No. 611,682. Patented Oct. 4, 1898.

H. ENGEL.

COMBINED ROUNDABOUT AND ELEVATOR.

(Application filed Jan. 28, 1895.)

(No Model.) 2 Sheets—Sheet 1.

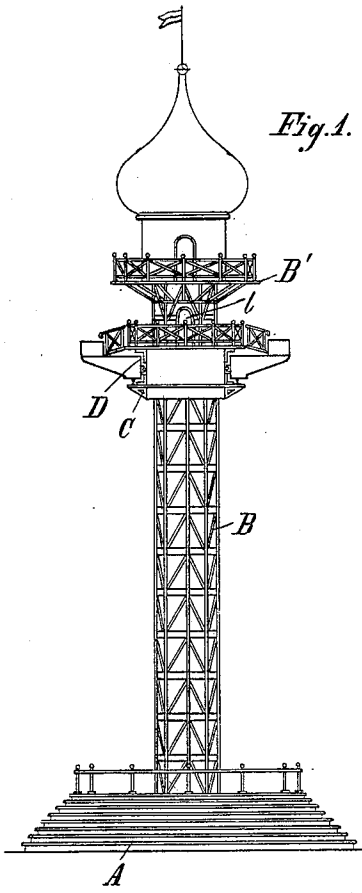

Fig. 1.

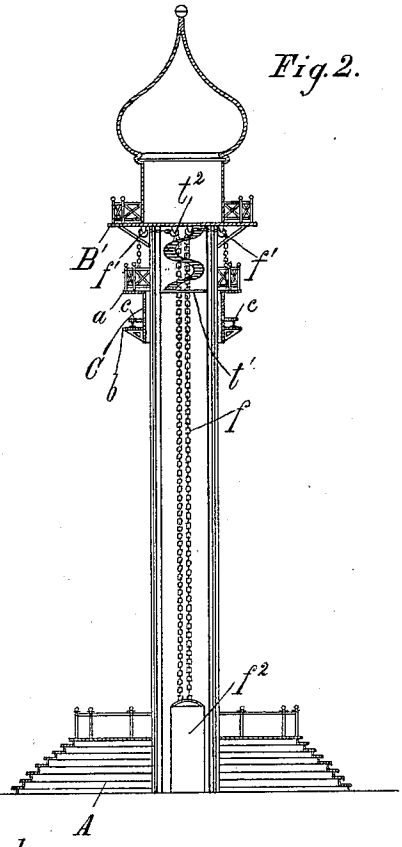

Fig. 2.

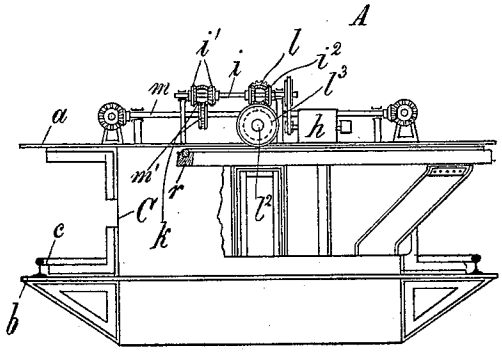

Fig. 6.

