

No. 685,630.

Patented Oct. 29, 1901.

E. L. NICHOLS.

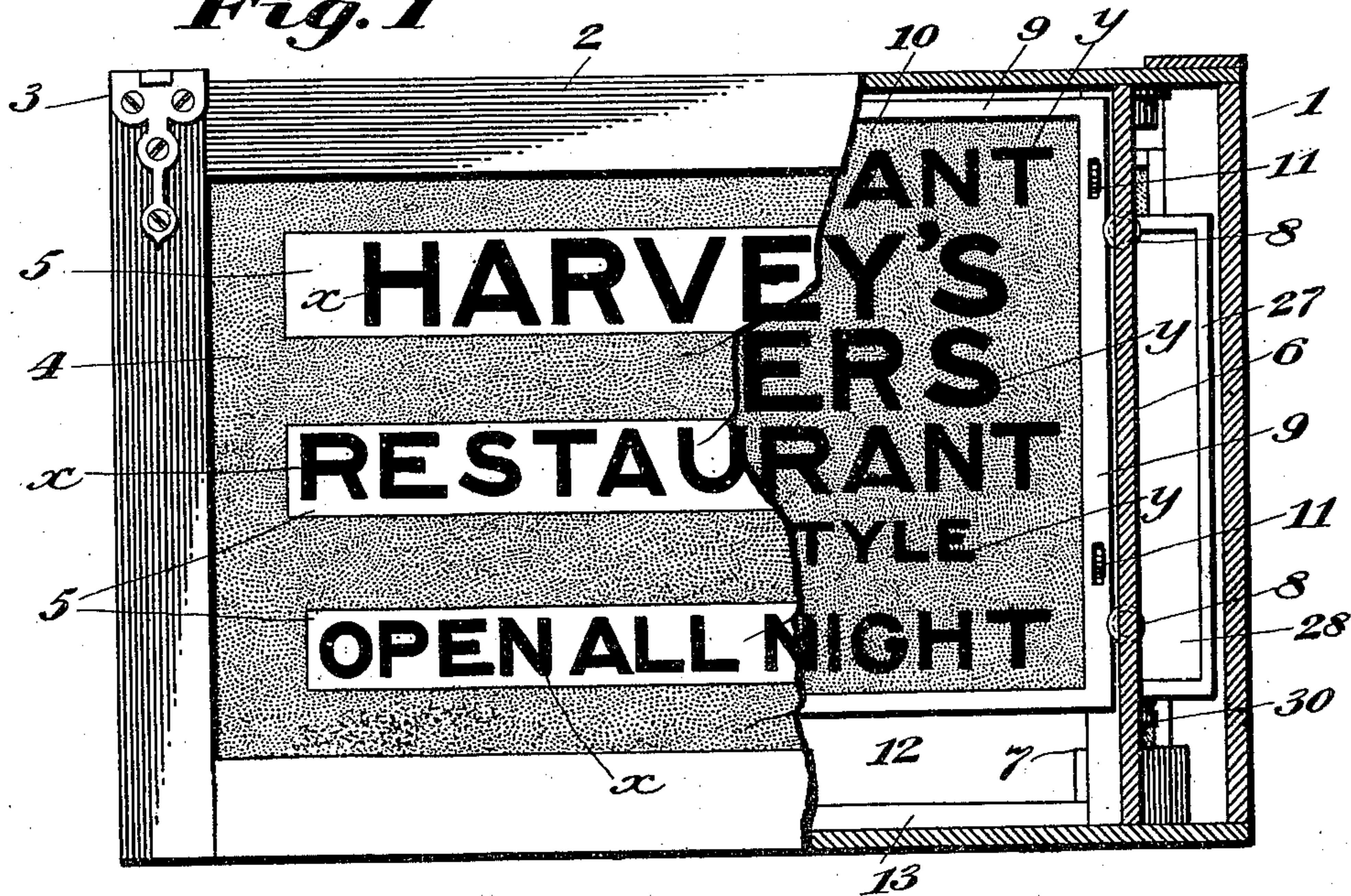
SIGN.

