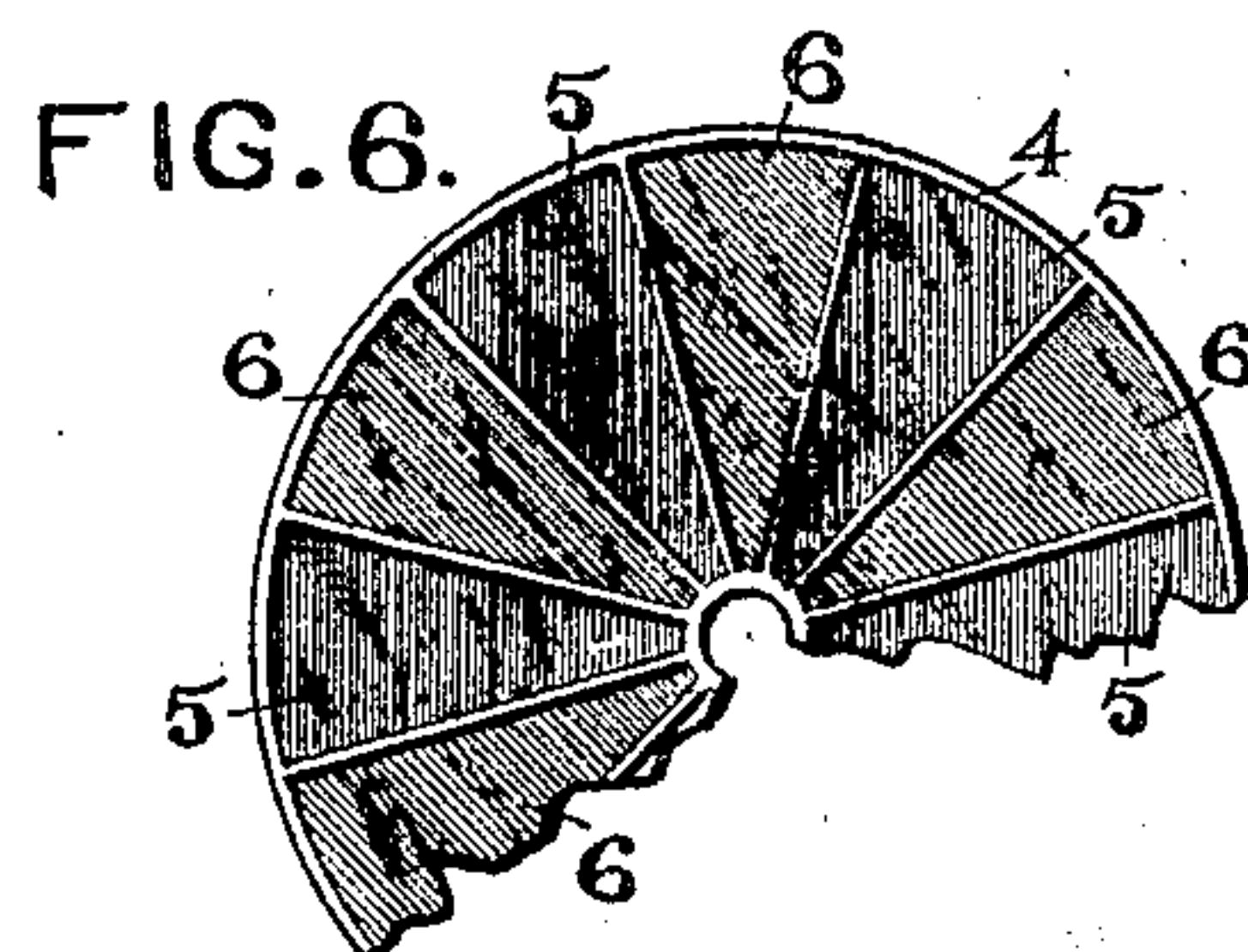
