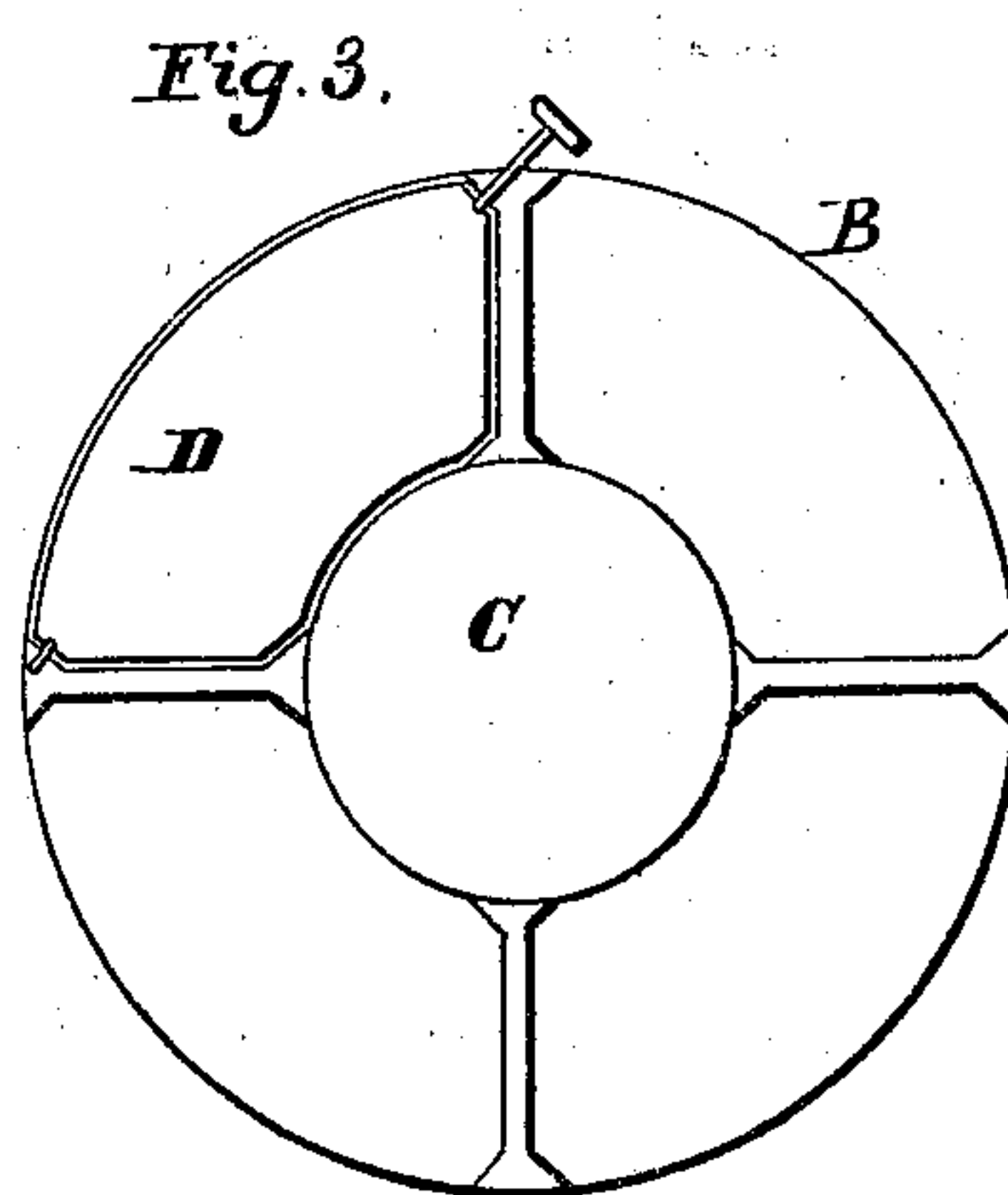
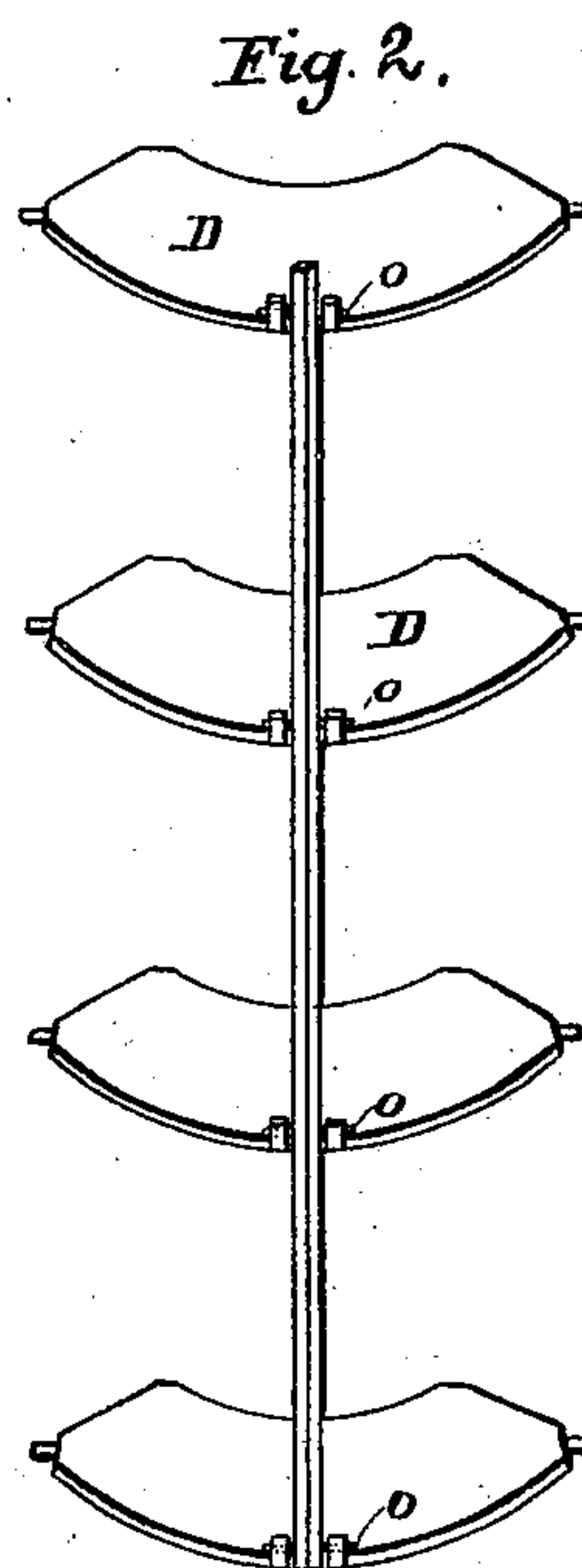
