

(No Model.)

3 Sheets—Sheet 1.

S. C. SKANKS.
SLEEPING CAR BERTH REGISTER.

No. 587,165.

Patented July 27, 1897.

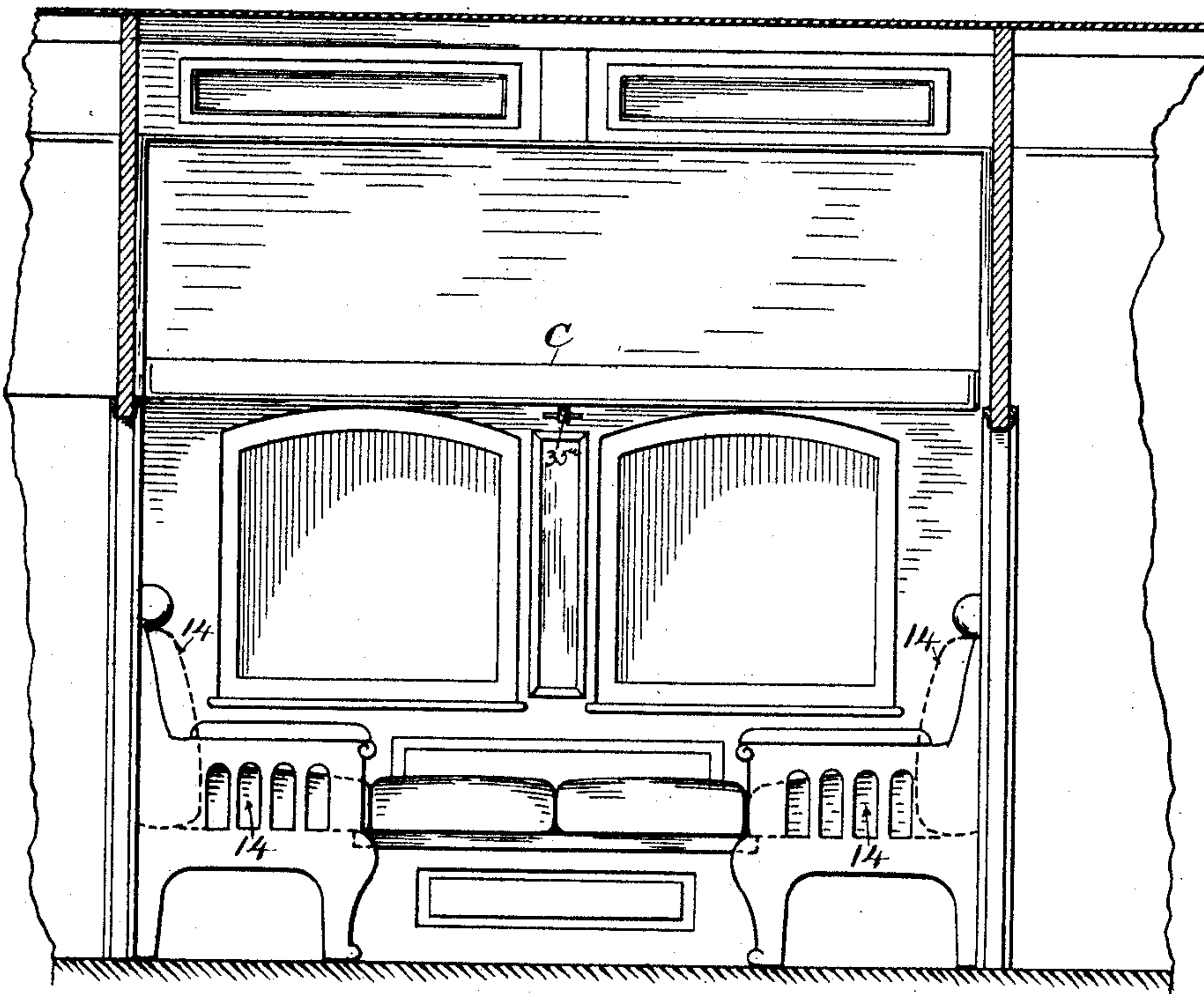


