

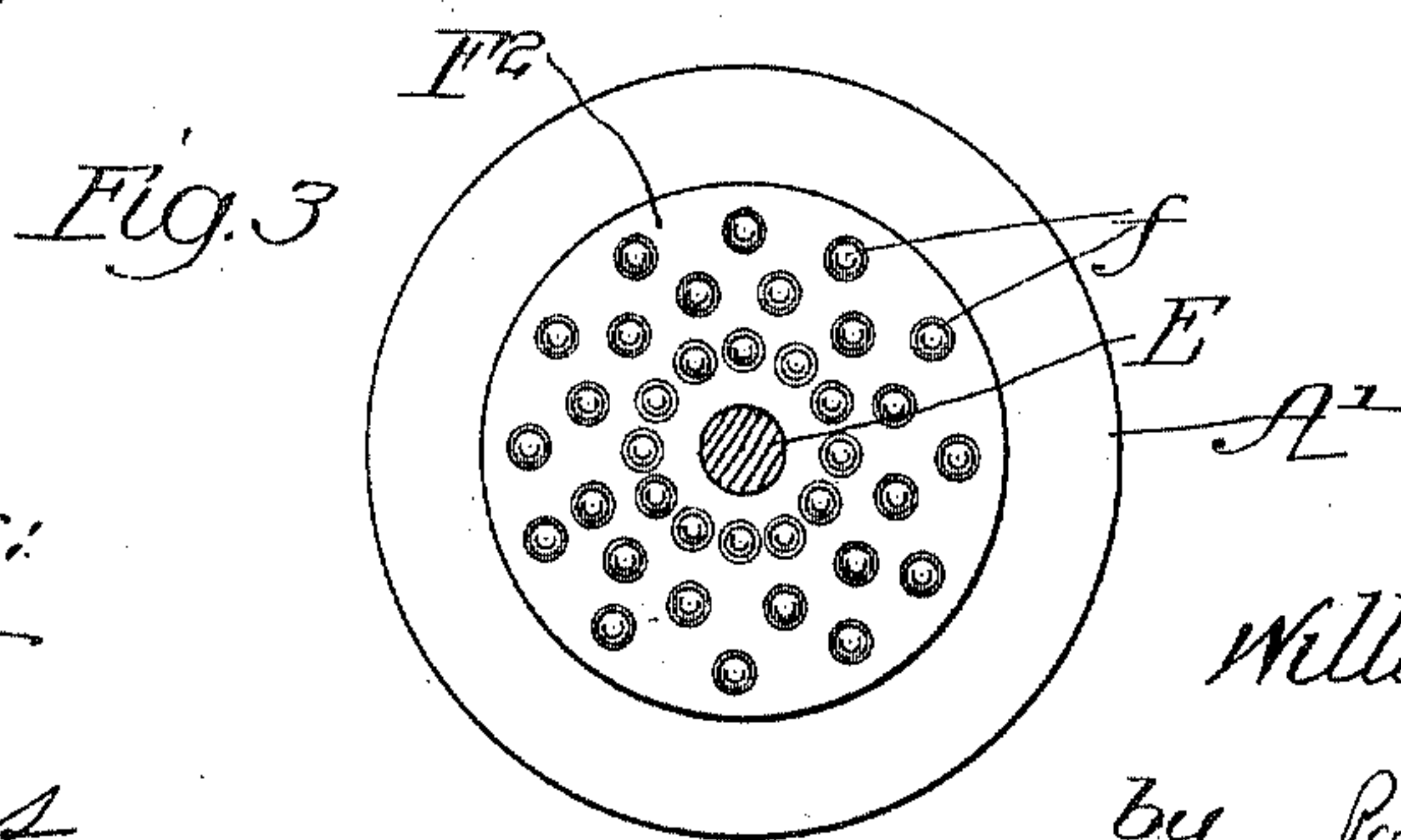
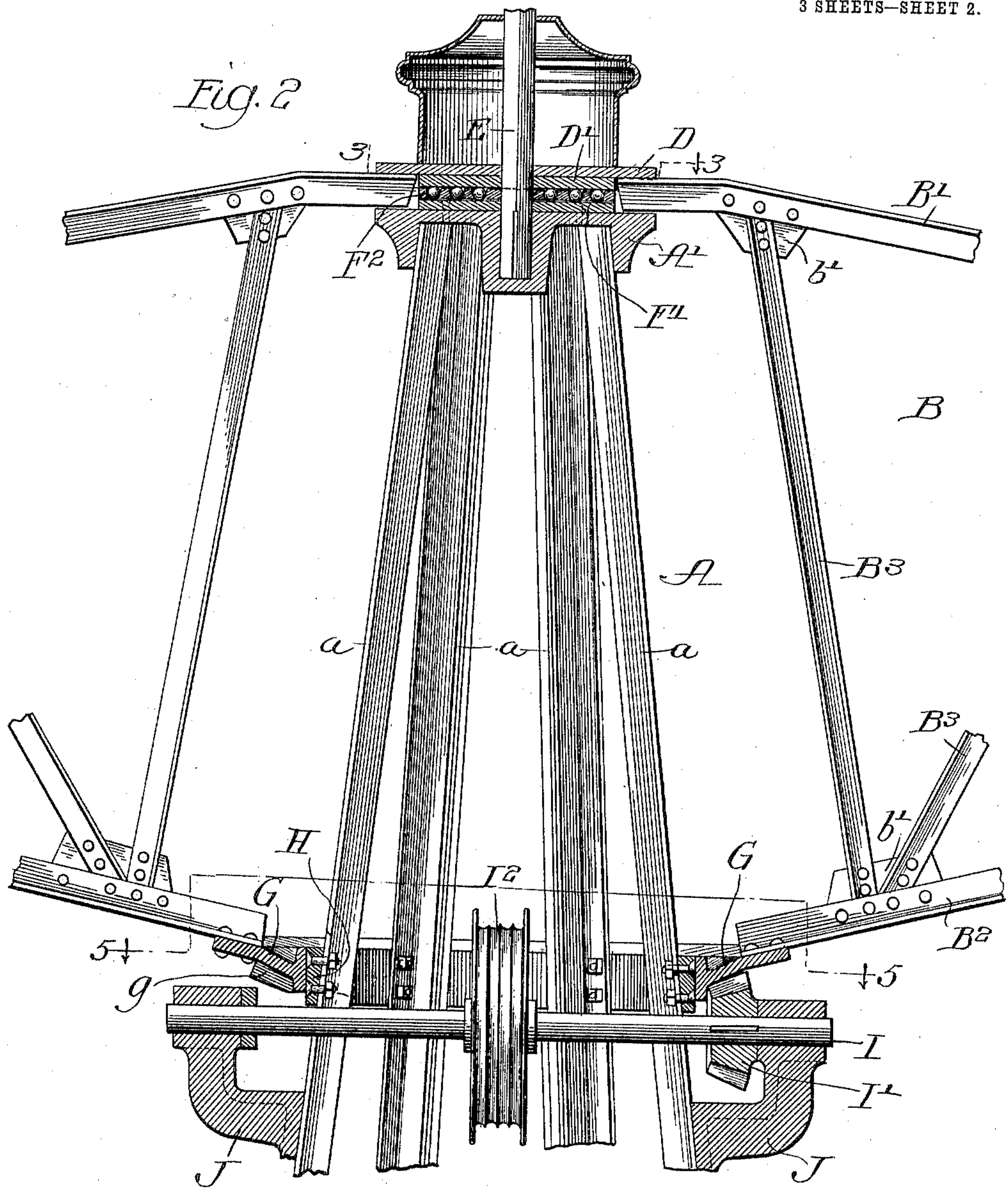


