

April 14, 1925.

1,533,914

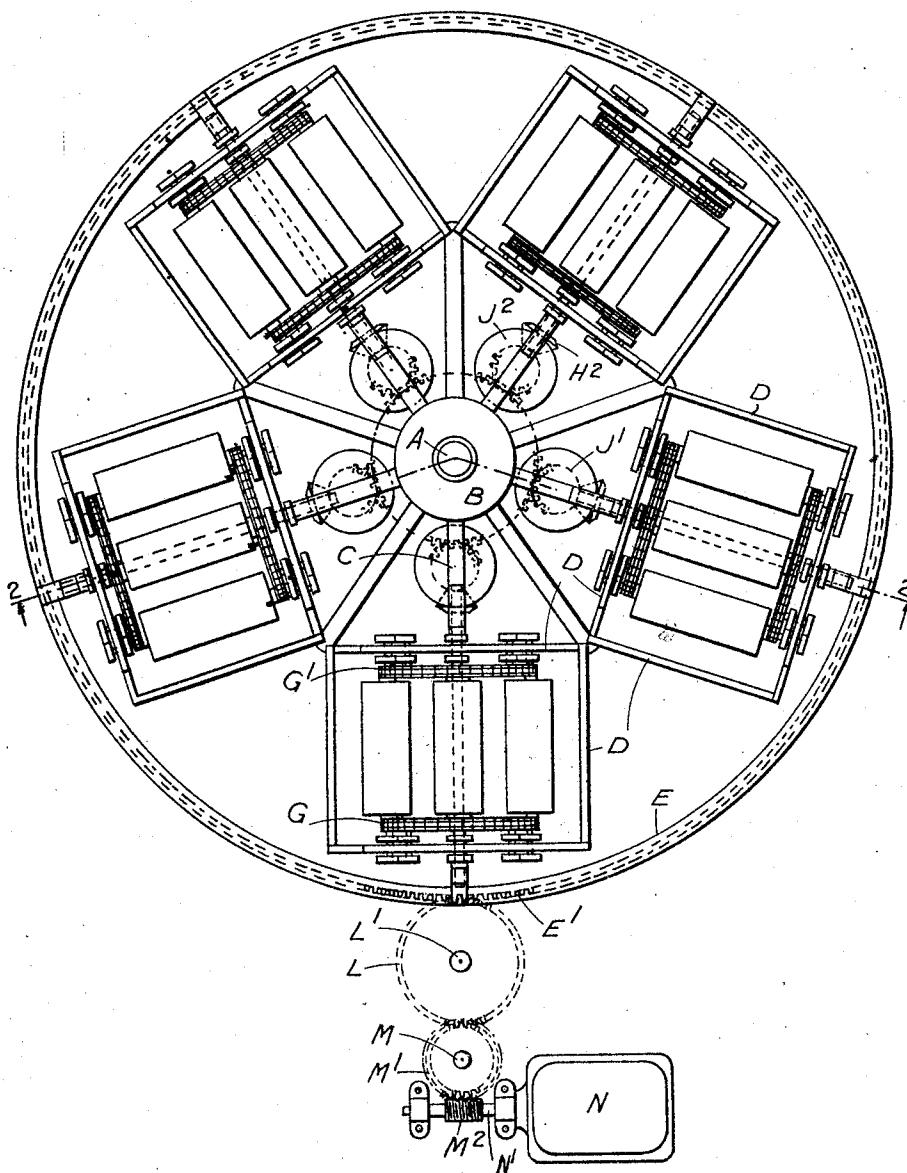
C. D'O. HUTCHINS

AMUSEMENT DEVICE

Filed June 24, 1924

2 Sheets-Sheet 1

FIG. 1.



