

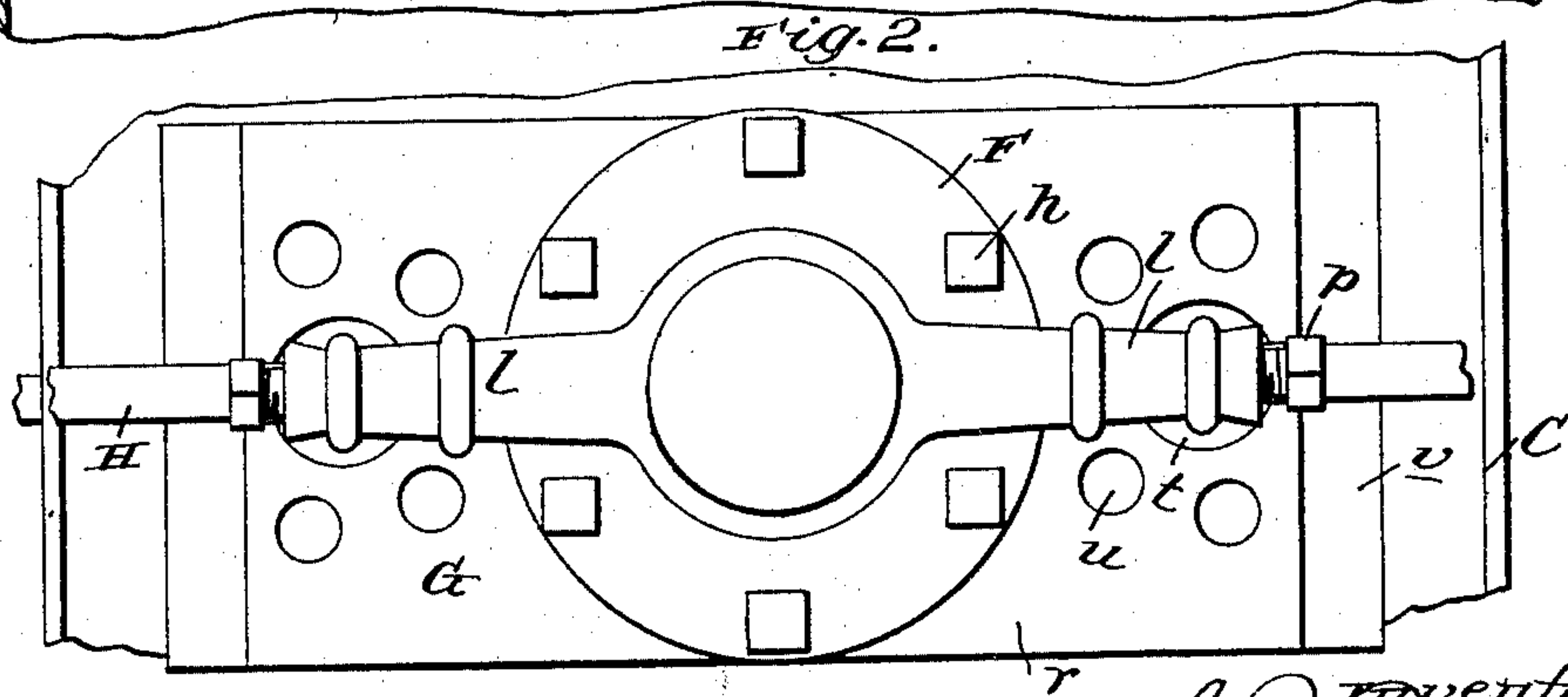
