

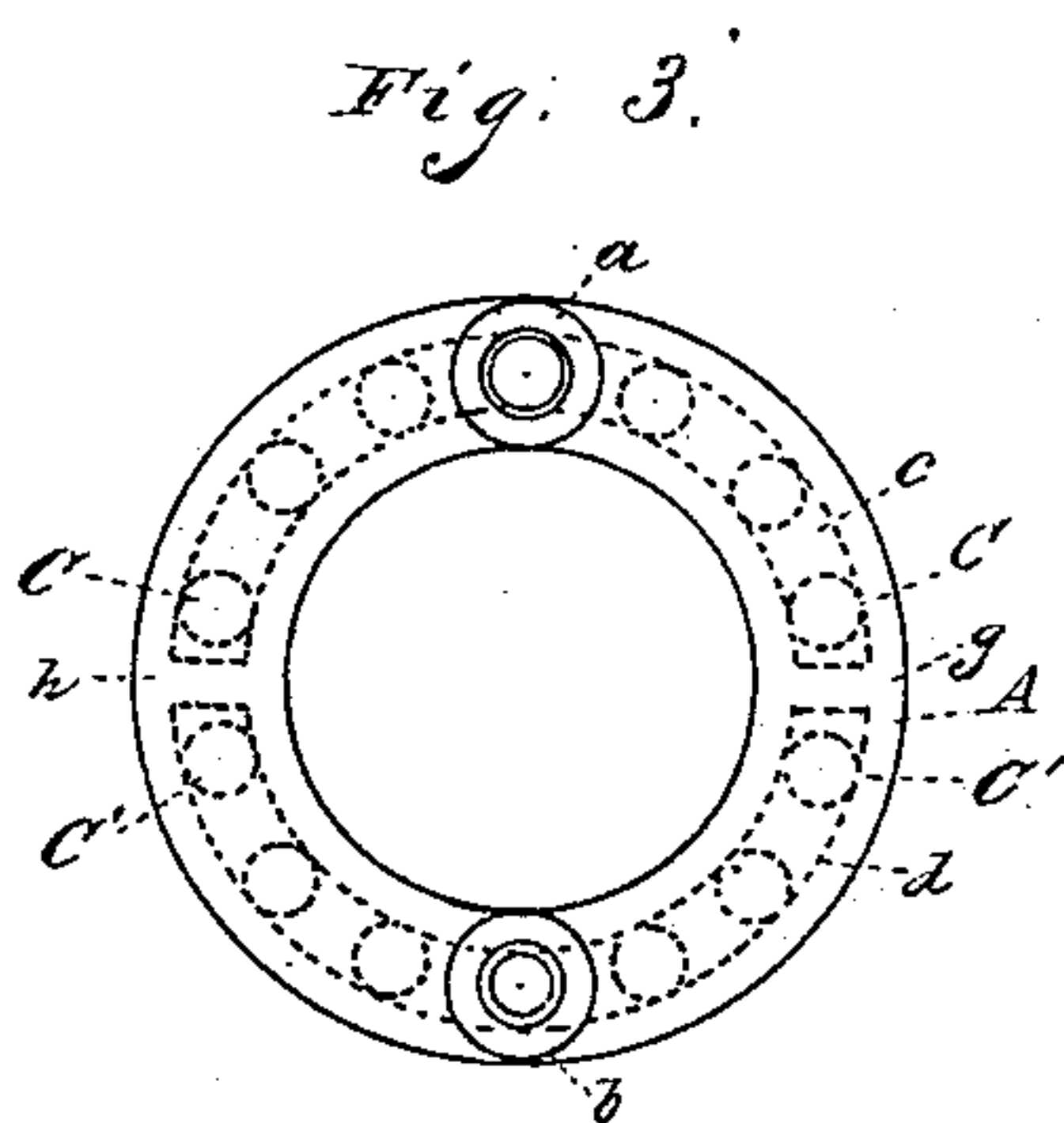
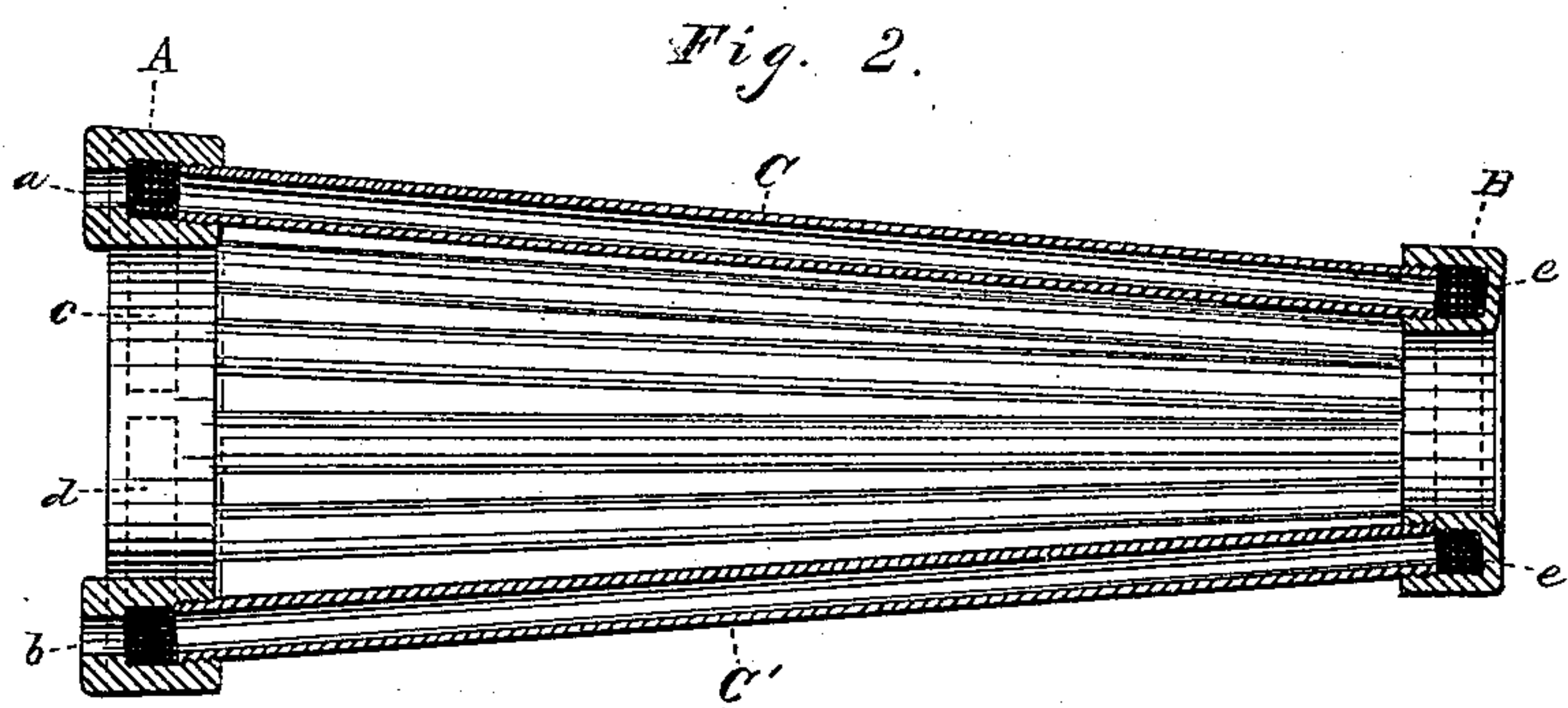
