

No. 719,986.

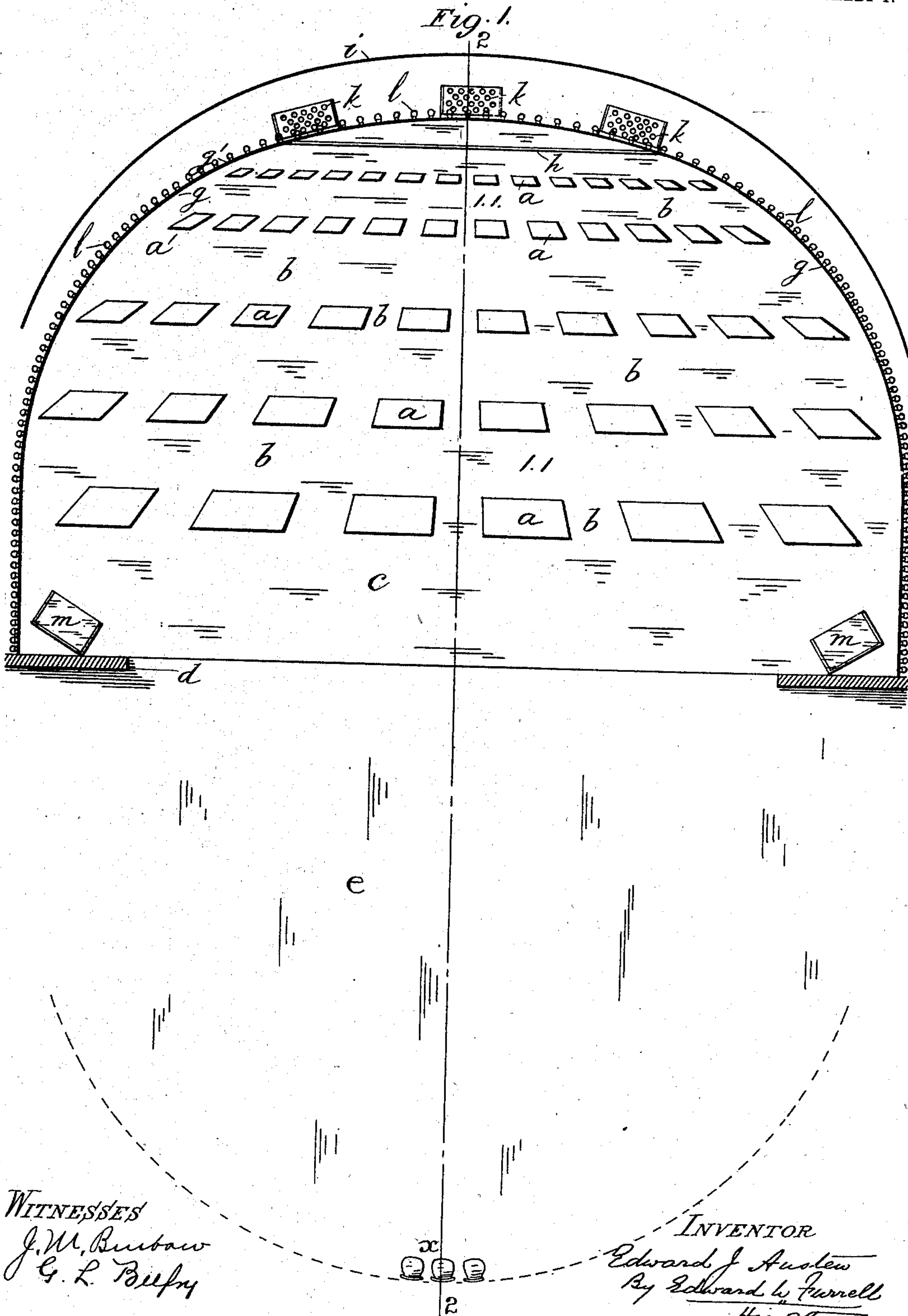
PATENTED FEB. 10, 1903.

E. J. AUSTEN.
SCENOGRAPHIC APPARATUS.

APPLICATION FILED NOV. 28, 1902.

NO MODEL.

5 SHEETS—SHEET 1.



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5 SHEETS—SHEET 2.

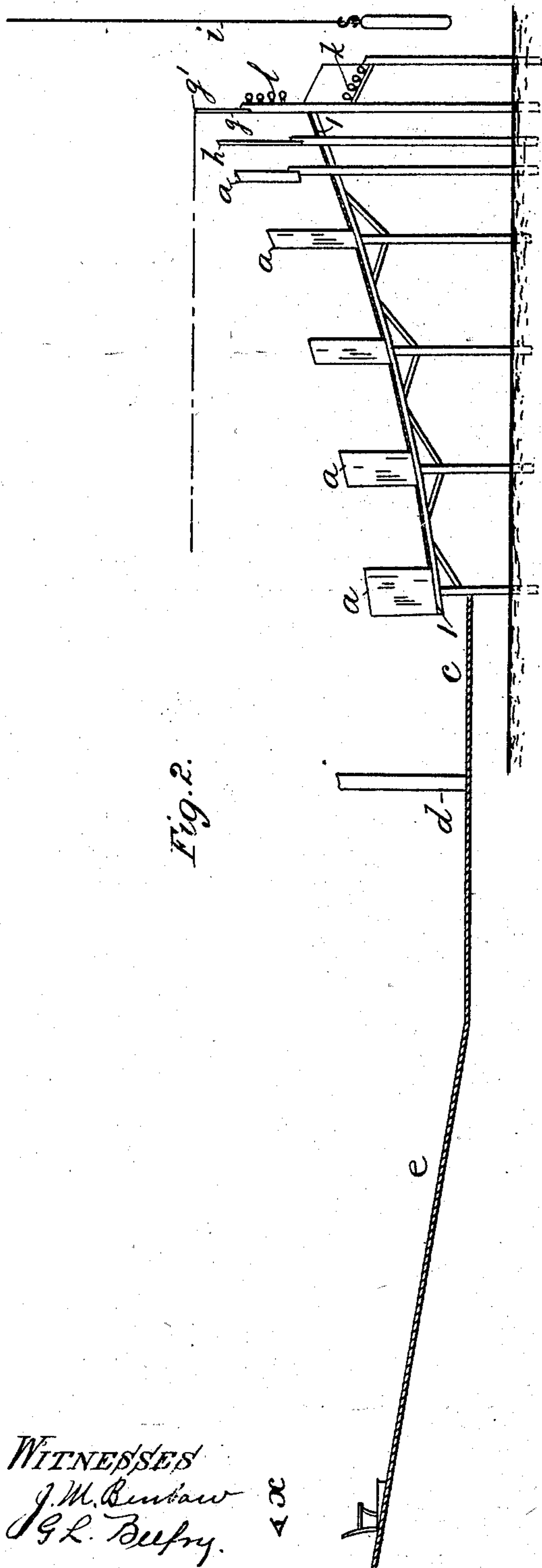
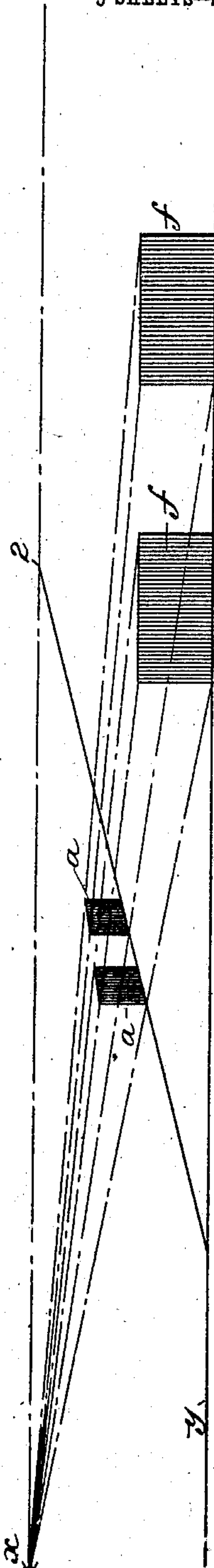