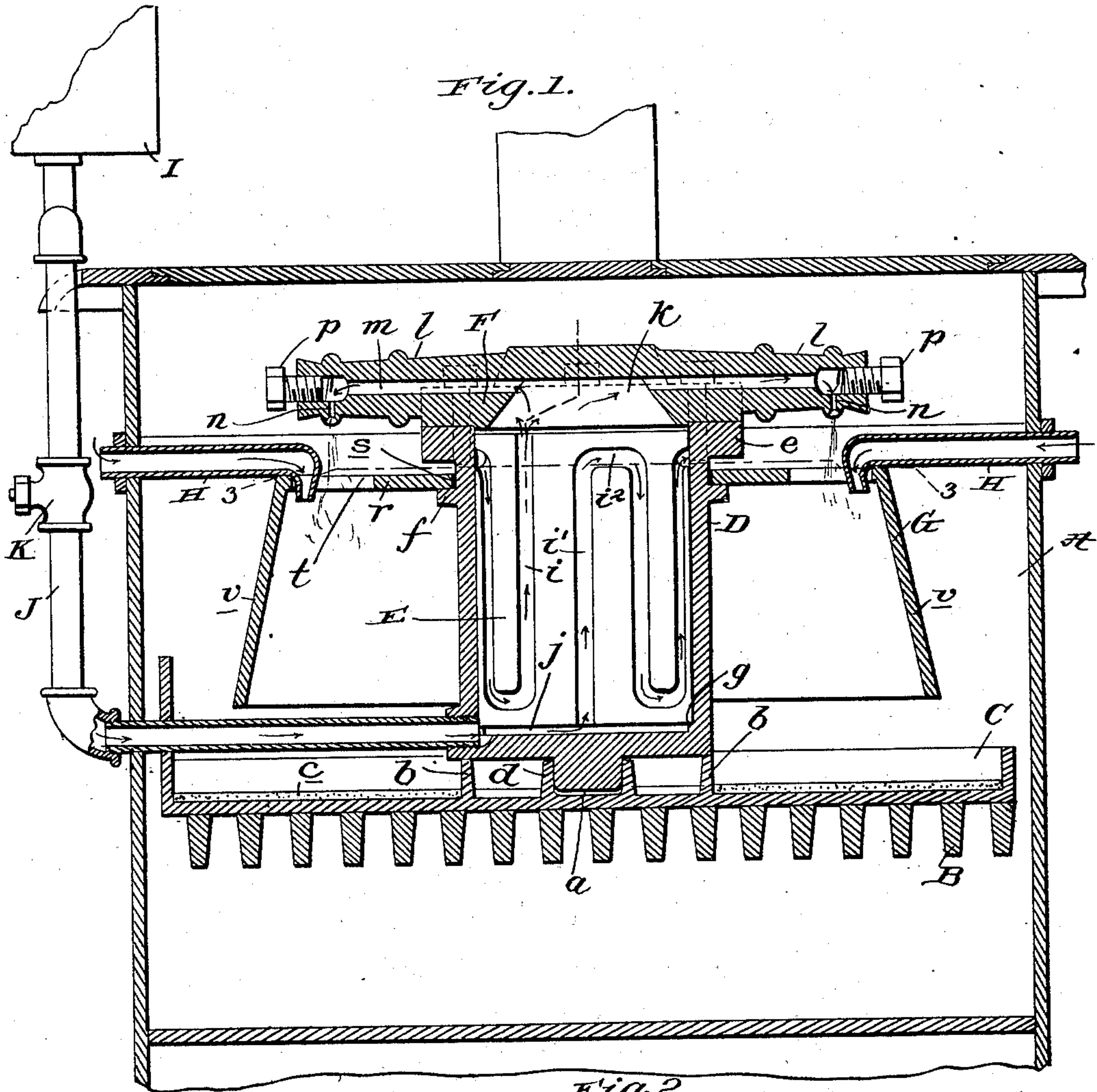
J. R. & C. W. PENSYL.

