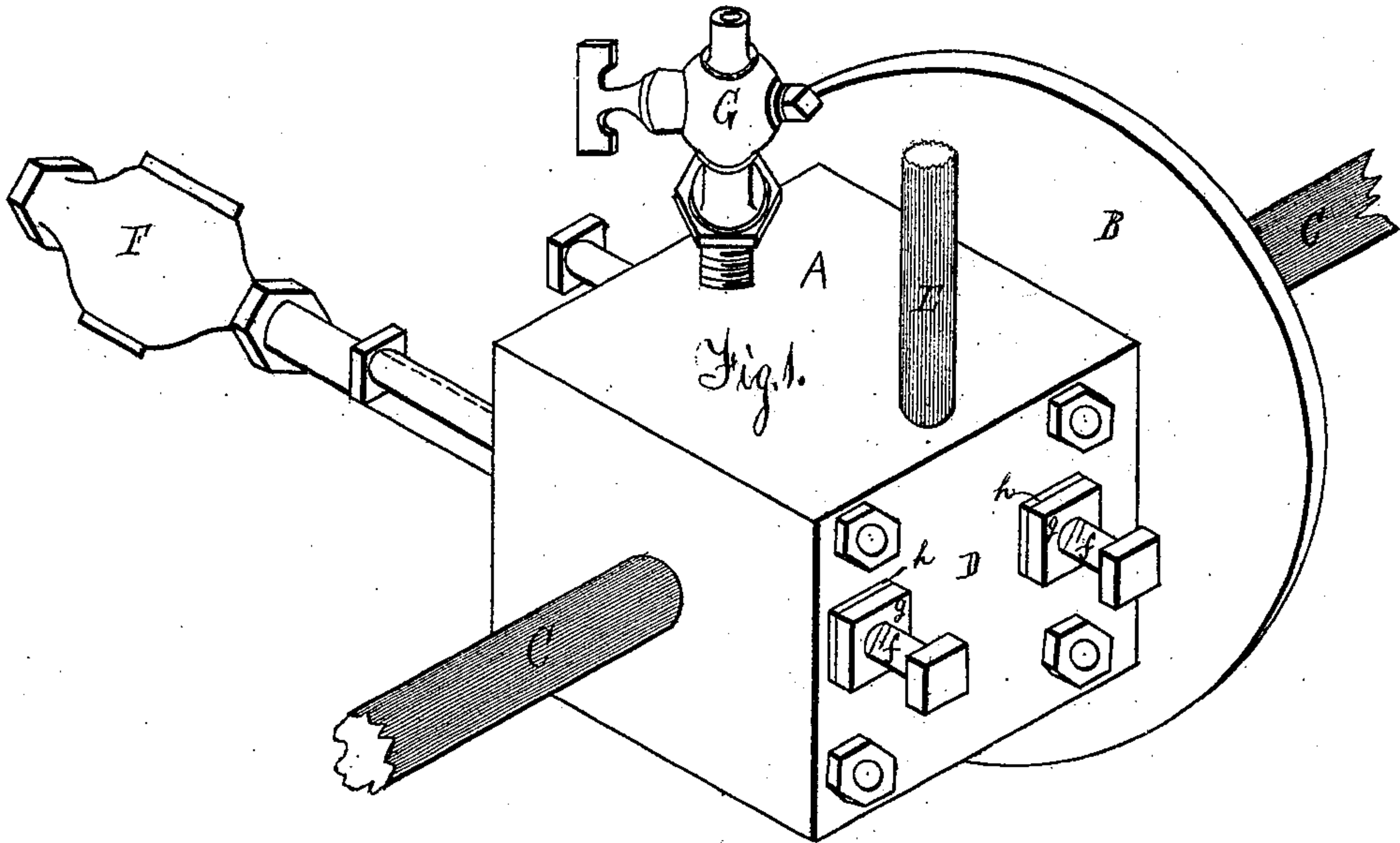


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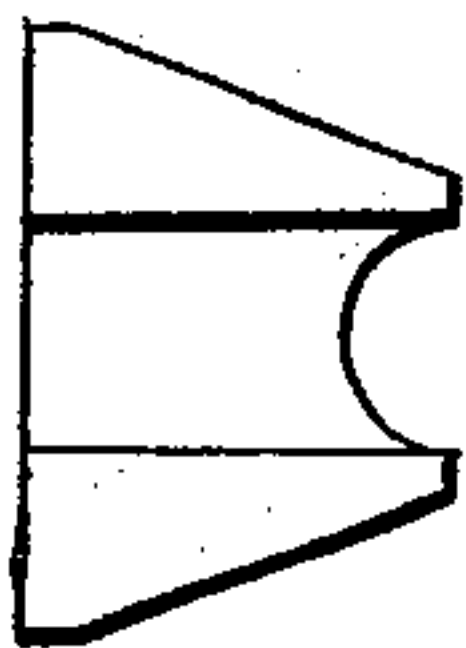
Stuffing Box.

