No. 801,669. PATENTED OCT. 10, 1905.

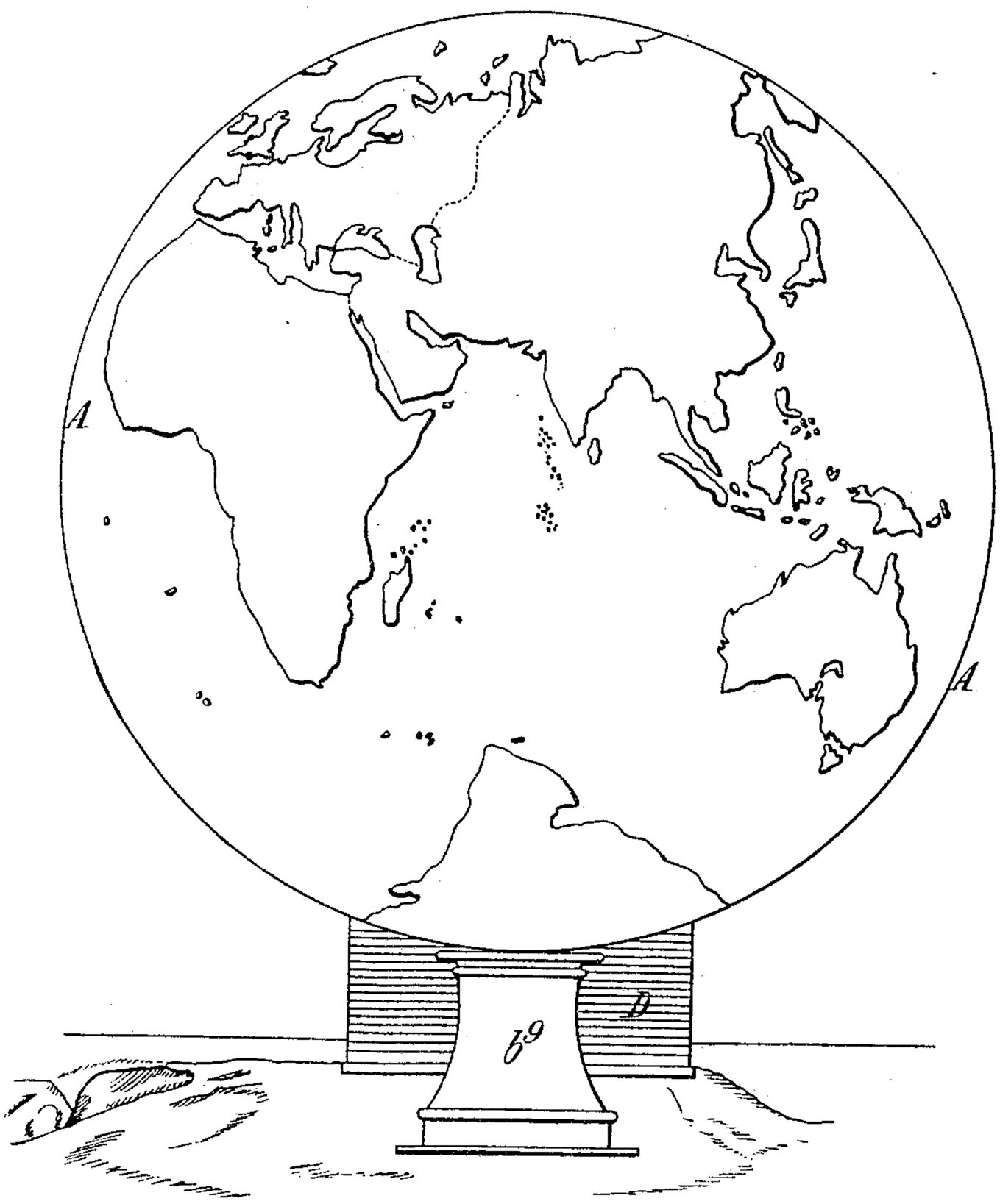
H. S. MAXIM.

DEVICE FOR PRODUCING ILLUSIONARY EFFECTS.

APPLICATION FILED DEC. 3, 1904.

5 SHEETS—SHEET 1.

Fig. 1.



