

No. 626,825.

Patented June 13, 1899.

F. BURGER & H. M. WILLIAMS.

SIGNALING APPARATUS.

(Application filed Sept. 7, 1898.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1

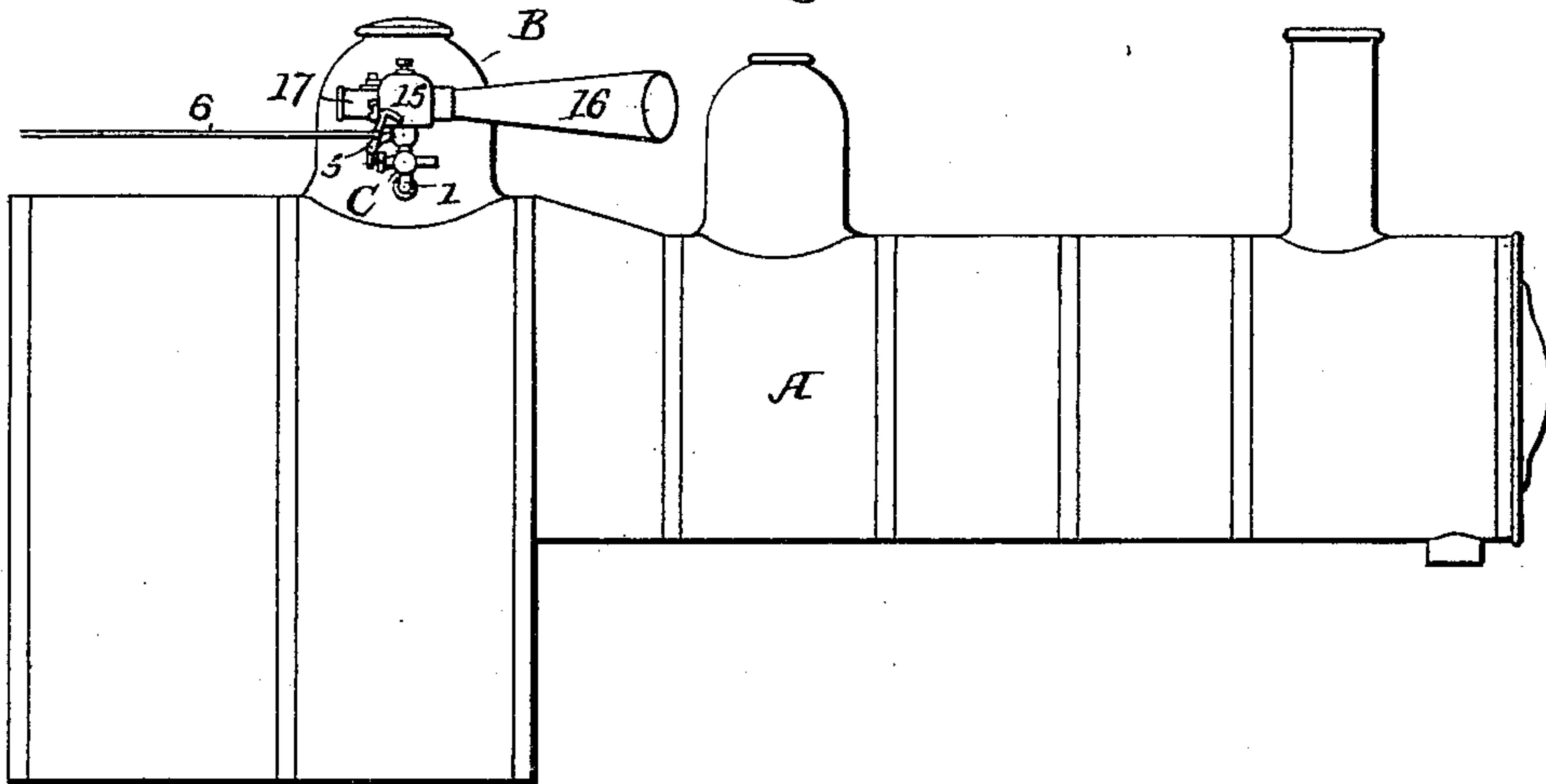


Fig. 2.

