

No. 869,717.

PATENTED OCT. 29, 1907.

E. M. KLUGE.
INVISIBLE HINGE.

APPLICATION FILED JUNE 24, 1907.

3 SHEETS—SHEET 1.

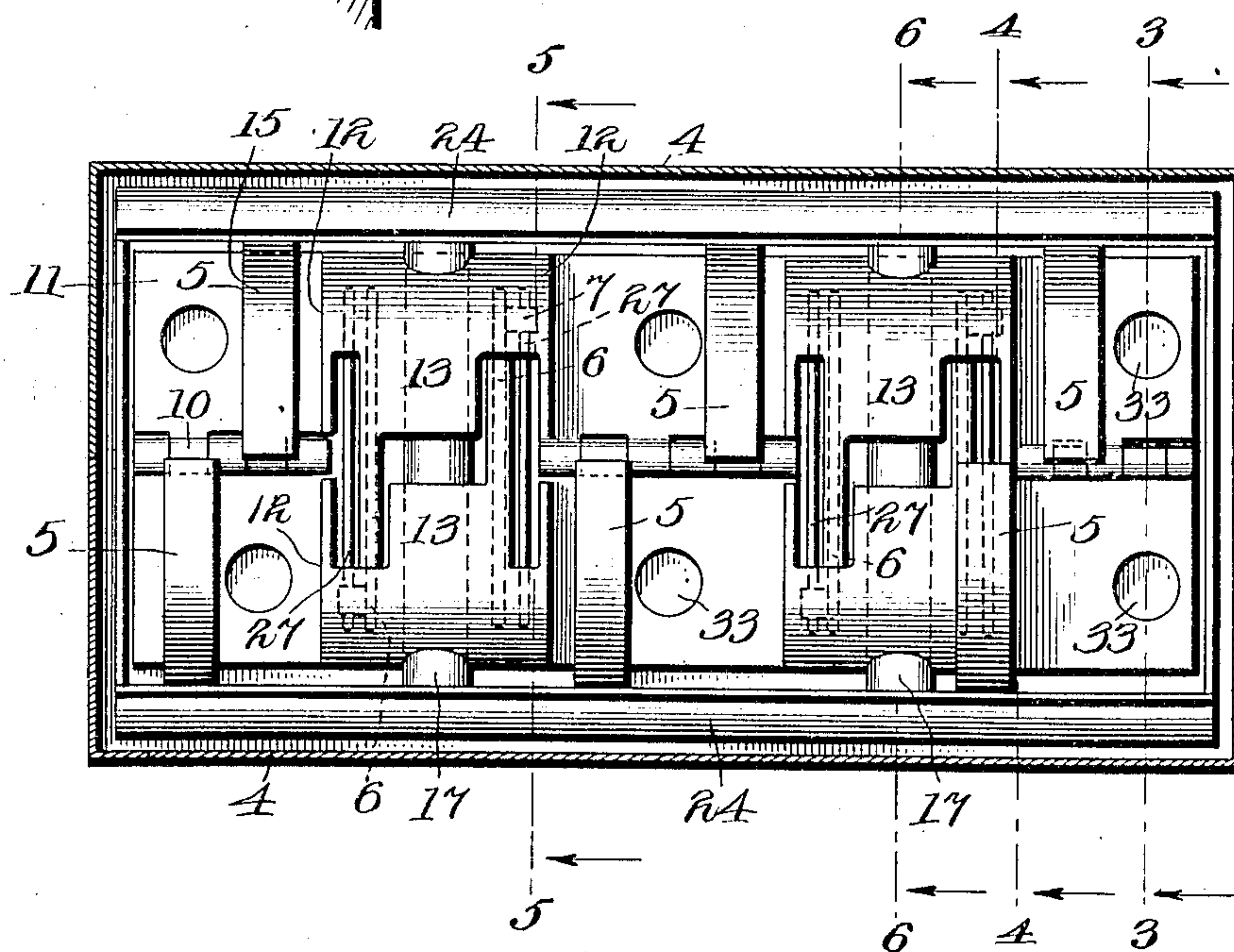
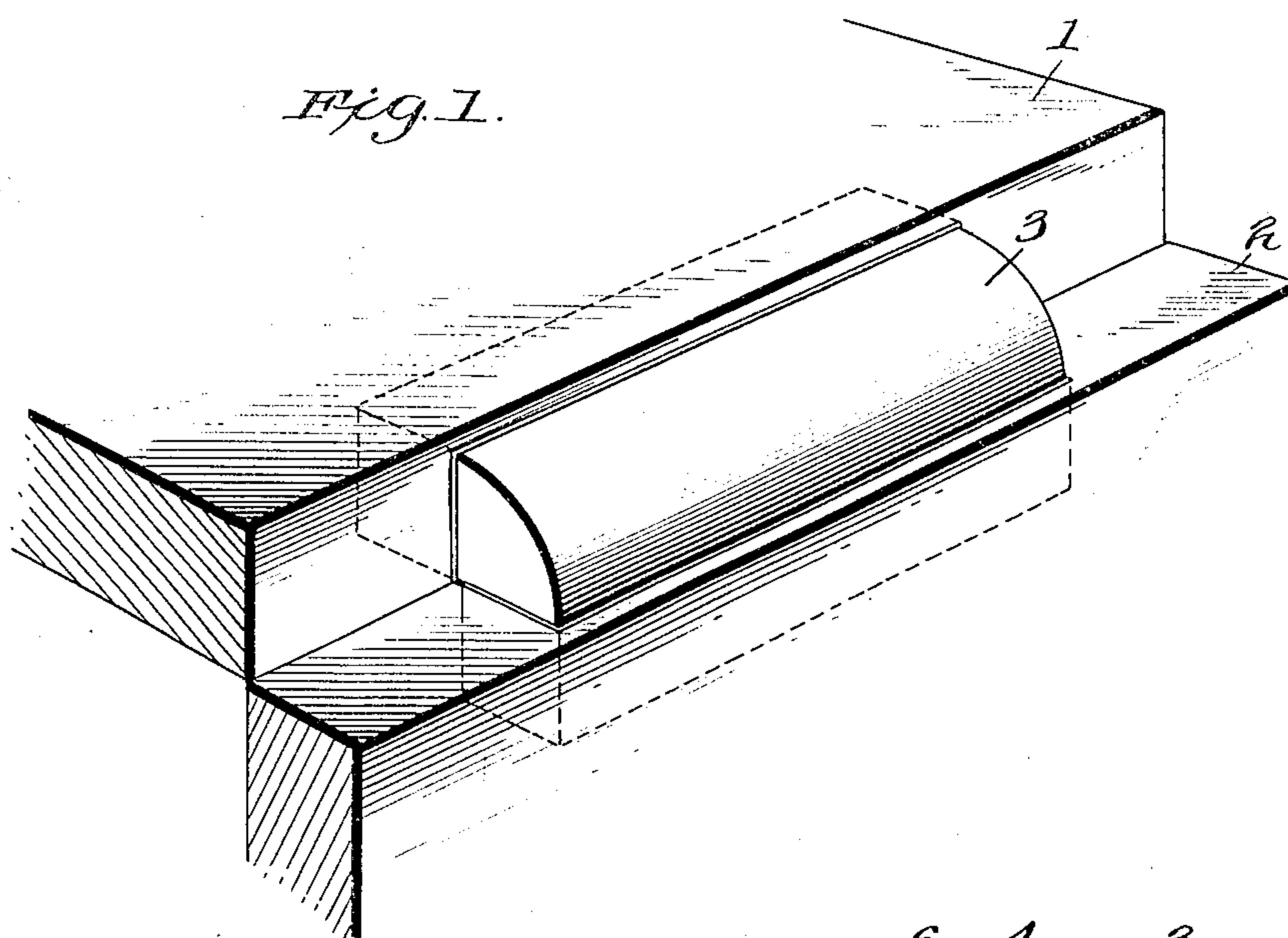


