

No. 706,024.

Patented Aug. 5, 1902.

G. L. COOPER.
SWITCH OPERATING MECHANISM.

(Application filed Dec. 6, 1901.)

(No Model.)

2 Sheets—Sheet I.

Fig. I.

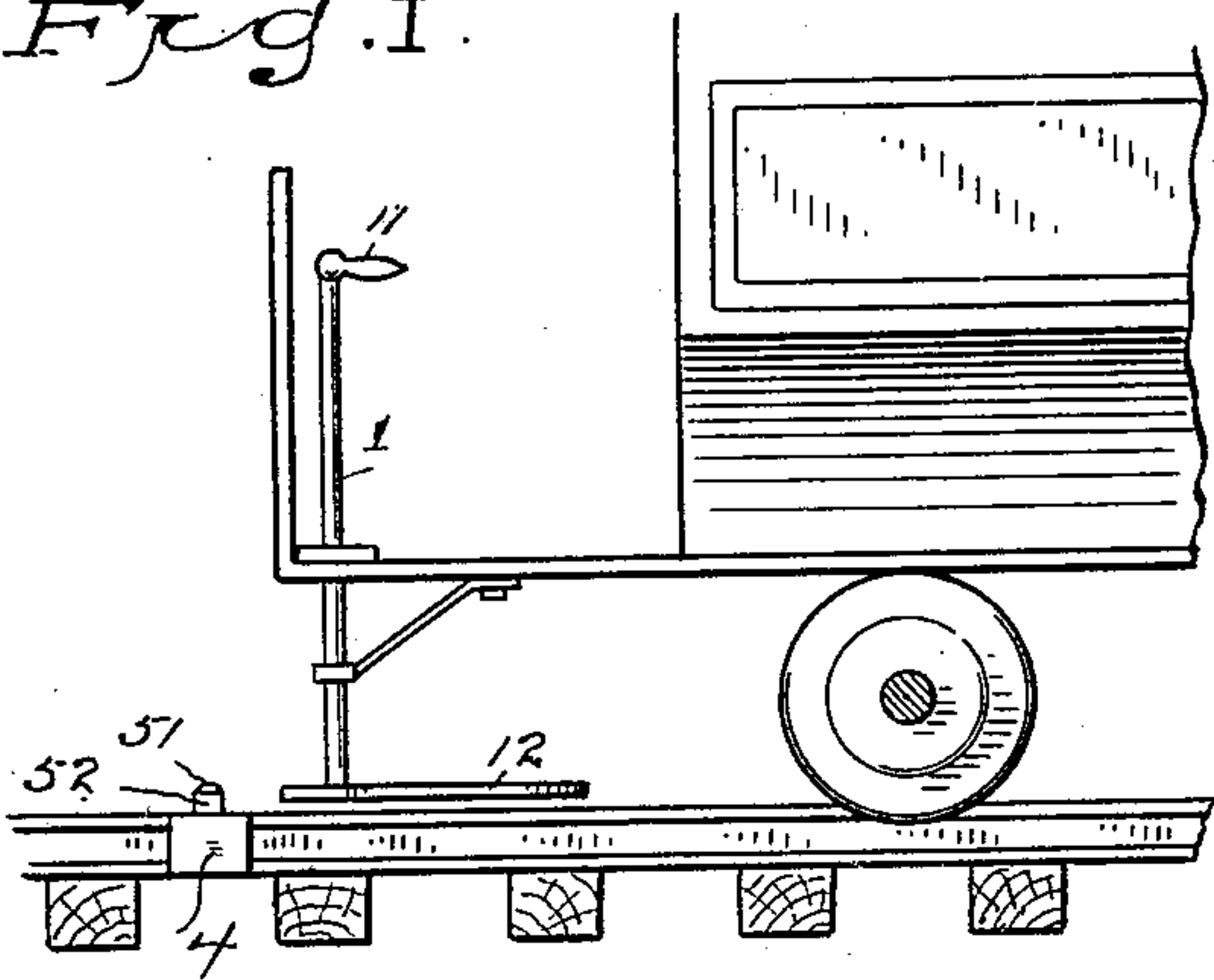


Fig. II.

