

July 20, 1943.

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2,324,774

MOVABLE LIP FOR TOY FIGURES AND MEANS FOR ACTUATING THE SAME

Filed Nov. 21, 1941

2 Sheets-Sheet 1

Fig. 1.

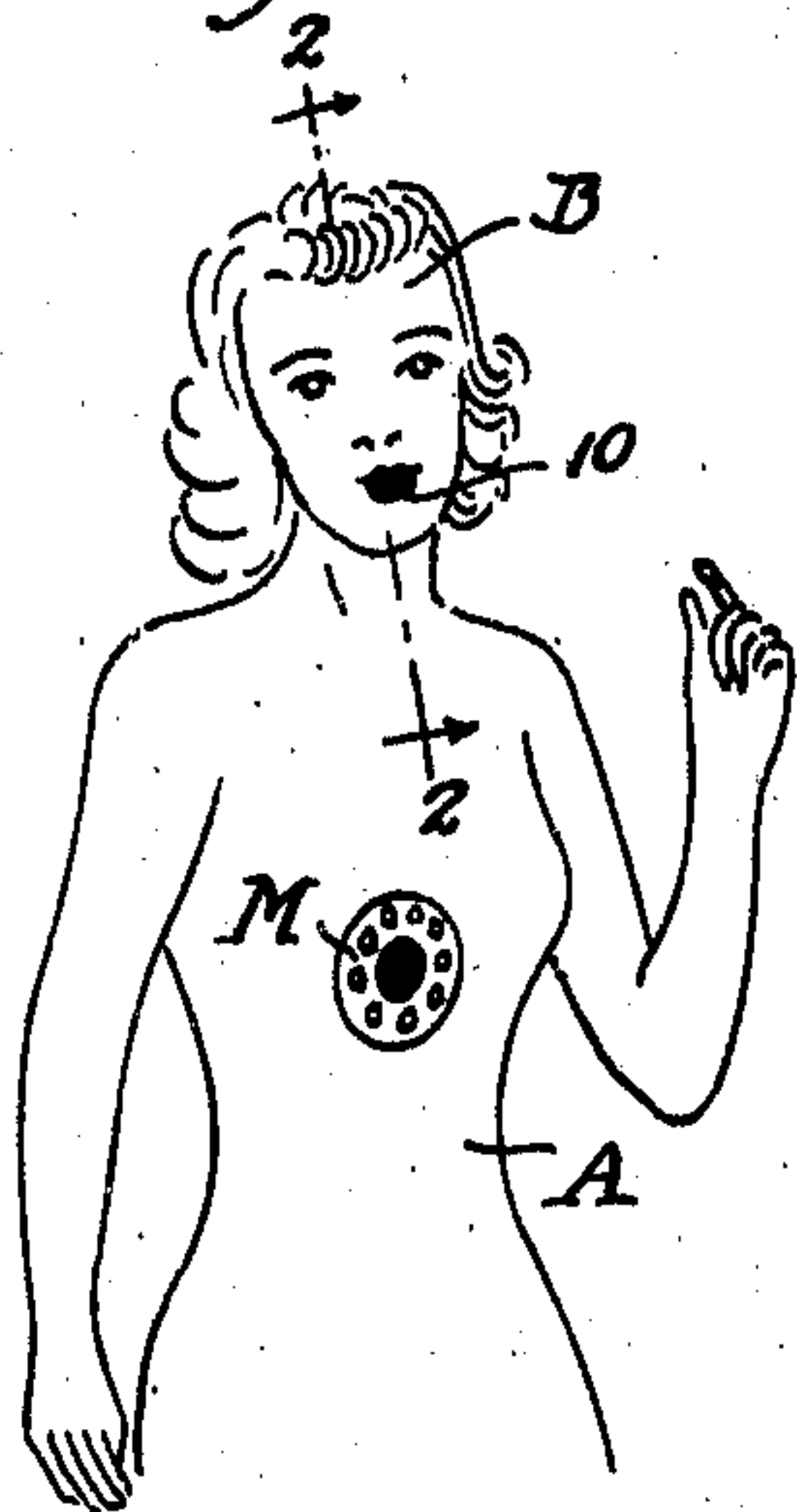


Fig. 2.

