

(No Model.)

F. W. HOEFER.
STOVE PIPE DAMPER.

No. 401,166.

Patented Apr. 9, 1889.

Fig. 1.

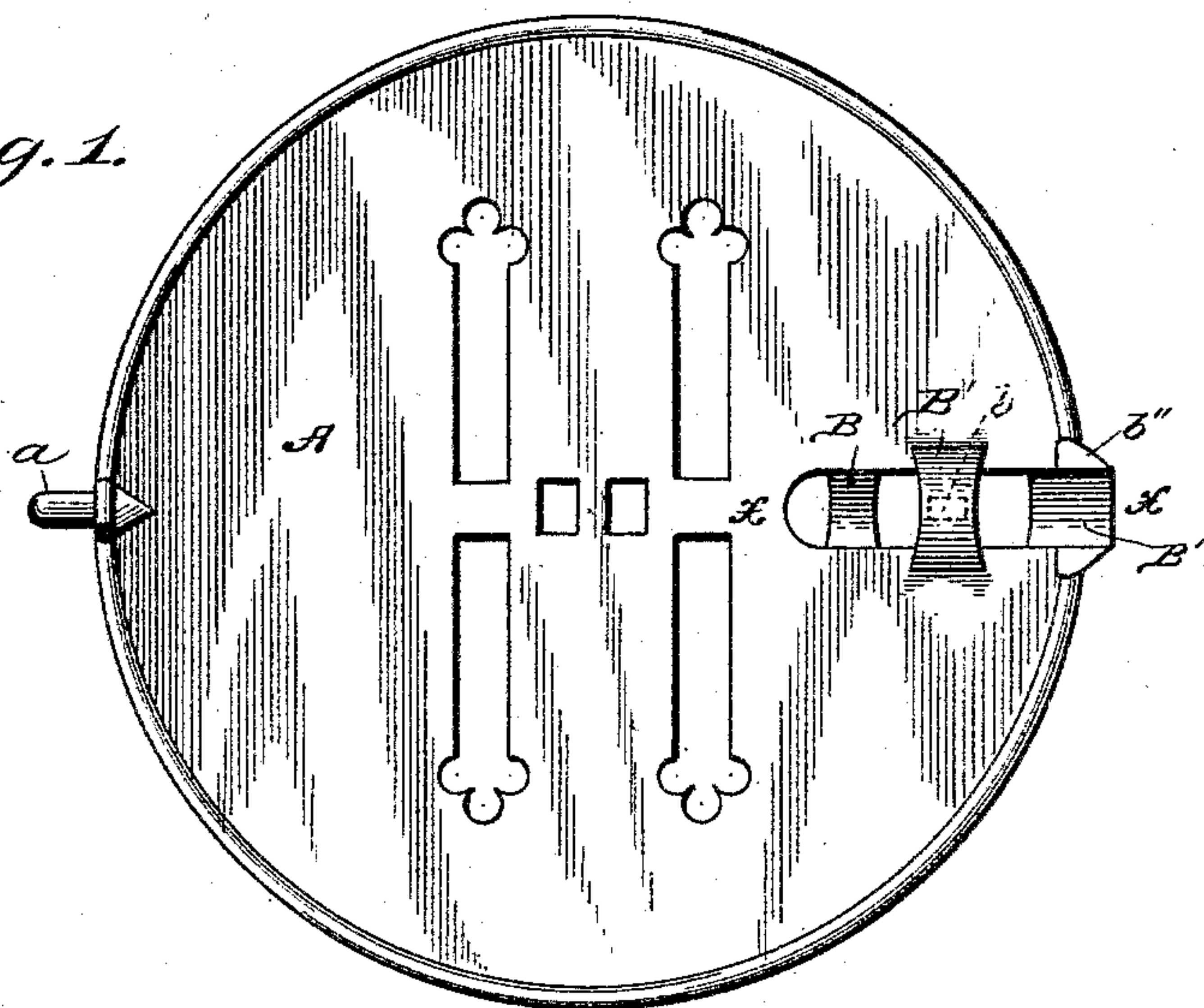


Fig. 2.

