(No Model.)

J. H. CLARK & J. LINES.

WICK TUBE.

No. 371,033. Patented Oct. 4, 1887.

Fig. 1

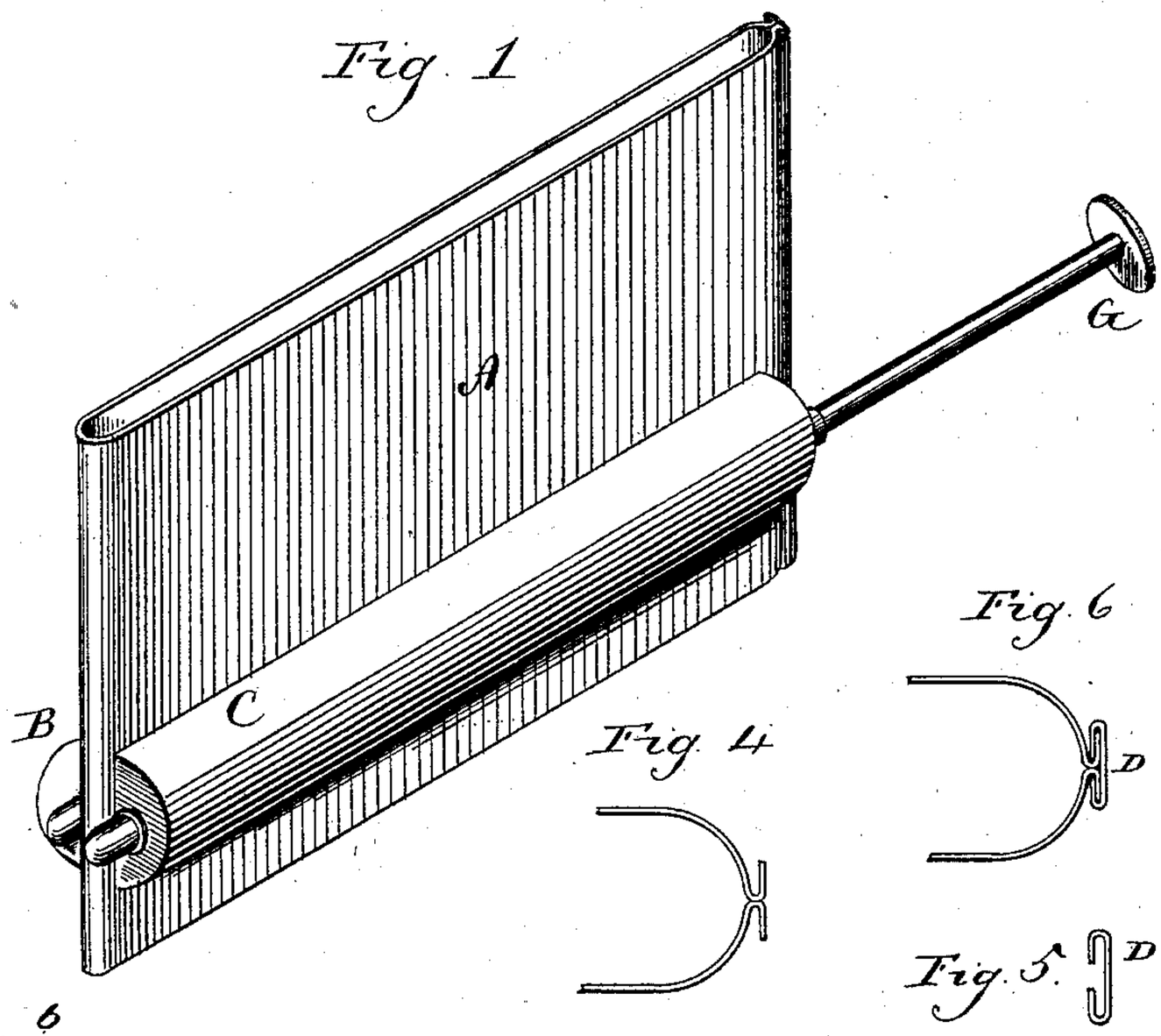


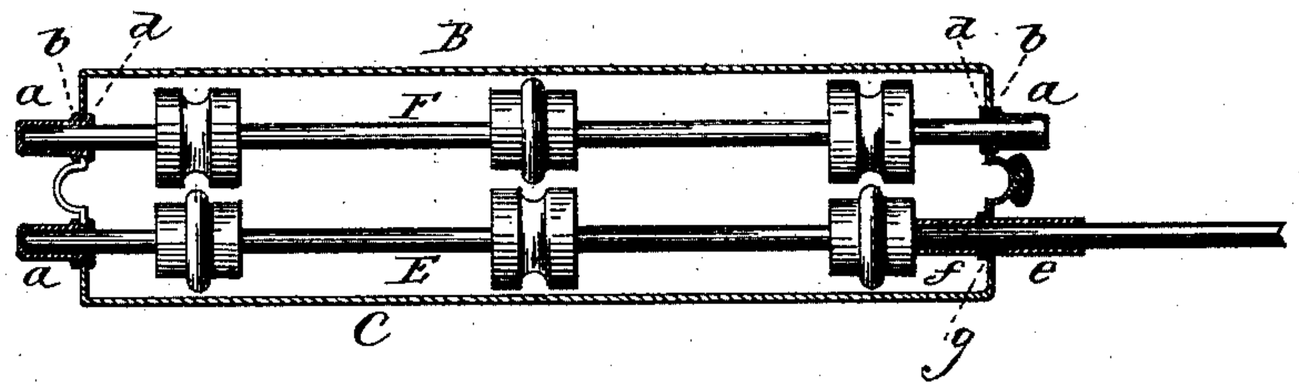
Fig. 6

Fig. 4

Fig. 5.

Fig. 3

Fig. 2



Witnesses.
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UNITED STATES PATENT OFFICE.

JOHN H. CLARK AND JOHN LINES, OF WATERBURY, CONNECTICUT, ASSIGNORS TO THE SCOVILL MANUFACTURING COMPANY, OF SAME PLACE.

WICK-TUBE.

SPECIFICATION forming part of Letters Patent No. 371,033, dated October 4, 1887.

Application filed July 26, 1886. Serial No. 209,038. (No model.)

To all whom it may concern:

Be it known that we, JOHN H. CLARK and JOHN LINES, of Waterbury, in the county of New Haven and State of Connecticut, have invented a new Improvement in Wick-Tubes; and we do hereby declare the following, when taken in connection with accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a perspective view of the tube complete; Fig. 2, a horizontal section through the two pockets; Fig. 3, the tubular bearing *a* preparatory to its introduction; and Figs. 4, 5, and 6, detached views illustrating the peculiar construction of the tube-joint.

This invention relates to an improvement in the larger class of wick-tubes, such as used for heaters and stoves. This class of tubes is best made from a piece of sheet metal doubled to form one edge of the tube, and the two edges of the metal brought together at the opposite edge of the tube and there secured.

In this class of burners the adjusting device usually consists of two shafts parallel with each other, each arranged in a pocket in its own side of the wick-tube, the shafts extending through each end of the pockets and so as to take a bearing therein. The bearings therefore wear rapidly and the adjusting devices soon become so loose as to interfere with their proper working.

In some cases short tubes have been introduced at the shaft-bearings and secured by solder; but in securing the bearings by solder they are liable to be thrown out of line and interfere with the working of the shaft. Again, as the solder affords but a very slight attachment, they are frequently displaced, and so prevent the proper working of the shafts that the burner becomes practically useless. This construction, therefore, is an impracticable one.

The object of our invention is to provide a bearing of considerable extent which may be secured without solder, and which will also prevent longitudinal movement of the shafts.

The tube A is formed from a piece of metal in the usual manner, with a pocket, B, in one side and a like pocket, C, in the opposite side when two adjusting-shafts are employed; or, if there be but one adjusting-shaft, then one of the pockets will be omitted. The two edges of the metal of which the tube is formed are turned outward and backward, as seen in Fig. 4. Then a strip of metal, D, of C shape, Fig. 5, its two edges adapted to pass inside the turned edges of the tube-piece, is passed down over those two edges, as seen in Fig. 6, the width of the piece D and the turned-over portions being such that when set together the turned-back edges will be embraced by the piece D. Then in suitable dies or otherwise the piece D and turned-back edges are closed down onto the edge of the tube, as seen in Fig. 1, thus firmly securing the two edges of the metal together, and without the use of solder, the closing operation making the connection firm and secure.

