

(No Model.)

W. LE BLANC.
FOG HORN.

No. 454,280.

Patented June 16, 1891.

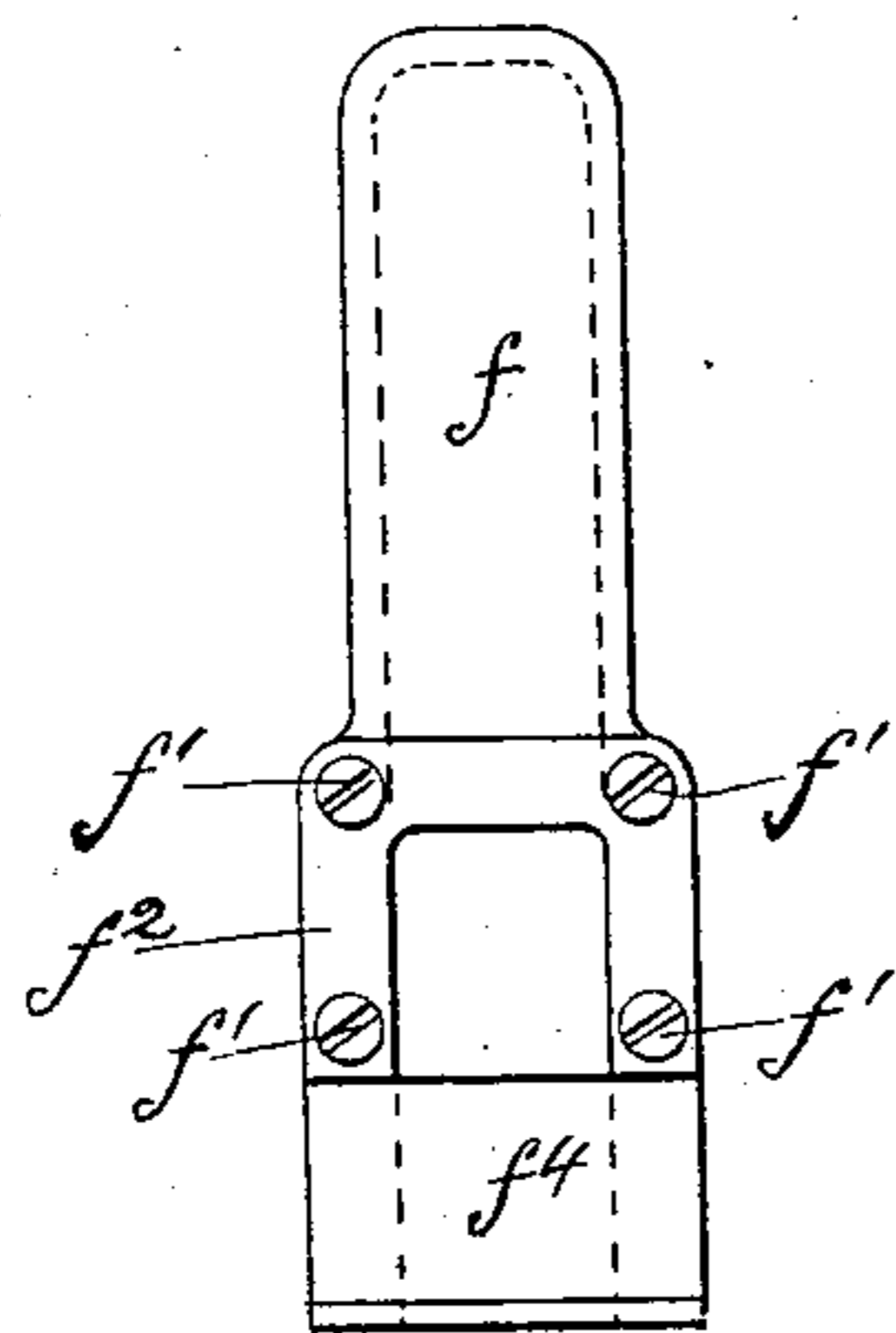
