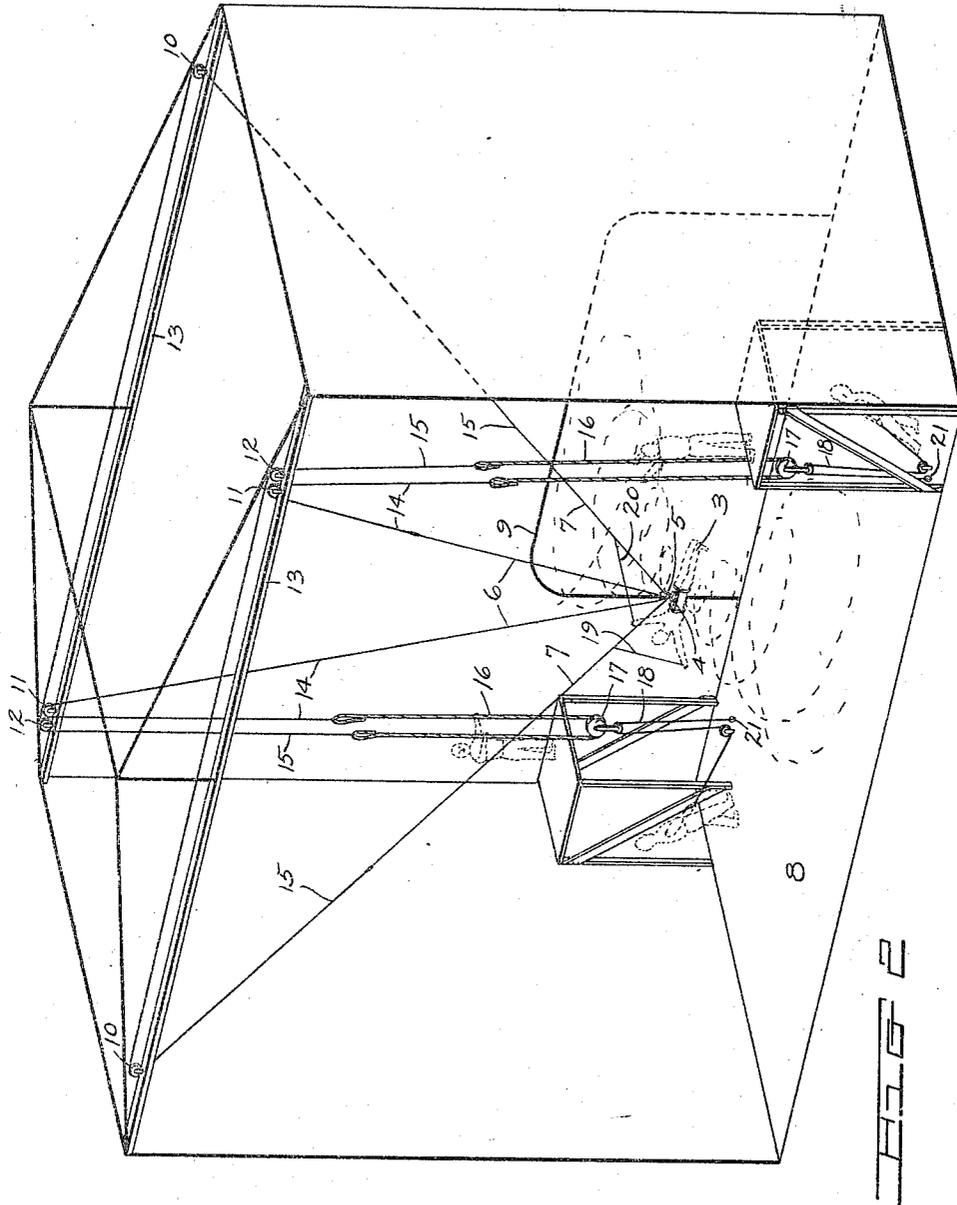


1,229,519.

