

**No. 653,261.**

**Patented July 10, 1900.**

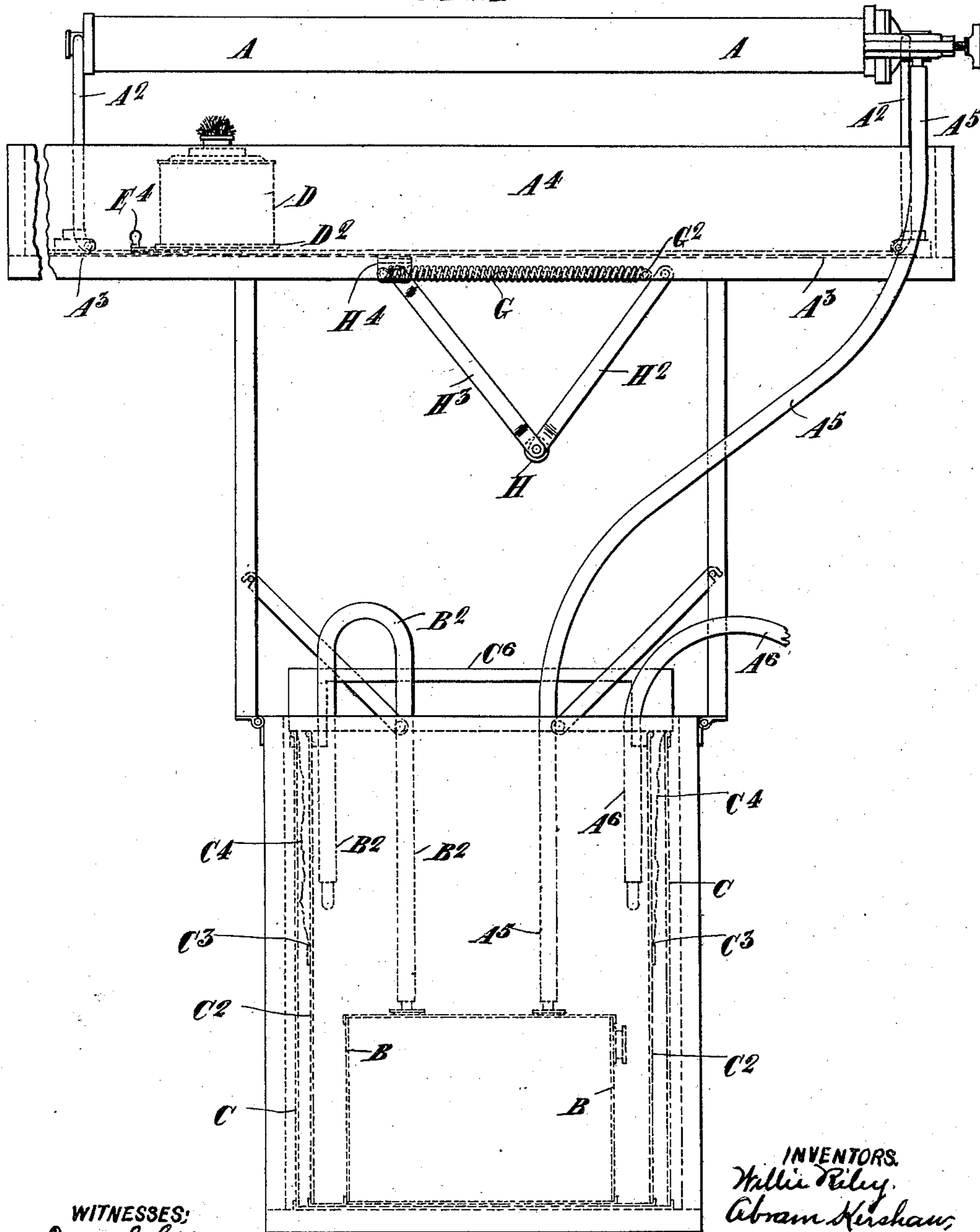
**W. RILEY & A. KERSHAW.**  
**APPARATUS FOR MAKING AND STORING OXYGEN.**

(Application filed Mar. 31, 1899.)

(No Model.)