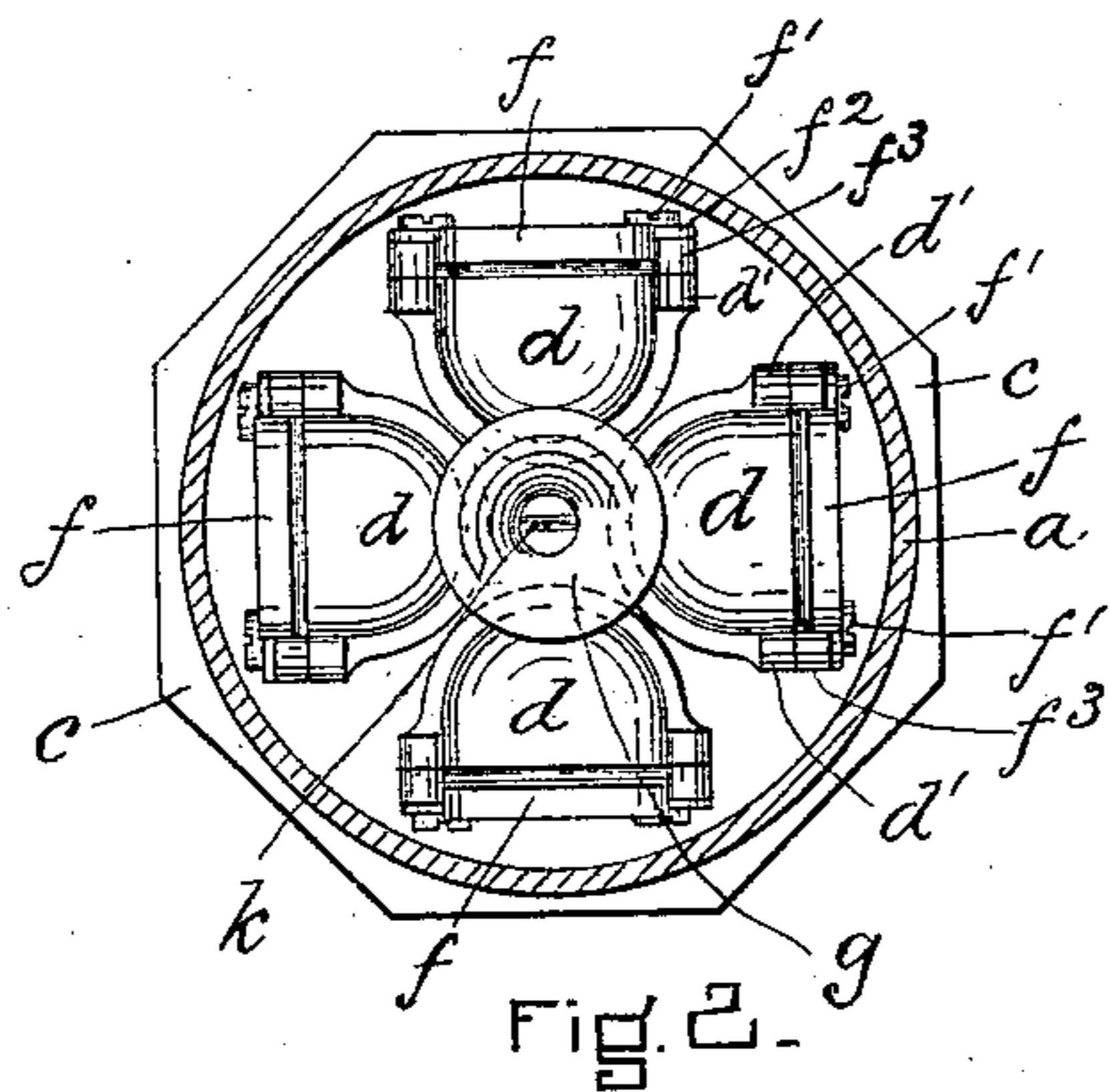
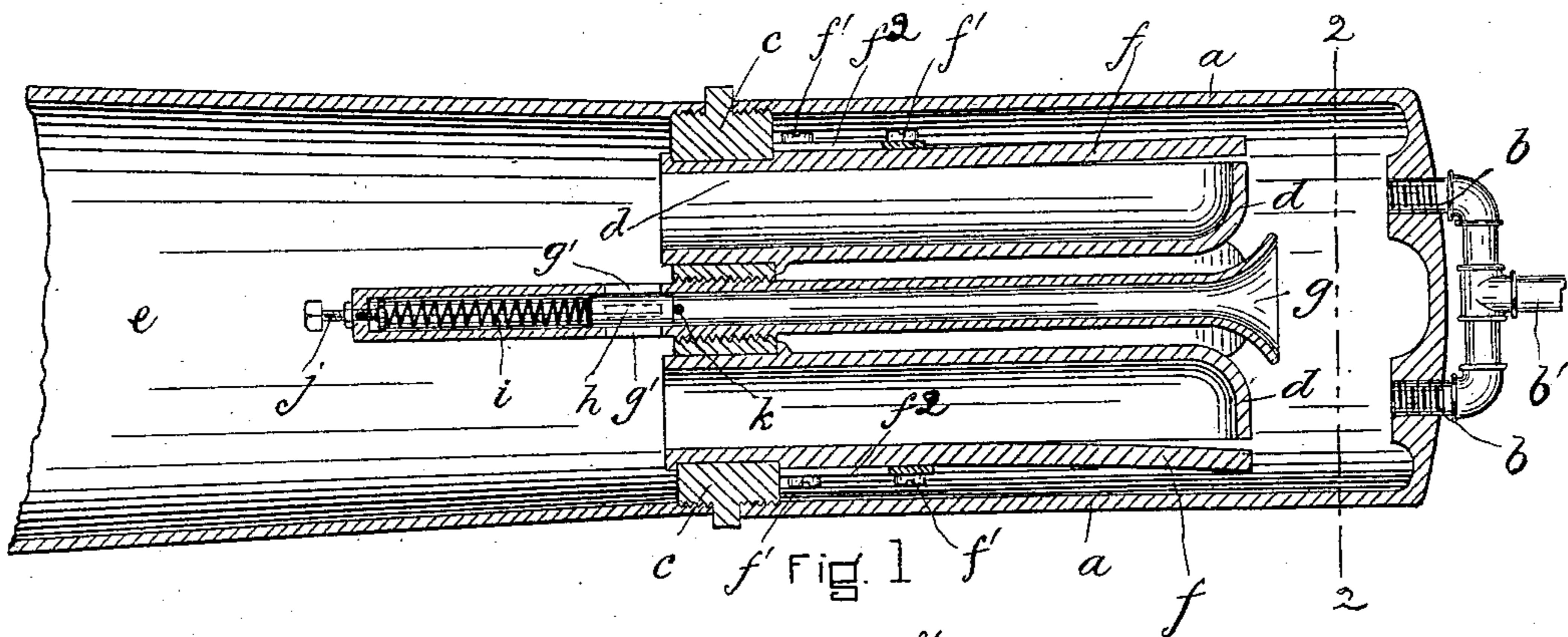