Fig. 3.



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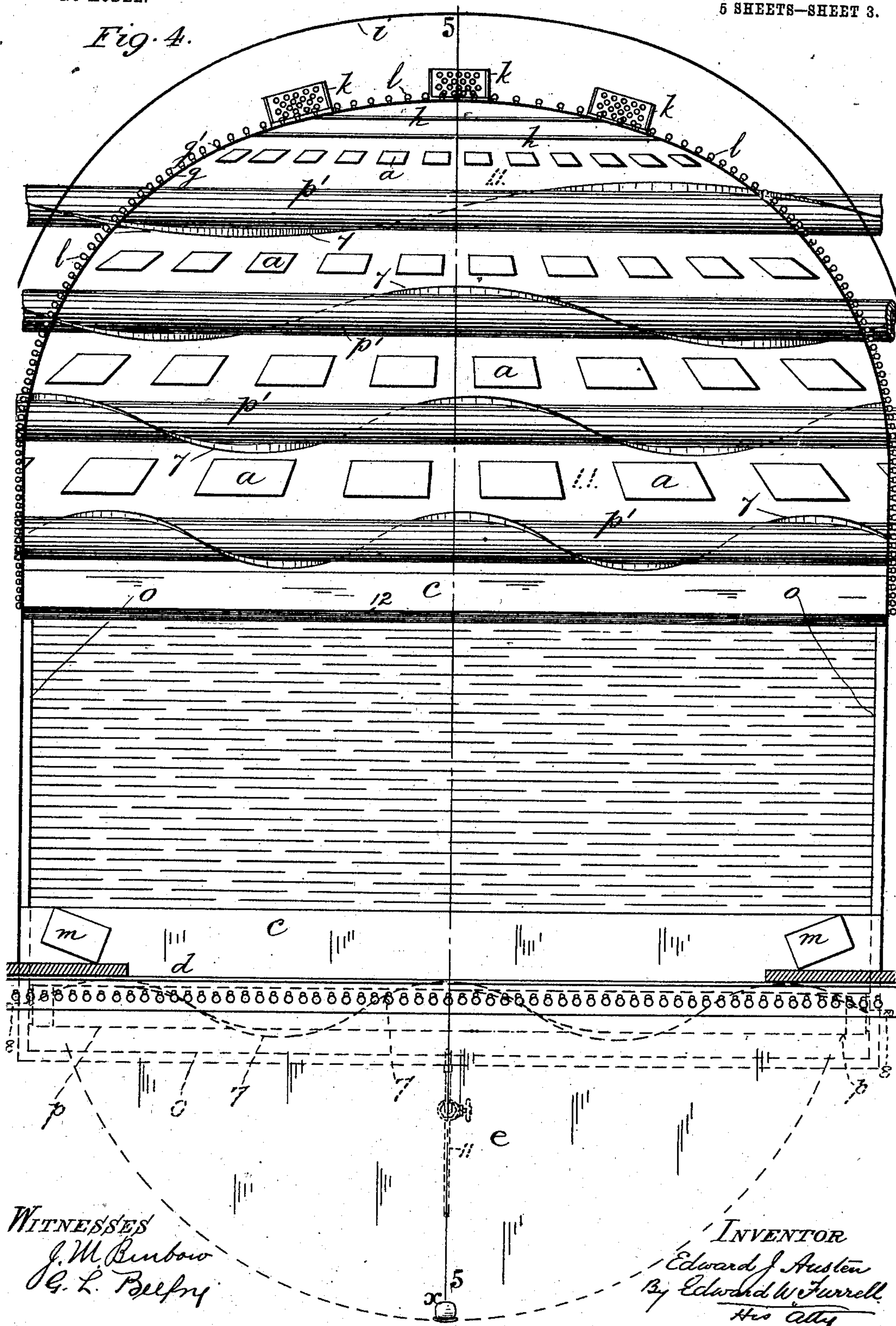
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5 SHEETS—SHEET 3.

Fig. 4.