No. 98053.

Patented Dec. 21. 1869.

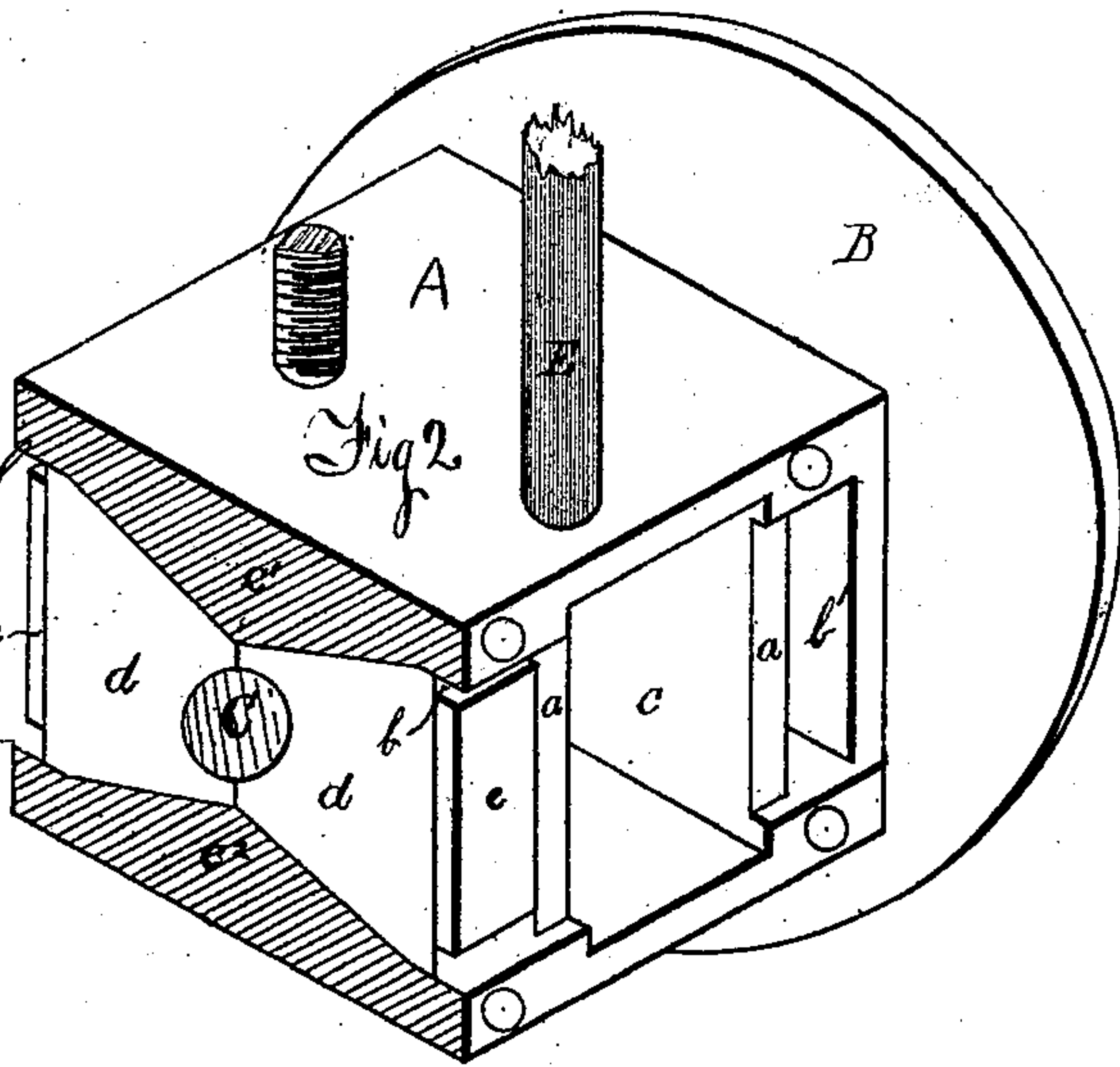


Supplemental View



Inventor
Charles Green
per Francis D. Packard
Attorney

Witnesses
W. R. Kneaf.
John Yille



United States Patent Office.