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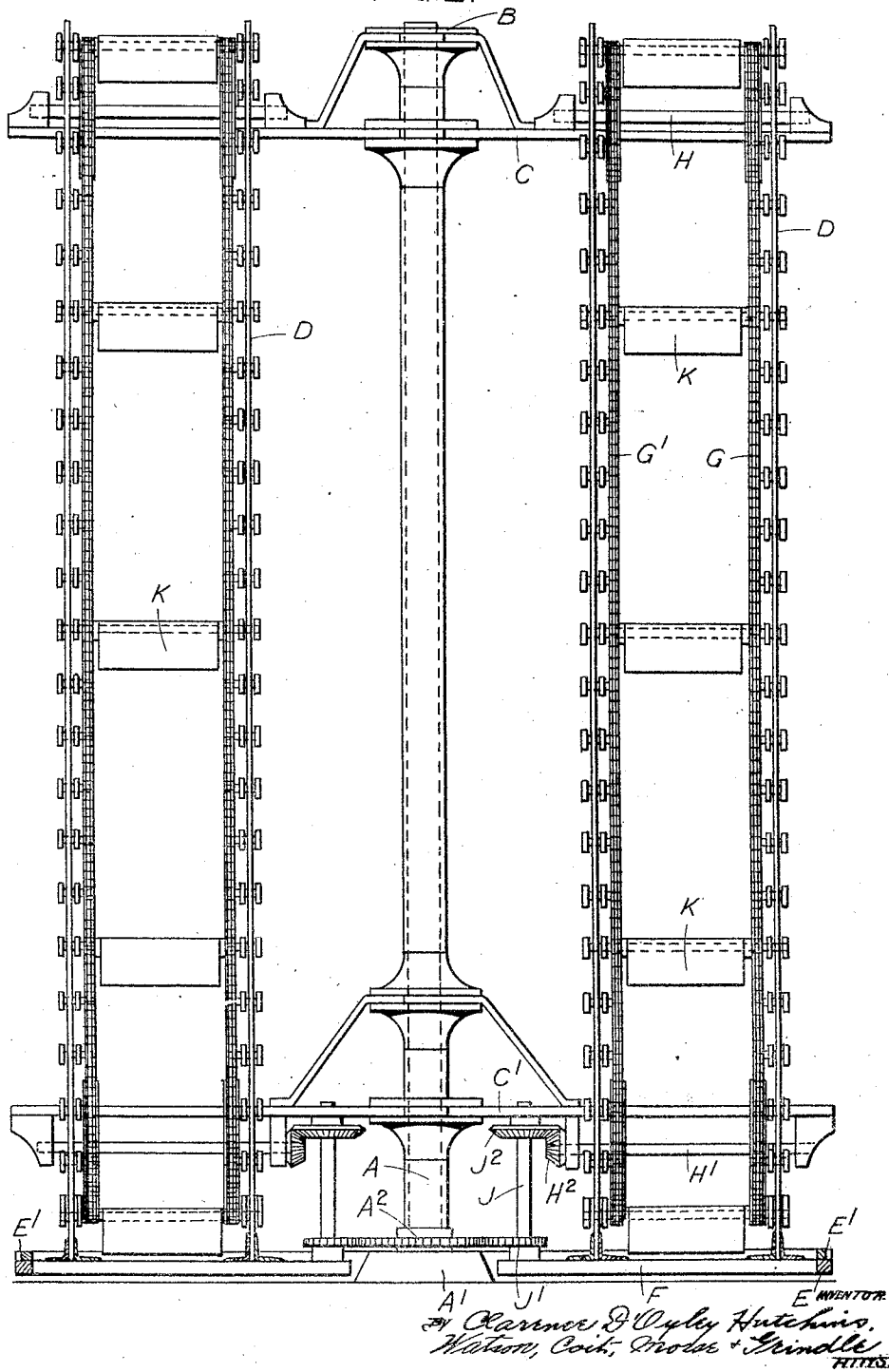
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2 Sheets-Sheet 2

FIG. 2.



## UNITED STATES PATENT OFFICE.

CLARENCE D'OYLEY HUTCHINS, OF WINDSOR, ENGLAND.

## AMUSEMENT DEVICE.

Application filed June 24, 1924. Serial No. 722,123.

*To all whom it may concern:*

Be it known that I, CLARENCE D'OYLEY HUTCHINS, a subject of the King of England, and residing at Windsor, in the county of Berkshire, England, have invented certain new and useful Improvements in Amusement Devices of which the following is a specification.

