

No. 680,853.

Patented Aug. 20, 1901.

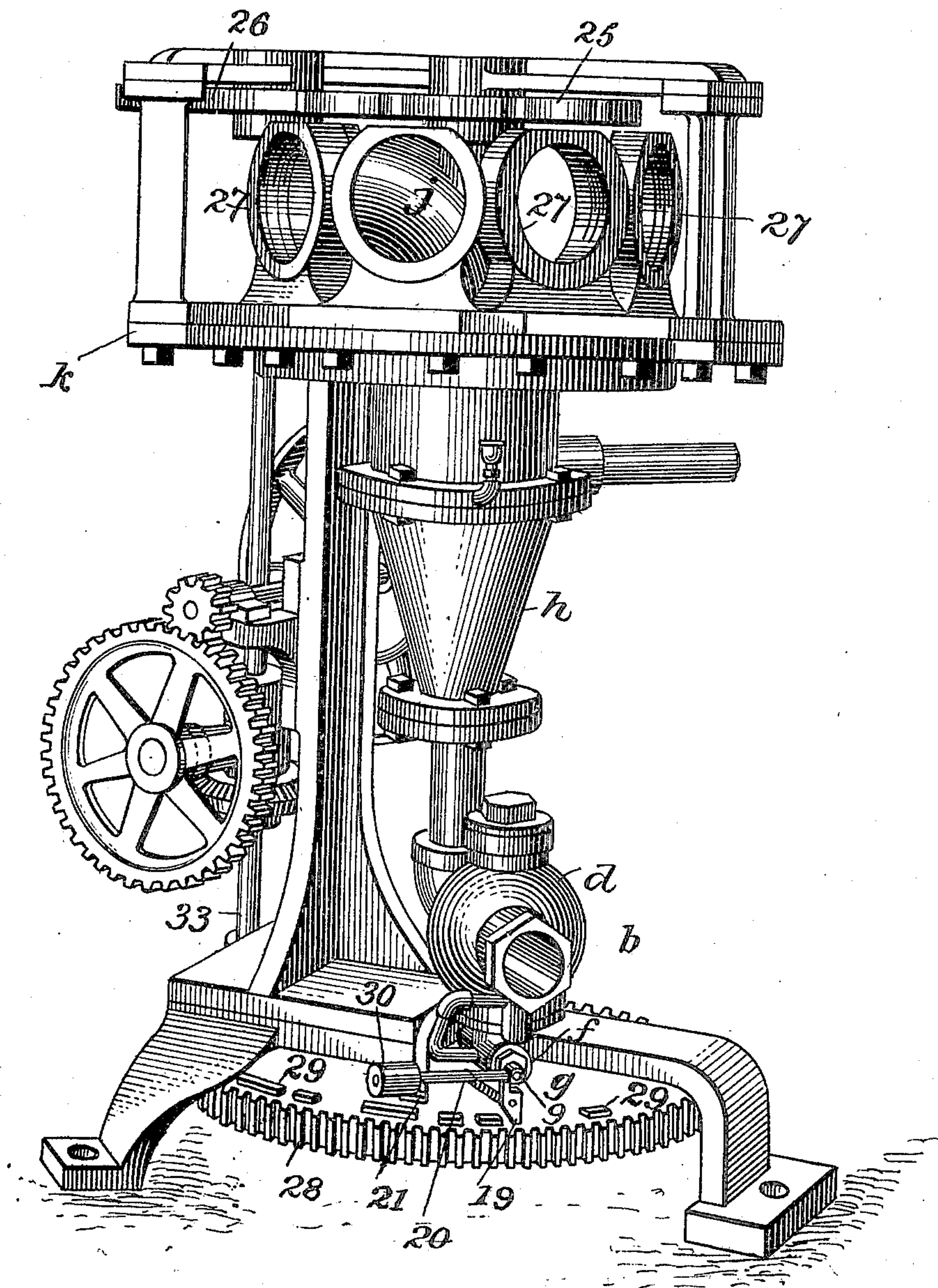
R. F. FOSTER.
APPARATUS FOR SIGNALING.

(Application filed Feb. 1, 1901.)

(No Model.)

3 Sheets—Sheet 1.

Fig. 1.



