

No. 776,847.

PATENTED DEC. 6, 1904.

J. E. KELLEY.

BLOWER.

APPLICATION FILED JUNE 30, 1903.

NO MODEL.

Fig. 1.

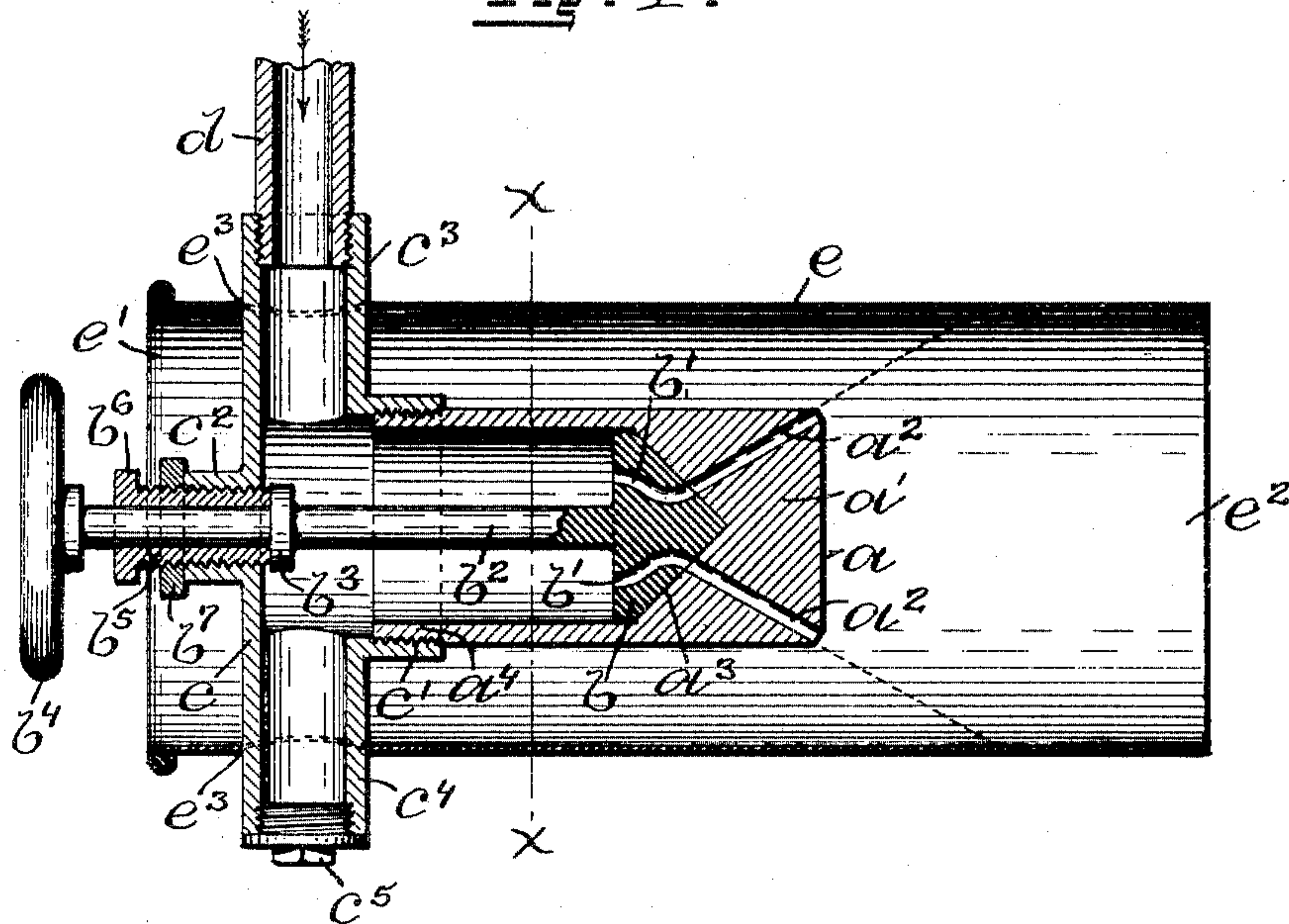


Fig. 2.