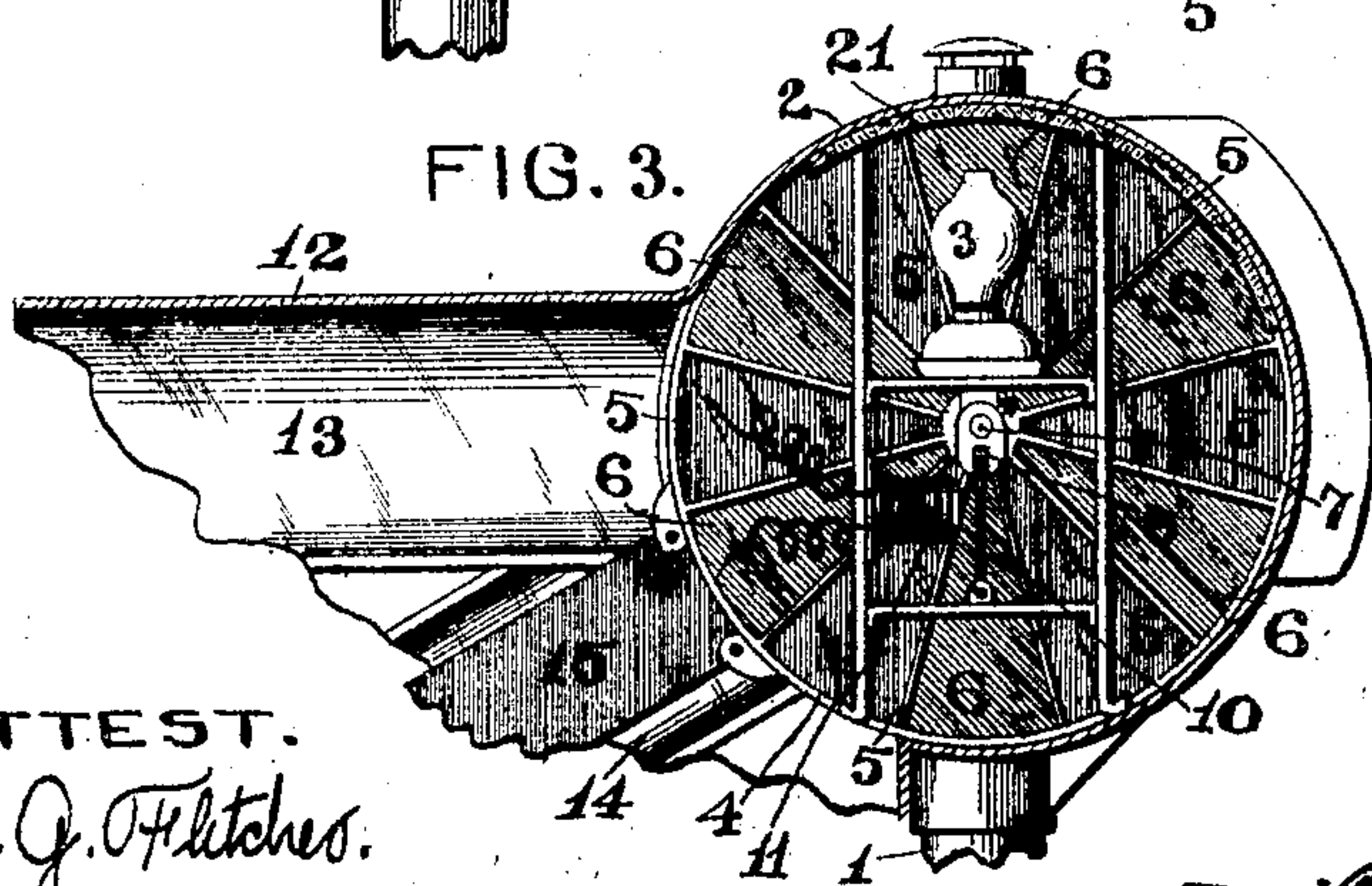
