

No. 669,492.

Patented Mar. 5, 1901.

L. W. GILL.
FIRE APPARATUS.

(Application filed Nov. 22, 1899.)

(No Model.)

5 Sheets—Sheet 1.

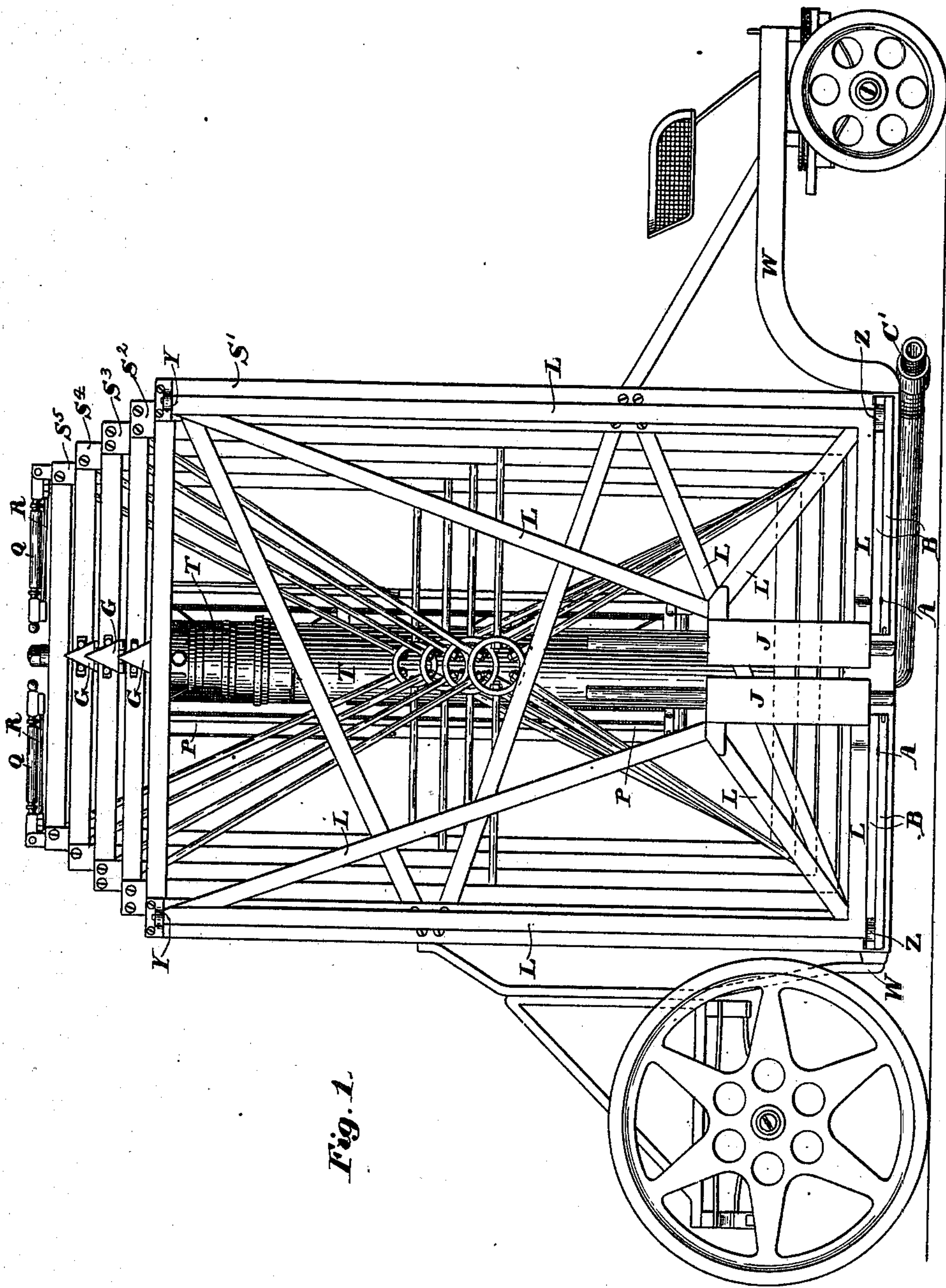


Fig. 1.

Witnesses:

Walter E. Lombard.
Charles H. Warren

Inventor:

Lester W. Gill,
by Charles F. A. Smith.
Atty.

No. 669,492.

Patented Mar. 5, 1901.

L. W. GILL.
FIRE APPARATUS.

(Application filed Nov. 22, 1899.)

(No Model.)

5 Sheets—Sheet 2.

Fig. 8.

