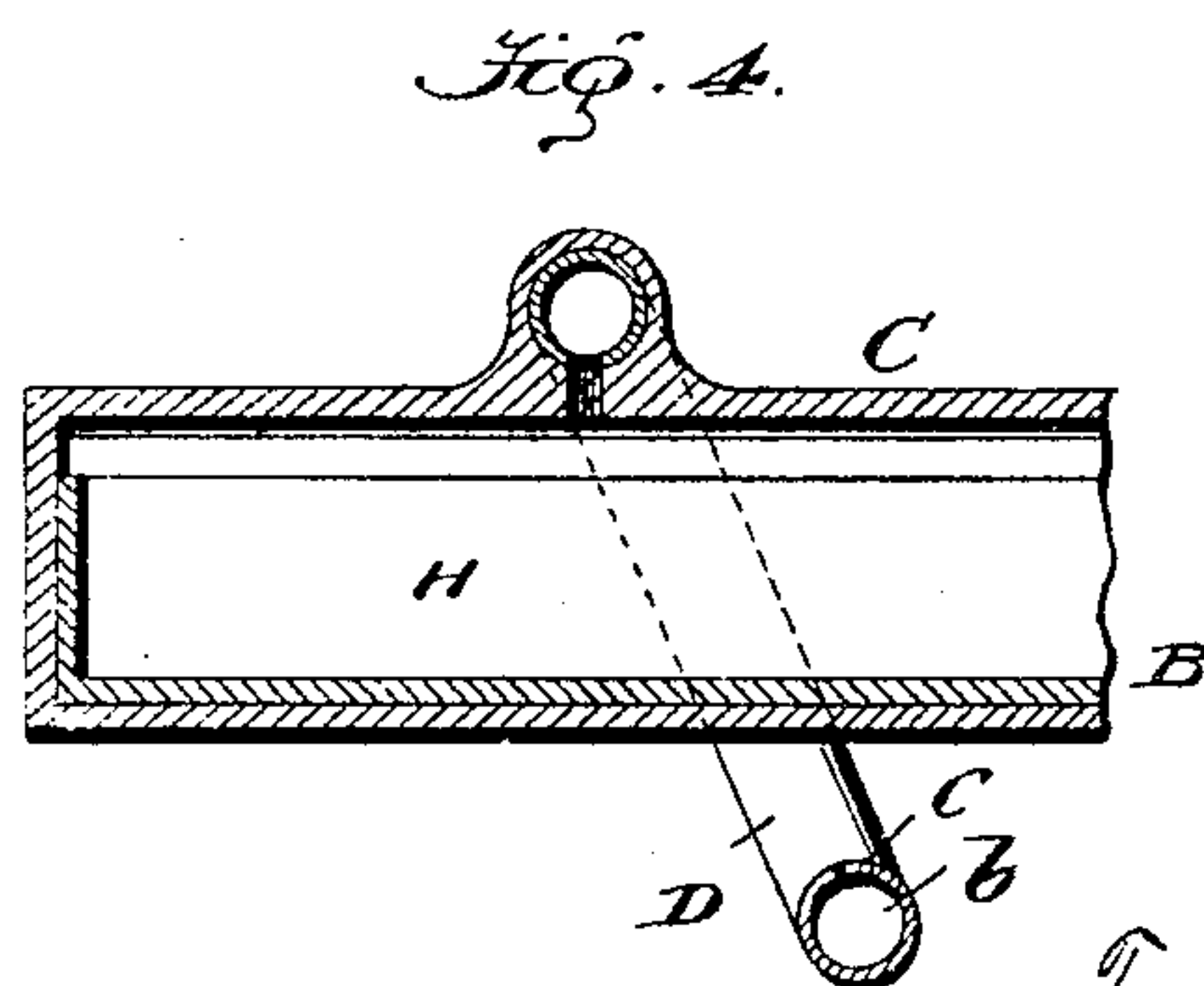