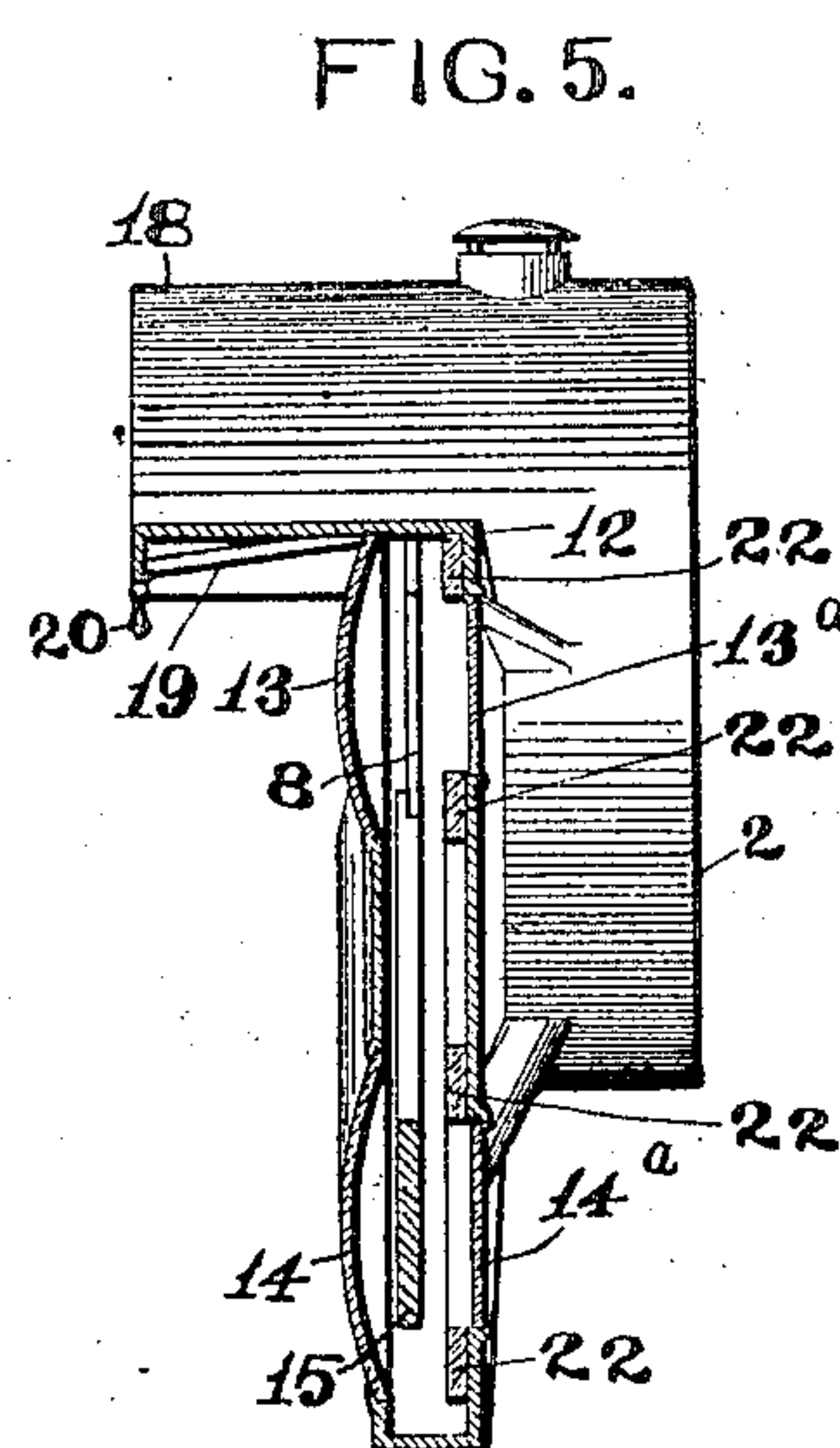
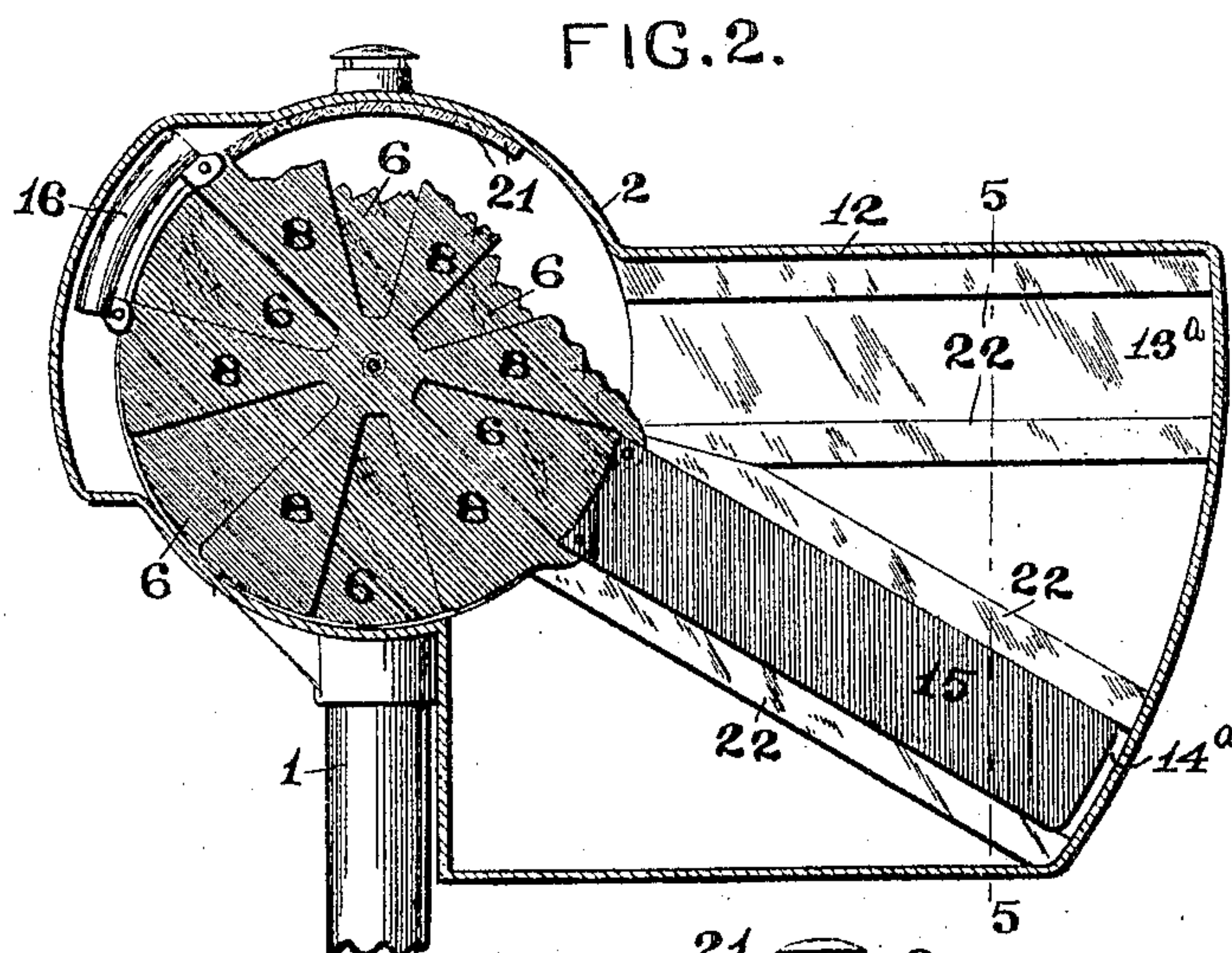