No. 817,402.

PATENTED APR. 10, 1906.

W. H. STRICKLER.  
AMUSEMENT APPARATUS.  
APPLICATION FILED MAR. 11, 1905.

3 SHEETS—SHEET 2.



Witnesses:  
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Inventor:  
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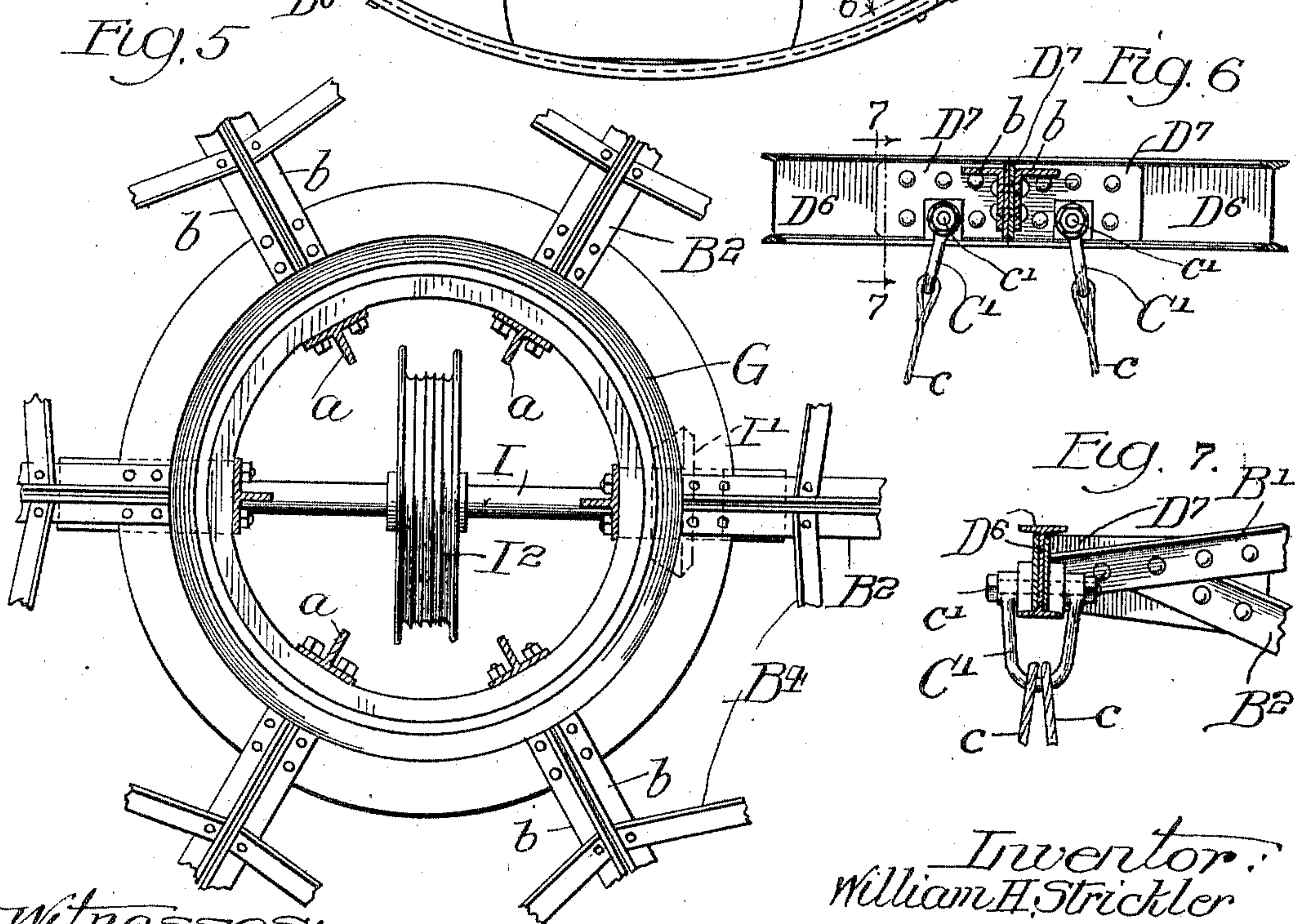
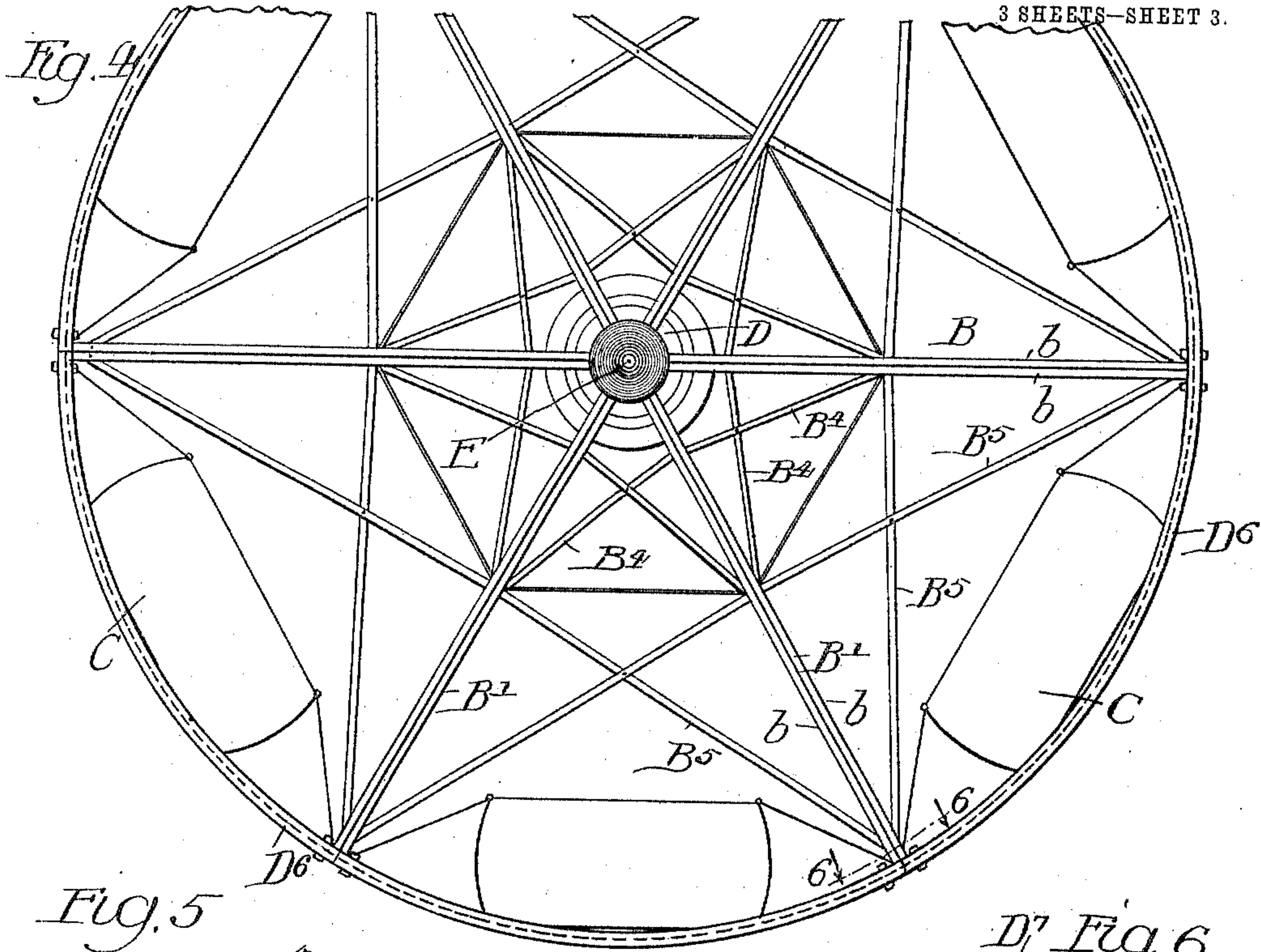