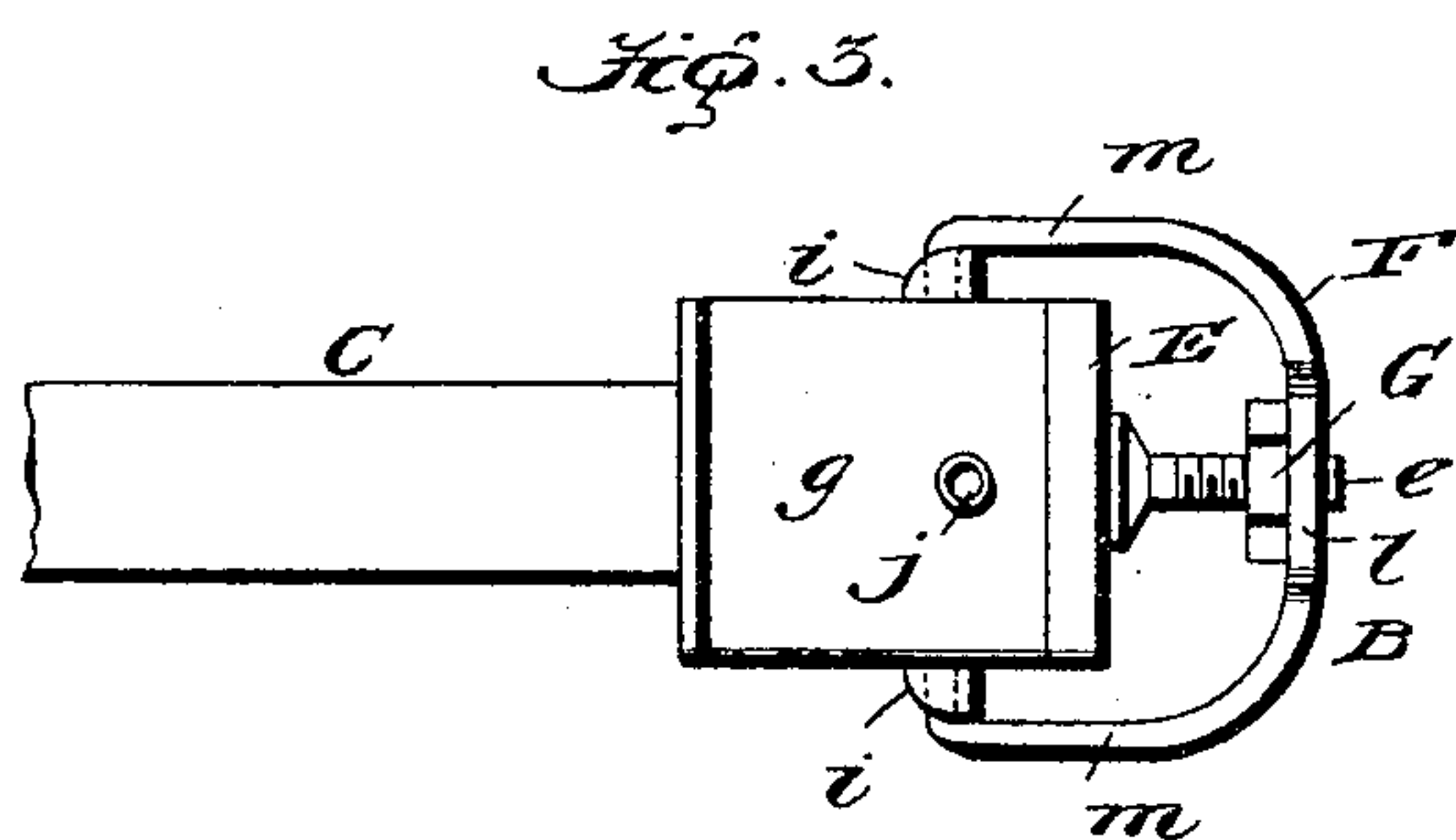
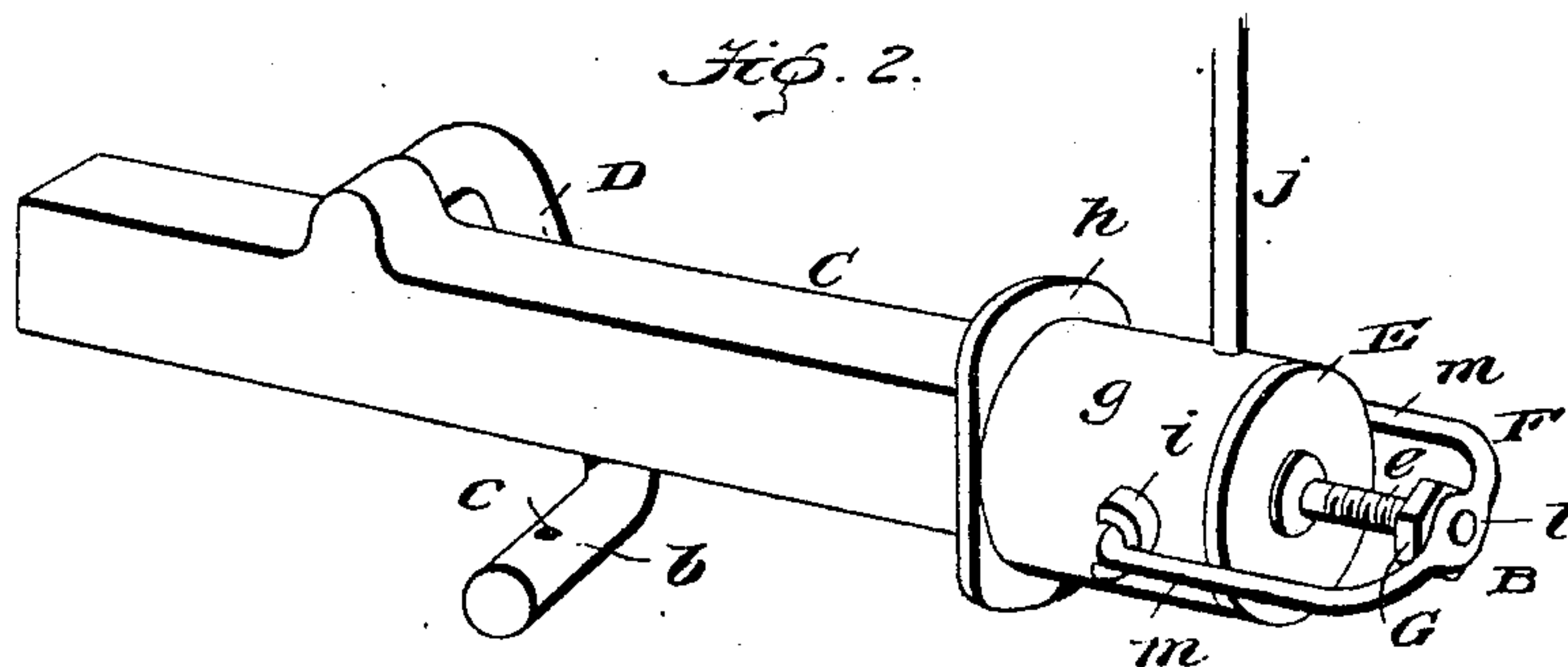
