

(Model.)

G. E. SUTPHEN.
Damper.

No. 238,259.

Patented March 1, 1881.

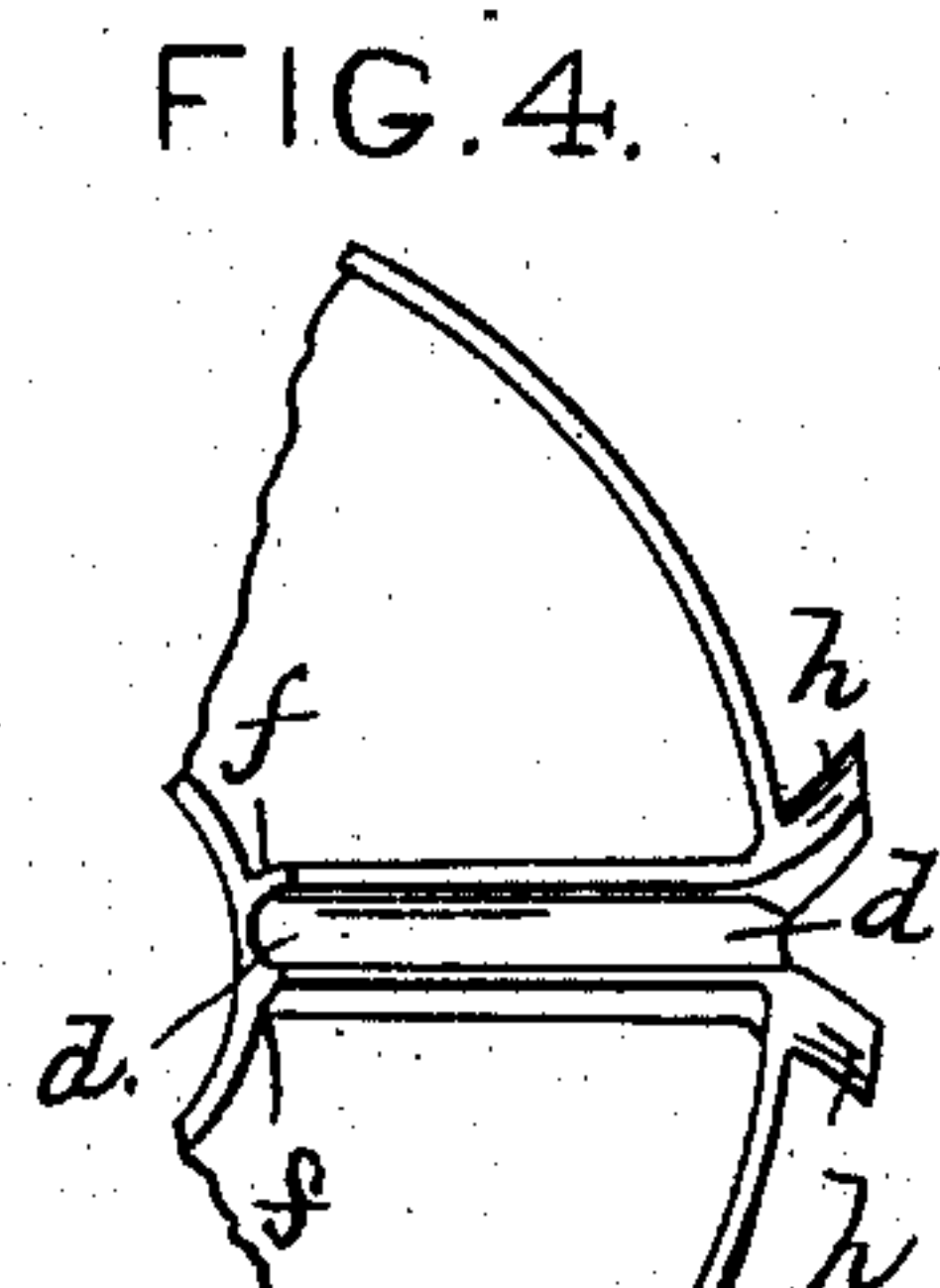
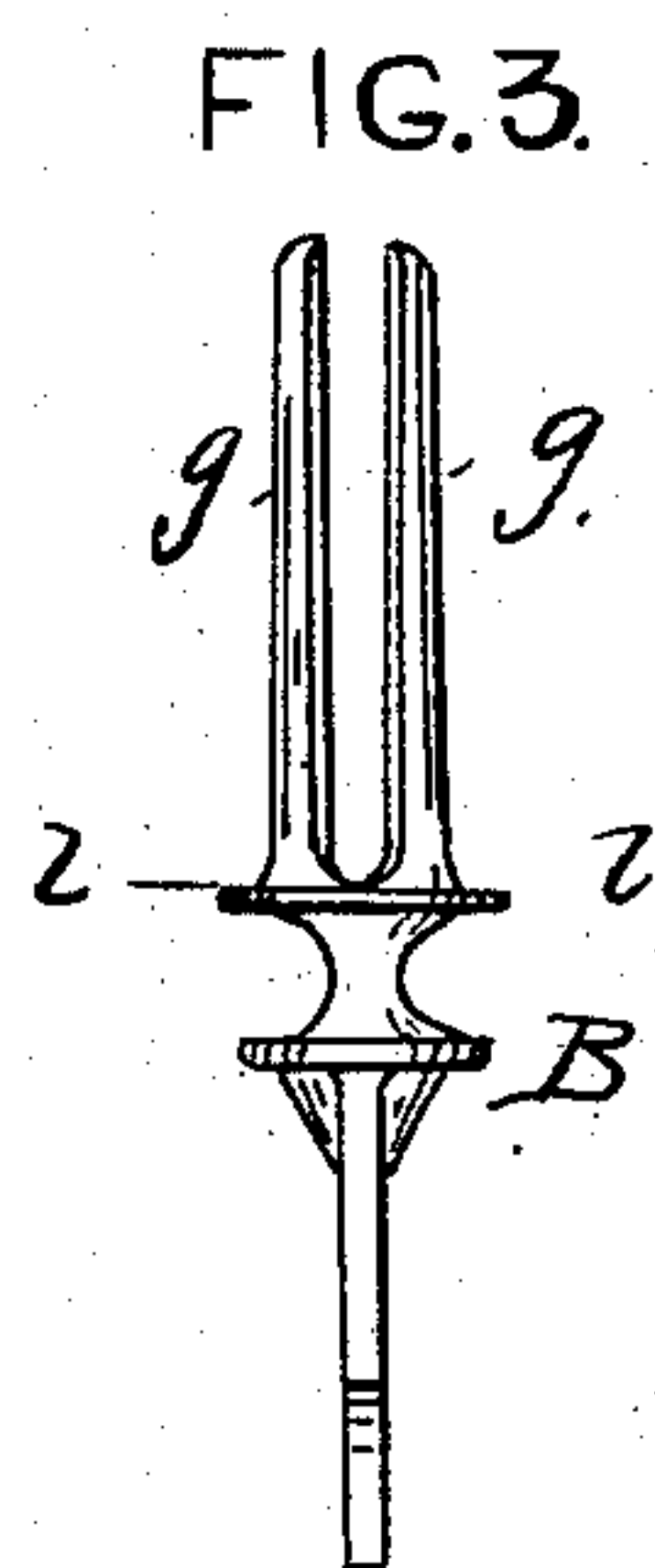
