

S. PYKETT.
ADJUSTABLE SHUT-OFF.
APPLICATION FILED DEC. 29, 1913.

1,111,805.

Patented Sept. 29, 1914.

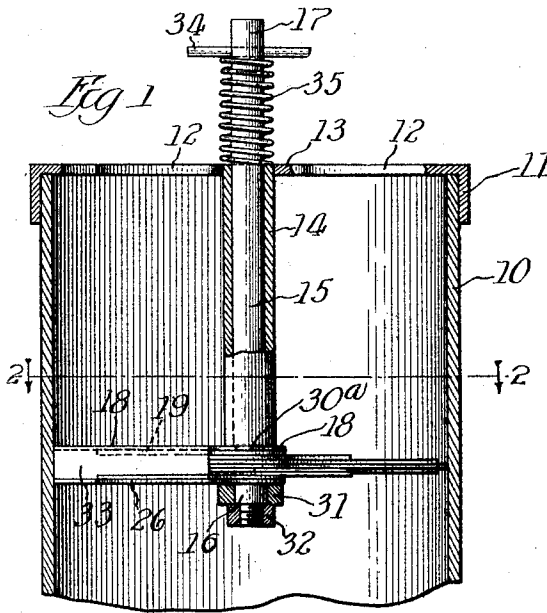
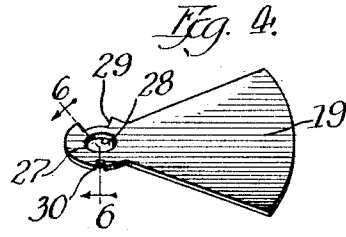
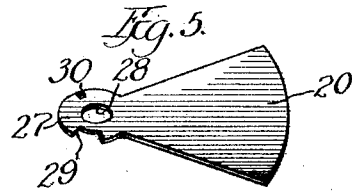
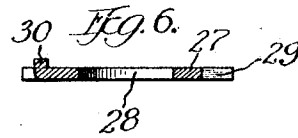
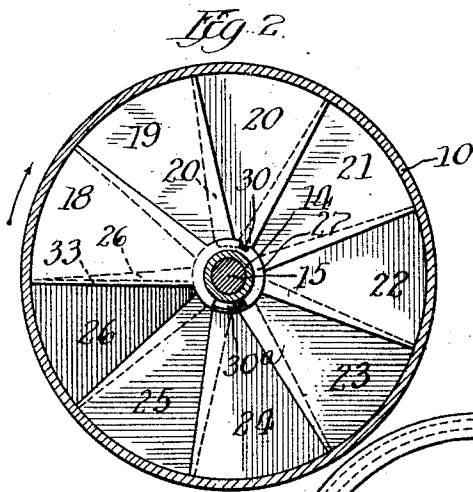
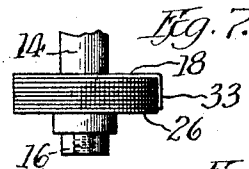
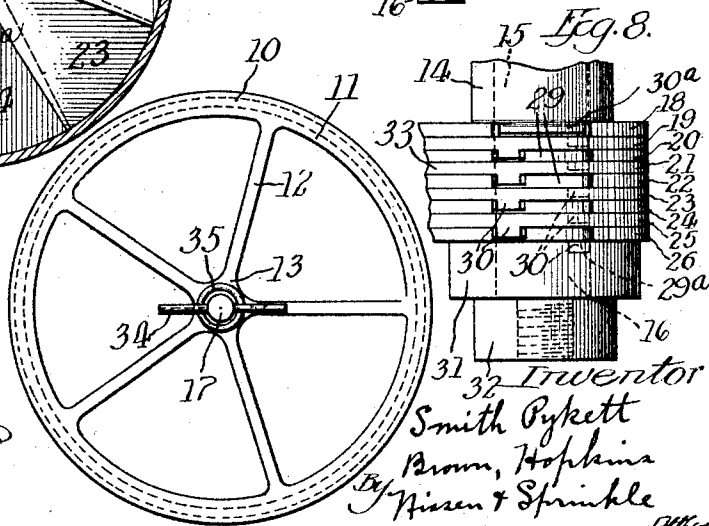


Fig. 3
Witnesses
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UNITED STATES PATENT OFFICE.

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ADJUSTABLE SHUT-OFF.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, SMITH PYKETT, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Adjustable Shut-Offs, of which the following is a specification.

My invention relates to adjustable shut-offs and has for its primary object the provision of an improved device of that character, which shall have improved means for shutting off communication between portions of a hollow body.

With the above and other objects in view this invention consists substantially in the combination, arrangement, and construction of parts all as hereinafter described, shown in the accompanying drawings which form a part of this specification, and illustrate the preferred embodiment of my invention, and more particularly described in the subjoined claims.