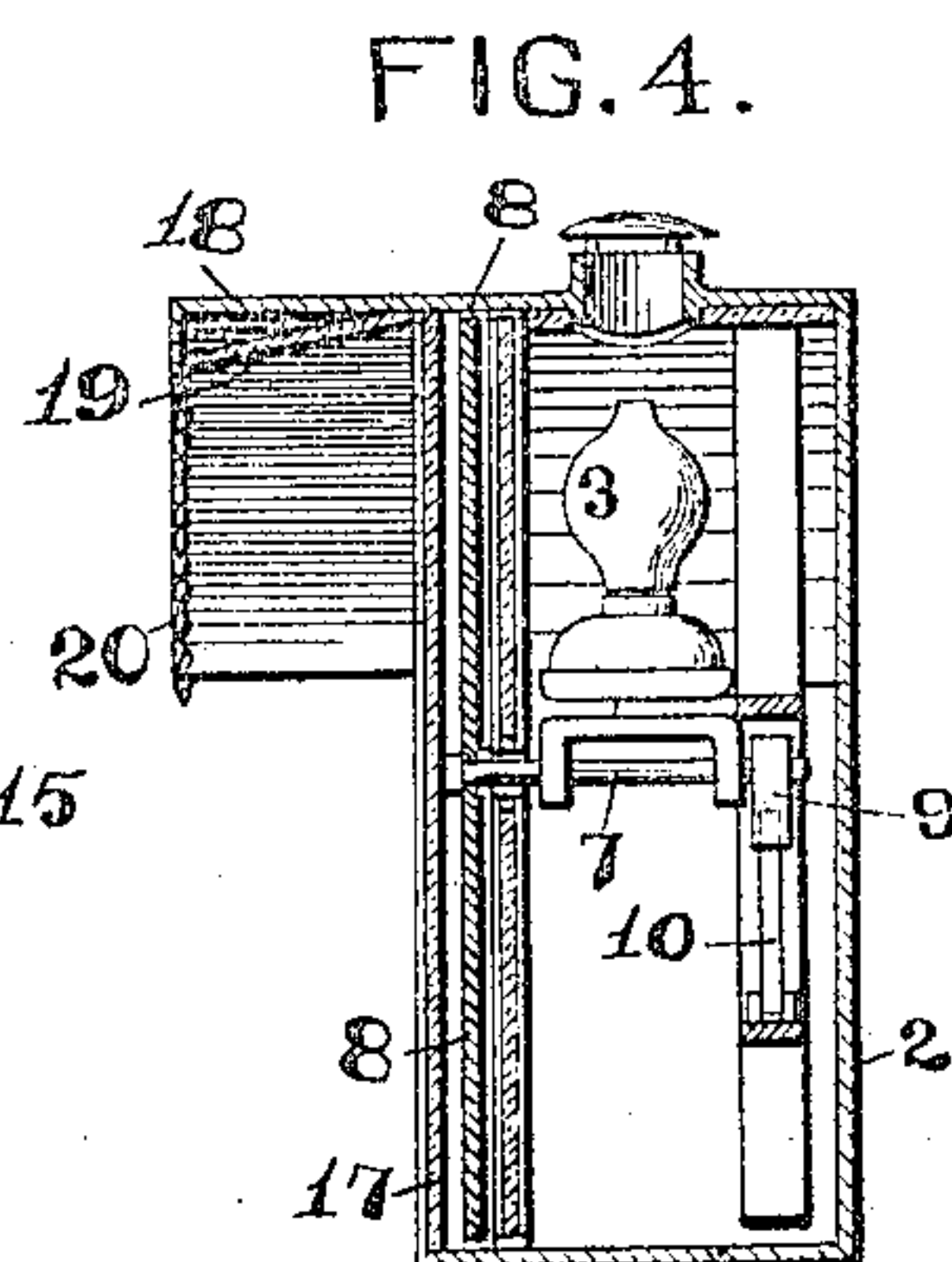