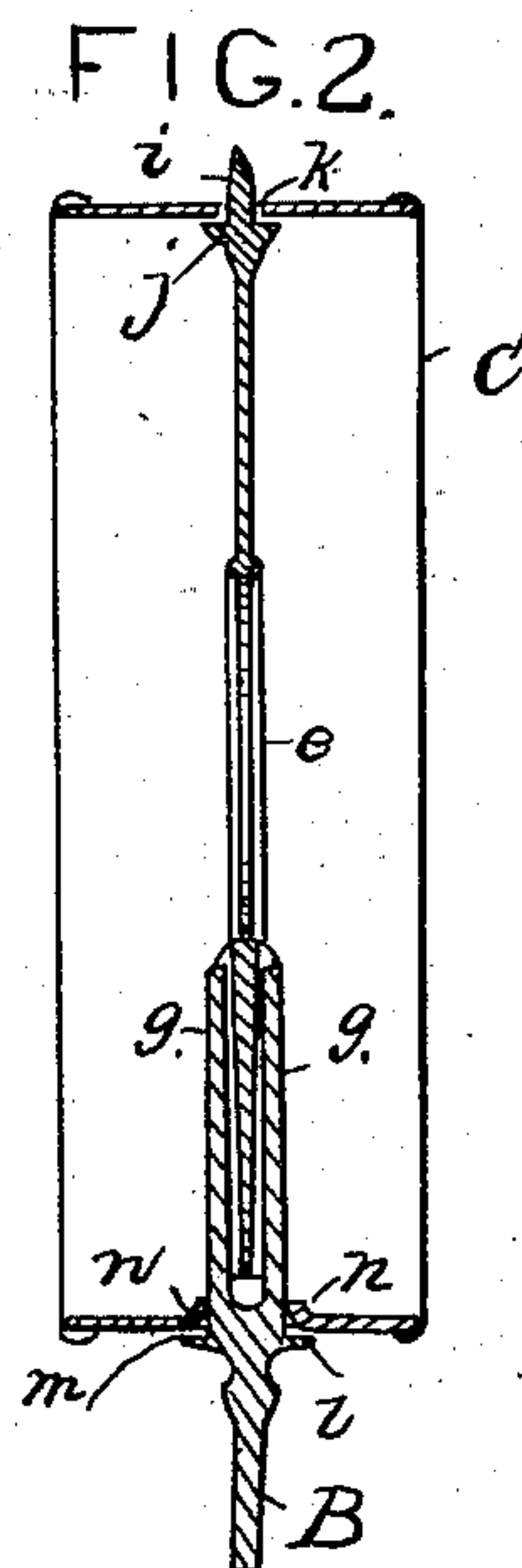
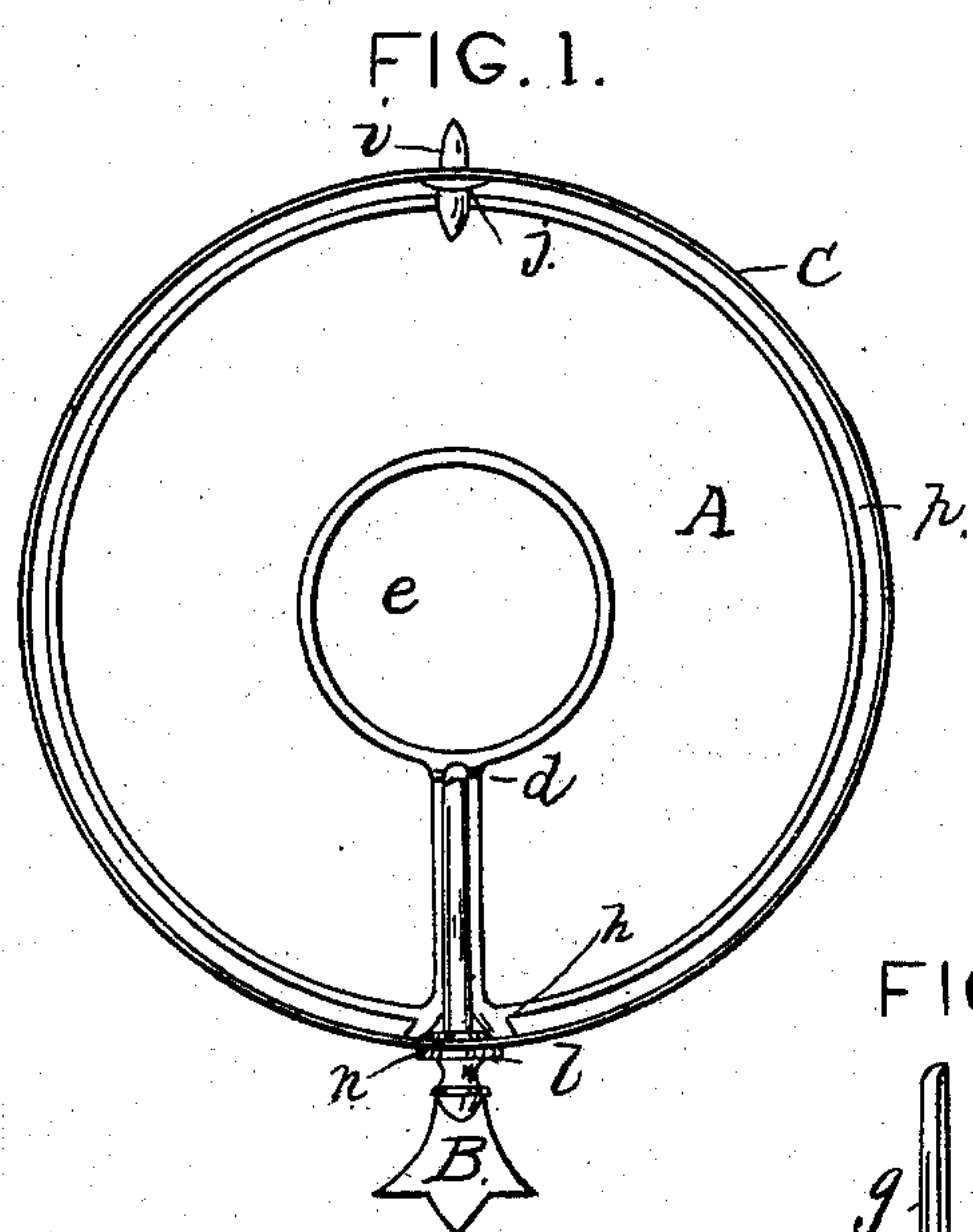