In the drawings: Figure 1 is a longitudinal section of a cylindrical vessel showing my improved shut-off positioned therein partly in section and partly in side elevation. Fig. 2 is a section taken on the line 2—2 of Fig. 1 and looking in the direction indicated by the arrows. Fig. 3 is a top plan view of Fig. 1. Figs. 4 and 5 are detailed views of sectoral pieces, forming part of my invention. Fig. 6 is a section taken on the line 6—6 of Fig. 4 and looking in the direction indicated by the arrows. Fig. 7 is an end view of the lower part of my adjustable shut-off, showing it in closed position. Fig. 8 is an enlarged view of the lower central portion of my device, illustrating in side elevation the closed position thereof.

My invention is broadly useful for partially or entirely obstructing the passage of matter from one portion of a hollow body to another. For instance, it forms an excellent damper in a flue or chimney.

Reference numeral 10 indicates a cylindrical flue provided with a spider 11, the arms 12 of which meet about the center of the flue 10 as at 13 to form a holder for one end of a sleeve 14, to be described later.

In the present embodiment of the invention the spider 11 takes the form of a perforate cap positioned upon one end of the flue 10. The sleeve 14 extends from the holder 13 into the cylinder any desired distance and forms a bearing for the shaft 15, which extends below the lower end of the

sleeve as at 16 and likewise above the spider 11, as at 17. A plurality of sectoral pieces 18, 19, 20, 21, 22, 23, 24, 25, and 26, are centrally positioned upon and carried by the shaft 15 at its lower end 16. These pieces are loosely centered upon the shaft 15 in such manner that within certain limits they are free to oscillate about it; they are positioned one against the other and each one slidable with respect to the others and about the shaft 15 as a center. The means for securing the sectoral pieces 18 to 26 upon the shaft 15 is embodied in a collar 27 formed at the inner end of each sectoral piece and centrally apertured as at 28 for engagement with the shaft. Alternate pieces are oppositely provided with segmental cuts or apertures 29 in their collars and upon each collar is formed a projection 30 of a length not greater than the thickness of one of the sectoral pieces; the projection 30 being positioned upon the opposite side of the collar from the segmental cut 29 and so located as to engage the cut 29 of the next piece. The length of the segmental cuts 29 is determined by the number of sectoral pieces used. In the drawings 9 sectoral pieces are shown and the length of the segmental cuts 29 is approximately one-ninth of a circle increased by an amount equal to the width of the projection 30. A projection 30^a is formed upon the lower or inner end of the sleeve 14 and is of such width as to fill entirely the segmental cut 29 of the upper sectoral piece 18, thus holding the piece 18 from oscillation with respect to the sleeve 14. A collar 31 is secured to the lower end 16 of the shaft 15 for rotation with the shaft, and a nut 32 is threaded upon the lower extremity of the end 16 and serves to maintain the pieces 18 to 26 and the collar 31 from longitudinal movement upon the shaft 15. The collar 31 is provided with an aperture 29^a (see Fig. 8) of a size just large enough to receive and be engaged by the projection 30 of the lowermost sectoral piece 26. By this construction the lowermost sectoral piece is joined to the shaft 15 for rotation therewith.

Considering the shut-off as in the closed position illustrated in Fig. 8, the projections 30 of alternate sectoral pieces lie at one end of the segmental apertures of the intermediate pieces, while the projections 30 of the intermediate sectoral pieces lie at the opposite ends of the segmental apertures of the alternate pieces; in other words, in

Fig. 8 the projection 30 of piece 23 lies at the left end of the segmental space 29 in the piece 24, while the projection 30 of the piece 22 lies at the opposite or righthand end of the segmental aperture in the piece 23. A flange 33 (see Figs. 1, 2, 7, and 8) is formed upon one radial edge of preferably the upper sectoral piece 18 and extends downwardly therefrom to the upper surface of the lower sectoral piece 26. By this construction the space between the upper sectoral piece 18 and the lower sectoral piece 26 in the open position of the shut-off is closed; the lower edge of the flange 33 contacting throughout its length with the upper side of the piece 26. A handle 34 is provided for the shaft 15 at its upper end 17 for convenience in rotating the shaft, and a coil spring 35 positioned between the upper end of the sleeve 14 and handle 34 exerts an upward pull upon the shaft 15, thereby holding the segmental pieces 18 to 26 and the collar 31 closely together and against the lower or inner end of the sleeve 14.

In the operation of my invention, the spider 11, sleeve 14, and sectoral piece 18 being considered as fixed parts with relation to the flue 10, the shaft 15 is rotated in the direction indicated by the arrow shown in Fig. 2. This rotation carries in the direction of the arrow every sectoral piece except 18. When rotation has been continued for about one-ninth of a circle (in the present embodiment of the invention) contact between the projection 30 of the uppermost sectoral piece 18 with the collar of the piece 19 at one end of the segmental aperture of the piece 19 prevents further rotation of the piece 19 in the direction of the arrow. In this manner rotation of each successive sectoral piece is stopped during the continued rotation of the shaft 15 until the shaft has been turned through approximately a circle. In this manner is formed a web or shut-off within the flue 10. Obviously the rotation of the shaft 15 may be discontinued at any position less than a complete rotation, leaving the flue 10 only partially obstructed. If desired, the spider 12, together with the adjustable shut-off may be entirely removed from the flue, leaving it open. By rotation of the shaft 15 in the direction opposite to that of the arrow shown in Fig. 2 the sectoral pieces are returned to their closed position, as shown in Figs. 7 and 8.

