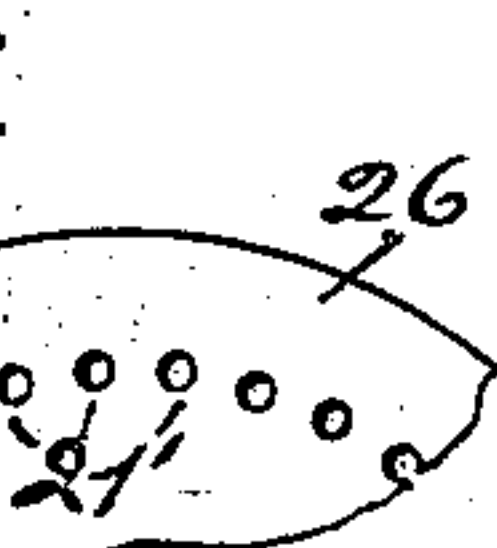
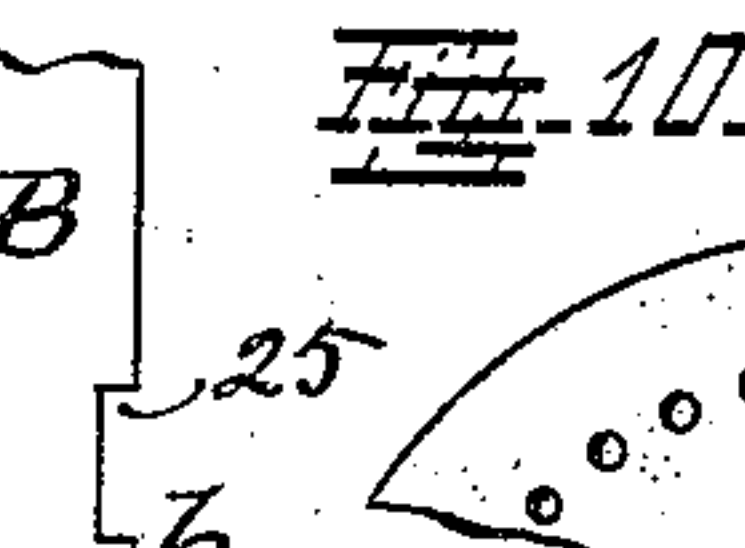