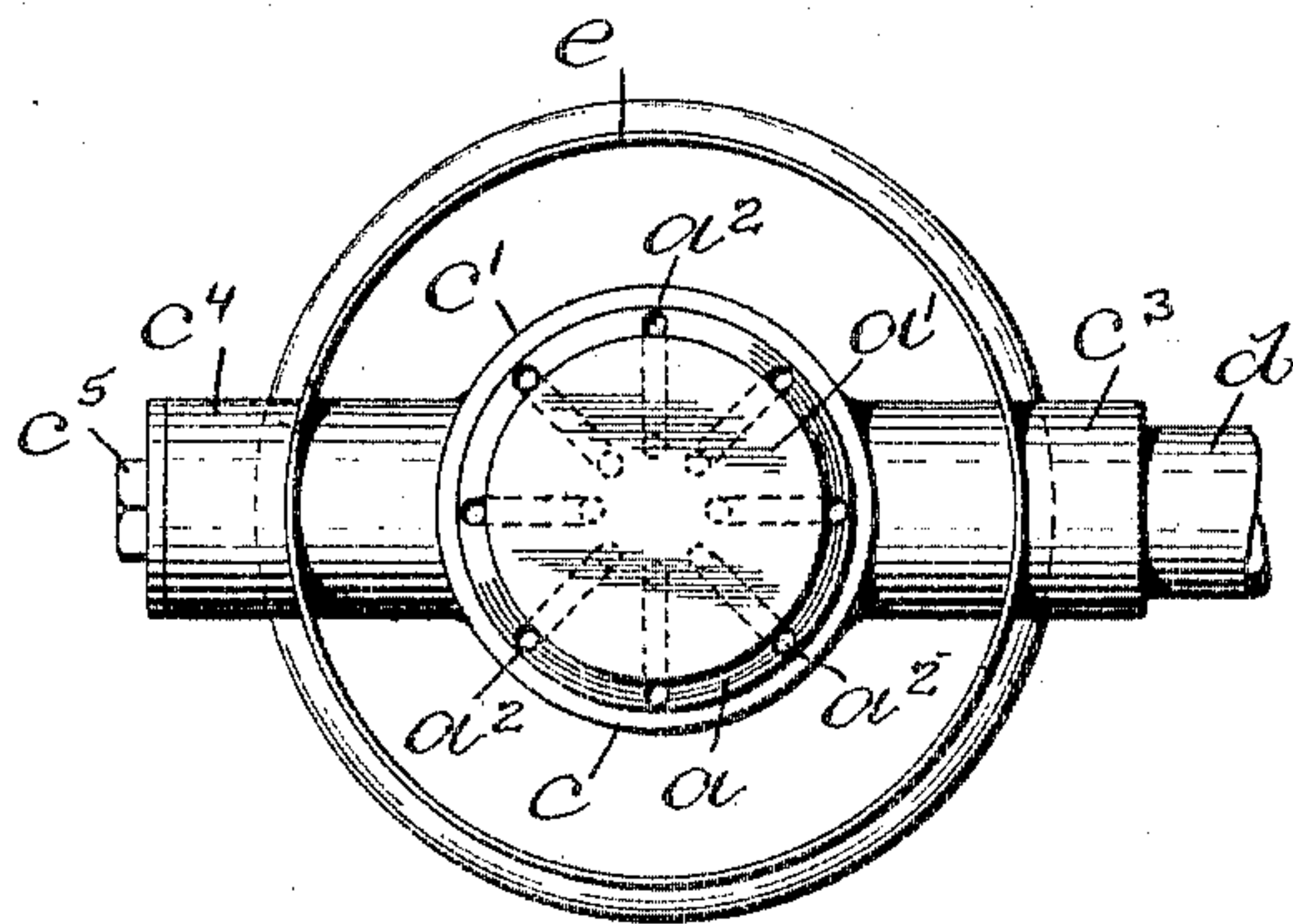