VAPOR BURNER.

(Application filed Feb. 14, 1901.)

2 Sheets—Sheet 1.

(No Model.)



witnesses:

C. H. Paeder
T. E. Turpin

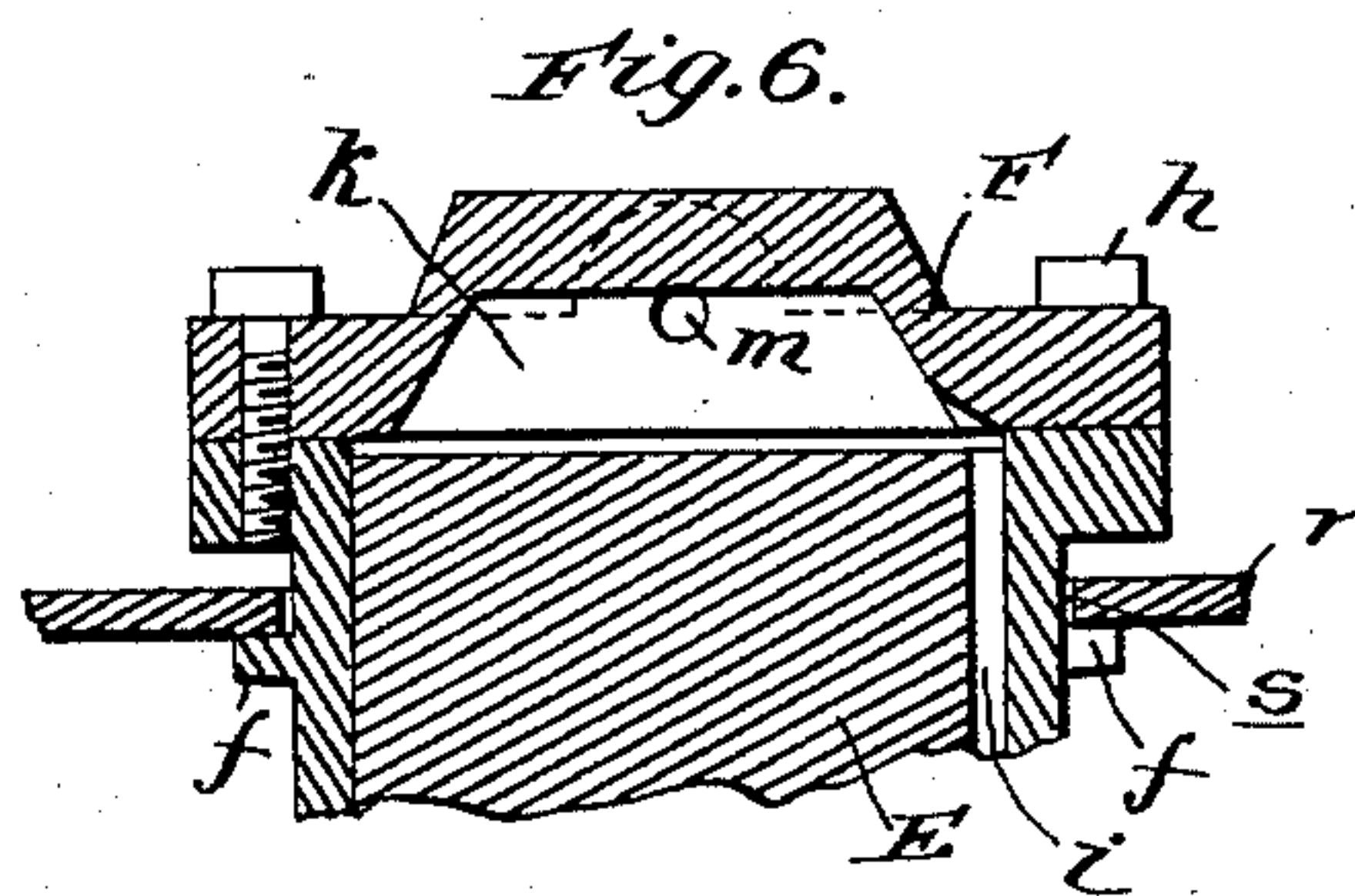
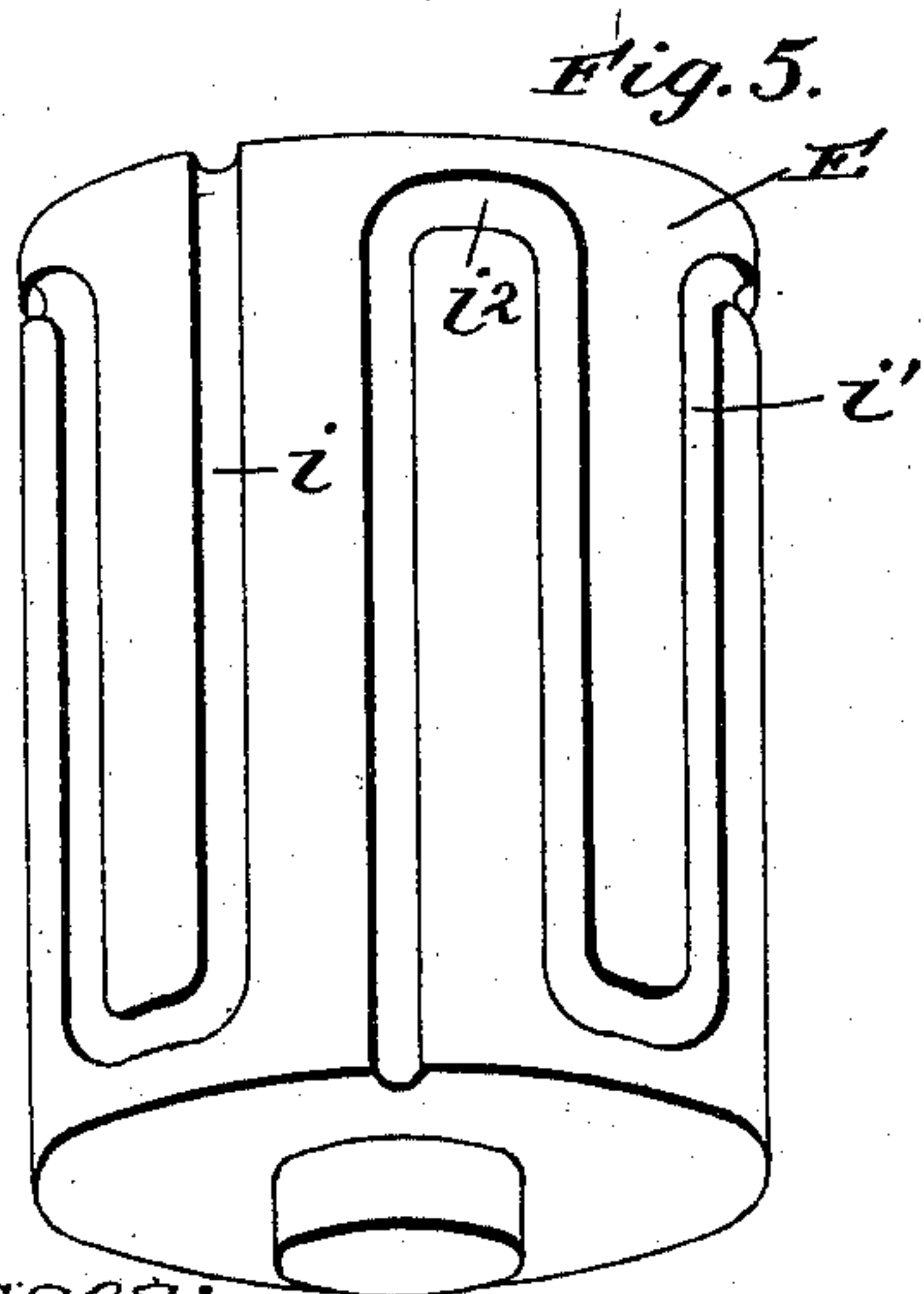