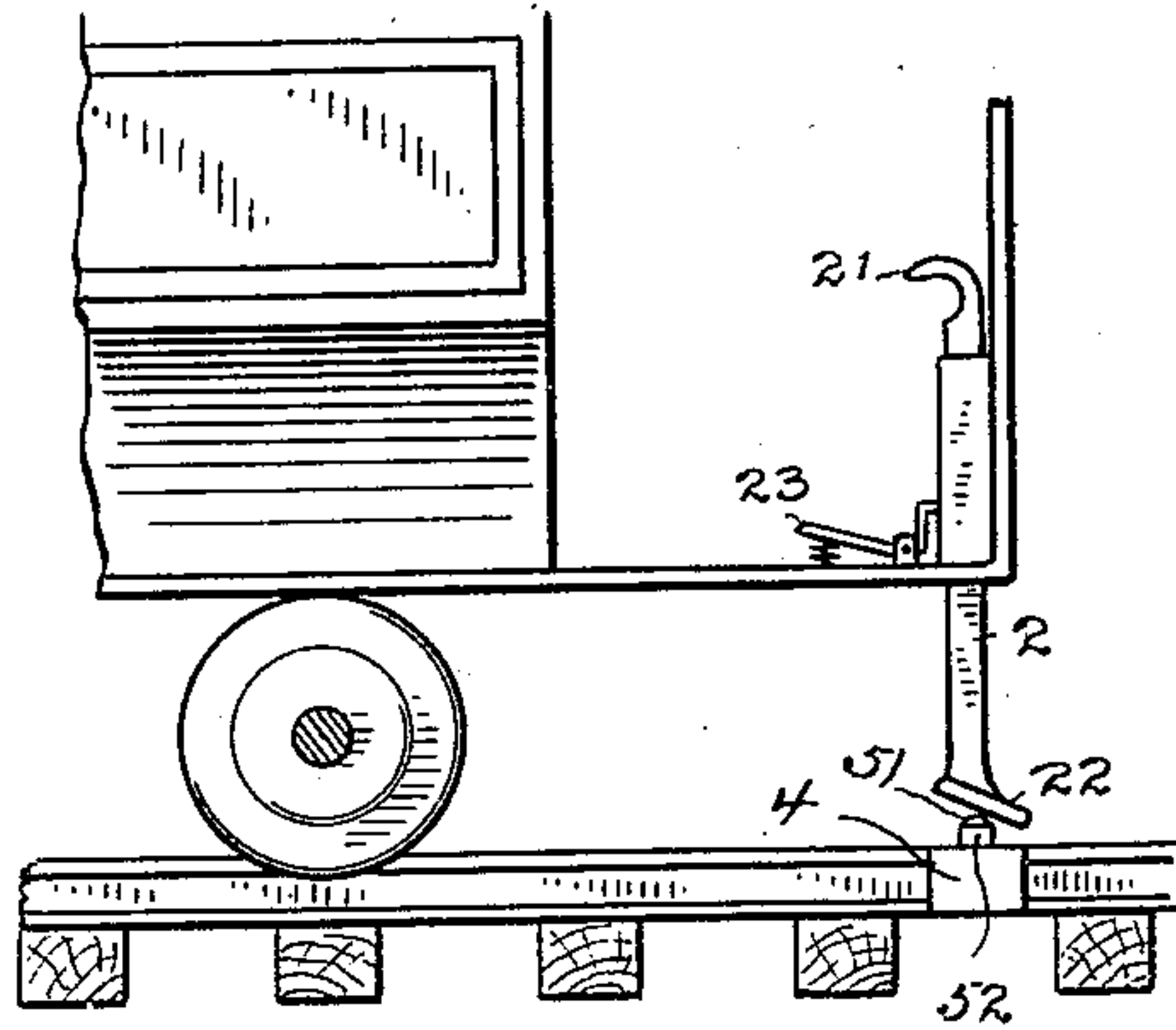


Fig. III.

