

No. 667,565.

Patented Feb. 5, 1901.

H. O. OLSON.
EXHAUST NOZZLE.

(Application filed May 8, 1900.)

(No Model.)

Fig. 1.

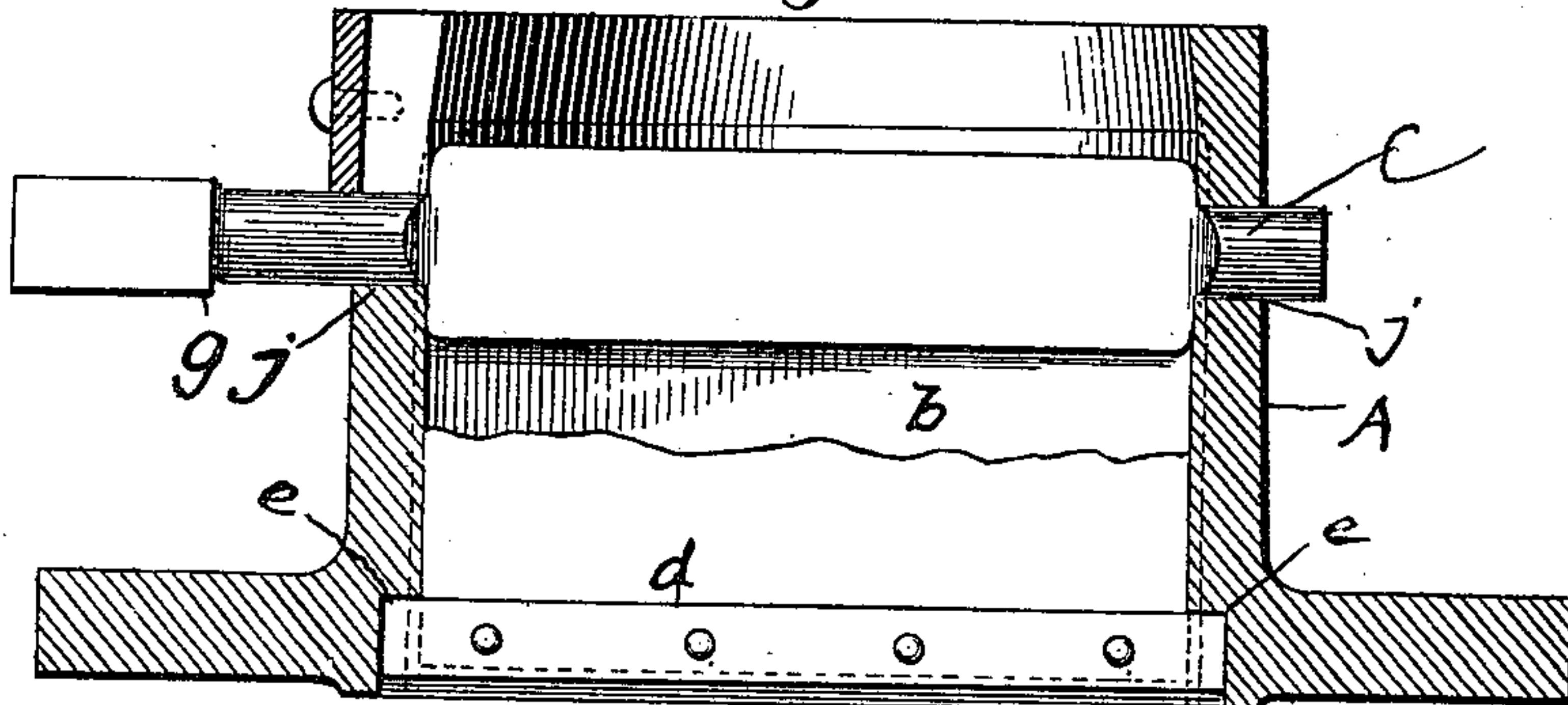


Fig. 2.