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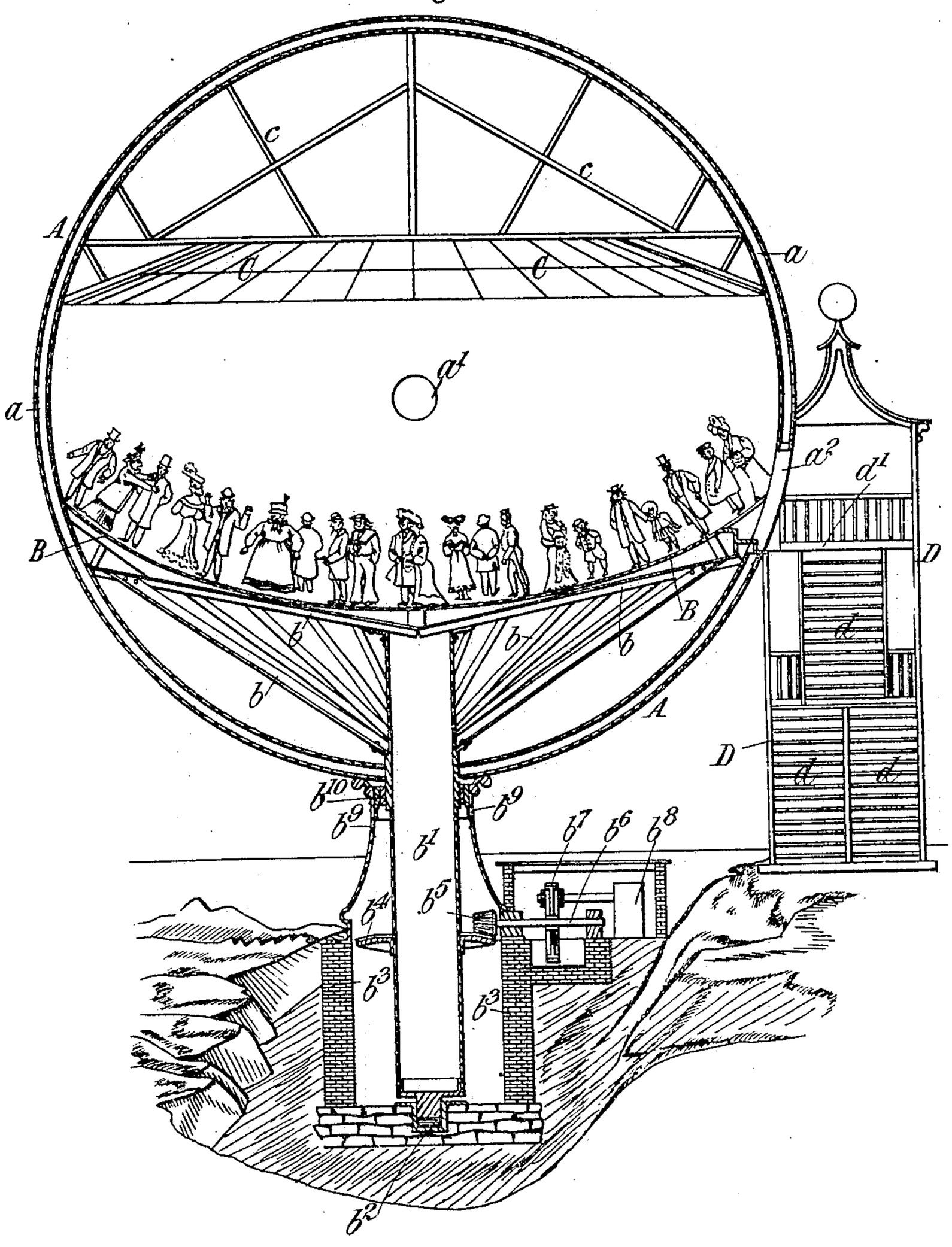
5 SHEETS—SHEET 2.

Fig. 2.