**3 Sheets—Sheet 1.**

*FIG. 1*



WITNESSES:  
Ella L. Giles  
O. J. [unclear]

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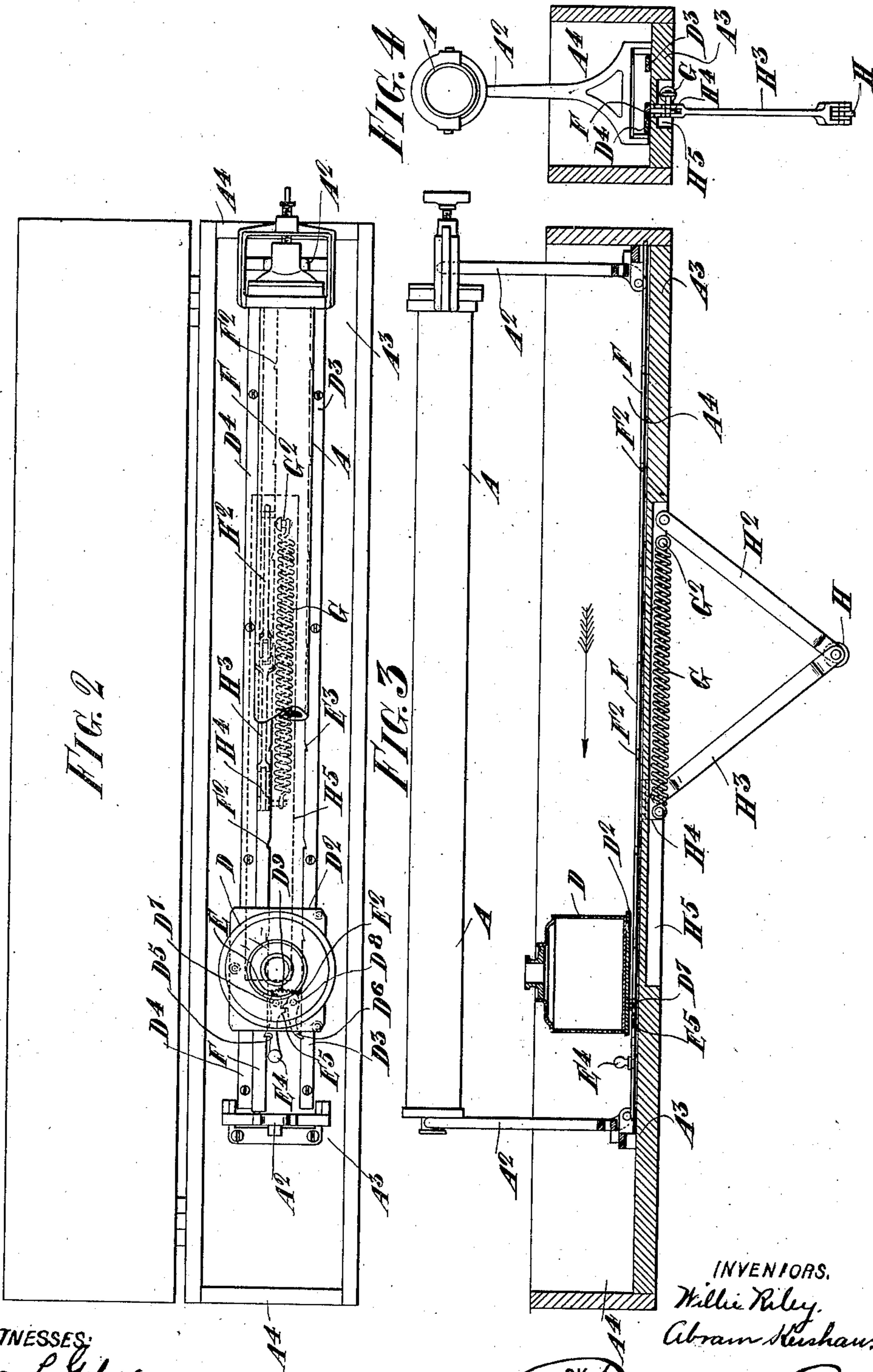
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APPARATUS FOR MAKING AND STORING OXYGEN.

(Application filed Mar. 31, 1899.)

(No Model.)

3 Sheets—Sheet 2.



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3 Sheets—Sheet 3.