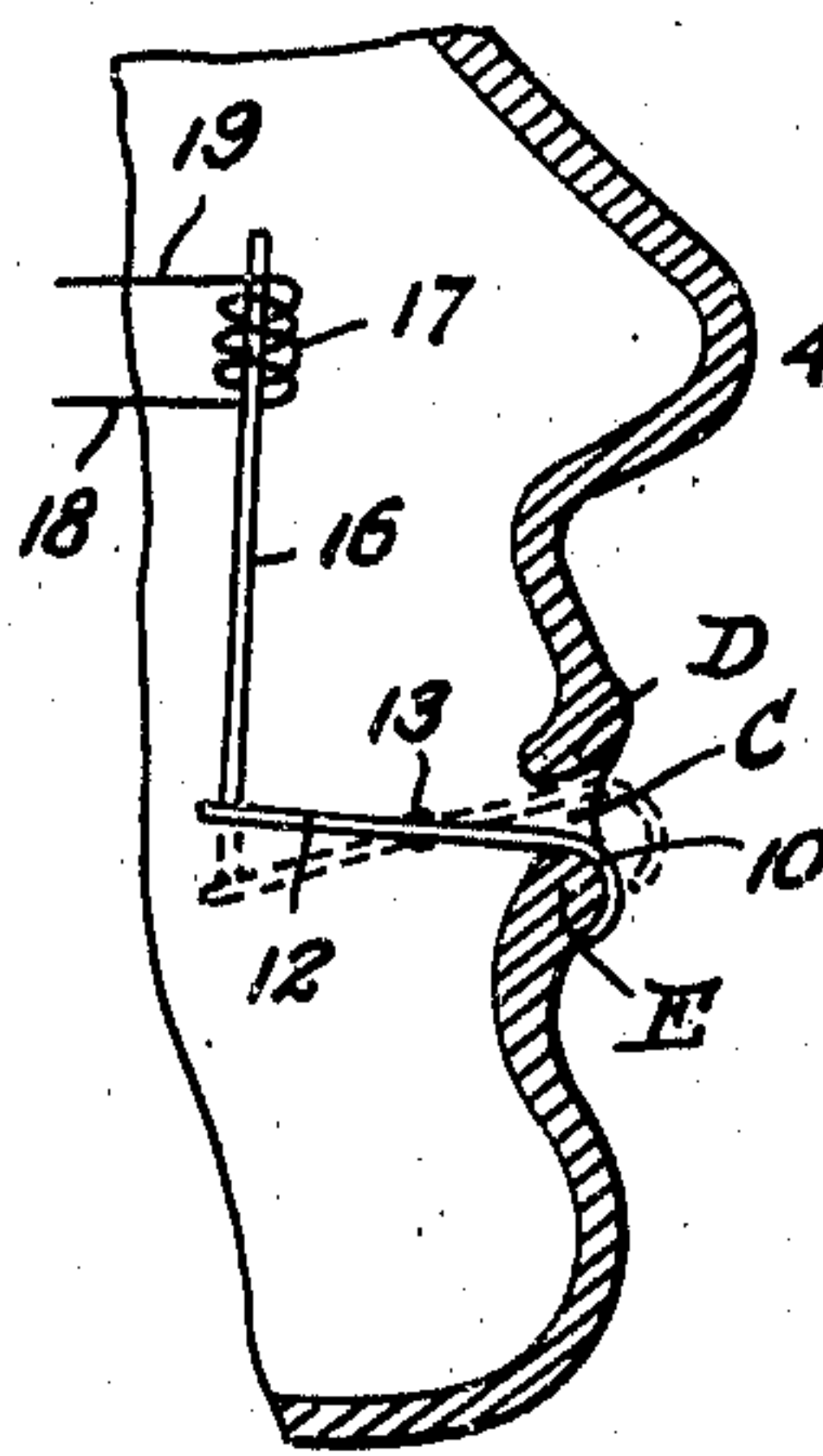


Fig. 3.

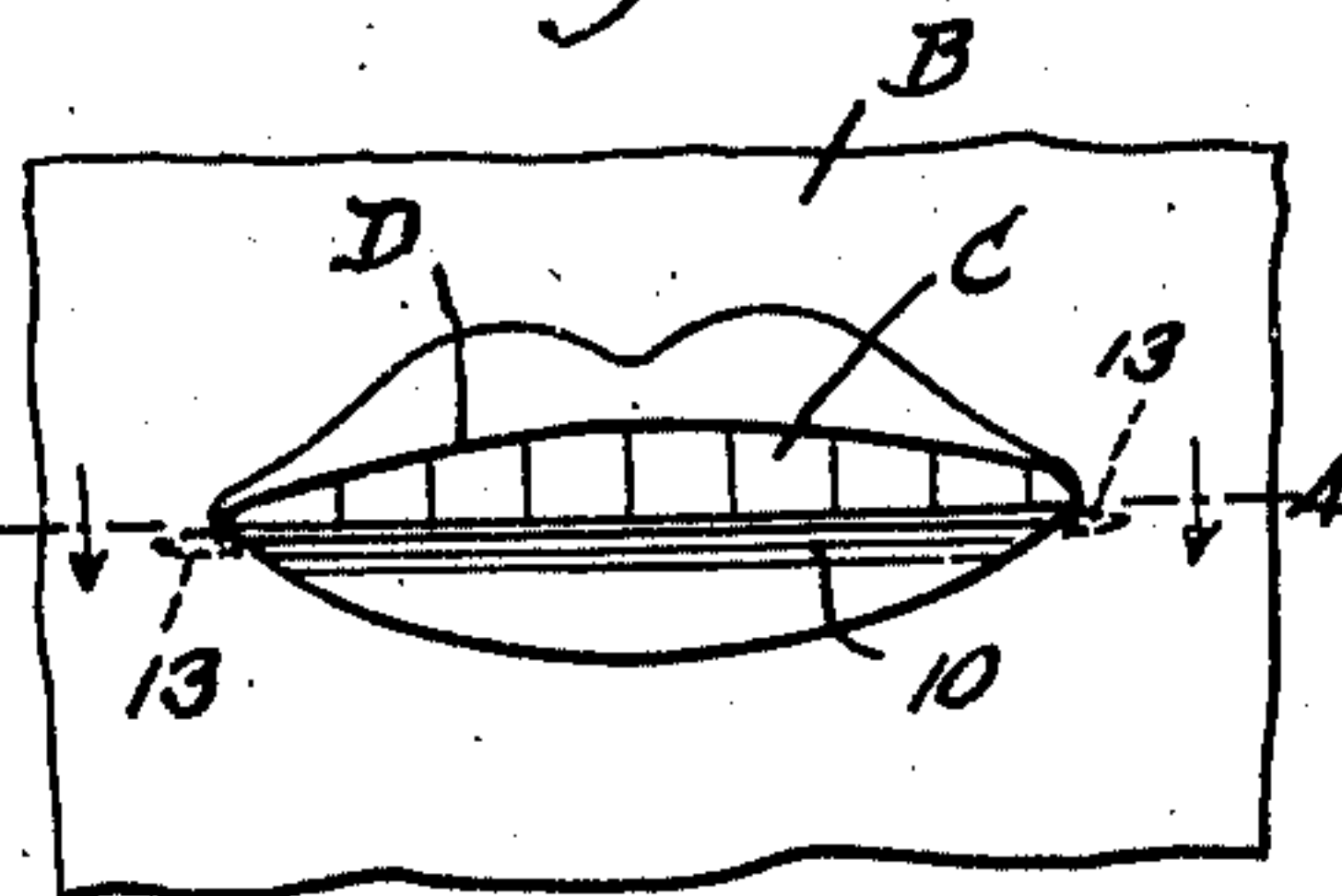


Fig. 4.