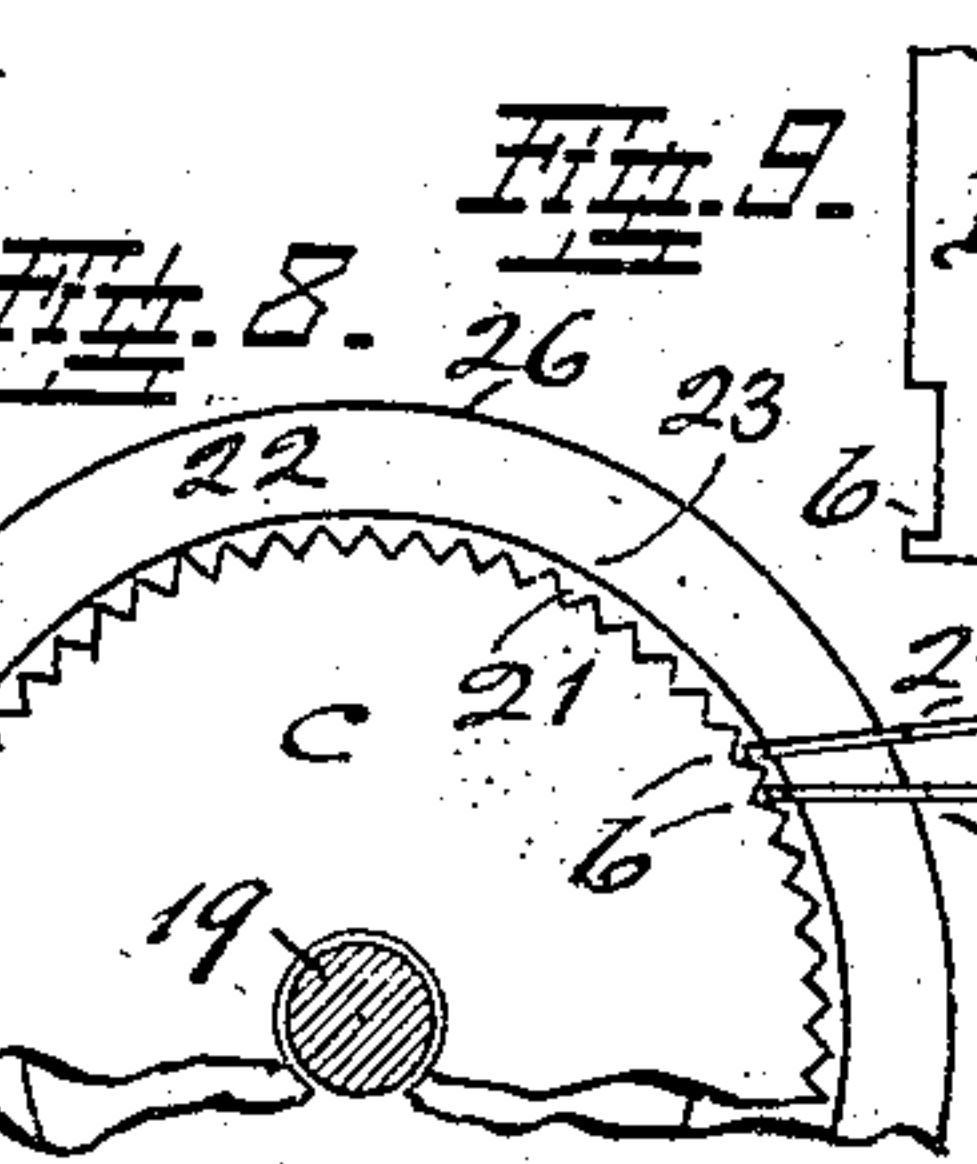
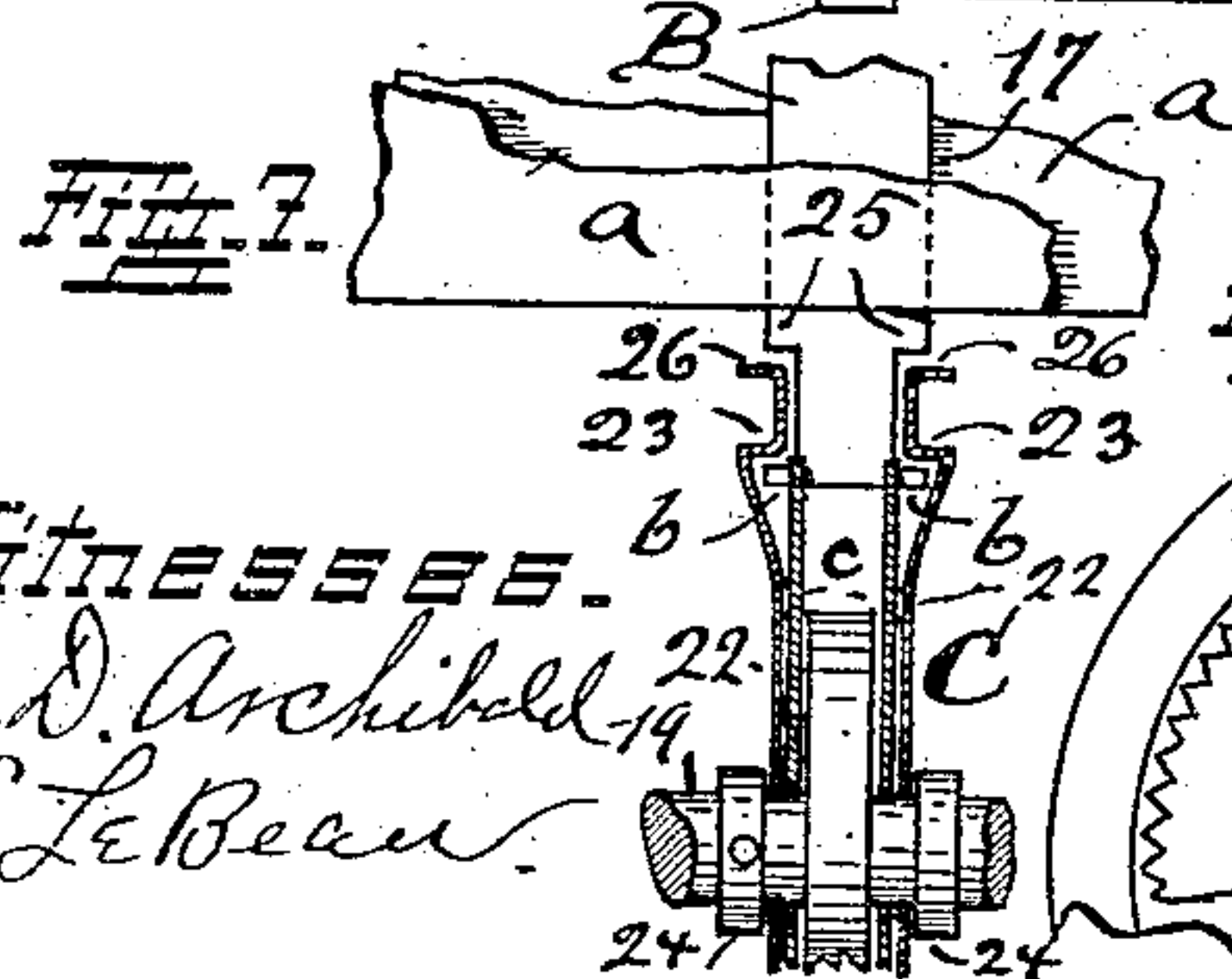