Fig. 2.

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3 SHEETS—SHEET 2.

Fig. 3.

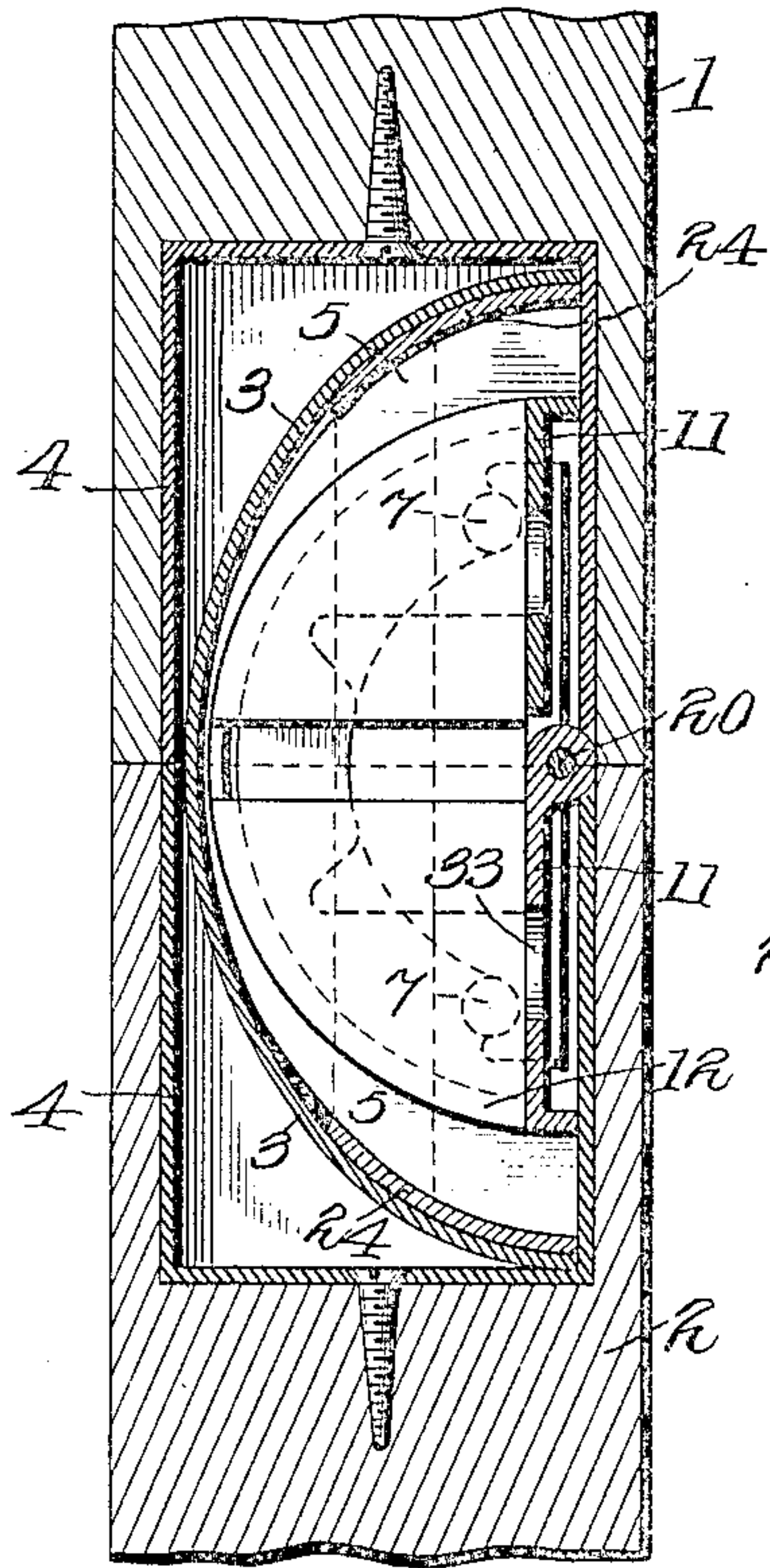


Fig. 4.

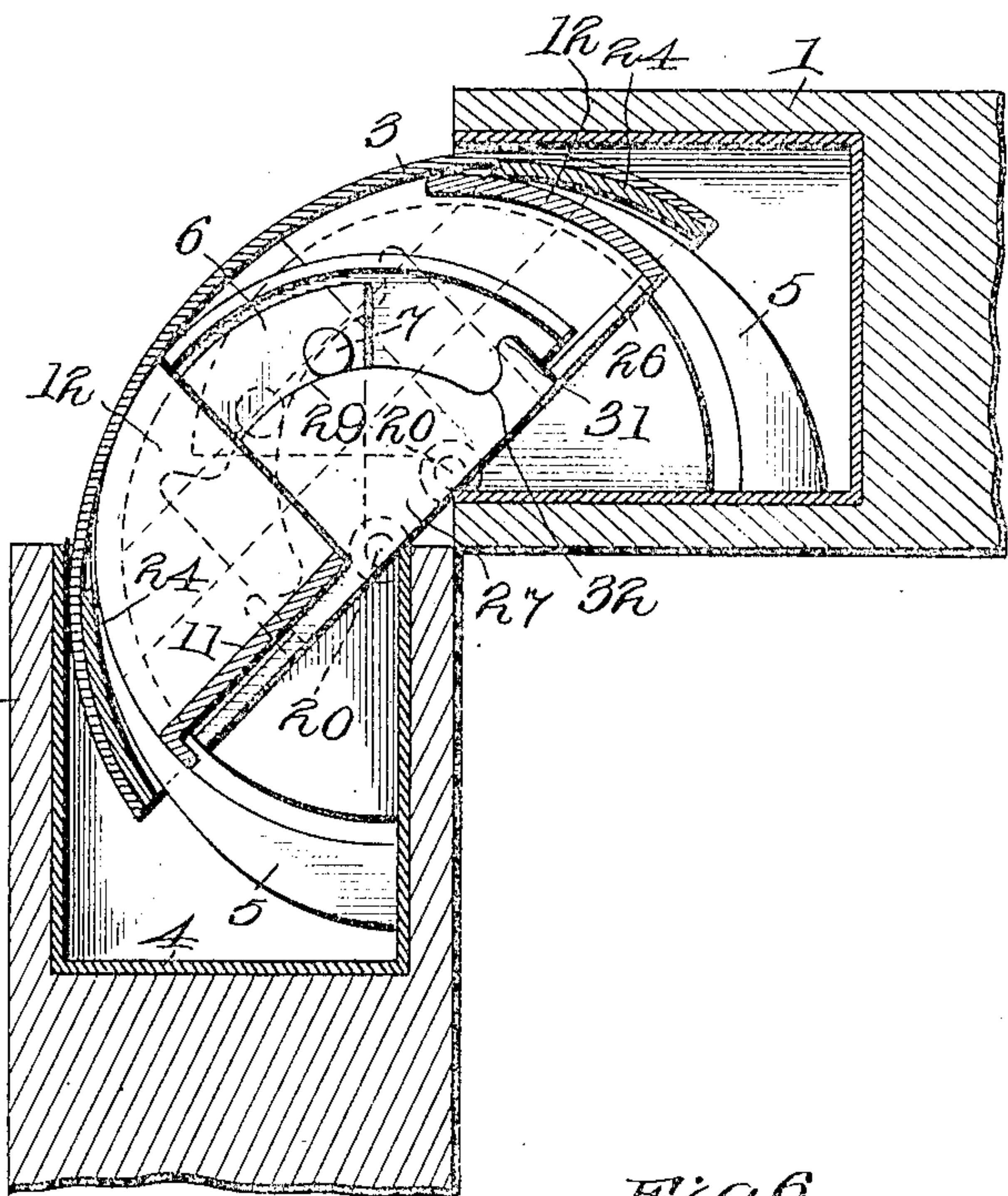


Fig. 6.

