

G. H. JOHNSON & C. G. MOULTON.

STOVE.

No. 176,962.

Patented May 2, 1876.

Fig. 1.

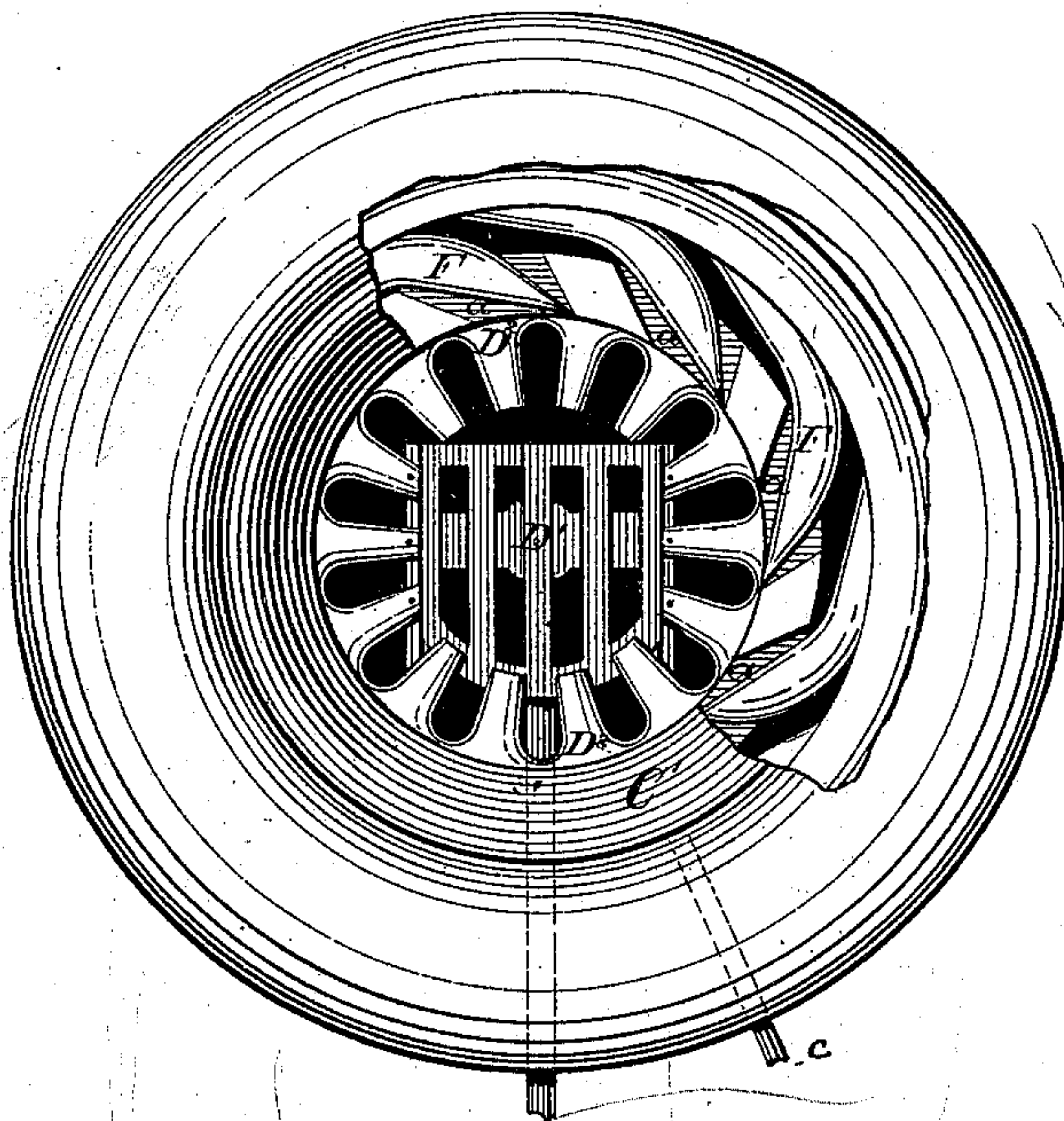
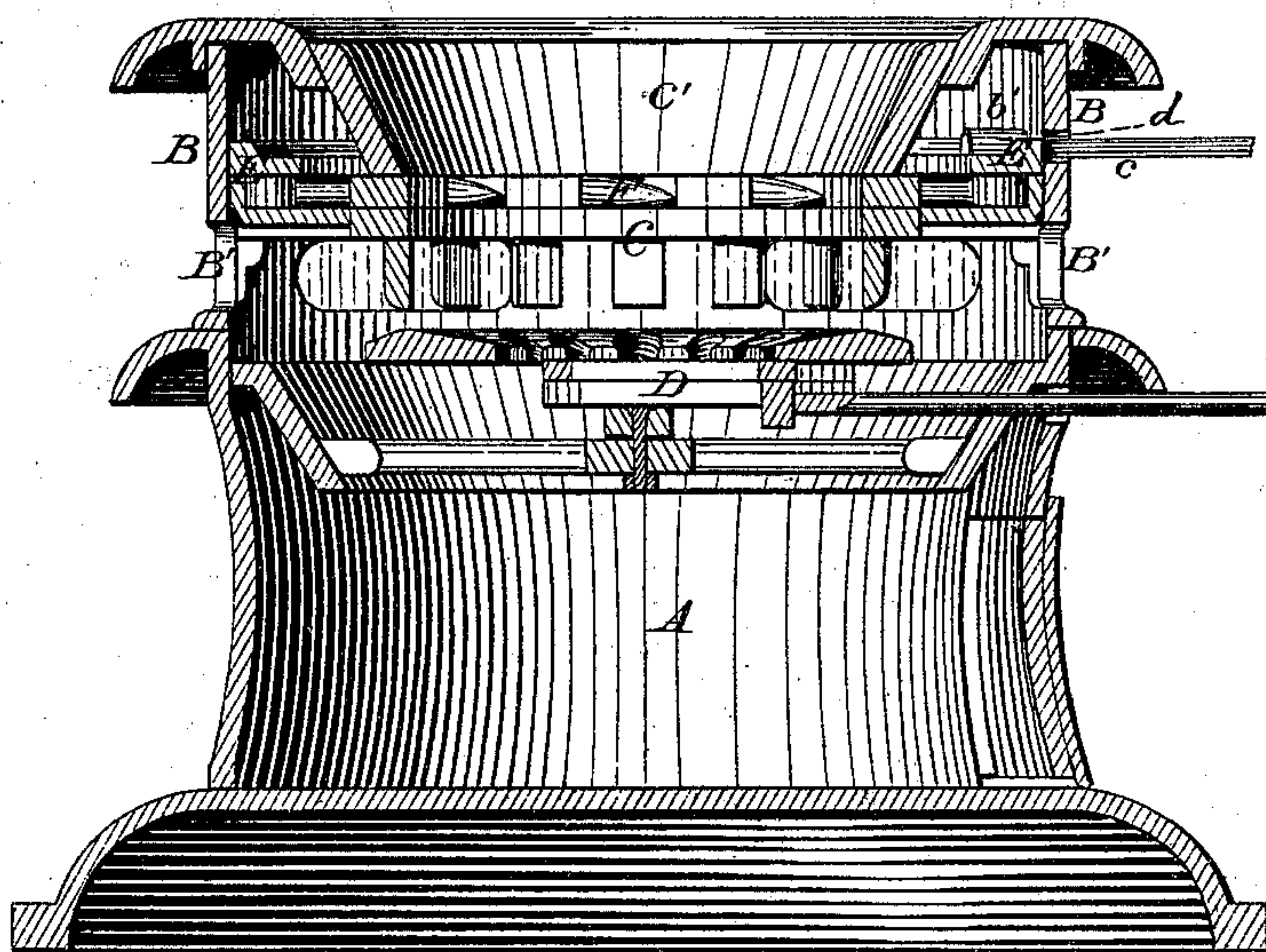