(Application filed Apr. 6, 1901.)

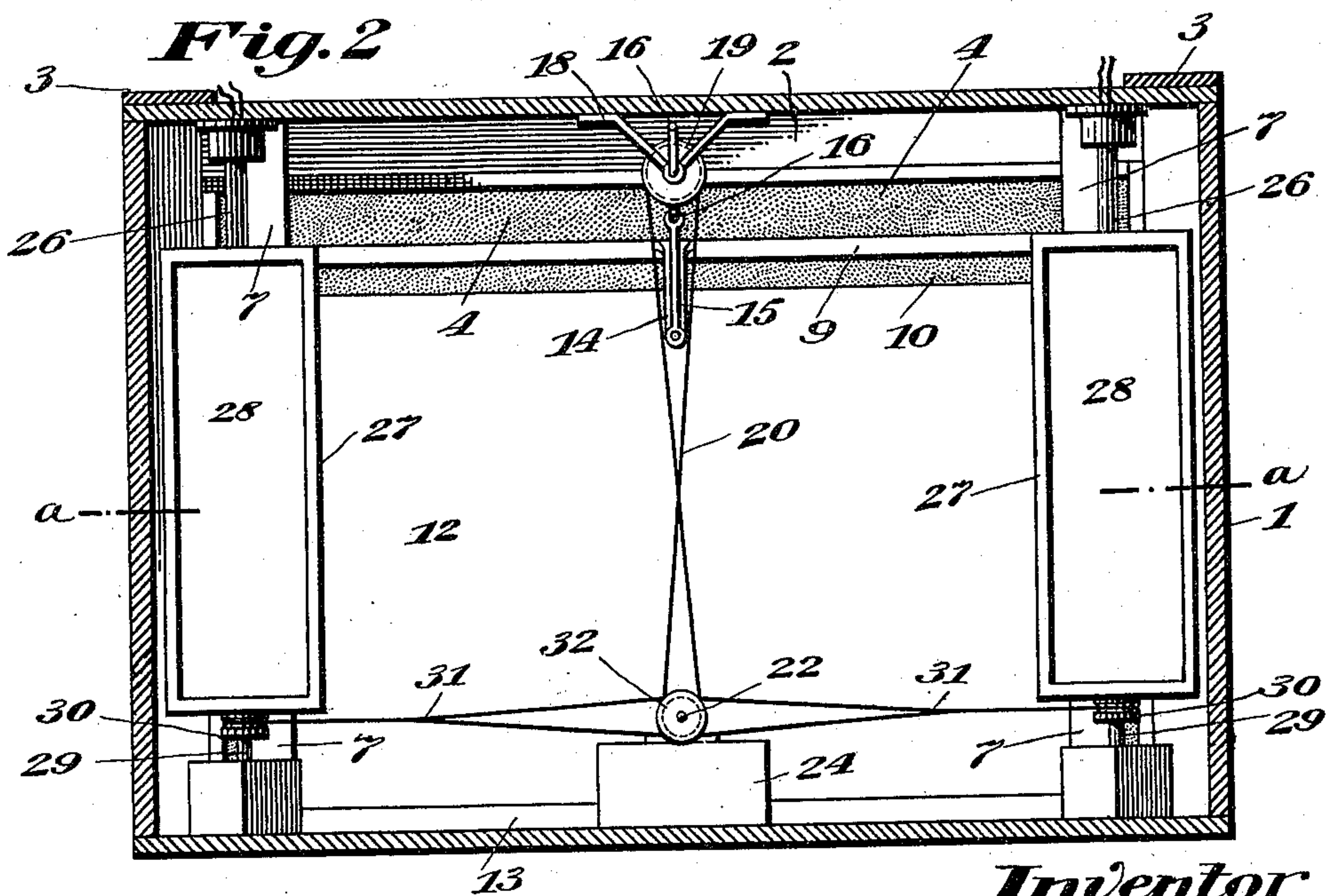
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2 Sheets—Sheet 1.