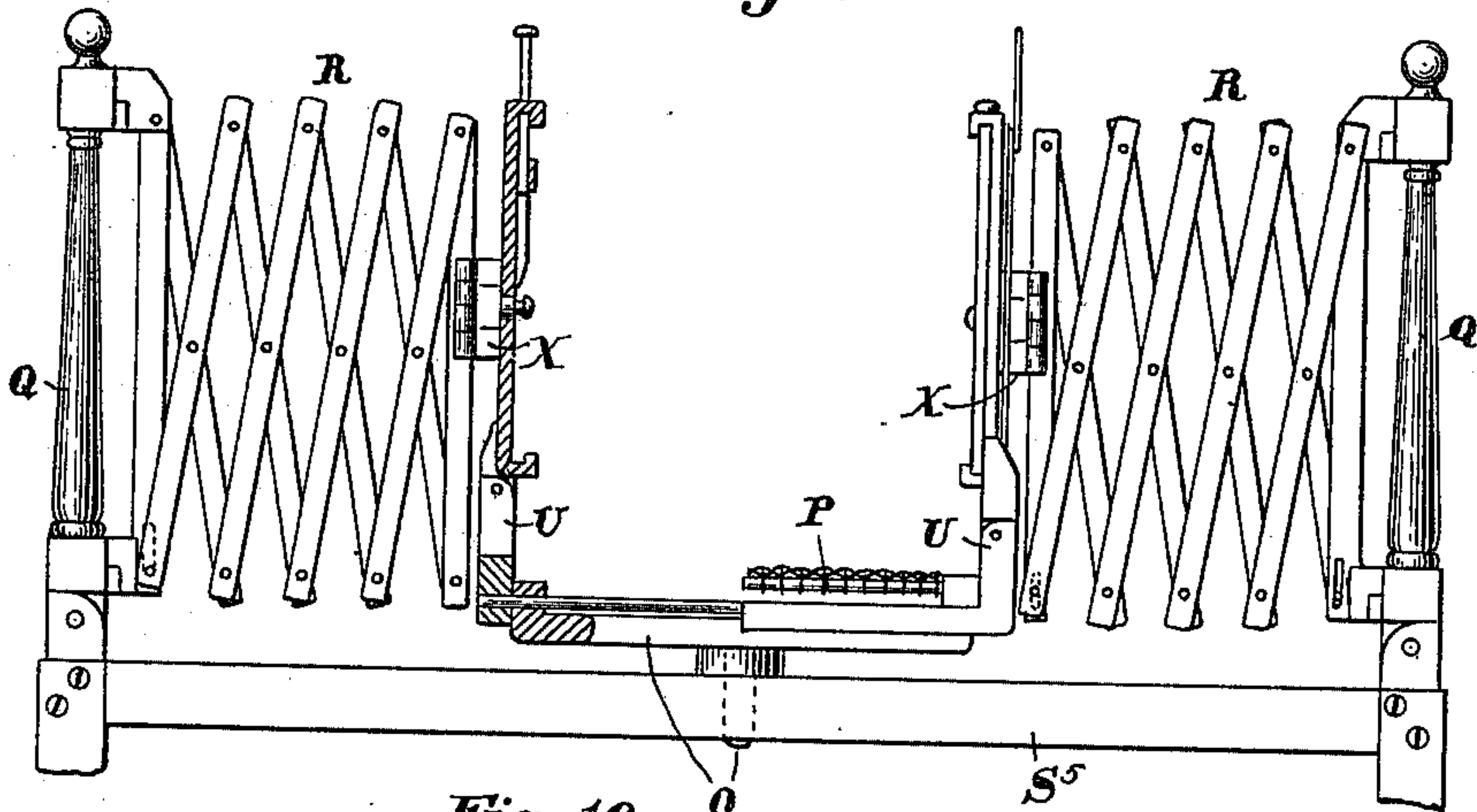


Fig. 9.

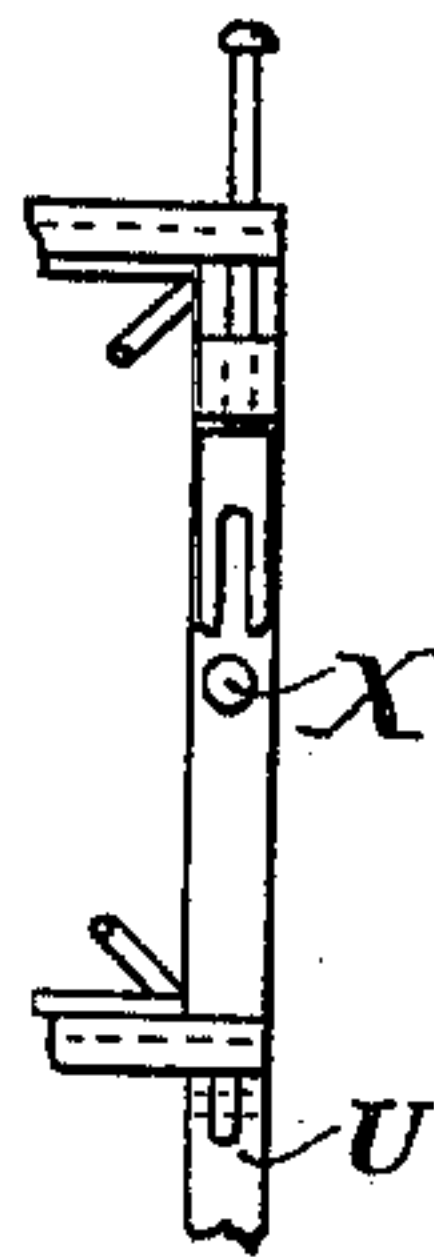


Fig. 10.