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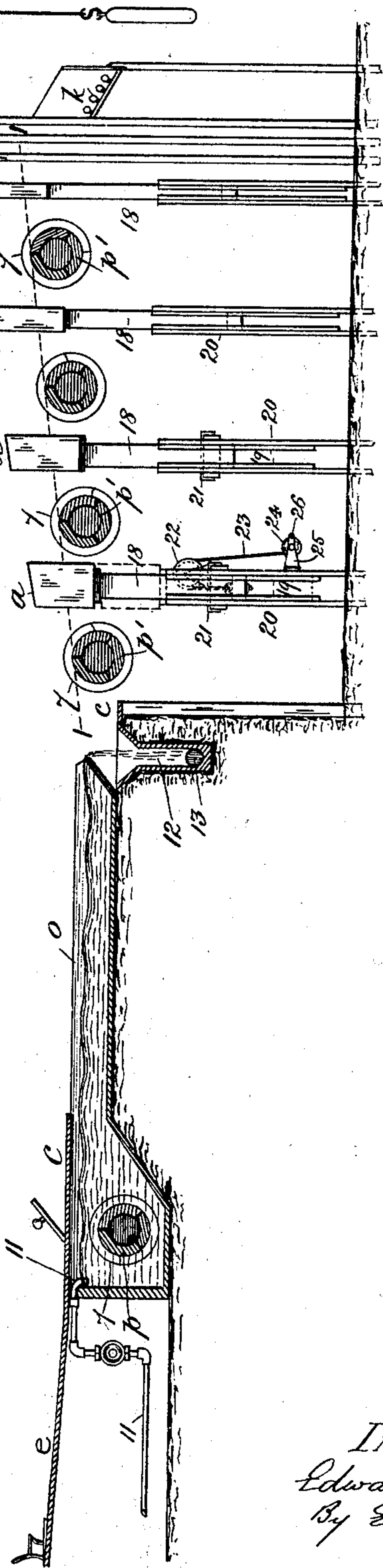
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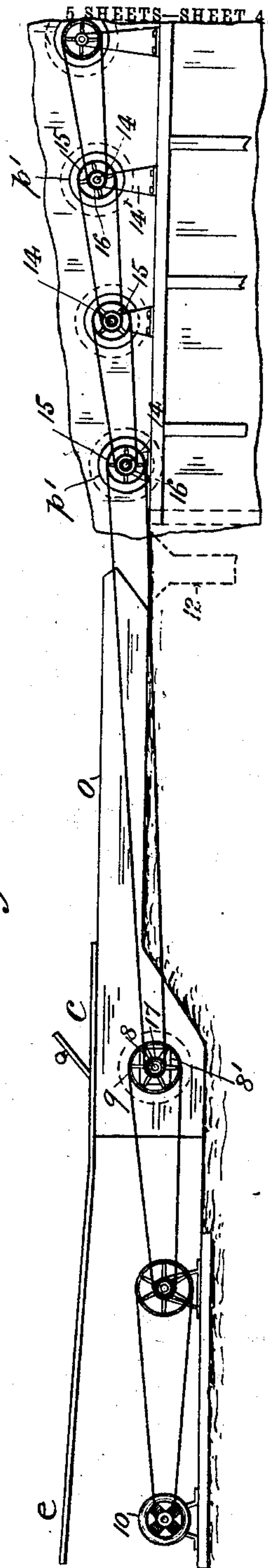
NO MODEL.

Fig. 5.



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Fig. 6.



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5 SHEETS—SHEET 5.

Fig. 7.

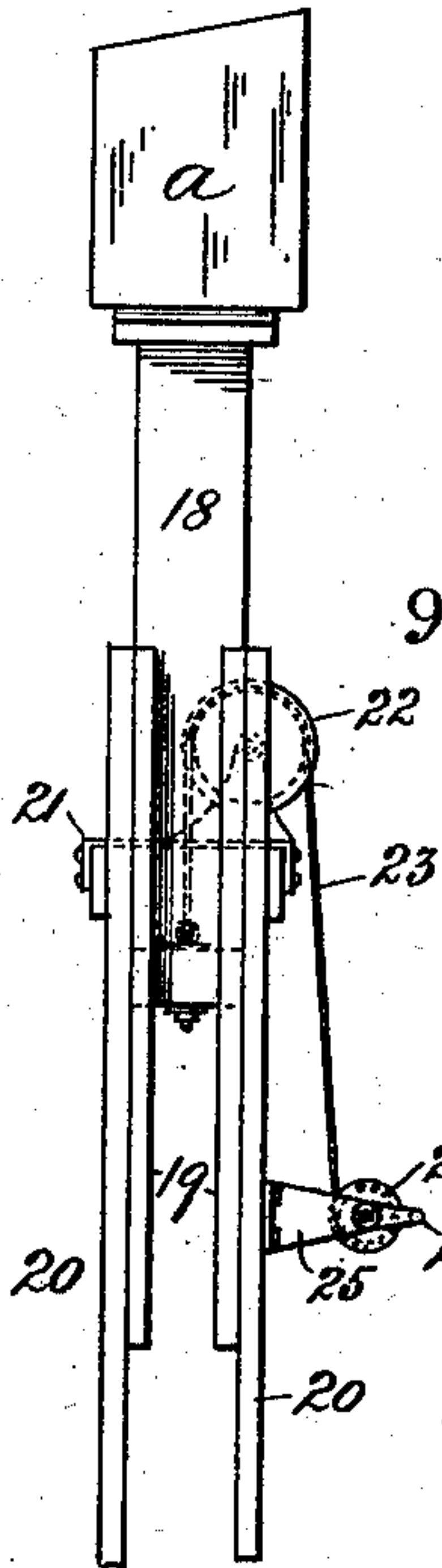


Fig. 8.