*Fig. 1*



*Fig. 2*



*Witnesses*

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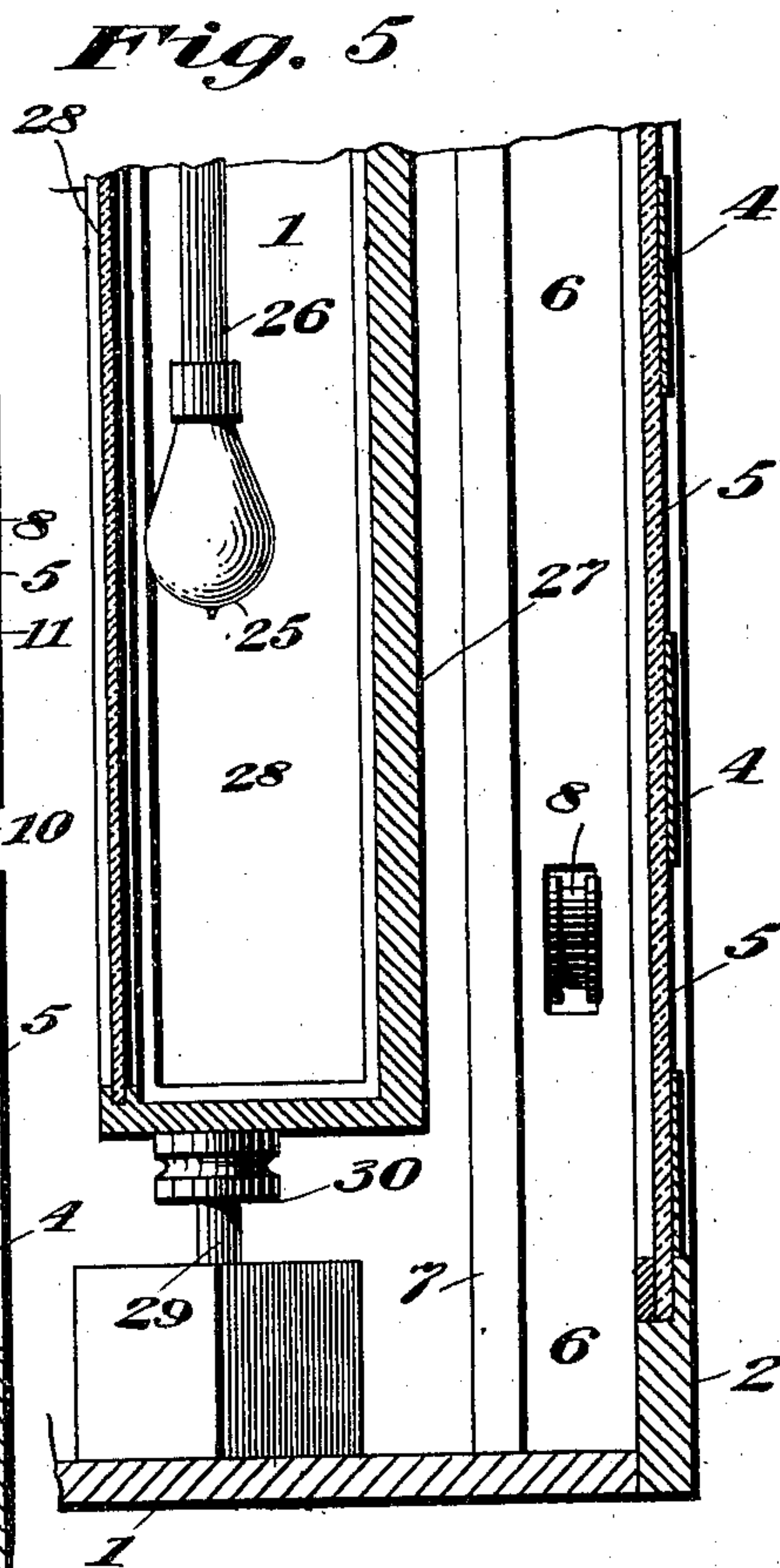
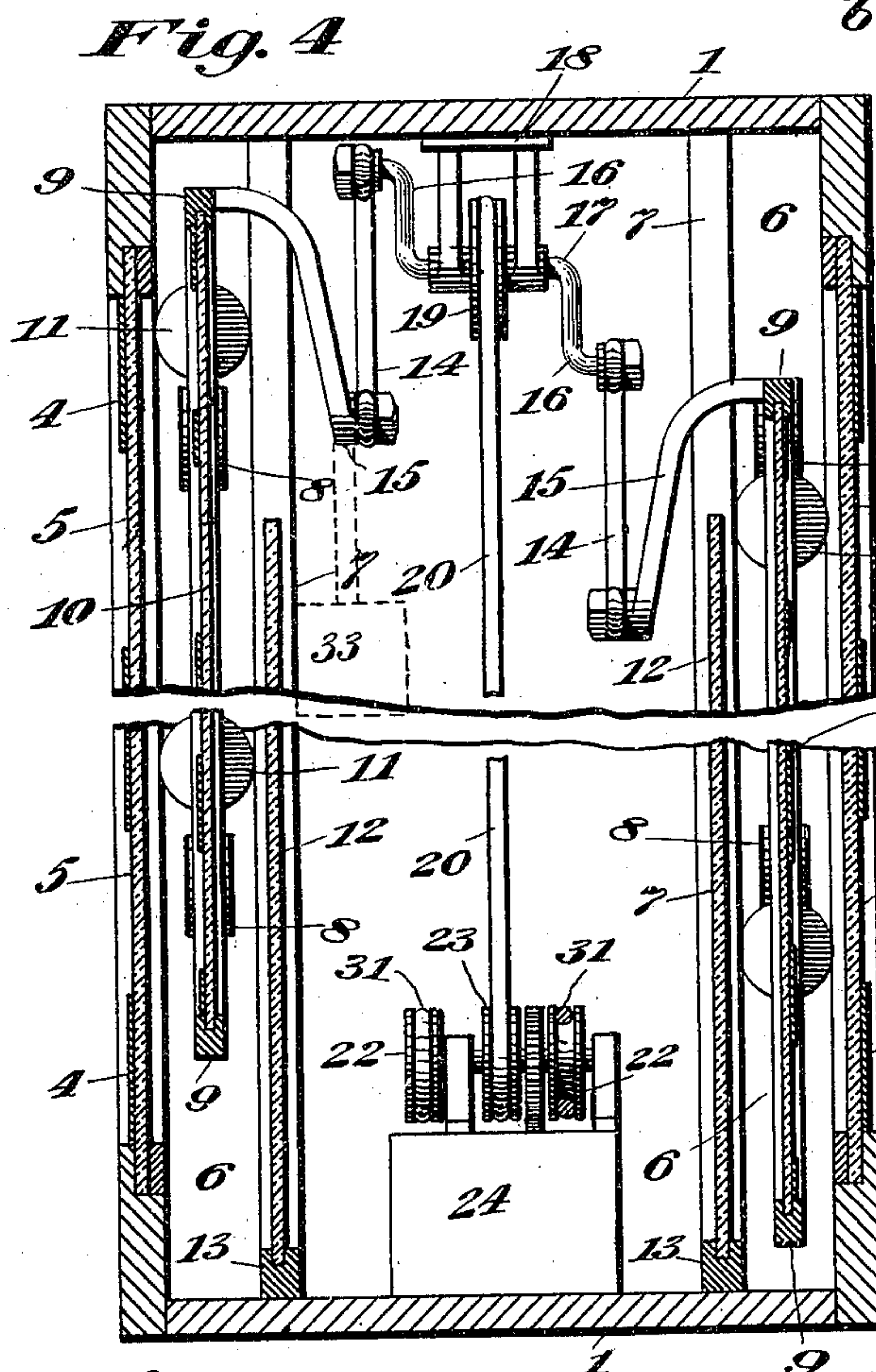