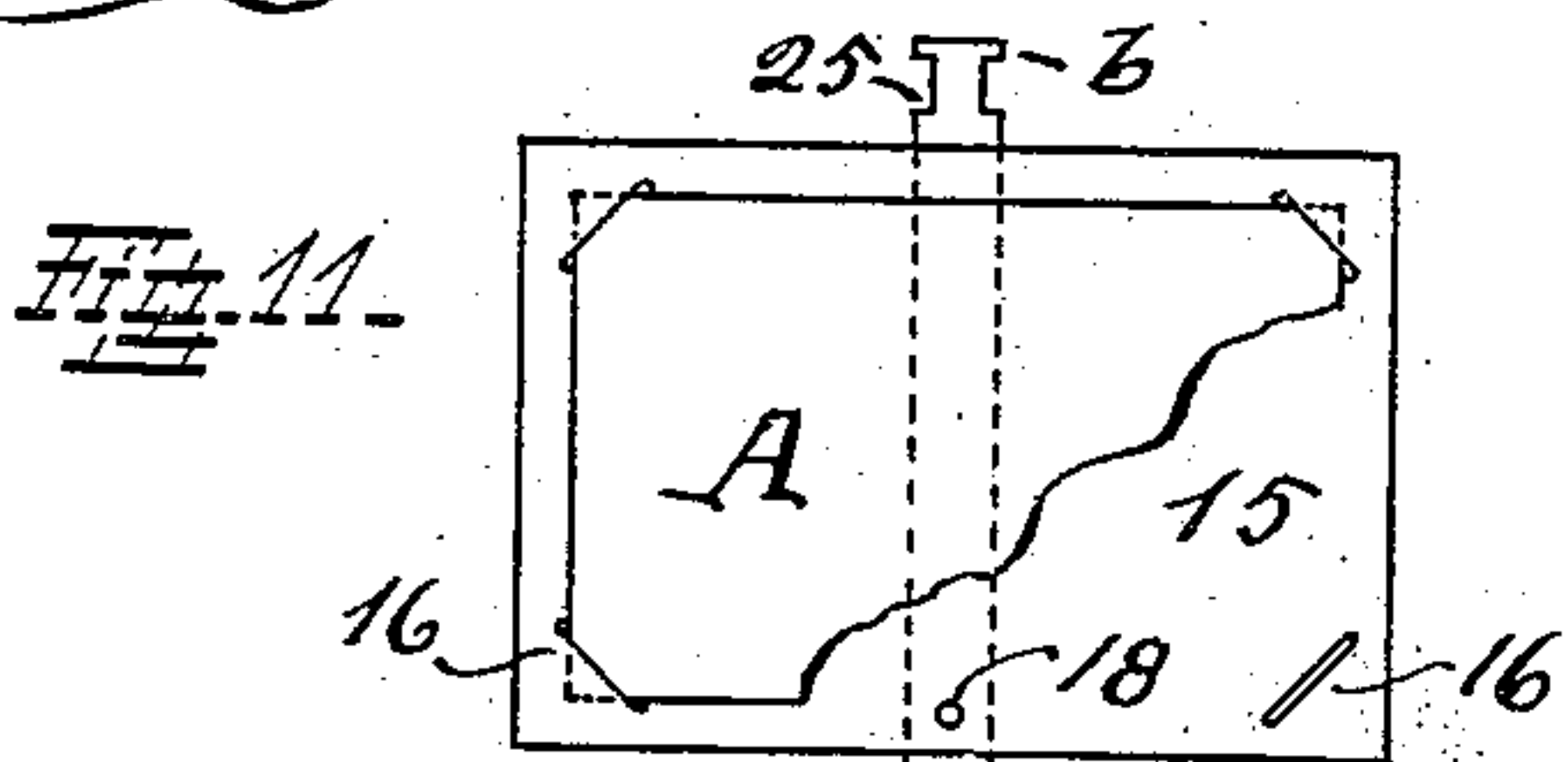