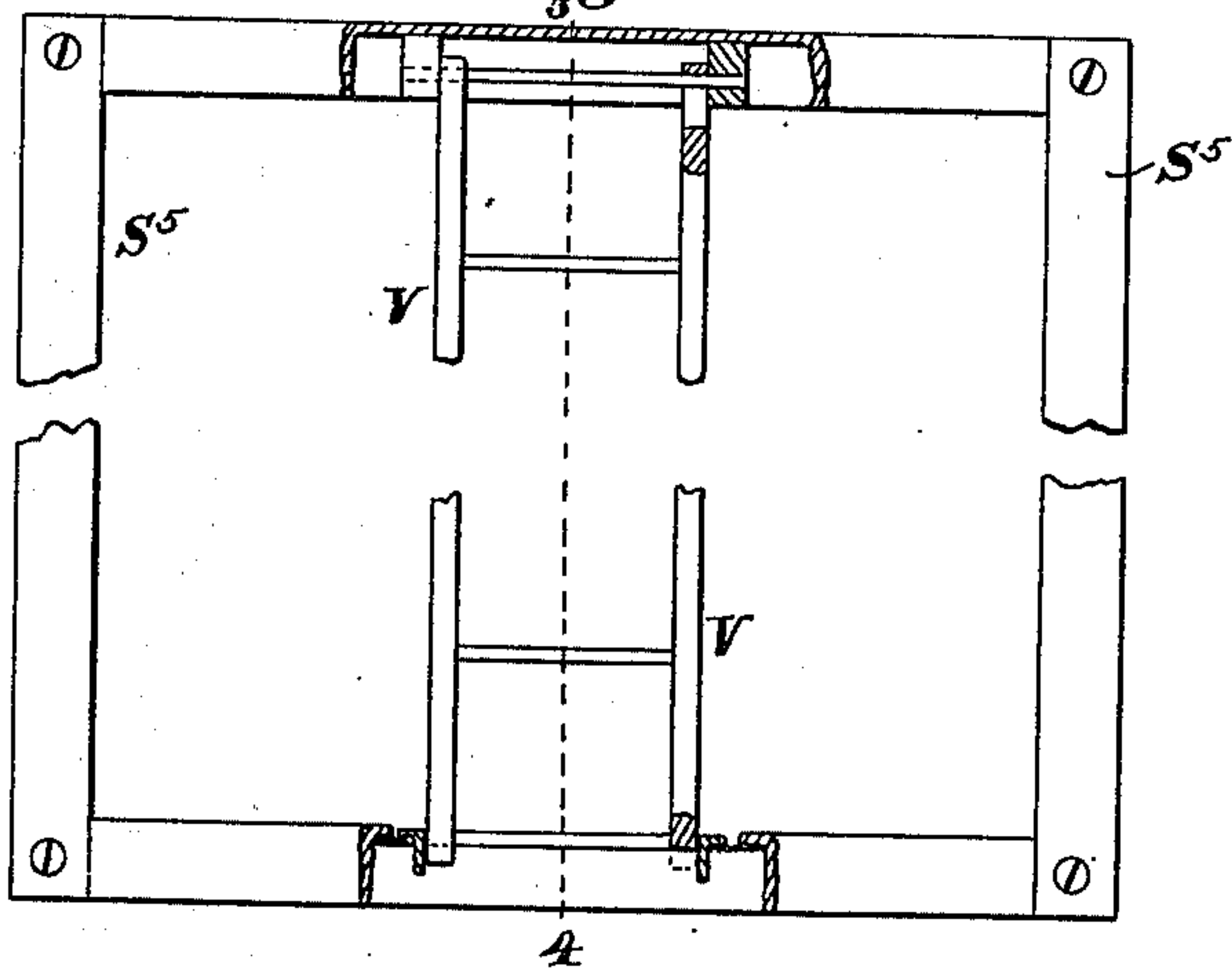


Fig. 11.

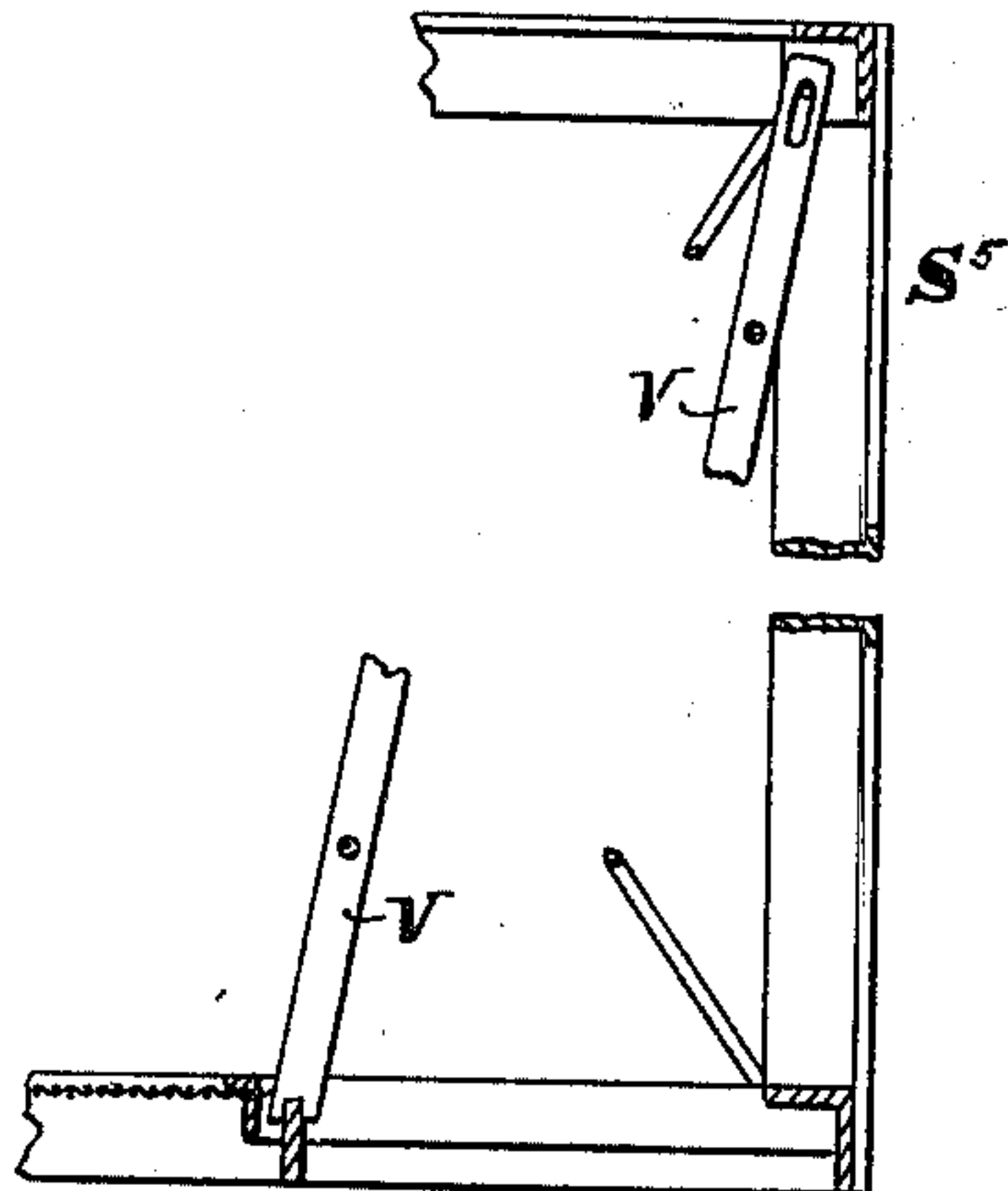


Fig. 2.

