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PATENTED APR. 21, 1908.

E. M. COLQUHOUN.

GAS BURNER.

APPLICATION FILED APR. 8, 1907.

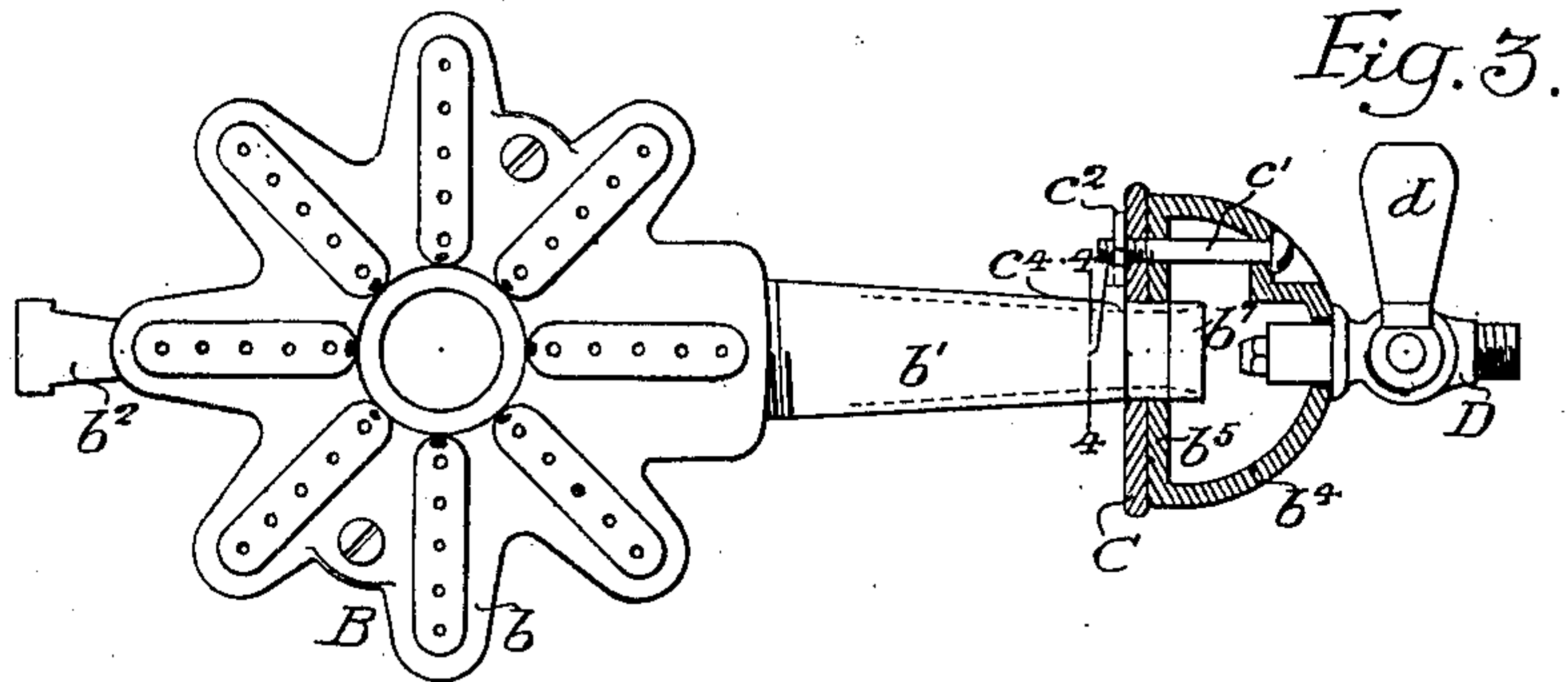


Fig. 3.