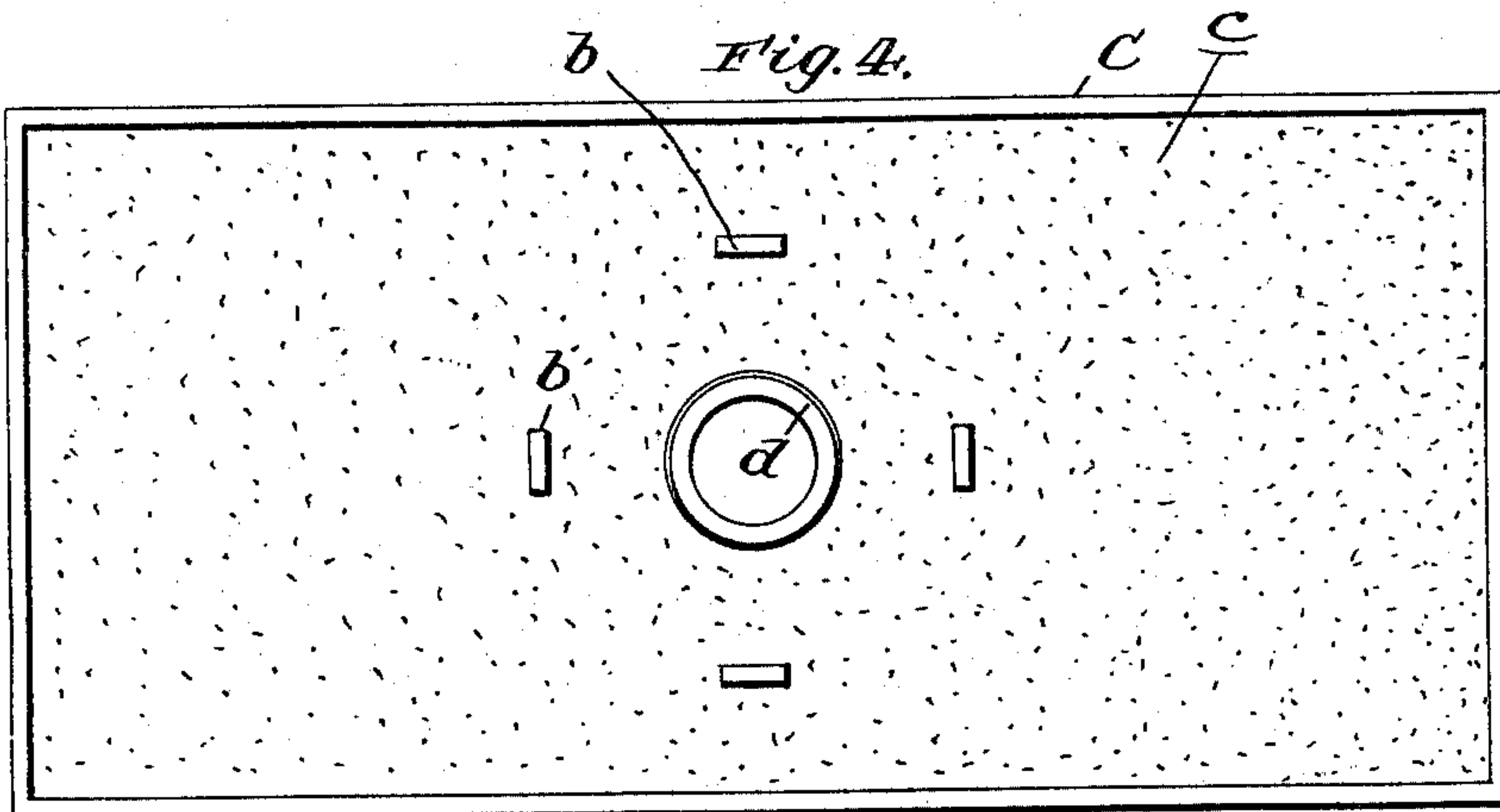
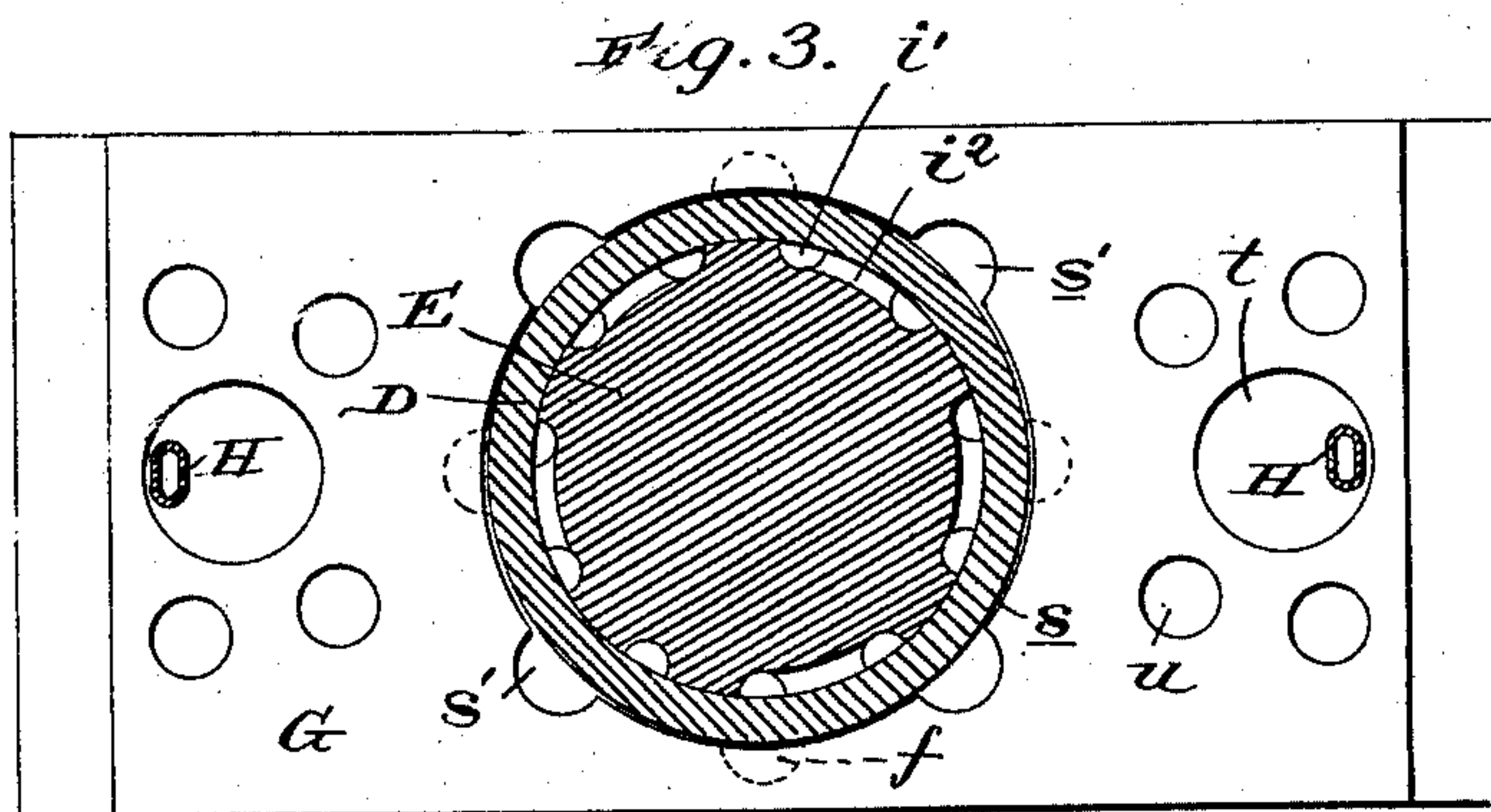
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J. R. & C. W. PENSYL.
VAPOR BURNER.