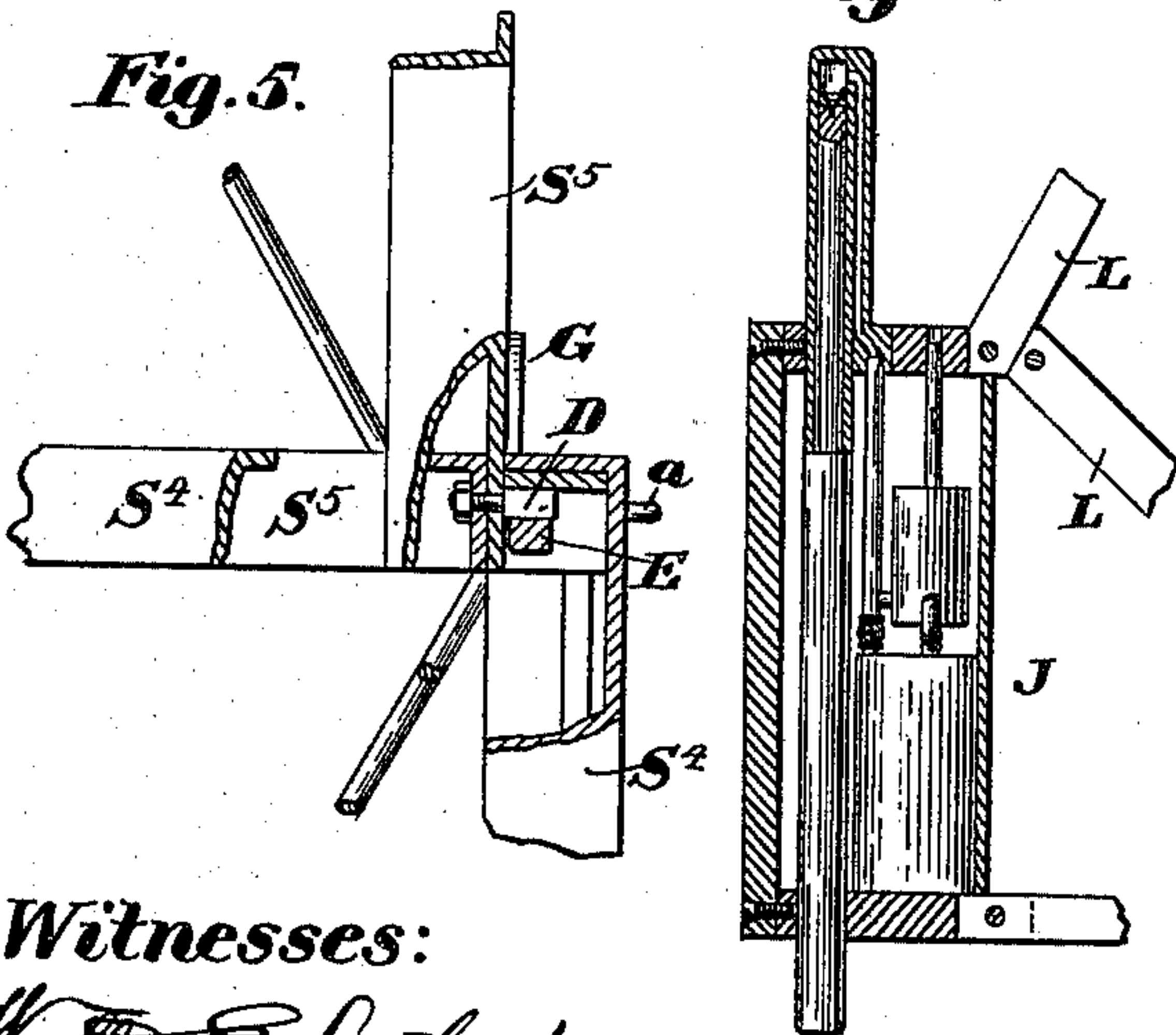
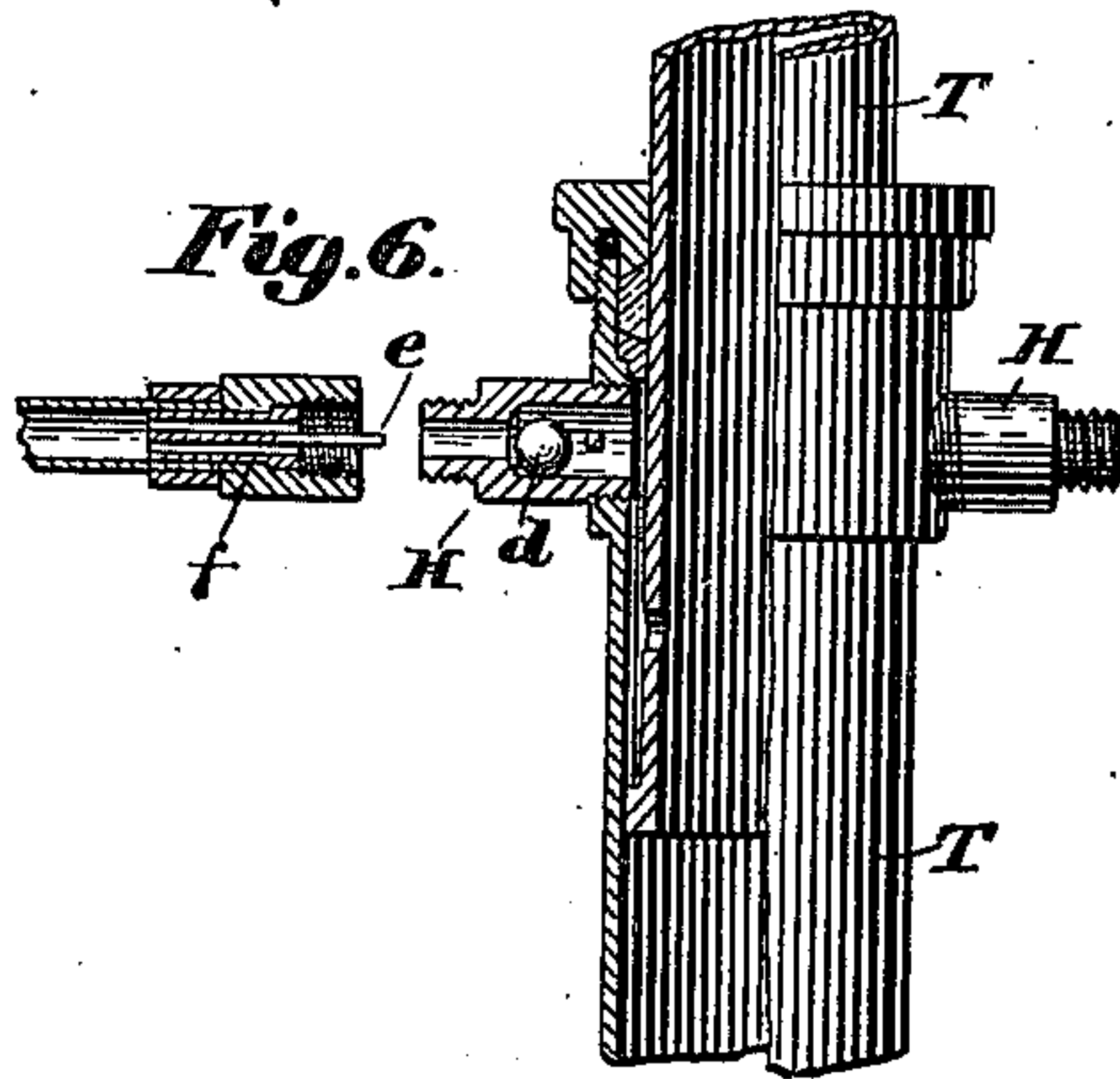


Fig. 6.



Witnesses:

Walter E. Lombard
Charles H. Harris

Inventor:

Lester W. Gill,
by Charles F. H. Smith
Atty.

No. 669,492.

