

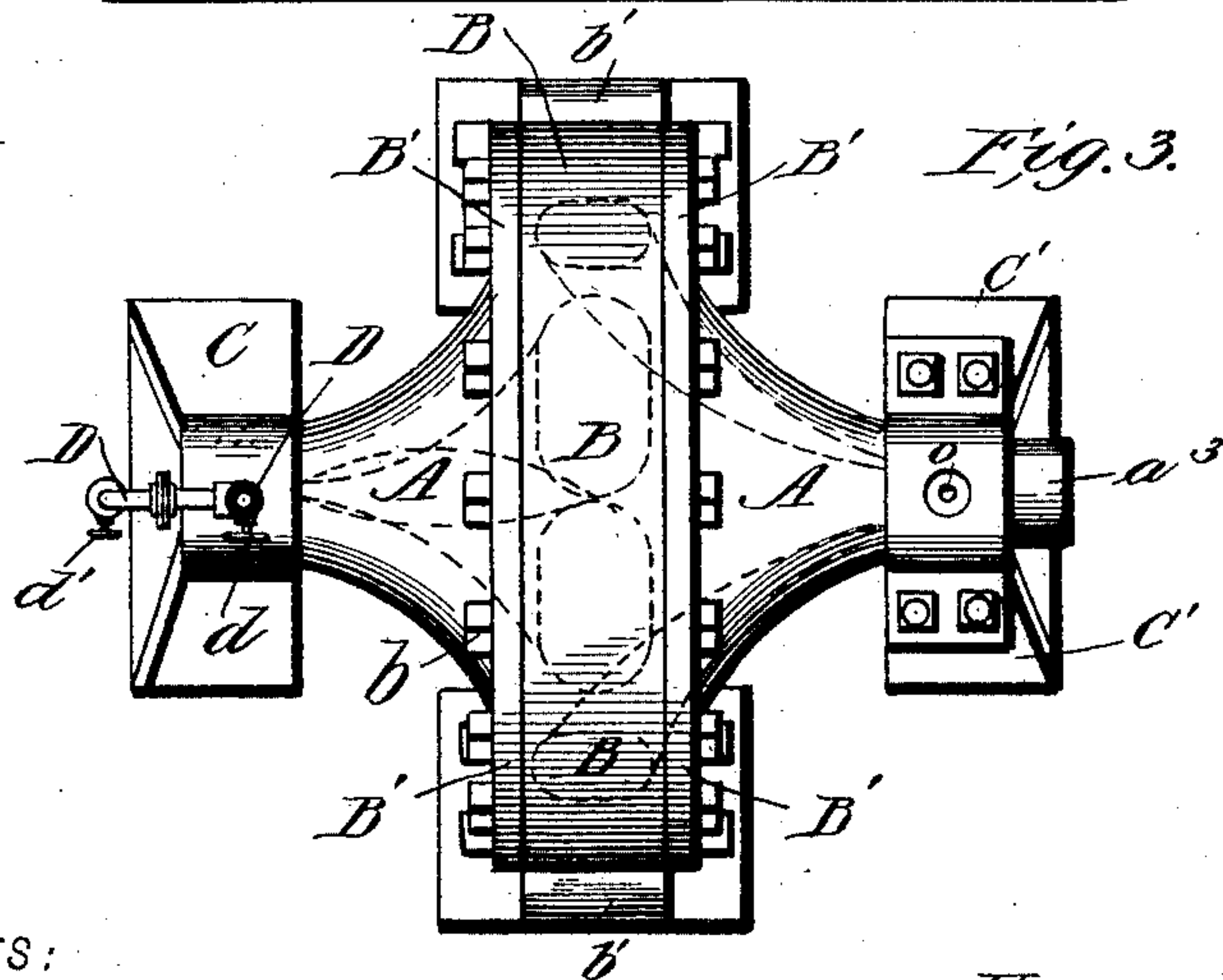
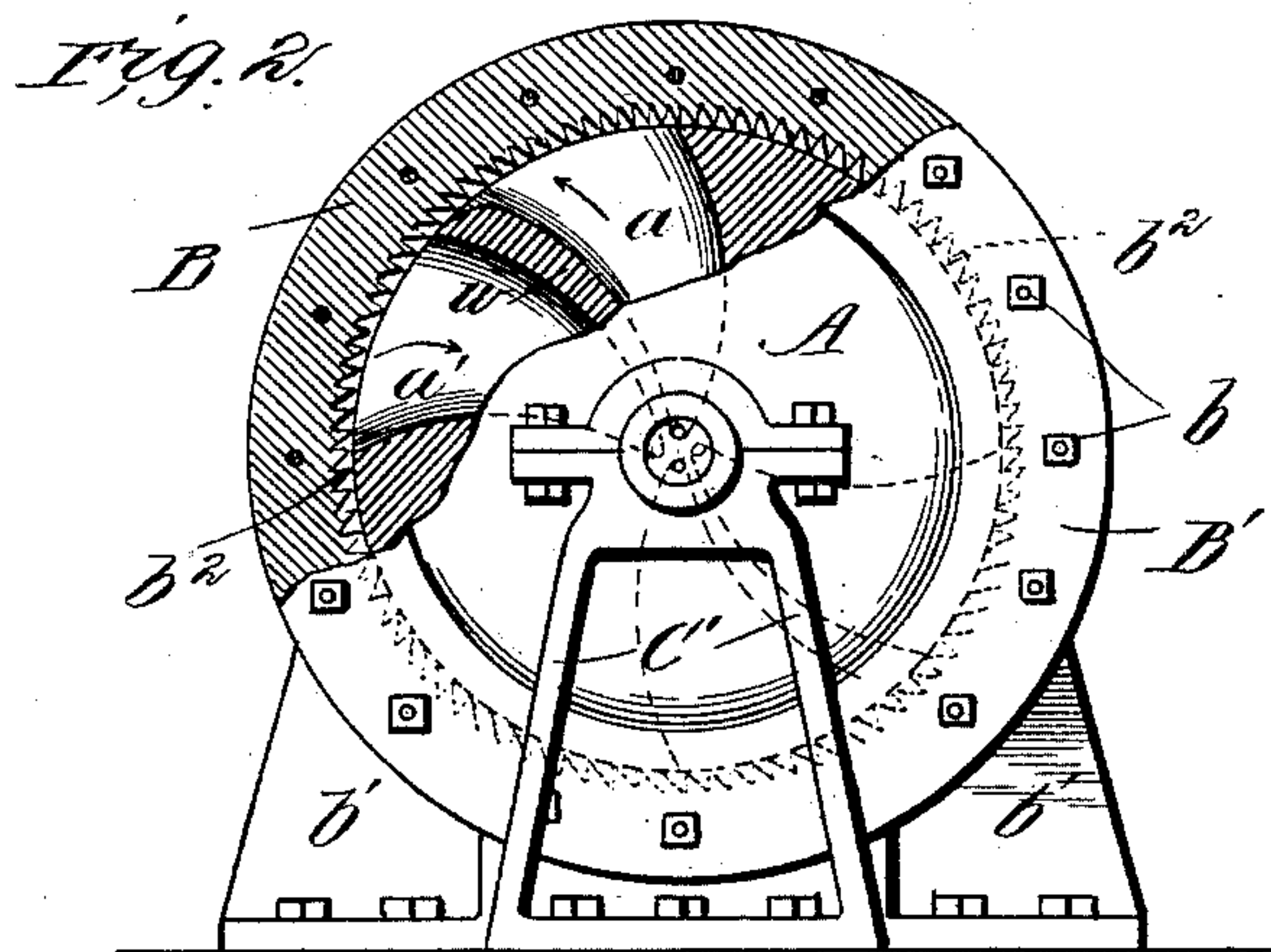