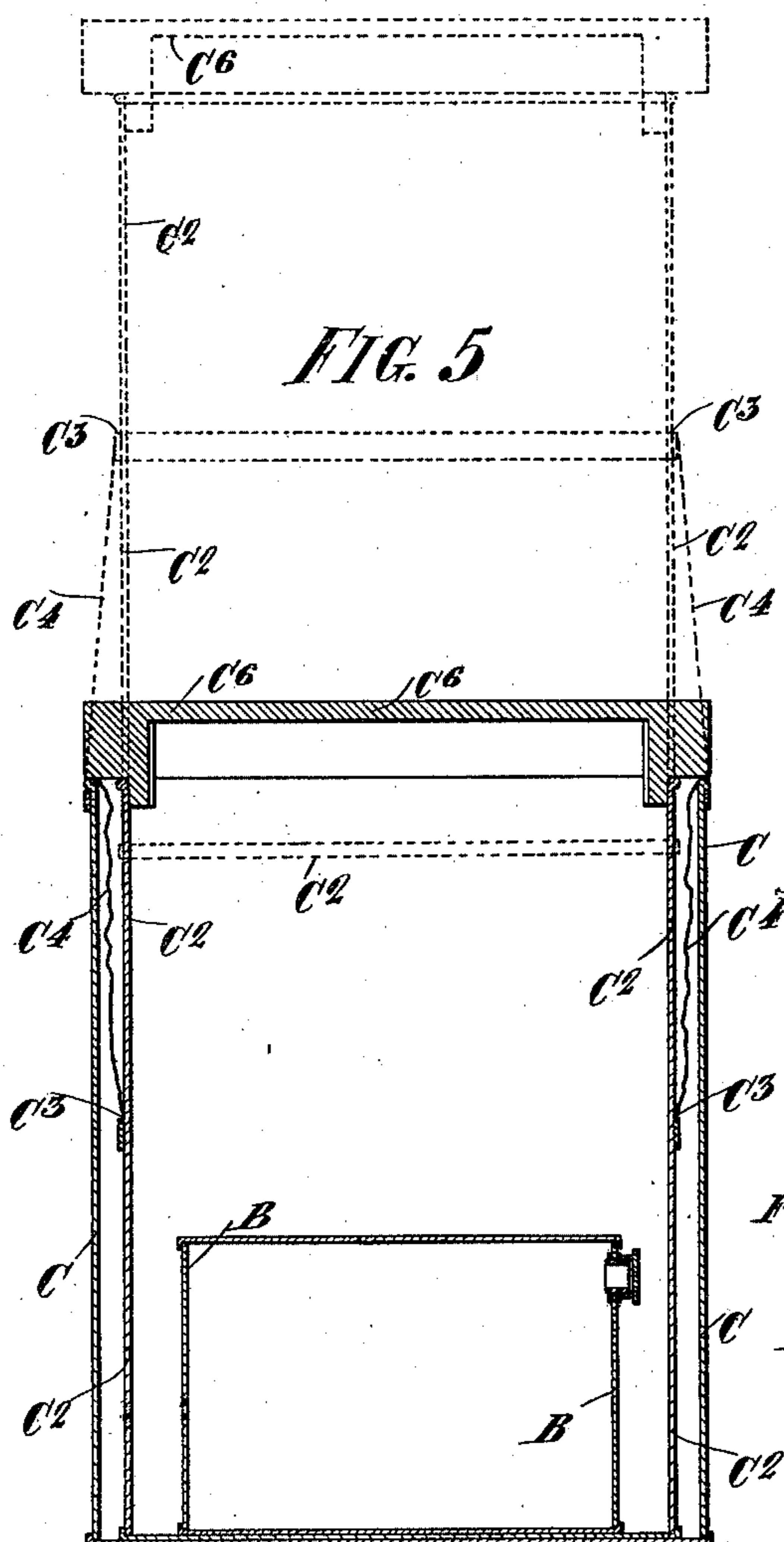
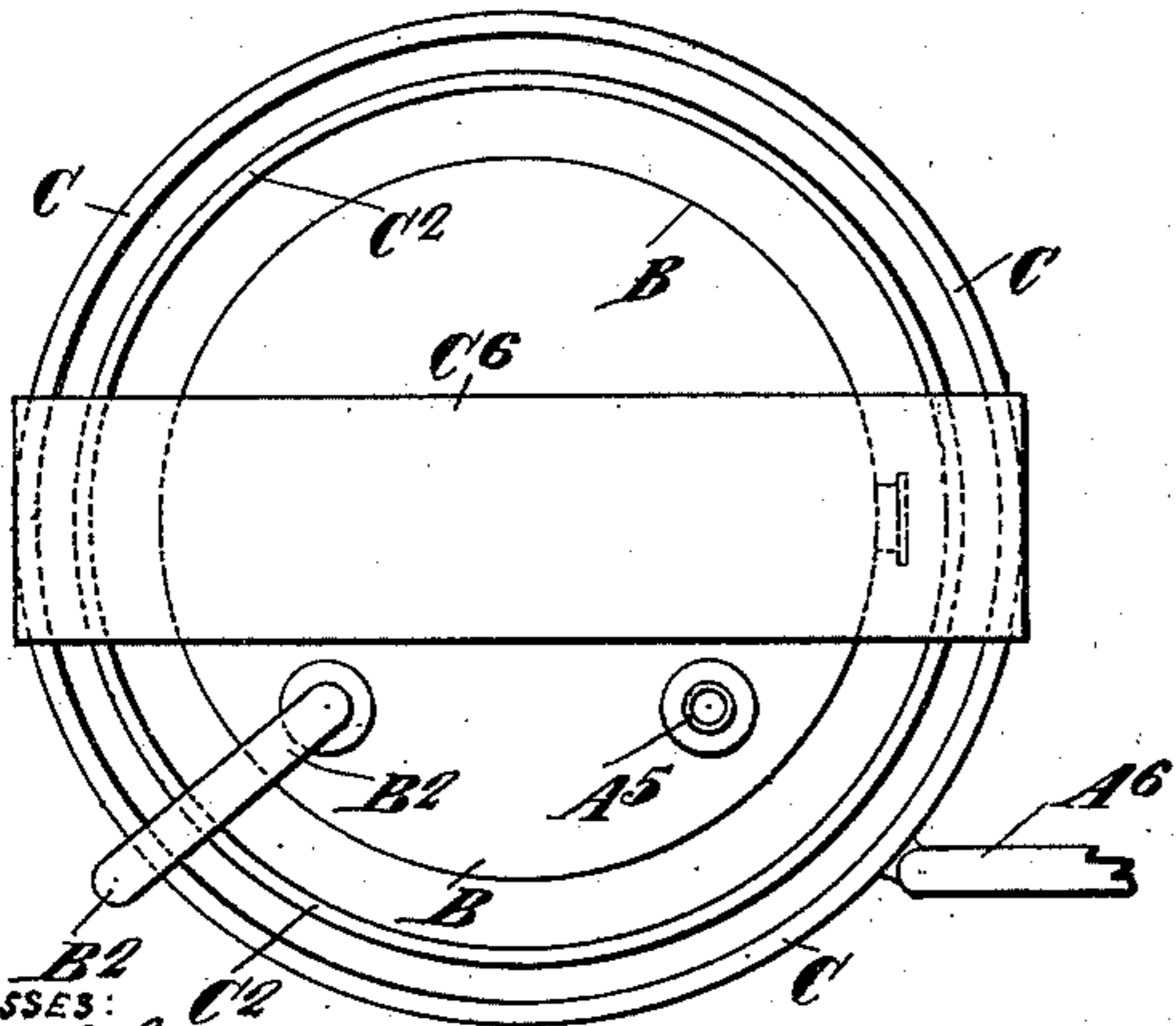