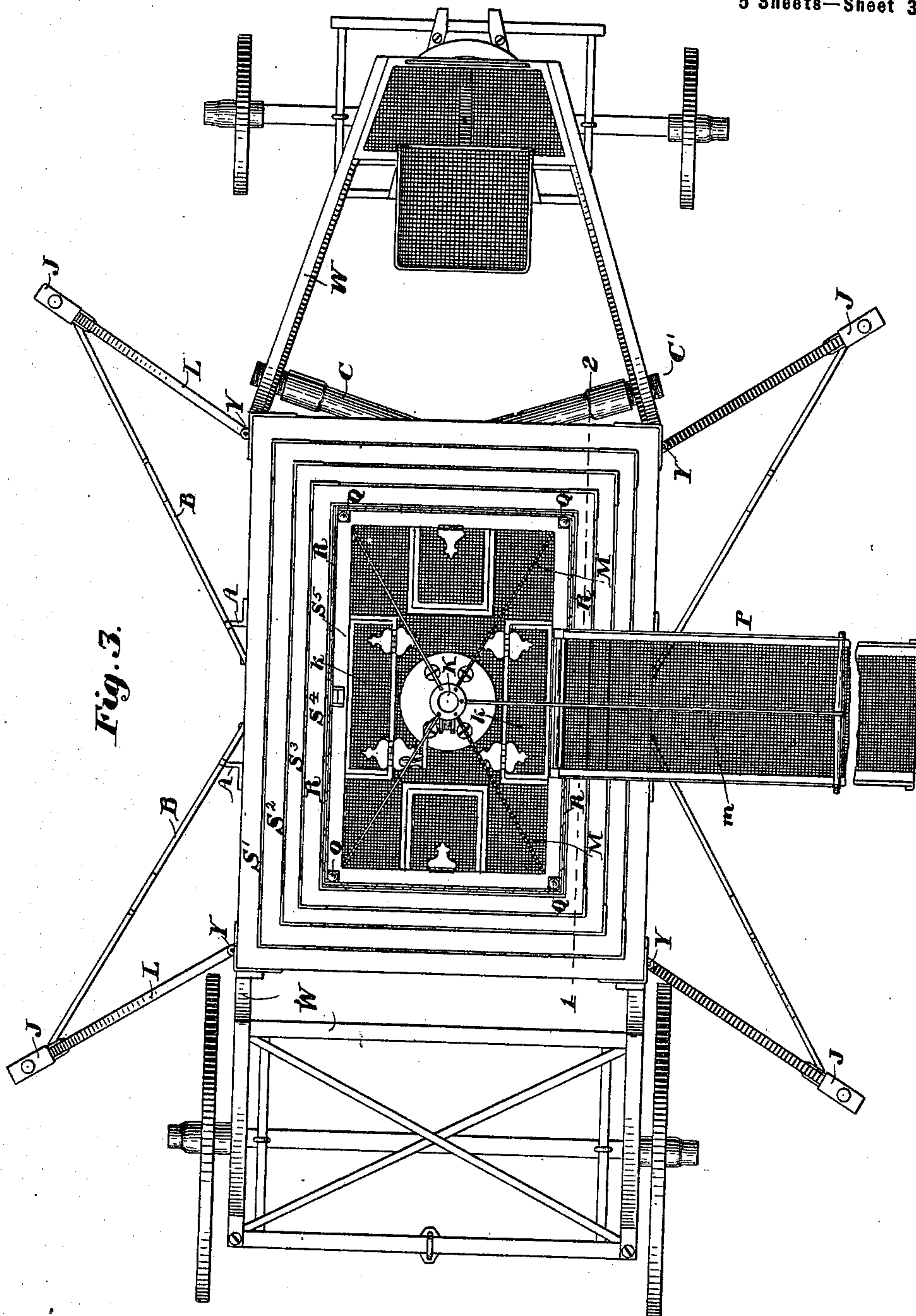
Patented Mar. 5, 1901.

L. W. GILL.
FIRE APPARATUS.

(Application filed Nov. 22, 1899.)

(No Model.)

5 Sheets—Sheet 3.



Witnesses:
Walter E. Lombard
Charles H. Warren

Inventor:
Lester W. Gill,
by Charles F. A. Smith,
Atty.

No. 669,492.

Patented Mar. 5, 1901.

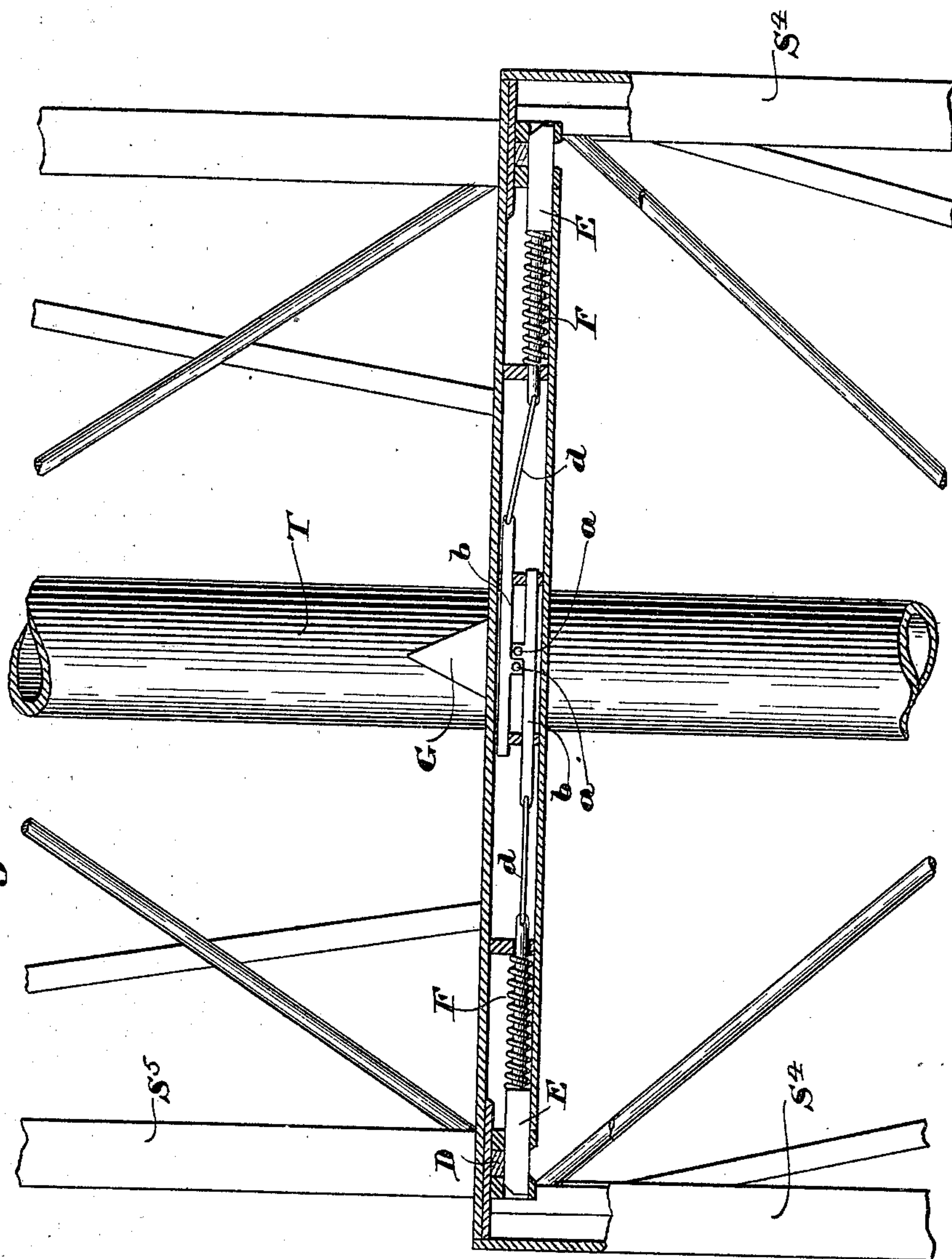
L. W. GILL.
FIRE APPARATUS.