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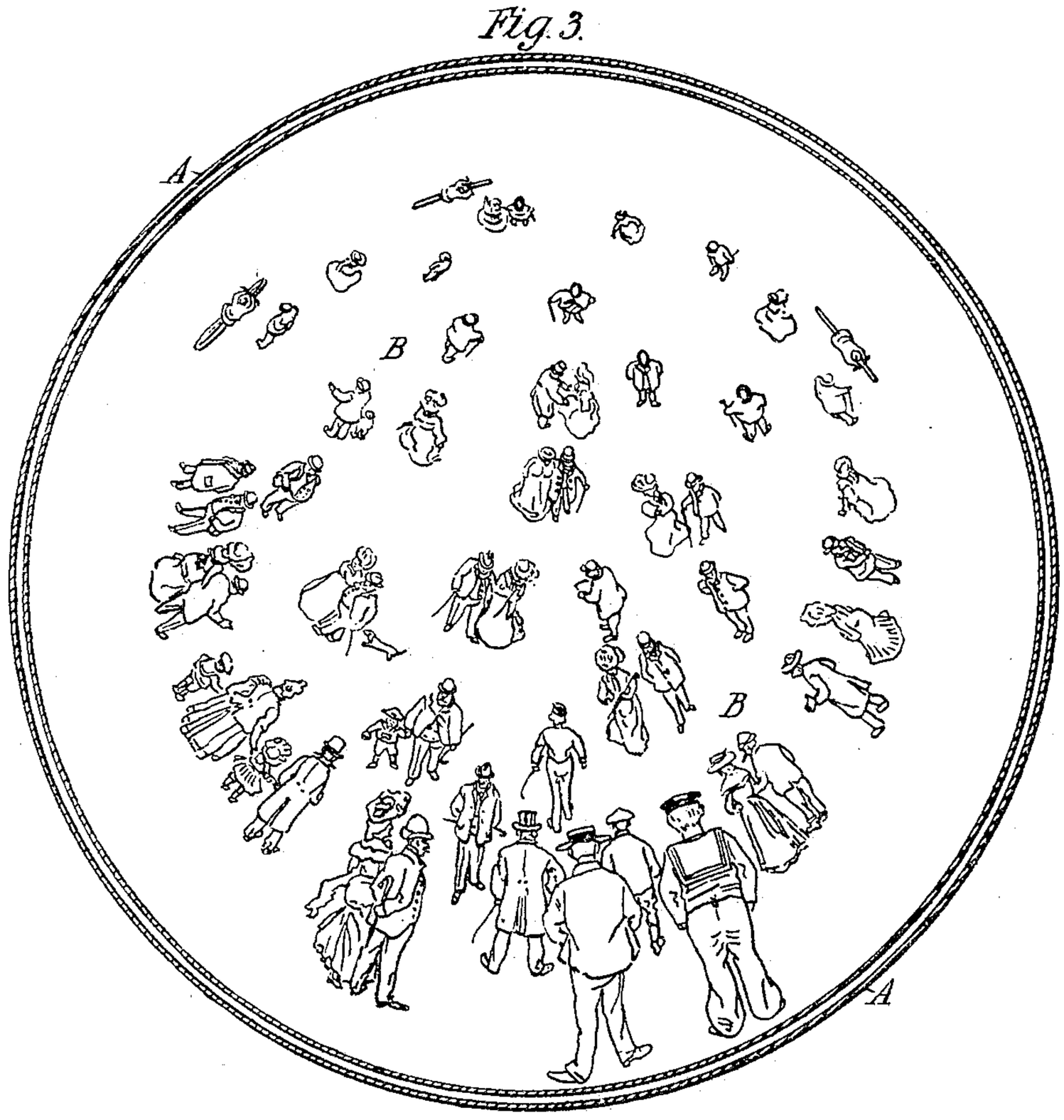
5 SHEETS—SHEET 3.

Fig. 3.