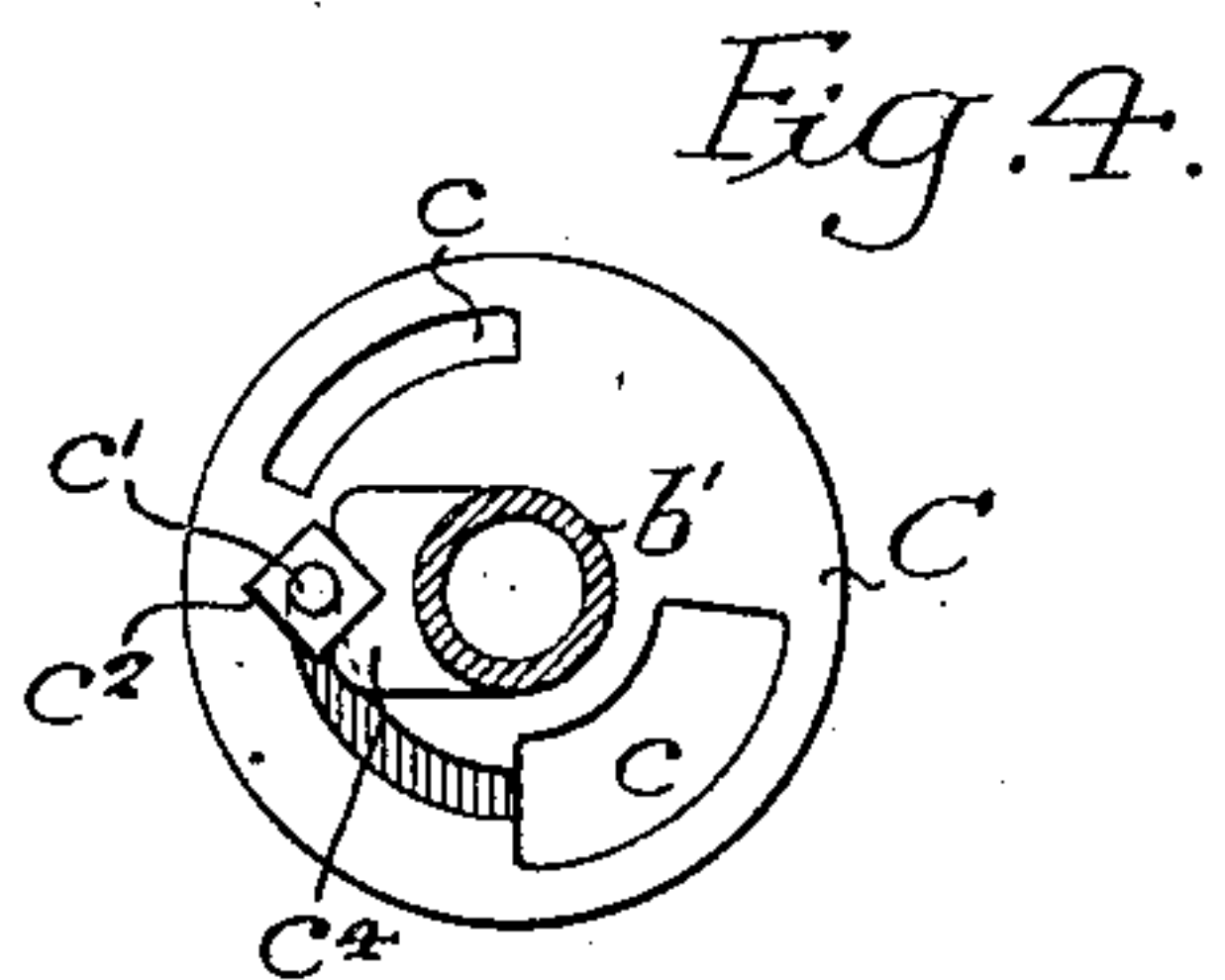


Fig. 4.