(Application filed Feb. 14, 1901.)

(No Model.)

2 Sheets—Sheet 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

JOHN R. PENSYL AND CHARLES W. PENSYL, OF TOPEKA, KANSAS.

VAPOR-BURNER.

SPECIFICATION forming part of Letters Patent No. 683,324, dated September 24, 1901.

Application filed February 14, 1901. Serial No. 47,365. (No model.)

To all whom it may concern:

Be it known that we, JOHN R. PENSYL and CHARLES W. PENSYL, citizens of the United States, residing at Topeka, in the county of Shawnee and State of Kansas, have invented new and useful Improvements in Vapor-Burners, of which the following is a specification.

Our invention relates to improvements in vapor-burners, and contemplates the provision of a simple, compact, and inexpensive burner adapted to be used in a stove for cooking and heating purposes and calculated to convert coal-oil and the like into a fixed gas and commingle air with the gas, so as to form a highly-combustible mixture and insure the production of a large amount of heat in proportion to the quantity of oil used.

With the foregoing in mind the invention will be fully understood from the following description and claim, when taken in conjunction with the accompanying drawings, in which—

Figure 1 is a vertical section illustrating our improved burner in its operative position within the fire-box of a stove. Fig. 2 is a top plan view of the burner in the fire-box. Fig. 3 is a horizontal section taken in the plane indicated by the broken line 3 3 of Fig. 1. Fig. 4 is a plan view of the combined oil-pan and base of the burner. Fig. 5 is a perspective view of the metallic core of the generator comprised in the burner, and Fig. 6 is a vertical diametrical section of the upper portion of the generator.

In the said drawings similar letters of reference designate corresponding parts in all of the several views, referring to which, A is the fire-box of a cook-stove, B the grate therein, and C the oil-pan of our improved burner, the said oil-pan being provided with a central socket *a* and a plurality of vertical projections *b* grouped about the socket and having its bottom covered with asbestos *c*, as shown, for a purpose presently pointed out.

D is the generator-casing, which rests on the projections *b* of the pan and has a depending central projection *d* let into the socket *a* of said pan, whereby it is held against casual horizontal movement or displacement and yet may be readily lifted from the pan when necessary. The said casing is

also provided at its upper end with a flange *e* and at about the proportional distance illustrated from its upper end with a plurality of lugs *f*.

E is a metallic core which rests on a ledge *g*, disposed slightly above the bottom of the casing D, and snugly fits the said casing, and F is a cap which is arranged upon the upper end of the casing and connected to the flange *e* thereof by bolts *h*. The core E is provided in its side with a tortuous way or groove *i*, which extends entirely around it, comprises vertical stretches *i'* and horizontal stretches *i''*, and has one of its ends in communication with the chamber *j*, formed between the lower end of the core and the bottom of the casing D, and its other and upper end in communication with a chamber *k*, formed in the under side of the cap F. The said cap F is provided with two oppositely-directed arms *l*, having passages *m*, which lead from the chamber *k* to downwardly-disposed discharge-apertures *n*. The outer ends of the passages *m* are preferably closed by screw-plugs *p*, which are adapted to be removed when desired with a view of facilitating cleaning of the passages.

G is a combustion-box which surrounds the generator and comprises a horizontal wall *r*, (see Fig. 3,) provided with a large central aperture *s* and a plurality of other apertures *t u* and a flange or skirt *v*, which depends from said horizontal wall and is slightly inclined, as illustrated. The large central aperture *s* in the wall *r* of the combustion-box is designed to receive the generator-casing and is provided with a plurality of offsets *s'*. By virtue of this it will be seen that when the offsets *s'* are coincident with the lugs *f* of the generator-casing the combustion-box may be moved upwardly on the casing until its horizontal wall rests above the lugs *f*, also that when the combustion-box is turned to carry the offsets *s'* out of alinement with the lugs *f* the combustion-box will be supported by said lugs. From this it follows that the combustion-box may be readily placed in its operative position on the generator-casing and may as readily be removed therefrom when it is desired to disconnect the parts of the burner with a view of facilitating cleaning or repair thereof.