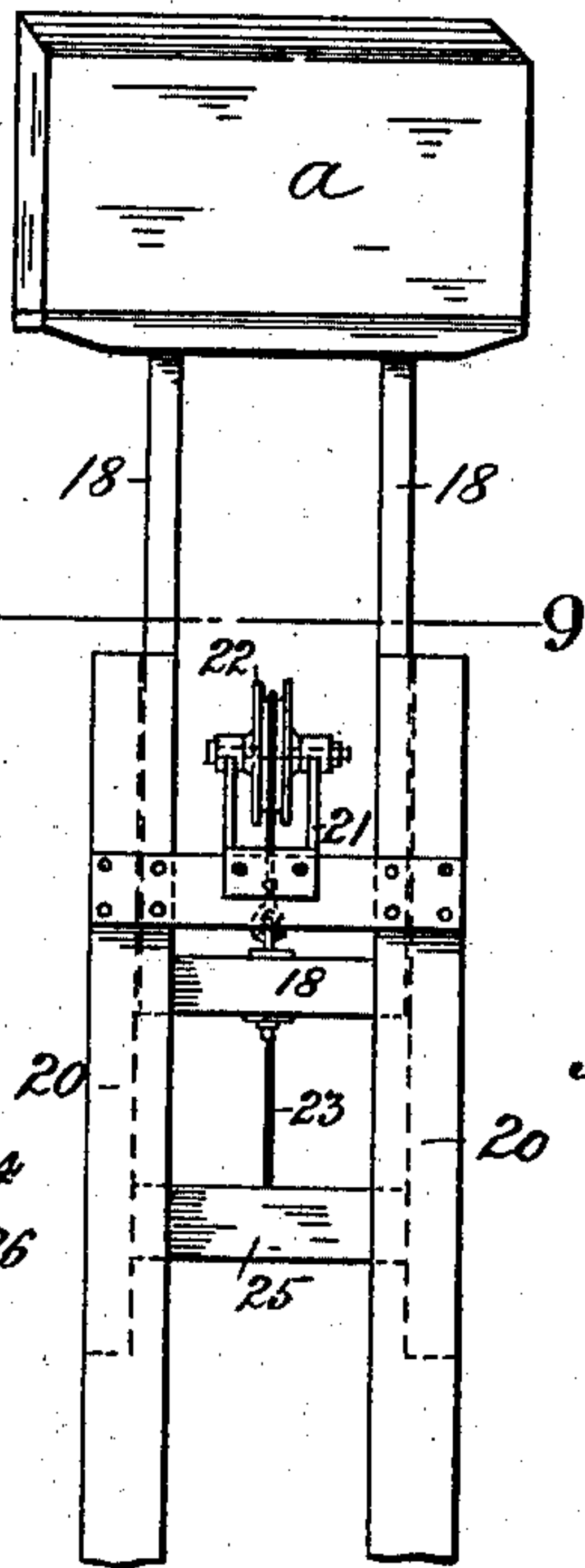


Fig. 10.

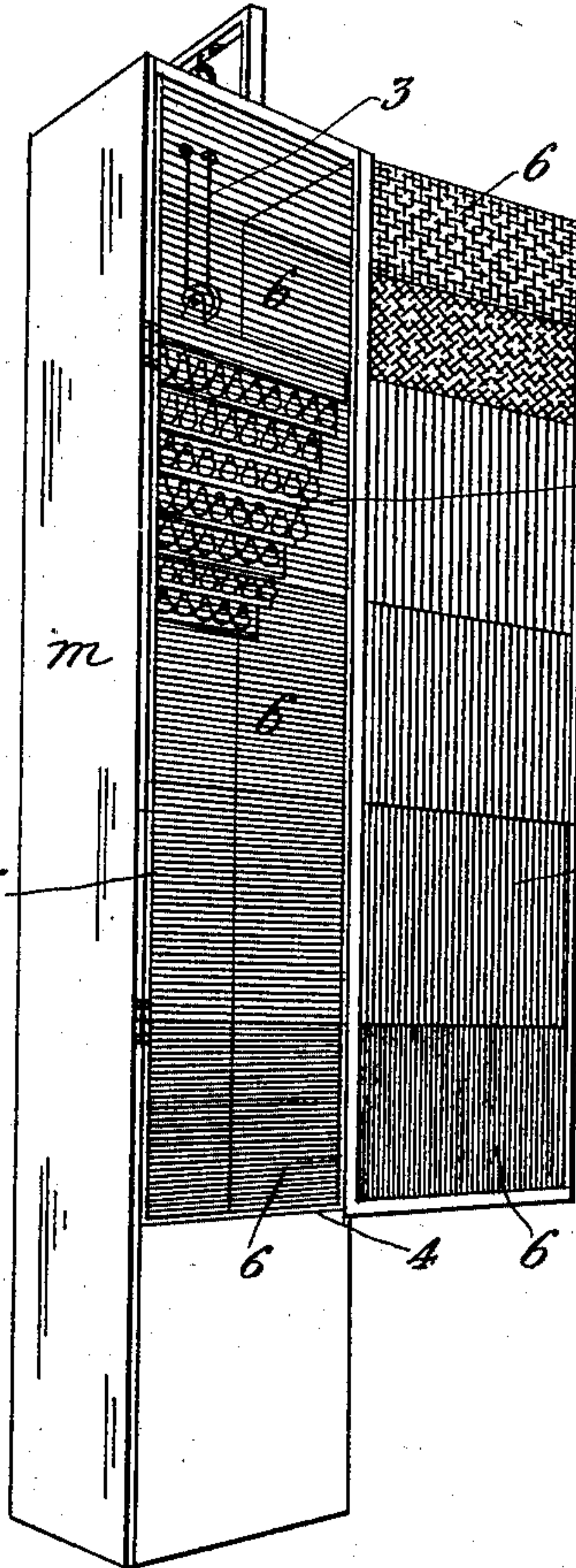


Fig. 11.

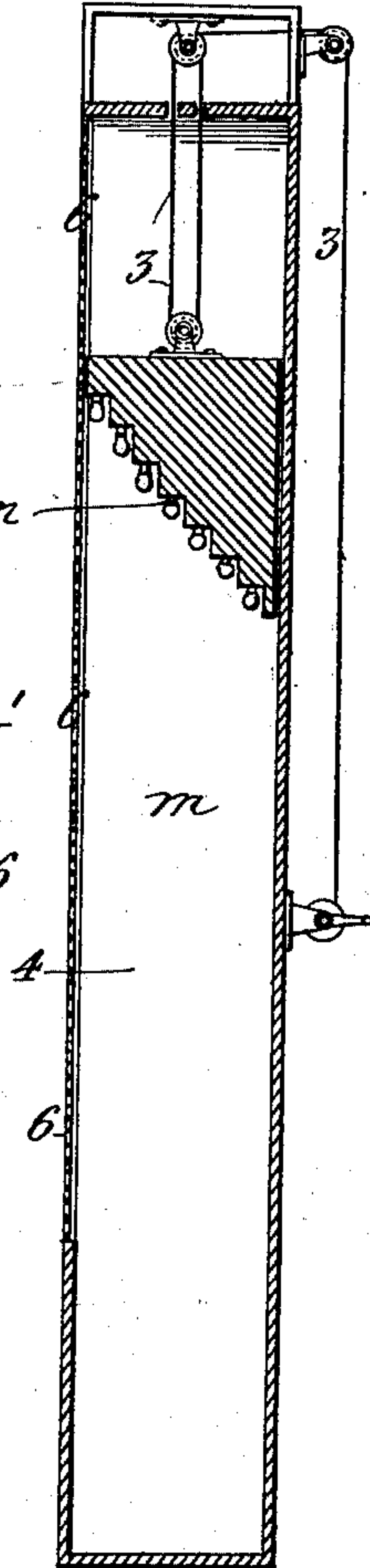


Fig. 9.