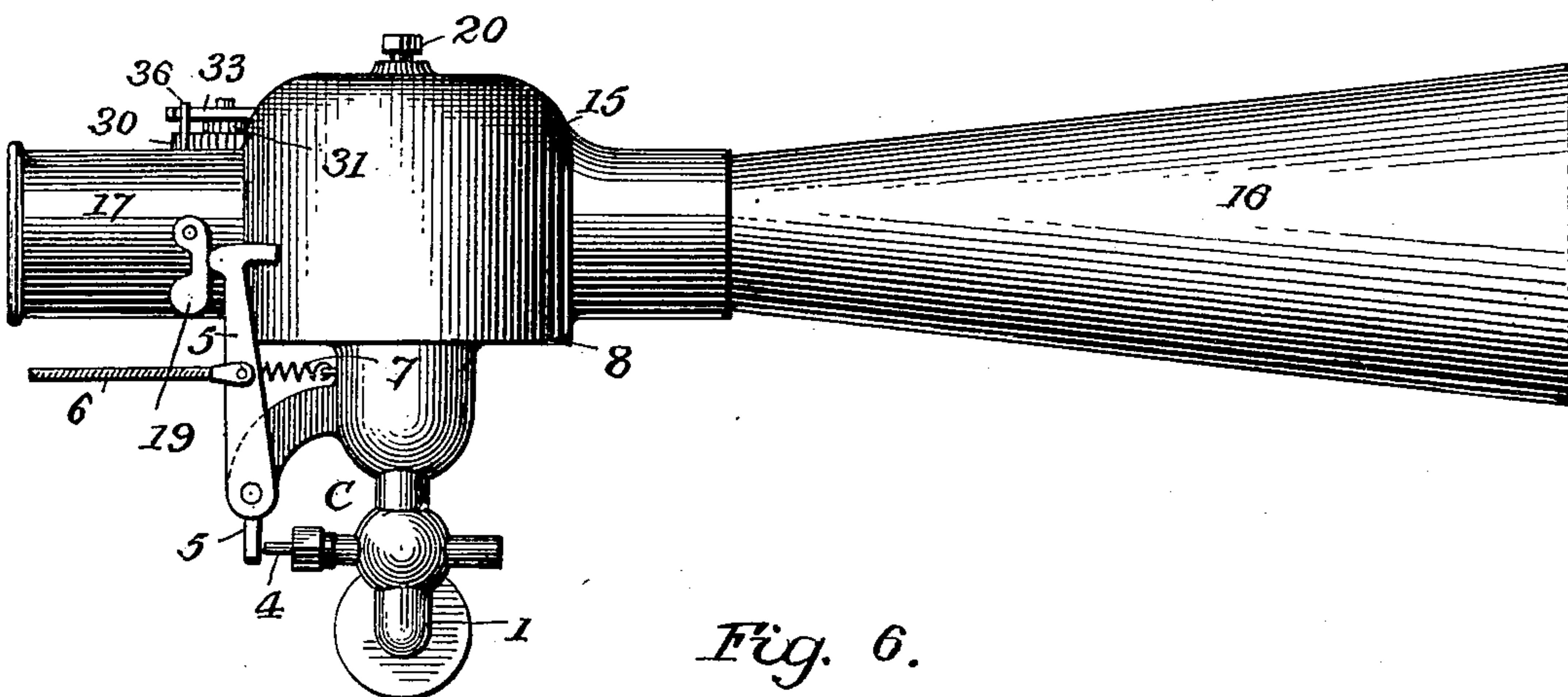