Witnesses

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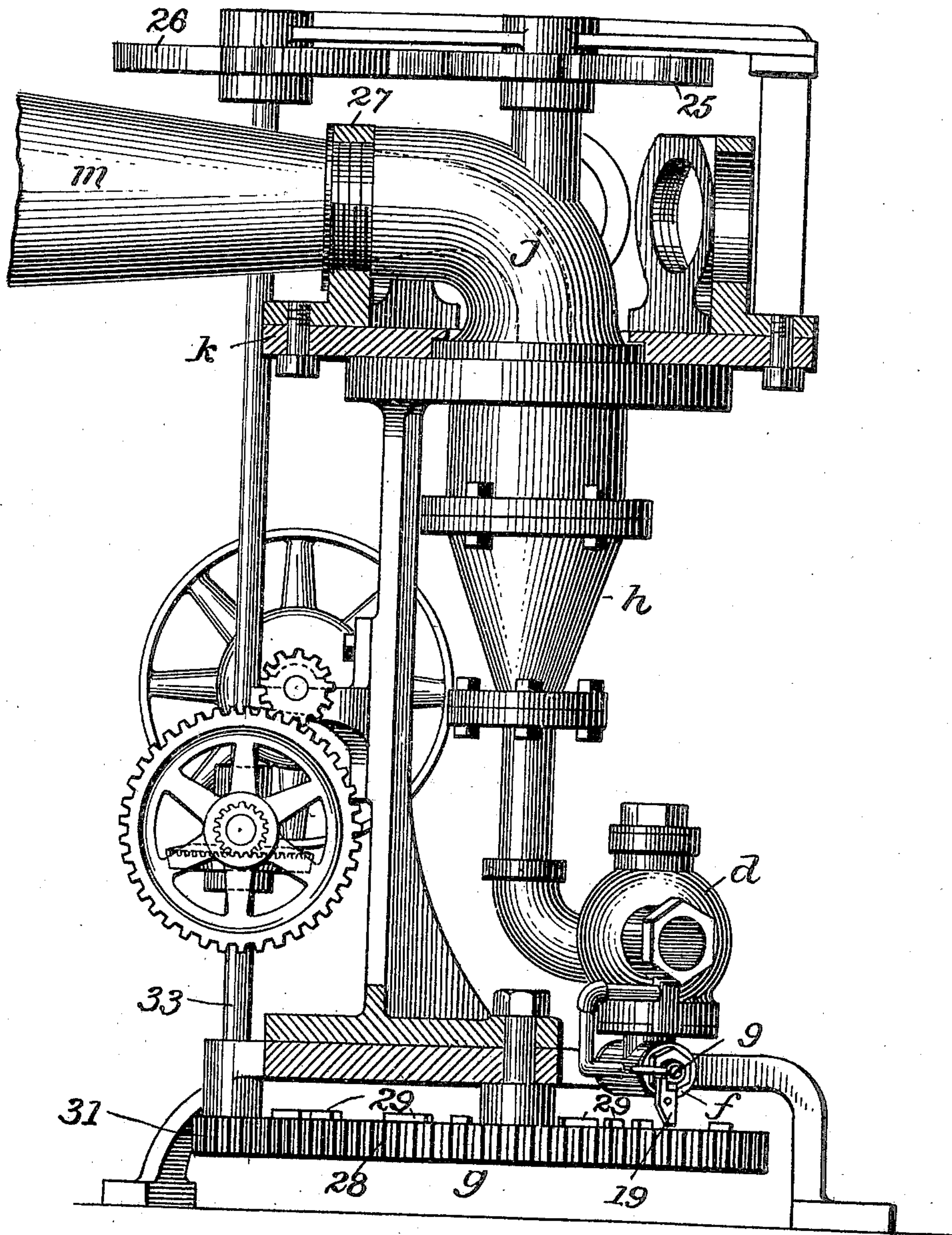
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3 Sheets—Sheet 2.

Fig. 2.



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Fig. 3.