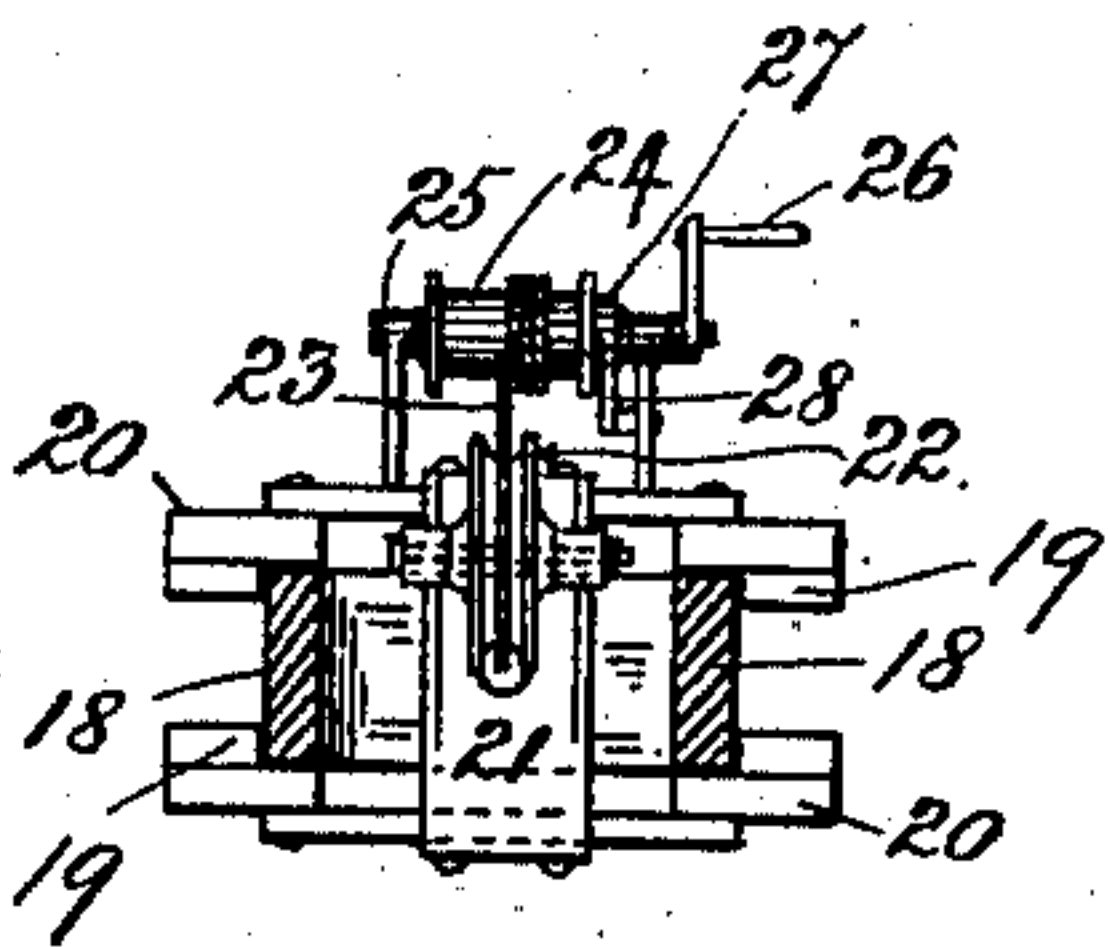


Fig. 12.