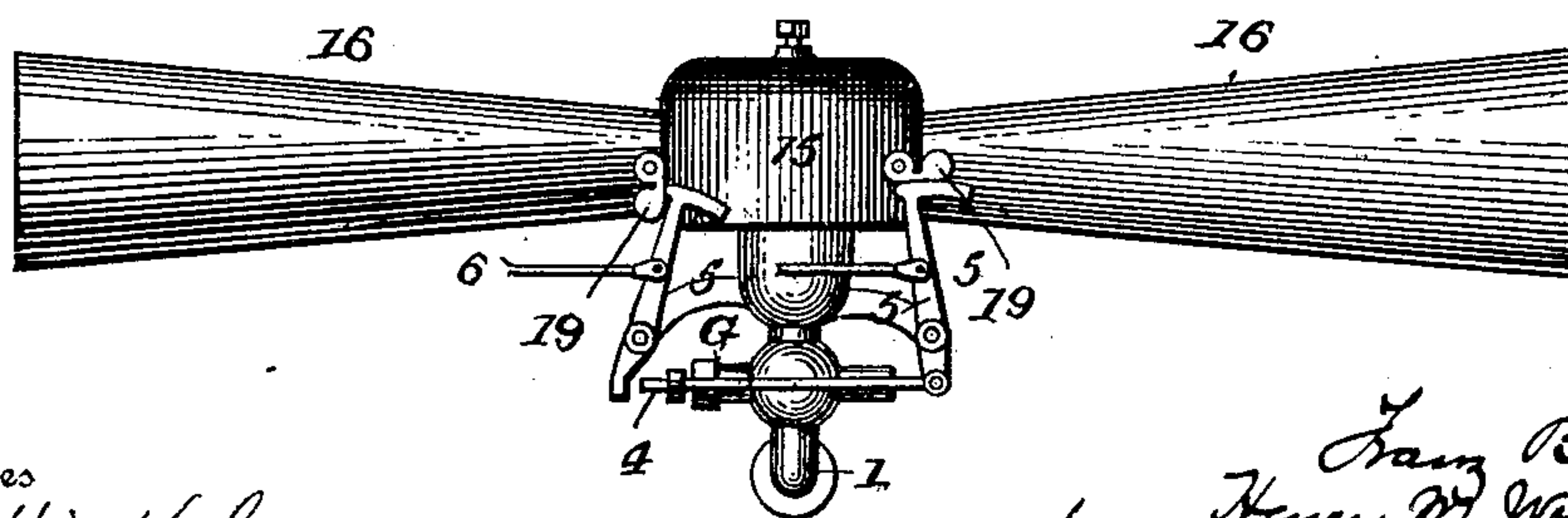