CHARLES GREEN, OF PHILADELPHIA, PENNSYLVANIA.

Letters Patent No. 98,053, dated December 21, 1869.

STUFFING-BOX

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, CHARLES GREEN, of the city and county of Philadelphia, and State of Pennsylvania, have invented a new and useful Stuffing-Box for steam-cylinders, steam-chests, &c.; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying sheet of drawings, and to the letters of reference marked thereon.

My invention consists in the use and application of cork, and water for expanding the same, for stuffing-boxes, and the mechanism hereinafter shown and described for carrying the same into effect.

On reference to the accompanying sheet of drawings, making part of this specification—

Figure 1 is a perspective view, and

Figure 2 is also a perspective view, one cap being removed to show the internal arrangement of the stuffing-box, and one end being sectioned to exhibit the wedge-shaped or converging formation of the packing-chambers.

Similar letters refer to similar parts in the several views.

A is a stuffing-box, which is bolted to the cylinder-cover of a steam-engine, or to the steam-chest of the same, as the case may be, by means of the flange B.

It is divided, by the diaphragms *a a*, into three compartments, *b b' c*, the centre one, *c*, being a water-chamber, and the slides *b b'* being packing-chambers which communicate with the water-chamber, by being shorter than it, leaving a space or water-way at both ends of the stuffing-box.

The packing-chambers are divided centrally by the piston or valve-rod C, as it were, into four packing-chambers, two on each side of the water-chamber *c*, each of which inclines or converges at top and bottom toward the piston or valve-rods, as shown at *c' c'*, fig. 2.

The corks or packings *d* are recessed or concaved at their inner ends, to conform with the surface of the piston or valve-rod, and their upper and lower edges are conformed to the converging of the chamber, so that it will be seen that the corks must be inserted into the respective chambers oppositely, or on both sides of the piston or valve-rod, and that it requires two corks in the same chamber to make a complete packing.

The convergence of the packing-chambers is for converging the entire pressure of the corks immediately on the piston or valve-rod, and to not permit them to spread and split, which they would if not confined. After the corks are in place, butting-pieces *e*, of metal or other suitable material, of such size as to not interfere with the contact of the water and the corks, are placed against their ends, and the caps or covers D are bolted on; the packing-screws *f* are then screwed against the plates or butting-pieces *e*, whereby the cork packings are forced against the piston.

Water is admitted to the water-chamber *c*, through the pipe E, and on contacting with the cork

packings, by means of the end water-ways, swells them tightly around the piston or valve-rod, and also completely fills the packing-chambers, thereby enabling the said piston or valve-rod to pass in and out without leaking steam or air.

After the water becomes sufficiently heated, by reason of its contact with the piston-rod and stuffing-box, which acquire their temperature from the cylinder, its pressure is such as to overcome the pressure of the atmosphere, and is discharged through the check-valve F, by a pipe, and conducted to a place where it will cause no inconvenience, and an additional supply is admitted through the supply-pipe E, whereby the temperature of the stuffing-box is kept down, and the piston or valve-rod in a measure cooled.

The jam-nuts *g*, of the packing-screws *f*, are provided with gum packings *h*, which take against the caps of the stuffing-box, and prevent the escape of water through threads of the caps and packing-screws *f*.

The cock G, on the top of the stuffing-box, escapes all air from the chamber *c*, while being filled with water.

The corks can be cut in three sections, as shown by the supplemental view of the accompanying sheet of drawings, the middle section being of a width corresponding to the diameter of the piston or valve-rod, for the purpose of taking up its wear, while the middle or centre section is advanced to the piston or valve-rod, the side corks can be correspondingly advanced by compression.

In lieu of the flange for securing the stuffing-box to its cylinder, a screw-nozzle can be used.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The use and application of cork and water in a stuffing-box, substantially for the purpose shown and described.

2. A stuffing-box composed of packing, and water-chambers, substantially as shown and described.

3. The packing-chambers *b b'*, with converging tops and bottoms, *c' c'*, substantially as shown and described.

4. The chambers *b b'*, in combination with the cork packings *d*, butting-plates *e*, packing screws *f*, covers or caps D, jam-nuts *g*, and the gum packings *h*, substantially as and for the purpose shown and described.

5. The packing-chambers *b b'*, water-chamber *c*, packings *d*, supply-pipe E, check-valve F, and the cock G, when combined and arranged as and for the purpose shown and described.

In testimony whereof, I hereunto sign my name to this specification, in presence of two subscribing witnesses.

CHARLES GREEN.

Witnesses:

FRANCIS D. PASTORIUS,
JOHN YELLS.