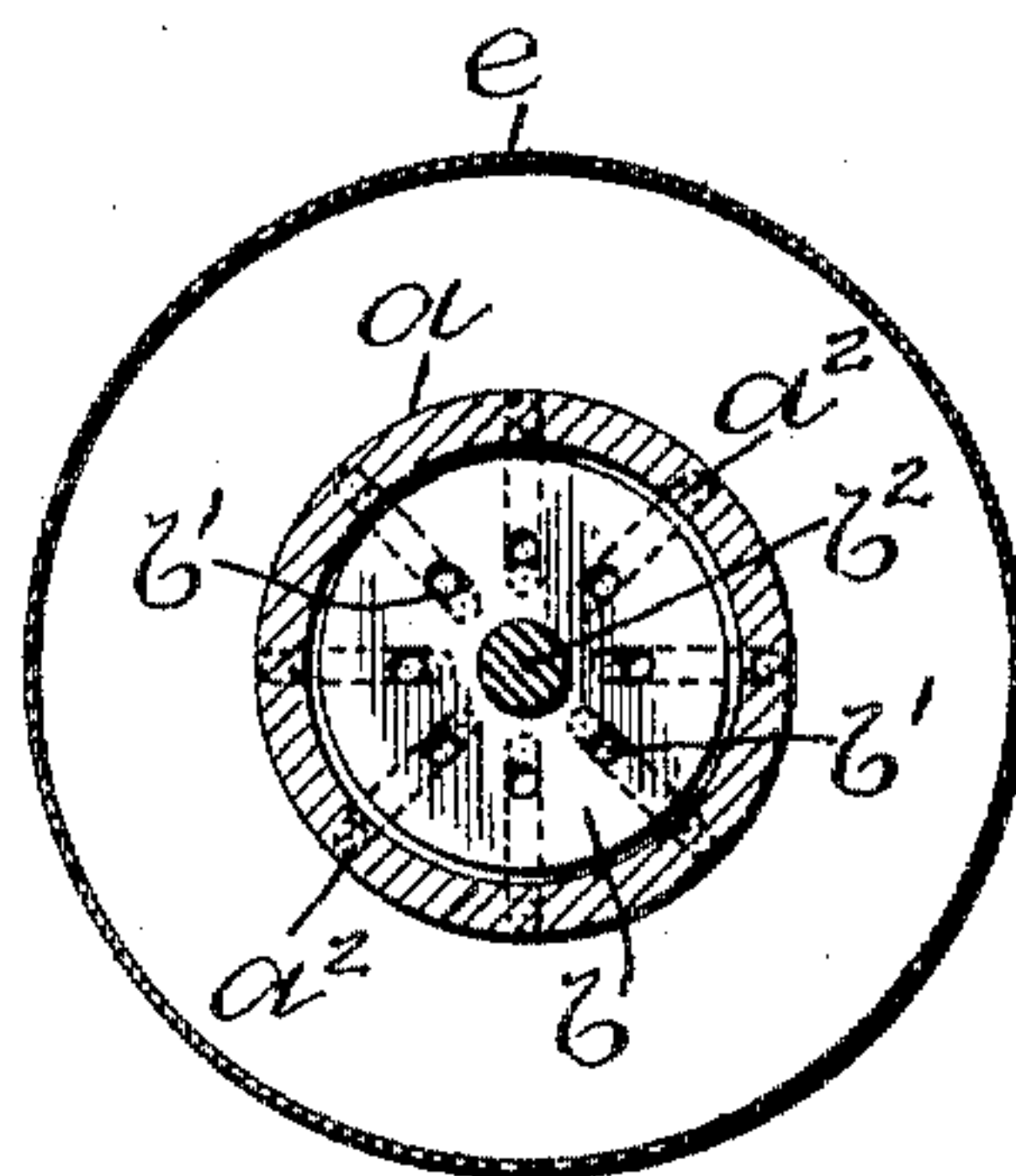


