

No. 659,862.

Patented Oct. 16, 1900.

G. C. STONE.  
FUEL GAS BURNER.

(Application filed Aug. 6, 1898.)

(No Model.)

Fig. 1.

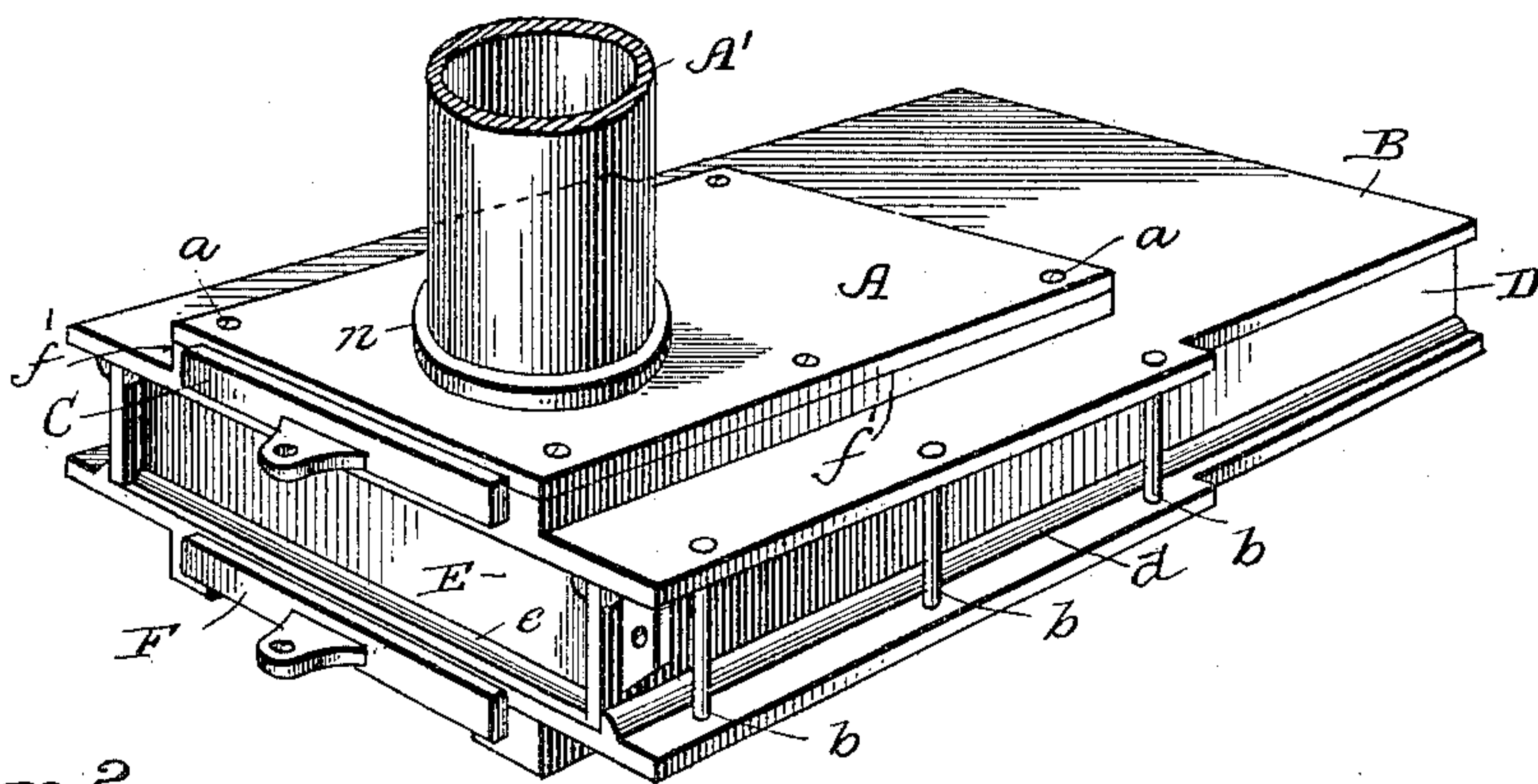


Fig. 2.