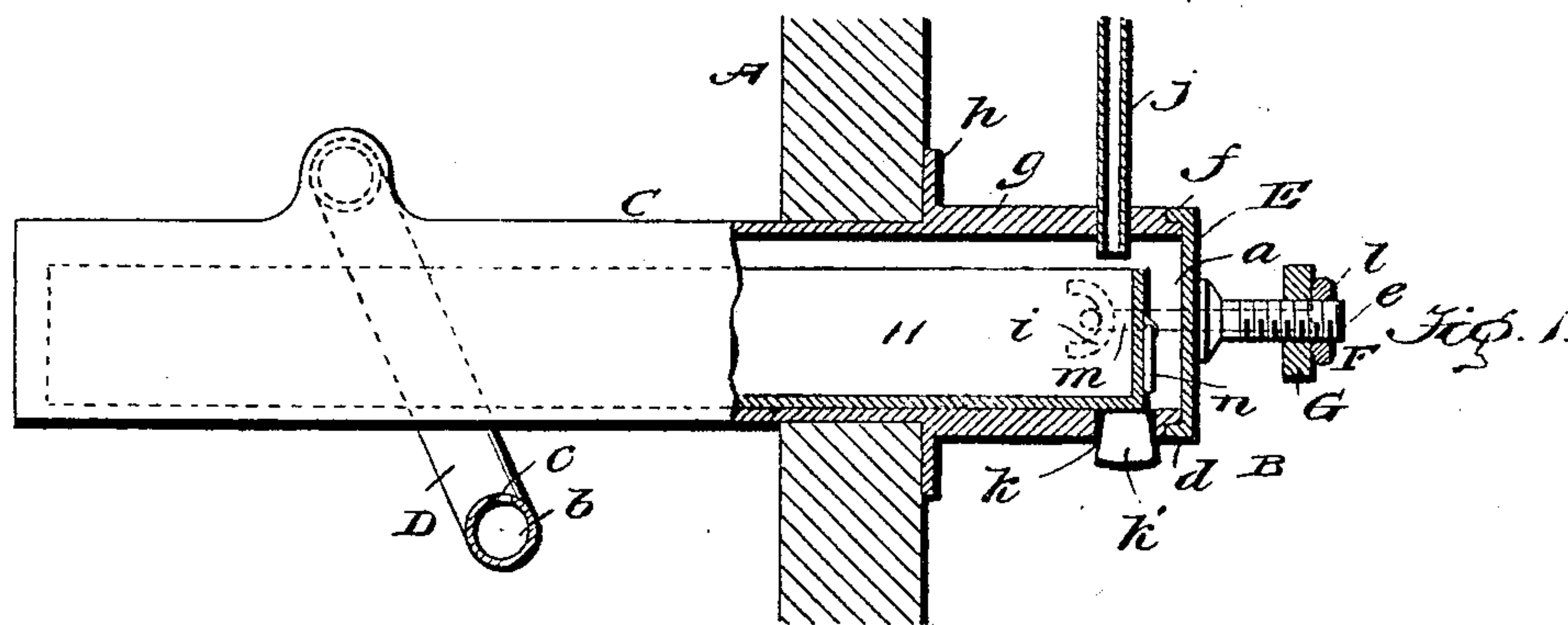