Fig. 6.



Witnesses

J. H. Hinkel
James H. Stevens

Inventors
Franz Burger
Henry M. Williams
by *Joseph H. Williams*
Attorneys

No. 626,825.

Patented June 13, 1899.

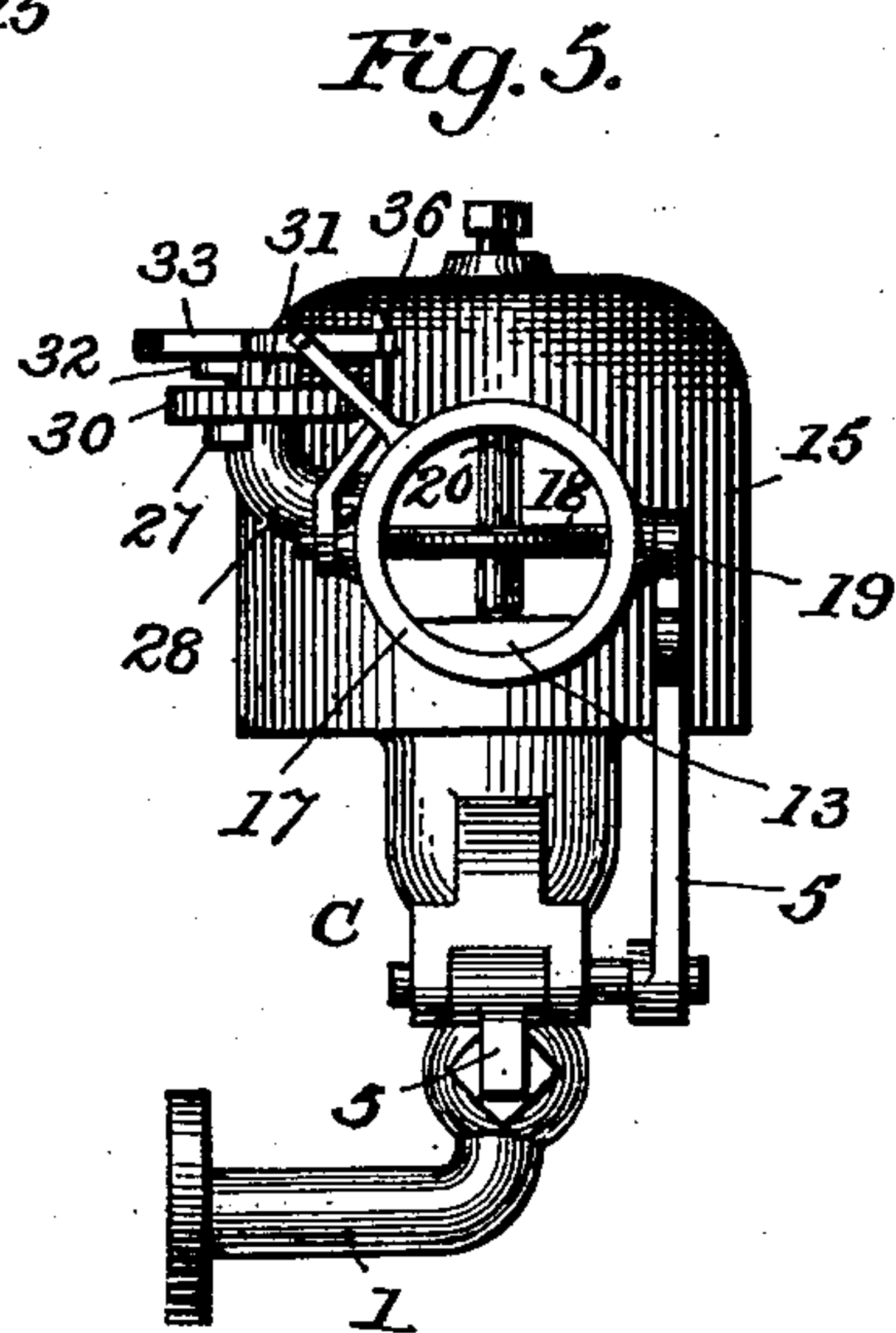
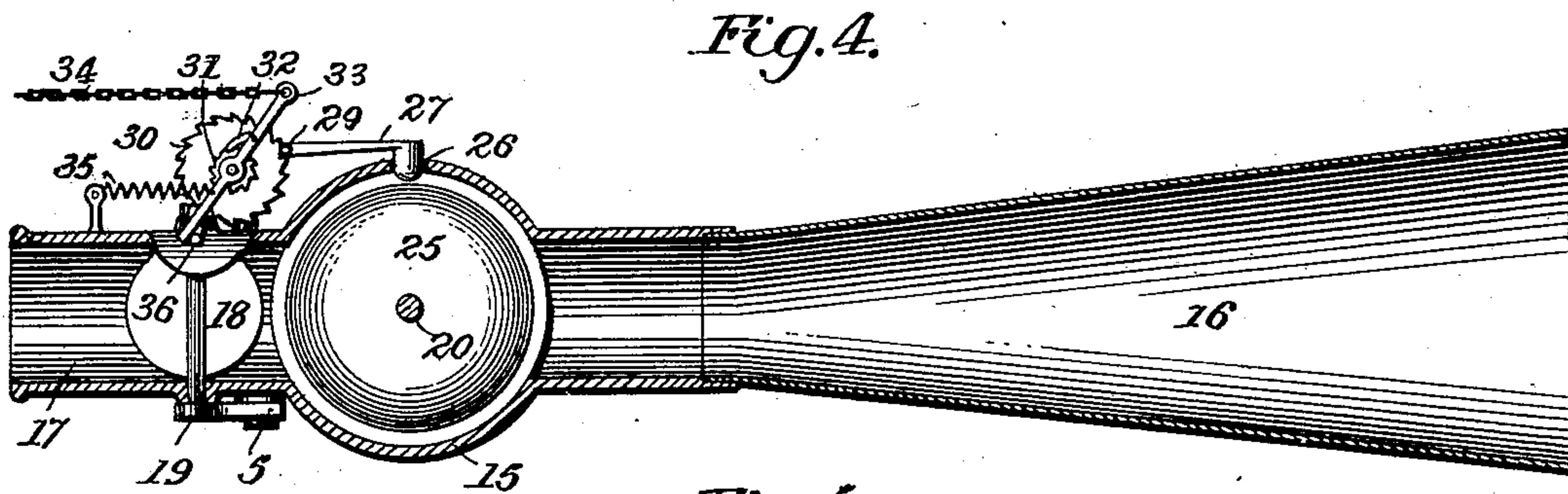
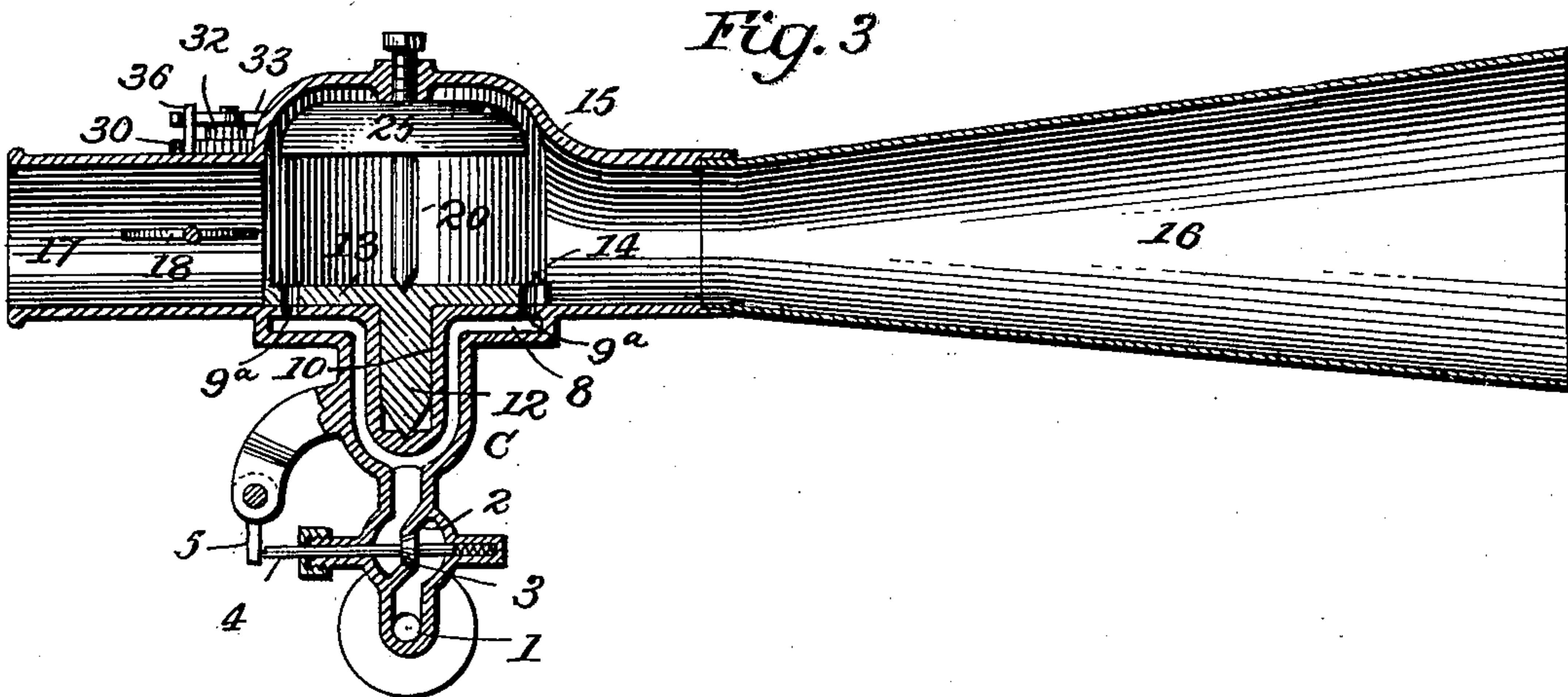
F. BURGER & H. M. WILLIAMS.