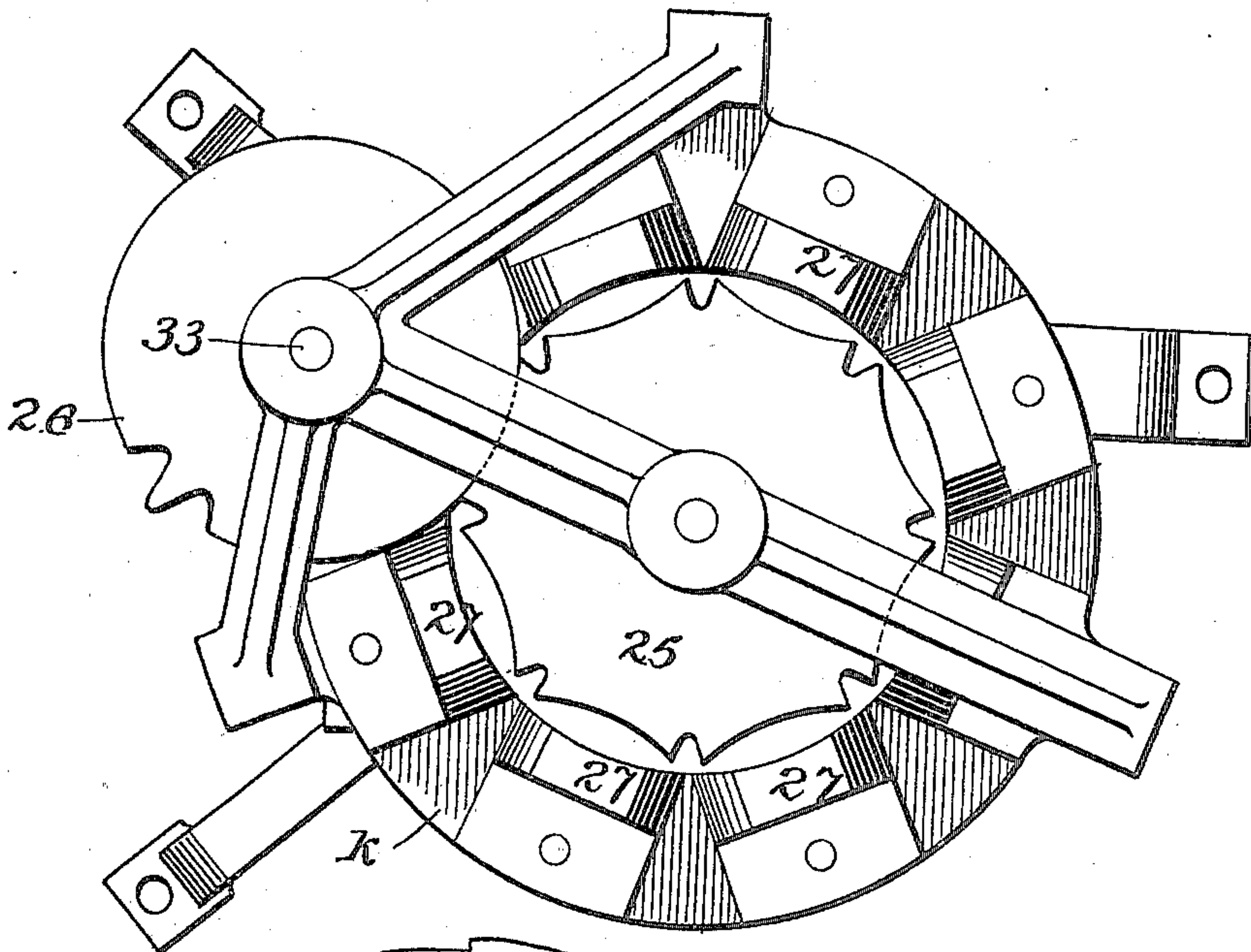
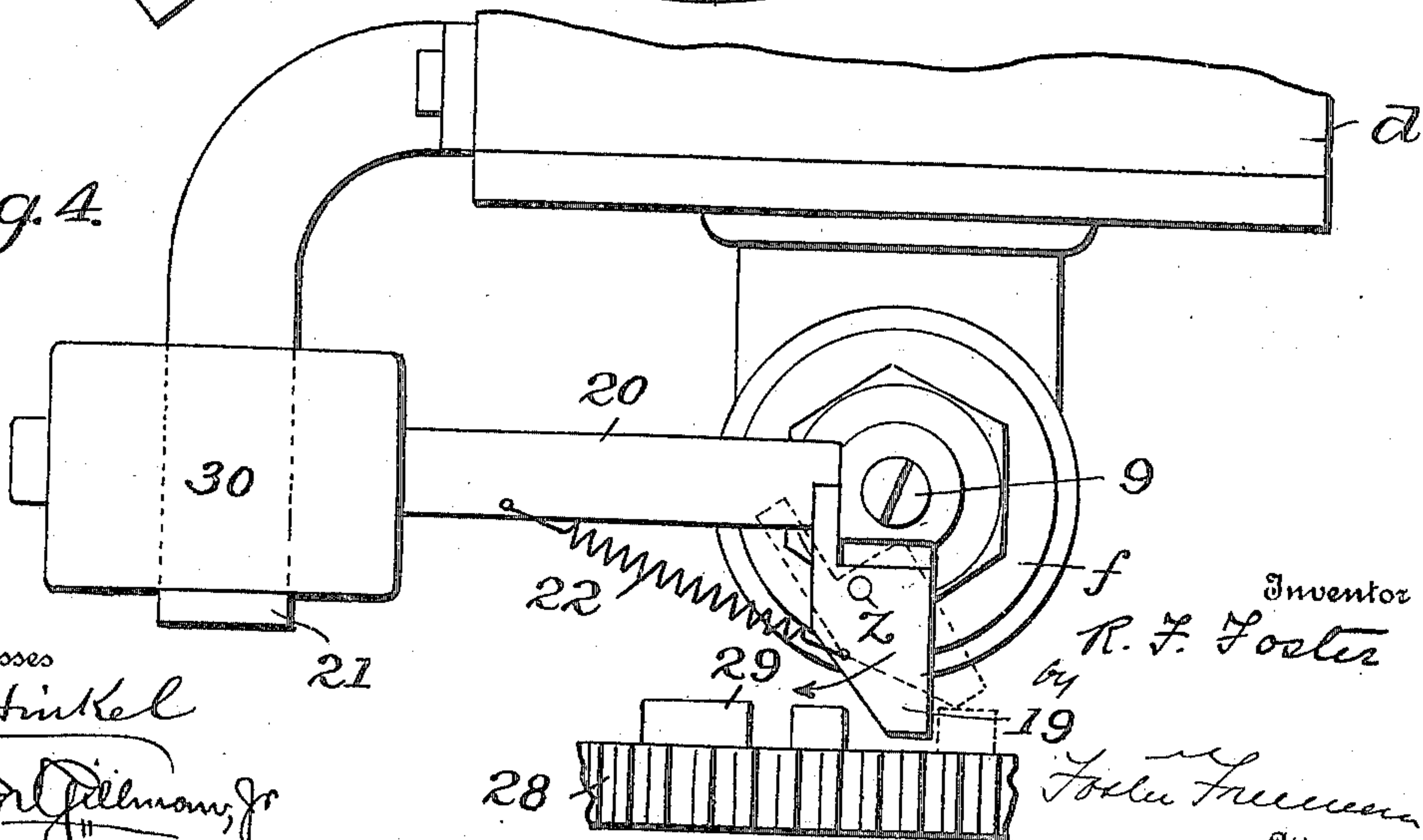