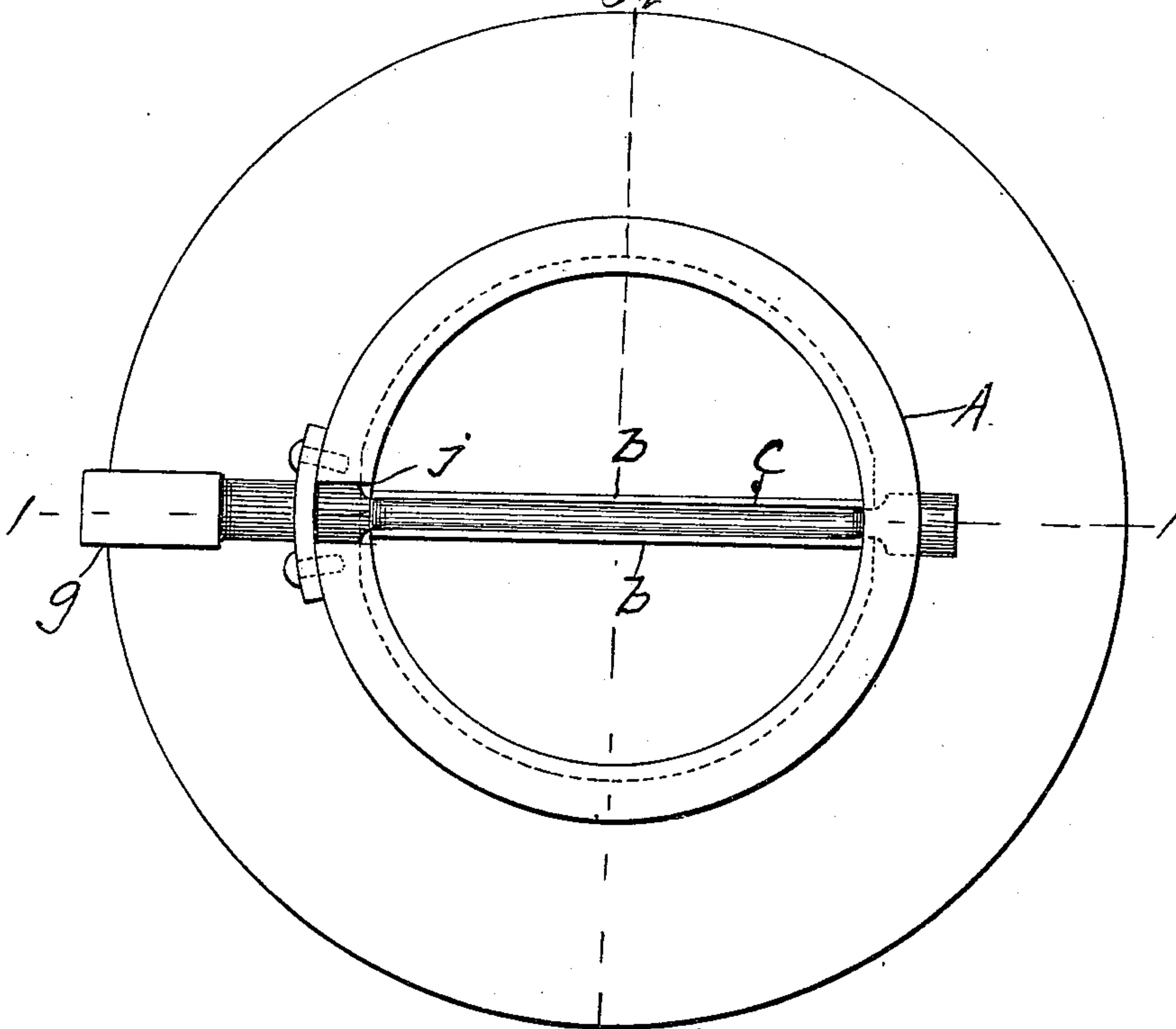
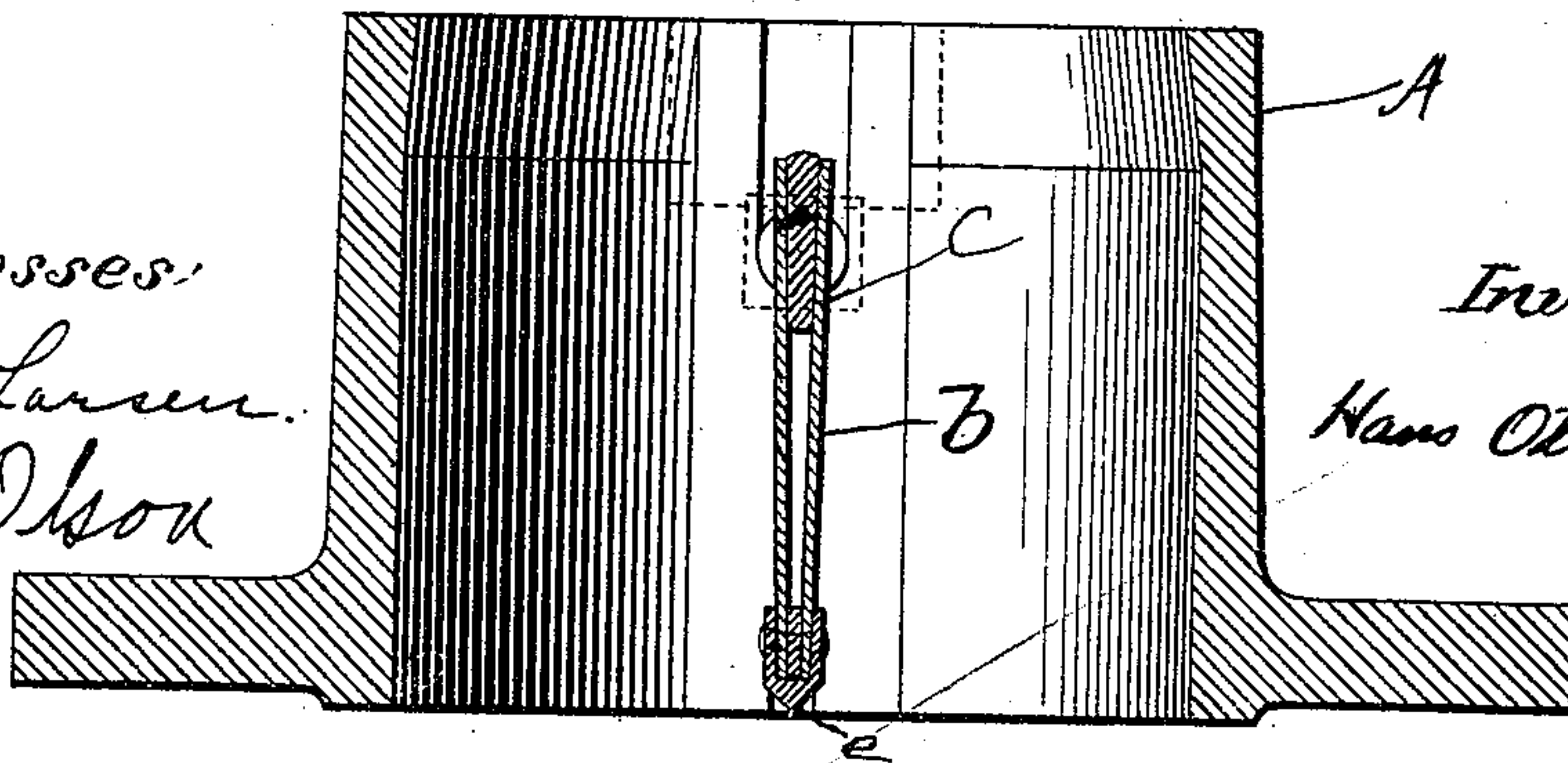