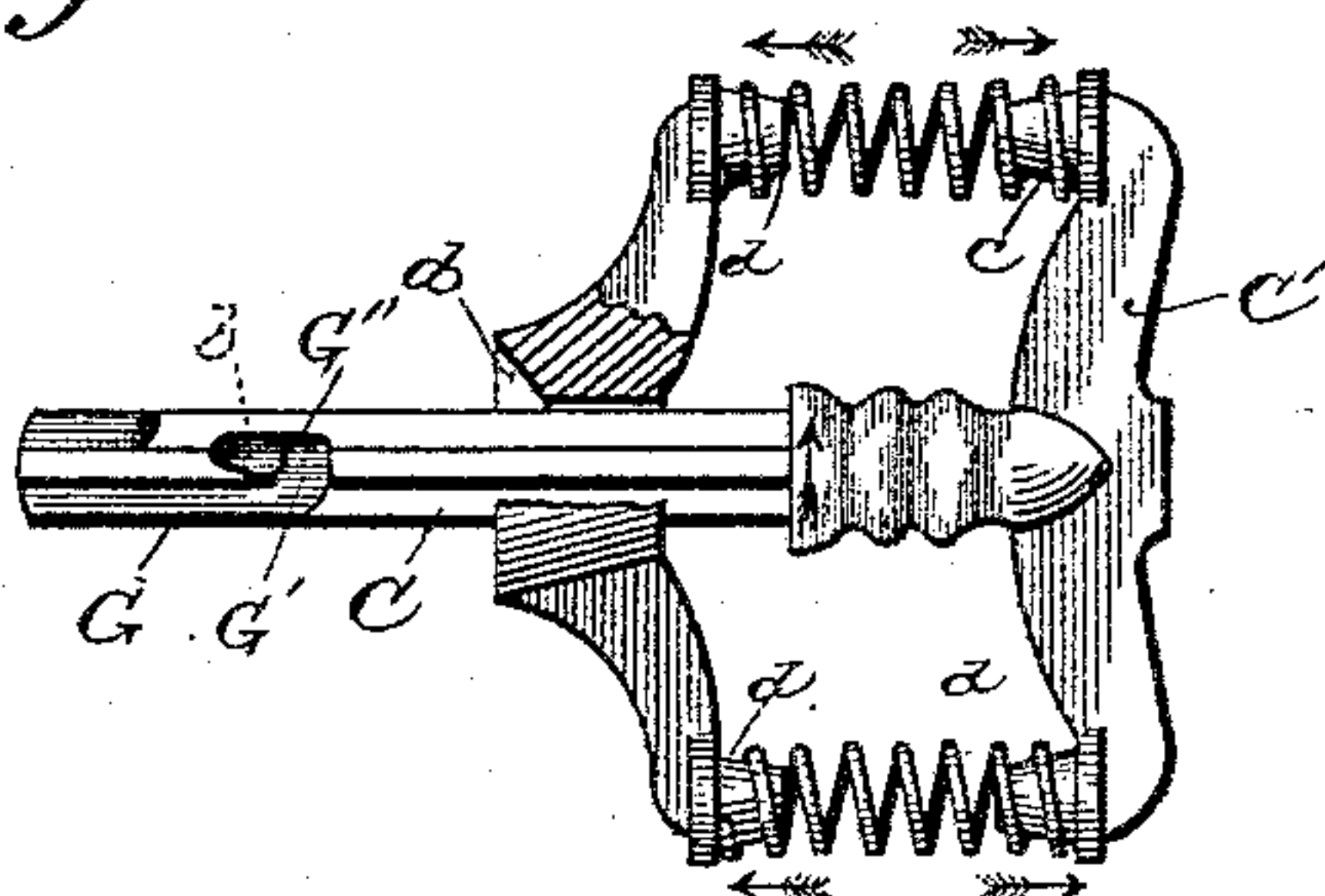


Fig. 4.