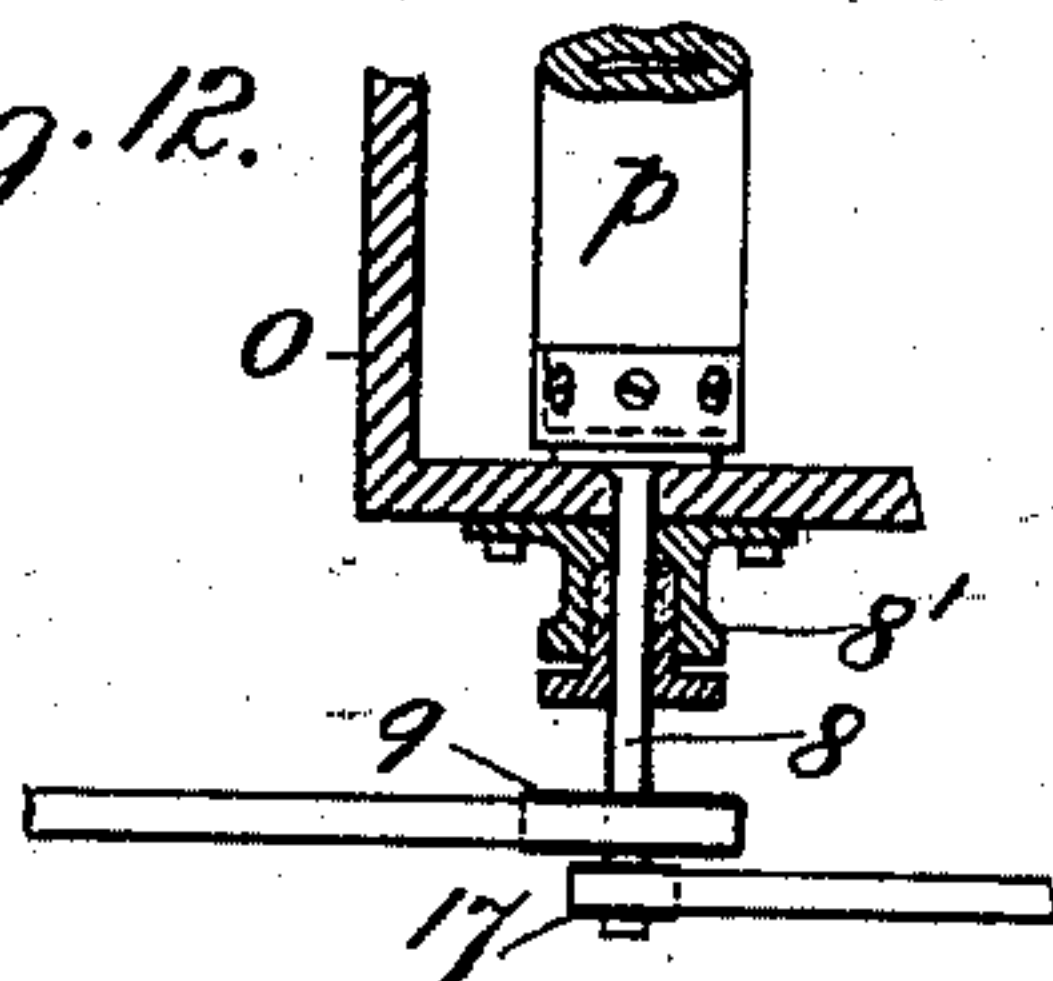
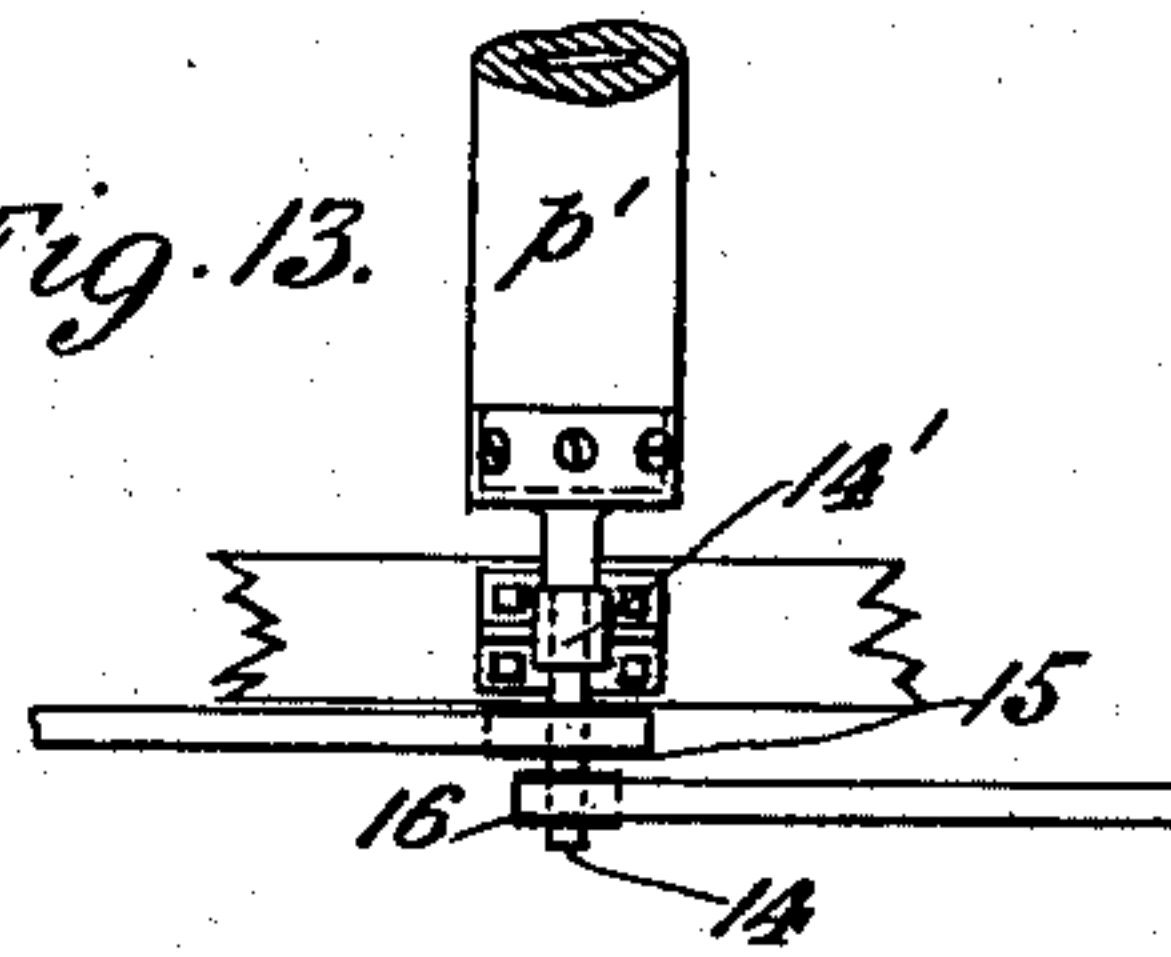


Fig. 13.



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SCENOGRAPHIC APPARATUS.

SPECIFICATION forming part of Letters Patent No. 719,986, dated February 10, 1903.

Application filed November 28, 1902. Serial No. 133,075. (No model.)

To all whom it may concern:

Be it known that I, EDWARD J. AUSTEN, a subject of the King of Great Britain, residing at St. Louis, in the State of Missouri, have invented a new and useful Improvement in Scenographic Apparatus, of which the following is a specification.

My invention relates to scenographic apparatus, and has for its object to produce, in combined solid and pictorial form, scenographic representations of buildings, cities, landscapes, water and the like in which the effect of reality, adaptability to light effects, movability, and the appearance of great distance and superficial extent are obtained within a limited area, or, in other words, to convey to the eye of a spectator within the limit of feet what apparently extends to a comparatively great distance.