SIGNALING APPARATUS.

(Application filed Sept. 7, 1898.)

(No Model.)

2 Sheets—Sheet 2.



Witnesses

W. H. Harkel
James H. Harkel

Inventors
Frank Burger
Henry M. Williams
by *Foster Freeman*
Attorneys

UNITED STATES PATENT OFFICE.

FRANZ BURGER AND HENRY M. WILLIAMS, OF FORT WAYNE, INDIANA; SAID
BURGER ASSIGNOR OF ONE-HALF OF HIS RIGHT TO SAID WILLIAMS.

SIGNALING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 626,825, dated June 13, 1899.

Application filed September 7, 1898. Serial No. 690,425. (No model.)

To all whom it may concern:

Be it known that we, FRANZ BURGER and HENRY M. WILLIAMS, citizens of the United States, residing at Fort Wayne, in the county of Allen and State of Indiana, have invented certain new and useful Improvements in Signaling Apparatus, of which the following is a specification.

This invention relates to certain new and useful improvements in sounding-signals, having for its object to provide simple and effective apparatus for projecting sounds so that they may be clearly audible at great distances, the said apparatus being particularly applicable for use upon locomotives, steamships, &c.

With this object in view the invention consists in the novel construction, combination, and arrangement of the parts hereinafter more particularly described.

In the accompanying drawings, forming a part of this specification, and in which like letters and numerals of reference designate corresponding parts, Figure 1 is a perspective view of apparatus embodying the invention, showing the same connected to the steam-dome of a locomotive-engine. Fig. 2 is a side elevation of the apparatus on an enlarged scale. Fig. 3 is a longitudinal sectional view thereof. Fig. 4 is a horizontal sectional view. Fig. 5 is an end view, and Fig. 6 a side elevation of a modification.

Referring more particularly to the drawings, A designates the upper part of a locomotive-engine, to which in the present instance the apparatus is applied, and B the steam-dome thereof. Communicating with the steam-dome through a pipe 1 is a valve-casing C, provided with an interior valve-seat 2, to which is fitted a valve 3, having a stem 4 projecting through the casing into position to be engaged by one end of a lever 5. This lever is pivoted intermediate its length to an extending arm of the valve-casing C, and at its upper end is connected a pull-cord 6, extending to a point within the cab of the engine and through which the lever 5 may be swung upon its pivot against the stress of a spring 7 to force the valve from its seat.

At its upper end the casing C is formed with an annular chamber 8 and a flat wall 9, having an annular series of openings 9^a extending diagonally therethrough. From the center of the wall 9 there extends downwardly a projection 10, formed with a circular recess, into which is received a pivotal pin 12 of a flat disk 13. This disk conforms closely to the upper face of the wall 9, upon which it is adapted to rotate, and is provided with an annular series of openings 14, adapted to register with the openings 9^a of the wall, the openings of the disk extending diagonally therethrough in a direction opposite to that in which the openings 9^a extend.

Above and inclosing the disk 13 is a casing 15, constituting a sound-chamber, and at one side of said casing, leading from the chamber thereof, is an outwardly-flaring trumpet or megaphone 16, while at its opposite side, likewise leading from the sound-chamber thereof, the casing is formed with a contracted cylindrical open-ended extension 17, the passage through which aligns with that through the trumpet 16, the said casing, trumpet, and cylindrical extension constituting what will be termed hereinafter, for the sake of convenience and to avoid confusion, a "sound-projecting tube."

Within the cylindrical extension 17 is pivotally supported a butterfly-valve 18, adapted to open and close the passage through the extension. Normally the valve is maintained in its open position, as shown in Fig. 3, in order to permit the free flow of air and dust or cinders through the sound-projecting tube, thereby preventing resistance to the atmosphere and the clogging of the tube with dust or dirt. In order to hold the valve 18 in its open position, its stem projects to the exterior of the sound-tube and is provided with a weighted arm 19, which extends down into position to be engaged by the upper end of the lever 5 when it is swung upon its pivot, the effect of this being that the arm 19 is likewise swung, causing the valve-stem to be rotated and the valve 18 to close the passage through the extension 17.

In order to maintain the disk 13 into close

contact with the wall 9, an adjustable centering-pin 20 is projected through the upper wall of the sound-projecting tube, the said pin being provided with a pointed end which fits into a correspondingly-shaped central recess in the upper face of the disk 13.

From the above-described construction and arrangement it will be obvious that the parts normally occupy the positions shown in Fig. 3, the sound-projecting tube being open from end to end and offering no obstructions to the passage of dirt and cinders therethrough and no resistance to the atmosphere. When, however, the valve 3 is opened by swinging its operating-lever 5 upon its pivot, the valve is simultaneously operated in the manner above described to close the contracted end of the sound-projecting tube, and the steam admitted from the steam-dome B to the valve-casing C flows through the openings 9^a and 14 and, striking the inclined walls of the latter openings, causes the disk 13 to be rapidly rotated, thereby producing sound which is concentrated and projected forwardly by the flaring sound-tube in the direction in which said tube is pointed.

