecting-hood extending over the top of said reflector, and a conical back secured to the rear of the reflector, all constructed, arranged, and operating substantially as shown and described. 55

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

GEORGE W. MORRIS.

Witnesses:

BERNARD PEYTON, Jr.,
H. W. LUBBOCK.