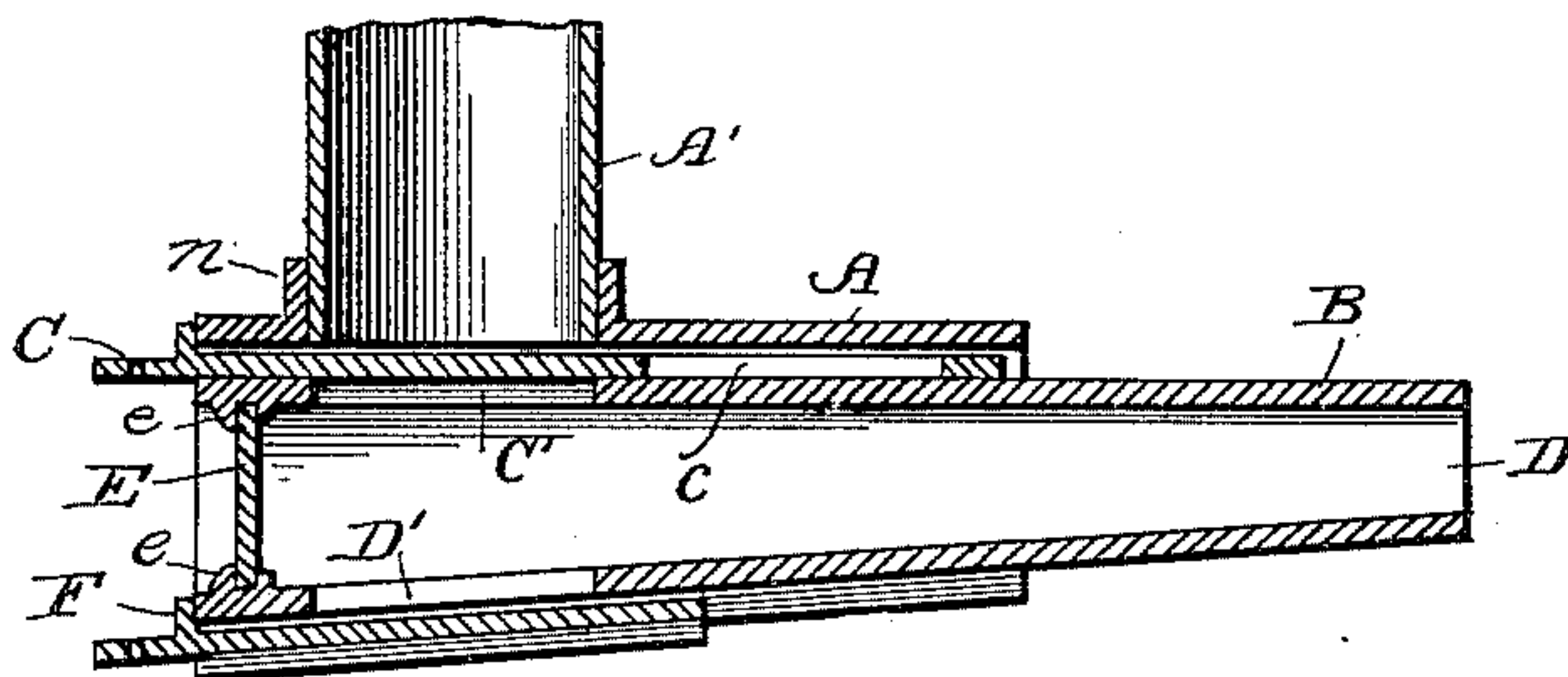


Fig. 3.