Fig. 3.

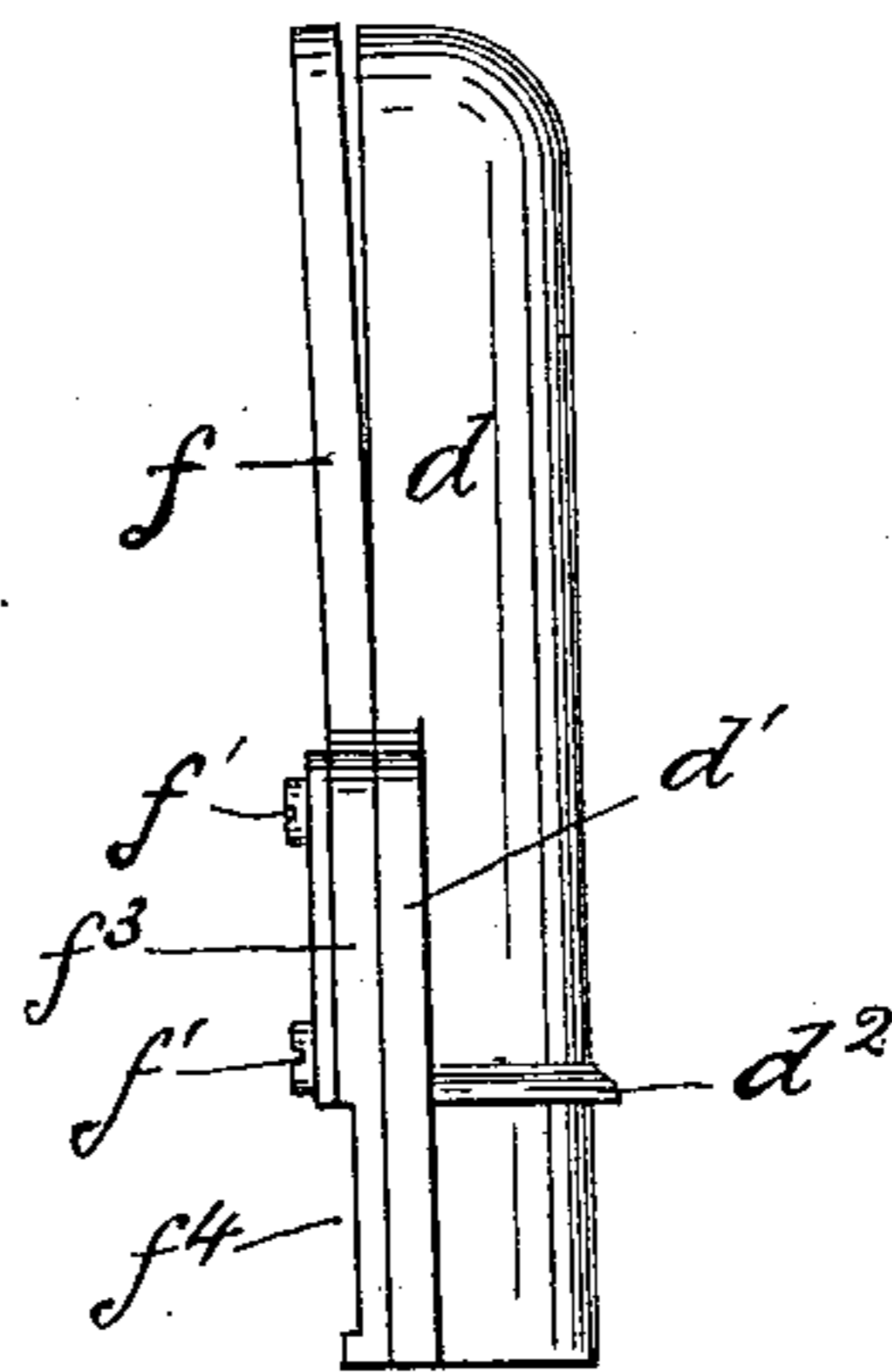


Fig. 4.

WITNESSES.

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UNITED STATES PATENT OFFICE.

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FOG-HORN.

SPECIFICATION forming part of Letters Patent No. 454,280, dated June 16, 1891.

Application filed December 29, 1890. Serial No. 376,041. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM LE BLANC, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Fog-Horns, of which the following is a specification.

This invention relates to fog-horns; and it has for its object to provide a fog-horn which shall be capable of producing a large volume of sound and of being heard a long distance off.

The invention consists in the combination, with a chamber or casing having an induction passage or passages at one end and a partition or head at the other end, of a plurality of tongued flues or sounders arranged in said chamber and a relief-outlet provided with a yielding valve, whereby the pressure in said chamber may be automatically reduced, all of which I will now proceed to describe.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents a longitudinal section of my improved fog-horn, only a small part of the trumpet being shown. Fig. 2 represents a section on line 2 2 of Fig. 1, looking toward the left. Fig. 3 represents a front view, and Fig. 4 a side view, of one of the tongued flues which are used in my improved fog-horn.

The same letters indicate the same parts in all the figures.

In the drawings, *a* represents a cylindrical chamber or casing, preferably of metal, which is closed at one end, with the exception of an induction port or ports. *b b* represent said induction-ports, of which there may be one or more, as may be preferred, said ports communicating with a pipe *b'*, through which steam or compressed air enters the chamber *a*. The chamber *a* is closed at its other end by a partition or head *c*. As shown in the drawings, the casing *a* is screw-threaded at its end, and the head *c* is screw-threaded on one portion of its periphery to fit said casing. The central portion of the periphery of said head is preferably of the octagonal form shown in Fig. 2, and the remaining portion of its periphery is screw-threaded to receive the end of a suitable trumpet *e*. It will be seen that the central portion of the periphery of the

head *c* forms a projection against which the casing *a* can be screwed tight on one side and the trumpet on the other side.

d d represent flues which are closed at one end and are open at the other end and along one side. Said flues are provided on their open sides with tongues *f*, which are fastened to projecting flanges *d'* on the flues *d* by screws *f'*, passing through a strip *f²* of metal and through flanges or ears *f³* on the tongues *f*.

