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J. F. LYMAN,

WALL OR CHIMNEY CONSTRUCTION.

APPLICATION FILED MAY 13, 1901. RENEWED OCT. 6, 1902.

NO MODEL.

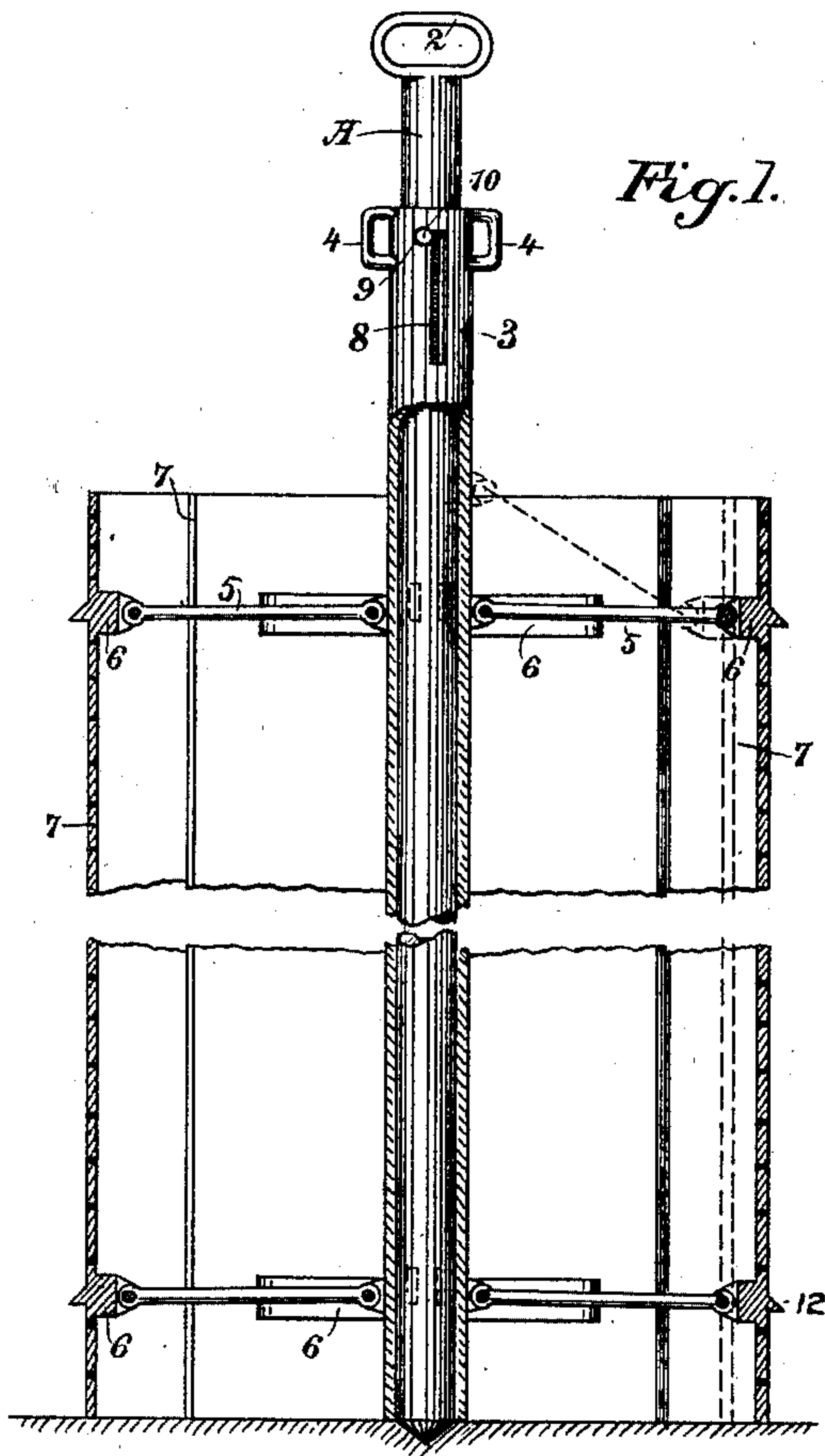


Fig. 1.