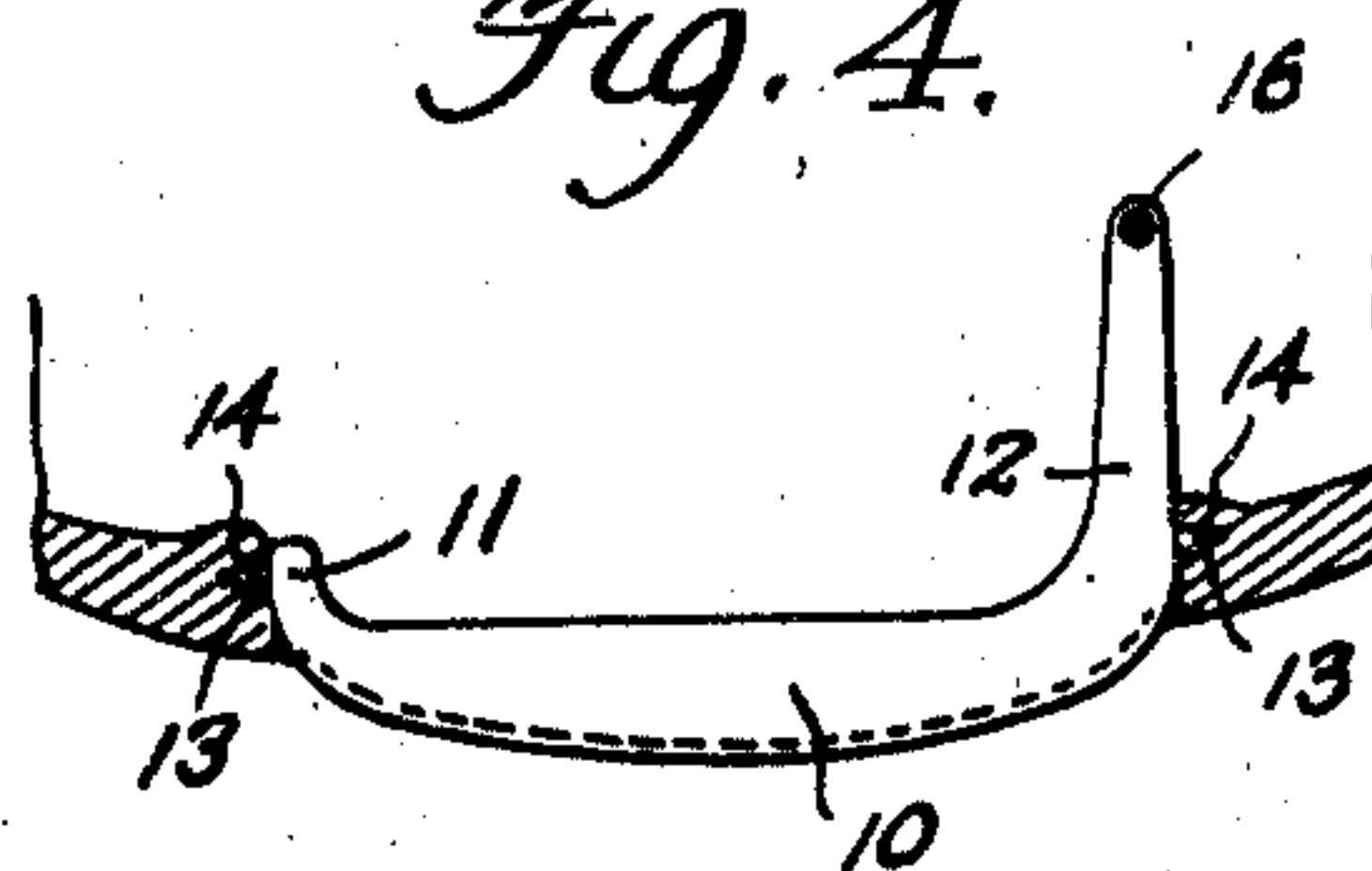
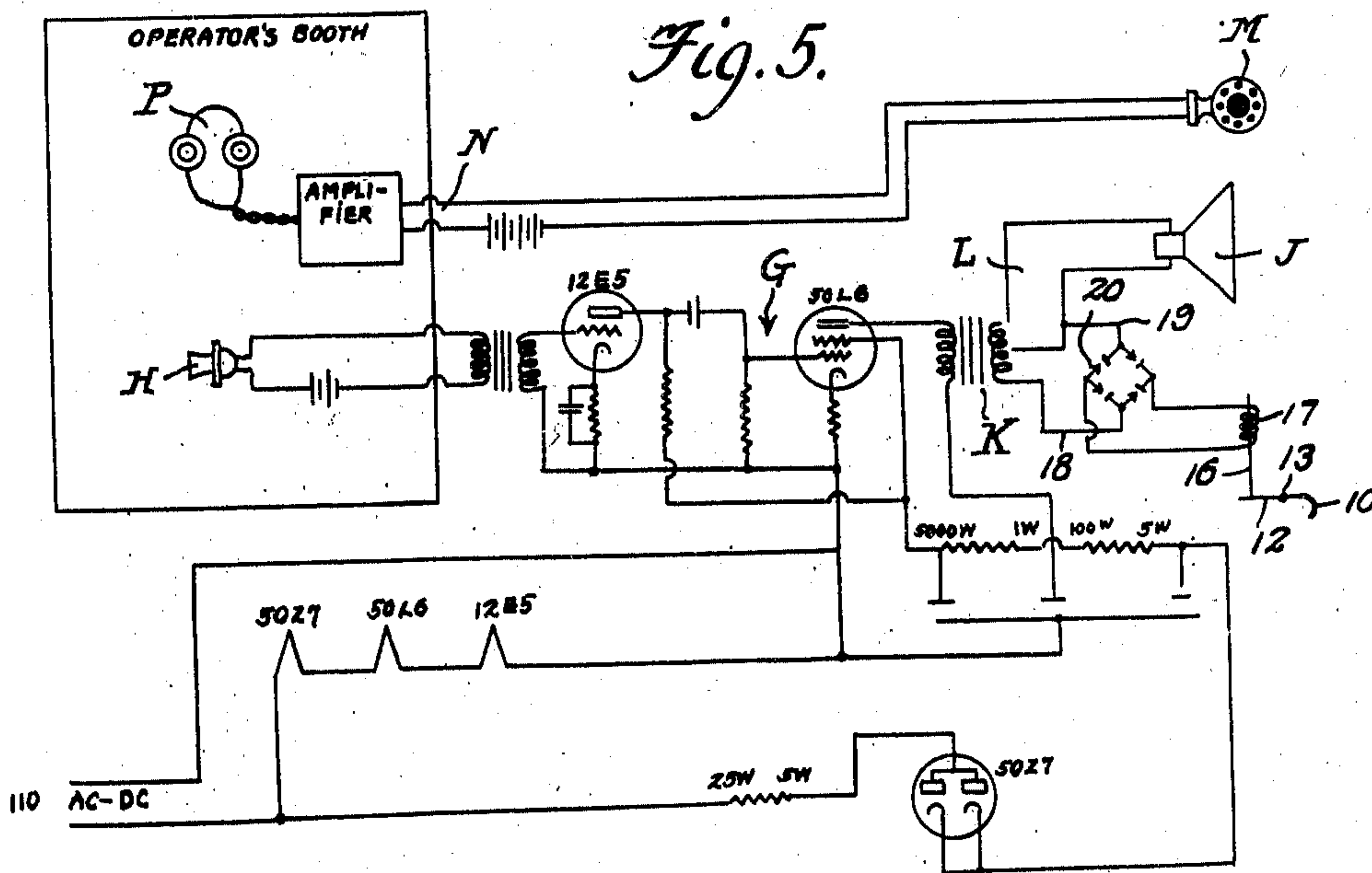