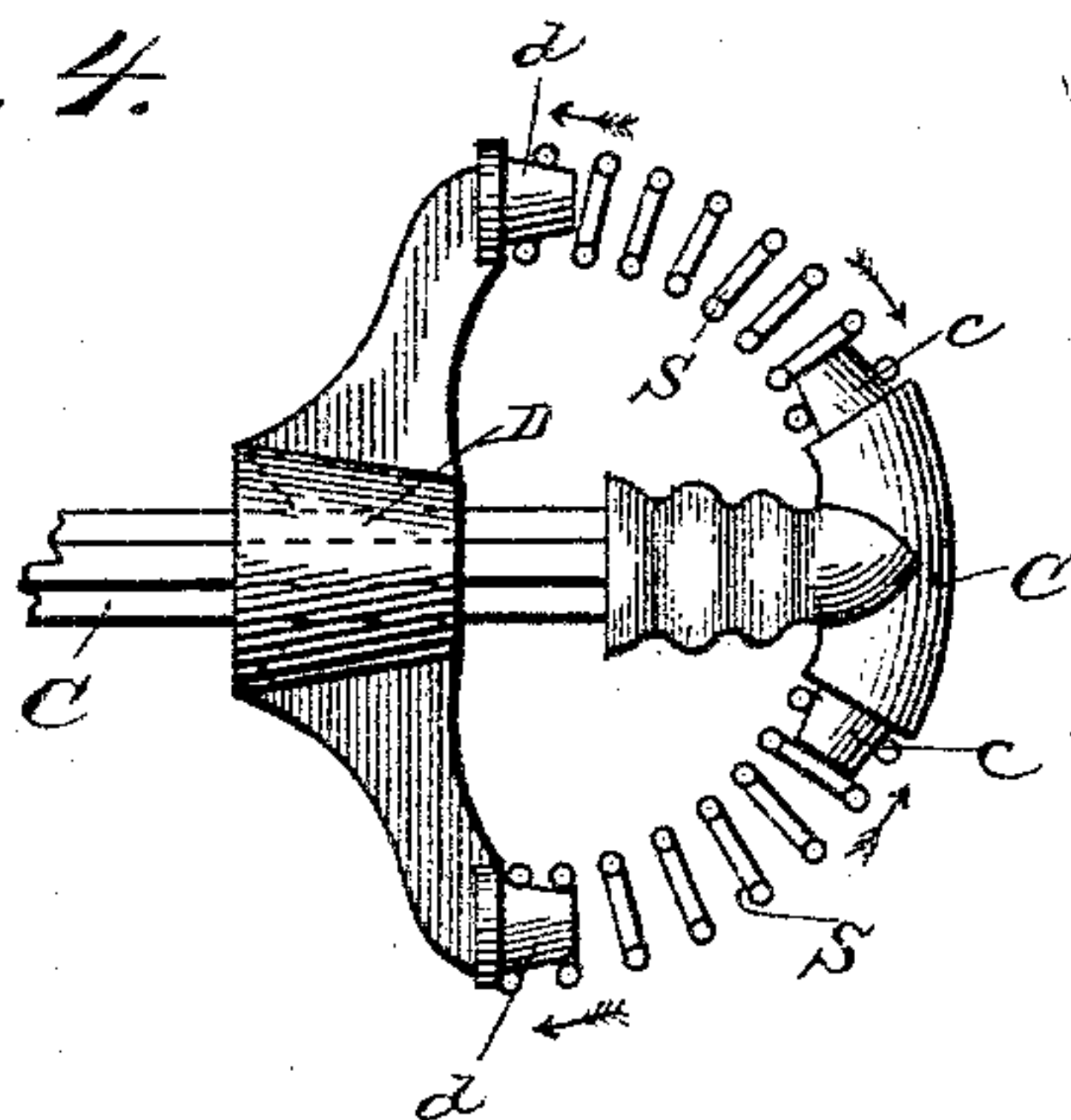


Fig. 5.