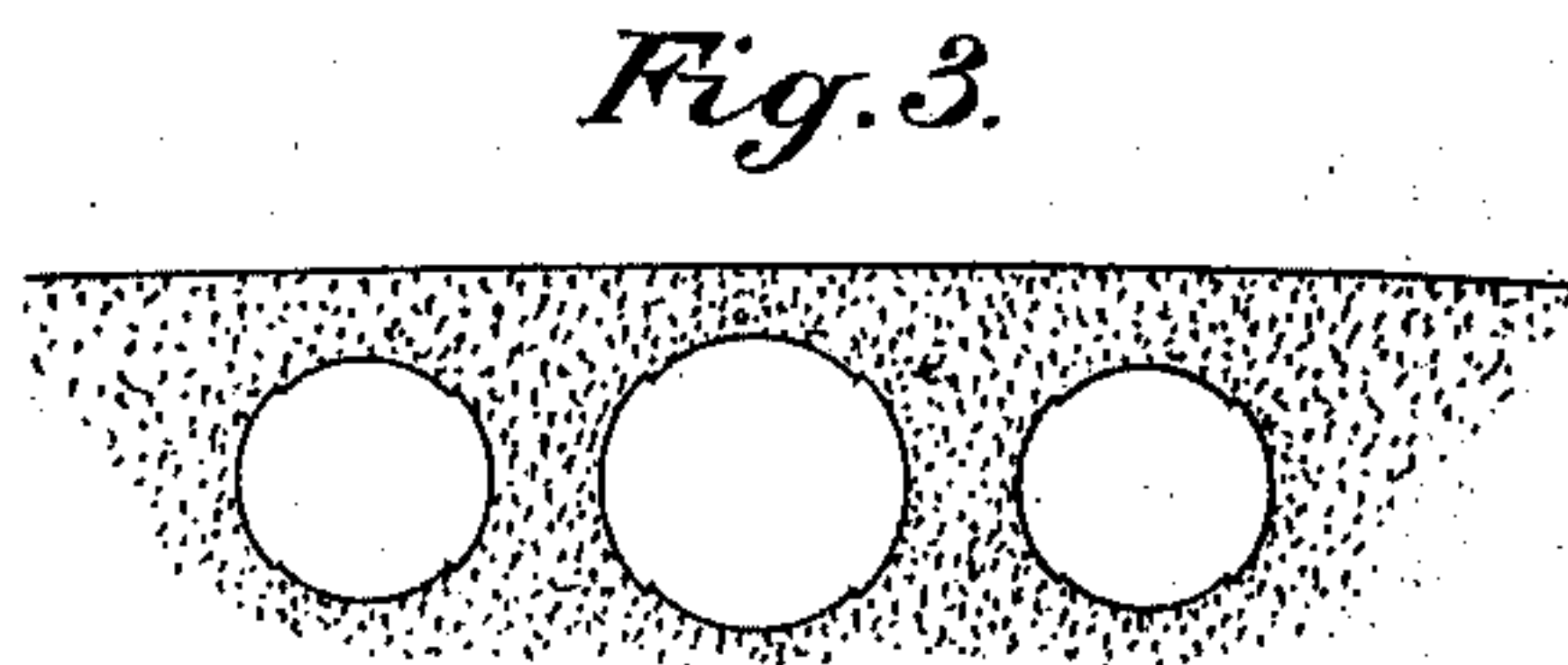


Fig. 3.