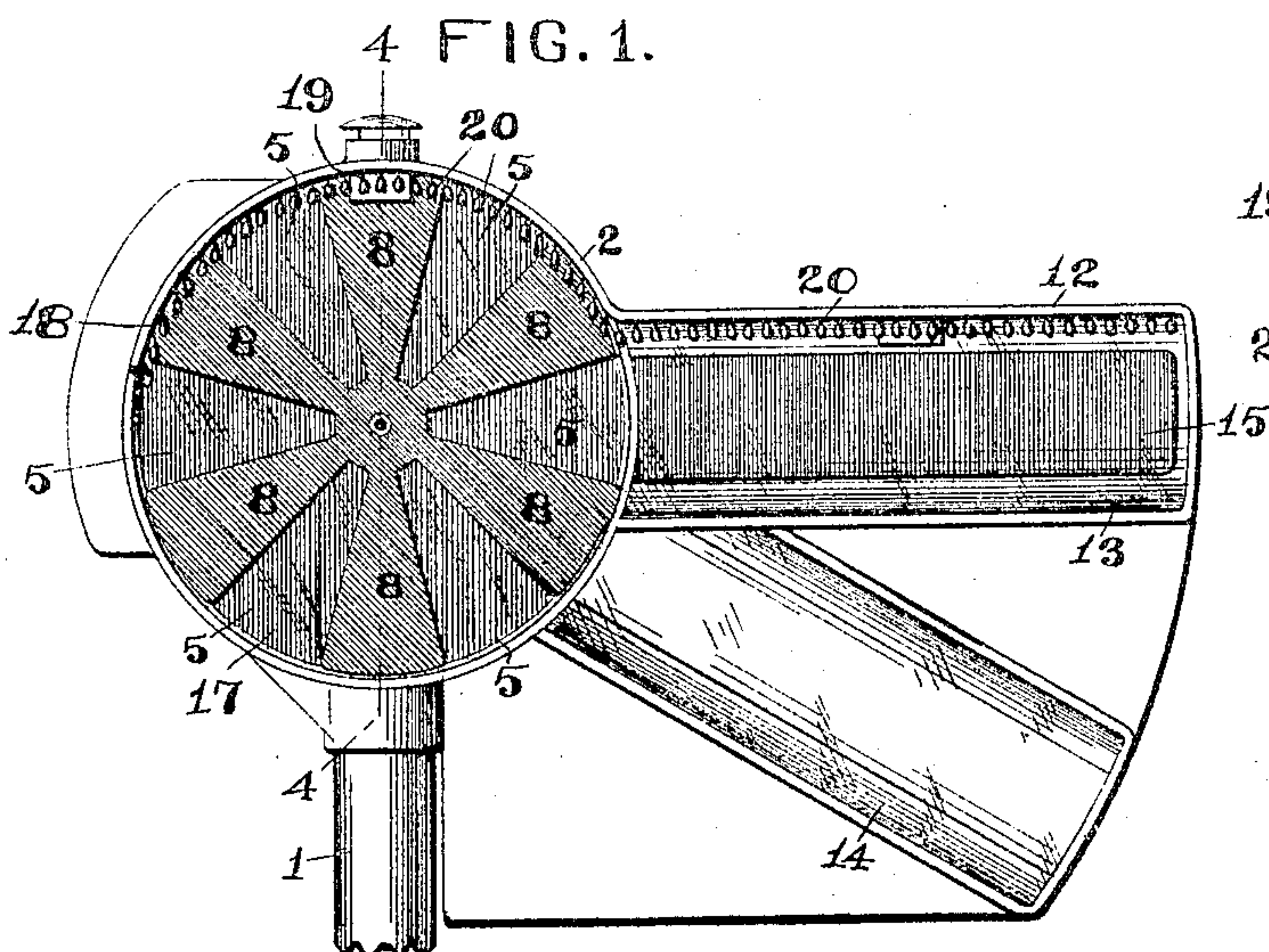