Fig. 1

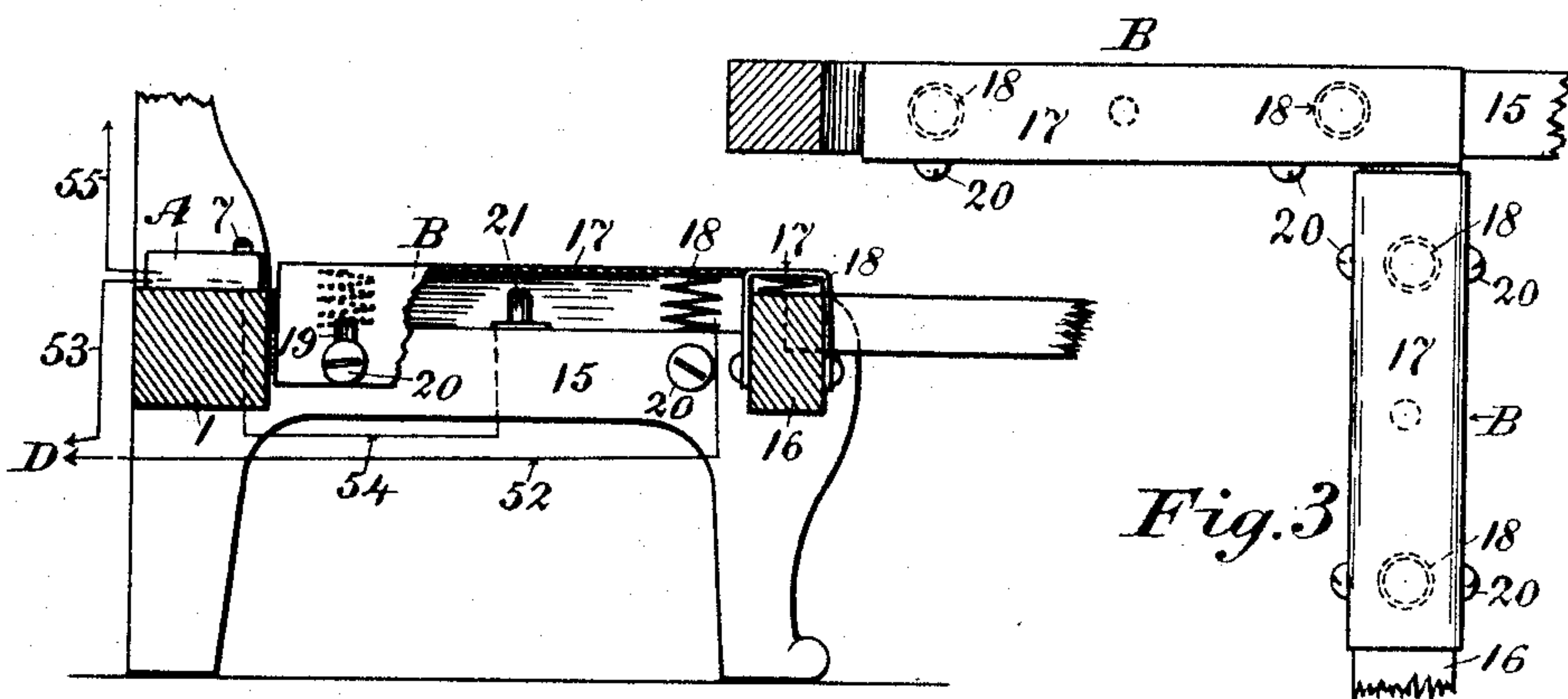


Fig. 2

Fig. 3

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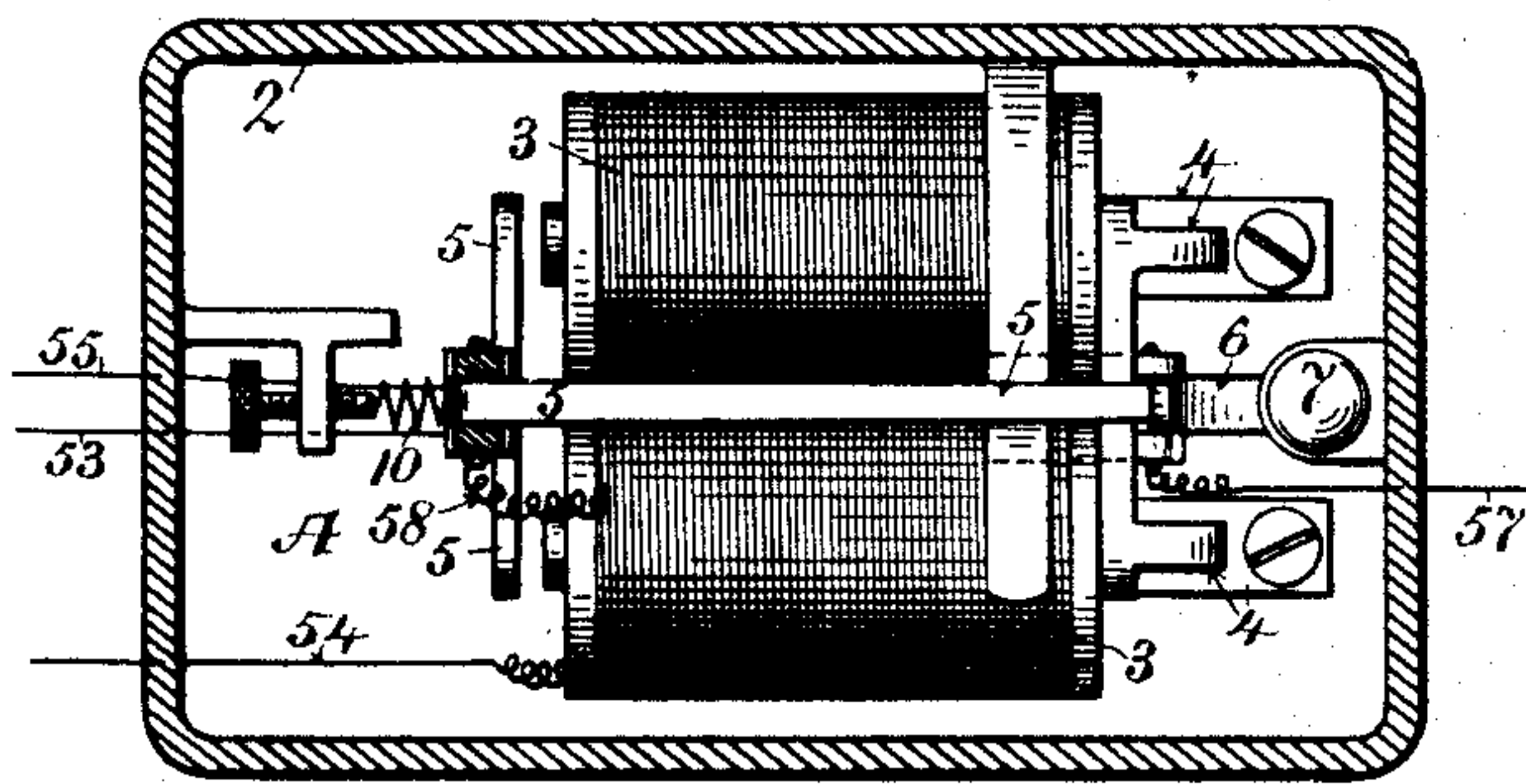