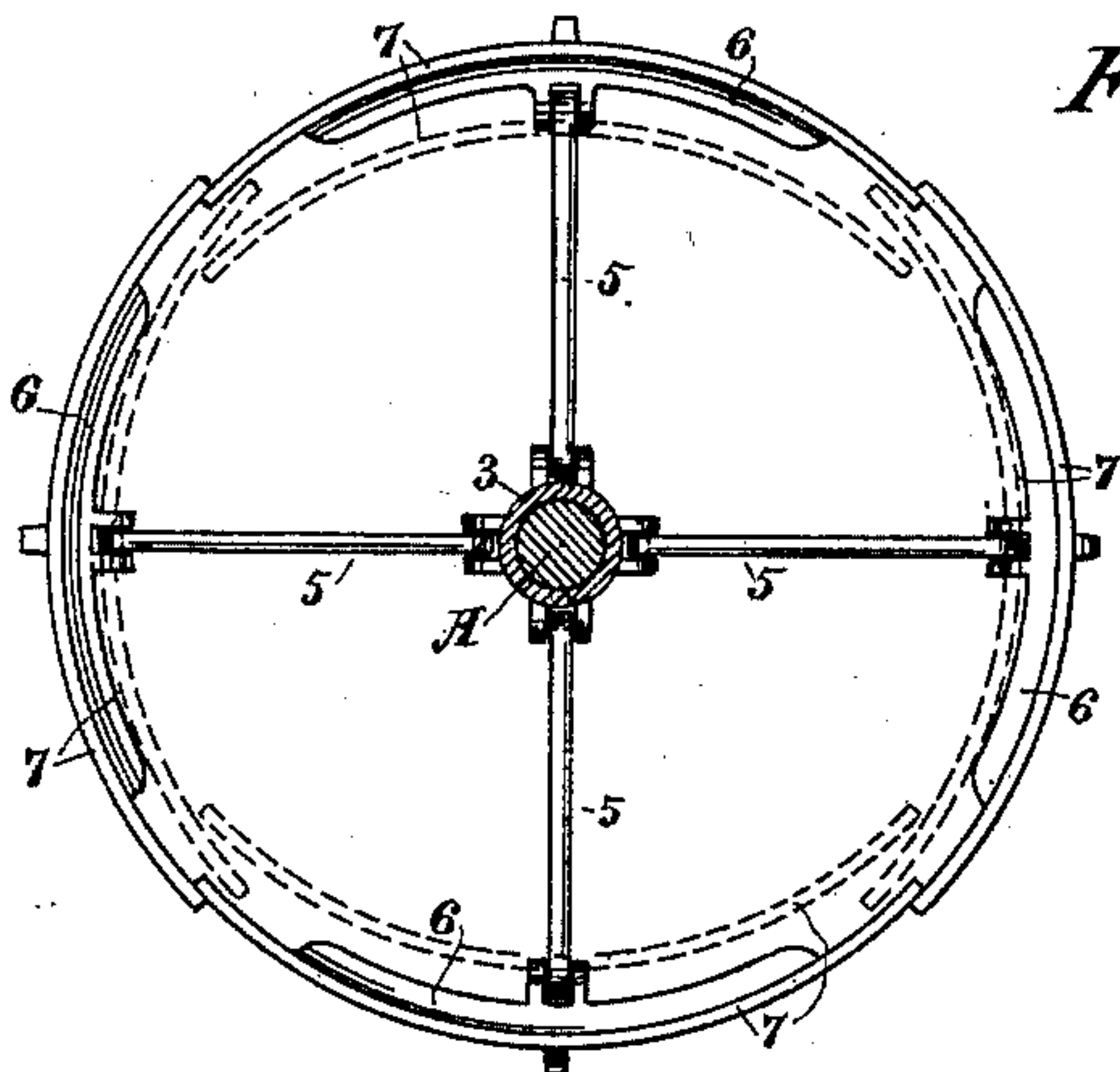


Fig. 2.

Witnesses,  
J. F. Lyman  
H. F. Aschbeck

Inventor,  
Jonathan F. Lyman  
Dwight Strong & Co.  
attys



# UNITED STATES PATENT OFFICE.

JONATHAN F. LYMAN, OF SOUTH SAN FRANCISCO, CALIFORNIA.

## WALL OR CHIMNEY CONSTRUCTION.

SPECIFICATION forming part of Letters Patent No. 719,679, dated February 3, 1903.

Application filed May 13, 1901. Renewed October 6, 1902. Serial No. 126,134. (No model.)

*To all whom it may concern:*

Be it known that I, JONATHAN F. LYMAN, a citizen of the United States, residing at South San Francisco, county of San Mateo, State of California, have invented an Improvement in Wall or Chimney Construction; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to improvements in the construction of walls, chimneys, and like structures.