Fig. 2.



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Fig. 3.



Fig. 5.

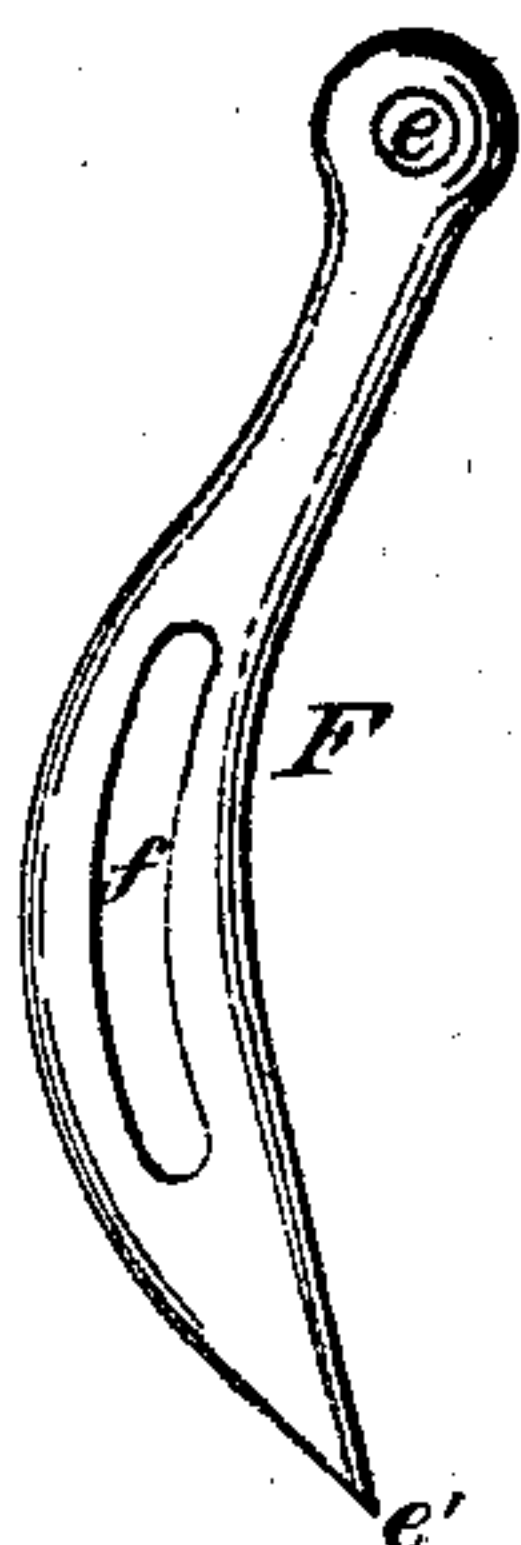


Fig. 6.