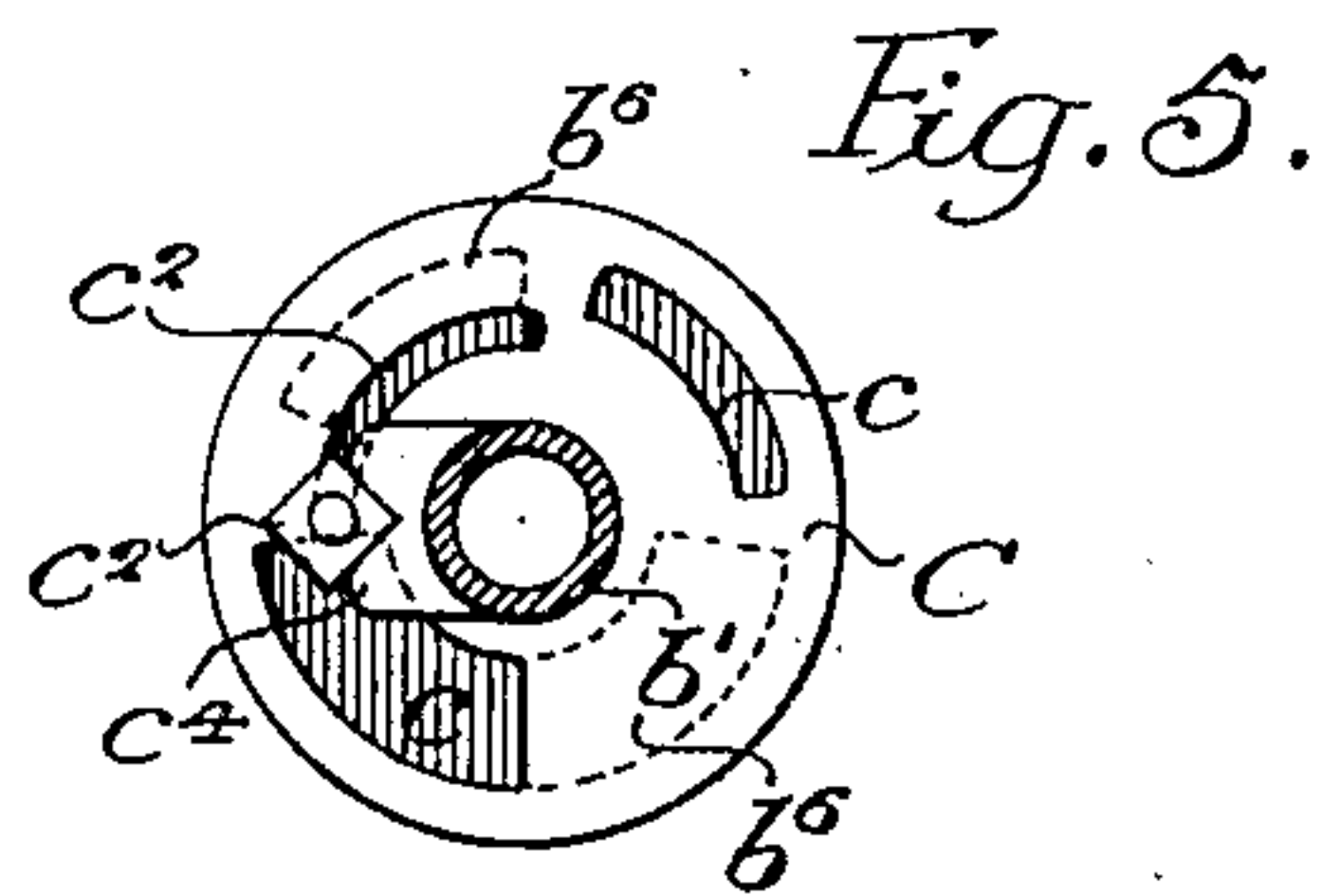


Fig. 5.

Fig. 1.