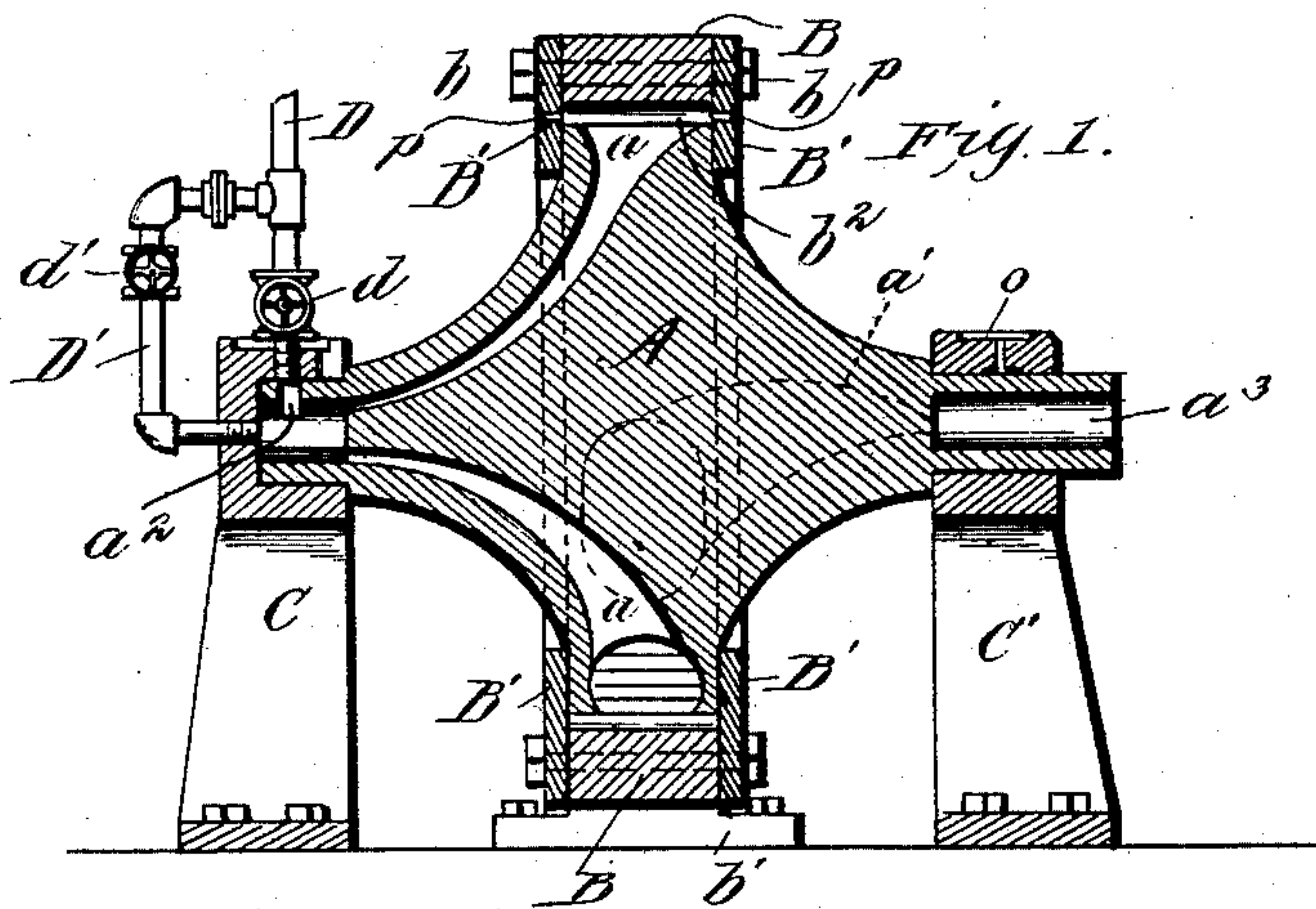
No. 715,152.