The openings *t* in the horizontal wall of the combustion-box are designed for the downward passage of gas from the discharge-apertures *n* and are also designed to receive the downwardly-disposed spouts of air-induction pipes *H*, which lead inwardly through the end walls of the fire-box of the stove and are suitably held in said walls in positions adjacent to the vertical planes of the discharge-apertures *n*. This arrangement is advantageous in that the gas escaping from the apertures *n* creates a suction at the inner ends of the pipes *h*, and consequently draws air in through the said pipes. Such air is thoroughly commingled with the gas in the combustion-box, and consequently a highly-combustible mixture is formed, with the result that a large amount of heat is produced in proportion to the quantity of oil consumed.

I is an oil-tank, and *J* is a pipe which leads downwardly from said tank and thence inwardly through one wall of the fire-box and one end wall of the oil-pan *C* to the chamber *j* of the generator. The said pipe *j* is provided with the usual valve *K*, through the medium of which the supply of oil may be regulated or entirely cut off, as desired.

In starting our improved burner the valve *K* is opened and oil is permitted to pass through the chamber *j*, the tortuous way *i*, and the chamber *k* of the generator, and from thence through the passages *m* and jet or discharge apertures *n* into the oil-pan *C*. When a sufficient quantity of oil has passed into the pan *C*, the valve *K* is closed and the oil in the pan *C* is ignited. The generator is thus heated and the oil in the chamber *j* and tortuous way or groove *i* is converted into vapor which, expanding, passes through the chamber *k* and passages *m*, and from thence forcibly down into the combustion-box *G*, where it is commingled with air to insure thorough combustion, as before pointed out. The combustion of the mixture of gas and air takes place in the box *G* and around the generator, with the result that the latter is heated to a high degree. Then when the valve *K* is again opened and the flow of oil to the generator resumed the oil is converted into vapor in the portion of the pipe *J* within the pan *C* and in the chamber *j* of the generator, and by virtue of the intense heat to which the generator is subjected converted into a fixed gas by the time it reaches the apertures *n*. This fixed gas being commingled with air, as before stated, forms a highly-combustible mixture, the combustion of which

produces a great amount of heat in proportion to the amount of coal-oil consumed.

By virtue of our improved burner being adapted to convert the ordinary coal-oil of commerce into a highly inflammable gas it is economical in operation and at the same time much safer than those burners which use gasolene and like hydrocarbons.

We have entered into a detail description of the present embodiment of our invention in order to impart a full, clear, and exact understanding of the same. We do not desire, however, to be understood as confining ourselves to such specific construction and arrangement of parts, as such changes or modifications may be made in practice as fairly fall within the scope of our claim.

Having described our invention, what we claim, and desire to secure by Letters Patent, is—

In a vapor-burner, the combination of an oil-pan having a central socket and upwardly-extending projections surrounding the same, a generator comprising a casing resting on said projections of the pan and provided with a central depending lug snugly arranged in the socket of the pan, and also provided, adjacent to its upper end, with exterior lugs, lower and upper chambers in said casing, a core snugly fitting the casing and having a tortuous way in its side connecting the lower and upper chambers, passages leading from the upper chamber and terminating in downwardly-disposed discharges, a combustion-box having a central aperture in its top wall provided with offsets; said wall being adapted to rest on the exterior lugs of the generator-casing and having openings disposed below the discharge-apertures, air-induction pipes adapted to lead from the outside of a fire-box, when the burner is placed in same, and terminating in downwardly-disposed discharges arranged in apertures in the top wall of the combustion-box, and at points adjacent to the vertical planes of the said discharge apertures or jets, a hydrocarbon-tank, and a pipe leading from said tank through the oil-pan to the lower chamber of the generator.

In testimony whereof we have hereunto set our hands in presence of two subscribing witnesses.

JOHN R. PENSYL.
CHARLES W. PENSYL.

Witnesses:

AARON CHURLESWORTH,
JAMES A. RILEY.