No. 795,409.

PATENTED JULY 25, 1905.

F. E. NELSON.
OIL BURNER.

APPLICATION FILED JULY 23, 1904.



Witnesses

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FRANK ERNEST NELSON, OF SANTA BARBARA, CALIFORNIA.

OIL-BURNER.

No. 795,409.

Specification of Letters Patent.

Patented July 25, 1905.

Application filed July 23, 1904. Serial No. 217,857.

To all whom it may concern:

Be it known that I, FRANK ERNEST NELSON, a citizen of the United States, residing at Santa Barbara, in the county of Santa Barbara and State of California, have invented new and useful Improvements in Oil-Burners, of which the following is a specification.

My invention pertains to oil-burners; and it contemplates the provision of a simple, durable, and highly-efficient oil-burner of the retort type and one so constructed that it may be expeditiously cleared of asphaltum and other sediment at intervals with a view of maintaining its efficiency for an indefinite period.

The invention will be fully understood from the following description and claims, when taken in connection with the accompanying drawings, forming part of this specification, in which—

Figure 1 is a view, partly in elevation and partly in section, illustrating the arrangement of my novel oil-burner relative to the wall of the fire-box in a stove or the like. Fig. 2 is a perspective view of the burner removed. Fig. 3 is a detail top plan view of the outer portion of the burner—i. e., the portion that is adapted to be disposed outside the wall of the fire-box; and Fig. 4 is a detail longitudinal central section of the inner portion of the burner.

Similar letters designate corresponding parts in all of the views of the drawings, referring to which—

A is a wall of a fire-box, and B is my improved oil-burner as a whole.

As clearly shown in the several figures of the drawings, the burner B is made up of a retort C, open at its outer end, as indicated by *a*, a pipe D, leading from the retort, preferably from the upper side thereof and having a portion *b* disposed below the retort and provided with a vapor-jet aperture *c*, a head E, provided with a flange *d*, and an outwardly-directed threaded stem *e* and having for its function to normally close the open end *a* of the retort, a yoke F and a nut G, designed to be used in connection with the yoke and the threaded stem of the head E to tightly secure the said head to the retort. The retort C is rabbeted at its open end *a*, as indicated by *f*, and it has an enlarged outer portion *g*, preferably of circular form in cross-section, and also has a flange *h* at the inner end of the portion *g*, U-shaped lugs *i* at dia-