(Application filed Nov. 22, 1899.)

(No Model.)

5 Sheets—Sheet 4.

Fig. 4.



Witnesses:
Walter G. Lombard
Charles H. Warren

Inventor:
Lester W. Gill,
by Charles F. A. Smith,
Atty.

No. 669,492.

Patented Mar. 5, 1901.

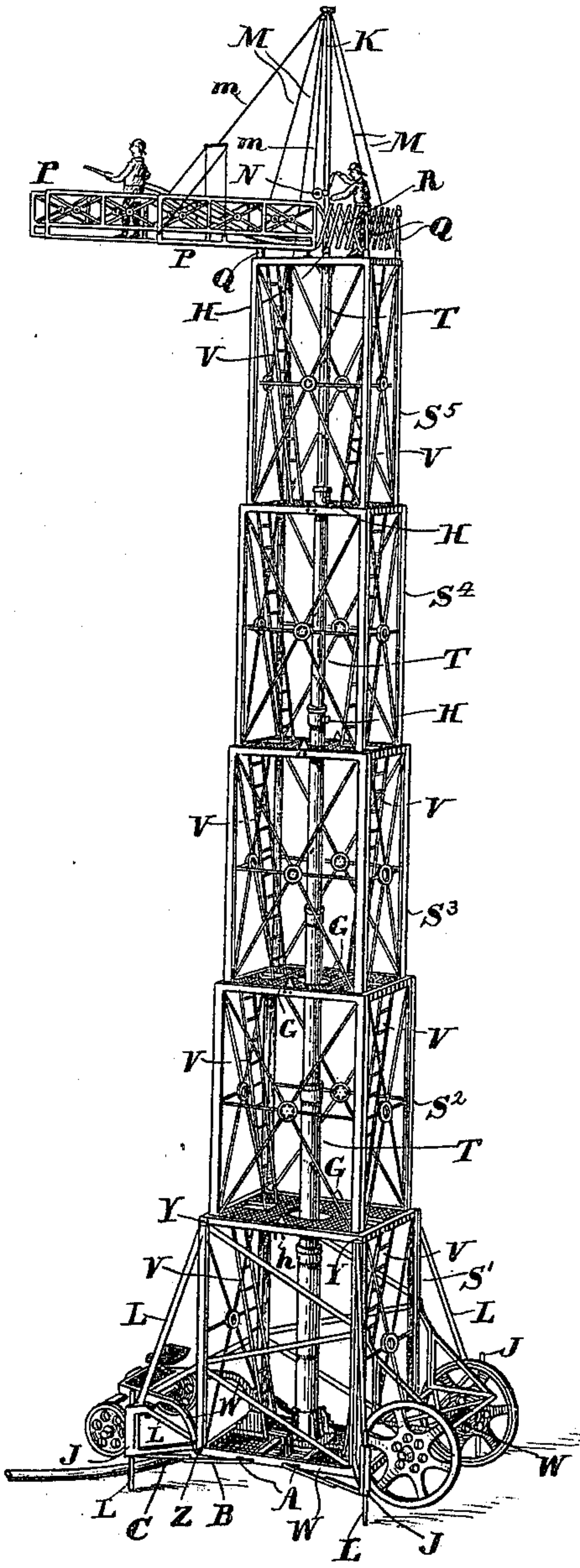
L. W. GILL.
FIRE APPARATUS.

(Application filed Nov. 22, 1899.)

(No Model.)

5 Sheets—Sheet 5.

Fig. 7.



Witnesses:

Walter E. Lombard
Charles H. Warren

Inventor:

Lester W. Gill,
by *Charles F. A. Smith.*
Atty.

UNITED STATES PATENT OFFICE.

LESTER W. GILL, OF EAST SOMERVILLE, MASSACHUSETTS, ASSIGNOR, BY
DIRECT AND MESNE ASSIGNMENTS, OF ONE-HALF TO CHARLES F. A.
SMITH AND JESSE P. COLBY, OF BOSTON, MASSACHUSETTS.

FIRE APPARATUS.

SPECIFICATION forming part of Letters Patent No. 669,492, dated March 5, 1901.

Application filed November 22, 1899. Serial No. 737,914. (No model.)

To all whom it may concern:

Be it known that I, LESTER W. GILL, a subject of the Queen of Great Britain, residing in East Somerville, in the county of Middlesex
5 and Commonwealth of Massachusetts, have invented certain new and useful Fire Apparatus, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

10 My invention relates to improvements in apparatus to be used in extinguishing fires and rescuing people from burning buildings; and the object of the invention is to provide a portable apparatus which can be elevated
15 with despatch near a burning building, so as to form a temporary stage or tower on which the firemen may ascend and effectively direct water on the burning building, also to provide a fire-escape whereby people may be
20 conveyed from the windows of the building to the said tower and thence to the ground.

The apparatus may also be used in time of war as a military observatory and in any case where a temporary stage is required.