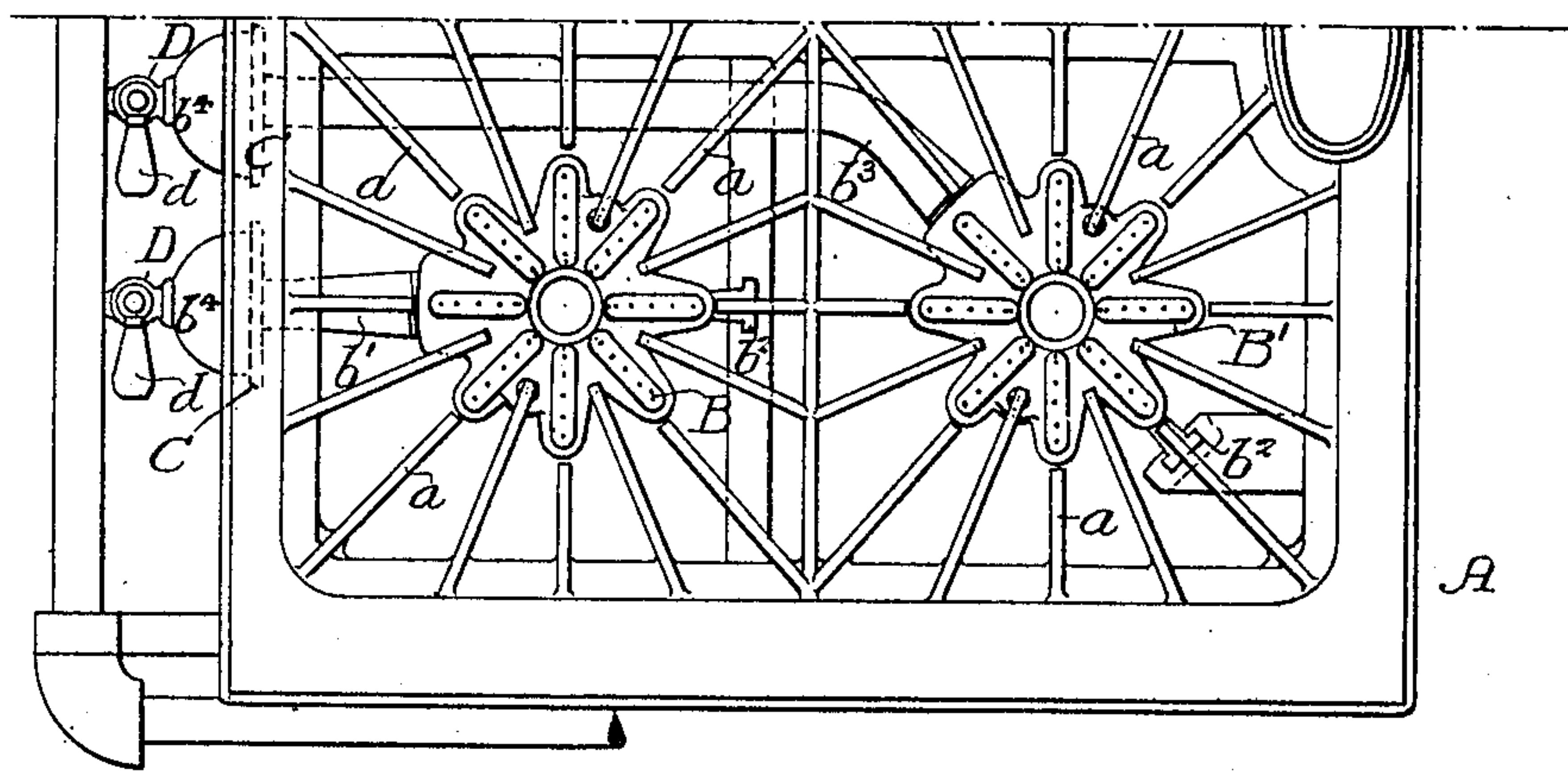
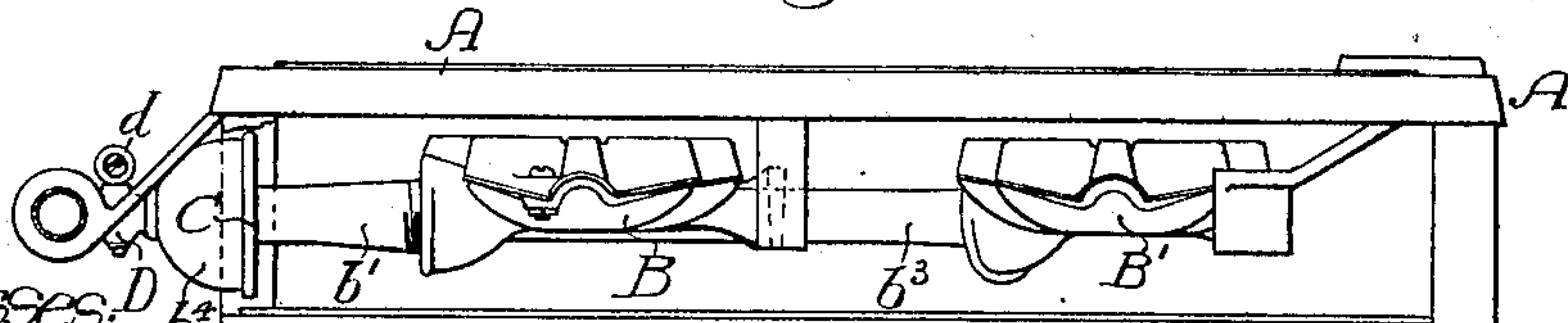