The flues *d*, with their tongues *f*, are placed in the casing *a* and are set in the head *c* with their open ends projecting slightly beyond the same. The head *c* is provided with holes adapted to fit closely the flues *d* and tongues *f*. To insure a tight joint, I provide the said flues with a flange or rib *d²*, projecting therefrom, which is adapted to rest upon the inner side of the head *c*, and I provide tongue *f* with a recess *f⁴* to receive the edge of the head and to fit tightly thereon. The tongues *f* are sprung slightly out from the flues *d*, so as to form vibrating tongues, which will vibrate when steam or compressed air is forced through the said flues, as hereinafter described.

g represents an outlet or relief port, which is adapted to let off superfluous steam or air when the pressure in the chamber *a* becomes too great. The outlet-port *g* is provided with a valve *h*, which is supported against the pressure in the chamber *a* by a spring *i*.

j represents a screw passing through the end of the tube *g* and pressing against one end of the spring *i*, the other end of said spring pressing against the valve *h*.

The outlet-tube *g* is provided with openings *g' g'*, and the valve *h* is supported by the spring *i* against the pressure in the chamber *a*, so as to close said openings, a stop *k* being provided across the tube *g* to prevent the valve *h* from being pushed too far into the tube *g* by the spring *i*.

The operation of the horn is as follows: The compressed fluid entering the chamber *a* by the induction-ports *b b* passes out of the same through the flues *d*, vibrating the tongues and producing a large volume of sound. If the pressure in the chamber *a* becomes too great and holds the tongues *f* down on the flues, thus stopping the sound, the

pressure will be relieved by the exit of the compressed fluid through the port *g*. The spring *i* may be so adjusted by means of the screw *j* as to let off the compressed fluid at
 5 any desired pressure. The extra pressure being relieved, the tongues *f* will spring out to their normal position, the outlet-valve will close, and the compressed fluid will again pass through the flues *d*, vibrating the tongues
 10 *f* and producing sound.

The outlet-tube *g* is preferably screwed into the head *c*, as shown in Fig. 1.

Four flues *d* are shown in the drawings arranged in the casing *a*; but I do not limit myself to the number or exact arrangement of
 15 the flues *d* employed in said casing.

I claim—

1. In a fog-horn, the combination of a casing or chamber having an induction port or
 20 ports, a plurality of tongued flues or whistles arranged in said chamber and having their open ends projecting through one end thereof, and a relief-outlet provided with a yielding valve, whereby overpressure in said cham-
 25 ber is prevented, as set forth.

2. In a fog-horn, the combination of the chamber *a*, having an induction passage or passages *b* and the partition or head *c*, a plu-
 30 rality of flues *d*, secured to said partition, each flue being closed at one end and open along one side and at the other end and provided with a tongue secured to the open end and free to vibrate over the open side and closed

end, and a relief-outlet provided with a yielding valve, whereby the pressure in said cham- 35
 ber may be automatically reduced, as set forth.

3. In a fog-horn, the combination of the casing or chamber *a*, having an induction pas-
 sage or passages *b* and the partition or head *c*, a plurality of flues *d* in said chamber se- 40
 cured to said partition, each flue being closed at one end and open at the other end and along one side and having its open end projecting through the head *c*, each flue being
 provided with a tongue *f*, secured to the open 45
 end and free to vibrate over the open side and closed end thereof, each tongue *f* being provided with flanges *f*³, corresponding with projecting flanges *d*³ on the flues *d*, said tongues
f being secured to the flues by fastenings 50
 passing through said flanges *f*³ and *d*³, the relief-outlet *g*, provided with the ports *g*³, the valve *h*, and means for yieldingly supporting
 the same, so that under a given pressure in the chamber *a* said valve will close the ports 55
 in said outlet and will yield under a greater pressure to open said ports and relieve the pressure, as set forth.

In testimony whereof I have signed my name to this specification, in the presence of 60
 two subscribing witnesses, this 19th day of December, A. D. 1890.

WILLIAM LE BLANC.

Witnesses:

EWING W. HAMLEN,
 ARTHUR W. CROSSLEY.