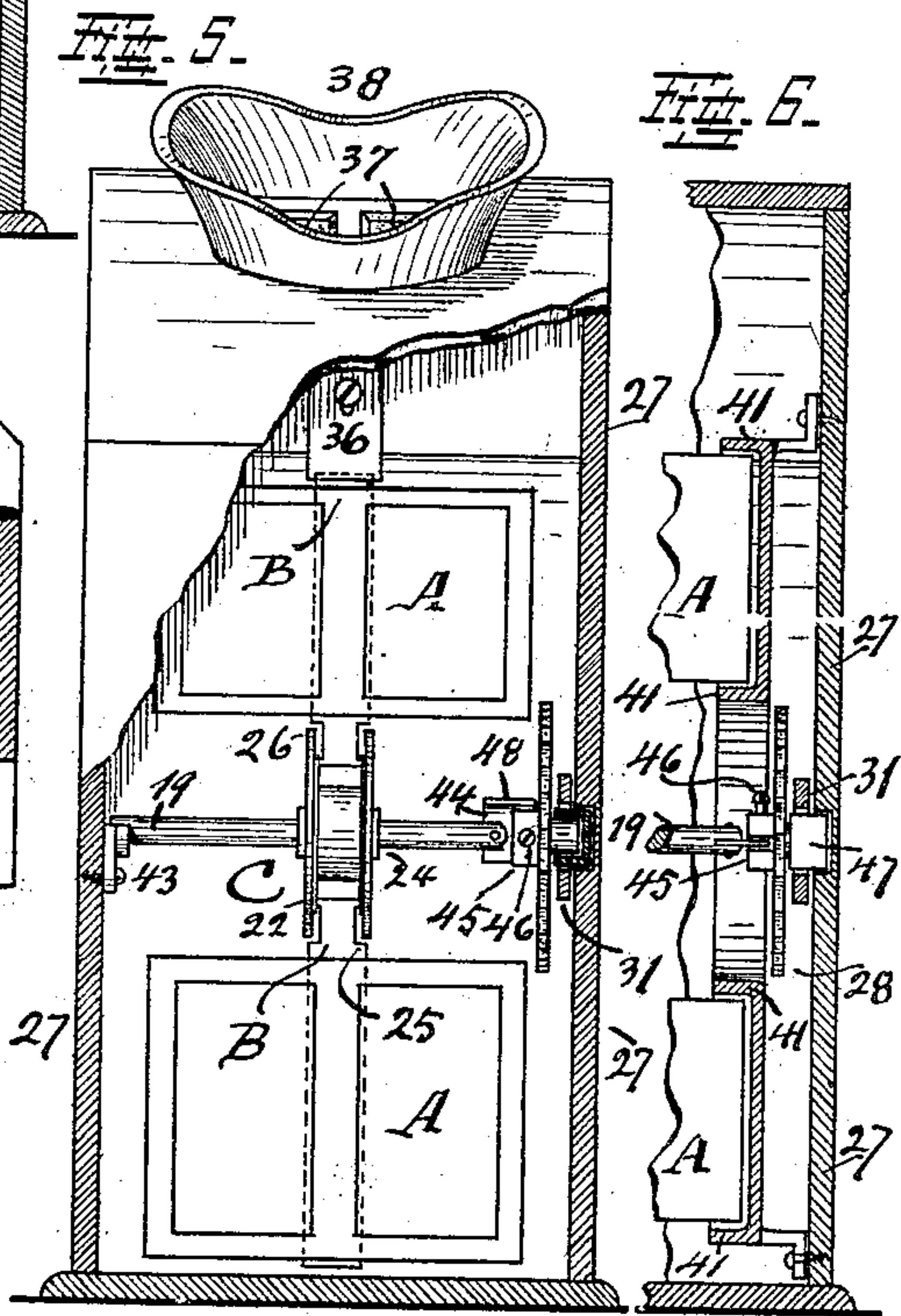
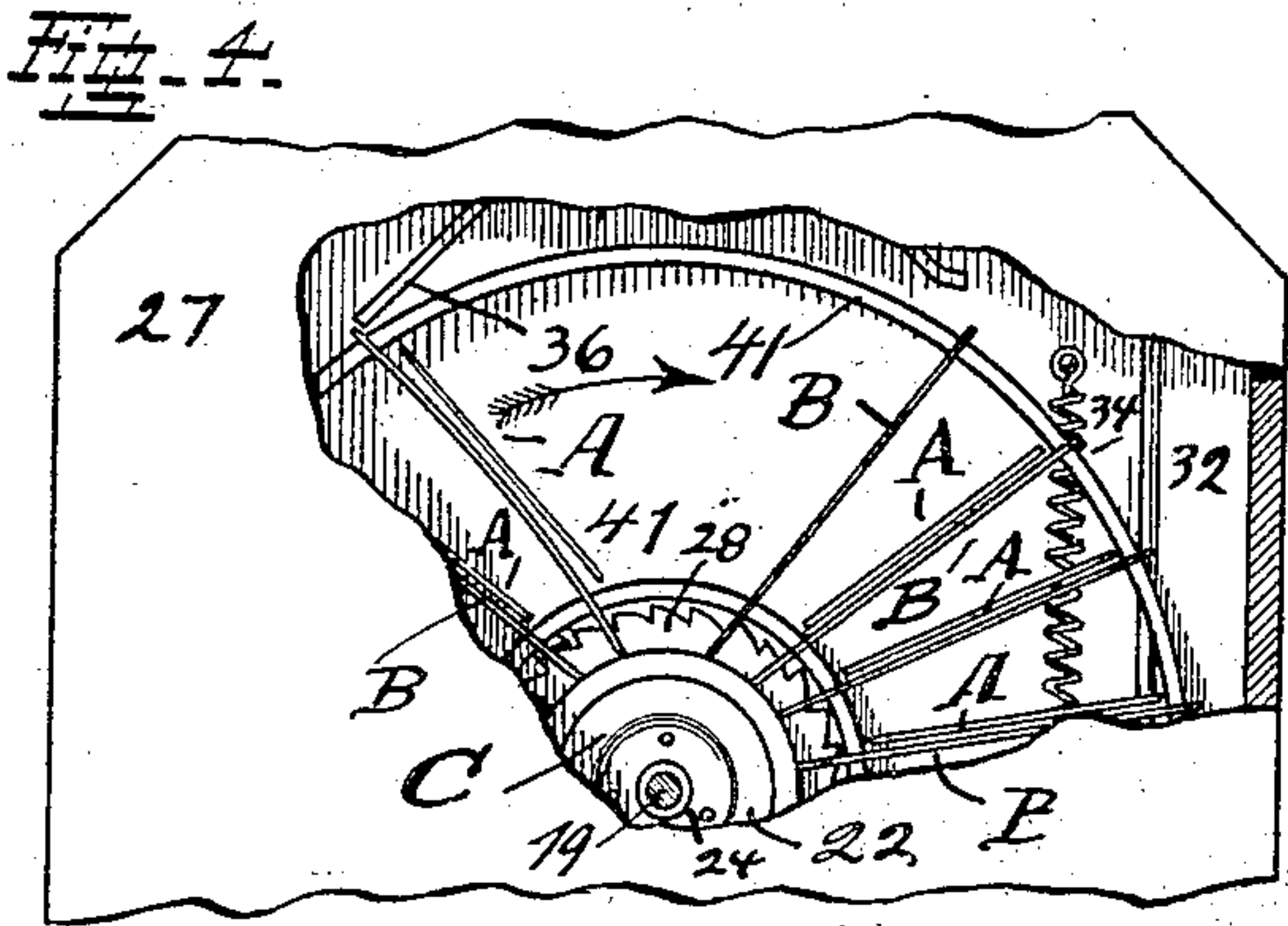