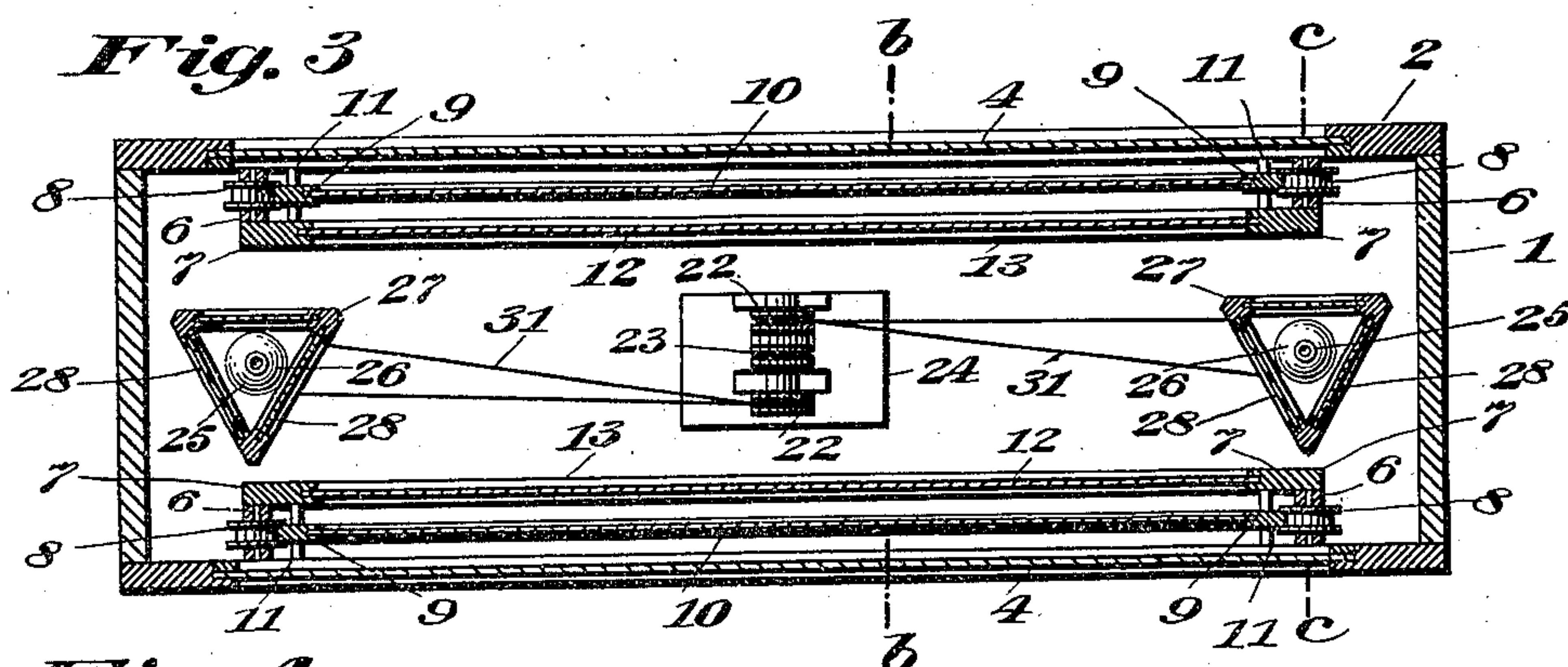
**E. L. NICHOLS.**