No. 804,231.

PATENTED NOV. 14, 1905.

J. IRWIN.
RAILWAY SIGNAL.
APPLICATION FILED JAN. 21, 1905.



ATTEST.

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JOSEPH IRWIN, OF ST. LOUIS, MISSOURI.

RAILWAY-SIGNAL.

No. 804,231.

Specification of Letters Patent.

Patented Nov. 14, 1905.

Application filed January 21, 1905. Serial No. 242,157.

To all whom it may concern:

Be it known that I, JOSEPH IRWIN, a citizen of the United States, residing at St. Louis, Missouri, have invented a certain new and useful Improvement in Railway-Signals, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is an elevational view of my improved signal. Fig. 2 is a similar view showing the parts in a different position, the front casing being removed to more clearly show the interior. Fig. 3 is a rear elevational view, the back casing being removed to show the interior. Fig. 4 is a sectional view on line 4 4 of Fig. 1. Fig. 5 is a sectional view on line 5 5 of Fig. 2, and Fig. 6 is a detail view of the frame and its colored signal-glasses.

This invention relates to a new and useful improvement in railway-signals, the object being to construct the signal in such a manner that the blade whose position indicates "danger" or "safety" will be visible both day and night, whereby the engineer has this means of information and guidance in addition to the light-signals—such, for instance, as the usual semaphore.

With this object in view my invention consists in the novel details of construction, arrangement, and combination of the several parts, all as will hereinafter be described and afterward pointed out in the claims.

