

2 Sheets—Sheet 1.

No. 559,164.

Patented Apr. 28, 1896.

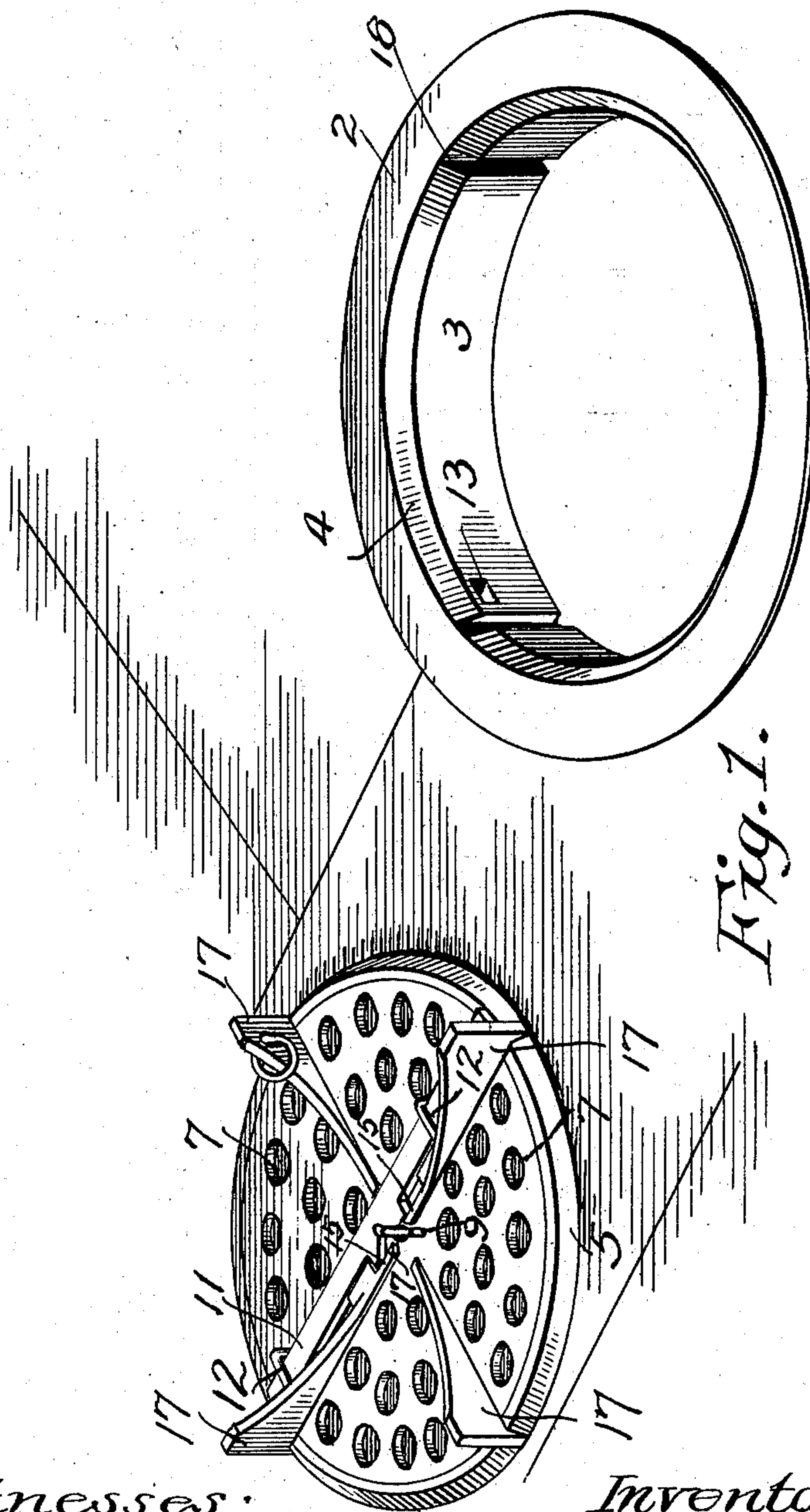


Fig. 1.

Witnesses;
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W. E. Hooley

Inventor;
Herbert M. Carpenter.

By *Paul Hawley*
his Attorneys.

(No Model.)

2 Sheets—Sheet 2.

H. M. CARPENTER.
SAFETY COAL HOLE COVER.

No. 559,164.

Patented Apr. 28, 1896.