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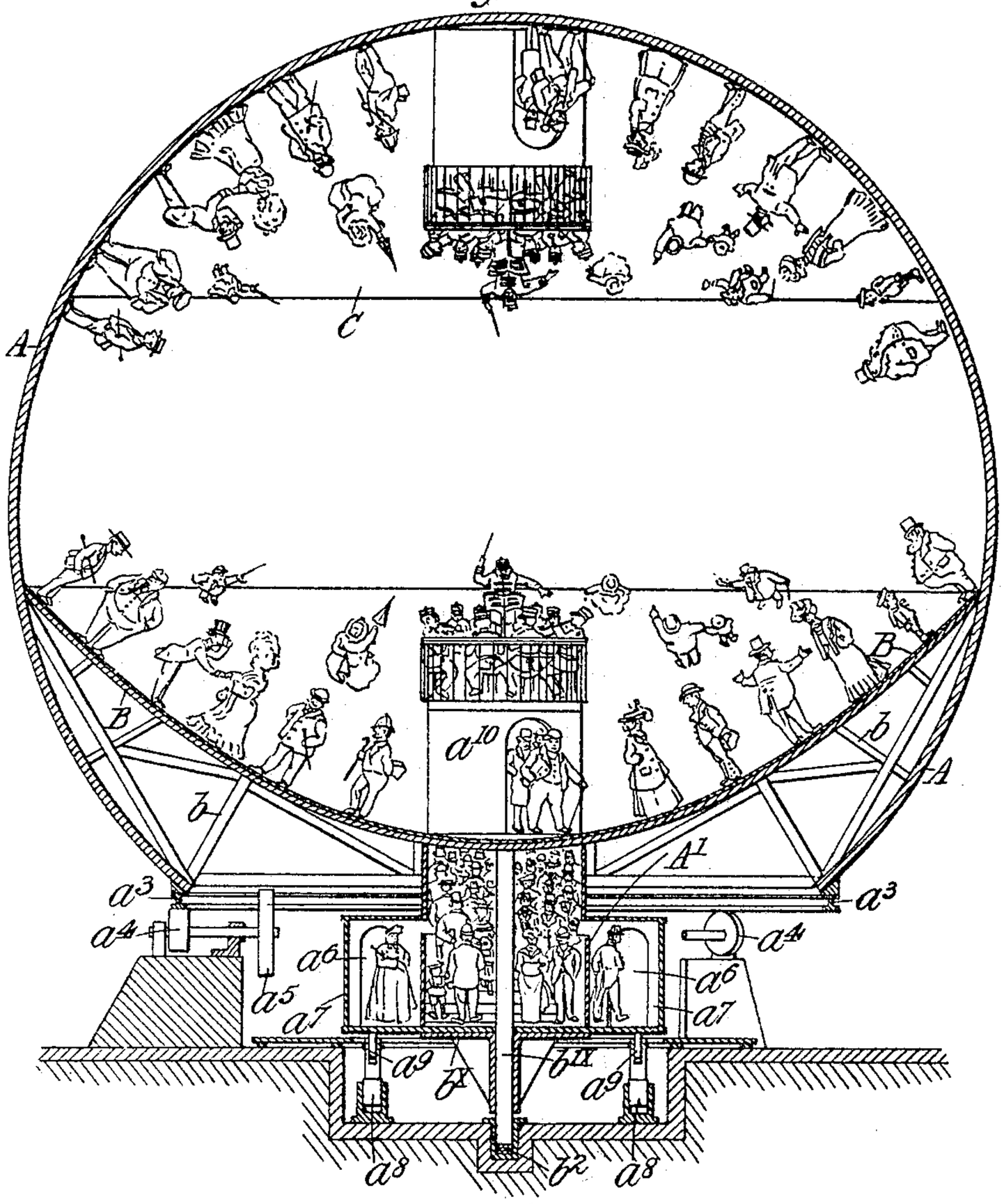
5 SHEETS—SHEET 4.

Fig. 4.



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5 SHEETS—SHEET 5.

Fig. 5.