Patented Dec. 2, 1902.

H. ROESKE.
ROTARY STEAM MOTOR.

(Application filed Mar. 13, 1902.)

(No Model.)



WITNESSES:

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HENRY ROESKE, OF PHILADELPHIA, PENNSYLVANIA.

ROTARY STEAM-MOTOR.

SPECIFICATION forming part of Letters Patent No. 715,152, dated December 2, 1902.

Application filed March 13, 1902. Serial No. 98,000. (No model.)

To all whom it may concern:

Be it known that I, HENRY ROESKE, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in Rotary Steam-Motors, of which the following is a specification.

My invention is in the nature of a rotary steam-motor. It belongs to that class of rotary engines known as "impact-engines," in which jets or sheets of steam escaping from one surface are allowed to impinge upon another surface to produce either a direct or reactionary rotary movement in one of the two surfaces. In my invention the steam issues from a rotary moving surface and impinges upon a stationary one to impart a reactionary rotary movement to the surface carrying the steam passage-ways; and it consists in the peculiar construction and arrangement of a rotating head carrying live-steam passage-ways on one side and exhaust-steam passage-ways on the other side, both opening on the periphery of the head, and which head is located within an annular stationary casing having teeth on its inner periphery, against which the escaping jets of steam from the head impinge to produce a reactionary rotary movement of the head.

It also consists in the special construction and arrangement of the journals of the head, one of which is constructed to form the inlet-ports and the other the outlet-ports, as will be hereinafter more fully described with reference to the drawings, in which—

Figure 1 is a vertical longitudinal section. Fig. 2 is a side elevation, partly in section; and Fig. 3 is a plan view.

In the drawings, A represents the revolving head, which in general shape is double conical. In one side of it are formed the live-steam passages a a , which extend from one journal and open on the periphery, and on other side of it are formed the exhaust-steam passages a' a' , which open on the periphery in alternate position with the live-steam passages and extend thence to and through the exhaust-port a^3 on the other journal. Each live-steam passage-way has its corresponding exhaust passage-way immediately behind it and separated only by a relatively thin wall w .