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# UNITED STATES PATENT OFFICE.

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## AMUSEMENT APPARATUS.

No. 817,402.

Specification of Letters Patent.

Patented April 10, 1906.

Application filed March 11, 1905. Serial No. 249,640.

*To all whom it may concern:*

Be it known that I, WILLIAM H. STRICKLER, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Amusement Apparatus; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in amusement apparatus of that kind known as "roundabouts" and to that class or type of such devices which embrace a central supporting-tower, a revolving crown or frame mounted on the top of the tower, and a plurality of cars suspended from the revolving crown or frame by cables or the like and in which the parts are so constructed that in the turning of the rotative parts at a considerable speed the suspended cars will not only revolve about the tower, but will be swung outwardly through centrifugal force, so that they will rise from the ground or starting-level and move in a circular path much larger than that followed thereby when moving slowly.

The invention consists in the matters hereinafter described, and pointed out in the appended claim.

In the accompanying drawings, illustrating my invention, Figure 1 is a view in side elevation of an apparatus embodying the same. Fig. 2 is an enlarged detail section of the upper part of the tower and the parts of the revolving crown engaged therewith. Fig. 3 is a detail plan section taken upon line 3 3 of Fig. 2. Fig. 4 is a plan view of the apparatus. Fig. 5 is a detail section taken upon line 5 5 of Fig. 2. Fig. 6 is a detail sectional view showing the connection between the outer ring and the radial arms of the crown-frame, taken on line 6 6 of Fig. 4. Fig. 7 is a detail section taken on line 7 7 of Fig. 6.

As shown in said drawings, A indicates the tower of the apparatus, which, as illustrated, consists of six metal posts *a a*, arranged in upwardly-convergent relation and connected with each other by suitable cross-ties and braces.