Fig. 3.



WITNESSES:

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JOSEPH E. KELLEY, OF PROVIDENCE, RHODE ISLAND.

BLOWER.

SPECIFICATION forming part of Letters Patent No. 776,847, dated December 6, 1904.

Application filed June 30, 1903. Serial No. 163,742. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH E. KELLEY, a citizen of the United States, residing at Providence, in the county of Providence and State of Rhode Island, have invented a new and useful Improvement in Blowers, of which the following is a specification.

This invention has reference to an improvement in blowers, and more particularly to an improvement in blowers used to force the draft of steam-generators.

In blowers for steam-generators where steam is used to force air through the fire it is essential to force a large volume of air through the fire with the least amount of steam to form a perfect combustion and by this perfect combustion to consume the smoke from the fire. In blowers for this purpose as heretofore constructed the steam was forced through the shell of the blower in a straight line. In this construction a great force and volume of steam is required to force a small amount of air through the fire.

The object of my invention is to improve the construction of a blower whereby a more perfect combustion in a steam-generator is attained and the smoke from the fire more nearly consumed than has heretofore been done.

My invention consists in the peculiar and novel construction of a blower having a circular row of outlet-ducts placed at an angle in a nozzle centrally located in the cylindrical shell of the blower and of means for carrying steam to the nozzle and means for controlling the amount of steam through the outlet-ducts in the nozzle, as will be more fully set forth hereinafter.

Figure 1 is a sectional view taken lengthwise through my improved blower, showing the steam connections to the nozzle and a valve for controlling the amount of steam through the outlet-ducts formed at an angle in the nozzle. Fig. 2 is a view looking at the inner end of the blower, showing the circular row of outlet-ducts in the end of the nozzle; and Fig. 3 is a transverse sectional view taken on line X X of Fig. 1, showing the ducts in the valve coinciding with the outlet-ducts in the nozzle.

In the drawings, *a* indicates the nozzle, *b*

the valve, *c* the fitting, *d* the inlet-pipe for the steam, and *e* the cylindrical shell, of my improved blower. The nozzle *a* consists of a tubular sleeve having the closed end *a'*, in which is the circular row of outlet-ducts *a² a²*, extending inward to the cone-shaped valve-seat *a³* at an angle from the outer edge of the end *a'*, so that lines drawn centrally through the outlet-ducts would meet at a central point in the nozzle. The nozzle is secured to the fitting *c* by screwing the open end *a⁴* into the flange *c'* of the fitting. The valve *b* has the ducts *b' b'* extending through the valve to coincide with the outlet-ducts *a² a²* and spaced so that a partial rotation of the valve will close or open the outlet-ducts. The valve-stem *b²* has the fixed collar *b³* in the fitting *c* and on its outer end the hand-wheel *b⁴* to rotate the valve. The sleeve *b⁵* is in screw-thread engagement with the neck *c²* of the fitting and has the nut-head *b⁶* on its outer end, the inner end engaging with the collar *b³* on the valve-stem to adjust the valve for wear. The sleeve is secured in its adjusted position by the lock-nut *b⁷*. The fitting *c* has the end *c³* extending outward through the shell *e* for the inlet-pipe *d* and the end *c⁴* extending through the shell *e* closed by the screw-plug *c⁵*. The cylindrical shell *e* has the open outer end *e'*, the open inner end *e²*, and the oppositely-disposed openings *e³ e³* near the outer end *e'* for the ends *c³* and *c⁴* of the fitting *c*.

In use the blower is placed in the wall or door of the ash-pit of a steam-boiler, the inner end *e²* extending into the ash-pit under the grates. A valve on the inlet-pipe *d*, controlled by the damper-regulator of the boiler, admits steam under pressure to the nozzle *a* through the fitting *c*. The steam controlled by the valve *b* passes through the outlet-ducts *a² a²* in the nozzle. These ducts diverging outward from the interior of the nozzle force the steam against the inside of the blower-shell *e* at an angle, completely filling the space from the nozzle to the shell, as shown in broken lines in Fig. 1.

In practice I find by the use of my improved blower a large volume of air with a small amount of steam are furnished to the boiler-furnace, a more perfect combustion is attained,

and the smoke is more nearly consumed than has heretofore been done.

It is evident that the outlet-ducts in the nozzle could be of any number and placed at any angle desired to force the steam onto the interior of the shell without materially affecting the spirit of my invention.

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

10 In a blower, the combination of the nozzle *a* having the closed end *a'*, the circular row of outlet-ducts *a² a²* extending inward to the cone-shaped valve-seat *a³* at an angle, and the open end *a⁴*, the valve *b* having the ducts *b' b''* coinciding with the ducts *a² a²* in the nozzle, the
15 stem *b²*, the collar *b³* and the hand-wheel *b⁴* on the stem, the fitting *c* having the flange *c'* in

screw-thread engagement with the open end *a⁴* of the nozzle, the neck *c²* in screw-thread engagement with the sleeve *b⁵* having the nut-head *b⁶* and secured by the lock-nut *b⁷*, the end *c³* for the inlet-pipe *d* and the end *c⁴* closed by the screw-plug *c⁵*, and the cylindrical shell *e* having the open outer end *e'*, the open inner end *e²*, and the openings *e³ e³* for the ends *c³* and *c⁴* of the fitting *c*, all for the purpose as
20 described.

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

JOSEPH E. KELLEY.

Witnesses:

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CHAS. W. BOWEN.