**SIGN.**

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(No Model.)

2 Sheets—Sheet 2.



## Witnesses

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# UNITED STATES PATENT OFFICE.

EBEN L. NICHOLS, OF CINCINNATI, OHIO.

## SIGN.

SPECIFICATION forming part of Letters Patent No. 685,630, dated October 29, 1901.

Application filed April 6, 1901. Serial No. 54,629. (No model.)

*To all whom it may concern:*

Be it known that I, EBEN L. NICHOLS, a citizen of the United States of America, and a resident of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Signs, of which the following is a specification.

This invention relates to certain improvements in signs, and more particularly in signs of that class wherein the lettering or characters upon the sign are adapted to be changed or shifted; and the object of the invention is to provide a sign of this general character of a simple and inexpensive nature and of a strong and durable construction, having improved means for changing or shifting its lettering or characters.

The invention consists in certain novel features of the construction, combination, and arrangement of the several parts of the improved sign, whereby certain important advantages are attained and the device is made simpler, cheaper, and otherwise better adapted and more convenient for use, all as will be hereinafter fully set forth.

The novel features of the invention will be carefully defined in the claims.

In the accompanying drawings, which serve to illustrate my invention, Figure 1 is an elevation showing a changeable sign embodying my improvements, one end of the sign being broken out to expose certain parts housed within the sign-casing. Fig. 2 is a vertical section taken longitudinally through the casing of the improved sign and showing the mechanism within said casing. Fig. 3 is a horizontal section taken longitudinally through the improved sign in the plane indicated by the line *a a* in Fig. 2. Fig. 4 is an enlarged section taken transversely and vertically through the sign-casing in the plane indicated by line *b b* in Fig. 3, the central portions of the several parts of the sign being broken out for lack of room. Fig. 5 is an enlarged partial section taken vertically through one end portion of the improved sign in the plane indicated by line *c c* in Fig. 3 and showing certain features of construction of the illuminating devices to be hereinafter referred to.

As shown in the drawings, the improved sign is constructed with a rectangular casing

1, the front and rear walls 2 of which are movable, being hinged, as shown at 3, to the casing 1 at their upper edges and adapted to afford access to said casing. Each wall 2 comprises a rectangular frame in which is held an opaque plate 4, which may be of glass, metal, or the like. The plate 4 is formed with transparent portions 5, and when said plate is of glass, as herein shown, it will be covered with an opaque coating at all points except at the transparent portions 5. When the plate is formed of metal, the portions 5 may be produced by cutting openings in the plate. The transparent portions 5 are, as herein shown, of elongated form and there are three of them arranged in vertical series in each wall 2, although a greater or less number may of course be provided.

Near each end of the casing 1 and adjacent to the walls 2 thereof strips 6 are arranged, extended from top to bottom of the casing, and along the inner edges of said strips 6 are secured similar strips 7, extended at angles from adjacent sides of the strips 6 or toward each other. Each two strips 6 and 7 form a guide which is L-shaped in cross-section. At the upper and lower portions of each strip 6 are formed openings in which are held to turn grooved sheaves 8, the peripheries of which extend beyond the side surfaces of the strips 6 and are adapted to receive and guide the side rail of a frame 9, movable vertically in the sign-casing, in a plane parallel to and just inside the adjacent wall 2 of the sign. Each frame 9 has side rails parallel with each other, which form guide-surfaces, each adapted for engagement with two of the grooved sheaves 8, and the two sheaves 8 so engaged with each such guide-surface are spaced apart a distance not less than the length of the guide-surface minus the extent of movement of the frame, so that as the frame is reciprocated in the casing the sheaves 8 are never disengaged from their guide-surfaces. The grooved peripheries of the sheaves 8 serve by their engagement with the frame 9 to hold said frame securely in position and guide it in its vertical movements. The frame 9 is of rectangular form and carries a sign-plate 10, which is usually made of glass, having an opaque surface upon which are produced two



series of transparent sign legends  $x$  and  $y$ . There are three legends in each of the series  $x$  and  $y$ , and the legends of the series alternate with each other, as shown in Fig. 1.

5 The series  $x$  and  $y$  are extended vertically on each sign-plate 10 and are adapted to appear in alternation at the transparent portions 5 of the side wall 2 when the sign-plate is reciprocated vertically in the sign-casing.

10 When the sign-plate stands in its highest position, the legends  $x$  are in line with and visible at the openings or transparent portions 5 of wall 2, and when the sign-plate is in its lowered position the legends  $y$  are in line

15 with and visible at said transparent portions, the legends  $x$  being at this time hidden by the opaque portion of wall 2. The side rails of the frame 9 of the sign-plate 10 also carry at their upper and lower parts rollers

20 11, set at right angles to the sheaves 8 and having their peripheries projecting beyond opposite sides of the frame in position to engage and run along the guide-strips 7, as clearly shown in Figs. 3 and 4. Inside of the

25 sign-plates 10 are arranged glass plates 12, which are transparent and have their lateral edges held in grooves in the edges of the guide-strips 7, as shown in Figs. 3 and 4, the lower edges of said plates 12 being similarly

30 held in strips 13 along the bottom of the sign-casing. These plates 12 may be dispensed with, if desired.