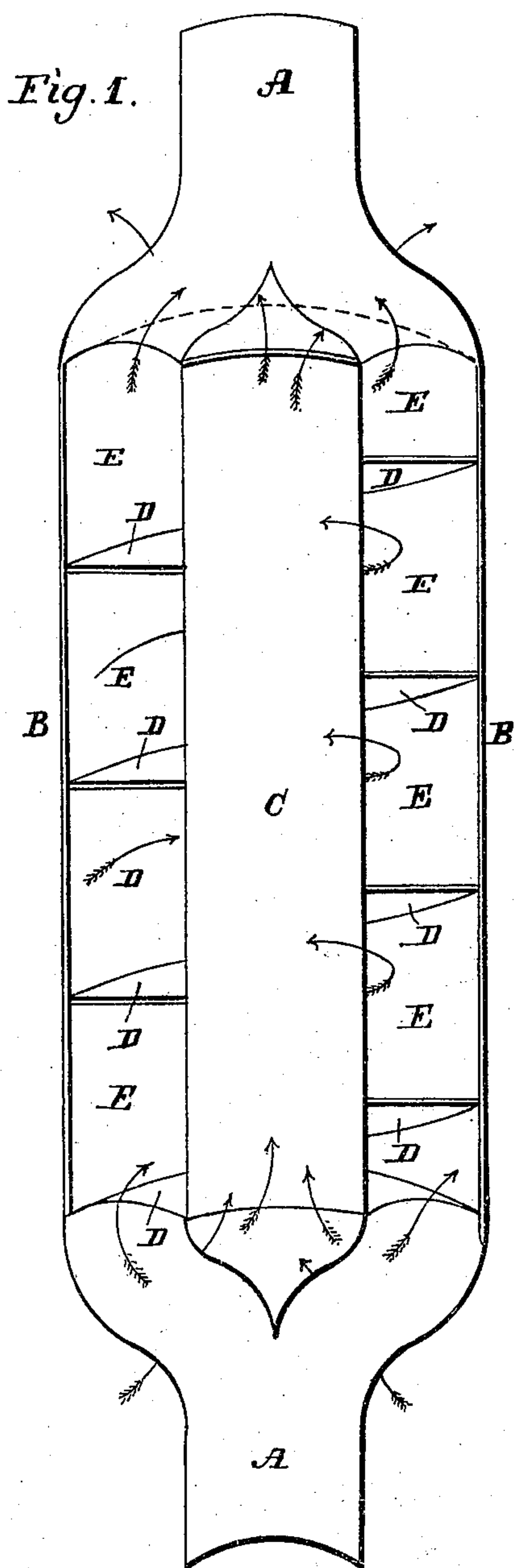