The invention consists in features of novelty, as hereinafter described and claimed, reference being had to the accompanying drawings, forming part of this specification, whereon—

Figure 1 is a top plan of a series of blocks or prismoids and intervening spaces representing, for example, the buildings and streets of a city constructed and arranged according to my invention on the stage of a theater, combined with various arrangements of lights; Fig. 2, a vertical longitudinal section thereof on line 2 2 in Fig. 1; Fig. 3, a perspective diagrammatic view showing the principle on which the blocks or prismoids are constructed and the floor plane arranged for producing the appearance of reality and distance when viewed from the auditorium, as indicated by the visual rays in broken lines; Fig. 4, a corresponding view to Fig. 1, showing a tank containing water and a series of rollers, broken away, having circumferential spiral fins or blades, the said tank and rollers forming parts of my invention and arranged, respectively, across the front part of the stage and between the successive parallel rows of blocks or prismoids; Fig. 5, a vertical longitudinal section through the same on line 5 5 in Fig. 4, showing means for raising and lowering the blocks and for supporting them in position; Fig. 6, an end view of the tank and rollers seen in Figs. 4 and 5, showing means for rotating the rollers; Fig. 7, a detail view to enlarged scale, corresponding to that seen in Fig. 5, of the means for operat-

ing the blocks or prismoids; Fig. 8, a view of the same taken at right angles to Fig. 7; Fig. 9, a horizontal section thereof on line 9 9 in Fig. 8; Fig. 10, a perspective view, to enlarged scale, of one of the light boxes or towers seen in top plan in Figs. 1 and 4; Fig. 11, a vertical cross-section through the same at the middle or thereabout, and Figs. 12 and 13 detail views of the roller end bearings.

Like letters and numerals of reference denote like parts in all the figures.

Referring to Figs. 1, 2, 3, *a a* are blocks or prismoids, which in the present case are assumed to represent the buildings of a city separated by streets *b* and constructed and arranged with the latter according to my invention on the stage *c* of a theater, having the proscenium *d*, auditorium *e*, and usual accessories.

The blocks or prismoids *a* are so shaped that when combined with the streets *b* on a floor plane 1 1, inclined upwardly from the proscenium *d*, as shown in Fig. 2, they will appear to the eye from, say, a point *x* in the center of the auditorium *e* as actual buildings distributed over a limited area and bounded by a horizon within a few feet of the eye, but which if viewed in a natural manner would require a great distance to produce the same effect. The shape to be given to the respective blocks *a* in order to obtain this effect within the limit of the stage *c* is determined by the example shown in Fig. 3, as follows: In viewing a city, for instance, from any elevation, assuming the ground plane *y*, on which the buildings *f* of, say, rectilinear form are erected to be flat, as shown, the perspective causes the ground apparently to rise to the level of the eye with the horizon, which in reality is at a great distance from the point *x*, according to the height of the eye from the ground *y*, the sides of the buildings *f* presenting various beveled forms to the right or left of the spectator, as the case may be. Now by making the ground plane 1 1 inclined, so as to intersect the visual ray from the eye at *x* to the horizon at, say, a point 2 in comparative proximity to the point *x*, or, in other words, by foreshortening the horizon or vanishing-point, as it were, the sides of the blocks *a* will be beveled conformably to the lines of perspective thereat, and when so shaped will apparently be seen from the point *x* as if in their actual position at *f f*.

Behind the blocks *a*, around the back of the stage *c*, is arranged a scenic profile or picture *g*, the upper edge *g'* of which represents the horizon of the scenograph, and between the profile *g* and the rear blocks *a* is a scenic profile or picture *h*. If desired, a series of profiles similar to *h* may be introduced or the profile *h* may be dispensed with. Behind the horizon-profile *g g'*, at a suitable distance therefrom, is a screen *i*, which represents the sky, and between the sky-screen *i* and the horizon-profile *g g'* is arranged a series of lights *k* for producing aurora borealis effects on the sky-screen *i*. Around the back of the horizon-profile *g g'* are arranged rows of different-colored lights *l* for producing various effects of storm, sunshine, sunrise, sunset, and moonlight on the sky-screen *i*.

For intensifying the light variations, especially the effects of sunrise and sunset, I preferably use on each side of the stage *c*, out of view from the auditorium *e*, and preferably adjacent to the proscenium *d*, an upright box or tower *m*, (see also Figs. 10 and 11,) which contains a cluster of lights *n*, arranged in steps or receding rows one below the other and adapted to be raised or lowered together within the box *m* by cord-and-pulley tackle 3, as shown, or by other suitable means. In the front of the box *m* is an opening 4, which is covered at pleasure by either of two hinged doors or frames 5 5', having panes 6 of graduated colored glass, through which any desired color is projected by the lights *n* over the entire scenograph on the stage *c*. The colored glasses 6 of the frame 5 preferably graduate from the lightest blue at the top to the deepest blue at the bottom, while the glasses 6 of the frame 5' may graduate from amber and orange at the top to the deepest red at the bottom.

By the adjustment of the lights *n* relatively with the glasses 6, combined with the horizon-lights *k* and *l*, the effects of sunrise, sunset, and moonlight are greatly intensified, and by lowering the lights *n* until they gradually disappear in the bottom of the box *m* the sunlight apparently fades, to be succeeded by twilight and the deeper shades of night with realistic effect.

It is to be noted that although I have described the buildings of a city as being represented by blocks or prismoids any other objects in solid form representing the various features of a landscape or other scene can be constructed and arranged on the same principle for producing the appearance of reality and distance.

Referring now to Figs. 4, 5, and 6, *o* is a tank containing water and arranged, preferably, across the front of the stage *c*. Within the tank *o*, at its front portion, which is preferably beneath the floor of the auditorium *e*, adjacent to the proscenium *d*, is submerged in the water a roller *p*, which extends entirely across the tank *o* between the side wings or walls of the stage *c*, and around the roller *p*