The frame 9 of each sign-plate 10 has at its upper central part a downwardly-directed

35 arm or projection 15, the lower end of which has loose connection with a link 14, which is coupled at its upper end with a crank 16, bent in a shaft 17, held to turn in a bearing-bracket 18, secured to the upper part of the casing.

40 The shaft 17 is extended in a transverse direction in the casing, and the two cranks 16 at its ends are set opposite one to the other, so that the sign-plates of the device are caused to balance each other and lessen the power

45 which would otherwise be required for the operation of the sign-plates. By this arrangement of the parts it will be seen that as the crank-shaft 17 is rotated one sign-plate is lowered, so as to expose its legends  $y$  at the

50 openings or transparent portions 5 of the corresponding wall 2, while the other sign-plate is raised to expose its legends  $x$  at the portions 5 of its wall 2. The crank-shaft 17 has secured upon its central portion a grooved

55 sheave 19, over which is passed a band 20, which is extended down within the casing, as clearly shown in Figs. 2 and 4, and has its lower bight passed around a grooved sheave 23 on the shaft of a motor 24, which may be

60 of any kind, either mechanical or electric. By this means it will be seen that continuous rotative movement is imparted from the motor 24 to the crank-shaft 17 in such a way as to reciprocate the sign-plates within the casing and cause the different legends  $x$  and  $y$  to

65 appear alternately at the side walls 2 of the device.

The sign constructed as above described is adapted for use as a changeable day-sign, but when used at night illuminating devices 70 are employed, herein shown in the form of incandescent electric lamps 25, held on supports 26, extended down from the upper part of the casing near opposite ends thereof. There are two such lamps herein shown, ar- 75 ranged near the central part of the sign-casing; but the number and arrangement of the lamps is not material to the invention, and it will also be evident that other devices may be employed in lieu of electric lamps for illu- 80 mination of the sign. The illuminating devices 25 are housed within triangular frames 27, having glazed side walls 28 and mounted to turn in the casing upon vertical axes, as shown in Figs. 2, 3, and 5, each frame 27 be- 85 ing held on the upper end of a rotative stud or shaft 29, the lower end of which is stepped on the bottom of the sign-casing 1. A grooved sheave 30 is also held on the stud or shaft 29, and around said sheave is passed a band 31, 90 which is extended toward the center of the casing and is passed about a grooved sheave 22 on the shaft of motor 24, from which the frames 27 are thus adapted to receive rotary movement. The several walls 28 of the frames 95 27 are set at angles of about sixty degrees one to another and are formed of glass of different and contrasting colors, each color being similarly set in each frame 27, so that as the frames are rotated the transparent por- 100 tions or legends of the respective sign-plates 10 will be illuminated in different colors, the different colors alternating at each side wall 2 of the device. When desired, one of the sign-plates 10 may be omitted, since when the 105 sign is to be set against a wall it is evident that one of said plates would not be visible. When one of said plates is omitted, the other plate may be counterbalanced by means of a weight hung from the link 14, as indicated in 110 dotted lines at 33 in Fig. 4.

The operation of the improved sign constructed according to my invention will be obvious from the above description, the power from the motor 24 being transmitted 115 to the rotative frames 27, in which the lights are housed, so as to cause the sign to be illuminated alternately in different colors and being also simultaneously transmitted to the sign-plates 10, so as to cause said plates to be 120 reciprocated inside of the walls 2 of the device in order that the legends  $x$  and  $y$  may alternately be visible at the transparent portions 5 of said walls 2.