Fig. 5.



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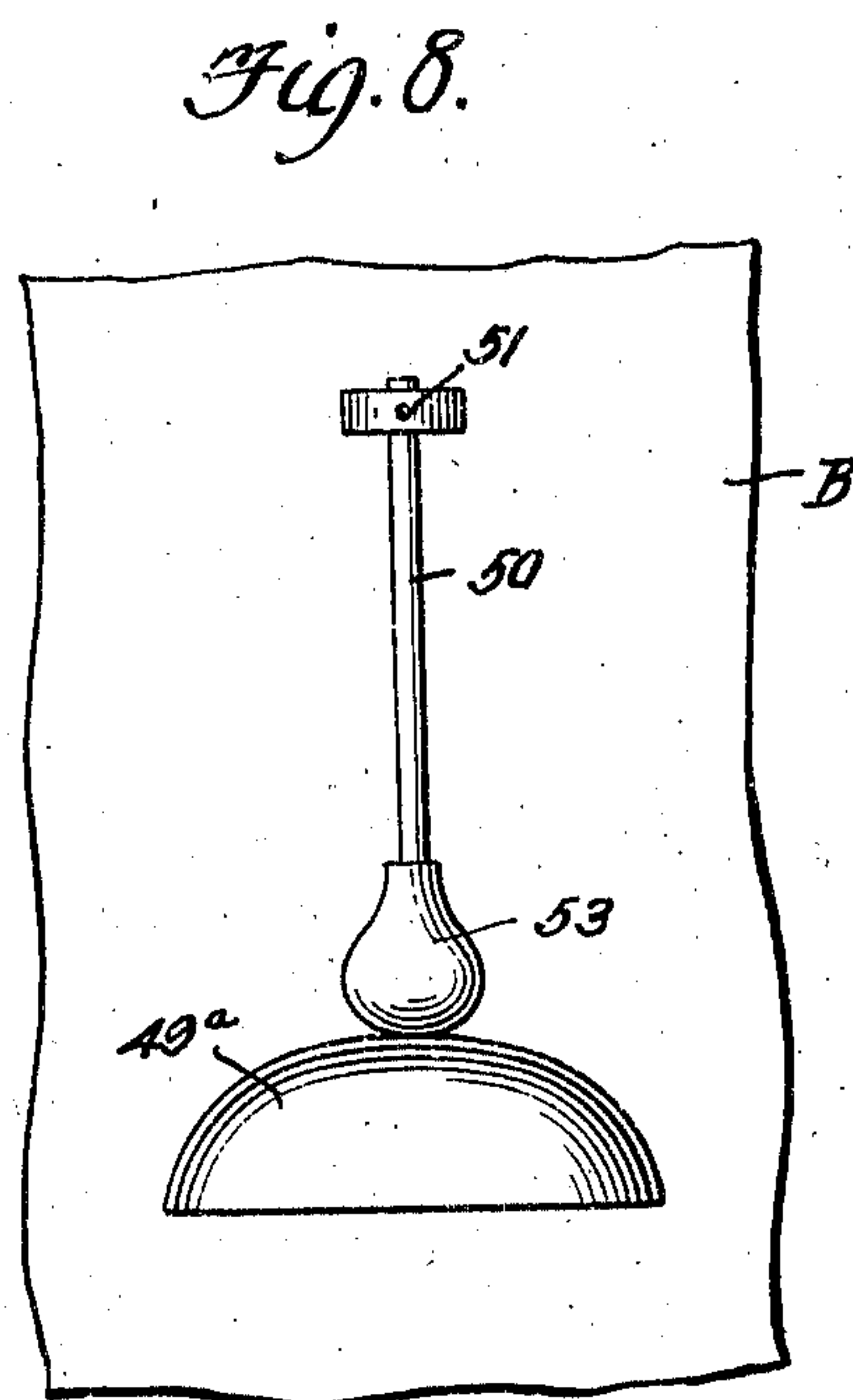