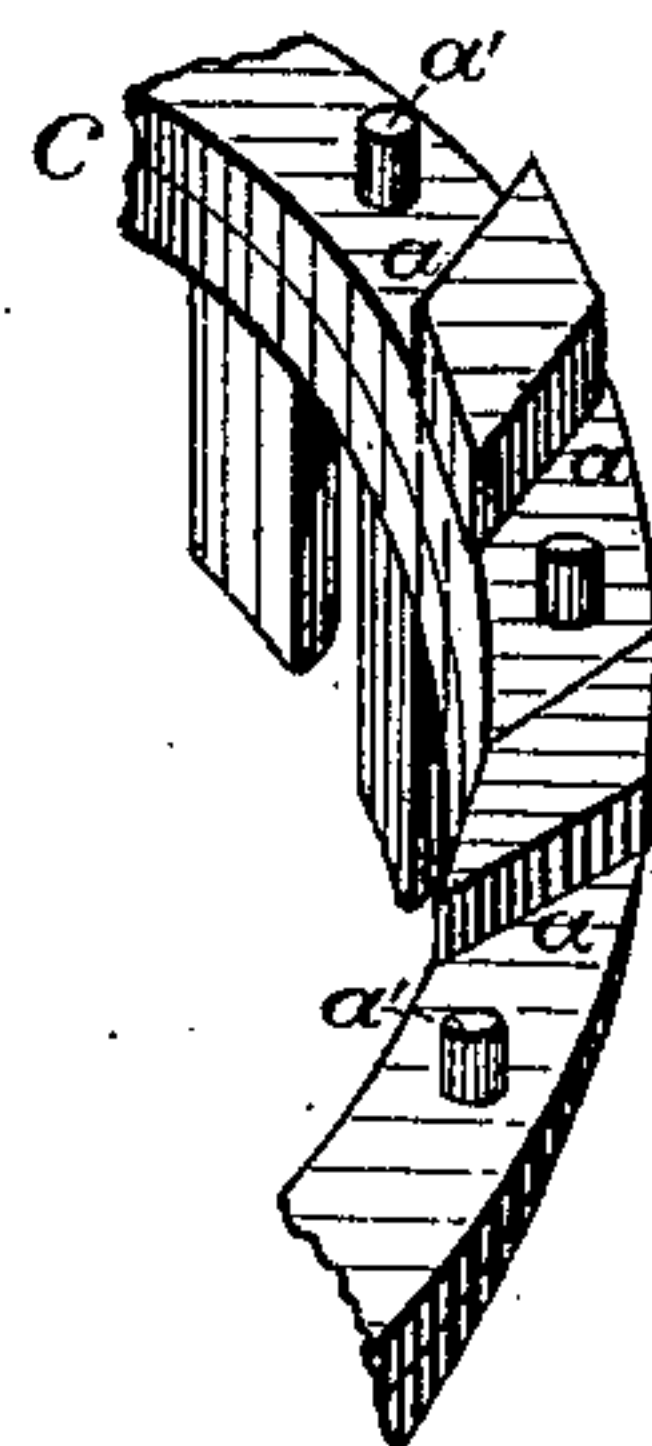


Fig. 4.



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UNITED STATES PATENT OFFICE.

GROVE H. JOHNSON AND CHARLES G. MOULTON, OF ERIE, PENNSYLVANIA.

IMPROVEMENT IN STOVES.

Specification forming part of Letters Patent No. **176,962**, dated May 2, 1876; application filed February 25, 1876.

To all whom it may concern:

Be it known that we, GROVE H. JOHNSON and CHARLES G. MOULTON, of Erie, in the county of Erie and State of Pennsylvania, have invented a new and useful Improvement in Stoves; and we do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The object of our invention is, primarily, to provide a convenient and cleanly mode of clearing away ashes, clinkers, and débris arising from the combustion of coal in a stove, and the particular mode in which the object is accomplished is by cutting off the column of coal and débris at a point near the bottom of the fire-pot, and causing the lower part thus cut off to fall into the ash-pit; and our invention therein consists in the means employed in cutting off the coal and the various operative combinations of the parts employed for this purpose, constructed and arranged as more particularly hereinafter described.

To enable others skilled in the art to make and use our contrivance, we proceed to describe the same in connection with the drawings, in which—

Figure 1 is a top elevation of the lower and central sections of a magazine heating-stove, with the upper part of the fire-pot broken away to show the position of our cut-off device, the fingers of which are withdrawn. Fig. 2 is a central vertical section from the front of the same to the rear. Fig. 3 is a detached top view of the ring carrying the cut-off fingers, showing the position of such fingers when withdrawn, the upper section of the ring being removed. Fig. 4 is a top view of similar parts and the upper part of the lower section of the fire-pot, showing the position of the cut-off fingers when projected into the fire-pot. Fig. 5 is a bottom perspective view of one of the fingers of the cut-off device, and Fig. 6 is a top perspective view of a portion of the lower section of the fire-pot.

Similar letters denote corresponding parts in each figure.

A represents the outer casing of the lower or ash-pit section of a magazine heating-stove,

and B the outer casing of the fire-pot section, having illuminating mica windows B'. The fire-pot consists of two parts, C C'. The lower section C may be supported by arms resting upon or secured to lugs (not shown) cast on the inner side of the casing B, or in any convenient manner, and, most conveniently for illumination, should be slotted or have openings opposite, or nearly so, to the mica windows B'. The upper part of the lower section C is cast with notches or openings *a*, in each of which is cast or riveted a stud, *a'*.

The upper section C' of the fire-pot may be a solid casting, larger at its top than the lower section, and contracted at its lower end to the size of the upper portion of the lower fire-pot. This upper solid section C' is secured in place in any convenient or usual way, with the lower end resting on the upper end of the lower section.

D is the grate, adapted for rotation and for dumping in any convenient or usual way, supported within the lower end of the lower fire-pot, and having convenient means for rotating and dumping the same from the outside of the stove. This grate, however, is preferably of the form shown, having a central sliding portion, D¹, for dumping, and an outer perforated or fingered ring, D², revolving with the central sliding portion. E is a ring, having an outer edge, *b*, and rests upon the arms which support the lower section of the fire-pot, fits closely the inside of the casing B, and is on a level with the upper surface of the lower fire-pot. A block, *b'*, is cast in one portion of the ring, and has a socket therein adapted to receive a lever, *c*, which moves in a slot, *d*, cast in the casing B, and is designed to turn such ring. F represents fingers of any desired number, preferably about eight, the notches *a* being the same in number, which are pivoted at their inner ends *e* in the ring E, and project through the notches or openings *a* in the upper part of the lower fire-pot section.