We have represented the tube as made from a single piece of sheet metal; but it will be understood that in case the tube is made from two pieces, so as to be united at the two edges, the same joint will be applied at each edge.

E represents one of the adjusting-shafts and F the other, arranged longitudinally in pockets, each provided with suitable rolls to embrace the wick which passes between the two shafts, and the two shafts extended through one end of the pockets, one provided with a button for conveniently rotating the shafts, and the two with corresponding gears, so as to work together in the usual manner for this class of adjusters.

To form the bearings for one end of the shafts we introduce into the ends of the pockets a tube, *a*, its internal diameter corresponding to the diameter of the shaft, and the tube closed at one end and constructed with a collar, *b*, near the opposite end, this collar produced by upsetting the metal. This bearing is introduced, its open end through a corresponding hole in the end of the pocket, and then the metal of the tube upset upon the inside, as seen at *d*, Fig. 2, so as to close the surrounding metal of the pocket between the collar *b* and the upset collar *d*, thereby firmly securing the bearing in place. For the other end of the shaft the bearing is a longer tube

and open at its outer end, so that the shaft may extend through it, *e* representing the outer portion of the tube and *f* the inner portion. The inner end of the tube extends to the feed-roll of the shaft, and upon the tube is a collar, *g*, formed by upsetting the metal so as to bear against the inside of that end of the pocket, as shown, which prevents the outward movement of the tube, and the inner end of the tube prevents longitudinal movement of the shaft in that direction, the other end being supported by the closed end of the bearing at that end of the shaft.

In applying the bearings to the wick-tube for the shafts those at one end may be secured before the shafts are introduced, and those at the other end after the shafts are introduced, and for the bearings *a* either the inner collar, *d*, or the outer collar, *b*, may be made before introduction and the other upset after the bearing is in place. By this construction long bearings are produced for each shaft, and they are so firmly secured without the use of solder as to become substantially an integral part of the wick-tube. Both shafts are held against longitudinal movement, yet free for rotation, and the bearings are fully protected from the escape of gas around the bearings, so that ignition at the bearings is impossible.

In some tubes but a single shaft is employed. In such case it will be understood that the arrangement of the one shaft is the same as that of the principal shaft in this case, the other being omitted.

From the foregoing it will be understood we are aware that tubular bearings have been made in wick-tubes by securing a tube to the opposite edges of the wick-tube, through which attached tubes the adjuster-shaft extends; and we are also aware that tubular bushings have been secured by forming a shoulder on the bushing, to form a bearing on one side of an opening while the extension from the shoulder passes through the opening and is upset upon the reverse side, and therefore do not claim, broadly, such bushings or bearings as of our invention; nor do we claim, broadly, a metal joint produced by an overlapping U-shaped piece closed upon the adjacent bent edges of the metal.

We claim—

As an article of manufacture, the herein-described wick-tube, having the tube formed from sheet metal, the two edges of the metal turned outward and backward and brought together at one edge of the tube, with a C-shaped strip of metal passed vertically over the said turned-back edges, the said C-shaped piece and the turned-back edges closed down upon the edge of the tube to form a vertical joint and rib on the edge of the tube, the tube having a transverse pocket for the wick-adjuster formed therein, a tubular bearing, *a*, one end of which is closed, the said bearing made from sheet metal and constructed with an annular collar, *b*, formed thereon near the open end, the said open end set through the corresponding opening in the end of the said pocket, and so that the collar of the tube takes a bearing upon the outside of the end of the pocket, the open end of the tube struck down upon the inside of the pocket to grasp the metal of the end of the pocket between the collar and the upset end of the tube, and with a tubular bearing, *e*, at the opposite end of the pocket, the said bearing *e* open at both ends, having an annular collar adapted to set against the inner side of its end of the pocket, and with an adjusting-shaft, one end resting in said bearing *a*, the other end extending through the bearing *e*, the said shafts having a shoulder adapted to rest against the inner end of the said open tubular bearing, all substantially as described.

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Witnesses:
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