The improved changeable sign constructed 125 according to my invention is of an extremely simple and inexpensive nature and is not liable to become deranged or broken when in use. The movable parts are also so arranged that there is a minimum of friction in the op- 130 eration of the device, and therefore much less power is required from the motor 24, so that a considerable economy is effected in this way. The construction is also such that



the sign may be readily cleaned and repaired. The construction of the device whereby the legends are alternately exposed and are caused to be illuminated with contrasting colors also gives to the sign a very handsome and attractive appearance, so that it is especially well adapted for use. The triangular arrangement of the walls of the frames 27 also permits of giving to said walls the greatest width possible commensurate with the space in which the frames are held to turn, so that the greatest possible extent of illumination of each sign-plate with each color is afforded. It will also be obvious from the above description that the device is capable of some modification without material departure from the principles and spirit of the invention, and for this reason I do not wish to be understood as limiting myself to the precise form and arrangement of the several parts herein set forth.

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

1. In a changeable sign, the combination of a casing having a wall formed with an open or transparent portion, guides adjacent to said wall, and having portions extended toward each other parallel with said wall, a sign-plate movable in the casing between said extended portions of the guides and the casing-wall and having rollers engaged with the extended portions of the guides, said sign-plate being provided with a plurality of legends visible at the open or transparent portion of the casing-wall and means for operating said sign-plate, substantially as set forth.

2. In a changeable sign, the combination of a casing having a wall formed with an open or transparent portion, a sign-plate movable in the casing and provided with a plurality of sign legends adapted to be visible at the open or transparent portion of said wall, said sign-plate having parallel end portions, grooved sheaves held in the casing and engaged with the end portions of the sign-plate, and means for moving the sign-plate, substantially as set forth.

3. In a changeable sign, the combination of a casing having a wall formed with an open or transparent portion, vertical guides in the casing at the ends of and extended at right angles to said wall and having portions extended toward each other and parallel with the wall of the casing, grooved rollers carried by the guides, a sign-plate mounted for reciprocatory movement between the casing-wall and the extended portions of the guides and having parallel end portions engaged with said grooved rollers, said sign-plate being also provided with rollers engaged with the extended portions of the guides and means for imparting reciprocatory movement to said sign-plate, substantially as set forth.

4. In a changeable sign, the combination of a casing having a wall formed with an open or transparent portion, a sign-plate movable in the casing and provided with a plurality of sign legends adapted to be visible at the open or transparent portion of the casing-wall, means for actuating said sign-plate, an illuminating device stationary within the casing, a part interposed between the illuminating device and said sign-plate and having transparent walls of contrasting colors and means to move said part to change the color of the light cast by the illuminating device upon the sign-plate, substantially as set forth.

5. In a changeable sign, the combination of a transparent sign-plate, an illuminating device adapted to illumine said sign-plate, a movable part in which the illuminating device is housed and the walls of which are of contrasting colors and means for imparting continuous movement to said movable part, substantially as set forth.

6. In a changeable sign, the combination of two parts in movable relation, one of the parts having transparent sign legends and the other part having an opaque portion behind which the sign legends are hidden in one position of the parts and also having an open or transparent portion at which the sign legends are adapted to be visible in another position of the parts, an illuminating device arranged behind the parts to illumine the sign legends of one part when visible at the open or transparent portion of the other part, a device interposed between the illuminating device and said two parts and having transparent walls of contrasting colors and means for moving the interposed part to change the color of the light cast by the illuminating device upon the sign legends and for simultaneously moving one of the said two parts to alternately hide and expose the sign legends, substantially as set forth.

7. In a changeable sign, the combination of a casing having a wall formed with an open or transparent portion, a sign-plate movable in the casing and provided with sign legends adapted to be visible at the open or transparent portion of said wall, said sign-plate having parallel guide-surfaces along opposite sides, means for imparting reciprocatory movement to said sign-plate and two grooved sheaves in the casing for engagement on each of said guide-surfaces and spaced apart a distance not greater than the length of the corresponding guide-surface minus the extent of movement of the sign-plate, substantially as set forth.

Signed at Cincinnati, Ohio, this 4th day of April, 1901.

EBEN L. NICHOLS.

Witnesses:

JOHN ELIAS JONES,  
J. J. CUMMINGS.