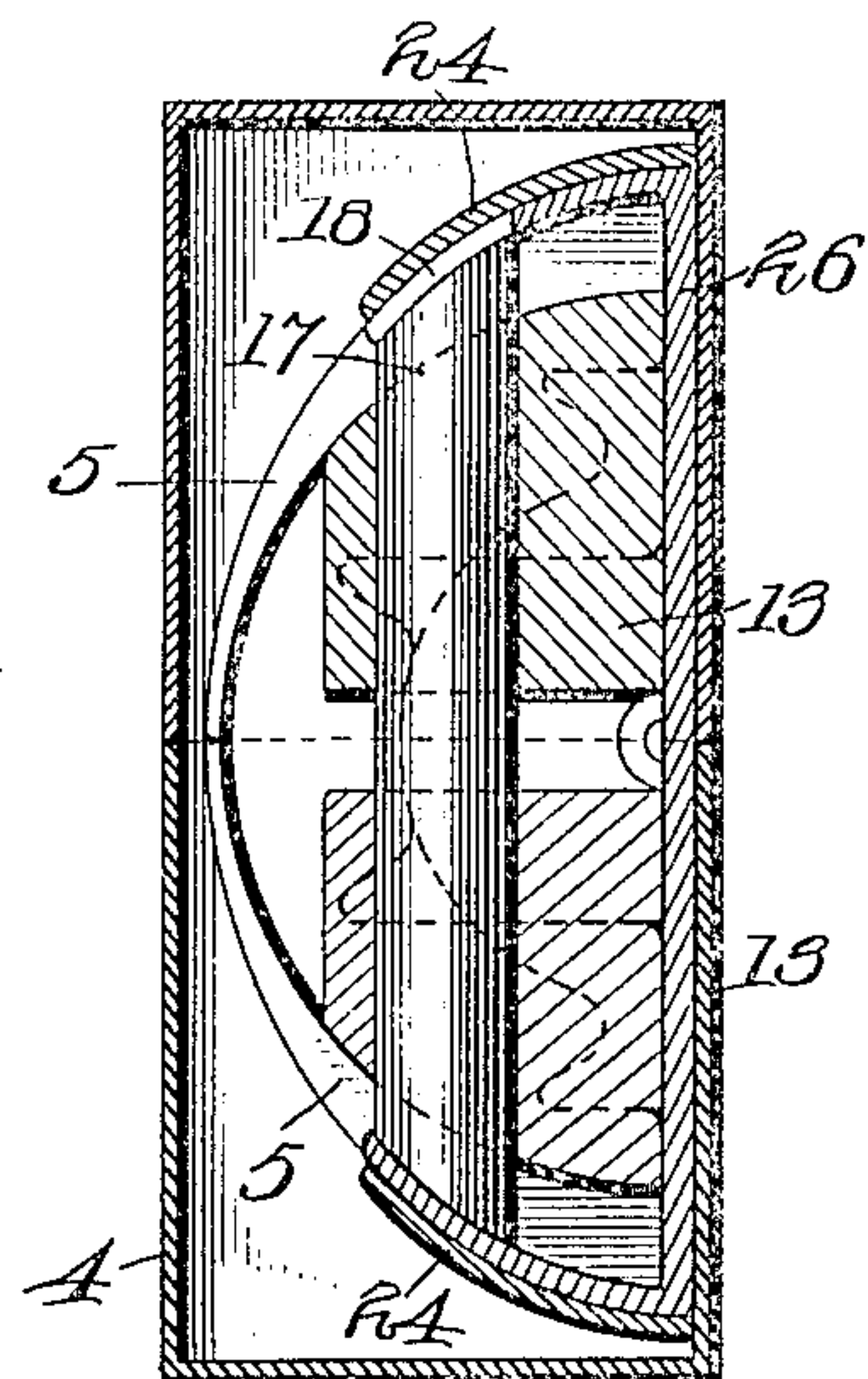
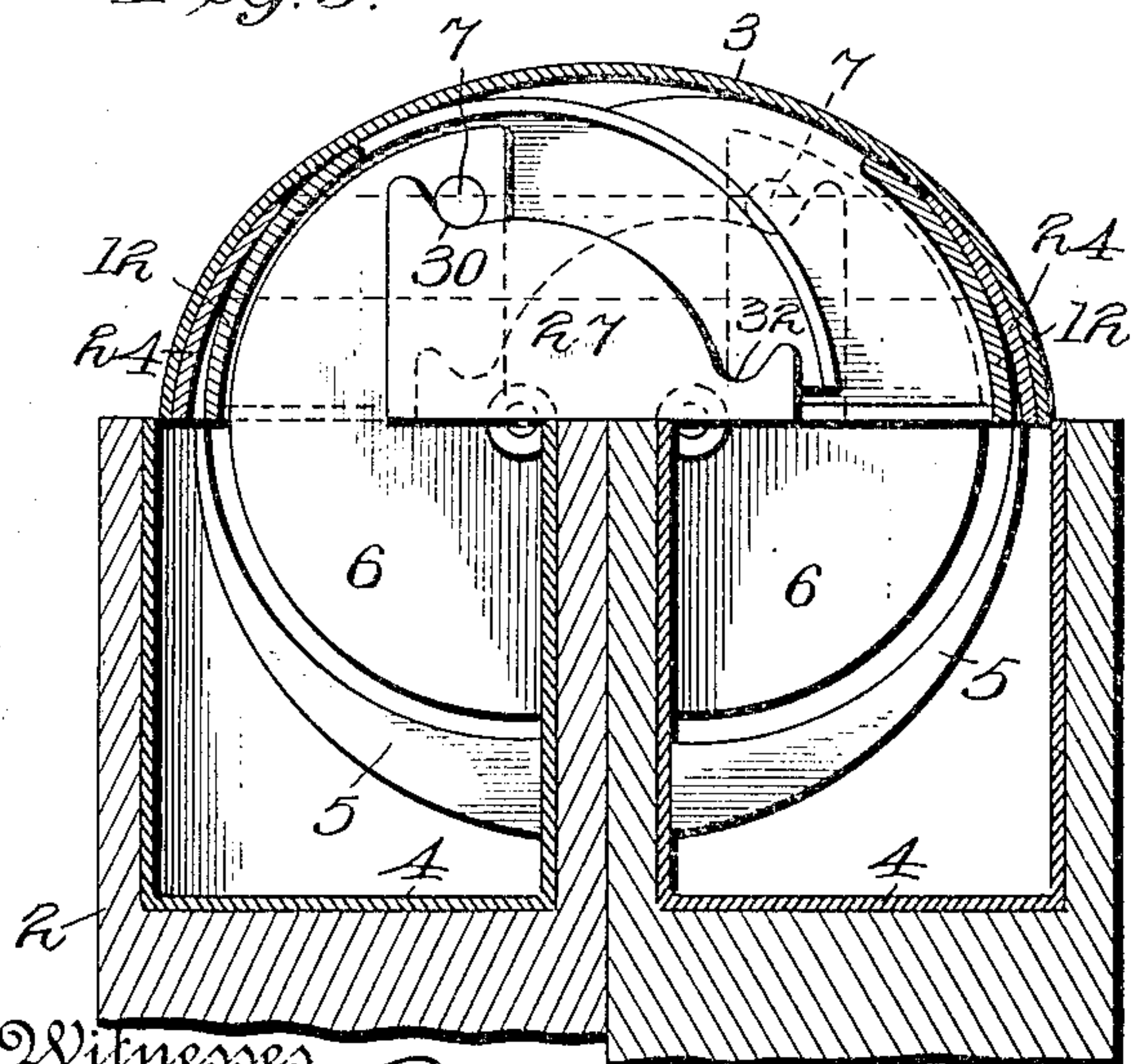