FIG. 5.

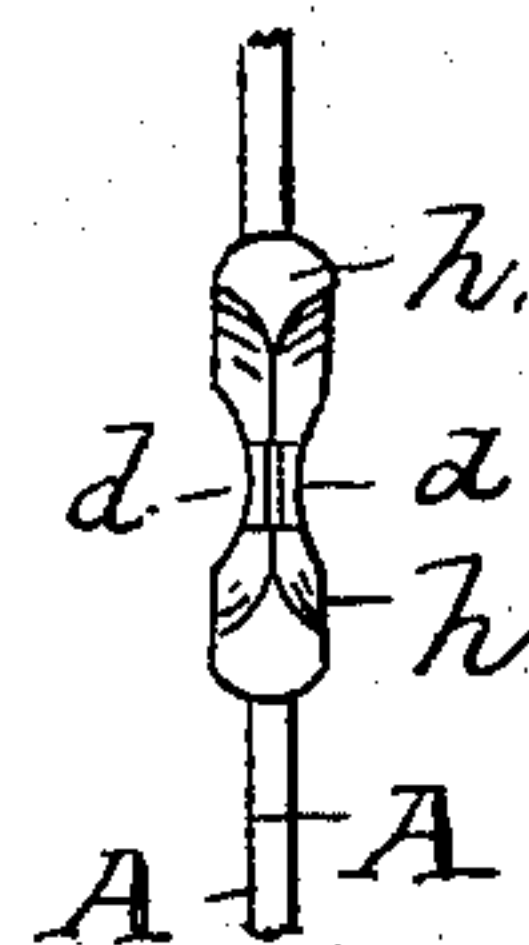


FIG. 6.