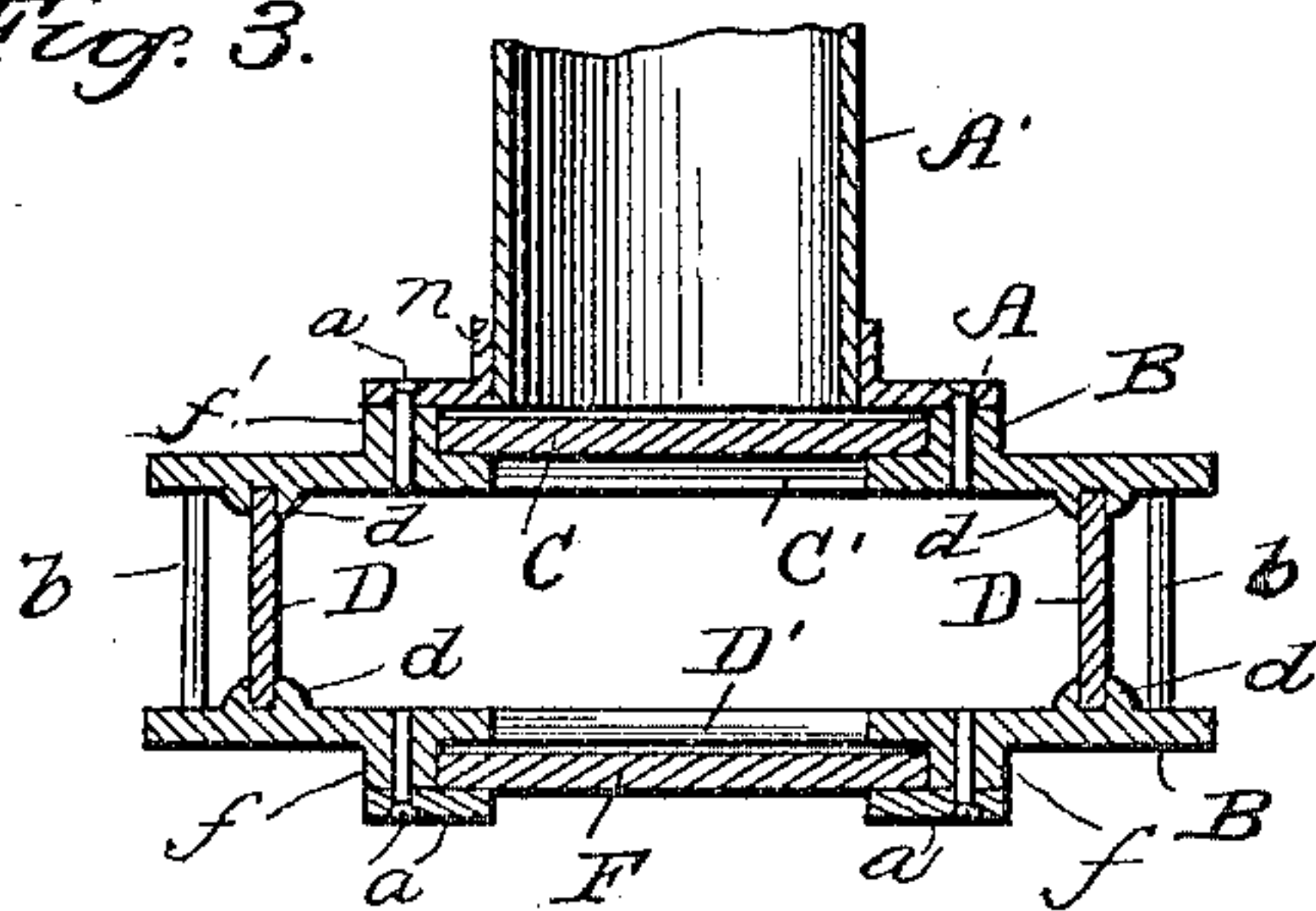
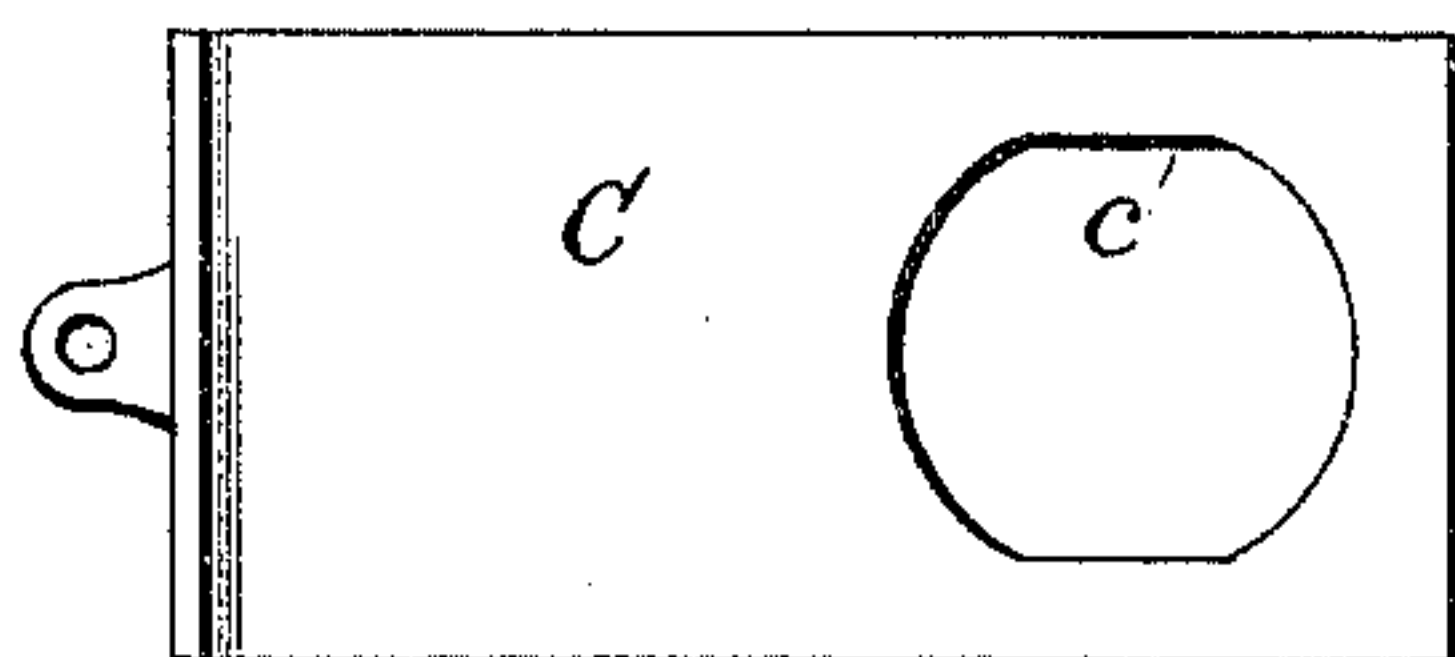