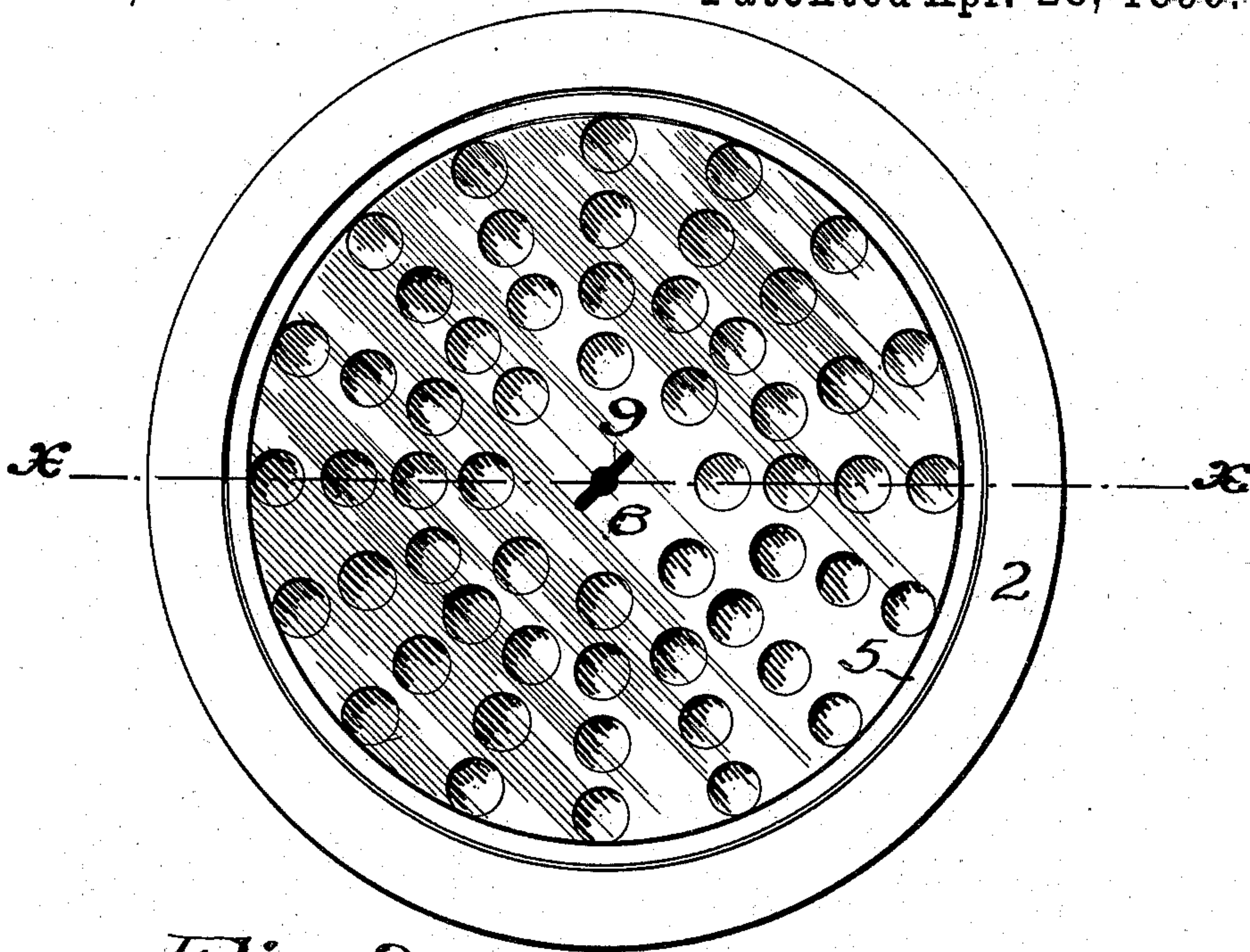


Fig. 2.