for its entire length projects a spiral fin or blade 7. Each end of the roller *p* is provided with an axle-journal 8, which projects through an ordinary stuffing-box or water-tight bearing 8' (see Fig. 12) in each end of the tank *o*, the axle-journal 8 at one end of the roller *p* extending beyond the side wall of the stage *c* and provided thereat with a pulley 9, which is driven by a series of pulleys and belts from an electric (or other) motor 10, so as to slowly rotate the roller *p*, with its spiral fin 7, which imparts a continuous and rhythmical heave or wave movement to the surface of the water in the tank *o*. A constant stream of water is supplied to the tank *o* through a supply-pipe 11, Fig. 5, the waste water from the tank *o* flowing over the rear edge of the latter into a trough or suitable receptacle 12 and thence through the discharge-pipe 13. Between the tank *o* and the first line of blocks *a* and between each successive parallel row of the latter is arranged across the stage *c* in the plane of the inclined floor 1 1 a roller *p'*, (broken away,) which is similar in all respects to the tank-roller *p*, except that the spiral fin or blade 7 of each successive roller *p'* increases in pitch from the roller *p*. The rollers *p'*, with their spiral fins or blades 7, are painted to represent water, each roller *p'* projecting beyond the side walls of the stage *c* and provided at each end with axle-journals 14, which are mounted in suitable bearings 14', as shown in Fig. 13, the axles 14 at one end of the rollers *p'* having pulleys 15 16, the pulley 15 of the first roller *p'* being driven by belt from a pulley 17 therefor on the axle 8 of the tank-roller *p*, while the pulley 15 of the second roller *p'* is driven by belt from the pulley 16 of the first roller *p'*, and so on throughout the series of rollers *p'*, the diameters of the several pulleys being so graduated as to rotate the rollers *p'* successively slower toward the back of the stage *c*. By the rotation of the rollers *p'*, with their spiral fins or blades 7, the appearance of water and its wave movement is continued from the tank *o* to the back of the stage *c*. The blocks or prismoids *a*, representing the buildings between the rollers *p'*, are supported at the base, respectively, on upright pieces 18, which extend below the floor plane 1 1 and are adapted to slide vertically in guides 19, formed in an upright frame 20, which is supported by the ground beneath the stage *c*. Across the frame 20, near the top, is fixed a bracket 21, to which is pivoted a pulley-sheave 22. Around the sheave 22 passes a cord 23, which is attached at one end to the bottom of the upright 18, carrying the block *a*, and at its other end to the barrel 24 of a winch 25, which is fixed to the frame 20, the barrel 24 having a handle 26 and a ratchet-disk 27, engaged by a pawl 28, whereby on releasing the pawl 28 from the disk 27 and rotating the barrel 24 so as to allow the cord 23 to unwind therefrom the upright 18, with its block *a*, is lowered until the latter is below the floor plane 1 1 and out of the line of vis-

ion from the auditorium *e*, as indicated by broken lines in Fig. 5, thereby producing the effect of a collapse of the building from the supposed rising of the water, earthquake, wind, or other catastrophe which may be the subject of spectacular representation on the stage *c*.

If desired, the water-tank *o* and wave-producing rollers *p p'* may be used without the collapsible blocks (or buildings) *a*, and vice versa.

In Fig. 5 the means used for lowering the blocks *a* is shown only as applied to one of the blocks *a*; but the same device is applicable to each of the other blocks *a* composing the scenograph and needs no repetition.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In scenographic apparatus, the combination with an inclined floor plane, of an object thereon in solid form having its sides or surfaces shaped conformably to the lines of perspective, for imparting to the said object the appearance of great distance within a comparatively limited range of vision, substantially as described.

2. In scenographic apparatus, the combination with an inclined floor plane, of objects thereon in solid form having respectively their sides or surfaces shaped conformably to the lines of perspective, a horizon profile or picture, a sky-screen, and lights between the sky-screen and the said profile, substantially as described.

3. In scenographic apparatus, the combination with an inclined floor plane, of objects thereon in solid form having respectively their sides or surfaces shaped conformably to the lines of perspective, a sky-screen, a box containing lights and having an opening through one side, a colored glass having a frame and adapted to cover the said opening, and means for raising and lowering the said lights, substantially as described.

4. In scenographic apparatus, the combination with an inclined floor plane, of objects thereon in solid form having respectively their sides or surfaces shaped conformably to the lines of perspective, a horizon profile or picture, a sky-screen, lights between the sky-screen and the said profile, a box containing lights and having an opening through one side, a colored glass having a frame and adapted to cover the said opening, and means for raising and lowering the lights within the box, substantially as described.

5. In scenographic apparatus, the combination with an inclined floor plane, of a tank containing water, a roller in the water, a sky-screen, the said roller having a peripheral spiral fin, and means for rotating the roller, substantially as described.

6. In scenographic apparatus, the combination with an inclined floor plane, of a tank containing water, a roller in the water, a sky-screen, a roller located in the said plane between the sky-screen and the tank, the said

rollers having respectively a peripheral spiral fin, and means for rotating the rollers, substantially as described.

7. In scenographic apparatus, the combination with an inclined floor plane, of a tank containing water, a roller in the water, a sky-screen, a horizon profile or picture, lights between the sky-screen and the said profile, a roller located in the said plane between the tank and the said profile, the said rollers having respectively a peripheral spiral fin, and means for rotating the rollers, substantially as described.

8. In scenographic apparatus, the combination with an inclined floor plane, of a tank containing water, a roller in the water, a sky-screen, a roller located in the said plane between the sky-screen and the tank, the said rollers having respectively a peripheral spiral fin, a box containing lights and having an opening through one side, a colored glass having a frame and adapted to cover the said opening, means for raising and lowering the said lights, and means for rotating the said rollers, substantially as described.

9. In scenographic apparatus, the combination with an inclined floor plane, of objects thereon in solid form having respectively their sides or surfaces shaped conformably to the lines of perspective, a tank containing water, a roller in the tank, a sky-screen, a roller located in the said plane between the sky-screen and the tank, the said rollers having respectively a peripheral spiral fin, a box containing lights and having an opening through one side, a colored glass having a frame and adapted to cover the said opening, means for raising and lowering the said lights, and means for rotating the said rollers, substantially as described.

10. In scenographic apparatus, the combination with an inclined floor plane, of objects thereon in solid form having respectively their sides or surfaces shaped conformably to the lines of perspective, a tank containing water, a roller in the tank, a sky-screen, a horizon profile or picture, lights between the sky-screen and the said profile, a roller located in the said plane between the tank and the said profile, the said rollers having respectively a peripheral spiral fin, and means for rotating the rollers, substantially as described.

11. In scenographic apparatus, the combination with a suitable floor plane, of objects in solid form representing buildings on the said plane, and means for lowering the objects respectively below the said plane and for raising and holding the objects in position, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EDWARD J. AUSTEN.

Witnesses:

G. L. BELFRY,

EDWARD W. FURRELL.