Fig. 4.



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UNITED STATES PATENT OFFICE.

ROBERT FREDERICK FOSTER, OF BROOKLYN, NEW YORK, ASSIGNOR
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APPARATUS FOR SIGNALING.

SPECIFICATION forming part of Letters Patent No. 680,853, dated August 20, 1901.

Application filed February 1, 1901. Serial No. 45,618. (No model.)

To all whom it may concern:

Be it known that I, ROBERT FREDERICK FOSTER, a subject of the Queen of Great Britain, residing at Brooklyn, in the county
5 of Kings and State of New York, have invented certain new and useful Improvements in Apparatus for Signaling, of which the following is a specification.

In Letters Patent No. 617,856, issued to me
10 for apparatus for signaling, I provided means whereby signals of different characters corresponding with different points of the compass were projected through a megaphone or
15 other suitable sound-director while the latter was traveling opposite such points. The method and apparatus of said Letters Patent proved in practical operation to be effective
20 and have been adopted and used at different points. It has been found desirable, however, to operate the apparatus much more rapidly
25 than was at first contemplated, and as a result it was found that the time between the different signals in case of rapid operation would be shortened and with a confusion of
30 signals given at adjacent points; further, in the apparatus of said patent the megaphone would travel through a comparatively extended
35 arc during the time between giving the first part and the end of a signal, with the result that the sound-waves would be projected
40 on different lines between different angles during the sounding of a signal, so that during such sounding there would be such variations in sounds as to lead to a mis-
45 apprehension of the signal given. I have therefore devised means whereby no such confusion can occur and have improved upon the apparatus of my said Letters Patent, as fully set forth hereinafter and as illustrated
50 in the accompanying drawings, in which—

Figure 1 is a perspective elevation of the improved apparatus, the trumpets removed. Fig. 2 is a sectional elevation, one trumpet shown in place. Fig. 3 is a plan view; Fig.
45 4, an enlarged elevation of the valve-operating devices.

The frame *k* of the apparatus is suitably constructed to support the operating parts and includes a sound-director *j*, which is a
50 curved tube internally expanded toward the

outer end and which may be rotated about a vertical axis, so as to bring its mouth successively opposite the inner ends of a series of radially-disposed trumpets *m*. The said
trumpets extend at their inner ends into
55 sockets in brackets 27, attached to or forming a part of the frame *k*, and below the lower end of the rotatable sound-director *j* and concentric therewith is the casing of the siren or
60 other sound-producer *h*, which in case a fluid is used to operate the sounder communicates with a source of fluid-supply through a pipe
b, provided with a controlling-valve of any suitable character.