Fig. 4.



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# UNITED STATES PATENT OFFICE.

GEORGE CAMERON STONE, OF JERSEY CITY, NEW JERSEY.

## FUEL-GAS BURNER.

SPECIFICATION forming part of Letters Patent No. 659,862, dated October 16, 1900.

Application filed August 6, 1898. Serial No. 687,897. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE CAMERON STONE, a citizen of the United States, residing at Jersey City, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Fuel-Gas Burners; 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 appertains to make and use the same.

My invention relates to certain new and useful improvements in fuel-gas burners, and is designed to provide a device economical in point of manufacture, simple in structure and consisting of but few parts regulable by the operator, and capable of being readily cleaned or relieved of any deposits of carbon, dust, or the like, that may form within it.

The burner is specially intended for use in furnaces and under boilers where gas carrying a great deal of dust is burned.

In the accompanying drawings, Figure 1 represents a perspective view of a fuel-gas burner embodying my invention. Fig. 2 represents a longitudinal vertical section thereof. Fig. 3 represents a cross-section, and Fig. 4 represents a plan view of the gas-inlet regulating-slide.

Similar letters of reference indicate similar parts throughout the several views.

Referring to the drawings, it will be noted that the burner is provided with a gas-education port or chamber of considerable width in proportion to its depth, so as to project from its delivery-port a correspondingly broad thin sheet of gas, whereby the gas particles as they enter the combustion-chamber of the furnace are exposed to the best advantage to the air employed for burning them.