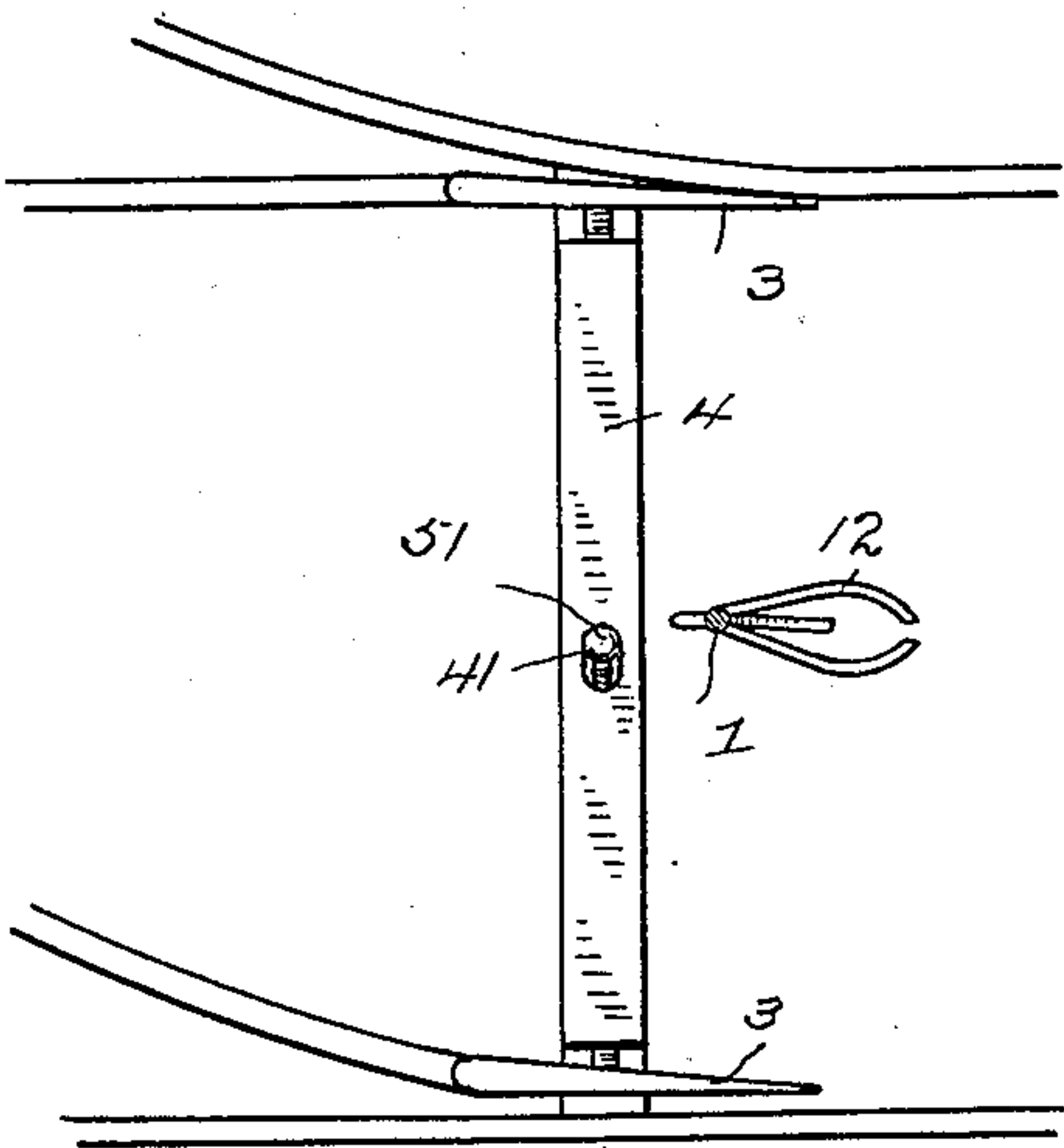