Fig. 5.



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3 SHEETS—SHEET 3.

Fig. 7.

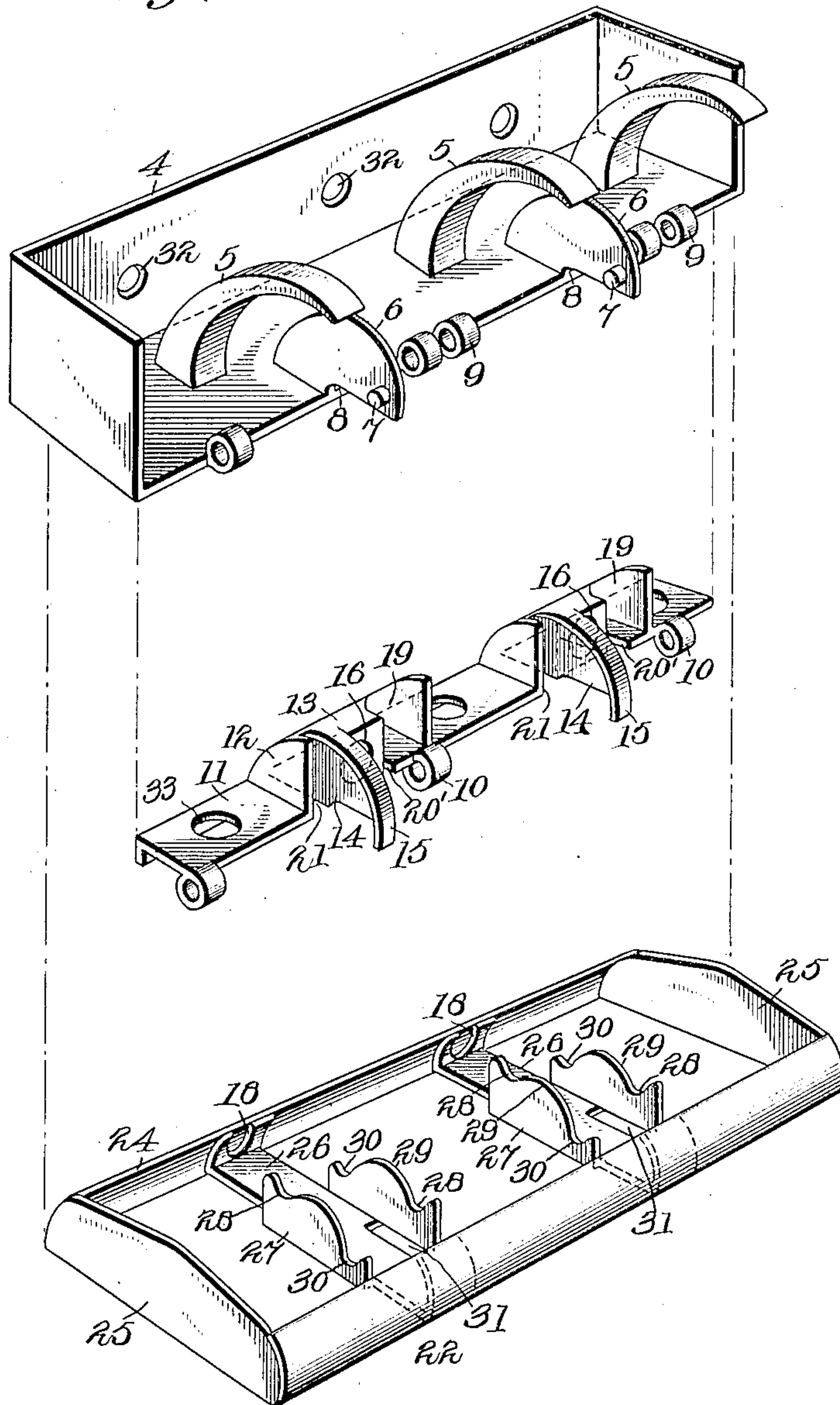


Fig. 8.

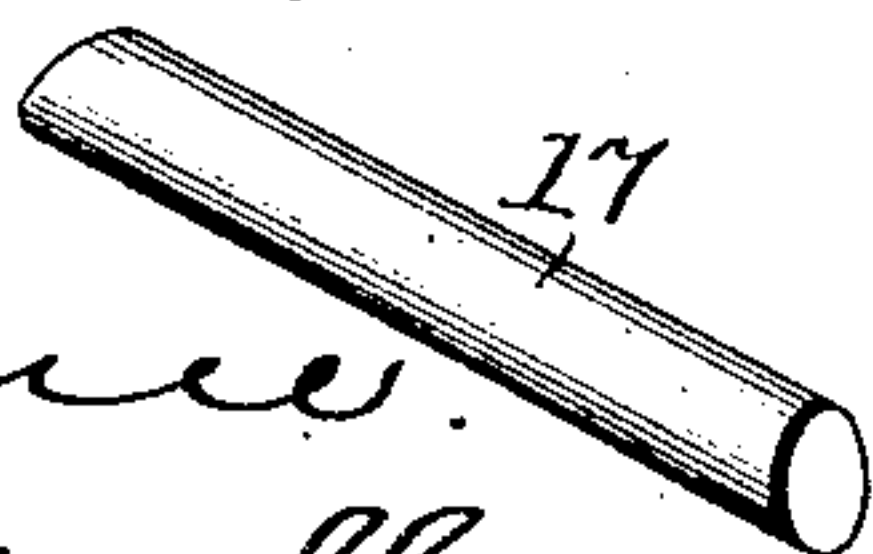
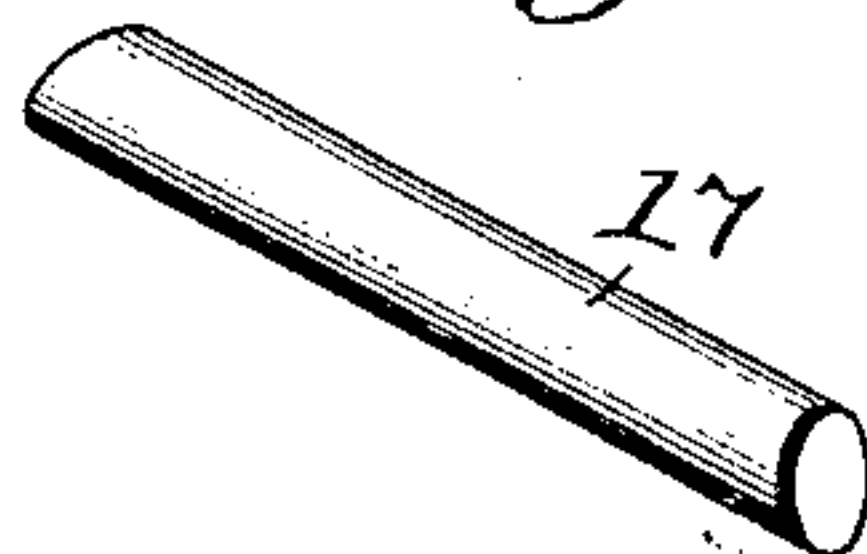


Fig. 9.



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UNITED STATES PATENT OFFICE.

EUGENE M. KLUGE, OF WASHINGTON, DISTRICT OF COLUMBIA.

INVISIBLE HINGE.

No. 869,717.

Specification of Letters Patent.

Patented Oct. 29, 1907.