These fingers can be of any desired form, but are preferably constructed so that, when folded in, they will fill, or nearly so, the openings between the upper and lower sections of the fire-pot formed by the notches *a*.

The outer ends *e'* of the fingers are pointed and beveled downwardly, and these fingers have slots *f*, of the shape of an arc of a circle in their under sides, which are adapted to rest over the studs *a'*.

The fingers resting in the notches in the upper part of the lower fire-pot, and the studs projecting into the slots in their under sides, it follows that when the ring *E* is turned in one direction by the lever *c* the fingers will be projected into the coal and débris in the fire-pot, and thus separate the same into two parts. Then the ashes, cinders, and débris below the fingers can be dumped through the grate, and the lower part of the fire-pot entirely cleaned out, after which, by a reverse movement of the lever, the fingers will be withdrawn, and the live coal, clear of ashes and débris, will fall upon the grate, and thus a fresh fire will be secured.

It will be noticed that this device may be used in all sorts of heating-stoves and heaters, and even in cooking-stoves, ranges, furnaces, and the like, without any substantial change in its construction. It will also be observed that the fingers referred to and described as pivoted at their inner ends may be pivoted elsewhere.

The fire-pot is not necessarily constructed in two sections, upper and lower, but may be cast in one piece, with openings the proper distance above the grate, through which the fingers can enter, without departing from the spirit of our invention.

In the application of this device to a stove, it is to be observed that no special sort or form of fire-pot is required, but that one with its lower portion slotted or fingered is desirable, in connection with illuminating-windows opposite, for the better inspection of the condition of the fire. Neither is a special sort of grate required, if it is adapted for dumping or removing the cinders, &c., in the fire-pot; but it is desirable to have it adapted for both rotation and dumping or sliding, and such grate may be secured within the bottom of the fire-pot; but this is not essential, as it may be immediately below and close to it.

In operation of a stove with our device, the condition of the fire being observed, if the live coal in the fire-pot extends down to the point where the cut-off fingers operate, then, all the doors being closed, and the direct or ash dampers being opened, the fingers are thrust out into the coal, cutting it off at that point. The central part of the grate being drawn forward, of course all the contents of the fire-pot below the fingers fall into the ash-pan. Then, the part *D'* of the grate being pushed

into position and the fingers retracted, the live coal above falls upon the grate, and there results a fresh unobstructed fire.

Should the live coal, upon inspection, prove to be above the plane of the cut-off fingers, then, by rotating the grate sufficiently, the live coal is brought down to the proper point for cutting off.

The principal advantages of our device consists in the entire and almost instantaneous riddance of clinkers and ashes, the cleanliness of the operation, and its leaving a clear fire, thus producing a much better combustion, and consequently greater degree of heat.

We are aware that it is not original with us to cut off the coal in the fire-pot, as the same thing has been heretofore done by means of a separate instrument thrust through openings in one side of the stove and through the mass of coal, and disclaim any such invention.

We are aware of the invention described in the Letters Patent granted July 20, 1875, to L. B. Sprout, and numbered 165,694, and disclaim the same.

What we claim as new and our invention is—

1. In combination with a stove or furnace, a series of fingers and operating mechanism contained wholly within the walls of the same, when the said fingers are adapted to be projected into the fire-pot toward a common center, substantially as and for the purposes set forth.

2. In combination with a stove or furnace, a series of fingers and operating mechanism contained wholly within the walls of the same, when the said fingers are adapted to be projected into the fire-pot toward a common center, and a sliding grate at the lower end of said fire-pot, substantially as and for the purposes set forth.

3. In combination with a stove or furnace, a revolving ring within the walls of the stove, fingers pivoted to the same, and a fire-pot with suitable opening to permit the passage of the fingers, substantially as set forth.

4. In a stove or furnace, the combination of the fingers *F*, having the slots *f*, and adapted to be projected through the openings *a* in the fire-pot, and the studs *a'* in such openings, substantially as described and shown.

This specification signed and witnessed this 1st day of July, 1875.

GROVE H. JOHNSON.
CHARLES G. MOULTON.

Witnesses:

W. T. BLACK,
JACOB F. WALTHER.