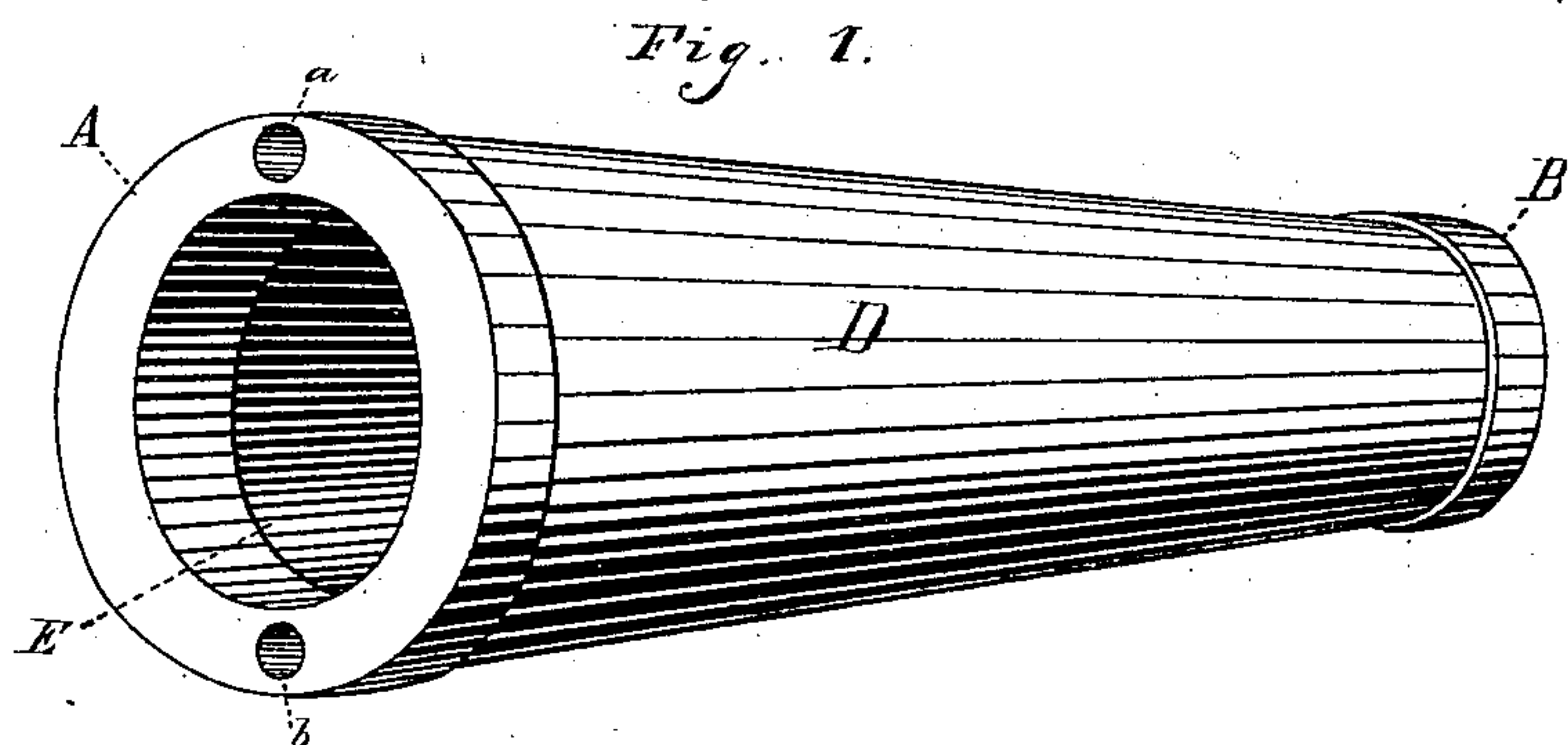
(No Model.)