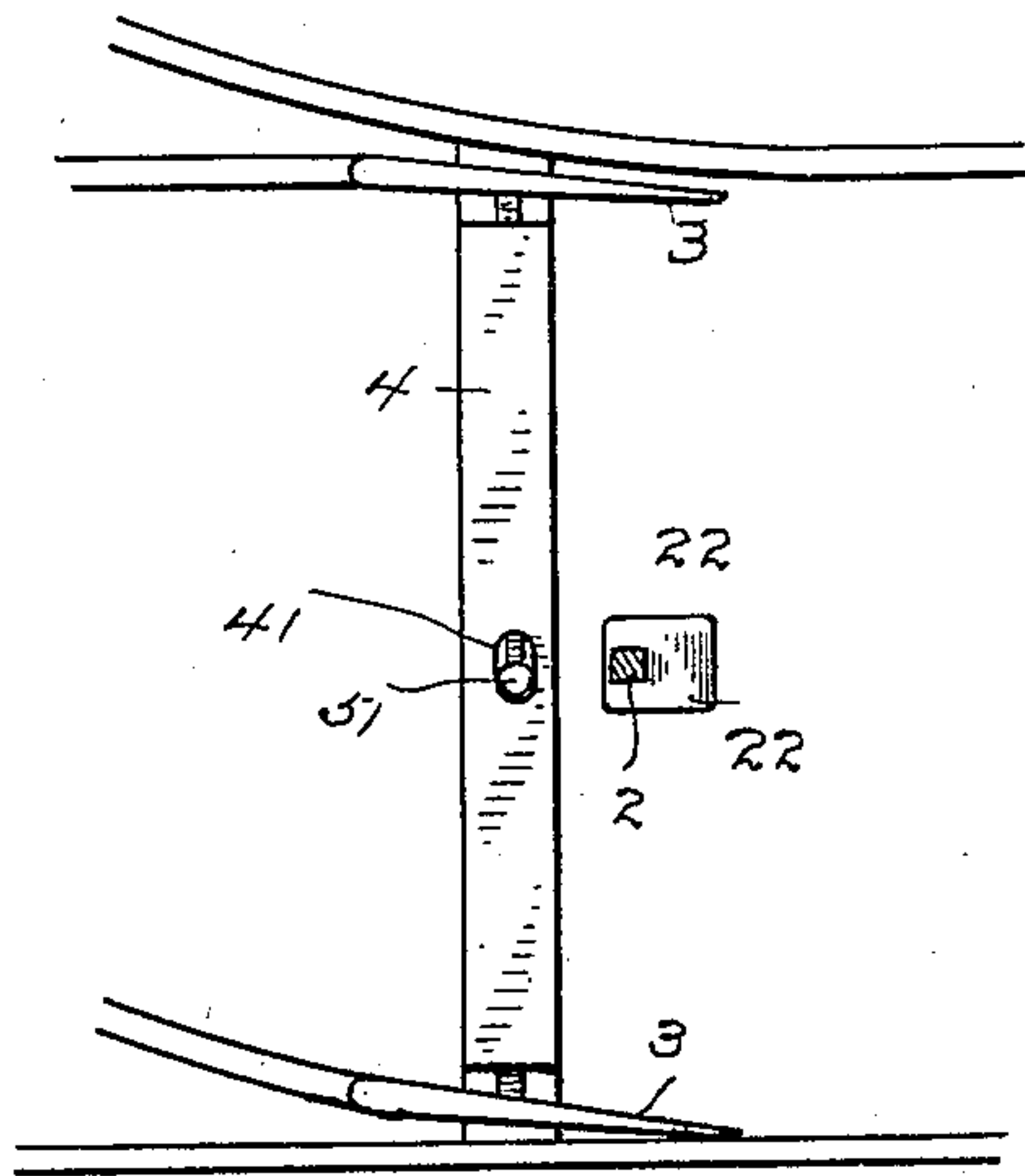