metrically opposite points on the portion *g*, an oil-supply passage *j*, leading through the top of the portion *g*, and an aperture *k* in the bottom of said portion *g*. The flange *d* of the head E is designed to occupy the rabbet *f* of the retort, as shown in Fig. 1, in order to break joints and assure a vapor-tight joint between the retort and the head. The yoke F is provided with a central aperture *l*, adapted to loosely receive the stem *e* of the head E, and with inwardly-directed ends *m*, arranged to seat in the lugs *i* of the retort C, and the nut G is arranged on the stem *e* between the cross-bar of the yoke and the head E, as shown. When the ends *m* of the yoke are arranged in the lugs *i* of the retort and the head E is arranged against the end *a* of the retort and with its stem *e* in the aperture *l* of the yoke, it will be observed that the outward movement of the nut G on the said stem *e* will operate to move the yoke outwardly, so as to tightly hold the ends *m* thereof in the lugs *i* and at the same time tightly press the head against the end *a* of the retort, so as to close the latter in a vapor and gas tight manner. It will also be observed that when the nut G is turned inwardly on the stem *e* the yoke F may be moved inwardly and out of engagement with the lugs *i* and that the yoke and the head E may then be quickly and easily removed from the retort. The head E is made removable, as stated, in order to permit of the ready removal of a trough H from the retort C. The said trough H, which is designed to catch and hold asphaltum and other sediment in the oil, is arranged to receive oil from the supply-passage *j* and is of a length almost equal to that of the retort. It is provided at its outer end with a handle *n*, preferably a foldable handle, as shown, to facilitate its being removed from and replaced in the retort while the head E is off of the same. The head E being readily detachable from the retort and the trough H readily removable from the retort, it follows that the burner may at intervals be quickly and easily discharged of the sediment collected in the trough H with a view of maintaining the efficiency of the burner for an indefinite period.

In practice my novel burner is arranged, as shown in Fig. 1, relative to the fire-box of a stove or the like—that is to say, the major portion of the retort is arranged in the fire-box, while the outer portion *g* of the retort is arranged at the outer side of the fire-box

wall A and with its flange *h* bearing against said wall A. From this it follows that the head E, yoke F, and nut G are located where there is no danger of their being burned solidly together or otherwise deteriorated by the fire in the box; also, that ready access may be had to the head, the yoke, and the nut, and hence the head may be disconnected and removed from the retort for the purpose stated and may be placed on and connected to the retort in a gas-tight manner with great facility and without the employment of tools unless the nut is made of such size as to render necessary the employment of a wrench for turning the same.

In the operation of the burner the retort is initially heated by any suitable means until the same is hot enough to convert the oil supplied through the passage *j* into vapor, when the said vapor is ignited at the jet-aperture *c*. With this done the flame from the said jet-aperture will heat the fire-box and will also maintain the retort at a high heat, so as to enable the latter to convert the oil into a highly-inflammable vapor throughout the operation of the burner.

The aperture *k*, which is formed in the retort portion *g* opposite the fuel-supply pipe *j*, is normally closed by a plug *k'* and is designed to serve as an outlet for oil in the event of the burner being accidentally flooded. This will obviously serve to reduce the danger of fire incident to the use of the burner to a minimum, which is an important desideratum.

It is obvious that when desired any means other than a plug may be employed to normally close the aperture *k* without involving departure from the scope of my invention.

From the location of the fuel-supply pipe *j* at the outer side of the fire-box wall A it follows that the said pipe is always cold and that the cold oil or distillate supplied by the pipe to the outer end of the retort C keeps said outer portion of the retort at a moderate temperature. By reason of the pipe *j* and the outer portion of the retort C being at all times cool clogging of the pipe by asphaltum is effectually prevented, and this, as

will be readily appreciated, is an important advantage.

I have entered into a detailed description of the construction and relative arrangement of the parts embraced in the present and preferred embodiment of my invention in order to impart a full, clear, and exact understanding of the same. I do not desire, however, to be understood as confining myself to such specific construction and relative arrangement of parts, as such changes or modifications may be made in practice as fairly fall within the scope of my invention as claimed.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

The combination of a fire-box, and an oil-burner comprising a retort resting transversely in one wall of the fire-box and having a transversely-enlarged outer portion arranged to bear at its inner end against the outer side of said wall and also having an oil-supply passage in the top of the outer portion, a pipe communicating with the top of the interior of the inner portion of the retort and extending downwardly at one side of the retort and then laterally below the retort and having a vapor-jet aperture in said lateral portion, a trough removably arranged in the retort, lugs at diametrically opposite points on the outer portion of the retort, a yoke having an aperture in its transverse portion and also having inwardly-directed ends on its arms removably seated in the lugs of the retort, a head removably arranged against the outer end of the retort; said head having a threaded stem fixed with respect thereto and extending loosely through the aperture in the yoke, and a nut mounted on said stem and disposed at the inner side of the yoke.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

FRANK ERNEST NELSON.

Witnesses:

J. H. BLACK,

C. U. EDELBLUTE.