C. D. F. SMITH.

Heating Drum.

No. 92,114.

Patented June 29, 1869.



Witnesses:

*At B. Pierce*  
*Geo. W. Watson*

Inventor:

*Charles D. F. Smith*

# UNITED STATES PATENT OFFICE.

CHARLES D. F. SMITH, OF GENEVA, ILLINOIS.

## IMPROVEMENT IN STOVE-PIPE DRUMS.

Specification forming part of Letters Patent No. 92,114, dated June 29, 1869.

*To all whom it may concern:*

Be it known that I, CHARLES D. F. SMITH, of Geneva, in the county of Kane and State of Illinois, have invented a new and useful Improvement in Stove-Pipe Drums; and I do hereby declare and make known that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the letters and figures marked thereon, which form part of this specification.

My said invention relates to that class of stove-pipe drums in which a vertical drum or air-chamber is encircled by a surrounding cylinder, leaving an annular space between, in which space a spiral flue is constructed, through which the heat and smoke from the fire below pass circuitously and spirally upward around said central air-chamber in their ascent from the pipe below to the pipe above, for the purpose of producing a more complete and perfect radiation of the heat.

The great objection to drums of this character heretofore has been the impossibility of increasing or diminishing the draft through said drum, or regulating or diminishing the radiation of the heat therefrom, at such times and under such circumstances as by such increase or diminution of the draft or heat would be necessary or desirable without the use of other and different flues or passages for the heat and smoke besides the said annular space encircling said air drum or chamber. Another objection has been the difficulty in readily cleaning out the said annular space, or the spiral flue constructed therein.

To avoid the necessity of constructing additional flues for the direct passage of the smoke and heat, when desired, and also to readily regulate the radiation of heat from said stove-pipe drum, and to provide a method of readily and easily cleaning out said spiral flue, is the object of my invention. To effect this object I construct the aforesaid flue, or the spirally-arranged plate which forms said flue, in sections, each section being supported or hung upon a pivot, bearing, or hinge, so as to be movable at pleasure, whereby it may be turned or arranged so as to form part of the spiral inclined plane forming said spiral flue, or so turned up in a vertical position as to afford a

direct vertical draft through the aforesaid annular space.

To enable those skilled in the art to understand how to construct and make use of my said invention, I will proceed to describe the same with particularity, making reference in so doing to the aforesaid drawings, in which—

Figure 1 represents a central vertical section of my invention. Fig. 2 is an enlarged view, showing one of the vertical series of sections of the spiral inclined plane forming the circuitous flue, and also showing one mode of connecting said sections, whereby the entire series may be operated by one rod. Fig. 3 is a horizontal section through the air-drum and outer cylinder, showing a plan of the sectional inclined plane and one method of support for the same, and rod for operating section.

Similar letters of reference in the several figures denote the same parts of my said invention.

A represents the pipe above and below the drum; B, the outer cylinder of drum; C, the inner drum or air-chamber, which is open at top and bottom.

D represents the spiral inclined plane; arranged within the annular space between the cylinder B and the air-chamber C, as shown, to form the aforesaid spiral flue from the pipe below around the air-chamber to the pipe above, which flue is marked in drawings, E. The said inclined plane D is made up of series of quadrantal sections, as indicated in the drawings, each separate section being marked D in Fig. 2, and being provided at each end with projecting bearings, which rest upon suitable support attached to the outer or inner cylinder. The sections are arranged so as to present a certain number of vertical series, which vertical series may be connected by a rod or bar, as shown in Fig. 2, so that the same may be operated by one rod; or each separate section may have a rod attached, whereby it may be operated without the movement of others. By this arrangement, upon turning a rod or knob attached to one of each vertical series of sections the entire series may be turned so as to occupy their normal positions as parts of the inclined spiral forming the circuitous flue, or, when desired, may be turned up vertically, so as to give a direct vertical draft. The sections



of said inclined spiral plate may be quadrantal or semicircular, or be formed of greater or less angle than the right angle, provided there be regular vertical series to be operated, as described; or, if desired, the spiral inclined plane may partly be permanently fixed in place between the drums B C, having a single series of vertical movable sections, so that a vertical direct draft may be obtained at one side through the openings formed by turning up such movable sections.

Having described the nature, construction, and operation of my invention, I will now spec-

ify what I claim and desire to secure by Letters Patent:

Constructing the inclined plane forming the spiral flue around a central air drum or cylinder wholly or in part in sections susceptible of being adjusted to form a continuous circuitous spiral flue or to open vertically and permit a direct vertical draft, substantially as and for the purposes set forth and described.

CHARLES D. F. SMITH.

Witnesses:

H. B. PEIRCE,

GEO. W. WATSON.