Fig. IV.



WITNESSES.

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INVENTOR.

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Fig. V.

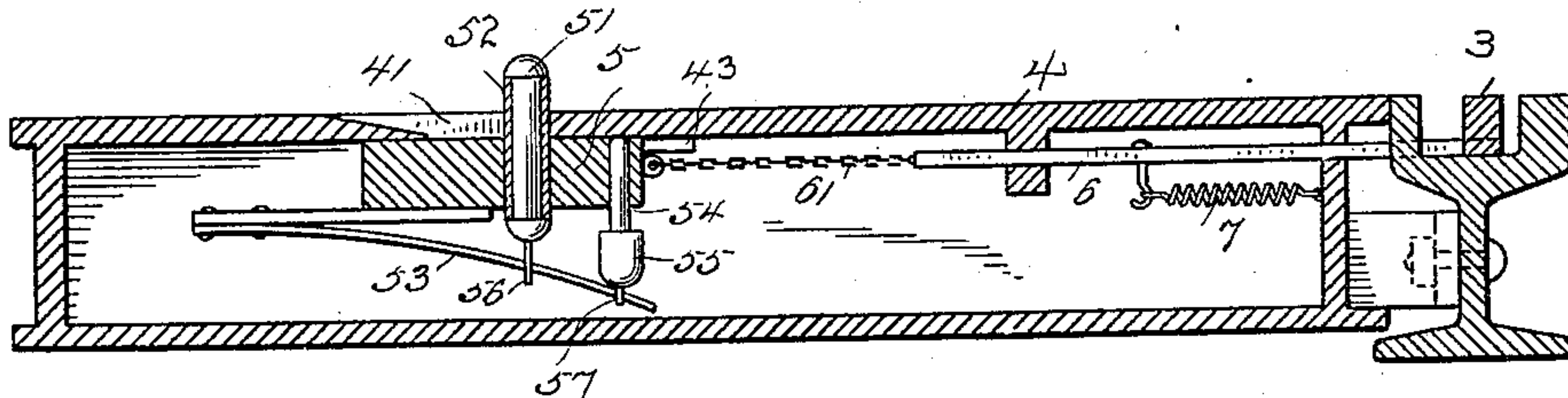


Fig. VI.

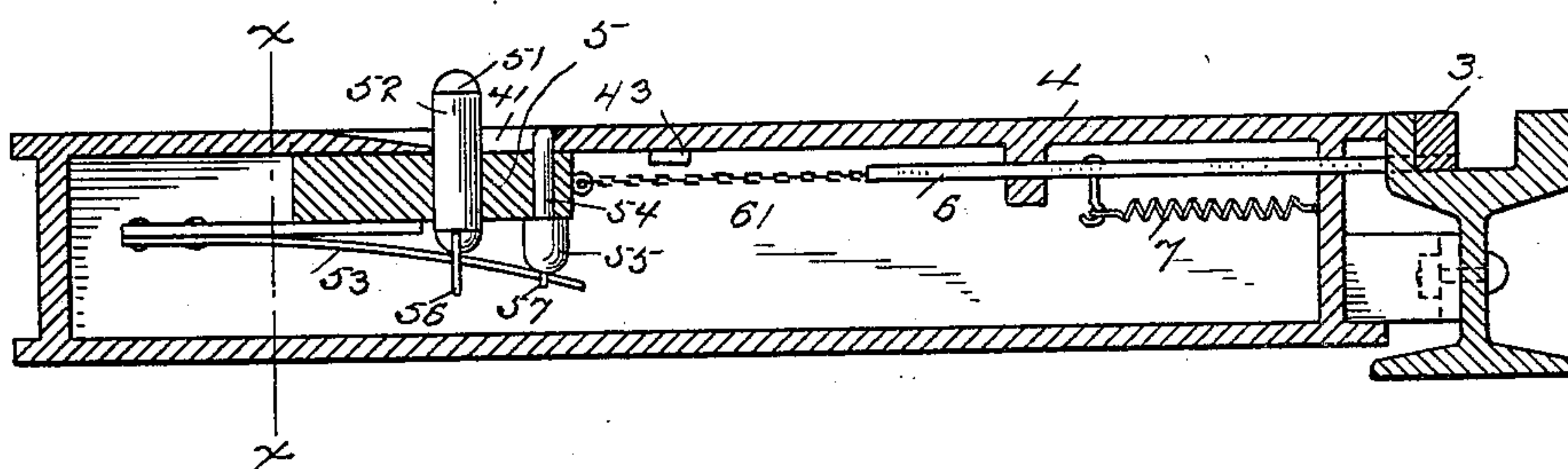


Fig. VII.