In the drawings, 1 indicates a supporting-post upon the upper end of which is arranged a casing 2. This casing is provided with a suitable support for the lamp 3.

4 indicates a frame in the casing 2, which frame is divided into a number of sectors containing red glasses 5 (indicated by the vertical lines) and green glasses 6, (indicated by the diagonal lines.)

7 indicates a rock-shaft extending through the frame 4 and carrying on its front end a number of blades 8, each blade corresponding in shape to a glass sector in the frame 4, with which said blades are designed to alternately cooperate.

Means for rotating the blades 8 consists of a slotted rock-arm 9, with which coöperates a pivoted armature 10. This armature is designed to be attracted by a magnet 11, which

is energized by a circuit preferably opened or closed by means connected to the switch, whose position is indicated by the signal.

Casing 2 has a lateral extension 12, having glass panels 13 and 14 in the front face thereof, which panels are preferably convex, and also glass panels 13^a and 14^a in the back wall thereof.

15 indicates a switch-blade which is secured to the rotatable blades 8 and which operates in the casing extension 12. A counterbalancing-weight 16 is secured to the opposite blade 8 for well-understood purposes.

When the magnet 11 is energized, the armature will be attracted thereto, resulting in a rocking of the shaft 7 and a movement of the blade 15 to its horizontal position. (Shown in Fig. 1.) In this position the blades 8, which are colored green, cover the green-glass sectors in the frame 4, but expose the red sectors 5. The observer's attention is thus directed to two signaling devices, the first being the red sectors 5, which are exposed to view and which at night are illuminated, and the other being the position of the blade 15, which is painted red, indicating "danger." As soon as the circuit is broken automatically by the train the magnet 11 is deenergized and the blade 15, slightly overbalancing the weight 16, will drop to the position shown in Fig. 2—i. e., to an oblique position—and in so doing will move blades 8 to cover the red sectors 5 and expose the green sectors 6. These sectors of course are illuminated by a lamp in the casing 2 and, together with the position of the blade 15, indicate "danger" or "safety."

The casing 2 is provided with a plain glass face 17, arranged in front of the blades 8 for protective purposes, and in order to protect this covering 17 I arrange a hood extension 18 thereover, which hood extension also continues over the extension 12. This hooded extension affords a support for the inclined deflector 19, which directs the rays of light from the illuminating medium down onto the signal. To avoid the accumulation of icicles on the edge of this hood, I preferably arrange a series of glass pendants 20, which may be pyramidal in shape, so as to transmit rays of light or to deflect rays of light onto the face of the signal. The purpose of these pendants, however, is to prevent the formation of icicles in front of the signal, as it is well known that when snow or ice is melt-

ing the dripping water will accumulate and freeze into the form of elongated bodies known as "icicles." Pendants 20, being capable of movement either from wind or passing trains jarring the post 1, will rid themselves of water, and thus prevent the formation of icicles.

To illuminate the blade 15 in its different positions, I arrange a series of reflectors 21 in the casing 2, which are designed to reflect the light on both faces of the blade 15. In addition to this the interior of the extension 12 is also provided with reflectors 22, which extend along the edges of the blade 15 in its different positions and which serve to lighten up the interior of the extension 12 not only at night, when they reflect the light from the lamp 3, but also in the day-time when they reflect the rays of light entering from the exterior through the glass panels in the side extension.

While I have shown my improved signal as having a single blade, it is obvious that the extension 12 could be duplicated on the opposite side and a blade provided which would dispense with the counterbalancing-weight 16, thus making a two-blade signal.

I am aware that minor changes in the construction, arrangement, and combination of the several parts of my device can be made and substituted for those herein shown and described without in the least departing from the nature and principle of my invention.

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

1. A railway-signal comprising a casing, different-colored glasses arranged in alternating series in said casing, movable blades in front of said glasses for alternately covering and exposing the different-colored glasses, a switch-blade movable with the first-named blades, a lamp behind said glasses, and reflectors for reflecting the rays of light onto the switch-blade; substantially as described.

2. A railway-signal comprising a casing, different-colored glasses arranged in alternating, circular series, radial switch-blades spaced apart and movable to alternately expose one set of glasses and cover the other set, a switch-blade movable with the first-named blades, a lamp behind the glasses and within the casing, and a reflector for reflecting the rays of light onto the switch-blade; substantially as described.