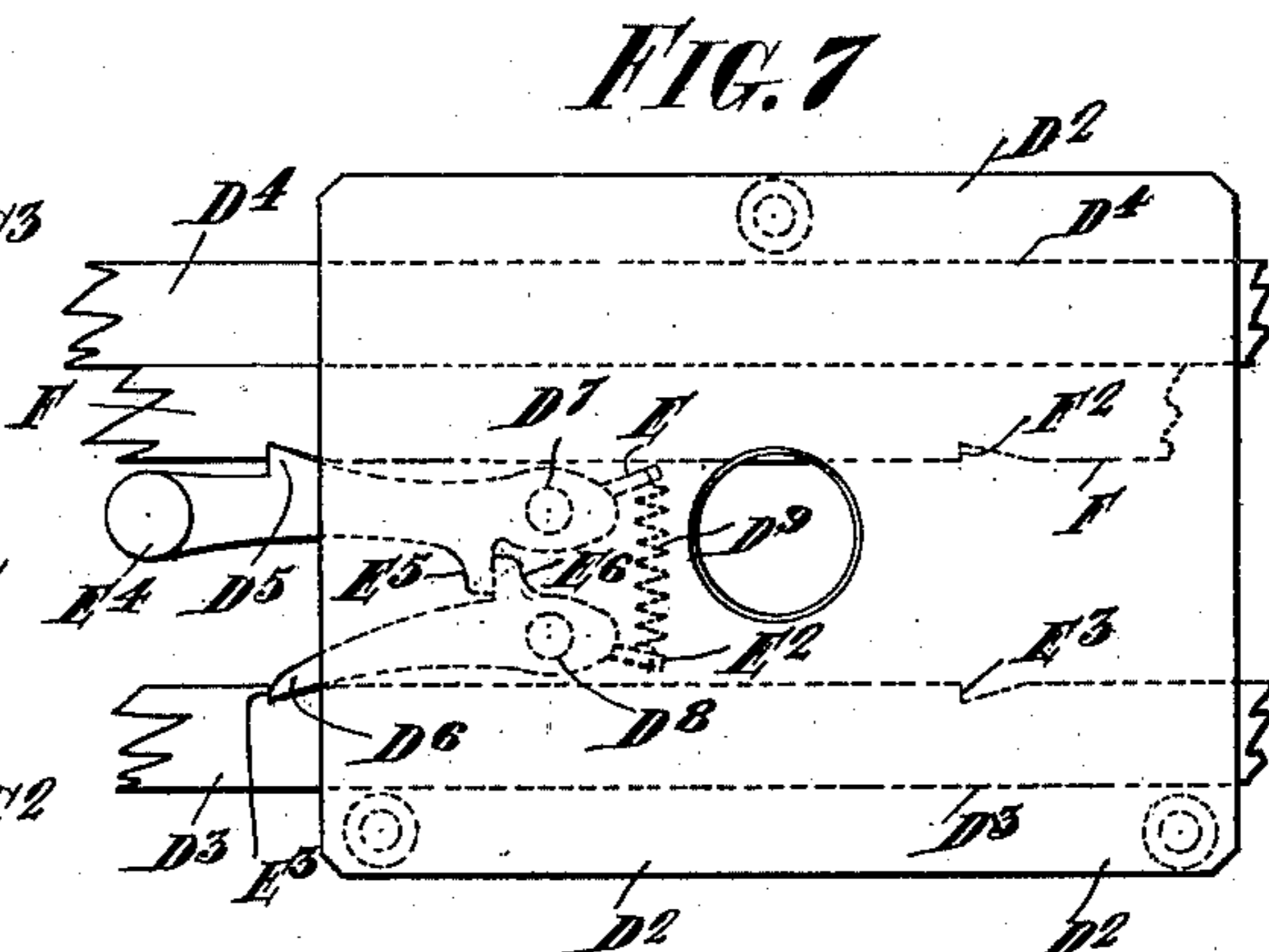