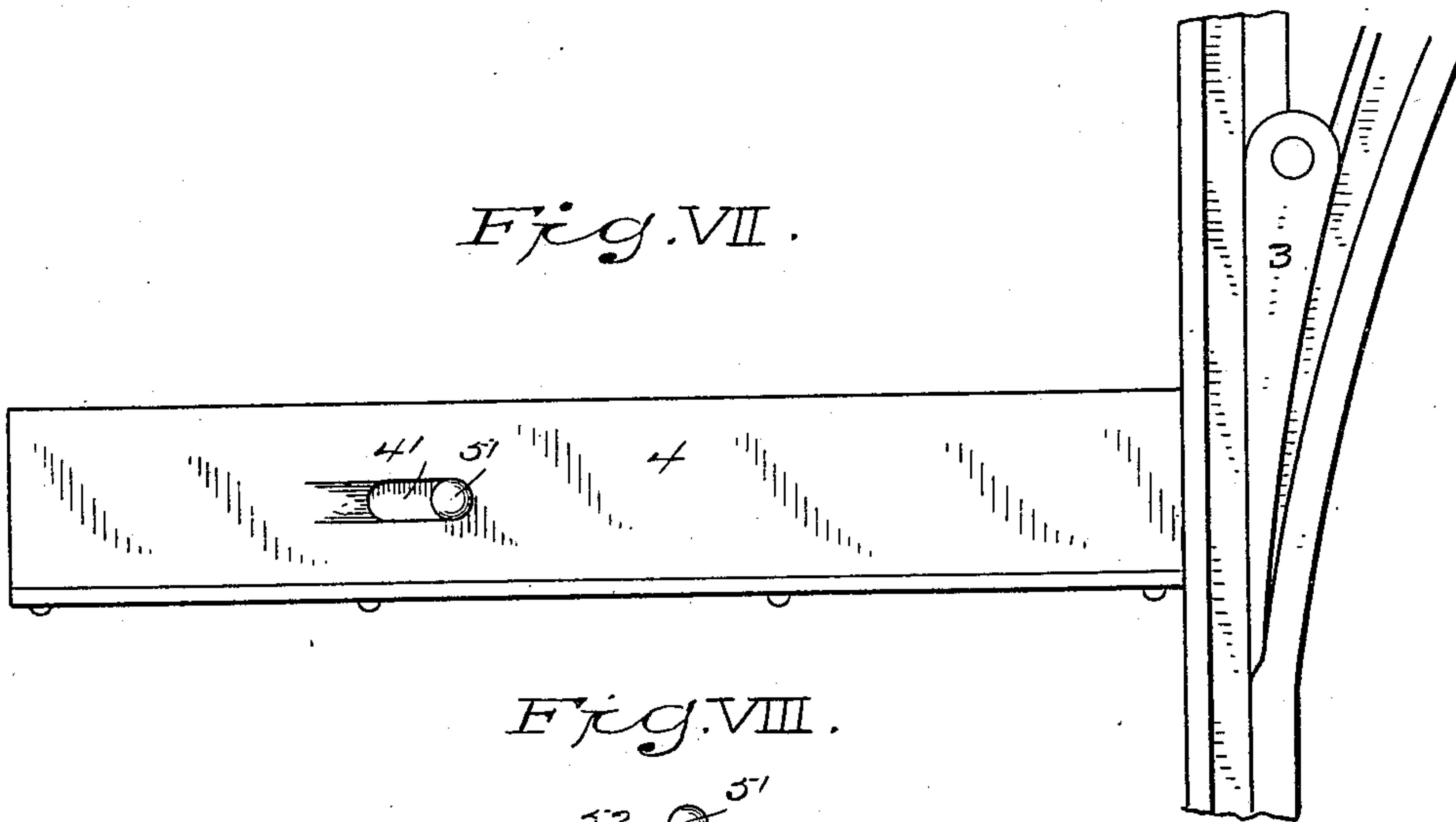
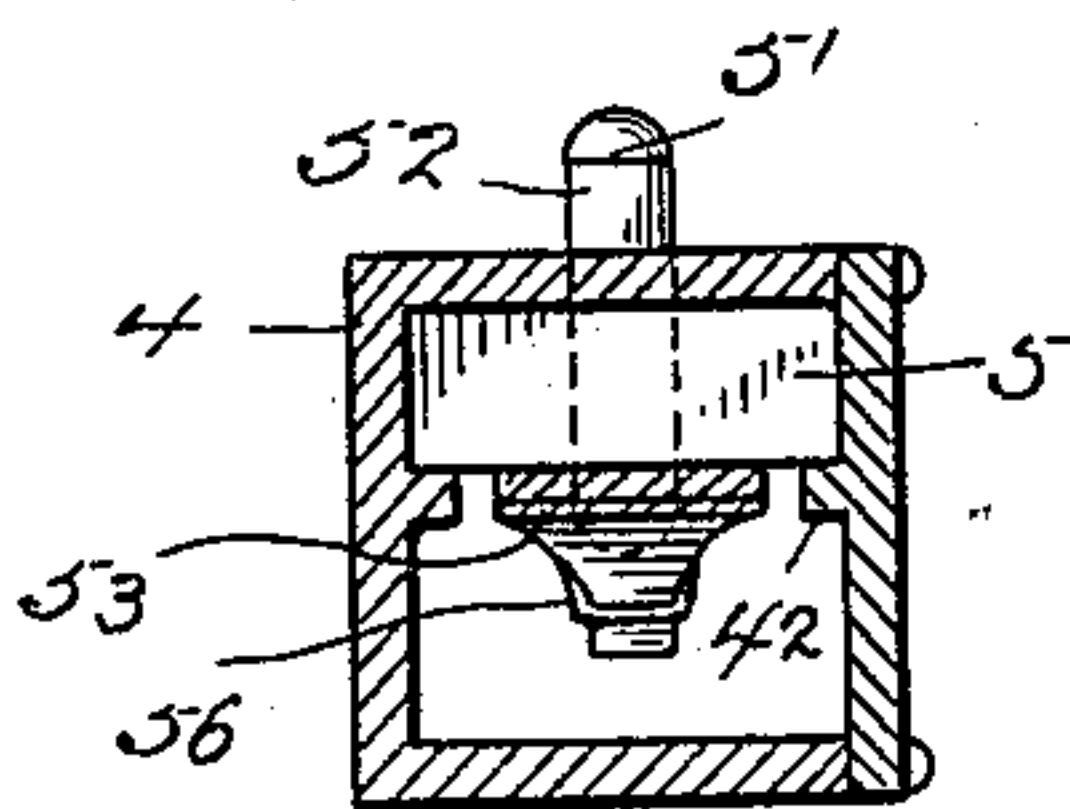