25 The invention consists in the combination of elements and in certain parts of construction entailed in the combination of said elements to obtain the desired result.

A full understanding of the invention can
30 best be given by a detailed description of a preferred construction embodying the various features of the invention, and such a description will now be given in connection with the accompanying drawings, and I attain my
35 object by the mechanism there illustrated, showing such preferred construction, and the features forming the invention will then be specifically pointed out in the claims.

In said drawings, Figure 1 represents a side
40 elevation of the apparatus when folded up for conveyance. Fig. 2 is a sectional view of the hydraulic jacks J. Fig. 3 is a top view of the apparatus when elevated and with fire-escape in position. Fig. 4 is a sectional
45 elevation of the locking arrangement which locks one section to the adjacent one, taken on the line 1 2, Fig. 3. Fig. 5 is another sectional elevation of the locking arrangement, taken at ninety degrees to the section in Fig.

4. Fig. 6 is a semisectional elevation of one 50 of the stuffing-boxes on the tubes T, the tubes being extended; also, a section of one of the outlets to which the hose is connected. Fig. 7 represents a detailed view in perspective. Fig. 8 is a side view of the top section with 55 fire-escape in position, showing the connection of escape to tower and to the flexible gates on top of tower. Fig. 9 is a view of the connection of gates to bridge viewed from the inside of bridge. Fig. 10 is a side view of one 60 of the sections, showing how the ladders are connected and secured in position after sections are elevated. Fig. 11 is a section on lines 3 4, Fig. 10.

Similar letters refer to similar parts through- 65 out the several views.

The whole apparatus is mounted on a four-wheel truck W and may be conveyed from one place to another by any suitable power. The apparatus is essentially made up of 70 braced frames or sections S' S² S³ S⁴ S⁵, which telescope, and when elevated these sections automatically lock to one another, and thus form a rigid structure. The sections are elevated by means of a series of telescopic tubes 75 T, placed vertically in the center of the sections. These tubes are fluid-tight and are extended by hydraulic pressure. The first and last of these tubes are connected, respectively, to the first and last sections. The elevation of the sections is thus accomplished 80 by extending the tubes, which may be done by means of any fluid-pressure.

The truck W, on which the apparatus is mounted, is provided with springs similar to 85 other fire apparatus and is provided with four legs L. These legs L, on which the apparatus rests when in use, are pivotally connected to the section S' at the points Y and Z and in conveyance are folded closely to the 90 sides of the said section, (see Fig. 1,) being held in this position by spring-locks A. When it is desired to raise the sections, these legs L are swung out through an angle of one hundred and twenty degrees and are stayed 95 in this position by the folding braces B. (See Figs. 1, 3, and 7.)

By means of the jacks J, attached to the

outer part of the legs L, the apparatus is leveled, and the whole apparatus, including truck, is thus supported by the four legs when in use.

- 5 While the sections may be raised by any fluid-pressure, it is most convenient when used in case of fire to connect the fire-engine to the pipe C, which leads into the tubes T. The pipe C may have several connections at-
 10 tached to it, so that several engines may be connected. When pressure is applied by the action of the engine to the tubes T, these tubes extend and raise the upper or last section S⁵, which is connected to the upper or
 15 last tube. On each of the bottom corners of this section there is a horizontal projection or lug D. (See Figs. 4 and 5.) When this section is elevated, these lugs engage in recesses in the top corners of section S⁴. Sec-
 20 tion S⁵ thus raises section S⁴.

- When the sections are closed together, as in Fig. 1, the projecting pins *a* (see Fig. 5) on the top of section S⁴ are held apart by the wedge-shaped pieces G on the top of section
 25 S³. (See Fig. 1.) These pins *a* are rigidly connected to the bars *b*, and the bars *b* are connected to the locking-bars E by the links *d*, (see Fig. 4,) so that when the pins *a* are forced apart the locking-bars E are with-
 30 drawn. The locking-bars are thus all withdrawn when the sections are closed, as in Fig. 1. Therefore when section S⁵ is raised hydraulically by the tube T the lugs D on its lower corners pass freely into the recesses
 35 in the top of section S⁴. As section S⁴ raises, the pins *a* in the top of this section become disengaged from the wedge-shaped pieces G on the top of section S³—i. e., the wedges G, one on each side, remain stationary, being
 40 connected to section S³, and the pins *a* are raised up with section S⁴. The pins *a* being now free to come together, the springs F force the locking-bars E under the lugs D, bringing the pins *a* together at the same time.
 45 Section S⁵ is thus rigidly locked to S⁴. In a similar way each section raises and automatically locks itself to the following section, each section being provided with lugs and locking arrangement, as above described.
 50 Section S² is locked to section S¹ by an operator. This is necessitated since there is no further motion by means of which these locks may be operated.

- The sections are lowered by unlocking section S¹ from section S² by means of the levers
 55 *h*. (See Figs. 1 and 7.) If the discharge-valve in the end of the pipe C' (see Figs. 1 and 3) which leads from the tubes T is now opened, the sections S² S³ S⁴ S⁵ will descend
 60 by gravitation. As these sections descend, the wedge-shaped pieces G on the top of section S¹ act on the pins *a* on the top of section S², forcing them apart, thus withdrawing the locking-bars E in the top of section S². Section S² is thus unlocked from section S³. In
 65 a similar way each section automatically un-

locks the following or telescopic section as it descends.

The standard K (see Fig. 7) is forced out from the center of the tubes T by the same
 70 pressure which extends the tubes. The cables M, which stay this standard, are fastened permanently at the upper ends. The lower ends pass through the corners of the section S⁵ and are attached to weights. When the
 75 sections are lowered, these weights slide down inside the section S⁵, and the standard K slides inside the tube T. The drum and windlass N are clamped to the standard K after the standard is forced into position. The drum
 80 and windlass serve to raise the fire-escape P into position by means of the cable *m* and to raise or lower the outer end when in position. The escape is raised from inside section S⁵ through a hatchway *k*. (See Fig. 3.)
 85

The fire-escape P is pivotally connected by a hinged pivot O (see Fig. 8) to the side of section S⁵ and is thus adjustable in a hori-
 90 zontal as well as in a vertical plane. The sides are pivotally connected by hinges U to the base, (see Fig. 8,) so that they may fold together, and the whole carried inside section S⁵. (See Fig. 1.) The sides when in use are
 95 pivotally connected at the ends to railings R, which are hinged to the posts Q. (See Figs. 1, 3, 7, and 8.) These railings are constructed on the principle of the "lazy-tongs" and are connected to the sides of the escape
 100 by means of a hinged pivot X. (See Figs. 8 and 9.) This arrangement allows the movement in any direction of the escape on its pivot O. These gates also serve to keep the sides of the escape in position. The escape
 105 is in the form of a bridge, the sides and base of which are extensible, similar to an extension-ladder. The sides are rigidly constructed, so as to form a support for the base. The extension is effected by an operator
 110 on the top of the tower by means of a cable acting through suitable blocks, as in an extension-ladder. The escape can thus be extended and the outer end placed on the sill of the window where it is to be used. After the sec-
 115 tions are raised the tubes T serve to conduct water, which may be used to extinguish the fire by means of a hose connected to the outlets H. (See Figs. 6 and 7.) These outlets H are supplied with spherical valves *d*, which
 120 are kept closed by the pressure from within the tubes T and which are opened by the action of the pin *e* in the center of the hose connection *f*. (See Fig. 6.)