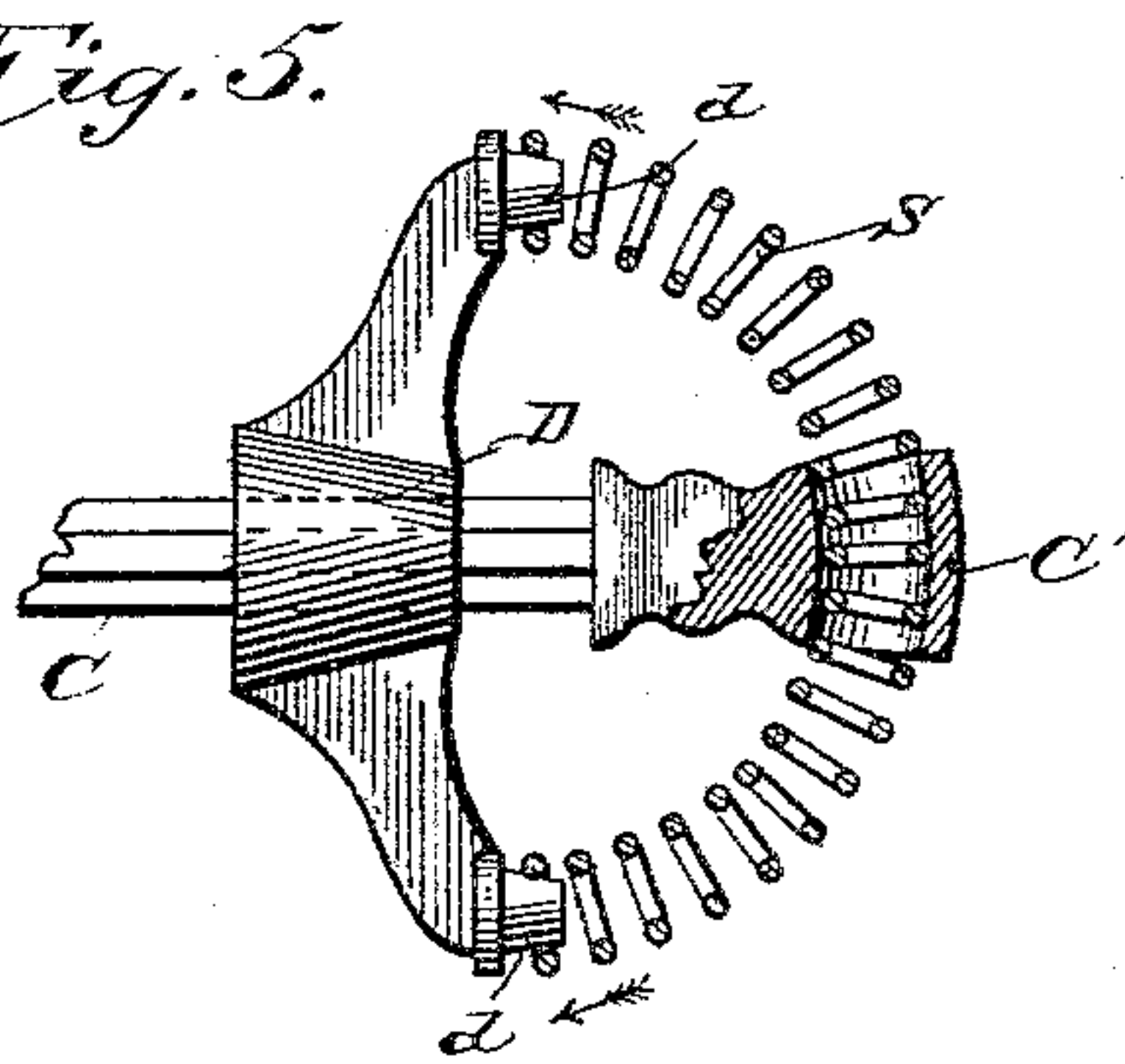
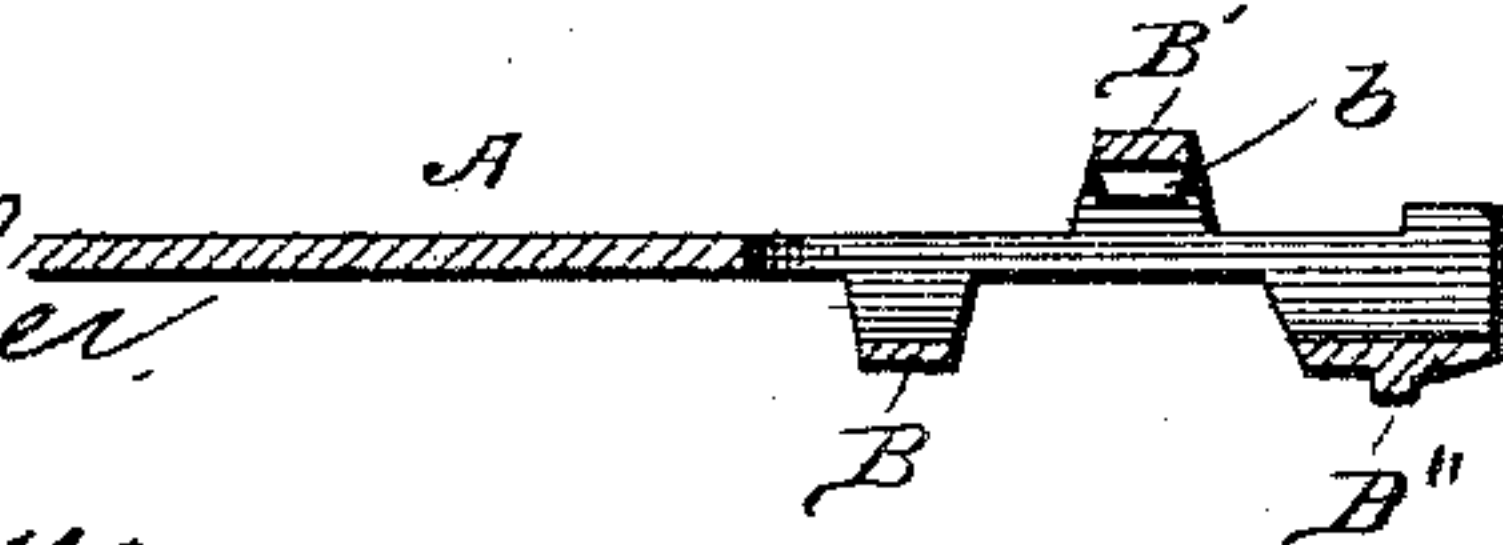