Fig. 2.



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EDWARD M. COLQUHOUN, OF PHILADELPHIA, PENNSYLVANIA.

GAS-BURNER.

No. 885,441.

Specification of Letters Patent.

Patented April 21, 1908.

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To all whom it may concern:

Be it known that I, EDWARD M. COLQUHOUN, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Gas - Burners, of which the following is a specification.

One object of my invention is to provide a form of burner particularly adapted for use on gas ranges, although not necessarily confined to this class of apparatus, which shall have an air guiding chamber so constructed and placed that it shall be a practical impossibility for the air openings to become obstructed by reason of grease or other material falling into them.

Another object of the invention is to provide a burner with an air guiding chamber so placed and constructed that there is no danger to an operator from back firing, while in addition, the position of said chamber is such that the air drawn into it is heated before its entrance, thereby increasing the efficiency of the burner.

It is also desired to provide a burner having the general characteristics above noted, with a device for regulating the amount of air entering it, which device shall include holding means of such a nature as to maintain the parts in their adjusted positions, even though the burner be subjected to shocks or vibrations.

These objects and other advantageous ends I attain as hereinafter set forth, reference being had to the accompanying drawings, in which

Figure 1, is a plan of a portion of a gas range illustrating my invention as applied thereto; Fig. 2, is a side elevation partly in section, of the structure shown in Fig. 1; Fig. 3, is a plan on an enlarged scale and partly in section, illustrating the detailed construction of the burner constituting my invention, and Figs. 4 and 5 are vertical sections taken on the line 4—4 Fig. 3, illustrating the adjustable plate of the air guiding chamber in its open and closed positions.

In the above drawings, A represents the frame of a gas range of the well known construction provided with a series of radiating bars *a* for the reception of cooking utensils; such bars being arranged in the range illustrated, for the reception of two burners B and B'. These burners have hollow head portions *b* provided with series of perforations in their upper surfaces for the escape of gas, the head of the burner B being entered

by a mixing tube *b'* and having suitable supporting lugs, of which one is illustrated at *b*². Similarly the burner B' is provided with a mixing tube *b*³ which in the present instance is of greater length than the tube *b'* in order to permit of the proper placing of this burner.

Each mixing tube is provided at its end farthest from the burner with a hollow casing *b*⁴ forming an air guiding chamber; this being preferably hemispherical in form and provided with a flat or plane face *b*⁵ directed toward the burner. Said casing is mounted upon the mixing tube and has one or more openings in its face *b*⁵ as indicated in dotted lines at *b*⁶, to permit of the passage of air into the chamber. Mounted upon the mixing tube *b'* and immediately adjacent to its face *b*⁵, is an annular plate C having in it an opening or openings *c* of such shape and position as to be capable of being brought into line with the openings *b*⁶ of said face *b*⁵ when it is desired to allow air to pass into the air guiding chamber. On the other hand, when plate C is turned on the tube *b'* as an axis it will partly or wholly close the openings *b*⁶ and thereby restrict or cut off the flow of air.

In order to limit the movement of said plate, as well as maintain it in any adjusted position, I provide it with a curved slot *c*² for the reception of a bolt *c'* which passes through appropriate openings on the casing *b*⁴ and has a nut *c*³, which when set up will hold the plate C in any adjusted position.