E. RACH.
MEANS FOR THEATRICAL LEVITATION.
APPLICATION FILED APR. 27, 1916.

Patented June 12, 1917.

2 SHEETS—SHEET 2.



Inventor
ERICH RACH
By his Attorney
Aladar Hamburger

UNITED STATES PATENT OFFICE.

ERICH RACH, OF NEW YORK, N. Y.

MEANS FOR THEATRICAL LEVITATION.

1,229,519.

Specification of Letters Patent. Patented June 12, 1917.

Application filed April 27, 1916. Serial No. 93,816.

To all whom it may concern:

Be it known that I, ERICH RACH, a citizen of the United States, residing at New York, in the county and State of New York, have invented new and useful Improvements in Means for Theatrical Levitation, of which the following is a specification.

My invention relates to that class of apparatus used in theatrical and similar performances for the purpose of elevating and shifting about in mid-air one or more performers suspended by thin steel wires, invisible to the spectators, thus producing the illusion of levitation, flight, swimming or the like, and controlled by one or more operators hidden from the view of the spectators.

The principal object is to provide, in such an apparatus, means whereby the operator or operators have perfect control of the performer's position in mid-air, enabling the latter to be positively carried to and firmly held in any position within predetermined limits, at the exclusion of any vibration or pendulum-like swinging movement beyond the point at which it is intended that the movement should cease.

A further object is to provide, for this purpose, a simplified and improved apparatus, eliminating all drums, winches, trolleys, tracks, shafts, counterweights and mass of rigging such as has heretofore been used for the accomplishment of such theatrical levitation.

In the accompanying drawings:

Figure 1 is a rear elevational view of one form of embodiment of my invention, and Fig. 2 is a perspective view of a modified form of embodiment of the same, the modification consisting in the addition of a second set of means such as shown in Fig. 1, parallel thereto, for a purpose which will appear hereinafter.

Referring to the drawings by numerals, it will be seen in Fig. 1 that I purpose to suspend the performer 3, by means of a harness 4 or other suitable support, having a universal joint 5 secured to it,—on two thin steel wires 6 and 7. Above the stage 8 and beyond the vertical line of the two sides of the proscenium arch 9 are secured three grooved sheaves 10, 11 and 12, supported by a cross-beam 13. Over these sheaves pass steel cables 14 and 15 attached, at one end each, to the free ends of the steel wires 6 and 7, respectively and, at their other ends,

to a controlling rope 16 passing over a sheave 17 which, by the tackle 18, is secured to the floor of the stage 8, as is obvious from the drawing. It will also be seen, that the cable 14 passes only over the sheave 11 and the cable 15 over sheaves 10 and 12. The cables 14 and 15 may also be substituted by ropes, chains or the like, or entirely eliminated by using longer steel wires 6 and 7 running direct over the sheaves and attached to the respective ends of the controlling rope 16.

The universal joint 5 is so constructed that the performer may turn around in a horizontal plane and also shift the angle of his longitudinal axis in respect to the stage. The former change of position may be accomplished by two practically invisible steel wires 19 and 20 attached at one end to the wires 6 and 7, respectively, and, at the other ends, to the hands of the performer, by means of rings one on a finger of each hand, not shown in detail in the drawings.

The change of the position of the longitudinal axis of the performer may be effected, permanently, by changing the position of attachment of the universal joint to the harness and, temporarily, by the contraction and extension of the legs of the performer, thereby transposing the balancing point, in an obvious manner.