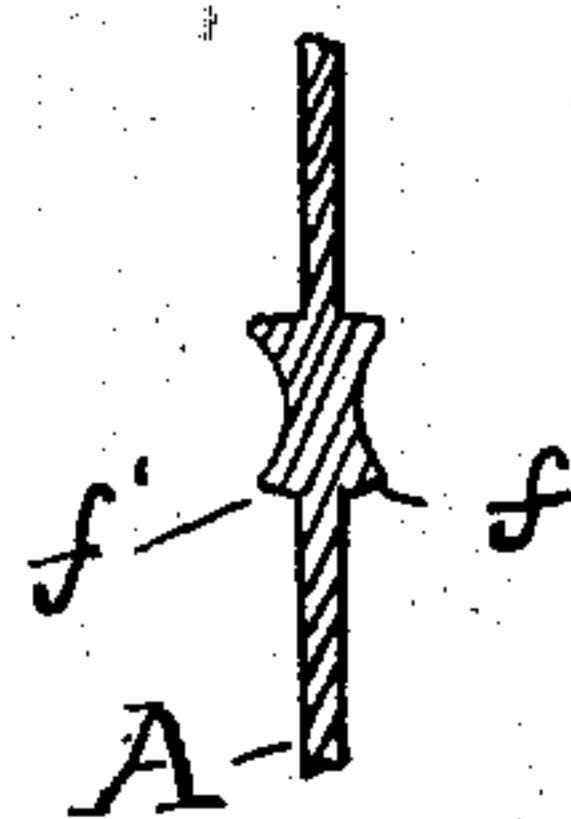
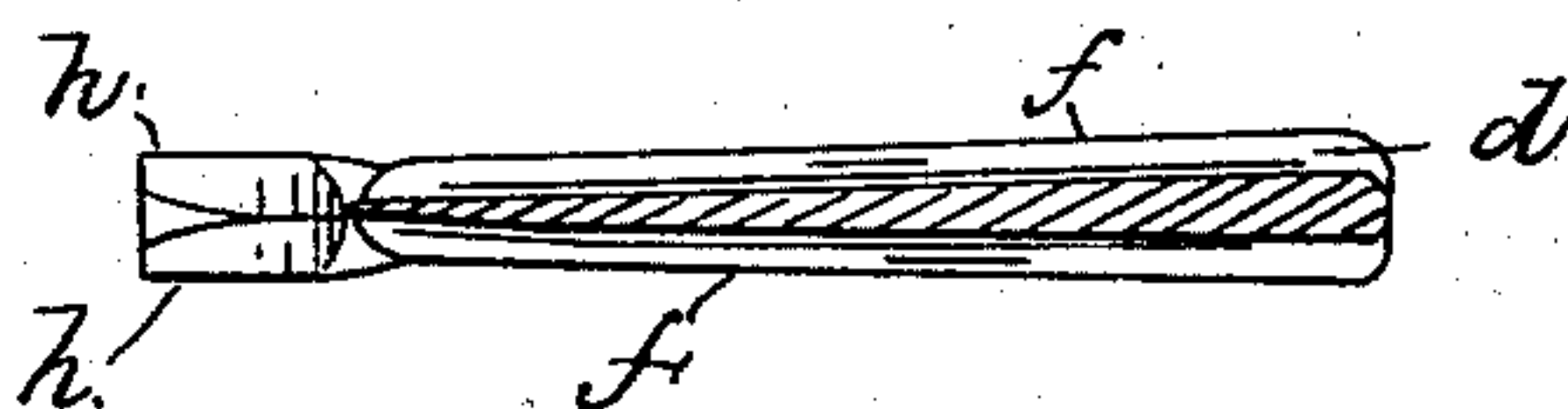


FIG. 7.



Witnesses:

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UNITED STATES PATENT OFFICE.

GEORGE E. SUTPHEN, OF AURORA, ILLINOIS.

DAMPER.

SPECIFICATION forming part of Letters Patent No. 238,259, dated March 1, 1881.

Application filed June 28, 1880. (Model.)

To all whom it may concern:

Be it known that I, GEORGE E. SUTPHEN, of Aurora, in the county of Kane and State of Illinois, have invented certain new and useful
5 Improvements in Dampers; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference
10 being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

My invention consists in a novel construction of the disk-damper, in a novel means for
15 holding the same to place and for operating it, and in the means whereby rattling is prevented; and the improvements are adapted for stove-pipes and all other pipes in which dampers are used.

20 In the drawings, Figure 1 is a plan of my improved damper applied to a short piece of pipe; Fig. 2, a transverse section of the same; Fig. 3, the self-gripping forked handle detached; Fig. 4, a portion of the damper,
25 showing one of the grooves and the flaring holding-lugs in perspective; Fig. 5, an outer-edge view of the disk and lugs, and showing the converging ends of the grooves; and Fig. 6
30 an inner-edge view of the disk, showing the divergent ends of the grooves.

A is the disk or damper proper, and B its removable bifurcated handle, and these, in connection with their peculiarities, presently to be described, constitute, with the pipe C, all the
35 parts requisite to complete the device ready for use.

The disk A, I make of gray or common cast-iron, and the forked self-gripping handle B, I make of malleable iron, and both the damper
40 and the handle, when they come from the sand mold, are ready for use, requiring no finishing whatever, and no tools are needed to fit the pipe, and apply these parts thereto, except such as are found in any tin-shop. The disk
45 has on its opposite faces similar radial grooves *d*, extending from the periphery toward the center and, preferably, terminating at a central opening, *e*, cast in the disk. The beds or bases of these grooves incline gently to each
50 other toward the outer edge or periphery of the disk, as seen in Fig. 7, and have their sides