It consists in a means for building such structures, as concrete, with one or more hollow tubular openings formed within the structure and extending from the bottom to the top.

It also comprises details of construction which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a vertical section through the device. Fig. 2 is a top view of the same. Fig. 3 shows conduits in a street made with my device.

In the construction of chimneys having one or more flues, or of walls for buildings in which such passages are to be made, either to be used as chimneys or for the convenient laying of gas and water pipes, electric and other conducting wires, or for heat-passages for furnaces, it is desirable to form such walls by building them up continuously of concrete and simultaneously forming the open passages from bottom to top. In order to build the walls and continuously extend these passages, I employ forms or molds between which the concrete is tamped, and within the space between the walls are other forms, which are so placed as to form the continuous openings within the walls.

As herein illustrated, I have shown a central shaft or standard A, which may have a suitable handle 2 at the upper end. Around this standard or shaft is fitted a slidable sleeve 3 with handles 4, by which it may be moved up or down. Hinged to the sides of this sleeve are rods 5, which radiate outwardly, and their outer ends are hinged or similarly connected with ribs or lugs 6, and these are attached to the cylindrical segments 7. These segments may be as many in number as desirable. I have here shown four, the edges of which overlap, so that they may be drawn in toward each

other and toward the center or expanded outwardly, this operation being produced by either pushing down the sleeve 3 or drawing it upward. The segment 7 may be of any suitable or desired length within the convenient capacity of the apparatus, and so as to form the wall or structure in successive intervals of four or five feet, more or less, in height. The segments have the connecting-rods 5 at the top and bottom or at any suitable intervals, and when the wall, chimney, or other structure is to be built these devices are set in position by pulling up on the handles 4. The segments 7 are pushed outwardly by the connecting-rods 5 until they form cylinders. The sleeves may be locked in this position in any suitable or desired manner. I have here shown a slot 8 made longitudinally in the sleeve and having a turn or extension 9 at right angles, forming what is known as a "bayonet-lock." A pin 10, projecting from the shaft A, enters the slot and allows the sleeve to be moved up or down with relation to it. When the sleeve is moved so as to expand the sections 7, as before described, it may be locked by turning, so as to engage with the pin, and thus hold the parts in position. The concrete is then tamped in between the outer walls and around the segmental cylinder until a space has been filled equal to the length of the cylinder. After the mass has sufficiently set the segments are retracted inwardly by disengaging the sleeve from its lock and moving it, so as to shorten the rods 5, and thus draw the segments inwardly and clear of the inner walls of the tubes which they have formed, when the device can be raised and again set, so as to form an extension of the tube, and so on until the wall has been built to any desired height. This enables me to maintain the tubular openings essentially straight and smooth, and the form is prevented from adhering to the surrounding material, which would otherwise prevent its being removed by the means for contracting it, as herein described. Spurs 12 are carried by the lower arms, and when the segments are expanded these spurs are projected through the sides and into the surrounding concrete, so as to lock the device in place.

It will be understood that the tubular con-



struction here described can be made horizontally as well as vertically.

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

1. An apparatus for the formation of tubular chimneys and like structures, consisting of segmental overlapping plates, a central shaft having a sleeve slidable thereon, locking means between the shaft and sleeve by which the latter is held in position, and connections between said sleeve and the plates whereby the latter may be expanded or contracted.

2. An apparatus for the construction of tubular chimneys and like structures consisting of segmental sheets having overlapping edges, a centrally-disposed shaft, a sleeve slidable thereon, rods hinged to the sleeve and to the interior of the segments, means whereby the

sleeve may be caused to slide upon the shaft to expand or contract the segments.

3. An apparatus for the construction of tubular chimneys or like structures consisting of segmental sheets having overlapping edges to form complete tubes, a central shaft, a sleeve slidable upon said shaft, and means whereby it may be operated, rods hinged to the sleeve and to the interior of the segments whereby the latter may be expanded or contracted by the movement of the sleeve, and means for locking the sleeve to hold the segmental plates in position.

In witness whereof I have hereunto set my hand.

JONATHAN F. LYMAN.

Witnesses:

S. H. NOURSE,  
JESSIE C. BRODIE.