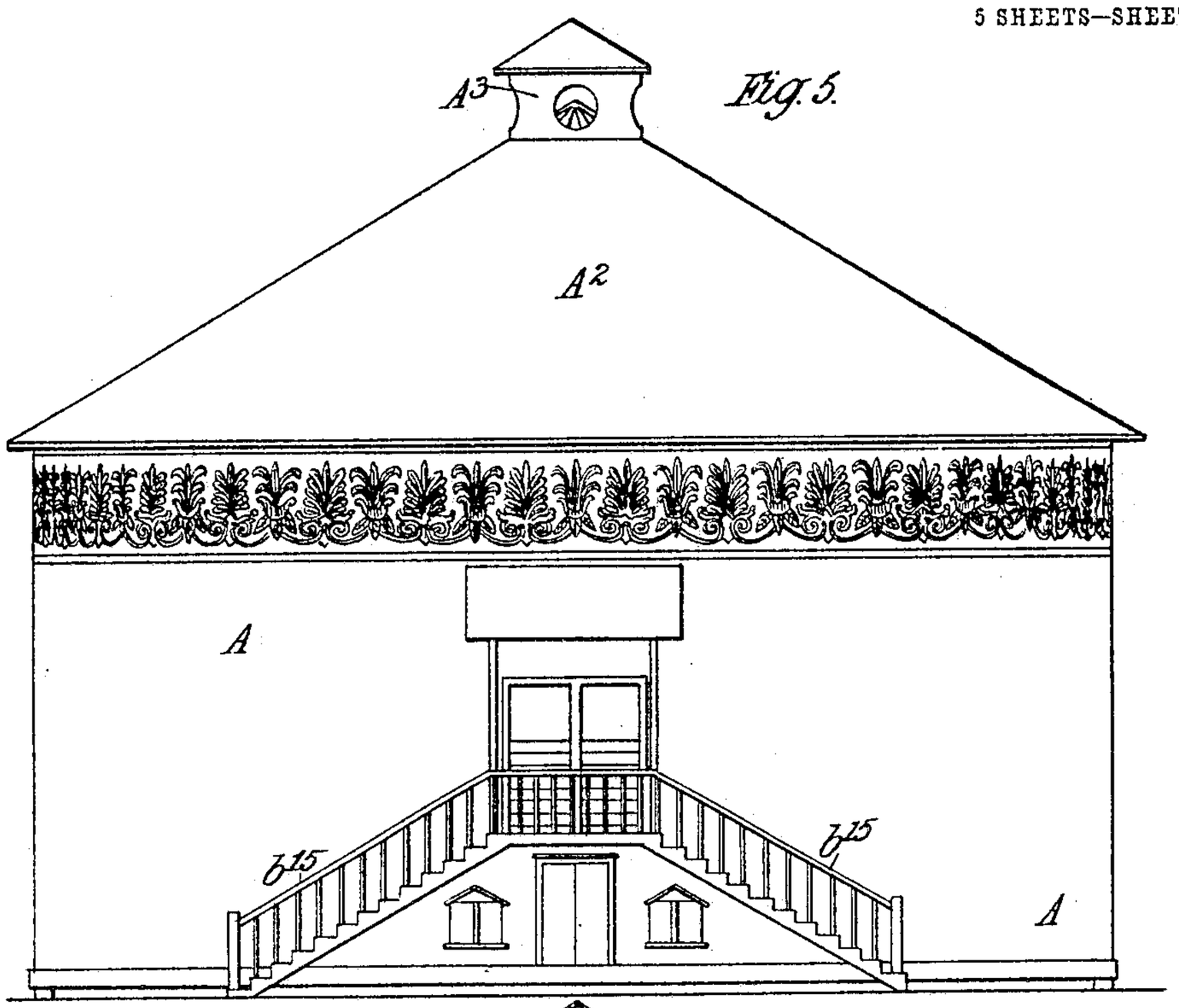
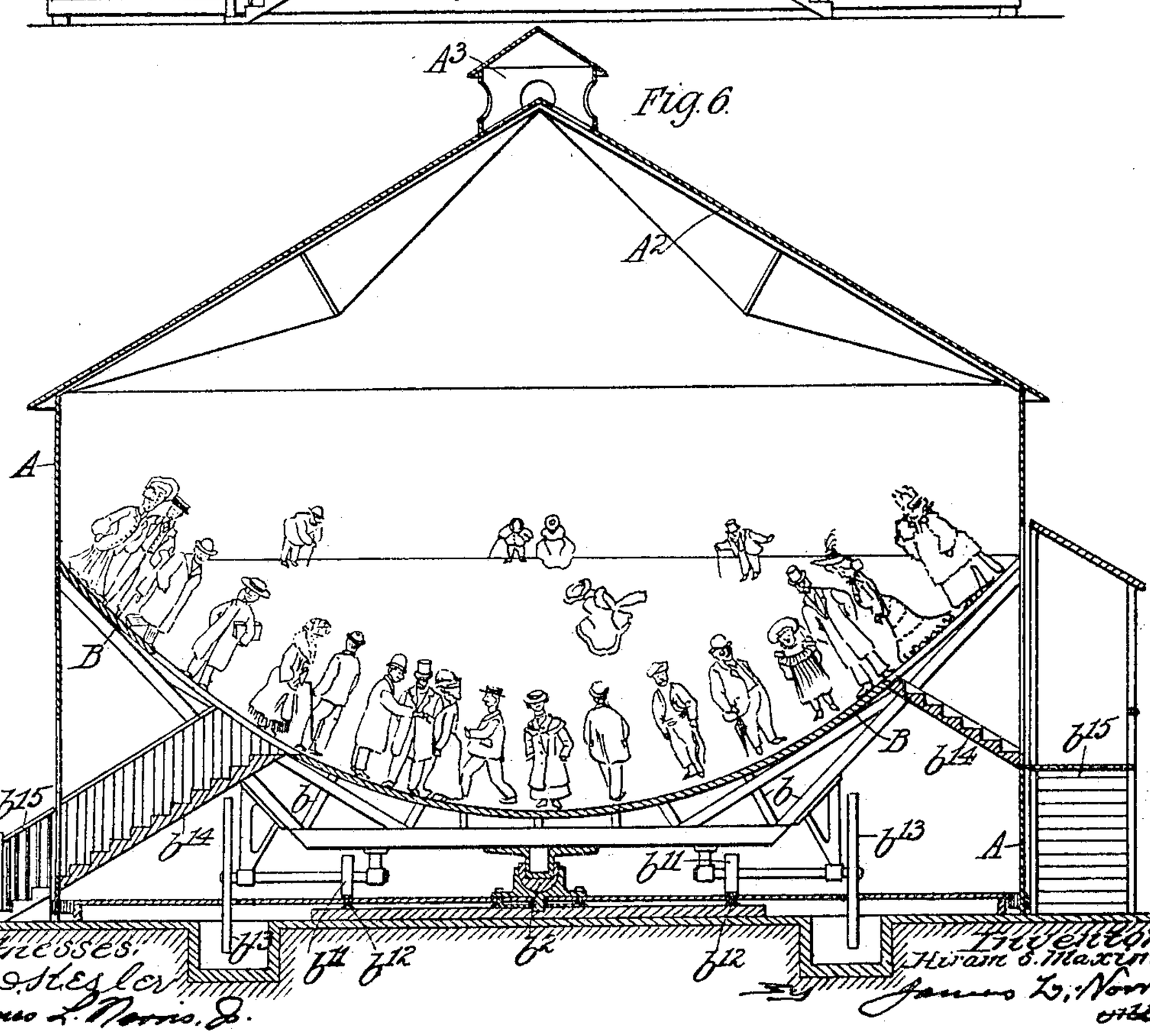