Fig. 4

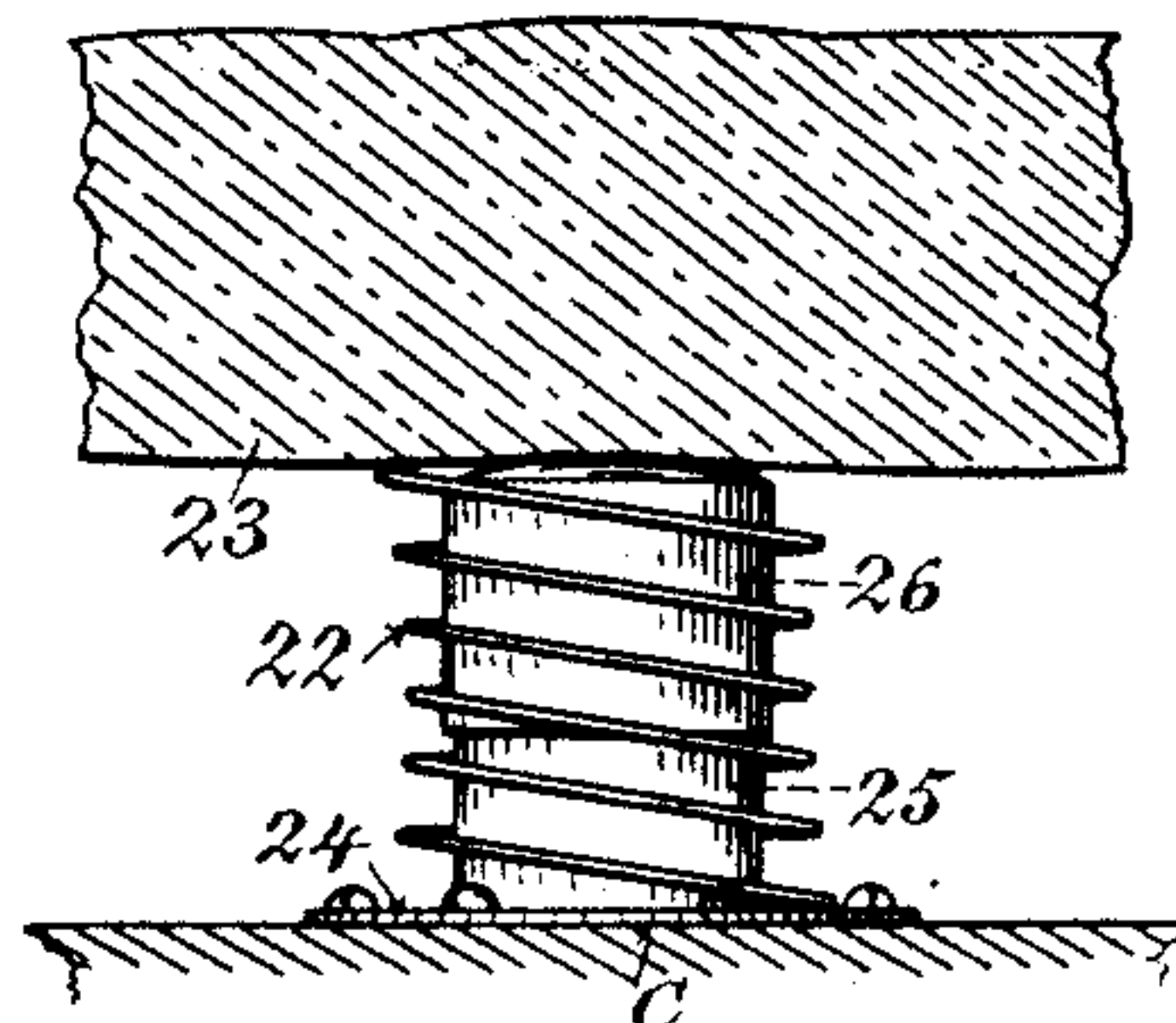


Fig.7

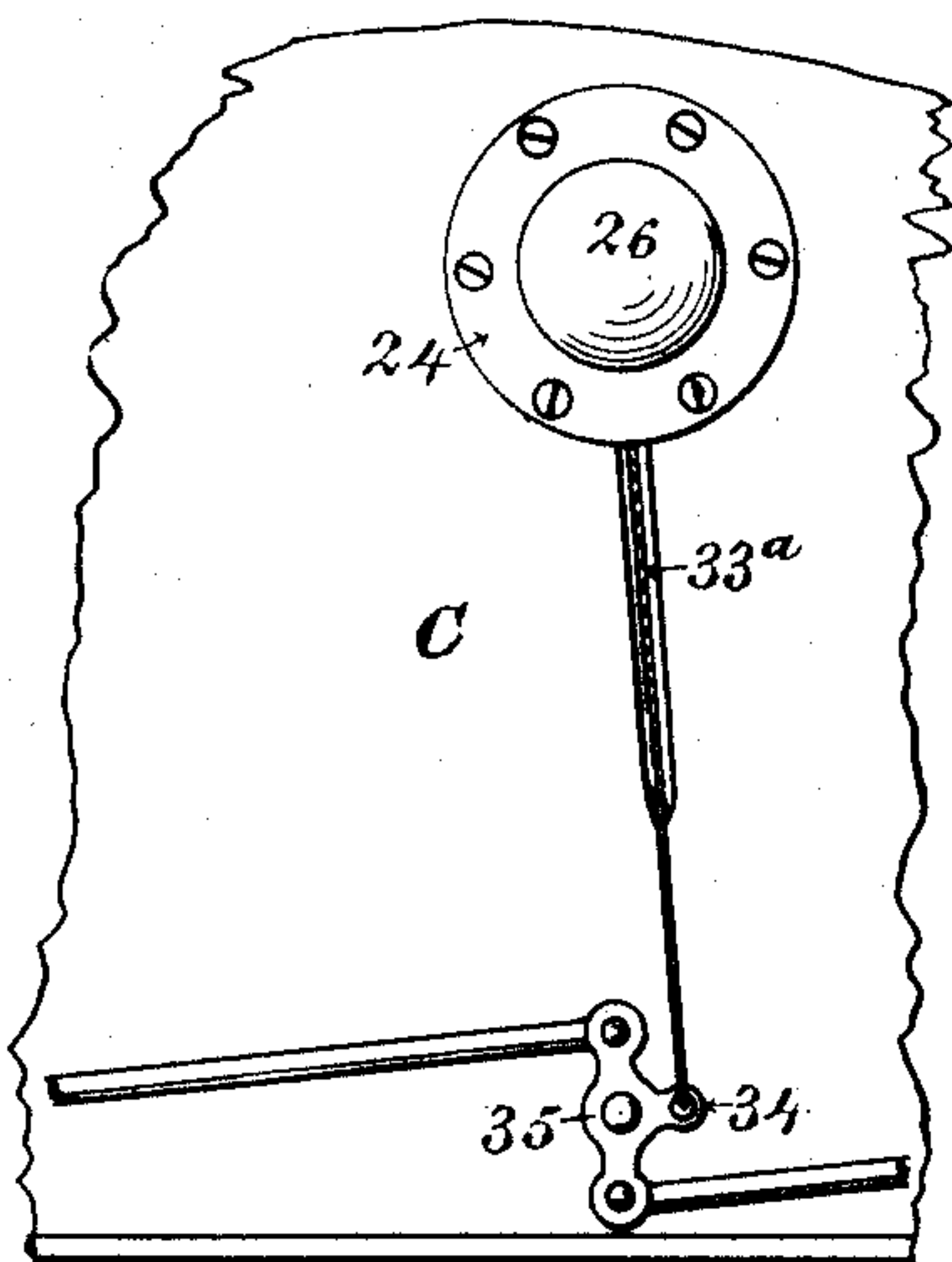


Fig. 5

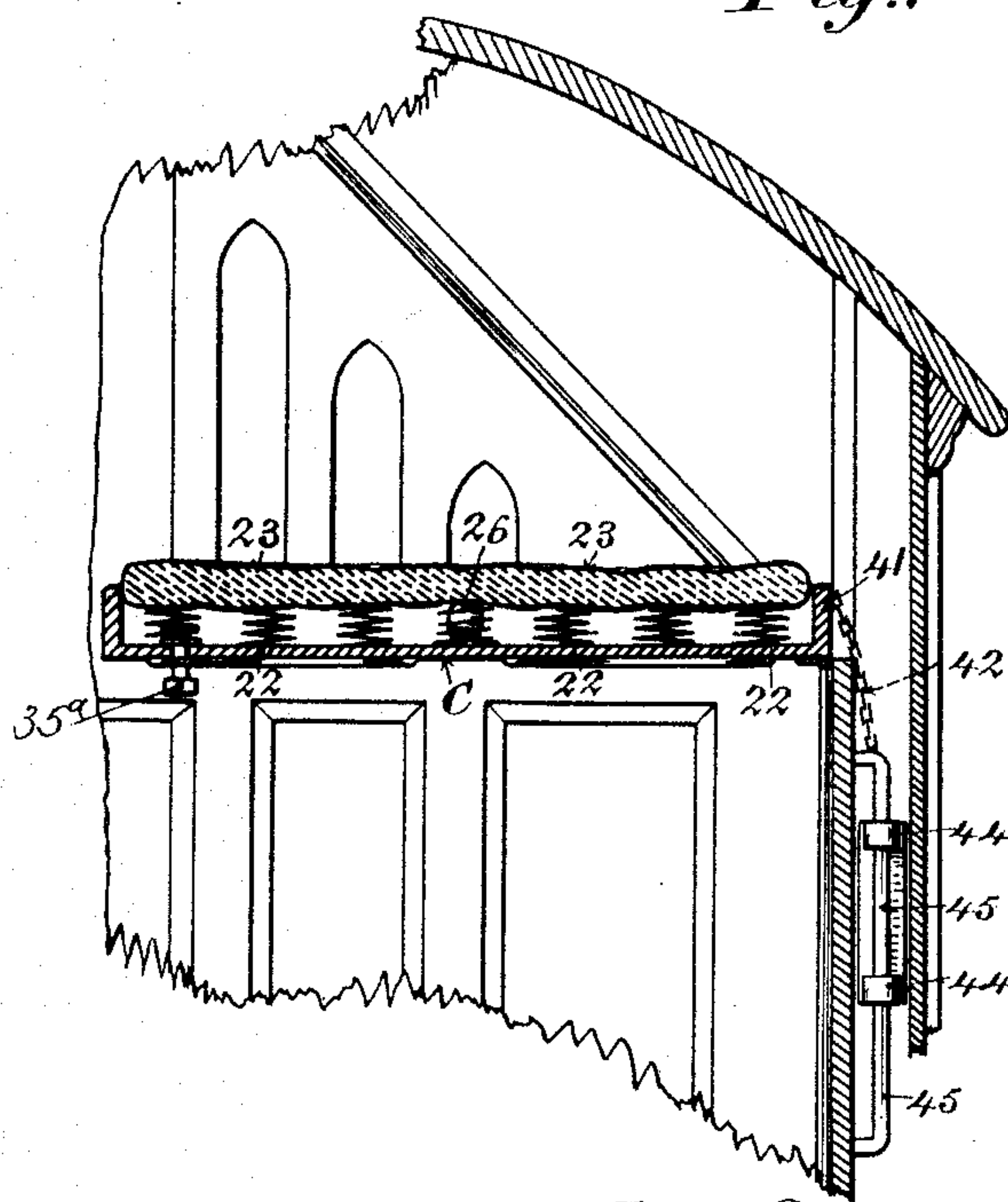


Fig. 8

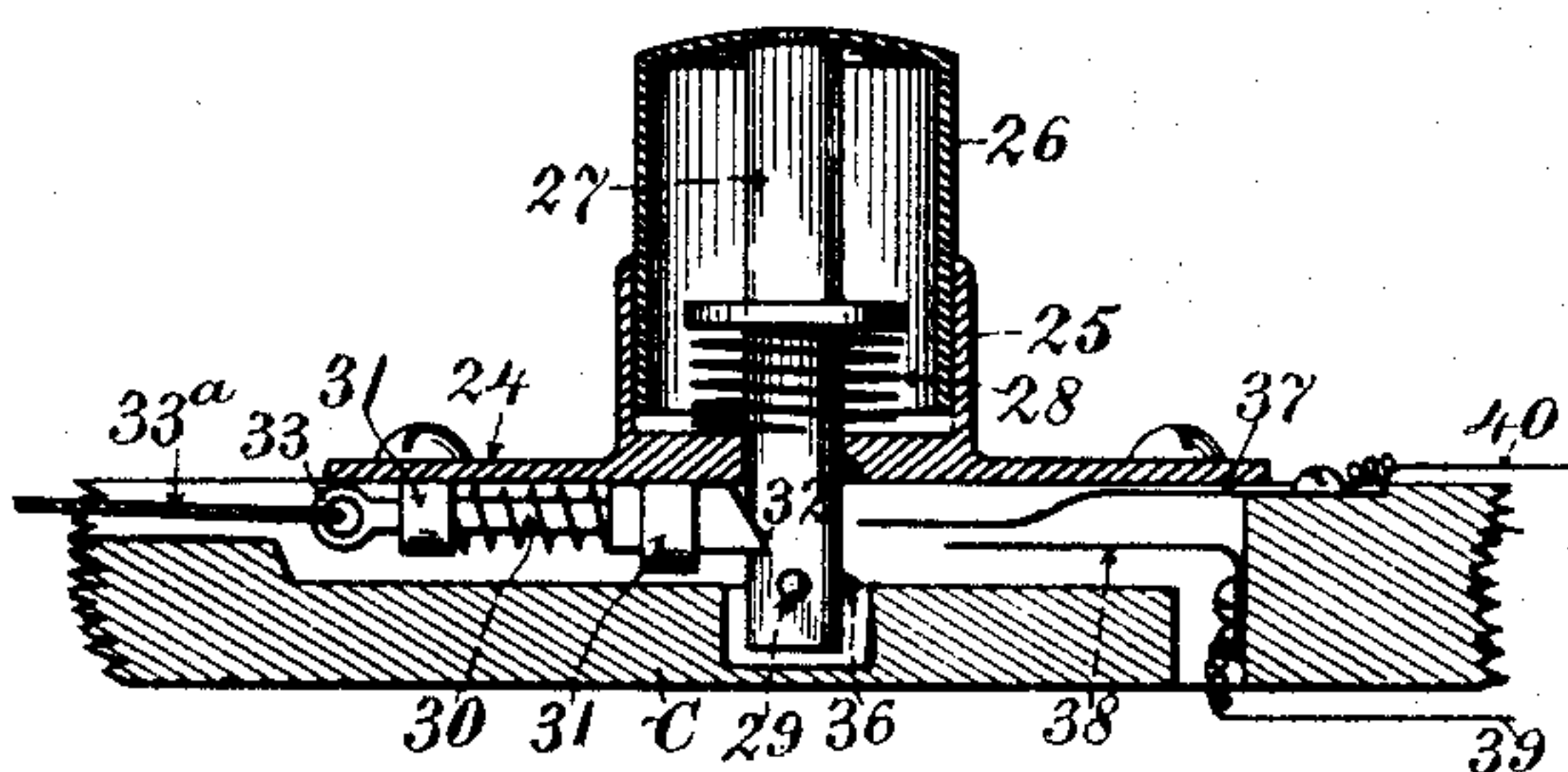


Fig. 6

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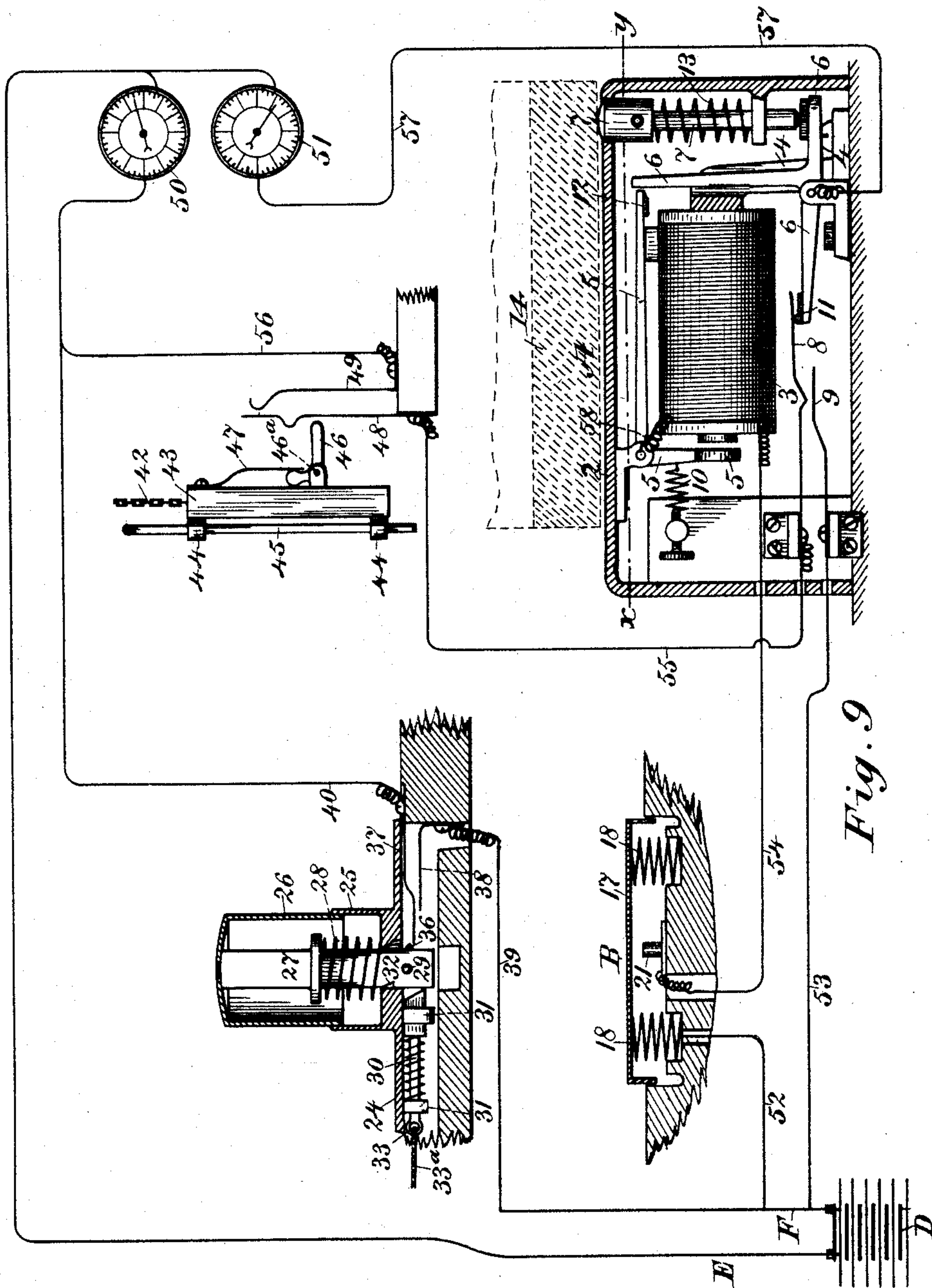
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S. C. SKANKS.
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Witnesses
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UNITED STATES PATENT OFFICE.

STEPHEN CHAMBERS SKANKS, OF TORONTO, CANADA.

SLEEPING-CAR-BERTH REGISTER.

SPECIFICATION forming part of Letters Patent No. 587,165, dated July 27, 1897.

Application filed July 16, 1896. Serial No. 599,394. (No model.) Patented in Canada August 7, 1896, No. 53,177.

To all whom it may concern:

Be it known that I, STEPHEN CHAMBERS SKANKS, of the city of Toronto, in the county of York and Province of Ontario, Canada, have invented a certain new and useful Electric Sleeping-Car-Berth Register, (for which I have obtained a patent in Canada No. 53,177, bearing date August 7, 1896,) of which the following is a specification.

My invention relates to an electrical appliance with which to equip berths of sleeping-cars, so that the use of the berth or its occupation each night will be registered; and the object of the invention is to provide a means whereby positive and reliable registration or indication can be secured every night that a berth has been used or occupied.

In the accompanying drawings, illustrating my invention and in which similar numbers and letters of reference refer to similar parts throughout, Figure 1 represents a sectional view of portion of a sleeping-car to exhibit a general view of a compartment to show the arrangement of the seat-cushions and the back-cushions to form the lower berth and showing the upper berth open. Fig. 2 represents a sectional detail of a portion of a seat-frame to show by what means the occupation of the lower berth is indicated. Fig. 3 represents a plan of portion of a seat-frame to more fully show the means by which the occupation of the berth is indicated. Fig. 4 represents a horizontal section through the magnet-box by which the connection is closed and opened and registration of the lower berth obtained, $x y$, shown in Fig. 9, being line of section. Fig. 5 represents a plan view of portion of the upper berth to show the means for releasing the upper-berth contact mechanism. Fig. 6 represents a sectional view of the means by which contact is made and the occupation of the upper berth is recorded, said means being in the compressed position after having registered use or occupation of the berth. Fig. 7 represents a detail of the means of registering occupation and showing it inclosed within one of the spiral springs supporting the mattress. Fig. 8 represents a section of portion of a compartment, showing the upper berth open and the connection and position of automatic registering means to register when the upper

berth is closed without being occupied; and Fig. 9 represents a diagram of the entire means for registering the use of the upper and lower berths and the closing of the upper berth without it being used.

My invention consists in electrically-operated contrivances arranged on the frames of the seats in the upper berths and in the walls of the car to contact and thereby register their use or occupation and in means by which these contacts in the seat-frames and upper berths are disconnected when not required to register during the daytime, and also in means whereby registration of the closing of the upper berth is made should it not be occupied but closed up to accommodate the occupant of the lower berth in same side of the compartment.