FIG. 6



WITNESSES:  
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# UNITED STATES PATENT OFFICE.

WILLIE RILEY, OF BRADFORD, AND ABRAM KERSHAW, OF LEEDS,  
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## APPARATUS FOR MAKING AND STORING OXYGEN.

SPECIFICATION forming part of Letters Patent No. 653,261, dated July 10, 1900.

Application filed March 31, 1899. Serial No. 711,251. (No model.)

*To all whom it may concern:*

Be it known that we, WILLIE RILEY, residing at Godwin street, Bradford, and ABRAM KERSHAW, residing at Dorrington street, Leeds, England, subjects of the Queen of England, have invented certain new and useful Improvements in Portable Oxygen Generators and Holders, of which the following is a specification.

10 This invention relates to improvements in portable oxygen generators and holders; and its object is to provide a generator that is automatically regulated by the holder.

15 In the accompanying drawings, Figure 1 represents an elevation of our improved apparatus. Fig. 2 is a plan view of the generator and the mechanism for moving the lamp. Fig. 3 is a longitudinal section, and Fig. 4 is a cross-section, of the same. Fig. 5 is a separate cross-section of the generator, and Fig. 20 6 is a plan view of the same. Fig. 7 is an enlarged detail view of the pawl mechanism shown in Fig. 2.