As it is sometimes desirable to use a bell or gong signal instead of that of a whistle, particularly in the event of the apparatus being employed upon locomotives, such a bell or gong signal is combined with the sound-transmitting tube in order that a bell-signal may be projected therefrom. Thus, as shown, a gong 25 is supported within the sound-tube upon the centering-pin 20 by any suitable means, and said gong is arranged directly above the siren-disk 13, so that the sound-vibrations from the siren will enter its concave chamber thereof and thereby be intensified.

Any suitable mechanical devices may be employed for sounding the gong, those shown being preferred, however. Thus mounted upon a spring-arm 27 a striker 26 is adapted to enter the side of the sound-tube through an opening therein and make contact with the gong. The striker 26 is normally out of contact with the gong, and the arm of the striker is secured to a support 28, extending from one side of the sound-tube, and is provided intermediate its ends with a projection 29, adapted to be engaged successively by the teeth of a ratchet-wheel 30 to be alternately raised and lowered. The ratchet-wheel 30 is loosely pivoted upon the support 28, and connected to one side of said wheel is a second ratchet-wheel 31, which is engaged by a pawl 32, carried upon a lever 33, likewise loosely mounted upon the support 28. Connected to one end of the lever 33 is a pull-cord 34, extending to a point within convenient reach of the operator and through which the lever may be swung upon its pivot in one direction to rotate the ratchet-wheels 30 31 and operate the striker-arm 27 in the manner set forth. A spring 35 is connected to the lever 33 and to

a lug of the sound-tube for returning the lever to its normal position. One end of this lever 33 is arranged to engage with an arm 36, projecting from the stem of the valve 18, in such manner that when the lever is swung to cause the gong to be sounded it will rock the valve 18 through its projecting arm and stem and cause it to close the passage through the extension 17 of the sound-tube, thereby projecting the sound of the bell through the flaring mouth of the tube.

The construction illustrated in Fig. 6 is substantially identical with that shown in the remaining figures, except that the sound-transmitting tube is formed with two oppositely-projecting flaring mouths, through either of which sound may be projected, and a valve 18 is arranged upon each side of the siren in contracted portions of the sound-tube. A lever 5 is provided for each of the valves 18, the said levers being independently operated through pull-cords to close the said valves and to simultaneously open the valve 3.

Various changes may be made in the construction and arrangement of the parts of the apparatus without departing from the spirit or scope of the invention and some features thereof may be used without others, since

What we claim is—

1. In signaling apparatus, the combination of a sound-projecting tube normally open at both ends, and means for simultaneously closing one end of the tube and for creating sound therein, substantially as described.

2. In signaling apparatus, the combination of a sound-projecting tube formed with a flaring and a contracted end, said tube being normally open from end to end, means for closing the contracted end of the tube and sound-producing mechanism adapted to create sound within the tube, substantially as described.

3. In signaling apparatus, the combination of a sound-projecting tube, a gong or bell arranged therein, a siren-whistle likewise arranged within the tube, and means for directing the sound-vibration from the siren against the gong, substantially as described.

4. In signaling apparatus, the combination of a sound-projecting tube normally open at both ends, sound-producing means arranged within the tube intermediate the ends thereof, a valve-controlled passage for introducing a fluid under pressure to the sound-producing means, and mechanism for closing one end of the sound-projecting tube simultaneously with the introduction of compressed fluid therein, substantially as described.

5. In signaling apparatus, the combination of a sound-projecting tube normally open from end to end, a gong or bell within the tube, devices for striking the gong, and means for simultaneously closing one end of the tube, substantially as described.

6. In signaling apparatus, the combination

of a sound-projecting tube, a gong or bell arranged therein, devices for striking the gong, a siren-whistle likewise arranged within the tube, and means for directing the sound-vibrations from the siren against the gong, substantially as described.

5

In testimony whereof we have signed our

names to this specification in the presence of two subscribing witnesses.

FRANZ BURGER.

HENRY M. WILLIAMS.

Witnesses:

GEO. D. CRANE,

H. W. NIXON, Jr.