Application filed June 24, 1907. Serial No. 380,576.

To all whom it may concern:

Be it known that I, EUGENE M. KLUGE, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful
5 Improvements in Invisible Hinges; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

10 My invention relates to invisible hinges for cabinets, pianos, or other articles of furniture, and wherever a particularly neat appearance is desired.

The object of my invention is to produce a hinge of this character which shall be at all times entirely
15 concealed from view, and which shall permit the parts to which it is attached to open so wide that they may lie flat along side each other.

To these ends my invention consists in providing two main sections of a hinge which are readily separable
20 from each other, and which are at all times concealed by a cover.

My invention also consists in the novel combination of parts hereinafter described and particularly pointed out in the claims.

25 Referring to the accompanying drawings forming a part of this specification:—Figure 1 represents my hinge with the parts to which it is applied opened out to about 90° and showing only the cover of the hinge exposed. Fig. 2 is a sectional view taken through the
30 top of the hinge casing, showing the various hinge members including the floating frame, in place. Fig. 3 is a sectional view, taken on the line 3—3 of Fig. 2, but also showing the parts to which the hinge is applied. Fig. 4 is a view similar to that of Fig. 3, but taken on the line
35 4—4 of Fig. 2, and showing the position of parts when the two hinge casings occupy a position of about 90° to each other. Fig. 5 is a view similar to Fig. 4, but taken on the line 5—5 of Fig. 2, and showing the hinge casings folded back parallel to each other. Fig. 6 is a sectional
40 view taken on the line 6—6 of Fig. 2, and showing the hinge casings closed as they are in Fig. 2. Fig. 7 is a perspective view showing one of the hinge casings, the hinge plate that goes therewith, and the floating frame. Figs. 8 and 9 are perspective views of the bolts that
45 slidably secure the parts together.

Like numbers designate like parts in all the views.

The hinge consists of two main sections, each section composed of a hinge casing 4, and a plate 11, pivoted thereto. It also consists of a cover 3, a floating frame 22,
50 and two bolts 17.

Each casing 4 is provided with the guide horns 5, the guide plates 6 having the guide pins 7, and the cut away lower edges 8, and the hinge eyes 9. These hinge eyes 9 on one casing 4, are longitudinally displaced on the
55 casing with respect to the corresponding hinge eyes on the other casing 4, so that the two sets of hinge eyes on

the two casings 4 may come together and register in the same straight line, see Fig. 2. Corresponding to the hinge eyes 9 on each casing 4, are another set of hinge eyes 10 on hinge plates 11, one hinge plate for each casing 4, and a plurality of short pins 20 pass through the hinge eyes 9 and 10 of each main hinge section, and of course lie in the same straight line when the parts are in the position shown in Figs. 2, 3 and 6. These plates 11 are provided with housings 12 having solid parts 13 cut
60 away on their under sides at 14, and curved guides 15. Holes 16 are made through the solid parts 13 to accommodate the bolts 17, and cut away places 19 are provided next to the solid parts 13 to accommodate the curved guides 15 on opposite housings when the hinge
65 is operated, as will appear more fully hereinbelow. Each of the plates 11 are likewise provided with cut away places 20' and 21, each to accommodate two guide plates 6 and 27, as will appear below.

The floating frame 22 is provided with the side strips
70 24, the end pieces 25, and the bottom strips 26. Each of these bottom strips are provided with two guide plates 27, one on each side, as shown, and each plate 27 is provided with curved guide surfaces having the upper notches 28, the apex 29, and the lower notches
75 30. The notches 28 in one pair of plates are located opposite the notches 30 in another pair of plates, as shown. The bottom strips 26 are also provided with the holes 18, as shown, and the cutaway places 31.

In assembling the parts, the two plates 11 are first
80 hinged to the two casings 4 by matching the hinge eyes 9 and 10 and by inserting a plurality of short pins 20 through said eyes. The two main sections of the hinge thus formed, are next brought together with their hinged sides parallel as shown in Fig. 5, and the hinge
85 plates turned to an angle of about 90° with the said sides, in which position the guide plates 6 of the casings 4, are about one-half within and one-half without the housings 12. One of the strips 24 of the floating frame is next removed, and the bottom strips carrying
90 the guides 27 are thrust underneath each plate 11 and between the same and the hinge edge of each casing 4, being careful to see that the said guides 27 enter the housings 12 on the plates 11, and that the pins 7 on the guide plates 6 contact with the guide surfaces 28,
95 29, 30 of said plates 11, as shown. In this position of the hinge, the bolts 17 may be thrust through the holes 16 from the outside, and the strips 24 that had been removed from the floating frame 22, may be now secured
100 in place by solder or otherwise.

Upon opening and shutting the hinge after assembling the parts, as described, it will be found that the short pins 20 all aline, when the casings 4, are in the same straight line, as shown in Fig. 2, and that they separate, as shown in Fig. 5, when the said casings are
105 brought parallel to each other while the floating frame seems to remain stationary and the solid portions of the

hinge plates slide on the bolts 17. The guide horns 5, enter between the strips 24 and the housings 12, as shown, and force the latter inward as the casings are carried from the position shown in Fig. 5 to that shown in Fig. 4, and finally to that shown in Fig. 3. In opening out the casings from the position shown in Fig. 3 to that shown in Figs. 4 and 5, the guide horns 5, merely slide out from between the strips 24 and the housings 12, while the plates 6 on the casings 4, force the said housings to slide outward, or apart on the rods 17. The casings 4 are fastened in the parts to be hinged, as shown, and holes 33 are provided in the plates 11, for accommodating a screw driver, when the said plates are at right angles to the hinge bottom of said casing and the screws shown in Fig. 3 are to be inserted.