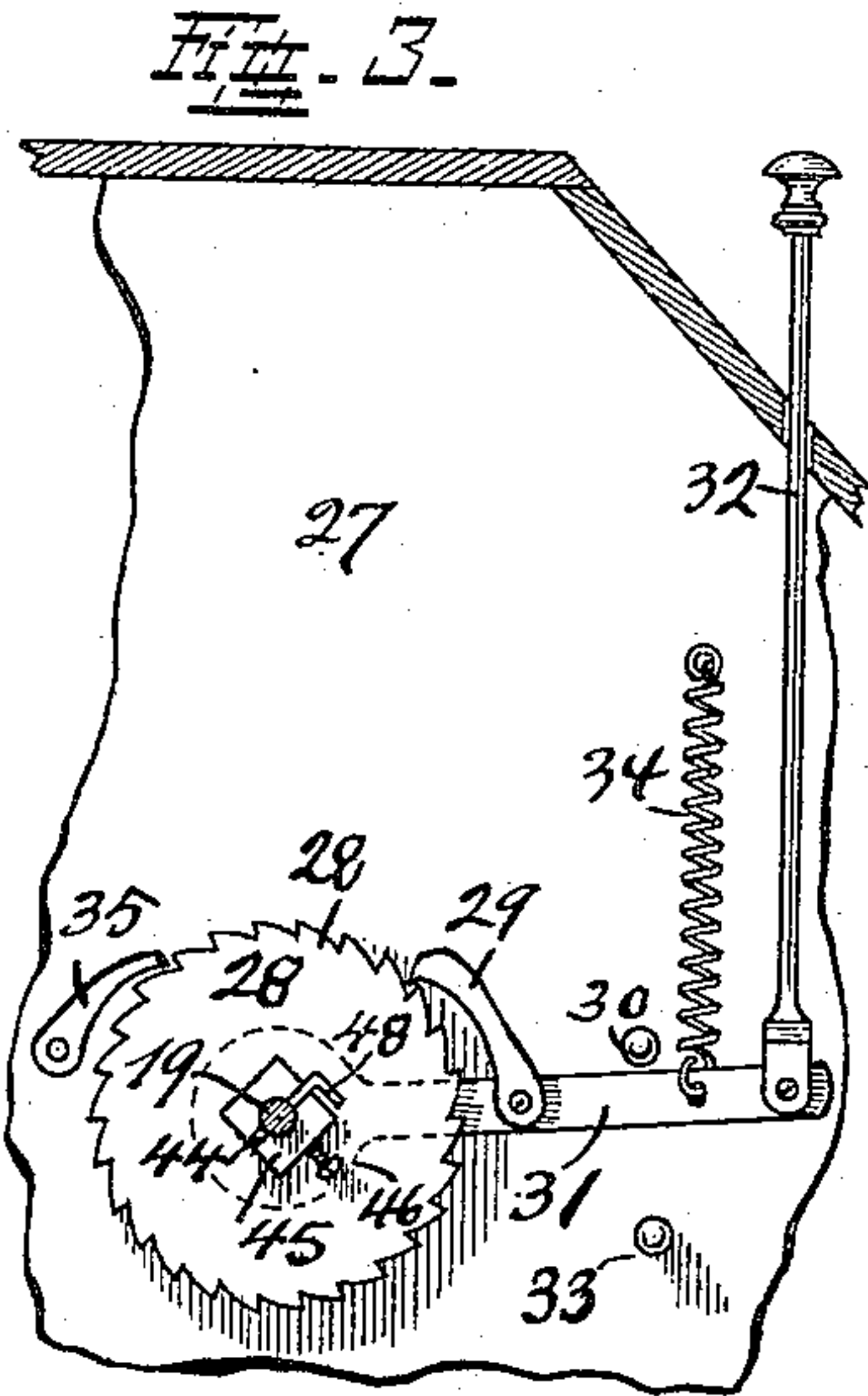
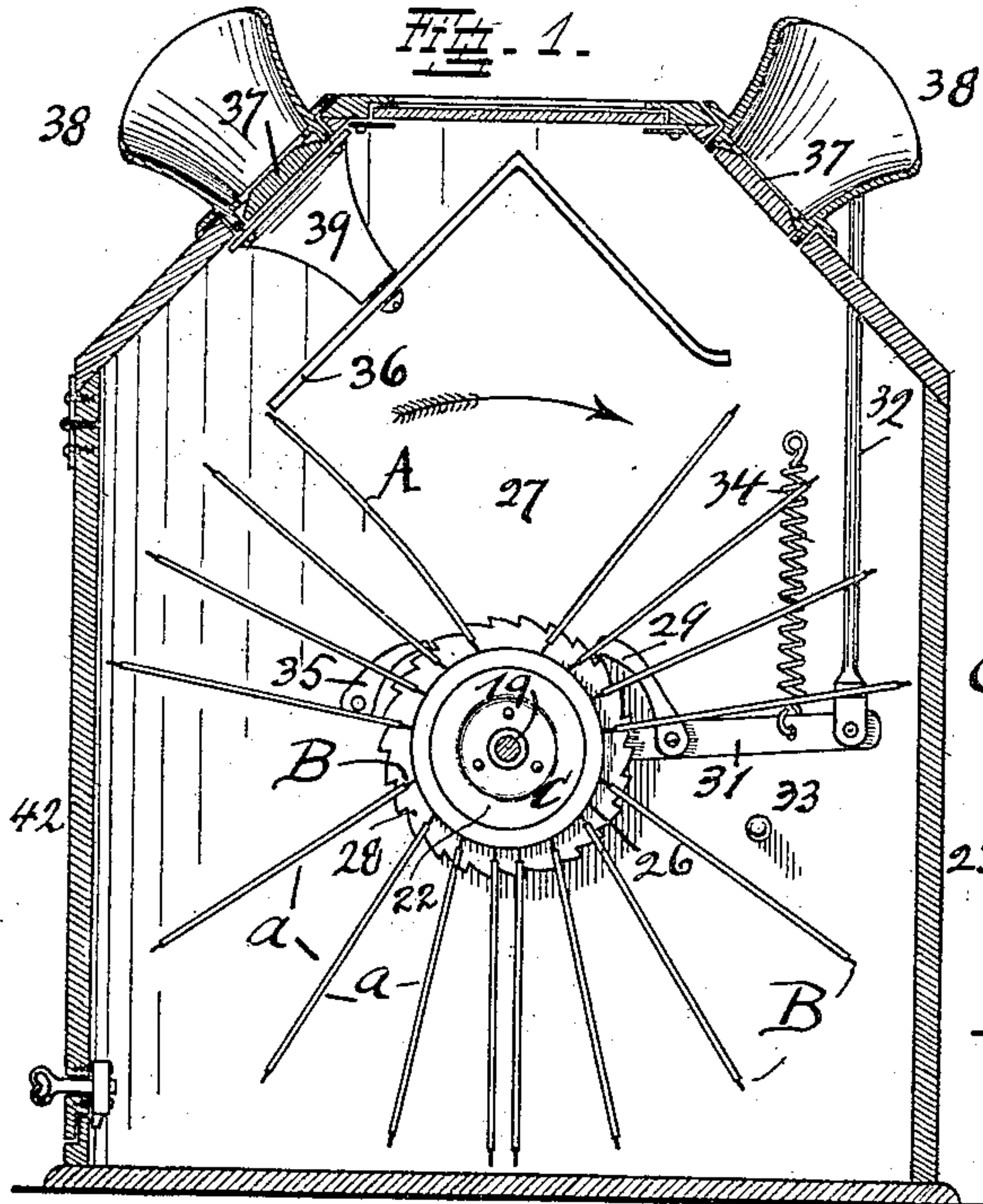