Each section is provided with a floor and two ladders V. The ladders are pivotally
 125 connected at the upper end to the sides of the section, (see Figs. 10 and 11,) and when the sections are raised they may be brought into an inclined position and locked. They will thus be inclined for ascent, as is usual. (See Fig. 7.) The locking is effected by means of
 130 notches in the bottom of the ladders, which engage with a cross-sill secured to the bottom

of the section. (See Figs. 10 and 11.) The top of each ladder is slotted, so that it may be raised a small amount to bring the bottom into engagement with the sill. (See Fig. 11.)

5 What I claim is—

1. In a fire apparatus the combination of an extensible tower, an extensible-bridge fire-escape, and an extensible tube, the tower and tube being adapted to be hydraulically extended and the same mounted upon a truck, substantially as described.

2. In a fire apparatus the combination of an extensible braced tower, an extensible bridge with flexible railings, an extensible tube, and an automatic locking arrangement for locking each section of the tower to the following one when the sections are elevated, the tower and tube being adapted to be hydraulically extended and the same mounted on a truck, substantially as shown.

3. In a machine of the character described the combination of a series of telescopic sections, an extensible water-tube, a discharge-valve, the tube adapted to hydraulically raise and lower the telescopic sections, and means whereby said sections are automatically locked when raised to form a rigid frame or tower, or automatically unlocked as desired upon the closing of the water-tube, the operation of the water-tube being controlled by the discharge-valve, substantially as set forth.

4. In a telescopic tower, a bridge consisting of two or more sections telescoping into each other and pivotally connected at one end to the top of tower so that its other end is free to move in any direction, substantially as shown.

5. In a fire apparatus the combination of a bridge whose sides and base are extensible, flexible railings, and hinged pivots connecting the railings to the sides of the bridge, substantially as shown.

6. In a telescopic tower the combination of a bridge whose sides and base are extensible and which is pivotally connected at one end to the top of the tower so that its other end is free to move in any direction, and railings which are hinged to posts on the top of the tower and pivotally connected at the other end to the sides of the bridge, substantially as shown.

7. A fire-escape provided with sections adapted to be raised and lowered, each section provided with a floor, and the upper section provided with a bridge or gang-plank pivoted to the top of section and adapted to be raised or lowered or swung to either side, a second bridge or gang-plank connected with the first bridge or gang-plank, a cable connecting with the first bridge and a windlass held on the upper section and on which winds the cable substantially as shown.

8. In a telescopic tower the combination of a series of telescopic sections, a series of telescopic tubes adapted to raise the sections and a rod or standard which slides inside the tubes and which is forced out when pressure is ap-

plied to extend the tubes, being stayed to the sections by four cables when forced out, substantially as described.

9. In a telescopic tower the combination of a series of telescopic sections or frames, a series of telescopic tubes, a rod or standard which is forced out of these tubes and stayed to the sections, and a bridge pivoted at one end to the top of the sections and supported at the other end from the top of the rod, substantially as described.

10. In a fire apparatus, the combination of a truck, a series of telescopic sections mounted on a truck, the largest section of which is rigidly connected with the body of the truck, a series of legs pivotally connected with the side corners of largest section, and a jack connected with each leg, each jack working independently of the others and a series of telescopic tubes placed vertically within the sections and connected with the smallest and the largest section and being so placed as to raise or lower the sections, substantially as and for the purposes specified.

11. In a fire apparatus the combination of an extensible tower, an extensible-bridge fire-escape, and an extensible tube, the tower and tube being adapted to be hydraulically extended and the same mounted upon a truck, substantially as described.

12. In a fire apparatus, the combination of a truck, a series of telescopic sections mounted on a truck, the largest section of which is rigidly connected with the body of truck, a series of legs pivotally connected with the side corners of largest section and a jack connected with each leg, each jack working independently of the others and a series of telescopic tubes placed vertically within the sections and connected with the smallest and the largest section and being so placed as to raise or lower sections, substantially as and for the purposes specified.

13. In a telescopic tower the combination of a series of telescopic sections, a series of telescopic tubes adapted to raise the sections and a rod or standard which slides inside the tubes and which is forced out when pressure is applied to extend the tubes, being stayed to the sections by four cables when forced out, substantially as described.

14. In a telescopic tower the combination of a series of telescopic sections or frames, a series of telescopic tubes, a rod or standard which is forced out of these tubes and stayed to the sections, and a bridge pivoted at one end to the top of the sections and supported at the other end from the top of the rod, substantially as described.

15. In a telescopic tower, a bridge whose sides and base are extensible, pivotally connected at one end to the top of tower so that its other end is free to move in any direction, substantially as shown.

16. In a telescopic tower the combination of a bridge whose sides and base are extensible and which is pivotally connected at one end

to the top of the tower so that its other end is free to move in any direction, and railings which are hinged to posts on the top of the tower and pivotally connected at the other
5 end to the sides of the bridge, substantially as shown.

17. A fire-escape provided with sections adapted to be raised and lowered, each section provided with a floor, and the upper section provided with a bridge or gang-plank
10 pivoted to the top of section and adapted to be raised or lowered or swung to either side, a second bridge or gang-plank connected with the first bridge or gang-plank, a cable connecting with the first bridge and a windlass
15

held on the upper section and on which winds the cable, substantially as shown.

18. In a fire apparatus the combination of a bridge whose sides and base are extensible, flexible railings, and hinged pivots connecting the railings to the sides of the bridge, substantially as shown. 20

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

LESTER W. GILL.

Witnesses:

JESSE P. COLBY,

CHARLES H. WARREN.