The electric means employed is that of closed metallic circuits, and the battery may be the same employed to operate the call-bells in these cars. The register or dial and the mechanism therein may be any kind suitable, and on such I have no claim of invention.

On the back rail 1 of the seat-frame I attach the magnetic circuit-closing device A, contained within the casing 2, and which device consists of a pair of magnets 3, supported by the double bracket 4, an L-shaped armature 5, suitably supported in the said casing 2, a lever 6, supported at the opposite end of the magnets 3 from the armature 5, a compression-bolt 7 to bear on one end of said lever 6, contact-springs 8 and 9, and a releasing-spring 10 to lift the armature 5 clear of the poles of the magnets 3, which are all arranged within the casing 2, as shown by Figs. 4 and 9. The contact-spring 8 bears on an arm of the lever 6 (from which it is insulated at 11) and causes the vertical arm of said lever 6 to contact with the armature 5. It will be seen that when current passes through the magnets 3 the armature 5 will be attracted to the poles of the magnets 3, and the longer arm of said armature 5 will be thrown outward and the arm of the lever 6 actuated by the contact-spring 8 and the bracket 4 (which attracts an iron lever) will pass under and bear on the end of the lever 6 at the insulation shown at 12.

The compression-bolt 7 has a spring 13, holding it to project at its head outside the casing 2, and at its lower end it permits the lever 6 to rise and its opposite end to depress, so that the springs 8 and 9 normally stand in contact. This circuit-closing device A during the daytime is held open, as shown in Fig. 9, by the back-cushion 14 of the seat, which holds the bolt 7 depressed.

On the end rail 15 or on the front rail 16, or both, I arrange a seat-contact B, consisting of a metallic channel-plate 17, supported on two springs 18 and having slots 19, in which are screws 20 to secure said plate 17 to the rail and at the same time permit it to move vertically, and between the springs 18 there is a stud 21, secured on the rail 15 or 16. When the plate 17 is depressed, it contacts with this stud 21, and when one wire from a battery connects with the stud 21 and the other wire with either the springs 18 or the plate 17 the circuit will be closed on contact of the plate 17 with the stud 21. To avoid unnecessary contact of this stud 21 and plate 17, the seat-cushion frame is suitably recessed to fit in its place on the rails 1 and 15 of the seat-frame without resting on the plate 17.

In the central portion of the upper berth C and encircled by one of the spiral springs 22, supporting the mattress 23, I provide another form of contact, particularly adapted to the situation and which is shown both in the released and depressed positions by Figs. 6 and 9, respectively, and which consists of a plate 24, having a central chamber 25 projecting vertically. Either inclosing or fitting within this chamber 25 is a cap 26, having a central shank 27, encircled by a spring 28, which normally holds the cap 26 elevated. A pin 29 through the shank 27 secures the cap 26 to a limited movement vertically. A spring-actuated bolt 30, secured in guides 31, engages with a catch at 32 in the shank 27 when depressed. To an eye 33 on the bolt 30 a wire 33^a is connected to an eye 34 on the hub 35, which is employed usually to throw the bolts at the ends of the berth C to support it. A T-handle 35^a on the under side of the berth C is employed to open the same, and in opening or closing the berth C the bolt 30 will be disengaged from the shank 27, which will be raised to the full height allowed by the pivot or pin 29 by the spring 28 constantly pressing upward. On the shank 27 there is a projection 36, which is adapted to engage with a contact-spring 37 to deflect it both upward and downward and in its downward deflection to contact with another contact-spring 38 when the cap 26 is being depressed, which takes place when the passenger's weight first comes on the mattress 23. A wire 39 is connected to the spring 37 and another wire 40 to the contact-spring 38, and these wires 39 and 40 are at their other ends connected to a register and a battery. Contact of the

springs 37 and 38 will thereby be registered or indicated. It is evident that after the first compression of the cap 26, no matter how often the occupant gets in and out of the berth C, no subsequent compressions record, as the shank 27 is held by the bolt 30 until the berth C has been closed up.

To the hinge-rail 41 of the berth C a chain 42 is attached, which has a weight 43 attached to its opposite end. On the weight 43 are guides or sleeves 44, through which a guide-rod 45 passes and at its ends is secured in the car-wall, so that the weight 43 will move vertically along the guide-rod 45. This weight 43 has an arm 46, projecting at right angles and having a stop-joint 46^a and a spring 47, so that this arm 46, when the weight 43 is lifted, swings downward when its free end comes in contact with any body, but as soon as the body has been passed it regains its position at right angles to the weight 43, but on depression of the weight 43 the arm 46 remains unyielding. Contact-springs 48 and 49 are arranged near the weight 43, so that the arm 46 contacts with the spring 48 and causes it to contact with the other spring 49, and indication of each depression of the weight 43 can be obtained, so that if the berth C should be closed up without having been occupied during the night it will be registered same as though contact had been made by the depression of the cap 26. This last means is to prevent the upper berth C being closed up unoccupied.

Having now described the different means for registering the occupations of the lower and upper berths and for the closing of the upper berth during night and unused or unoccupied, next it is necessary to describe what connections are made and the circuits over such wiring.

The dials or registers 50 and 51 (upper and lower berths, respectively) are placed in any suitable or convenient situation and under lock and key, accessible to some authorized person.

From the battery D (shown in Fig. 9) a battery-wire E connects with the upper and lower berth registers 50 and 51, and from the other pole of said battery E a wire F branches out into the wire 39 to the upper-berth contact-spring 38. Another branch wire 52 connects with the lower-seat contact B, and a third wire 53 connects with the contact-spring 9 in the circuit closing and opening device A.