R. R. WHITING.
CARD EXHIBITING DEVICE.
APPLICATION FILED NOV. 22, 1909.

979,117.

Patented Dec. 20, 1910.



Witnesses.
A. D. Archibald
T. Le Beau

Inventor.
Richard R. Whiting
by C. Spengel atty.

UNITED STATES PATENT OFFICE.

RICHARD R. WHITING, OF NORWOOD, OHIO.

CARD-EXHIBITING DEVICE.

979,117.

Specification of Letters Patent.

Patented Dec. 20, 1910.

Application filed November 22, 1909. Serial No. 529,201.

To all whom it may concern:

Be it known that I, RICHARD R. WHITING, a citizen of the United States, and a resident of Norwood, Hamilton county, State of Ohio, have invented certain new and useful Improvements in Card-Exhibiting Devices; and I do declare the following to be a clear, full, and exact description thereof, attention being called to the accompanying drawing, with the reference characters marked thereon, which forms also a part of this specification.

This invention relates to certain new and useful improvements in devices in which exhibits in card-form, pictures, photos for instance, may be exposed for inspection and viewing.

The leading feature of this invention concerns the arrangement, means and their construction, whereby a collection or set of such exhibits is supported in a manner that the single exhibits forming part of such a set may each be conveniently viewed, one after the other, by one or more persons.

In the following specification and particularly pointed out in the claims at the end thereof, will be found a full description of my invention, together with its operation, parts and construction, all of which is also illustrated in the accompanying drawing, in which:—

Figure 1, shows a vertical cross-section of the apparatus. Fig. 2, shows a section of the central part of the apparatus resulting from removal of the member shown in the center of the apparatus now nearest to the observer. Fig. 3, is a similar view and shows the farther side of the casing of the apparatus appearing in Fig. 1, and the operating parts located immediately in front of this side. Fig. 4, is part of a side-view of the apparatus showing it as it appears when viewed in the same direction as it is in Fig. 1, parts of the side of the casing nearest the observer being broken out, showing a section similar to Fig. 1, with a modified arrangement of the view-supporting means. Fig. 5, shows part of a front-view and part of a central vertical section, the section being taken in a plane at right angles to the section shown in Fig. 1. Fig. 6, is a part of a section similar to that shown in the preceding view and with the modified view-supporting means shown in Fig. 4. Fig. 7, is an enlarged sectional detail-view

and shows manner of connecting the view-supporting arms. Fig. 8, is a similar view taken at right angles to the preceding view. Fig. 9, shows the inner connected end of one of the view-supporting arms. Fig. 10, illustrates modified means for connecting these ends of the view-supporting arms. Fig. 11, shows a modified manner of supporting the views.

The letter A indicates exhibits which are in card-form and supported on slender arms B of thin elastic material like steel for instance. Blades formed of clock-spring steel are very desirable. The exhibits are arranged in a manner that these arms may engage them and may be used for the purpose of moving them, one after the other into position for viewing. When the exhibits are connected, the connection may be a direct one to these arms as shown in Figs. 1, 5 and 7, or intermediate carrying means may be used like a frame or a flat card 15, as shown in Fig. 11, which is provided with slits 16 which receive the corners of the views. This connection in either case may be a permanent one, or one permitting removal, of the exhibits from the intermediate carrying means, or of the exhibits from the arm in case of their direct connection thereto. The cards may bear matter to be exhibited, on one side only, or on both of their sides. This latter effect may be obtained by securing two cards *a a*, see Fig. 7, to each other back to back, each of these cards having on one side matter to be exhibited. The connection of two of such views to each other, back to back, may be by any suitable means, an adhesive substance being preferred. In such case a space between the two cards and between their marginal edges may be left disconnected to form a pocket 17, see Fig. 7, which may receive the supporting arm, the exhibit being held as shown in Figs. 1, 5 and 7. By having the arm fitted closely to such a pocket an exhibit may be readily held in this manner without any additional means and may be conveniently removed, to be replaced by another exhibit similarly prepared. When one side only of a card bears a view, such a pocket may be formed by securing a strip of material, paper for instance, against the back of the card, or against the back of the intermediate carrier 15.