Fig. 3.



Witnesses.

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STOVE-PIPE DAMPER.

SPECIFICATION forming part of Letters Patent No. 401,166, dated April 9, 1889.

Application filed January 4, 1889. Serial No. 295,386. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK W. HOEFER, a resident of Freeport, in the county of Stephenson and State of Illinois, have invented certain new and useful Improvements in Stove-Pipe Dampers; 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 pertains to make and use the same.

My invention relates to improvements in stove-pipe dampers, and is fully described and explained in this specification, and shown in the accompanying drawings, in which—

Figure 1 is a plan of a damper-blade forming part of my improved damper. Fig. 2 is a plan of the shank and handle adapted to be connected with the blade and to form therewith a complete damper. Fig. 3 is a section of a portion of the blade through the line $x x$, Fig. 1, the view being in the direction indicated by the arrow on the blade in said figure. Figs. 4 and 5 are plans of modified forms of the damper-handle in operative connection with the shank.

In the views, A is a preferably circular damper-blade formed with suitable openings for the escape of smoke and gas, and provided at one point of its margin with a gudgeon, a , and at a diametrically-opposite point with a socket formed of clasps $B B' B''$, cast integrally with the plate. The clasp B'' projects beyond the margin of the damper, and the projecting portion is externally conical, as indicated in Figs. 1 and 3. One of the clasps, B' , has on its inner face a lug or projection, b , lying, preferably, at one side of the center of the clasp and adapted to engage the damper-shank, as is hereinafter explained.

C is a shank having any desired non-circular cross-section, the diameter of the shank being such that it can readily enter the socket formed by the clasps $B B' B''$ without being loose therein, and C' is a cross-bar formed integrally with the shank at one end thereof, and provided at its extremities with bosses c , extending toward the opposite end of the shank. A sliding cross-bar, D, having at its center an opening corresponding in shape to the cross-section of the shank, slides freely thereon and has near its extremities bosses d ,

corresponding in shape and position to the bosses c of the cross-bar C' , toward which the bosses d extend. Springs S, interposed between the cross-bars $C' D$, are held in place by the bosses $c d$, which enter the ends of the springs, and the relation of the bars is such that when the entire damper is in operative connection the springs S S tend to press apart the cross-bars $C' D$, and at the same time provide the damper-handle with suitably open non-conducting surfaces, which always remain comparatively cool while the damper is in use.