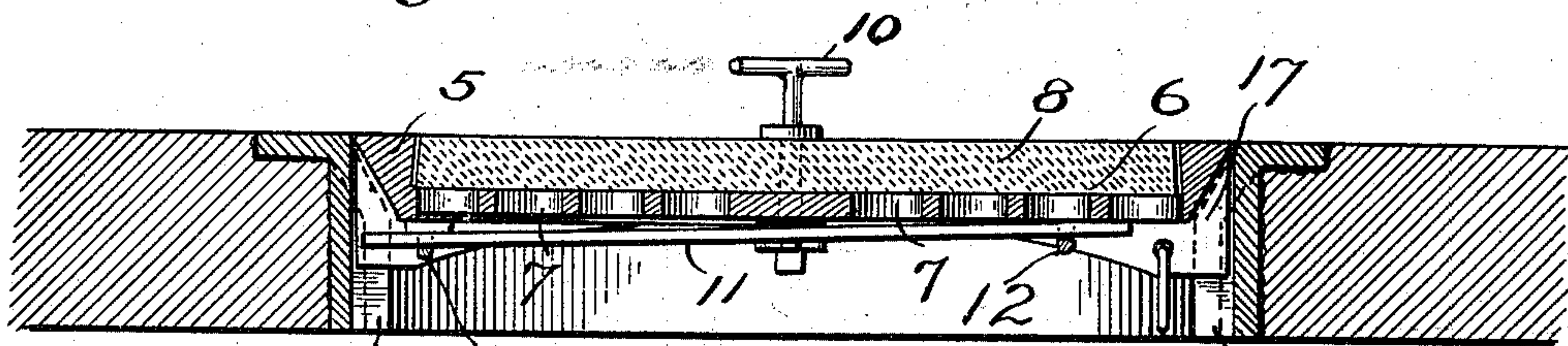


Fig. 3.

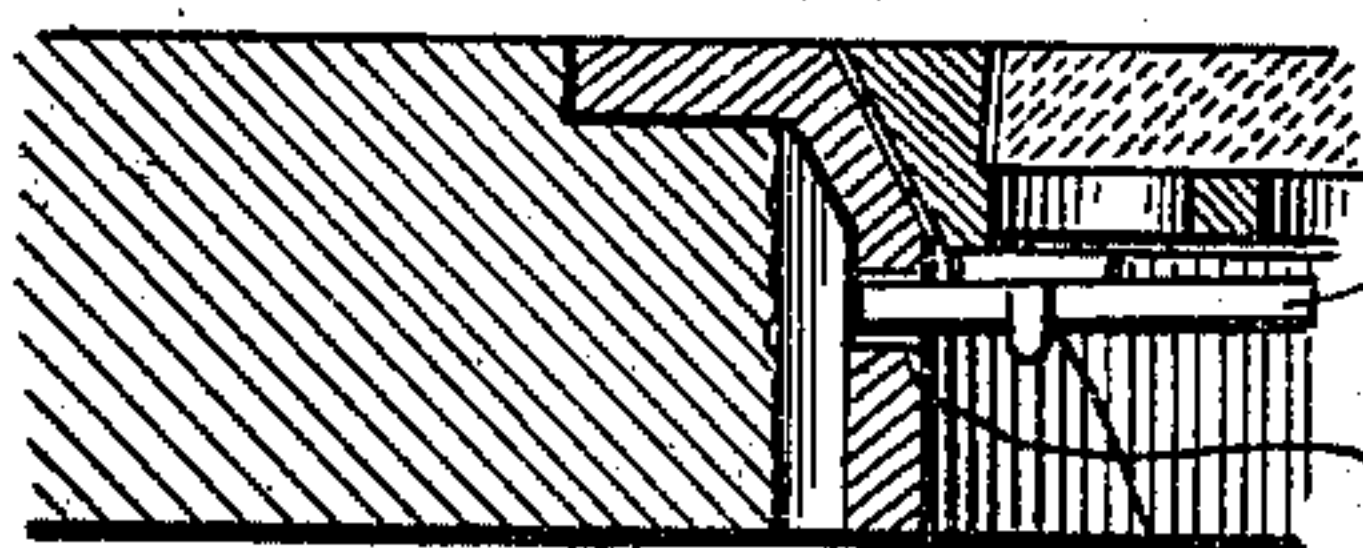


Fig. 5.