The generator A is charged with a number 25 of cartridges or cylindrical blocks of "oxygen mixture," which when heated evolve oxygen, and these blocks are held a suitable distance apart in any convenient manner. The generator is supported upon the standards A<sup>2</sup>, 30 hinged to the bottom A<sup>3</sup> of the box or case A<sup>4</sup>, so that they can be turned down against the bottom when not in use. The generator is connected to the gas-washing vessel B by the flexible tube A<sup>5</sup>.

35 The gas-holder consists of two cylinders C and C<sup>2</sup>, the latter of which when the holder is empty lies within the other. Both cylinders are completely closed at the bottom, and the sides of C<sup>2</sup> are connected at C<sup>3</sup> to the top 40 of C by the annular flexible india-rubber connection C<sup>4</sup>. This connection allows the cylinder C<sup>2</sup> to rise and fall in the cylinder C within the limits allowed by such connection. The broken lines, Fig. 5, represent the holder 45 full of gas. The washing vessel B is preferably placed in the cylinder C<sup>2</sup> and is connected to the holder by the flexible tube B<sup>2</sup>. The flexible service-pipe A<sup>6</sup> connects the holder with the burner.

50 The lamp D is mounted upon the carriage D<sup>2</sup>, sliding upon the guides D<sup>3</sup> and D<sup>4</sup>, and the pawls D<sup>5</sup> and D<sup>6</sup> are pivoted to the under side of the carriage upon the pins D<sup>7</sup> and D<sup>8</sup>. A spiral spring D<sup>9</sup>, stretched between projections

E and E<sup>2</sup> upon the pawls, keeps the pawl D<sup>5</sup> 55 pressed against the slide F, made with notches F<sup>2</sup>, and the pawl D<sup>6</sup> against the inner edge of the guide D<sup>3</sup>, made with notches E<sup>3</sup>. A knob E<sup>4</sup> is fixed to the pawl D<sup>5</sup>, by which it can be moved to disengage it from the notches F<sup>2</sup>, 60 and this pawl is provided with a heelpiece E<sup>5</sup>, which when moved in this way engages the projection E<sup>6</sup> on the pawl D<sup>6</sup> and also disengages the latter from the notches E<sup>3</sup>, leaving the carriage free to be moved from one 65 end to the other of the guides D<sup>3</sup> and D<sup>4</sup>. Fig. 7 is a plan view, on a larger scale, of the carriage and certain other parts.

When the cylinder C<sup>3</sup> rises, the bridge-piece C<sup>6</sup> across the top engages the antifriction- 70 roller H, pivoted at the junction of the toggle-levers H<sup>2</sup> and H<sup>3</sup>. The other end of the lever H<sup>2</sup> is pivoted to the under side of the bottom A<sup>3</sup> of the box A<sup>4</sup>, and the lever H<sup>3</sup> is pivoted to a projection H<sup>4</sup> on the under side of slide F, 75 projecting through a slot H<sup>5</sup> in the bottom A<sup>3</sup>. The cylinder C<sup>2</sup> continuing its upward movement lifts the toggle-levers H<sup>2</sup> and H<sup>3</sup>, this moving the slide F in the direction of the arrow, Fig. 3. As the cylinder C descends the 80 spring G, stretched between the pin G<sup>2</sup> in the bottom A<sup>3</sup> of the box and the projection H<sup>4</sup> on the slide F, pulls the slide in the opposite direction to that in which the said arrow is pointing, and one of the notches E engages 85 the pawl D<sup>5</sup> and draws the carriage along with it a sufficient distance to carry the lamp beneath the next cartridge in the generator. This is repeated each time the cylinder C<sup>2</sup> rises. 90

We claim—

1. The combination with the toggle-levers H<sup>2</sup> and H<sup>3</sup>, of the slide F, the lamp-carriage D<sup>2</sup>, means for engaging the slide and lamp-carriage substantially as herein shown and 95 described.

2. The combination with the toggle-levers H<sup>2</sup> and H<sup>3</sup>, of the slide F and the lamp-carriage D<sup>2</sup> fitted with the pawls D<sup>5</sup> and D<sup>6</sup> substantially as herein shown and described. 100

In witness whereof we have hereunto set our hands in presence of two witnesses.

WILLIE RILEY.  
ABRAM KERSHAW.

Witnesses:

DAVID NOWELL,  
ERNEST EGBERT COCKCROFT.