In order to prevent the gradual unscrewing or backing off of this nut, by reason of shocks or vibration of the burner, either during shipment or while in use, I provide the mixing tube with a lug *c*⁴, in the present instance integral with it, which has a V-shaped notch in its outer edge for the reception of said nut *c*³; it being understood that the lug *c*⁴ is relatively flat and extends immediately over or parallel with the plate C. The head of the bolt *c'* has a slot for the reception of a screw driver, so that after the plate C has been brought to any adjusted position, the bolt may be turned so as to cause it to enter the nut *c*³ and draw the latter tightly against the plate, so as to hold it in position:—the nut of course being prevented from turning by the lug *c*⁴.

In the center of the hemispherical surface of the casing *b*⁴, is an opening to which is fitted a cock D, of any desired construction, having an operating handle *d* and so mount-

ed as to discharge gas in line with the axis of the mixing tube b' , though at some distance from its end.

From Fig. 3, it will be seen that the mixing tube extends a short distance inside of the casing b^4 , and has its end which is in this air guiding chamber outwardly flared as indicated at b^7 . Moreover, that portion of the mixing tube immediately adjacent to the air guiding chamber, has a minimum internal diameter, such diameter increasing from this point both toward the air guiding chamber and the burner b .

With the above described arrangement of parts it will be noted that when the handle of the cock d is turned so as to permit a flow of gas therethrough, anyone applying a light to the burner for the purpose of igniting the gas, is in no danger from back firing for the reason that whatever flame might be formed would come from the openings b^6 and c which face toward the burner and away from the front of the range.

The current of gas flowing through the cock into the mixing tube b' naturally draws or sucks into said tube a volume of air through the interior of the air guiding chamber, and inasmuch as such flow of air naturally occurs through the openings c and b^6 , it follows that under ordinary conditions such air is preheated by the burner or the mixing tube b' , thereby utilizing heat otherwise lost, so that inasmuch as the gas to be burned is mixed with heated air, the efficiency of the burner is materially raised.

A very important advantage of the construction described lies in the fact that the openings b^6 and c in the air guiding chamber and in the adjustable plate C are formed in surfaces which under normal conditions lie in vertical planes. Moreover, the parts having these openings are mounted in the gas range, vertically under a portion of the top plate or other part of the range frame A, so that it is a practical impossibility for grease or other material to fall from the top of the range or from any cooking vessel upon the casing b^4 , so as to in any way obstruct or fill up the above noted opening.

It has been my experience that hitherto much of the trouble arising from the opera-

tion of a gas range is caused by stoppage or interfering with the flow of air through the openings of the air guiding chamber and it will be seen that by my invention I have not only effectively covered this portion of the apparatus, but have so formed it that foreign material cannot strike the plate C or that portion of the casing b^4 having the air openings.

I claim as my invention:—

1. The combination of a burner, a gas supply pipe, a casing forming a mixing chamber connected between said supply pipe and the burner and provided with an opening or openings for the admission of air, an adjustable member for regulating the size of the openings, a bolt having a nut for retaining said member in any adjusted position, and a forked lug engaging said nut for keeping the same from turning, substantially as described.

2. The combination of a burner, a mixing tube therefor having a forked lug, a gas supply pipe, a casing forming a mixing chamber connected between the supply pipe and the mixing tube and provided with a flat face directed toward the burner, there being an opening or openings in said face, a plate mounted adjacent to the face and adjustable to vary the size of the openings therein, a bolt passing through the casing and said plate, and a nut on said bolt engaged by the forked lug of said mixing tube, substantially as described.

3. The combination of a burner, a gas supply pipe, a hemispherical casing forming an air guiding chamber having a plane surface facing said burner and provided with an opening or openings for the admission of air, and a mixing tube extending from the casing to the burner, said mixing tube increasing in diameter from a portion of minimum diameter both toward the mixing chamber and toward the burner, substantially as described.

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

EDWARD M. COLQUHOUN.

Witnesses:

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