Fig. 6.



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UNITED STATES PATENT OFFICE.

HIRAM STEVENS MAXIM, OF THURLOW LODGE, WEST NORWOOD, ENGLAND, ASSIGNOR TO SARAH LADY MAXIM, OF THURLOW LODGE, WEST NORWOOD, ENGLAND.

DEVICE FOR PRODUCING ILLUSIONARY EFFECTS.

No. 801,669. Specification of Letters Patent. Patented Oct. 10, 1905.

Application filed December 3, 1904. Serial No. 235,368.

To all whom it may concern:

Be it known that I, HIRAM STEVENS MAXIM, Chevalier of the Legion of Honor, civil, mechanical, and electrical engineer, a subject of the King of Great Britain, residing at Thurlow Lodge, West Norwood, in the county of Surrey, England, have invented certain new and useful Improvements in Devices for Producing Illusionary Effects, of which the following is a specification.

This invention has for its object the production of illusionary effects by means of a contrivance comprising a hollow sphere or chamber lighted from the interior and having no windows or other openings through which external things can be seen and capable of revolving slowly about a vertical axis. The floor is parabolic—that is to say, is of such a concave shape that if it contained water the water would on the revolution of the sphere at an appropriate speed spread itself at an even depth over the entire surface of the floor. The said chamber may be made of wood or metal, or both, and when of spherical shape the exterior may be smooth and painted to resemble a geographical globe of the earth. With such a contrivance when persons enter the hollow sphere they will not be able to tell whether it is revolving or standing still, and by reason of the parabolic floor persons near the outer edge would to the persons standing near the center appear to be walking with their heads directed inward. When the sphere revolves, some curious phenomena will be obtained in walking outward and inward on such a floor, and a ball thrown from the center outward, and vice versa, will move in an unexpected direction that will be very puzzling to the people within the sphere. A person mounted on roller-skates will be able to execute some very complicated and amazing evolutions. The illusionary effects would be exaggerated by placing mirrors in suitable positions above the floor and at proper angles. For example, the people could then be made to appear to be walking all over the inside of the sphere with their heads pointing inward and their feet pointing outward. The interior surface of the walls of the sphere might be decorated with pictures of the signs of the zodiac. The sphere need not constantly revolve about its axis. Indeed, in some cases the mystery of the contrivance might be enhanced by keeping from visitors the knowledge that the sphere revolved, and to arrange for them to enter first a small room around the base of the contrivance or to enter from the side directly into the sphere while the sphere is stationary and not to set it into motion until all the doors had been closed and the visitors are all actually within the sphere. Then by some pretended magical influence the strange phenomena and illusions could be produced, which would cause the parabolic floor to appear level to every one standing on it and half the people to appear standing on their heads. A visit to this contrivance might be termed "a voyage to the interior of the earth."

In some cases the floor may be made to serve as a bicycle-track for so-called "trick-riding," in which case the outer edge of the floor could be arranged at an angle of, say, forty-five degrees or other suitable angle. In this case if the cyclist were to ride in the same direction as that of the revolving sphere his own speed, added to that of the sphere, would be sufficient to enable him to ride quite easily on the inside surface of the sphere, which would have the effect of greatly adding to the illusion that the sphere were inhabited by persons having their heads pointing inward and their feet outward.