The connection between the views and

their arms or their intermediate carriers, or between these latter and the supporting arms may be a permanent one by means of glue, rivets 18 as shown in Fig. 11, or other equivalent means. A number of such arms 5 B is secured to a rotatable shaft 19 from which they project substantially, radially and whereby when said shaft is rotated, these arms, with the views engaged by them, 10 are moved correspondingly in a circular direction. The connection of these arms to shaft 19 is not rigid, but permits each arm to have a limited movement, independent of the movement received from the shaft, and 15 in a peripheral direction, that is in the plane in which they are carried around by the shaft. For such purpose a hub C is provided and rigidly mounted upon shaft 19 to which these arms are pivotally connected. 20 This hub consists of two spaced disks *c c*, mounted upon shaft 19 and between which and at or near their edges, the inner ends of these arms are connected. For such connection, the arms at their opposite, parallel 25 edges are shaped to form laterally extended trunnion-journals *b b*, which are fitted to occupy recesses 21 provided opposite each other in these disks and forming bearings for these journals. These recesses may be 30 obtained by arranging a circular row of holes 21' in the disks as shown in Fig. 10. A preferable method however is by using disks which have notches in their edges in which the arms are endwise seated as shown 35 in Figs. 7 and 8, the advantage of this arrangement being that the recesses may be close to each other permitting use of a larger number of arms whereby the exhibit-carrying capacity is correspondingly increased. 40 One disk so notched may be used if of sufficient thickness, or two adjacent to each other. Fig. 8 shows such a disk in about full size with two arms in position, illustrating how close these arms may be placed 45 in reality.

Means are required to confine the ends of the arms in position within the notches. This is done by caps 22 having circular shoulders 23 which extend over journals *b b* 50 of the arms. These caps are held in position by collars 24. Beyond journals *b*, the arms are shaped to form shoulders 25, adapted to come in contact with the peripheral edge of caps 22, which edges by preference 55 are flanged as shown at 26 to render them more rigid. The distance between journals *b* and shoulders 25 on the arms is longer than the distance between shoulders 23 and flanges 26 on the caps and the journals are 60 left free to turn in their bearings so that the arms may perform the limited movement and independent of the movement they receive from rotation of shaft 19 as previously mentioned. The arms move posi- 65 tively with this shaft, only when said should-

ders 25 are in contact with the edge of the caps as shown in Fig. 8. The object of this arrangement will be presently made clear.

Shaft 19 is supported in opposite sides 27 of a suitable case and may be rotated in any 70 suitable manner. A ratchet-wheel 28 may be used, which is actuated by a pawl 29, carried on a lever 31, which may be operated by a push-rod 32 extended to the outside for access. A stop 33 confines the actuation to 75 proper limits and a spring 34 restores the parts to normal position after each actuation, which position is defined by a stop 30.

35 is a locking-pawl to hold wheel 28 in the position to which it has been advanced. 80

36 is a stop arranged within the casing and in a position so as to be located in the path of the outer edges of the exhibits. Engagement with the extreme ends of arms B is preferable, since direct engagement with 85 the edges of the exhibits would wear them, in case they are made of paper. This presumes of course that all arms are of equal length.

The arrangement, function and operation 90 of the concerned parts are as follows, reference being had to Fig. 1, and to the position of the parts as shown there and in which they are left after a preceding actuation of push-rod 32 has effected a limited rotation 95 of shaft 19. The extent of each of these rotations is such that it would carry the outer end of an arm B to a position slightly beyond stop 36 if this latter were not present. Its presence however limits the move- 100 ment of this outer end of the arm and holds it back without preventing the movement of its inner end which follows the rotating hub to which it is connected. This interference with the movement of the outer end of each 105 arm B, which prevents this end from following the inner end, sets up a spring-tension in the particular arm so retarded. If push-rod 32 is now again actuated, the immediate effect will be a forcible release of the re- 110 tardated arm B from stop 36, whereby this arm under the impulse of its spring-action will at once flop over to the other side, which movement is one independent from that due 115 to rotation of shaft 19 and solely spring-impelled. This independent movement is made possible by the particular manner of connecting the inner ends of arms B to hub C as before described. This movement is limited and comes to a stop as soon as 120 shoulders 25 on the particular arm come again in contact with the outer edges 26 of caps 22 leaving the released arm in a position as shown in Fig. 1, upper one to the right. It will now be noticed that by this 125 retardation of an arm a gap is produced in a set of views in the upper part of their circular path and as shown in Figs. 1 and 4, that is to say, the exhibits drop apart there- at, one being on one side of this gap and 130

another on the other side. A view on one side of a card, they being of course all on the same side on each card, may now be readily observed either direct or through a
 5 view-glass of which 37 are the lenses and supported in proper position on the casing, opposite the exhibits in the gap. If each side of a card bears a view, another view-glass becomes necessary, and if these view-
 10 glasses are arranged as shown in Fig. 1, two persons may use the apparatus at the same time, there being always a view opposite each glass. To see all the views on both sides of the cards, requires use of both view-
 15 glasses, one after the other.