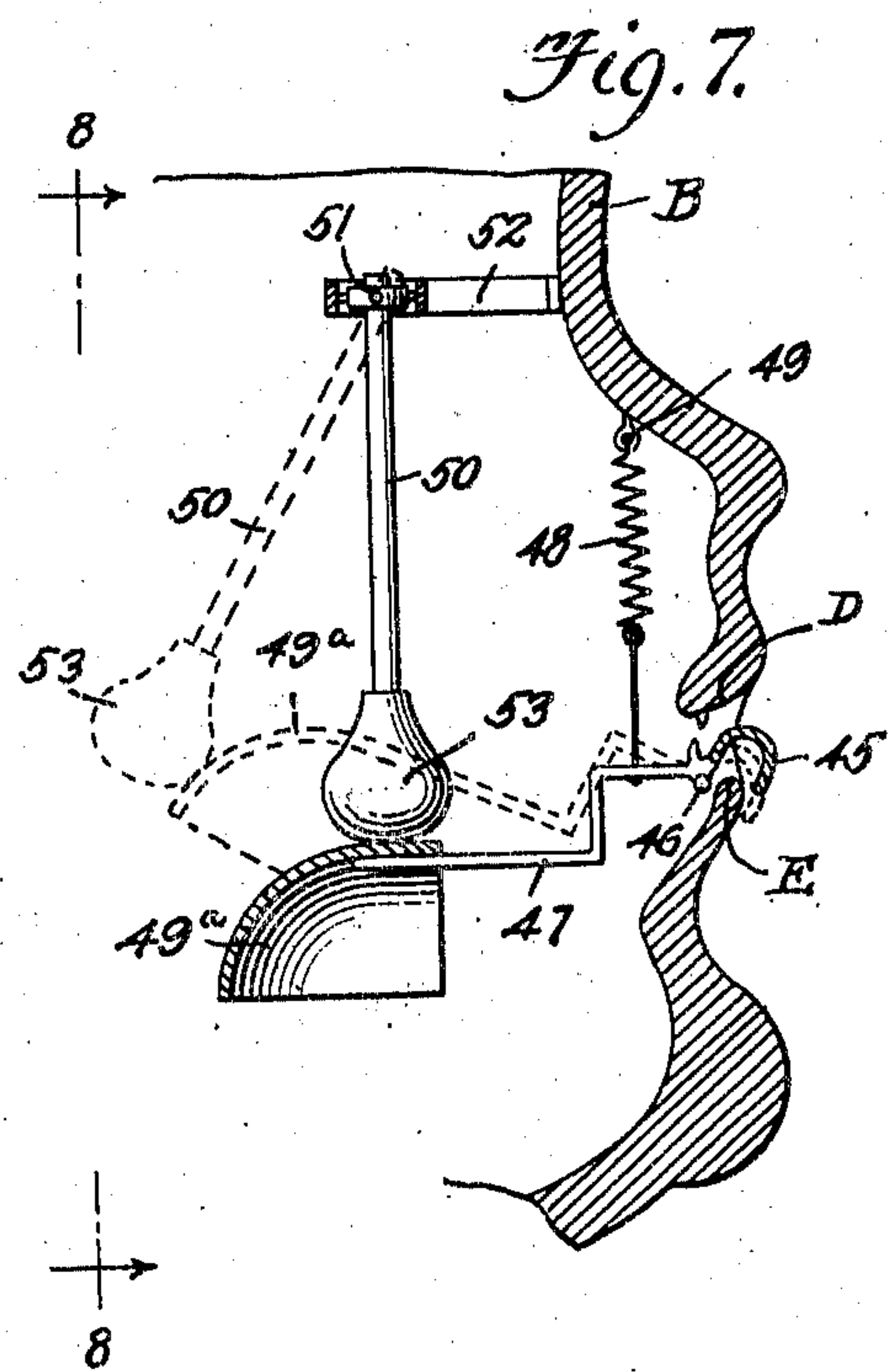
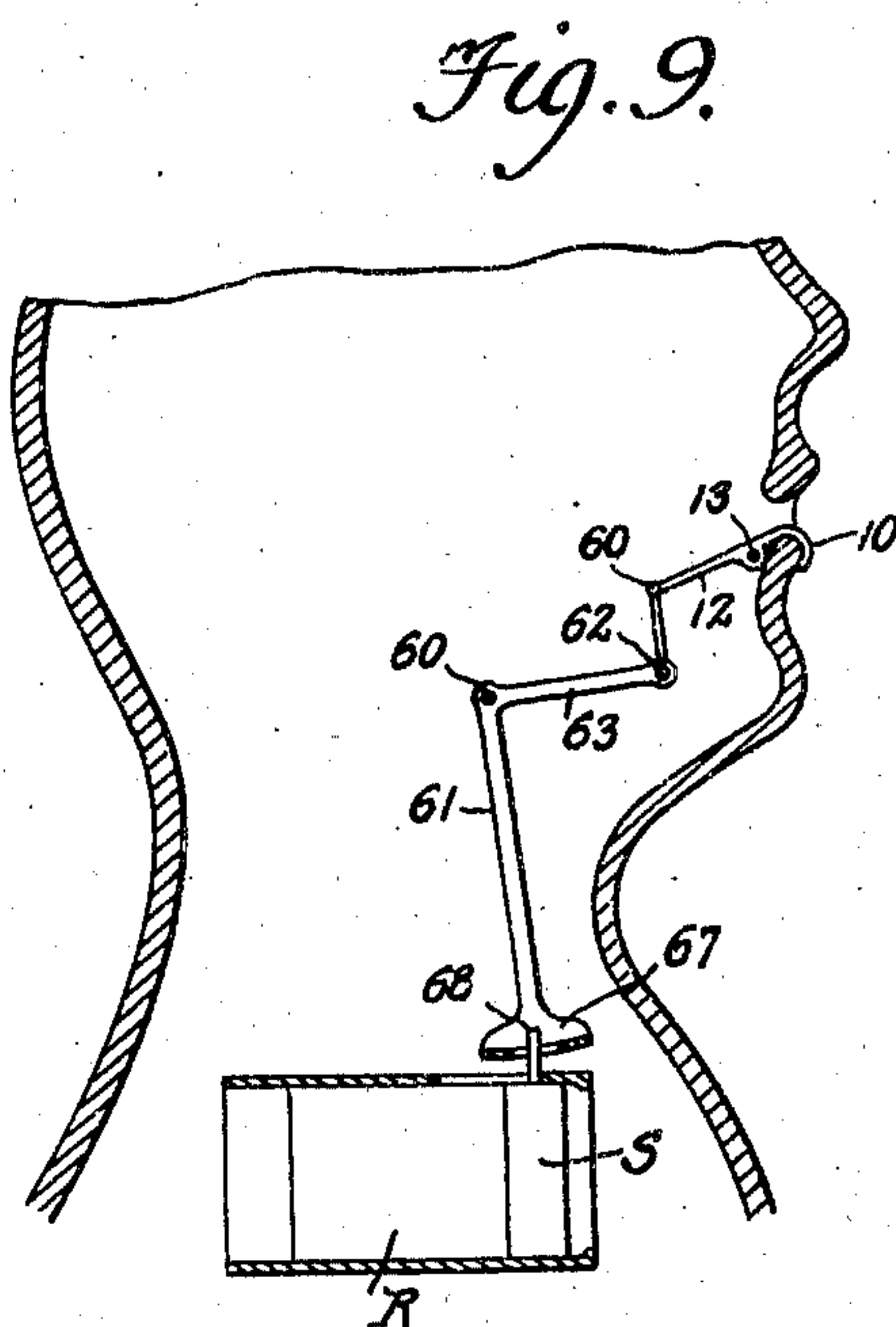
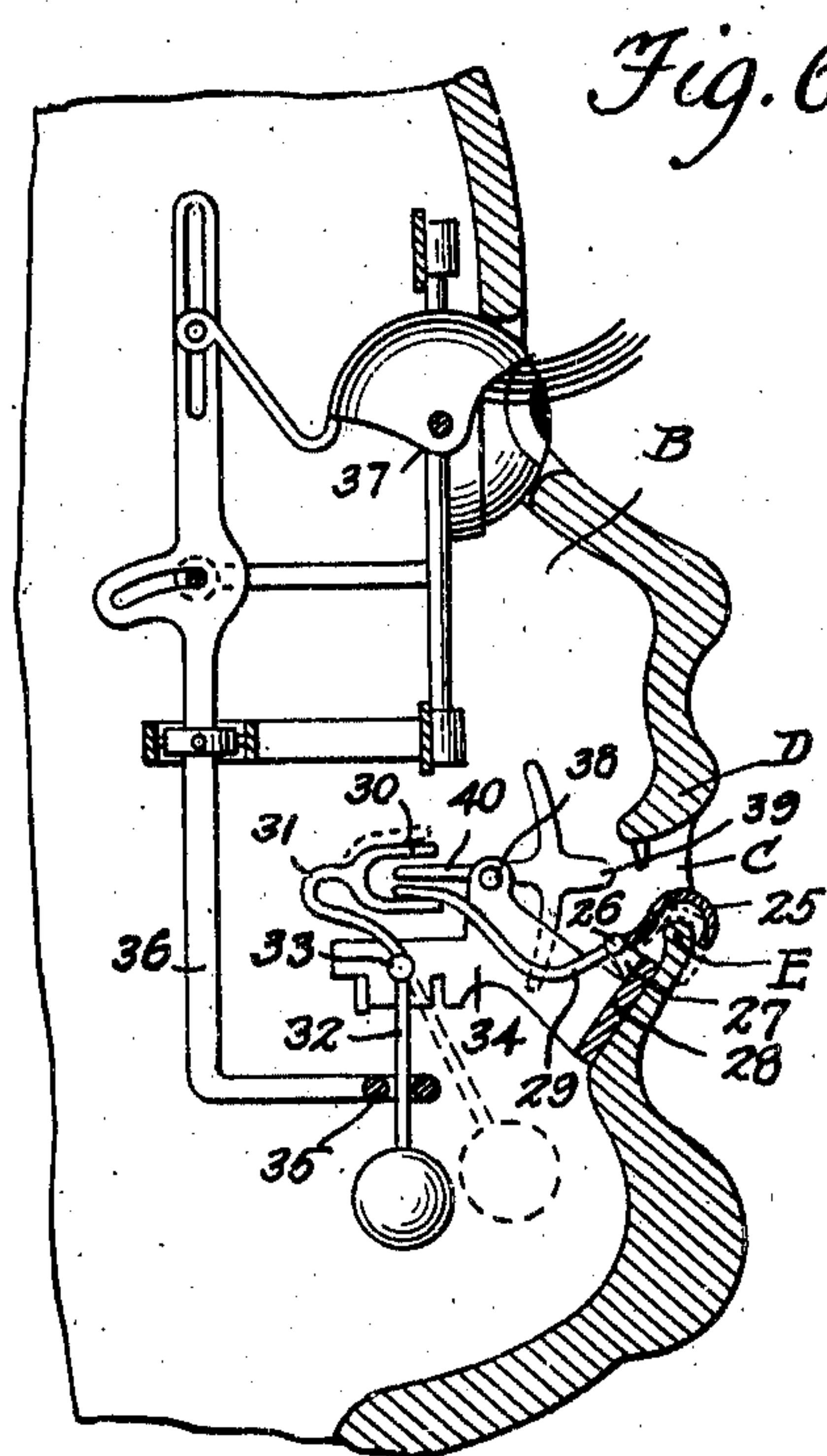
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MOVABLE LIP FOR TOY FIGURES AND MEANS FOR ACTUATING THE SAME