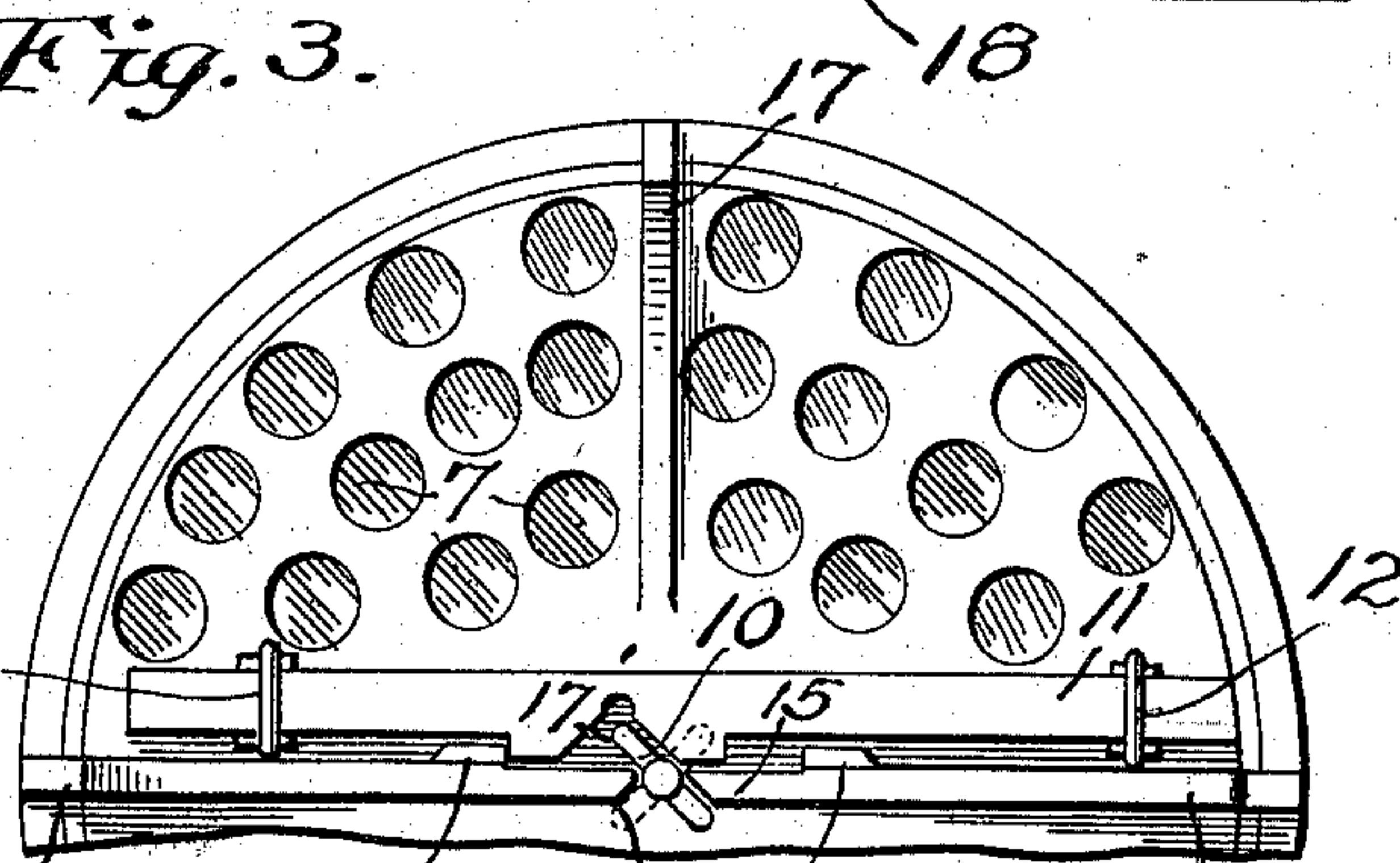


Fig. 4.

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By Paul Ottaway
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UNITED STATES PATENT OFFICE.

HERBERT M. CARPENTER, OF MINNEAPOLIS, MINNESOTA.

SAFETY COAL-HOLE COVER.

SPECIFICATION forming part of Letters Patent No. 559,164, dated April 28, 1896.

Application filed March 18, 1895. Serial No. 542,114. (No model.)

To all whom it may concern:

Be it known that I, HERBERT M. CARPENTER, of the city of Minneapolis, county of Hennepin, State of Minnesota, have invented certain new and useful Improvements in Safety Coal-Hole Covers, of which the following is a specification.

My invention relates to coal-hole covers or manhole-covers and to means for securing the same firmly and safely in place.

The object of my invention is to provide a coal-hole cover particularly adapted for use in sidewalks and other exposed places, and which will when in position be so firmly seated and secured as to prevent the loosening, tipping, or tilting of the cover from any cause.

A further object of my invention is to provide positive means for locking or fastening the cover in place, and, further, to provide a safety device of this class which will be of comparatively simple and cheap construction.

My invention consists in the combination, with a suitable ring or frame to be set into the walk or floor and provided with vertical slots or grooves, of a cover to fit the same, and having vertical lugs of considerable depth adapted to enter the grooves in the ring and to prevent the cover from turning in the ring and by their width adapted to prevent the cover from tilting within the ring.