Fig. VIII.



WITNESSES.

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UNITED STATES PATENT OFFICE.

GEORGE L. COOPER, OF BRIDGEPORT, CONNECTICUT, ASSIGNOR TO GEORGE P. CARROLL, OF BRIDGEPORT, CONNECTICUT.

SWITCH-OPERATING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 706,024, dated August 5, 1902.

Application filed December 6, 1901. Serial No. 84,899. (No model.)

To all whom it may concern:

Be it known that I, GEORGE LEWES COOPER, a citizen of the United States, residing at 951 Park avenue, Bridgeport, Connecticut, have
5 invented a new and useful Improved Switch-Operating Mechanism, of which the following is a specification.

My invention relates to that class of switch-operating mechanism in which the switch-
10 point is thrown and reset by devices on the car. It is intended to produce a simple device which shall be positive in its action.

In the accompanying drawings, Figures I and II represent, respectively, the front and
15 rear ends of a car provided with my device. Figs. III and IV show the track and switch, with a portion of the operating devices. Figs. V and VI are longitudinal sections of the track portion of my device. Fig. VII is
20 a top plan view of the same; and Fig. VIII, a section through the line *x x*, Fig. VI.

1 is a vertically-adjustable shaft passing through the front platform of a car, provided with handle 11 and shoe 12.

25 2 is a second vertically-adjustable shaft at the rear end of the car, provided with handle 21, beveled foot 22, and locking device 23. The shoe 12 and the foot 22 may be engaged one with the side, the other with the top, of
30 a pin connected with a switch-point, as is clearly shown in Figs. V and VI.

Between the tracks and about midway of the switch-point 3 is set a case or housing 4, having an opening 41 in its upper side, internal ribs 42, supporting a block 5, and a stop
35 43. Through the block 5 a pin 51, carrying a friction-roller 52, passes vertically. It is thrust upward by a spring 53, (shown as a flat metal strip.) Through the block 5 also passes
40 a second pin 54, provided with a head 55 at its lower end. Links 56 and 57 loosely connect the pins 51 and 54 with the spring 53. To the block 5 is connected, by a chain 61, a rod 6, the outer end of which is pivoted to the
45 switch-point 3. A pull-spring 7 tends to throw the switch to the position shown in Figs. V and VII of the drawings.