The upper-berth contact-spring 37 is connected by a wire 40 to the register 50, and from the lower berth or seat contact B a wire 54 connects to the magnets 3. The contact-spring 8 is connected by a wire 55 to the contact-spring 48 in the means for registering the closing of the upper berth C, and from the other contact-spring 49 in same device a wire 56 connects to the register 50. From the lever 6 in the circuit closing and opening device A a wire 57 is connected to the register 51, and

from the magnets 3 a wire 58 connects with the armature 5 or its pivot.

On compression of the lower berth or seat contact B the following circuit is established: 5
commencing at the battery D, through wire 52, spring 18, plate 17, stud 21, wire 54, magnets 3, wire 58, armature 5, lever 6, wire 57, register 51, and back through battery-wire E, on 10
the way attracting the armature 5 to the poles of magnets 3, and thereby opening or breaking the circuit against subsequent registration.

When the upper berth C is occupied, the cap 26 is depressed and the projection 36 deflects the spring 37 to contact with the spring 15
38, and circuit is then through wires F and branch 39, springs 38 and 37, wire 40, register 50, and back through battery-wire E to battery D. Finally, when or in case of closing 20
up the upper berth C without it having been occupied during the night, and it being understood that the closing takes place during the night, the following circuit is made, battery D, along wire F, its branch wire 53, 25
through springs 9 and 8, wire 55, springs 48 and 49, wire 56, register 50, and return by battery-wire E from register 50, contact having been made by the depression of weight 43, the arm 46 thereon causing springs 48 and 30
49 to contact, which closed the circuit just described.

As it is customary to store during daytime the mattress and bedding of the lower berth in the upper berth, the lower berth will be 35
the first one removed in the morning, and by the return of the back-cushion 14 to its place the compression-bolt 7 will be depressed, as shown in Fig. 9, and broken circuit established or maintained, so that the subsequent 40
closing of the upper berth C would not register, as there could be no contact between springs 9 and 8. This broken circuit between springs 9 and 8 also permits during daytime of opening and closing again of the upper 45
berth C for any purpose without registration.

Having now fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a sleeping-car berth, an electric-circuit opening and closing device arranged on 50
the frame of a seat so that the back-cushion operates to break circuit when in position and when said cushion is removed said device is changed to closed circuit within it, said 55
device consisting of a casing having a compression-bolt projecting, a spring to operate said bolt, a T-lever operated by said bolt, an L-shaped armature to contact with said T-lever, a pair of magnets supported within 60
the said casing, a contact-spring to bear on said T-lever, a second contact-spring connected by wire to a battery and arranged to contact normally with said contact-spring operated by and operating said T-lever, and 65
a connection between the magnets and said

armature, substantially as shown and described.

2. In a sleeping-car upper berth, a contact device arranged at the central part of the berth and consisting of a plate having a 70
chamber at center, a spring within the chamber, a cap over said chamber and resting on said spring, a shank from said cap through said plate, a spring-actuated bolt to engage a catch in said shank, a projection on the 75
shank, a contact-spring to be deflected by said projection when passing, a second contact-spring to contact with said former spring when engaged with said projection, and a connection from said spring-actuated bolt to 80
the ordinary latching-handle of the berth, substantially as shown and described.

3. In a sleeping-car, the upper berth having a weight attached by chain to the hinge-rail of the berth, a guide-rod secured to the car- 85
wall to stand vertically, sleeves on said weight to move along said guide-rod, a stop-jointed arm projecting from said weight, a spring to actuate said arm at right angles to said weight, and contact-springs arranged so that 90
one will contact with the arm on said weight and thereby contact with the other spring, substantially as shown and described.

4. In a sleeping-car, the combination of a battery, a register connected to said battery, 95
a contact-spring connected to said register, a second contact connected to a circuit opening and closing device on the seat-frame and finally to said battery, a weight secured to 100
the upper berth and adapted to slide vertically on a guide-rod, the guide-rod secured to the car-wall by its upper and lower ends, an arm on said weight and adapted to contact with one of said contact-springs, and a 105
spring on the weight to operate said arm, substantially as shown and described.

5. In a sleeping-car, the combination of a battery, a register connected to said battery, an upper-berth contact device arranged near 110
the center of the upper berth, a connection from the contact device to the battery, a weight supported by the hinge-rail of the upper berth, a guide to direct the weight vertically, a stop-jointed arm on the weight to cause the arm to deflect a contact-spring on 115
descent, the said contact-spring, a wire from said spring to the circuit opening and closing device on the seat-frame in lower berth, a wire from said device on seat-frame to the battery, a second contact-spring near said 120
weight, and a wire connection from said second contact-spring to the register, substantially as shown and described.

6. In a sleeping-car, the combination of a battery, a register connected to the battery, 125
an upper-berth contact device in circuit between the battery and register, a lower-berth contact device on the seat-frame, wires from said lower-berth contact device to the battery and a circuit opening and closing device, 130

<p>said circuit opening and closing device, a wire from the circuit opening and closing de- vice to a contact-spring operated by depres- sion of the weight, a second contact-spring, 5 a wire from the second contact-spring to the register, a weight connected to the hinge-rail of the upper berth, an arm on the weight and provided with a spring and stop-joint so as</p>	<p>to cause the contact-springs to contact on de- pression of the weight, substantially as shown 10 and described.</p> <p style="text-align: right;">STEPHEN CHAMBERS SKANKS.</p> <p>Witnesses: JOSEPH TURNER, JAMES MCBRIDE.</p>
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