Further, my invention consists in the combination, with the above, of a positive lock, whereby the cover may be secured, and, further, in convenient means for operating said lock, and, further, to various details of construction and combinations, all as hereinafter described, and particularly pointed out in the claims.

The invention will be more readily understood by reference to the accompanying drawings, forming part of this specification, and in which—

Figure 1 is a perspective view of a portion of a sidewalk or floor containing the coal-hole and the frame-ring therein, showing the cover resting upon the floor and upside down. Fig. 2 is a view of the top of the cover and retaining ring or frame. Fig. 3 is a vertical section on the line *x x* of Fig. 2 and shows the key in position. Fig. 4 is a partial plan view of the

cover from beneath. Fig. 5 is a detail vertical section showing the opening in the ring into which the locking-bolt is adapted to enter.

As shown in the drawings, the surface-ring 2 has a deep flange or depending ring 3 adapted to set into the hole in the walk or floor, and the inner upper edge of the ring is preferably chamfered or beveled to form the inclined annular surface 4, making a seat for the correspondingly-formed edge of the cover 5. This cover or plate may be of solid iron, but I prefer to provide the same with the depression or recess 6, and at the bottom of this the plate is provided with the holes 7, covered by a thick plate of glass 8, secured in the recess 6 and having its top about flush with the upper surface of the plate. A key opening or hole 9 is provided, preferably, in the middle of the plate of glass, and the middle portion of the cover, and through this a key 10 may be inserted to operate the locking bar or bolt 11. This bolt, as shown in Figs. 1, 3, and 4, is slidably secured on the under side of the plate within the loops or guides 12, provided thereon, and when the bolt is forced outwardly by turning the key the end of the same enters the opening 13 in the flange of the surface-ring. To prevent the bolt from being gradually displaced and withdrawn from the bolt-hole in the ring by jars or continued vibrations, the bar is preferably arranged in an inclined position, as shown in Fig. 3, so that its own weight prevents it from sliding back except when forced with the key. The key is limited in its throw by stops 15 on the under side of the plate, and the bolt itself is limited in its movement by other stops 16 thereon. One wing of the key when inserted extends into a V-notch 17 in the middle portion of the bolt and engages one or the other of the sides thereof, according as the bolt is to be thrust out or drawn in. The arrangement is such that when the bolt is drawn back the key will be in an opposite position with respect to the keyhole and cannot be removed until the bolt is returned and the cover locked in place. I do not rely entirely upon this bolt or two or more of the same, which may be used, but add to the fastening of the cover by providing depending or vertical lugs

17 upon the cover, said lugs being of considerable depth and adapted to enter the vertical slots 18, provided in the part 3 of the surface-ring. The engagement between the lugs 17 and the ring prevents the cover from turning therein, and, furthermore, the engaging-surfaces are of such depth that the cover cannot possibly tilt or turn within the ring. This I consider the most important part of my invention, as by this means many accidents will be prevented.

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

15 1. The combination, with the frame, having the depending part provided with the vertical slots, of the cover or lid to rest on said frame, and having deep depending lugs adapted to enter said slots, and a locking-bolt arranged
20 on the under part of said cover and operative from above, substantially as described.

25 2. The combination, with the frame, having the depending part provided with the vertical slots, of the cover or lid to rest on said frame, and having deep depending lugs adapted to enter said slots, a horizontally-arranged bolt on the under side of said cover, limiting-stops therefor on the cover, and said cover having a keyhole through which a key may be in-

serted to operate said bolt, substantially as described. 30

3. The combination, with the frame, having the depending part provided with the vertical slots, of the cover or lid to rest on said frame, and having deep depending lugs adapted to enter said slots, a horizontally-arranged bolt on the underside of said cover, limiting-stops therefor on the cover, said cover having a keyhole through which a key may be inserted to operate said bolt, and said bolt being slightly inclined to overcome the force of vibrations, substantially as described. 35 40

4. The combination, with the stationary ring or frame adapted to be placed in a sidewalk-hole, and provided with a depending flange having vertical grooves or rests, of a cover or lid having depending lugs adapted to enter said grooves thereby forming a broad bearing for said cover to prevent the tilting of the same, and said cover being entirely supported by said stationary ring or frame, substantially as described. 45 50

In testimony whereof I have hereunto set my hand this 2d day of March, A. D. 1895.

HERBERT M. CARPENTER.

In presence of—

C. G. HAWLEY,
M. E. GOOLEY.