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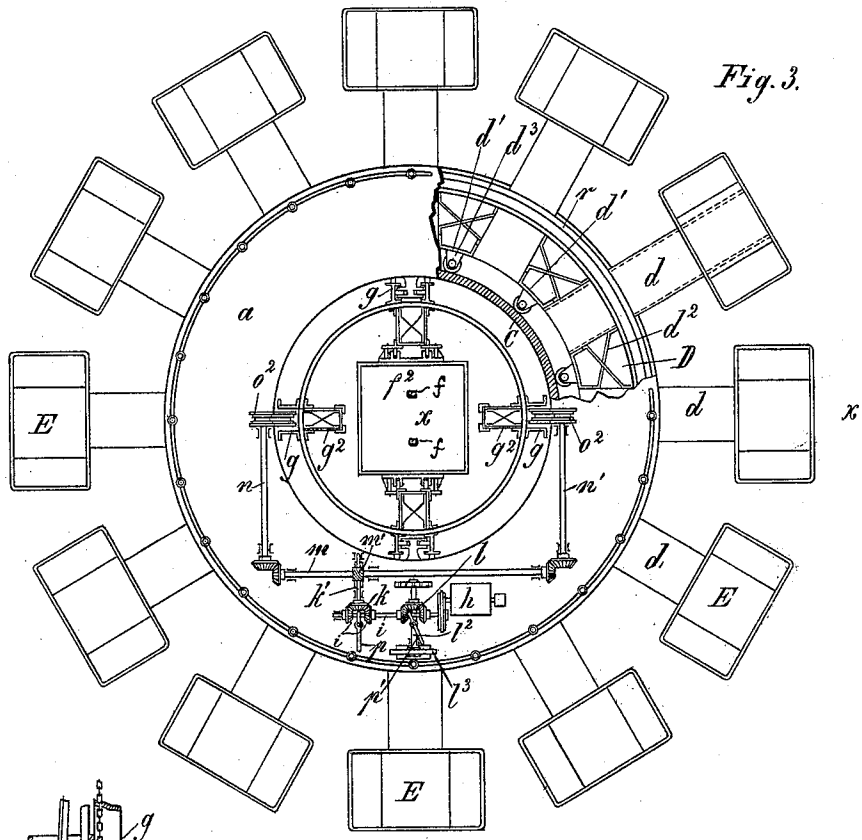
Fig. 3.



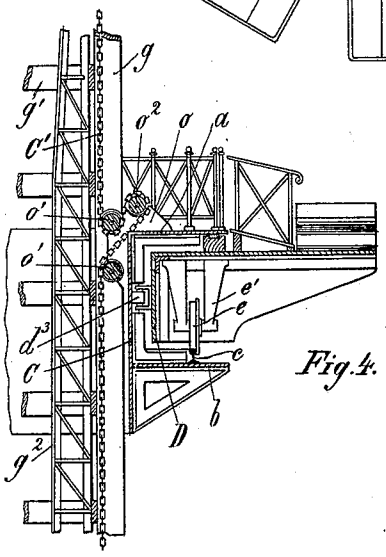


Fig. 4.

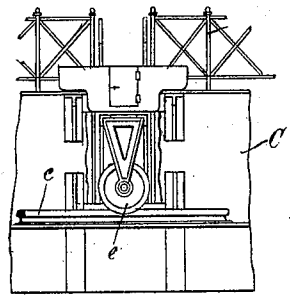


Fig. 5.

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UNITED STATES PATENT OFFICE.

HUGO ENGEL, OF BERLIN, GERMANY, ASSIGNOR TO ARTHUR RÖSCH, OF SAME PLACE.

COMBINED ROUNDABOUT AND ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 611,682, dated October 4, 1898.

Application filed January 28, 1895. Serial No. 536,459. (No model.)

To all whom it may concern:

Be it known that I, HUGO ENGEL, engineer, of 3 Pankstrasse, Berlin, N., in the German Empire, have invented Improvements in a Combined Roundabout and Elevator, of which the following is a specification, reference being had therein to the accompanying drawings.

The subject of this invention is a roundabout in which the gondolas or cars not only receive a rotary movement, but are lifted and lowered.

The invention is applicable to roundabouts as ordinarily used for fairs and similar purposes, and it may also be applied for more useful purposes. For instance, the cars may be carried upward around a high tower, such as are constructed for exhibitions and which serve to afford an extensive view of the surrounding country.

This invention may be carried out in various forms of construction, and in order that it may be the better understood I now proceed to describe the same, reference being had to the accompanying drawings and to the letters marked thereon.

The invention is shown in three modifications, which will probably be found preferable to other forms of construction.

Figure 1 is a diagrammatic side elevation of a construction designed for considerable heights. Fig. 2 is a diagrammatic vertical section through the same. Fig. 3 is a horizontal section through the tower with a view of the ring which carries the cars. Fig. 4 is a view on the line $x\,x$ of Fig. 3. Fig. 5 is a front view of a part of the ring which carries the cars. Fig. 6 is partly a side elevation and partly a vertical section through Fig. 5.

For the sake of clearness Figs. 3 to 6 are drawn to a larger scale than the other figures.