To form the gas-education chamber, I employ for the top and bottom walls the castings B, which are counterparts of each other and molded from the same pattern. Along their inner surface are formed longitudinally grooved or recessed ribs or ridges *d*, within which fit the side plates D of the burner, the parts thus assembled being united by bolts or rivets *b*, which pass through the top and bottom plates at the portions which lie outside of the ribs or ridges *d*. Along the front portions of the top and bottom plates are

formed transverse recessed ribs or ridges *e*, whose function is to serve as guides for the removable sliding front plate E, which passes through an aperture in one of the side plates and is adapted to slide freely within said guides or to be entirely removed therefrom, thereby giving free access to the interior of the chamber for the insertion of a scraping or cleaning tool. On the outer surface of the bottom plate are formed the guides *f*, at opposite sides of an opening D' in said bottom plate. A slide F serves to close or open communication through said opening, said slide being supported at its edges by the strips *a*, secured to guides *f*, as shown. Upon the upper surface of the top plate are cast or formed similar guides *f'*, located on either side of a gas-inlet opening C', the capacity of said opening being regulable by means of a cut-off damper or slide C, provided near its inner end with an aperture *c*. Above the slide C the plate A rests upon the guides *f'* and is secured thereto by screw-bolts *a* or the like. The plate A is provided with an inlet-opening flanged at *n* for the reception of the gas-supply pipe A'.

The parts being constructed and arranged as described, the mode of operation will be apparent to those skilled in the art.

As usual with burners of this character, the burner projects into an opening in the wall of the furnace or boiler setting somewhat larger than the burner itself, the air for combustion entering through the opening left between the burner and the furnace-wall, and the amount of air supplied being readily regulable by partly closing the said opening by a brick or bricks. In the adjustment shown in Fig. 1 the supply of gas is entirely cut off. By pulling out the slide or damper C to a greater or less extent the amount of gas admitted to the burner-chamber may be correspondingly graduated to meet the particular conditions or requirements of use. When it is desired to clean the burner, the damper C is opened full and the gas-inlet pipe A' is tapped or struck so as to shake as much dust as possible down into the burner. The damper C is thereupon closed and the slide F and plate E are opened, whereupon the dust may be raked forward and will drop through the opening D' upon the floor or into



any convenient receptacle out of the way of the operator. In order to facilitate the removal of the dust through the cleaning-opening, I preferably incline the bottom plate, although it will be understood that this is not an essential feature of the construction.

The burner as constructed has the advantage of being very cheap, for the reason that it is made up of castings of a very simple character requiring no finishing or machine work to fit them together. The gas-inlet slide or chamber and the dust-exit slide fill the grooves within which they move in such manner that they cannot become clogged by dirt, and the entire arrangement of the parts is such that the burner can be quickly and easily cleaned without danger of burning the operator.

Having thus described my invention, what I claim is—

1. A fuel-gas burner, comprising side plates, a movable slide constituting a front plate, and relatively-broad top and bottom plates assembled together to form a broad shallow gas-delivery chamber, a gas-inlet opening in the top plate, and a corresponding opening in the bottom plate and slides for said openings; whereby on closing the gas-inlet slide and opening the front slide and bottom-plate slide the interior of the chamber may be readily cleaned, substantially as described.

2. A fuel-gas burner, comprising side plates, a front plate, and top and bottom plates having longitudinal guide-flanges along their outer surfaces and having respectively a gas-inlet opening and a cleaning-opening corresponding with each other, slides

governing said openings, said top and bottom plates having also grooved longitudinal beads or ridges on their inner surfaces into which the side plates fit, and like grooved transverse beads or ridges within which the front plate is movable.

3. A fuel-gas burner comprising side plates, homologous top and bottom plates having on their opposed faces near their longitudinal edges grooved beads or ridges into which the edges of the side plates fit, and on their transverse edges guiding-grooves, a removable front plate adapted to be moved transversely of the top and bottom plates in said guiding grooves, guide-flanges on the outer surfaces of the top and bottom plates, gas-inlet and cleaning openings in said top and bottom plates between the said guide-flanges and slides movable between said guide-flanges to govern the said openings.

4. A fuel-gas burner comprising side plates, a front plate homologous top and bottom plates having on their inner surface near their longitudinal edges grooved beads or ridges into which the side plates fit, similar grooved transverse beads within which the front plate is movable, guide-flanges on their outer surfaces, a gas-inlet opening, a cleaning-opening, and slides governing said openings, and outlying screw-bolts, beyond the longitudinal beads, for assembling the parts together; substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE CAMERON STONE.

Witnesses:

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ROBT. H. DODD.