This invention relates to conveying apparatus applicable also as an elevator and has for its object to provide mechanism whereby a succession of cars or other receptacles for passengers or goods can be alternately raised and lowered through a predetermined range and at the same time given movement in a horizontal direction.

According to this invention a framing which is rotatable about a fixed vertical pivot has mounted in or on it one or more elevating mechanisms adapted to be actuated as and when the whole framing is rotated about said pivot, one or more cars or other receptacles for passengers or goods being suspended from or otherwise connected to each elevating mechanism. The rotatable framing is conveniently provided with a central hub from which radiate arms and an elevating mechanism is disposed in each of these arm members and actuated by gearing as and when the whole framing is rotated. The cars may be suspended from or otherwise connected to the elevating mechanisms so that both the raising and lowering of the cars is positively controlled by these mechanisms. Each of the elevating mechanisms is conveniently of the nature of an endless conveyer travelling vertically upwards and downwards in the rotatable framing, all the conveyer mechanisms being actuated simultaneously as and when the framing which carries them is rotated about its pivot.

The invention may be carried out in practice in various ways but the accompanying drawings illustrate by way of example one construction that may be adopted, the construction being shown as designed more particularly for the conveyance of passengers and intended for amusement or employment after the manner of a scenic railway. In these drawings which are somewhat diagrammatic:—

Figure 1 is a plan of one form of the apparatus.

Figure 2 is a sectional elevation of the same the section being taken on the line

2—2 in Figure 1 looking in the direction of the arrows. Parts of the apparatus which should appear in the background are omitted for the sake of clearness.

Like letters indicate like parts throughout the drawings.

Referring to the construction illustrated, rotatably mounted on a fixed centre or vertical axis A of suitable construction is a framing formed conveniently with a centre part B whence radiate arms C which carry a series of rectangular cages D these cages in the construction illustrated being five in number. On the base A' which carries the fixed centre A is fixed a toothed wheel A<sup>2</sup> of suitable diameter. Fixed to the bottom of the cages D is a ring E conveniently mounted on radial arms F rigidly connected to the cages these arms in effect forming the spokes of a wheel whose periphery is constituted by the ring E.

Each of the cages D is provided with guides, rollers or like devices for controlling two endless chains G G', each of which extends vertically with its two parts parallel while the two chains are parallel. In the upper part of each cage the chains G G' pass round two sprocket wheels mounted on a shaft H while at the bottom of the cage D the chains pass similarly round two other sprocket wheels mounted on a shaft H' the shafts H and H' lying radially with respect to the centre A. Short vertical shafts J disposed equidistant from the centre A are carried at their ends in radial frame members C' and by the inner ends of the radial members F. Each shaft J carries towards its lower end a pinion J' which gears with the fixed toothed wheel A<sup>2</sup> while towards its upper end the shaft carries a bevel wheel J<sup>2</sup> which meshes with a bevel pinion H<sup>2</sup> mounted on the inner end of the sprocket wheel shaft H'. It will be seen that by means of this mechanism as the whole framing B C D is rotated about the centre A, the shafts J will be rotated by reason of the engagement of the pinions J' with the fixed toothed wheel A<sup>2</sup> and consequently through the bevel wheels J<sup>2</sup> H<sup>2</sup> the sprocket shafts H' will be turned thereby imparting motion to the chains G G'. These chains can then act after the manner of a conveyer and be employed for raising and lowering cars or the like within the cages D. Such cars shown diagrammatically at K are suspended by suitable means from and between the

chains G G' so that the cars will be moved successively vertically upwards and then downwards within the cages D. Since this upward and downward movement of the cars K will take place while the whole framing B C D is rotating about the centre A, it will be apparent that each car K will follow a continuous spiral path first upwards and then downwards around the centre A.

Thus when the apparatus is not in motion and when each car is at a suitable point, for example, at the ground level, passengers can enter and then be conveyed upwards to the full height of the apparatus and at the same time the passengers will be carried round the centre thus giving opportunities of viewing surrounding scenery.