Filed Nov. 21, 1941

2 Sheets-Sheet 2



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2,324,774

MOVABLE LIP FOR TOY FIGURES AND MEANS FOR ACTUATING THE SAME

Beulah Louise Henry, New York, N. Y.

Application November 21, 1941, Serial No. 419,818

4 Claims. (Cl. 46—171)

This invention relates to dolls, manikins or equivalent toy figures and refers more particularly to an improved movable lip structure for the mouth opening which is so constructed, arranged, mounted and actuated as to more closely simulate the life-like movement of the lips and the opening and closing of the mouth.

More particularly the invention is directed to a head for dolls, manikins or toy figures in which an opening therein defines a mouth and wherein a lip element is disposed in covering relation with one edge portion of the mouth opening with the lip element so mounted and actuated as to move towards and away from the opposite edge portion of the mouth opening without completely uncovering the mouth edge portion with which it is associated, to thereby simulate life-like movements of the lip thus imitating the opening and closing of the mouth.

It is a further object of the invention to provide in a movable lip structure of the indicated character, means carried by the lip element and extending interiorly of the head structure with which actuating means cooperates to impart movement to the lip element, and within the scope of the invention it is to be understood that said cooperative means may assume various forms such as a pendulum or movable weight which in certain instances may form a part of an artificial voice as well as an electrical element forming a part of the speaker unit or any other equivalent means.

With the above enumerated and other objects in view, the invention is set forth in greater detail in the following specification and illustrated in the accompanying drawings in which:

Fig. 1 is a perspective view of a manikin equipped with a movable lip constructed in accordance with the invention.

Fig. 2 is an enlarged fragmentary vertical sectional view through the manikin head taken approximately on the line 2—2 of Fig. 1, and illustrating an electrical actuating means for the lip element.

Fig. 3 is an enlarged fragmentary front view of a mouth equipped with a movable lip element constructed in accordance with the invention.

Fig. 4 is an enlarged sectional plan view taken approximately on the line 4—4 of Fig. 3.

Fig. 5 is a diagrammatic view illustrating an electrical voice transmitting and amplifying circuit including means coupled therewith for actuating the lip element.

Fig. 6 is a fragmentary vertical sectional view through a doll's head with a modified form of

movable lip element and weight actuating means therefor.

Fig. 7 is a similar view of a further modification of lip actuating means.

Fig. 8 is a transverse sectional view thereof taken approximately on the line 8—8 of Fig. 7.

Fig. 9 is a fragmentary vertical sectional view illustrating an artificial voice actuating means for the movable lip element.

Referring to the drawings by characters of reference and particularly to the form of the invention illustrated in Figs. 1 to 5 inclusive, the invention is illustrated as applied to a manikin A having a head B of hollow construction, said head being formed with a mouth opening C having spaced opposite upper and lower edges D and E.

The invention consists of a lip element 10 constructed of thin, lightweight sheet material of generally concavo-convex configuration in cross section which is disposed in covering relation with one of the edges of the mouth opening C, the same being shown in the present instance as arranged in covering relation with the lower edge E. The lip element 10 extends longitudinally of the edge E and conforms generally to the contour thereof and the same is fulcrumed on horizontal aligned transverse axes for vertical rocking movement towards and away from the upper edge D to simulate the opening and closing of the mouth. As illustrated, the lip 10 is formed with inwardly directed extensions 11 and 12 at the opposite ends thereof having lateral trunnions 13 which are arranged within aligned bearings 14 in the head B at the opposite ends of the opening C.

Movement may be imparted to the lip element 10 by various actuating means, but as illustrated in the use of the device in connection with a manikin, the same is actuated by and coincident with the impulses received from the amplified circuit of a loud speaker unit. The loud speaker unit, indicated generally by the reference character G, is of standard construction and includes a transmitter H for receiving the voice impulses and a speaker element J for emitting the amplified sounds and which speaker element J is preferably located within the head B of the manikin.

The extension 12 of the lip element 10 is engaged by the vertically reciprocatory core 16 of a solenoid 17 which is tapped off the output coil of the transformer K by means of conductors 18 and 19 and which solenoid circuit is in parallel with the circuit L of the speaker element J. The solenoid circuit has arranged therein a bridge

rectifier 20 by means of which the impulses imparted to the solenoid are rendered uniform so as to effect uniform swinging movement of the lip element. In use of the speaking manikin with the movable lip, the same may be provided with a microphone M connected with an amplifier circuit N with which earphones P are connected so that the operator who speaks into the transmitter H of the amplifier unit G may answer questions directed to the manikin.

In the form of the invention illustrated in Fig. 6 of the drawings, B designates the head of a doll which is of hollow construction and which is formed with a mouth opening C having spaced opposite upper and lower edges D and E. The lip element 25 is constructed of a thin, lightweight sheet material of generally concavo-convex configuration in cross section and as in the previous form of the invention, is disposed in covering relation with one of the edges of the mouth opening, and as illustrated the same is associated with the lower edge E. The lip element extends longitudinally of the edge E and conforms generally to the contour thereof and in this instance the same is fulcrumed on a transverse pivot pin 26 carried by a bracket 27, the base 28 of which is secured within the doll head B below the lower edge E of the mouth opening. The lip element is formed with a rearwardly directed actuating arm 29, the rear terminal of which is engaged by a forwardly directed yoke 30 secured to the upper terminal 31 of a pendulum 32 which is fulcrumed as at 33 on a horizontal transverse pivot carried by a bracket arm 34 attached to the base 28. In this instance the pendulum also engages the looped lower terminal 35 of an actuating arm 36 controlling a movable eye structure, designated generally at 37, so that the pendulum functions to simultaneously actuate the movable lip structure and the movable eye structure when the doll is moved from an upright to a horizontal position or vice versa. The bracket 34 in this instance also has pivoted thereto as at 38 a movable tongue 39 which is formed with a rearwardly directed arm 40 engageable by the yoke for effecting a movement of the tongue 39 coincident with the movement of the movable eye structure and movable lip element 25.