Surrounding the head A there is a closely-

fitting annular casing consisting of a ring B, having on its inner periphery teeth b^2 , against which the jets of steam impinge, and two flat rings B' B', which are secured by bolts b to the sides of ring B, and which two side rings extend inwardly and lap over the outer portion of the head A, which is turned true to fit said rings. The casing B B' B' is stationary, its middle portion B being formed with legs b' b' , which are firmly bolted to any suitable support.

The outer ends of the double-conical head A are turned to form journal-bearings, which are carried in boxes in the upright standards C C', which latter are also bolted to a suitable support at the bottom.

D is the inlet steam-pipe, which is tapped through the top of the journal-box and opens into a slot a^2 , formed in the hollow journal of the revolving head and in open communication with the live-steam passage-ways a a in the head.

From the pipe D a branch pipe D' extends downwardly to the side of the journal-box and opens into the end of the same and also in the hollow journal. Both the pipes D and D' have valves d and d' , respectively, by which the admission of steam can be controlled. As the head A rotates, its inlet-port a^2 takes steam at intervals only, and thus has the function of a cut-off.

Oil is supplied to all the bearings through suitable holes. The journals are thus supplied through holes o and the peripheral surfaces of the head through the holes p .

The operation of my rotary motor is as follows: Steam being admitted through the valve d , it passes up the channel-ways a a in the head and impinging against the teeth b^2 of the stationary case produces a reactionary strain and rotary motion of the head. The steam issuing through any passage-way a passes the edge of the wall w and is immediately discharged into the juxtaposed exhaust passage-way a' behind the passage-way a and thence is led to the exhaust a^3 in the other journal of the head. As the casing B B' is held stationary, it will be seen that the reactionary effect of the steam-blasts impinging against the teeth of the casing causes the head A to continuously rotate in a backward direction. The slot a^2 , it will be seen, deliv-

ers steam to the rotating head from the steam-pipe with a cut-off action in an intermittent way, and this allows the impulses of steam to act expansively in the widening throats of the ports as it passes to and issues at the periphery. When steam is cut off, if it should happen that the induction-journal of the head should come to a stop with the slot a^2 out of registration with the steam-pipe, then in order to start up the engine again the valve d' is opened and steam admitted to the end of the hollow journal through the pipe D' . After the head starts to revolve steam is cut off at d' and the valve d opened, and then steam continues to be admitted through the port a^2 in an intermittent manner again.

The live-steam and exhaust passage-ways or ports in the revolving head increase in size from the journals to the periphery of the head. This gives large openings opposite the teeth or blades of the casing to allow the steam to quickly issue and escape. It also allows the steam to expand somewhat as it enters.

I have shown my rotary motor on a horizontal axis and rotating in a vertical plane; but it will be understood that it may as well be turned so as to let the axis of rotation be vertical and the plane of the head horizontal.

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

1. A rotary impact-motor, comprising a stationary annular casing having impact-surfaces for steam on its inner periphery and a rotary head arranged within the same and having induction-ports in one journal, and an exhaust-port in the other journal, said induction and exhaust ports opening on the periphery alternately with each other substantially as described.

2. A rotary impact-motor, comprising a stationary annular casing having impact-surfaces for steam on its inner periphery, and a rotary head of a substantially double-conical shape having its greatest circumference arranged within the said casing and having

formed in its tapering end portions steam inlet and exhaust ports opening alternately on the periphery and with the steam-inlet ports extended to and opening through one journal and the exhaust-ports extended to and opening through the other journal substantially as described.

3. A rotary impact-motor comprising a stationary annular casing having impact-surfaces for steam on its inner periphery, and a rotary head having on one side live-steam ports extending from one journal to the periphery, and on the other side exhaust-steam ports extending from the periphery to the other journal, said ports being arranged to alternate with each other and increasing in size from the journal to the periphery substantially as described.

4. A rotary impact-motor comprising a stationary casing and a rotating head within the same having alternating inlet and exhaust ports extending respectively to the journals the inlet-journal being formed with an opening to intermittently take steam and allow it to expand in the ports of the rotating head substantially as described.

5. A rotary impact-motor comprising a stationary casing, and a rotating head within the same having at one end a hollow journal having an inlet-slot on the side and also an open end, a steam-pipe with valve opening into range of said slot, and a branch steam-pipe with valve opening into the end of the hollow journal substantially as shown and described.

6. A rotary impact-motor comprising an annular casing consisting of a middle ring B with feet b' b' and two side rings B' B' bolted to this middle ring, a rotating head having inlet and exhaust ports opening on the periphery, and stationary bearings for each end of the head substantially as shown and described.

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Witnesses:

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