In the construction indicated in the draw-
65 ings there is a rocking valve-stem 9, provided with an arm 19, swinging independently of the stem in one direction and acted on in the other to rock the stem by teeth 29 on the
70 signal-plate *g*. As in my former apparatus, the signals sounded indicate the different points of the compass, and in the construction shown they are given by properly ar-
75 ranging the projections 29 on the signal-plate so as to act to rock the shaft 9 in one direction to admit fluid to the sounder, while an arm 20,
80 with a weight 30, swings it in the opposite direction until it makes contact with a stop 21.

It will be seen that the sound-director *j* is much smaller than in my patented construc-
80 tion, and this results in a great reduction of the size and weight of the operating parts of the apparatus and in increased steadiness and facility of operations.

Instead of moving the sound-director con-
85 tinuously, as in the apparatus set forth in my Letters Patent, and thus directing the sound-waves over the arc of a circle in giving one signal, I provide suitable means
90 whereby the sound-director is held substantially stationary during the sounding of each signal, while it is moved with any desired degree of rapidity in passing from one sound-
95 ing point or station to another. Various different appliances may be employed for imparting such movements to the sound-director. As shown, I use two gears 25 26, similar
100 to a "Geneva stop," the gear 26 rotating continuously and turning the gear 25 step by step, whereby after each movement of the

sound-director, bringing its mouth opposite a new station it is arrested and locked in position for the time needed to completely sound the signal and is then rapidly rotated to bring it to its next position. By thus arresting the rotation of the sound-director during the times that signals are sounded each signal is directed unvaryingly toward its proper compass-point during the time that it is being sounded, so that the direction in which the sound-waves are projected in respect to the hearer in giving any signal does not alter and no part of the signal is liable to be attributed to a different signal.

The signal-plate *g* may be moved step by step or continuously, the latter being preferable, and in the construction shown being effected by means of a pinion 31 on the shaft 33, carrying the driver-gear 26, said pinion 31 engaging teeth 28 on the plate *g*, which thus rotates continuously with the shaft 33, the latter being driven from any suitable source of motion.

By the method and means described I am enabled to clearly separate the signals from each other, operate with greater rapidity, simplify the mechanism, and reduce its weight and the power required to operate it and secure greater steadiness with less liability to derangement than heretofore.

I do not here claim the method herein set forth, which is the subject of a separate application, Serial No. 51,333, filed March 15, 1901.

Without limiting myself to the precise construction and arrangement of parts shown and described, I claim as my invention—

1. The combination in a signaling device, of a sound-director, means whereby sounds constituting signals may be projected therefrom, the sounds projected in one direction being different in character from those projected in another direction, and devices whereby during the sounding of each signal all the sounds constituting such signal are caused to be projected from the sound-director in the same direction, substantially as set forth.

2. The combination in a signaling device, of a sound-director mounted to revolve, means for arresting its movement with its mouth opposite different stations, and means for projecting sound-signals of different character through said director according to its different positions, substantially as set forth.

3. The combination in a signaling device,

of a sound-director and means for moving it step by step to project signal sounds in different directions each signal indicating one point of the compass, substantially as set forth.

4. The combination in a signaling device, of a sound-director, means for moving it step by step to project signal sounds in different directions each signal indicating one point of the compass, and a series of trumpets radiating to different points of the compass with their inner ends in position to coincide with the mouth of the sound-director, substantially as set forth.

5. The combination in a signaling device, of a sound-director supported to turn to different points of the compass, intermittent gears for turning the director with a step-by-step movement, a signal-plate, and connections whereby the signals are given while the director is at rest, substantially as set forth.

6. The combination in a signaling device, of a sound-director supported to turn to different points of the compass, intermittent gears for turning the director with a step-by-step movement, a signal-plate, means for rotating it continuously, and connections whereby the signals are given while the director is at rest, substantially as set forth.

7. In a signaling device, a sound-director, a sound-producer, a control-valve for the sound-producer, a signal-plate for operating the said valve to give different signals indicating different points of the compass, and means for turning the director rapidly with an intermittent motion and arresting it during the sounding of each signal, substantially as set forth.

8. The combination in a signaling device, of a sound-director mounted to rotate, a sound-producer, signal-plate for controlling the sound-producer, shaft, spur-gearing connecting it with the signal-plate, and intermittent gearing connecting it with the sound-producer, to move the director step by step and hold it stationary during the sounding of each signal, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ROBERT FREDERICK FOSTER.

Witnesses:

HENRY J. GROSS,
CHARLES E. FOSTER.