In the form of the invention illustrated in Figs. 7 and 8 of the drawings, the doll's head B is similarly formed with a mouth opening C having spaced opposite upper and lower edges D and E. In this form the lip element 45 is fulcrumed on a transverse horizontal pivot 46 and is provided with a rearwardly directed arm 47 which has connected therewith a coiled contractile spring 48 anchored at its upper terminal 49 to the interior of the doll's head for normally maintaining the lip in the downwardly swung position illustrated in dotted lines in Fig. 7.

The rearwardly directed arm 47 is provided with a rear terminal 49^a in the form of a segment of a sphere having the convex surface disposed upwardly and the means for actuating the lip element 45 consists of a pendulum arm 50 suspended at its upper end as at 51 from a bracket 52 and provided with a rounded weight 53 at its lower terminal engageable with the arm terminal 49 so that upon movement of the doll laterally or rearwardly from an upright position, the pendulum will be swung relative to the arm terminal 49^a to permit the spring to raise the arm 47 and lower the lip element 45 from the position shown in full lines in Fig. 7 to the dotted line position thereby simulating the opening of the mouth. When the doll is returned to an upright position,

the pendulum weight 53 engaging the convex upper surface of the arm terminal 49^a will depress the arm 47 against the tension of the spring 48 and thereby move the lip towards the upper edge D to simulate the closing of the mouth.

In the form of the invention illustrated in Fig. 9 of the drawings, the body of the doll A has located therein a mechanical voice R of the type having a movable gravity actuated member S. The lip element 10 which is fulcrumed at 13 and provided with the inwardly extending extension 12 is pivotally connected as at 60 at its rear end to a link 61, which link is in turn pivotally connected as at 62 at its lower end to the arm 63 of a bell-crank lever 64 fulcrumed as at 65. The other arm 66 of the bell-crank is provided with a slotted terminal 67 which is engaged by a pin 68 on the movable member S of the mechanical voice R. Under this construction and arrangement, when the member S is gravitationally moved rearwardly by disposing the doll in a rearwardly inclining position, the pin 68 effects a rearward swinging of the bell-crank arm 66 and a downward swinging of the bell-crank arm 63 so that a downward movement is imparted through the link to the extension 12 for swinging the lip element 10 upwardly to simulate closing the mouth. Conversely, when the doll is moved from the rearwardly inclining position to a forwardly inclined position, the lip 10 is moved downwardly to simulate the opening of the mouth. It, therefore, follows that under this construction and arrangement the lip is actuated coincident with the sounding of the mechanical voice R.

What is claimed is:

1. In a doll, a manikin or the like, a head formed with an opening having spaced opposite edges defining a mouth, a lip element comprising a longitudinally extending forward portion of concavo-convex formation in cross section disposed in covering relation with one edge portion of said mouth opening, laterally projecting trunnions pivotally mounting the lip element at the opposite ends thereof for movement towards and away from the other edge portion of said mouth opening without uncovering the edge thereof covered by the lip element so as to simulate opening and closing of the mouth, and means operatively connected with said lip element for rocking the same on the trunnions.

2. In a doll, a manikin or the like, a head formed with an opening having spaced opposite edges defining a mouth, a lip element disposed in covering relation with one edge portion of said mouth opening and having an inwardly directed extension protruding into the head, means pivotally mounting the lip element for movement towards and away from the other edge of the mouth to simulate opening and closing thereof, means for normally urging the extension upwardly, a terminal at the inner end of said extension having a convex upper surface, a pendulum suspended within the head for universal swinging movement and engageable at its lower end with the convex upper surface of the terminal for cooperation therewith to effect upward and downward swinging movement of the lip element upon movement of the doll head from an upright to an inclined position and vice versa.

3. In a doll, a manikin or the like, a head formed with an opening having spaced opposite edges defining a mouth, a lip element comprising a longitudinally extending forward portion of concavo-convex formation in cross section and having a forward free edge of convex formation, said

lip element being disposed in covering relation with an edge of said mouth with the outer portion of said lip element extending over the outer surface of the face of the doll adjacent the covered edge of the mouth, trunnions at the opposite ends of the lip element having bearing engagement in the opposite end walls of the mouth opening for pivotally mounting the lip element for swinging movement thereof towards and away from the other edge of the mouth without uncovering the covered edge thereof so as to simulate opening and closing of the mouth, said lip element having an inwardly directed extension protruding into the head, and means operatively connected with said extension for rocking the lip element on said trunnions to thereby move the same towards and away from said other edge of the mouth.

4. In a doll, a manikin or the like, a head formed with an opening having spaced opposite edges defining a mouth, a lip element comprising

a longitudinally extending forward portion of concavo-convex formation in cross section and having a forward free edge of convex formation, said lip element being disposed in covering relation with an edge of said mouth with the outer portion of said lip element extending over the outer surface of the face of the doll adjacent the covered edge of the mouth, trunnions pivotally mounting the lip element at the opposite ends thereof for movement towards and away from the other edge of the mouth without uncovering the edge thereof covered by the lip element so as to simulate opening and closing of the mouth, said lip element having an inwardly directed extension protruding into the head, means engaging the extension for normally urging the lip element to rock on said trunnions in one direction, and a weighted means engageable with said extension and movable by gravity for rocking the lip element on said trunnions in the opposite direction.

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