38 are customary hoods to shade the eyes. Observation may however be also direct and without view-glasses.

In case the apparatus is used as a stereo-
 20 scope, it becomes necessary to provide for a division or septum between the lenses on the inside. Stop 36 may serve for this purpose, it being a strip of metal, shaped as shown in Fig. 1, and adjustably connected to a
 25 bracket 39 which extends into the casing between the lenses. The arrangement as shown in Figs. 1 and 5, presumes a support of the views on arms B in the manner indicated in Figs. 7 or 11. As shown in Figs. 4
 30 and 6, the exhibits are not supported on these arms, but rest at opposite ends in circular run-ways 41 provided opposite each other on the shaft or on opposite sides of the casing. In this case arms 3 extend into
 35 the spaces between adjoining cards and merely push them around through the run-ways. Access, to change the exhibits, may be had through a door 42. Such changes may be effected after the door is open, by
 40 rotating shaft 19 to bring the various arms successively opposite the door-opening in convenient position for the purpose.

In case the views are supported as shown in Figs. 1, 5, 7 or 11, it may also be done by
 45 taking the entire set out of the casing, shaft 19 for such purpose being removed from its bearings. In case the views are permanently connected to arms B, so as to require their removal from the hub, then the shaft
 50 with the entire set of exhibits must be taken out of the casing. When outside, one of the collars 24, is shifted laterally on the shaft and one of the caps next to it is likewise shifted whereby all the arms are released.
 55 The replacing of the arms is facilitated by an independent assembling device not shown. To facilitate removal of the shaft, the bearing at one of its ends is open upwardly as shown at 43 in Fig. 5. To the other end of
 60 the shaft a plate 44 is affixed which is fitted to a slot in a laterally extended hub 45 of ratchet-wheel 28 in which it is held by a set-screw 46. When the shaft is removed the ratchet-wheel remains in position, being sup-
 65 ported in a bearing 47, secured to the ad-

jacent side of the casing. One edge of plate 44 is bent to form a shoulder 48 which defines the position of this plate in the slot of hub 45 and which position is one which lo-
 70 cates the end of the shaft in the center of this hub. See Figs. 3 and 5. A convenient way of shaping arms B is by notching at one of their ends, their opposite longitudinal edges in the manner indicated in Fig. 9, thus
 75 producing journals *b b* and shoulders 25—25. Stamping by use of dies is a preferable way of obtaining the shape of the arms, since by such means the necessary equality in shape of all arms is assured.

Having described my invention, I claim 80 as new:

1. In a view-exhibiting apparatus, the combination of a set of equal sized view moving arms of stamped metal and pro-
 85 vided with internal trunnion-journals, a hub to which these arms closely spaced are pivotally connected by means of these journals and a rotatable shaft on which this hub is mounted.

2. In a view-exhibiting apparatus, the
 90 combination of a set of elastic view-moving arms, a hub on which they are endwise seated, means engaging this end at opposite edges to hold the arms to the hub, and a rotatable shaft upon which this hub is
 95 mounted.

3. In a view-exhibiting apparatus, the combination of a set of view-moving arms, notched in opposite edges at one of the ends
 100 to produce trunnion-journals at one end of those notches and stops at their other end, a hub to which these arms are held by means of these journals and which is provided with means adapted to interact with the stops
 105 mentioned to limit the movement of the arms on the hub and a rotatable shaft upon which this hub is mounted.

4. In a view-exhibiting apparatus, the combination of a set of view-moving arms of
 110 elastic material having trunnion-journals on their opposite edges and shoulders beyond these journals, a rotatable shaft on which these arms are pivotally mounted, a stop located in the path of the outer ends of these
 115 arms, means to rotate the shaft sufficient to carry the ends of the arms, one after the other against the stop mentioned in a manner to set up a spring-resisted retardation in each arm, while at the same time releasing
 120 a previously engaged arm to permit the same to swing, spring-impelled, on its pivotal connection independent of the motion received from the shaft, and means adapted to be engaged by the shoulders on the arms
 125 to limit this independent motion.

5. In a view-exhibiting apparatus, the combination of a case provided with a view-
 130 glass having two lenses, views supported inside of the case opposite this view-glass, arms of elastic material for moving these

views in position opposite the view-glass, means to actuate these arms for the purpose and a stop adapted to temporarily engage these arms one at a time to hold them
5 in position for viewing, said stop being so formed and located as to serve also as a septum for the lenses of the view-glass.

6. In a view-exhibiting apparatus, the combination of a shaft, means to rotate it, a
10 peripherally notched member mounted on this shaft, arms of elastic material adapted to actuate exhibits and provided with lateral

projections seated in these notches, means to confine them in position therein and a stop located in the path of the free ends of these 15 arms to retard them temporarily to hold the exhibits in position for viewing.

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

RICHARD R. WHITING.

Witnesses:

C. SPENGEL,

T. LE BEAN.

Correction in Letters Patent No. 979,117.

It is hereby certified that in Letters Patent No. 979,117, granted December 20, 1910, upon the application of Richard R. Whiting, of Norwood, Ohio, for an improvement in "Card-Exhibiting Devices," an error appears in the printed specification requiring correction as follows: Page 3, line 85, the word "internal" should read *integral*; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 17th day of January, A. D., 1911.

[SEAL.]

C. C. BILLINGS,

Acting Commissioner of Patents.