or edges raised above the plane of the disk, as seen at *f f'*. This diminishing thickness or wedge-shape from the center or opening *e* to the periphery of the grooved part of the disk
55 affords a wedging portion, to which the tines or bifurcated parts *g* of the handle B may closely hold themselves when applied to the disk, and so as not to be accidentally loosened or dislodged in operating the damper by means
60 of the handle, for the transverse shape of the groove, in connection with a corresponding transverse shape of the tines or members of the handle, prevents the tines from moving laterally, while the springing or elastic quality
65 of the tines, acting on the wedge embraced between them, prevents any longitudinal movement of the handle. This springing quality of the fork-tines is due to the character of the malleable metal, and the tines, in the act of
70 casting, will naturally close a little, and generally sufficiently toward each other to make a tight hold upon the wedge of the disk; or, if desired, a slight blow with a hammer may
75 be given them to effect such leaning toward each other. By these means a most perfect fit and union of the disk and handle are secured without requiring any opening or sockets, pins, or locking devices of any description.

On the edge of the disk, and cast integral
80 therewith, are two outwardly flaring or curved lugs or projections, *h h*, having functions and duties presently to be described; and at the opposite edge, and cast integral with the disk, is a pintle, *i*, having a collar or head, *j*, at its
85 inner end. The object of this collar or shoulder is, that when the damper is placed within a pipe, and the pintle is inserted from within through a small hole, *k*, therein, this collar *j* shall serve as a cap to closely cover the inside
90 of this hole and prevent the exit of smoke or gases at that point; and the collar or shoulder *l* on the handle, when the latter has been passed through the hole *m* in the pipe and pushed tightly to its place upon the disk, serves
95 similarly to close upon its outside this hole *m* against the escape of smoke or gases at that point. This hole *m* is designedly made with an inwardly-projecting smooth rim or flange, *n*, struck up from the pipe, and which, in con-
100 junction with the lugs *h*, helps to form a bearing guide or journal for the disk, these lugs

snugly spanning the flange and adapted to revolve around and upon it, and when the handle is applied to the disk, ready for use, the journal is complete, and the whole is steady and the handle has no lateral play in the hole *m*, though the latter be made large. No jarring or rattling of the damper can take place from the action of the draft or in handling.

The distance between the outermost extremities of the curved lugs *h h* and the outer face of the collar *j* is a little greater than the interior diameter of the pipe into which the disk is fitted. Therefore, when the latter is in position for use, this collar and these lugs press sufficiently upon the pipe to insure the disk remaining in any and every desired position to which it may be adjusted, and the handle always affords a perfect indicator of this position, so that no mistake can occur in using it, for the handle must turn with the disk, and vice versa.

The central hole, *e*, in the damper, in conjunction with the annular space *p* between the disk and pipe, is of sufficient capacity to permit all the gases to escape up the pipe when the damper is closed. No gas can escape into the room, nor can an explosion take place.

The handle may be so made as to receive wood or other non-conducting material for the purpose of protecting the hand while opening or closing the damper.

The device is simple, cheap, and durable, and is easily packed for shipping or transportation, as the manufacturer and jobber need supply only two pieces—namely, the disk and the handle. The disk having no radial or other openings or breaks except the central hole, there is no weak point in it, and no liability to be broken in use, and in applying or

removing the handle there is no strain whatever imparted to the disk.

I claim—

1. In a damper, the removable self-gripping handle *B*, made in a single piece with spring fork-tines *g*, adapted, in the manner described, to span, gripe, and hold upon the damper-plate, and having a collar, *l*.

2. The radial and inclined diverging grooves on opposite sides of the disk, by means of which the springing handle engages the disk and holds itself thereto.

3. The described means for closing the openings in each side of the pipe, the same consisting in the outwardly-pressed inner collar, *j*, located between the periphery of the damper and its journal or pintle *i*, combined with the projections *h* and inwardly-pressed outer collar, *l*, on a frictional holding-handle.

4. The outwardly-projecting lugs on the edge of the disk, and diverging from each other, combined with the inwardly-projecting or up-turned flange on the pipe, as and for the purposes described.

5. The combination of the forked grasping-handle *B* with a disk-damper having on its opposite faces the diverging grooves *d d*.

6. A cast-iron damper having at one side a journal or pintle provided with a collar adapted to close or cover the inner side of the pintle-hole in the pipe, and having at its opposite side the diverging lugs *h h*, adapted to bear against the inner surface of the pipe, as and for the purpose described.

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Witnesses:

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