3. A railway-signal comprising a casing, a frame in said casing containing sectors of differently-colored glass, movable blades in front of said frame for alternately covering and exposing the differently-colored sectors, a switch-blade 15, a lamp behind said frame, and reflectors for reflecting the rays of light onto the blade 15; substantially as described.

4. A railway-signal comprising a casing, a frame having differently-colored sectors, a

rock-shaft carrying blades for exposing or covering the sectors of one color, a blade 15, a lamp behind the frame of colored sectors, reflectors for reflecting the rays of light from said lamp onto said blade 15, an electric magnet, and means whereby when said magnet is energized said blades are moved; substantially as described.

5. A railway-signal comprising a casing 2 having a lateral extension 12, a frame in the casing 2 having colored sectors 5 and 6, blades 8 coöperating with said sectors, a blade 15 operating in the lateral extension 12, and panels in said lateral extension for exposing the blade 15 in its different positions; substantially as described.

6. A railway-signal comprising a casing having an overhanging hood, and glass pendants 20 arranged at the edge of said hood; substantially as described.

7. A railway-signal comprising a casing having an overhanging hood, and a reflector 19 arranged under said hood; substantially as described.

8. A railway-signal comprising a casing, a frame having colored sectors therein, blades 8 which are designed to be moved to expose or cover the sectors of one color, a blade 15 carried by the blades 8, a counterbalance 16 also carried by said blades 8, the blades 8 being so balanced that when free of impelling influence blade 15 will return to an oblique position; substantially as described.

9. A railway-signal comprising a casing 2 having an extension 12, a lamp in said casing 2, a blade operating in said lateral extension, reflectors 21 in the casing 2 for reflecting the rays of light from said lamp onto said blade, glass panels in the extension 12, and reflectors 22 in said extension, said reflectors being arranged along the edges of the glass panels; substantially as described.

10. A railway-signal comprising a casing having a lateral extension, a series of alternately-arranged glass sectors in the casing, one alternating set of glass sectors being more opaque than the others, spaced blades coöperating with the sectors and movable to positions to alternately close one set of sectors and expose the others, a switch-blade operating in the lateral extension, and panels in said lateral extension for exposing the blade in its different positions; substantially as described.

11. A railway-signal comprising a casing having a lateral extension, a series of alternately-arranged glass sectors in the casing, one alternating set of glass sectors being more opaque than the others, spaced blades coöperating with the sectors and movable to positions to alternately close one set of sectors and expose the others, a switch-blade operating in the lateral extension, panels in said lateral extension for exposing the blade in its different positions, a lamp in rear of the sec-

tors, and a reflector for reflecting the rays of light onto the switch-blade; substantially as described.

12. A railway-signal comprising a casing 5 having windows, a shutter comprising a plurality of blades coöperating with the windows, a shaft on which the shutter is mounted, a crank-arm depending from the shaft and having a notched end, an electromagnet, an armature engaging the notched end of the 10 crank-arm and adapted to be actuated by the magnet to move the shutter in one position, and a gravitating switch-arm connected to the shutter and adapted to move the shutter 15 in an opposite direction when the magnet is not energized; substantially as described.

13. A railway-signal comprising a casing 20 having a lateral extension, a frame in the casing having colored sectors, blades coöperating with said sectors, a blade operating in the lateral extension, and convex panels in said lateral extension for exposing said blade in

its different positions, said blade being exposed from two sides of the lateral extension; substantially as described. 25

14. A signal comprising a casing, different-colored glass, a shaft in the casing, a shutter mounted on said shaft and adapted to alternately expose the glasses of one color and 30 cover the glass of another color, said shaft being horizontally arranged, a crank-arm on said shaft and provided with a notched end, a perpendicular armature provided with a central pivot, one end of said armature engaging the notched end of the crank-arm, and 35 a magnet for actuating the armature to move the shaft; substantially as described.

In testimony whereof I hereunto affix my signature, in the presence of two witnesses, this 17th day of January, 1905.

JOSEPH IRWIN.

Witnesses:

F. R. CORNWALL,

GEORGE BAKEWELL.