Obviously the illusionary effects could be to some extent modified from those mentioned above without departing from my invention.

In order that my said invention may be clearly understood and readily carried into effect, I will describe the same more fully with reference to the accompanying drawings, in which—

Figure 1 is an elevation of the contrivance, and Fig. 2 is a vertical section of the same. Fig. 3 is a sectional plan giving an idea of the appearance that the interior of the chamber would present to visitors standing at the upper edge of the parabolic floor and looking inwardly when said chamber were revolved. Fig. 4 is a vertical section of a modified form of the contrivance. Figs. 5 and 6 are respectively an elevation and a vertical section of a further modified form of the contrivance.

Like letters of reference indicate similar parts in all the figures.

Referring first more particularly to Figs. 1 to 3, A is the spherical chamber, and B is

the parabolic floor therein. This floor is supported by suitably-arranged cross-bars and struts b, connected with a central hollow shaft b', which extends into the spherical chamber and is supported at its lower end in a footstep-bearing b^2, situated in the concrete floor of a brickwork well b^3. The said shaft b' is furnished with a bevel-wheel b^4, with which gears a bevel-pinion b^5, carried by a horizontal shaft b^6, driven by a suitable motor, geared with a toothed wheel b^7 on said shaft b^6, the said motor and gearing being inclosed in a structure b^8. b^9 is an ornamental casing which is situated at the top of the well b^3 and which has a bearing b^{10} to further assist in supporting the shaft. The ceiling C of the spherical chamber consists of suitably-arranged mirrors supported by a framework c, carried by the interior of the chamber, these mirrors being arranged at such angles that their reflections will give the appearance of people walking and standing above the floor B with their heads directed inwardly toward the center of the sphere, as represented by Fig. 4. The said chamber is shown with two walls having a space a between them. This space is in communication with the atmosphere through openings a' and a^4, the former of which are in the inner wall of the sphere and the latter in the outer wall. These openings break joint and enable the interior of the spherical chamber to be ventilated without permitting external objects to be seen by the people inside the chamber. The said spherical chamber is also formed with a doorway a^2, through which the visitors can enter and leave the chamber, a suitable door being provided for closing said doorway while the chamber is in rotation. Access is had from the ground to the doorway by means of flights of stairs d, leading to a landing or platform d' and inclosed in a structure D, situated contiguous to the spherical chamber, but stationary with respect thereto. Instead of the stairways I may obviously employ a lift or lifts for the visitors. When the spherical chamber is brought to rest, its doorway a^2 is arranged to coincide with the landing d'.

In Fig. 4 I have shown a modified arrangement of the spherical chamber A, in which its lower part is flattened and furnished with a circular rail a^3, resting on rollers a^4, one or more of which are caused to revolve by a suitable motor gearing with a wheel a^5, thus causing the chamber to revolve also. The said chamber also has a central vertical shaft $b'^{\times}$, which revolves therewith and rests in a footstep-bearing b^2, as in the previous arrangement. Instead of making the staircase stationary I have shown the same arranged in a cage or trunk A'. Admission to and exit from this trunk are had by means of doorways a^6, formed in a chamber or enlarged portion a^7 at the lower end of the trunk. This enlarged portion a^7 is movable vertically with respect to the central shaft by means of hydraulic rams or jacks a^8 a^8, having friction-rollers a^9. When these hydraulic jacks permit the portion a^7 to descend, it rests upon a large flange $b^{\times}$, fixed to the central shaft, and then revolves with the shaft. When the hydraulic jacks are caused to raise the portion a^7, it leaves the said flange $b^{\times}$, and therefore does not revolve. By this arrangement visitors are able to enter the portion a^7 while it is stationary. Then, by opening the hydraulic rams to exhaust, the portion a^7 is permitted to descend and rest upon the flange $b^{\times}$, so as to revolve therewith, as aforesaid. Then while the portion a^7 and the trunk are revolving the visitors can mount the stairs in the trunk and enter the spherical chamber through the doorways a^{10}. In like manner the visitors from the interior of the spherical chamber can enter the said trunk while the latter is revolving with the shaft $b'^{\times}$ and after descending the stairs reach the lower end of the portion a^7, whence they can pass out after the trunk has been raised out of contact with the flange $b^{\times}$ and ceases to revolve. It will thus be possible for the visitors to enter and leave the contrivance without stopping the revolution of the spherical chamber. At the top of the trunk I may provide a band-stand for musicians to play to the visitors inside the spherical chamber. The mirrors on the ceiling C will give the appearance of the people on the floor B being upside down, as shown in the figure.