In the accompanying drawings and in the foregoing description is set forth the preferred embodiment of my invention, but it is obvious that one skilled in the art may make modifications thereof without departing from the spirit of the invention.

I claim:

1. The combination of a plurality of concentric sectoral pieces, a collar formed at the apex of each piece, a shaft common to

the pieces and to which the lowermost piece is fixed, a bearing for the shaft and to the lower end of which the uppermost sectoral piece is fixed, and means upon the collar of each piece coöperating with the adjacent piece for spreading the pieces about the shaft.

2. The combination of a plurality of concentric sectoral pieces, a collar formed at the apex of each piece, a shaft common to the pieces and to which the lowermost piece is fixed, a bearing for the shaft and to the lower end of which the uppermost sectoral piece is fixed, and means upon the collar of each piece coöperating with the adjacent piece for spreading the pieces about the shaft and for placing the pieces in a superposed position.

3. The combination of a plurality of concentric sectoral pieces apertured at their apices, a shaft engaging the apertures of the pieces, each of said pieces being provided with a curved aperture concentric with the shaft, projections upon the pieces each engaging the curved aperture of the adjacent piece, and a bearing for the shaft and to which the uppermost sectoral piece is fixed, the lowermost sectoral piece being fixed to the shaft.

4. The combination of a plurality of concentric superposed sectoral pieces, a collar formed at the apex of each piece, the collars being provided with alternately opposite segmental apertures, a projection upon each collar engaging the segmental aperture of the adjacent collar, a shaft common to all of the collars and to which the lowermost sectoral piece is fixed, and a fixed bearing for the shaft to which the uppermost sectoral piece is fixed.

5. The combination of a plurality of concentric sectoral pieces, a collar formed at the apex of each piece, a shaft engaging the collars and to which the lower sectoral piece is fixed, a sleeve forming a bearing for the shaft, each of said pieces being provided with a curved slot concentric with the shaft, the uppermost sectoral piece being fixed to the sleeve, and a projection upon each piece engaging the slot of the adjacent piece, of a thickness not greater than that of said adjacent piece and of a width less than the length of the curved slot in the adjacent piece.

6. The combination of a plurality of concentric sectoral pieces, a collar formed at the apex of each piece, a shaft engaging the collars and to which the lower sectoral piece is fixed, a sleeve forming a bearing for the shaft, each of said pieces being provided with a curved slot concentric with the shaft, the uppermost sectoral piece being fixed to the sleeve, a projection upon each piece engaging the slot of the adjacent piece, of a thickness not greater than that of said adja-

cent piece and of a width less than the length of the curved slot in the adjacent piece, and means for rotating the shaft with respect to the sleeve.

5 7. The combination of a hollow body of circular interior cross-section and an adjustable shut-off positioned therein comprising a plurality of concentric superposed sectoral
10 piece, the collars being provided with alternately opposite segmental apertures, a projection upon each collar engaging the segmental aperture of the adjacent collar, a shaft common to all of the collars and to
15 which the lowermost sectoral piece is fixed, and a fixed bearing for the shaft and to which the uppermost sectoral piece is fixed.

8. The combination of a hollow body of circular interior cross-section and an adjustable shut-off positioned therein comprising a holder concentric with the body, a bearing axially positioned within the body and supported by the holder, a shaft carried by the bearing and protruding from one
25 end thereof, a plurality of sectoral pieces collared upon the shaft, the outermost sectoral piece being fixed with relation to the bearing, the innermost sectoral piece being fixed to the shaft, each sectoral piece being
30 provided with a curved aperture concentric

with the shaft, a projection upon each sectoral piece engaging the slot of each successive piece, and means for rotating the shaft within the bearing.

9. The combination of a hollow body of circular interior cross-section and an adjustable shut-off positioned therein comprising a holder concentric with the body, a bearing axially positioned within the body and supported by the holder, a shaft carried by the bearing and protruding from one end thereof, a plurality of sectoral pieces collared upon the shaft, the outermost sectoral piece being fixed with relation to the bearing, the innermost sectoral piece being fixed to the shaft, each sectoral piece being provided with a curved aperture concentric with the shaft, a projection upon each sectoral piece engaging the slot of each successive piece, means for rotating the shaft within the bearing, and means for holding the sectoral pieces against each other.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 24th day of December, A. D. 1913.

SMITH PYKETT.

Witnesses:

H. G. ROCKWELL.

ALLENA OFFUTT.