The whole framing may be rotated in any convenient manner but in the construction illustrated the ring E is provided on its periphery with teeth E' these teeth being engaged by a toothed wheel L mounted on a spindle L'. The toothed wheel L engages with a second toothed wheel rigidly mounted on a spindle M which also carries a worm wheel M' engaged by a worm M<sup>2</sup> mounted on the spindle N' of an electric or other motor N. It is to be understood however that other mechanism than that shown may be employed for rotating the framing.

Such an apparatus may be arranged for use as an elevator for passengers or goods in a building the apparatus being disposed in a suitable well-like structure in the building with convenient landing places on the floors arranged at those circumferential points where the cars will be located as they successively reach the levels of these floors. To permit of the entry and egress of passengers or goods the cars would be constructed and arranged with suitable openings, and platforms of convenient shape and dimensions may be fixed in the necessary positions on the cages D so as to bridge the gap between the side or end of each car and the floors of the building. Since the number of cages and conveyer mechanisms and the number of cars carried by each conveyer may vary as required, it is apparent that when employed in this way as an elevator, there may always be one or more cars available for passengers to ascend from one floor to any other floor or for passengers to descend in a similar manner.

In some cases it is desirable or even preferable to extend the shafts J through the lower radial members C' up to the upper radial members C and provide at the upper ends of these vertical shafts bevel gearing through which the sprocket wheel shafts H can be positively driven, in addition to the positive driving of the lower sprocket wheel shafts H'. This ensures more even running of the conveyer mechanism. Further, in some cases in place of rotating the framing

by transmitting power from an external source to the wheel E, one or more electric motors may be mounted on the rotatable framing, for example on the members C', or elsewhere on the structure, such motor or motors imparting the drive to the shafts J and through gearing acting on the stationary toothed wheel A<sup>2</sup>. For example, a convenient arrangement is to provide a separate motor acting on each shaft J these motors being synchronized by suitable means so that the drive will be transmitted equally through all the shafts J to the several conveyer mechanisms while at the same time rotation is imparted to the whole apparatus. These motors may be suitably disposed on the framing and the power therefrom transmitted by mechanism as is found convenient.

It will be understood that with apparatus according to this invention the weight of the descending cars balances to a great extent the cars that are being elevated and thus reduces the power required to operate the elevating mechanisms.

The details of construction may be varied in accordance with requirements and the purpose for which the apparatus is to be used, that is to say, whether it is to be employed for amusement or as a means for conveying passengers or goods as in an elevator. Thus, for example, the number of conveyer mechanisms may be varied.

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

1. In an amusement device of the class described, the combination of a vertical pivot, a tube rotatable about said pivot, a framing comprising radial arms extending from said tube, a cage carried by said arms elevating mechanism mounted in the cage at least one car permanently freely suspended from said elevating mechanism, means for rotating the framing about its pivot, and means for actuating the elevating mechanisms when the whole framing is rotated such that the raising and lowering of the several cars is positively controlled by these mechanisms and takes place along substantially similar ascending and descending paths.

2. In an amusement device of the class described, the combination of a stationary vertical pivot, a framing rotatable about said pivot comprising a central hub, and arms radiating therefrom cages carried by said arms, an endless conveyer mechanism mounted to travel vertically upwards and downwards in each cage, at least one car connected by suspension from each conveyer mechanism for continuous movement therewith, means for rotating the framing about its pivot, and means for actuating the endless conveyer mechanisms when the whole framing is rotated.

3. In an amusement device of the class

described, the combination of a vertical pivot, a framing rotatable about said pivot comprising a central hub, arms radiating therefrom cages supported by said arms, an  
5 endless conveyer mechanism mounted to travel vertically upwards and downwards within each cage, means carried by said cages to guide said endless conveyers, a plurality of passenger cars suspended from  
each endless conveyer mechanism, means for 10 rotating the framing about its pivot, and gearing for actuating the endless conveyer mechanisms when the whole framing is rotated.

In testimony whereof I have signed my 15 name to this specification.

CLARENCE D'OYLEY HUTCHINS.