The central portion of the movable cross-bar D is provided with an internally conical surface or countersink, d' , corresponding in shape with the external surface of the conical projection b'' , so that when the entire damper is in operative connection the countersunk surface of the cross-bar D fits over the conical end b'' of the clasp B'' . In the end of the shank opposite the cross-bar C' is a groove or recess, G, extending from the end of the shank a considerable distance in the direction of its length, then turning at right angles, as shown at G' , and returning toward the end of the shank to form a pocket, G'' , the parts $G G''$ of the groove or recess being separated by a wall forming a portion of the shank. If the shank and the parts connected with it in Fig. 2 be rotated ninety degrees in the direction indicated by the arrow upon the shank in said figure, the shank may be inserted in the socket of the plate until the lug b of the clasp B' has traversed the entire length of the portion G of the groove in the shank, when the cross-bar D will have reached the conical surface of the clasp B'' and have been pressed toward the cross-bar C' , thus compressing the springs S S. If the shank be then rotated ninety degrees in a direction opposite to that of its first rotation, thereby bringing it into the plane in which it is shown in Fig. 2, such rotation will pass the lug b along the transverse portion G' of the groove in the shank, and if the shank be then left free the pressure of the springs S S will force the cross-bar C' away from the blade until the lug b enters the pocket or closed end G'' of the groove in the shank, when the shank and blade will be se-

curely fastened together. The parts may be separated by reversing the operation through which they have been connected.

The operation of the damper shown in Figs. 1, 2, and 3, and hereinbefore described, is evident. The shank and handle being separated from the blade, the latter may be inserted in a joint of stove-pipe, the gudgeon *a* being journaled in an opening at one point in the pipe, and the cone *b''*, at the opposite margin of the blade, being seated in an opposite opening in the pipe. The shank being then inserted in the manner hereinbefore described, the sheet metal of the pipe will conform to and be pressed between the conical surfaces of the clasp *B''* and the sliding cross-bar *D*, and the pressure of the springs *S S* will insure and preserve at all times sufficient friction of the parts and hold the damper in any position into which it may be rotated by turning the handle. The springs *S S* afford surfaces which may be readily grasped for the purpose of operating the handle, and the entire device thus constructed is simple, practical, and efficacious.

Figs. 4 and 5 represent modified forms of the handle and spring, Fig. 4 showing a form in which the bosses *c c* of the stationary cross-bar *C'* are formed on arcs of circles joining the bosses *c d*, and the springs *S S* are correspondingly curved, and Fig. 5 showing a form in which a single spring *S* is substituted for the two springs *S S* of Fig. 4, and passes through an opening in the end of the shank *C*. In both these forms the operation of the spring is the same, its force tending at all times to press the sliding cross-bar *D* toward the damper-blade and preserve the necessary friction when the parts are in operative connection.

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

1. The combination, with a damper-blade provided with a socket having an internal lug, *b*, of a shank adapted to enter said socket, and having a suitable head or enlargement, a slide moving on said shank, and a spring interposed between said slide and the head or enlargement of the shank, and adapted to press the slide away from said head or enlargement, the end of the shank opposite said head or enlargement being formed with a longitudinal groove or depression extending inward from the end of the shank, but having its inner end closed and turned outward to-

ward the end of the shank, said groove throughout its entire length being adapted to permit the passage of the internal lug, *b*, of the socket in the blade, substantially as and for the purpose set forth.

2. The combination, with a damper-blade having an outwardly-conical boss at one point in its margin, of a shank adapted to pass axially through said cone and provided with means for engagement of the blade, a slide moving on said shank and having an internally-conical surface corresponding with the external cone on the boss of the blade, and a spring interposed between said slide and a suitable head or enlargement on the shank, and adapted to press said slide toward the boss on the blade, substantially as and for the purpose set forth.

3. The combination, with the damper-blade and a shank adapted to engage therewith and provided with a suitable head or enlargement, of a slide moving on said shank and provided with arms extending in opposite directions therefrom, and a spring interposed between the end of each of said arms and the head or enlargement on the shank, and adapted to press said slide away from said enlargement, and at the same time to form a non-heating surface to be grasped in operating the damper, substantially as and for the purpose set forth.

4. The combination, with the blade *A* and the shank *C*, adapted to engage said blade, and provided with a head, *C'*, of the slide *D*, moving on the shank, and the springs *S S*, interposed between the ends of the arms of the slide and the corresponding ends of the arms of the head, and adapted to press the slide away from the head, and at the same time to form non-heating surfaces adapted to be grasped in operating the damper, substantially as and for the purpose set forth.

5. The combination, with the blade *A* and shank *C*, adapted to engage therewith, and having a head, *C'*, provided with bosses *c*, of the slide *D*, provided with the bosses *d*, and the springs *S*, interposed between the slide and head, and held in place by the bosses *c d*, substantially as and for the purpose set forth.

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

FREDERICK W. HOEFER.

Witnesses:

R. H. WILES,
J. A. CRAIN.