B B indicate radial trussed arms, which, as shown in the drawings, are six in number, connected with each other by suitable connecting members so as to form a rigid horizontal frame or crown, which is centrally supported on the top of the tower in such manner as to turn or rotate thereon. Each of said arms, moreover, consists of inclined upper and lower truss members *B' B²*, arranged in outwardly-convergent relation and attached to each other at their outer ends. Said upper and lower truss members are arranged with their inner ends at a considerable distance vertically from each other. The inner ends of the upper truss members *B'* are attached to a central connecting-plate D, which rests and turns upon the top of the tower A, and the inner ends of the lower truss members *B²* are attached to a ring G, which surrounds the tower at a considerable distance below its top. The upper ends of the posts *a a* of the tower are shown as attached to a circular cap-plate A', on which rests the central connecting-plate D. To the ends of the arms are attached a series of curved bars or girders *D⁶ D⁶*, constituting a continuous rigid ring, which surrounds the outer margin of the revolving frame or crown.

C C indicate cars within which are seated the patrons of the apparatus. In connection with the six-arm crown illustrated six of these cars are employed. Each car is suspended from the revolving frame or crown by suspension-cables *c c*, two of which are preferably employed at each end of each car. The cars will preferably be connected with the girders *B⁶* near the ends of the same. This connection may be made, as shown in Figs. 6 and 7, by means of U-shaped stirrup-irons C', connected by horizontal bolts *c'* with the girders *j*, the looped ends of the suspension-cables *c c* being inserted through said stirrup-irons.

Now referring to the details of construction in the revolving frame or crown and the bearings thereof, these parts, as shown in the drawings, are made as follows: The inner ends of the upper longitudinal truss members *B'* of the several arms B B are rigidly attached to the central plate D, which is circular and located above the cap-plate A' of the



tower. Between said plate D and the said cap-plate is located a suitable form of anti-friction-bearing, herein shown as having the form of a ball-bearing. Said plate D is, moreover, held centrally in position with respect to the cap-plate A' by means of a central upright shaft or bearing-stud E, affixed at its lower end in a central socket in the cap-plate A' and rising through the said plate D. The anti-friction or ball bearing illustrated consists of a bearing-plate D', secured concentrically on the lower face of the plate D and having a downwardly-facing bearing-surface, a bearing-plate F', secured to the top of the cap-plate A' and provided with an upwardly-facing bearing-surface, a plurality of anti-friction-balls *f f*, interposed between said plates D' and F', and a revolving plate F<sup>2</sup>, interposed between said plates F' F', provided with a number of apertures to receive the balls *f f*. Said plate F' serves to hold the balls *f f* at uniform distances apart as they travel in circular paths on the plate F'. Said plate F<sup>2</sup> is not intended to carry any weight, but is located loosely between the bearing-plates F' F' and is moved or carried with the anti-friction-balls in a manner heretofore common and well known. The bearing thus formed between the central connecting-plate D of the revolving frame and the cap-plate A' of the tower takes the entire weight or downward stress of the said frame and the cars suspended therefrom.

The inner ends of the lower truss members B<sup>2</sup> of the several arms B B are rigidly secured to the ring G, which, as before stated, surrounds the tower at a considerable distance below the cap-plate A'. Attached to the uprights *a a* of the tower within the ring G is a stationary guide-ring H, which is adapted for bearing engagement with the said ring G and on which the latter turns. The contact-surfaces of the rings G and H are preferably made cylindric, so that the said ring H carries none of the weight of the revolving frame which comes entirely upon the top of the tower. In other words, said ring H with the ring G constitute guiding means for holding the revolving frame from tilting or tipping or for maintaining said frame always in a horizontal position. Means for giving rotative movement to the revolving frame are shown as adapted to act upon the said ring G. Devices for the purpose illustrated consist of a horizontal rotative shaft I and is mounted at its ends in bearing-brackets J J, secured to the opposite posts *a a* of the tower and extending outwardly therefrom. Said shaft I carries the gear-pinion I', which intermeshes with a series of gear-teeth *g*, formed on the under surface of the ring G. Said shaft I is also provided with a sheave or pulley I<sup>2</sup>, around which may be passed a rope belt by which the shaft may be driven from

an engine or any other actuating device located at the base of the tower or in other convenient place.

The arms B B of the horizontal revolving frame or crown are shown as made or built up of angle-bars. The upper and lower longitudinal truss members B' B<sup>2</sup> of said arms are shown as consisting each of two angle-bars *b b*, secured together with their web portions in vertical planes and their flanges directed outwardly. Said truss members B' B<sup>2</sup> are, moreover, rigidly connected with each other by means of oblique struts or braces B<sup>3</sup> B<sup>3</sup>, preferably consisting of angle-bars secured at their ends to the truss members B' B<sup>2</sup> of the arms by means of gusset-plates *b' b'*, inserted and riveted between the two angle-bars *b b*, constituting the said truss members and to which the ends of the angle-bars constituting the braces are riveted.