Fig. 3.



Witnesses:
H. M. Larsen.
John Olson

Inventor:
Hans Otto Olson

UNITED STATES PATENT OFFICE.

HANS OTTO OLSON, OF TWO HARBORS, MINNESOTA.

EXHAUST-NOZZLE.

SPECIFICATION forming part of Letters Patent No. 667,565, dated February 5, 1901.

Application filed May 8, 1900. Serial No. 15,990. (No model.)

To all whom it may concern:

Be it known that I, HANS OTTO OLSON, a citizen of the United States, residing at Two Harbors, in the county of Lake and State of Minnesota, have invented certain new and useful Improvements in Exhaust-Nozzles; and I do 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, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

The object of my invention is to provide a new and improved attachment for an exhaust-nozzle for engines, especially locomotive-engines, which is simple and durable in construction and serves to govern the exhaust of steam by increasing or diminishing the outlet.

The invention consists in certain parts which will be described hereinafter and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 2 is a top plan view of the exhaust-nozzle and the variable bridge. Fig. 1 is a central vertical section of Fig. 2 on lines 1 1; and Fig. 3 is a transverse sectional view of Fig. 2 on lines 2 2, showing a portion of said adjusting-plates and operating-shaft.

A represents the body in which the adjusting-plates *b b* and shaft *c* are operating. Said body of my improved exhaust-nozzle is preferably made straight and parallel on the outside, excepting as to the base, which projects out a convenient distance that the said attachment may be attached to any ordinary exhaust-stand. Said exhaust attachment is also preferably made straight, with parallel inner side, excepting as to a suitable distance from the top, which portion is made conical. Adjustment-plates *b b* are secured together by means of rivets to plate or bar *d* and attached to the exhaust-stand by means of projecting lugs, interposing slots *e e* on the lower portion of said exhaust attachment, said plates being constructed of any suitable flexible substance. Shaft *c* is journaled in said exhaust attachment, as shown at *j* of

Figs. 1 and 2. To shaft *c* arm *g* is attached for operating said shaft and adjusting-plates. A rod is for convenience attached to arm *g*, that the exhaust attachment may be operated at any suitable distance from its location.

The operation is as follows: When it is desired to reduce the steam-passage, I operate shaft *c* by means of a rod (said shaft *c* being flat and wide at its central portion) and in revolving spreads plates *b b*, thus reducing the area of the outlet for exhaust-steam, and when it is desired to again increase said area I move said rod to such a position that the shaft *c* will again obtain its normal position.

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

1. In an attachment for an exhaust-nozzle for a locomotive-engine; the combination of a circular stand and casing, its inner side being partially parallel and partially conical, said casing being provided with suitable base for attaching the same to any exhaust-stand; a variable bridge, consisting of flexible plates or blades and a shaft, being secured in said circular case, said variable bridge consisting of plates and a center piece secured together by means of rivets; said center piece and plates having the lower edges chamfered so as to make a point, and a shaft journaled in said casing at a suitable distance from the top of the casing and interposing the upper edges of the adjusting-plates, substantially as described and shown.

2. In an attachment for an exhaust-nozzle for locomotive-engines; the combination of a circular casing having its inner side partially parallel and partially concave, adjusting-plates secured to a bar provided with projecting lugs, said lugs intersecting suitable slots at the inside and at the lower edge of said circular casing, said adjusting-plates being adjusted by a suitable shaft made wide and flat at its center and journaled in said casing, substantially as described and shown.

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

HANS OTTO OLSON.

Witnesses:

JOHN OLSON,

JOHN O. MALLEY.