It will be seen that the floating frame 22 remains practically stationary with respect to any swinging movement of the housings 12, or in other words, this frame and these housings turn on a shifting pivot passing through the two sets of short pins 20. It results from this that the cover 3, will likewise partake of the same motions, and always occupy the space uncovered between the hinged parts 1 and 2, as shown in Figs. 4 and 5. The parts of the hinge are therefore always concealed and a neat appearance secured.

In practice, I prefer to make my hinge of brass, although any desired material may be employed, and to cast the casings 4 with the horns 5, the plates 6 and the hinge eyes 9 integral therewith. The plates 11 may be either stamped, or cast, and the floating frame with one side removed may be cast in one piece, and the said side in a separate piece, and then secured to said frame in any suitable manner.

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

1. In an invisible hinge, a hinge section provided with a guide horn, an integral guide plate, and hinge eyes, substantially as described.
2. In an invisible hinge, a casing provided with integral guide horns 5, a guide plate integral with said casing hinge eyes 9, a plate 11 provided with hinge eyes 10 adapted to register with said eyes 9, and means for securing said eyes together, substantially as described.
3. In an invisible hinge, a casing 4 provided with integral guide horns 5, and guide plates 6 rigid therewith, and a plate 11 hinged thereto, substantially as described.
4. In an invisible hinge, a casing 4 provided with integral guide horns 5, and guide plates 6 rigid therewith, a plate 11 hinged thereto, and provided with housings 12 adapted to receive said plates 6, substantially as described.
5. In an invisible hinge, the combination of a casing 4 provided with guide horns 5, hinge eyes 9, and guide plates 6, with a plate 11 provided with hinge eyes 10 adapted to register with said eyes 9, and housings 12 adapted to receive said plates 6 and to fit against said horns 5, substantially as described.
6. The combination in an invisible hinge, of a pair of main hinge sections, each composed of a hinge casing 4,

provided with the horns 5, and the guide plates 6, and of a hinge plate 11 provided with the housings 12 adapted to fit over said guide plates 6, and a floating frame fitting over said horns 5, substantially as described.

7. The combination in an invisible hinge, of a pair of main hinge sections, each composed of a hinge casing 4, provided with the horns 5, and the guide plates 6, and of a hinge plate 11, provided with the housings 12 adapted to fit over said guide plates 6, and a floating frame having the side strips 24 fitting over said horns 5, substantially as described.

8. The combination in an invisible hinge, of a pair of main hinge sections, each composed of a hinge casing 4, provided with the horns 5, and the guide plates 6, and of a hinge plate 11 provided with the housings 12 adapted to fit over said guide plates 6, and a floating frame having the side strips 24 fitting over the said horns 5 and the bottom strips provided with the plates 27 adapted to enter said housings 12, substantially as described.

9. In an invisible hinge, the combination of a pair of main hinge sections each provided with plates 6 rigid therewith having pins 7, a floating frame having guide plates 27 provided with curved surfaces over which said pins ride, and pivoted plates 11 having housings adapted to receive said plates 11 and 27, substantially as described.

10. In an invisible hinge, the combination of a pair of main hinge sections each provided with horns 5 and plates 6 rigid therewith, and said plates having the pins 7 rigid with the same, a pair of pivoted plates 11 having the housings 12 adapted to receive said plates 6 and having the solid portions provided with the holes 16, a floating frame having the side strips 24, and bottom strips provided with the guide plates 27 fitting in said housings 12 and provided with curved surfaces adapted to receive said pins 7, and bolts 17 adapted to enter said holes, substantially as described.

11. In an invisible hinge, the combination of a pair of casings 4 having rigid therewith the horns 5, the plates 6 provided with the pins 7, and the hinge eyes 9, with the pivoted plates 11 having the housings 12 adapted to receive the plates 6 and having the perforated solid portions 13, the floating frame having the side, end and bottom strips, the latter provided with the guide plates, adapted to enter said housings and the said plates provided with curved surfaces against which the said pins 7 are adapted to bear, and a cover plate 3 concealing all the parts, substantially as described.

12. An invisible hinge provided with two main hinge sections adapted to separate when the hinge is operated, a frame overlying said sections and a cover therefor, adapted at all times to hide said parts, substantially as described.

13. An invisible hinge comprising two main hinge sections adapted to be fastened to the parts to be hinged together, and a floating frame overlying said sections, substantially as described.

14. An invisible hinge comprising two main sections, a floating frame engaging said sections and a cover, substantially as described.

15. An invisible hinge comprising two readily separable main sections, a floating frame overlying the same, and a cover, substantially as described.

In testimony whereof, I affix my signature, in presence of two witnesses.

EUGENE M. KLUGE.

Witnesses:

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