The operation of the device will be apparent from an inspection of the drawings. These
50 show my device as applied to a turnout or siding on a main line. Figs. III and IV show

a switch with two points 3. Figs. V, VI, and VII show the single switch-point commonly used on street-lines. By means of the spring 7 or by any other convenient means the point 3
55 is normally maintained in the position shown in Figs. IV, V, and VII, in which position the main line is open. When a motorman desires to take the turnout, he depresses the rod 1, so that the shoe 12 strikes in passing against the
60 roller-shod pin 51, thereby forcing the block 5, as shown, transversely to the left and throwing open the switch 3. As soon as the pin 54 comes under the opening 41 in the case 4 it is forced upward by the spring 53 and locks
65 the switch open, holding the parts as shown in Fig. VI. If it is desired to reset the switch to "main line open" position, the conductor depresses the rod 2, so that the foot 22 rides over the top of the pin 51 and forces it down-
70 ward. Through the spring 53 and link 57 the locking-pin 54 is also drawn down and out of engagement with the top of the case 4. The spring 7 or its equivalent then throws the switch-point to its normal position.
75

It will be noted that the pin 51 is freely depressible by a passing vehicle or the like, that it rises to its operative position by the action of the spring 53 as soon as the weight is removed, and that even if the pin be forced
80 below the top of the case 4 the stop 43 prevents the block 5 from carrying the pin from beneath the opening 41. It will be further noted that, by reason of the chain 61 or other flexible connection between the block 5 and
85 the rod 6, no movement of the switch-point 3 caused by the passing of a car to main line from the siding or turnout will alter the position of the block or connected parts.

What I claim is—

90 1. In a switch-operating mechanism in combination, a switch-point, a transversely and vertically movable pin connected with said point, means connected with a car for moving said pin in one direction whereby said switch
95 is thrown and separate means also connected with a car for moving said pin in the other direction whereby said switch is reset, substantially as described.

100 2. In a switch-operating mechanism in combination, a switch-point, a transversely and vertically movable pin connected with said

point, means connected with a car for moving said pin in one direction whereby said switch is thrown, separate means also connected with a car for moving said pin in the other direction whereby said switch is reset and means for locking said switch-point in its temporary position, substantially as described.

3. In a switch-operating mechanism in combination, a switch-point, yielding means for holding said point in one of its set positions, a transversely and vertically movable pin connected with said point, means connected with a car for moving said pin in one direction whereby said switch is thrown and separate means also connected with a car for moving said pin in the other direction whereby said switch is permitted to return to its normal position.

4. In a switch-operating mechanism in combination, a switch-point, yielding means for holding said point in one of its set positions, means for locking said point in the other of its set positions, a transversely and vertically movable pin connected with said point, means connected with a car for moving said pin in one direction whereby said switch is thrown and separate means also connected with a car for moving said pin in the other direction whereby said locking means are released and said switch permitted to return to its normal position.

5. In a switch-operating mechanism in combination, a switch-point, a case or housing set transversely of said point, an aperture in the

top of said case, a block movable longitudinally in said case and connected with said switch-point, a pin vertically movable in said block and projecting through said case-aperture, means for normally holding said switch-point in one of its set positions, means for locking said point in its other set position, means connected with a car for moving said pin transversely whereby said switch is thrown and locked and separate means also connected with said car for depressing said pin whereby said locking means is released and the switch returned to its normal position, substantially as described.

6. In a switch-operating mechanism in combination, a switch-point, a case or housing set transversely of said point, means as a spring for holding said point in its normal position, a block in said case and connected with said point, a pin vertically movable in said block and projecting through an aperture in said case, a second pin movable in said block and adapted to engage with said case when said point has been moved to its temporary position and two separate projecting portions each connected with a car and adapted to move said pin first transversely then vertically whereby said point is thrown, locked, released and reset by the passage of such car, substantially as described.

GEORGE L. COOPER.

Witnesses:

E. B. SPALDING,
CLARA L. NORTROP.