By referring to the drawings (Fig. 1) it is plainly seen that the combination of the controlling rope 16, the two steel cables 14 and 15, the two steel wires 6 and 7 and the universal joint 5 to which they are attached, form a continuous and endless line. It follows therefrom that by pulling one or the other of the shanks of the controlling rope 16, one of the cables and attached steel wires, overhanging the stage, will be shortened and the other cable and steel wire correspondingly lengthened, or, properly speaking, the angle a formed by these two pairs of elements will be changed. Accordingly, the performer will be shifted from one side of the stage to the other, in a slightly curved line, nearest to the floor of the stage at its center and farthest from it at the two ends of the curved line, corresponding to the sides of the stage. The sheaves 10, 11 and 12 being beyond the vertical lines of the proscenium arch 9, it is evident that the performer may thus be shifted from one side of the latter to the other, or in other words, have the full range, in a horizontal line, of

the area encompassed by the proscenium arch.

The vertical position of the performer is determined by the greater or smaller length of the entire system of suspension lines, counted from the point 21, where the tackle 18 is secured to the floor of the stage and may be regulated by this tackle, in an obvious manner. Thus a full range of every point within the vertical plane defined by the position of the sheaves is obtained.

It will be observed that all this shifting of the position of the performer by changing the angle a , in a horizontal line, and by operation of the tackle 18, in a vertical line, is positively done and may be stopped at any point desired, in the perfect control of the operators of the controlling rope 16 and the tackle 18, nothing being left to momentum of a swinging body on a freely suspended line, as is the case in the systems heretofore in use.

It will also be understood that the vertical and horizontal shifting of the performer may be combined and thereby a movement in any direction, horizontal, vertical, diagonal, arcuate, undulating, etc., may be obtained, always in the vertical plane above referred to.

In Fig. 2 is shown another system of rigging, consisting of a duplication of the device shown in Fig. 1 and hereinbefore described in detail. The two units are rigged parallel to each other, and the four wires on which the performer is suspended, are all connected to the universal joint.

From this arrangement it is evident, that by the operation of the two tackles 18, one near the front and one near the back part of the stage, the performer may be shifted forward and backward over the stage, and if the two tackles are operated simultaneously, the performer will thereby be lifted or lowered. The movement of the performer from side to side of the stage will be effected in the same way, as before described, by means of the controlling ropes of the two units, which will have to be operated synchronously.

By the use of this duplicated device shown in Fig. 2, a full range of shifting the performer, over the entire stage, may be obtained, in the three dimensions of space, which fact is illustrated by the helical spiral track the performer may be made to describe, among others, shown in dotted lines in the last mentioned figure.

The movements that may be described

with the use of this device are very graceful, uninterrupted, easy to perform, the performer may turn around his vertical axis so as to keep always in the line of the movement, with his head forward, it is always in full control of the operators, which tends to eliminate accidents, and it may be stopped at any position, at a moment's notice, without the possibility that the performer may be carried by his momentum farther than intended.

It will be understood that while I have thus shown and described the preferred forms of embodiment of my invention, I do not want to be limited to its mechanical details, but may resort to such alterations and modifications as come within the claims hereunto appended, and also that the device shown and described may be used for other purposes beyond that mentioned, as for instance for the hoisting and shifting in mid-air of various bodies and goods, or the like.

I claim:

1. In a system for theatrical purposes, two sets of rigging placed parallel to each other, one near the front and the other near the back part of the stage, means in each of said sets of rigging to move a body suspended thereon positively vertically and horizontally in a given plane and means consisting in the coupling of said separate sets of rigging for changing the plane of movement of which said body is susceptible, at the will of the operator or operators, within the limits determined by the position of said separate sets.

2. In a system for theatrical purposes, a rigging for suspending and moving a body, the same including a running line attached to the body, and an operating member having a running engagement with a bight of said line, and an operative station adjacent to which the operating member may be anchored, the elements of the bight being movable in opposite directions relative to the point of said running engagement.

3. In a system for theatrical purposes, a plurality of riggings for suspending and moving a body, each having a running line attached to the body, and an operating member having a running engagement with a bight of the line, and operating stations adjacent to which the operating members may be anchored, the elements of the bight being movable in opposite directions relative to the point of said running engagement.

ERICH RACH.