The trussed arms B, formed by the top and bottom longitudinal truss members B' B<sup>2</sup> and the interposed oblique struts, are joined to each other by laterally-extending oblique braces B<sup>4</sup> B<sup>4</sup> and B<sup>5</sup> B<sup>5</sup>. Said oblique braces B<sup>4</sup> B<sup>4</sup> and B<sup>5</sup> B<sup>5</sup> are arranged in pairs. The braces B<sup>4</sup> B<sup>4</sup> are arranged to cross each other and extending from points near the inner ends of the lower truss members B<sup>2</sup> obliquely outward to points near the centers of the next adjacent lower truss members. The struts B<sup>5</sup> B<sup>5</sup> likewise cross each other and extend from the outer ends of the braces B<sup>4</sup> B<sup>4</sup> to the outer ends of the lower truss members.

To the outer ends of the arms B B is attached the circular rigid ring, formed by the segmental girder-sections D<sup>6</sup> D<sup>6</sup>, which are attached at their ends to the outer ends of said arms. The attaching means illustrated consist of plates D<sup>7</sup> D<sup>7</sup>, secured between the ends of the angle-bars *b b*, constituting the arms B B and having their outer ends bent in opposite directions from each other and riveted to the flanges of the girder-sections D<sup>6</sup> D<sup>6</sup>, as clearly seen in Figs. 6 and 7.

The several trussed arms B B, together with the oblique braces B<sup>4</sup> B<sup>5</sup>, connecting the lower truss members B<sup>2</sup> B<sup>2</sup> with each other and the girder-sections D<sup>6</sup> D<sup>6</sup>, joining the outer ends of said truss-arms, constitute a rigid frame or crown all parts of which are rigidly held in position with relation to each other and which constitutes an exceedingly strong, firm, and rigid structure adapted to withstand any strains or stresses coming thereon by reason of the weight of the loaded cars suspended therefrom or otherwise in the operation of the apparatus.

A main feature of my invention is embraced in the construction by which the rotative trussed frame or crown is made of considerable depth at its center, has bearing engagement at the center of its top part with



the top of the tower by a bearing adapted to take the entire weight of the said frame or crown, and at the center of its bottom part surrounds and has lateral bearing engagement with the tower at a point considerably below the upper end of the latter in a manner to hold the crown in a horizontal position, notwithstanding unequal strains that may come upon the periphery of the same. By this construction a strong and reliable support of the revolving frame or crown is provided, because the weight of said frame or crown is carried directly upon the top of the tower, while the bottom of said frame has guiding engagement with the body of the tower at a considerable distance below its top, and any stress or pressure tending to tip the frame or throw it out of a horizontal position is taken by the tower itself at a distance considerably below its upper end and is resisted by the full strength of the rigid upper end of the tower. An important advantage is also gained by the construction described, by which said horizontal frame or crown is made up of a series of radial trussed arms embracing rigidly-connected outwardly-converging upper and lower truss members and in which the inner ends of the upper truss members are united to a central plate or connecting member and the inner ends of the lower longitudinal truss members are attached to a rigid ring, which surrounds the tower below its upper end, for the reason that by this construction a frame is made having great strength and rigidity to resist vertical stresses

due to the weight of the cars and their occupants.

I claim as my invention—

The combination with a tower consisting of a plurality of upwardly-converging posts, a cap-plate to which said posts are secured at their upper ends and a bearing-ring located at a distance below said cap-plate and surrounding and rigidly connecting with each other the said posts, said ring having a cylindrical exterior bearing-surface, of a revolving truss-frame or crown embracing a plurality of radial truss-arms having upper and lower, outwardly-convergent, rigid, longitudinal truss members, braces rigidly connecting said truss members with each other, a central connecting-plate to which said upper truss members are rigidly attached at their inner ends, and a ring to which the said lower truss members are rigidly attached at their inner ends; said truss-frame or crown surrounding the upper portion of the tower with its central connecting-plate in bearing engagement with the cap-plate of the tower and with its said ring surrounding and engaging the cylindrical outer bearing-surface of said bearing-ring on the tower.

In testimony that I claim the foregoing as my invention I affix my signature, in presence of two witnesses, this 7th day of March, A. D. 1905.

WILLIAM H. STRICKLER.

Witnesses:

C. CLARENCE POOLE,  
E. B. WILKINS.