In Figs. 5 and 6 I have shown an inexpensive form of the contrivance in which the rotary chamber $A^{\times}$ is of cylindrical shape with a suitable roof A^2, provided at the top with a ventilator A^3. In this case the parabolic or concave floor B is supported by wheels b^{11}, running on a circular rail b^{12}, and motion is imparted thereto by wheels b^{13}, worked by suitable motors which revolve with the contrivance. There is a central footstep-bearing b^2, about which the entire chamber and its platform revolve. Admission to and exit from the said chamber is had by flights of stairs b^{14}, which revolve therewith. At the exterior of the rotary chamber are other flights of stairs b^{15}, which are stationary for enabling the visitors to reach or leave the stairs b^{14} when the contrivance is brought to rest.

What I claim, and desire to secure by Letters Patent of the United States, is—

1. A contrivance for producing illusionary effects, consisting in the combination of a chamber from which external objects cannot be seen, a concave floor therein, means for permitting the entrance and egress of visitors to and from said chamber, and means for revolving said chamber about its vertical axis for the purpose specified.

2. A contrivance for producing illusionary effects, consisting in the combination of a piv-

otal chamber from which external objects cannot be seen, a concave floor within said chamber, means for permitting the entrance and egress of visitors to and from said chamber, and means for revolving said chamber about its pivotal axis for the purpose specified.

3. A contrivance for producing illusionary effects consisting in the combination of a chamber from which external objects cannot be seen, a vertical shaft about which said chamber pivots, a concave floor within said chamber, means for permitting the entrance and egress of visitors to and from said chamber, and means for revolving said chamber and shaft for the purpose specified.

4. A contrivance for producing illusionary effects, consisting in the combination of a chamber from which external objects cannot be seen, a vertical shaft about which said chamber pivots, a concave floor within said chamber, means for permitting the entrance and egress of visitors to and from said chamber, roller-supports for said chamber, and means for actuating said roller-supports for revolving the chamber and shaft for the purpose specified.

5. A contrivance for producing illusionary effects, consisting in the combination of a spherical or approximately spherical chamber, a concave floor therein, a trunk having at the upper part openings for visitors to enter and leave said chamber and at the lower part openings for the visitors to enter and leave said trunk, means for enabling visitors to ascend and descend within said trunk, means for revolving said chamber about its vertical axis, and means for causing said trunk to revolve with the chamber or to remain stationary with respect thereto for the purpose specified.

6. A contrivance for producing illusionary effects, consisting in the combination of a spherical or approximately spherical chamber, a concave floor therein, a vertical shaft about which said chamber pivots, a vertically-movable trunk concentric with respect to said shaft and having at the upper part openings for the visitors to enter and leave said chamber and at the lower part openings for the visitors to enter and leave said trunk, means for enabling visitors to ascend or descend within said trunk, a flange carried by said vertical shaft and adapted to support and rotate the trunk when the latter engages therewith, and means for disengaging said trunk from the flange without stopping the rotation of the shaft and chamber and for supporting said trunk when it is required to remain stationary with respect to the said chamber for the purpose specified.

7. A contrivance for producing illusionary effects, consisting in the combination of a spherical or approximately spherical chamber, a concave floor therein, a vertical shaft about which said chamber pivots, a vertically-movable trunk concentric with respect to said shaft and having at the upper part openings for visitors to enter and leave said chamber and at the lower part openings for the visitors to enter and leave said trunk, means for enabling visitors to ascend and descend within said trunk, a flange carried by said vertical shaft and adapted to support and rotate the trunk, and hydraulic rams for raising and supporting said trunk when it is to be disengaged from the flange and to be kept stationary with respect to the revolving shaft and chamber substantially as and for the purpose described.

8. A contrivance for producing illusionary effects, consisting in the combination of a chamber, a concave floor therein, mirrors situated at the upper parts of the interior of said chamber, means for permitting the entrance and egress of visitors to and from said chamber, and means for revolving said chamber about its vertical axis for the purpose specified.

In testimony whereof I have hereunto set my hand, in presence of two subscribing witnesses, this 22d day of November, 1904.

HIRAM STEVENS MAXIM.

Witnesses:

T. SELBY WARDLE,

WALTER J. SKERTEN.