The construction shown in Figs. 1 to 6 consists principally of a foundation A, Figs. 1 and 2, on which is erected the tower, which is preferably constructed of iron. A ring C is carried vertically up and down on this tower without receiving any rotary motion. The top of the tower carries the platform of the prospect-tower. The essential part of this construction is the ring C, which may be made of metal plates. The ring C carries a platform a on its upper side and a platform b on its lower side. (See Fig. 6.) The platform a is level with the platform of the foundation A when the ring is in its lowest position and carries the driving mechanism of the whole apparatus, described hereinafter. The attendants stand on the platform a, which is surrounded by a grating. At the highest position the platform a is level with a door t, Fig. 1, which leads to a platform t', Fig. 2, in the interior of the tower and by which the visitors pass over a short spiral staircase t^2 to the prospect-platform B'.

The lower platform b of the ring C carries a circular track c, on which travels a second ring D. The latter, which is shown in Fig. 3 partly in plan, in Fig. 4 in transverse section, and in Figs. 5 and 6 partly in front elevation, consists of radial arms d, which are connected to one another at their inner ends by U-shaped rods d' and grating d^2. The ring D is provided at its inner side with guiding-rollers d^3, which serve to guide the ring on the outer walls of the ring C and to ease the carrying-wheels e sidewise. The carrying-wheels e carry the ring D. They are arranged under four or six arms and are carried by plummer-blocks e'. The gondolas or cars E, carrying the passengers, are arranged on the arms d.

In order to reduce as much as possible the power required for the raising and lowering of the ring carrying the driving mechanism and the cars, the apparatus hereinbefore described is suspended on chains f, guided in rollers f', Fig. 2, which carry on their free ends a counterweight f^2. If the roundabout is to be constructed so as to be suitable for transportation, a vessel containing water is used as counterweight f^2, so that it may be emptied when the roundabout is to be transported from place to place in order to reduce the weight to be carried. The tower is suitably constructed of strong U or double bearers g, of T iron or steel, connected at certain distances by rings g' and supported by columns g^2, Fig. 4.

The raising and lowering of the ring C is conveniently effected by means of two chains C', arranged each between two diametrically opposite bearers g in such a manner that the

ends are fastened to the top and bottom of the tower.

The apparatus is conveniently driven by an electromotor h, whose movement is transmitted to the main axle i by means of suitable transmitting-gear. The main axle i carries two pairs of couplings in the manner that is usual with cranes of modern construction. The loose halves of the couplings are formed as bevel-wheels i' and i^2, respectively, into which engage bevel-wheels k and l, respectively. The motor is always rotated in one direction, and therefore rotates the axle i in the same direction. The bevel-wheel k drives a worm k', rotating the wheel m', carried on the axle m. The two ends of the axle m carry bevel-wheels which drive bevel-wheels on the axles n and n', and thus rotate the axles n and n' in opposite directions to one another.

The chain C' runs up and down on guiding-rollers o', arranged above one another in pairs on joint plummer-blocks o, carried on the ring C. Above these guiding-rollers is arranged a chain windlass-wheel o^2, carried by the free ends of the axles n and n', respectively, and rotated thereby. The second coupling, with the bevel-wheels i^2, operates the bevel-wheel l, the rotation of which is transmitted by suitable gearing to an axle l^2. The free end of this axle l^2 carries a friction-disk l^3, pressed against a ring r, fixed to the arms d, which therefore when rotated gives a circular movement to the cars or gondolas. By means of this arrangement of the driving mechanism the engineer is able to execute the following three movements of the roundabout by simply actuating the levers p and p' without leaving his place: First, the ring may be raised and lowered without rotating the gondolas or cars; second, the gondolas or cars may travel around the ring without the latter being raised or lowered; third, the ring may be raised or lowered and the gondolas may travel round the tower to the right or to the left.

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

1. A roundabout consisting of the combination of a tower, a ring surrounding said tower, stationary vertical chains, power mechanism on said ring engaging said chains to move said ring, and gondolas or cars revolubly supported on said ring.

2. The combination of a rotary tower, a ring movable up and down thereon, a power mechanism on said ring for raising and lowering it, stationary vertical means for engagement by said mechanism cars rotary on said ring, a power mechanism on the ring for revolving said cars, and mechanism for rotating the tower, substantially as set forth.

HUGO ENGEL.

Witnesses:
KARL FRANZ, Sr.,
OTTO FABIAN.