H. WATSON.

TUYERE.

No. 250,769.

Patented Dec. 13, 1881.



WITNESSES
Jno. Crowell Jr.
Ch. Engel.

Hugh Watson. INVENTOR
By Leggett & Leggett.
ATTORNEYS

UNITED STATES PATENT OFFICE.

HUGH WATSON, OF CLEVELAND, OHIO.

TUYERE.

SPECIFICATION forming part of Letters Patent No. 250,769, dated December 13, 1881.

Application filed August 30, 1881. (No model.)

To all whom it may concern:

Be it known that I, HUGH WATSON, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful
5 Improvements in Tuyeres; and I do hereby 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 pertains to make and use it, reference being had
10 to the accompanying drawings, which form part of this specification.

My invention relates to tuyeres, and more particularly to that class used in connection with blast-furnaces; and it consists in the peculiar construction of the same, as will be hereinafter fully set forth and claimed.

In the drawings, Figure 1 is an isometric view of my device. Fig. 2 is a longitudinal vertical section of the same. Fig. 3 is an end
20 view.

A is a hollow head, which is provided with two chambers, *c* and *d*. (Shown by dotted lines, Figs. 2 and 3.) These chambers are separated from each other by the walls *g* and *h*,
25 and have no communication with each other through said head A. The chamber *c* is provided with an inlet, *a*, by means of which water is admitted to said chamber *c*. The chamber *d* is provided with an outlet, *b*, through
30 which water passes from said chamber *d*.

Connected to the head A, and communicating with the chamber *c*, are tubes C, the other ends of which are also connected to and communicate with the hollow nose B, which is
35 provided with a continuous chamber, *e*. The chamber *d* of the head A is also provided with tubes C', said tubes C' also being connected to and communicating with the interior of the nose B.

40 Surrounding the tubes C and C' is a cylinder, D, which extends the length between the head A and nose B, the joints being made practically air-tight.

45 The orifice of the tuyere is lined with a cylinder, E, thus providing a smooth inner surface for the passage of the blast.

The operation of my tuyere is as follows: A water-supply pipe being attached to the inlet *a*, water is fed into the chamber *c*, and from thence passes through the tubes C into the
50 chamber *e* of the nose B, and back through the tubes C' to the chamber *d* in the head A, when it is allowed to pass out through the outlet *b*.

By forming my tuyere as above described I get a perfect circulation of the water, which
55 acts to keep the tuyere from burning, and also prevents the accumulation of sediment in the tubes C and C' or nose B.

What I claim is—

1. In a tuyere, the head A, provided with
60 two or more chambers, *c d*, substantially as and for the purposes shown.

2. In a tuyere, the combination, with a head provided with two or more chambers, of a hollow nose and pipes connecting the head with
65 the nose, substantially as and for the purposes shown.

3. A tuyere provided with a series of pipes, through which water may pass from the head to the nose of the tuyere, in combination with
70 another series of pipes, through which water may pass from the nose to the head, and from thence be discharged from the tuyere, substantially as and for the purposes shown.

4. In a tuyere, the combination, with a head
75 provided with hollow chambers *c d*, of pipes connecting said chambers with the hollow nose B, whereby water may be taken in through one of the chambers in the head, from thence pass through the series of pipes to the nose,
80 and from thence discharged through other pipes into the other chamber of the head D, and from thence from the tuyeres, substantially as and for the purposes shown.

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

HUGH WATSON.

Witnesses:

JNO. CROWELL, Jr.,
ALBERT E. LYNCH.