(No Model.)

2 Sheets—Sheet 1.

W. X. SIMPSON.

MERRY-GO-ROUND.

No. 571,626.

Patented Nov. 17, 1896.

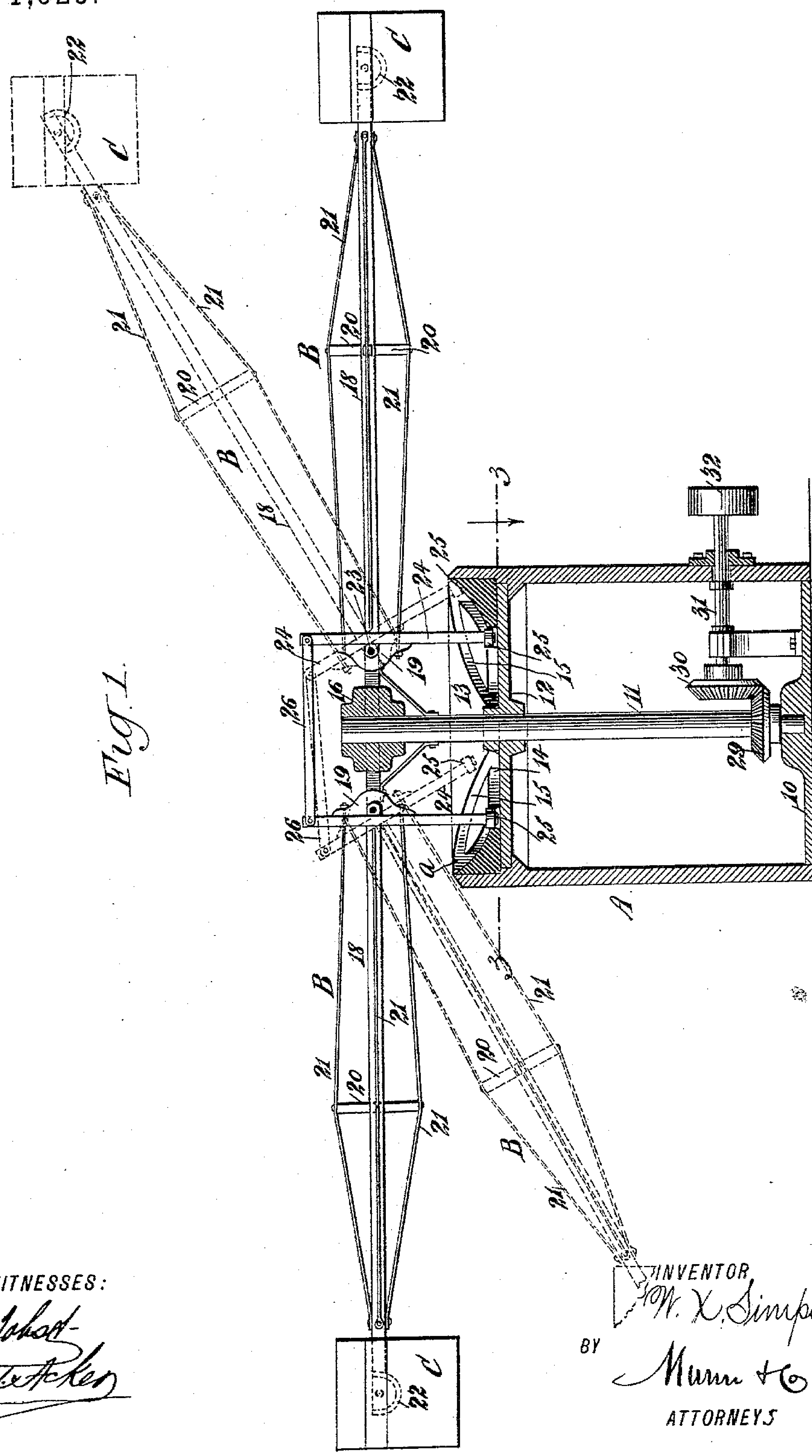

Fig. 1.

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Fig. 5.

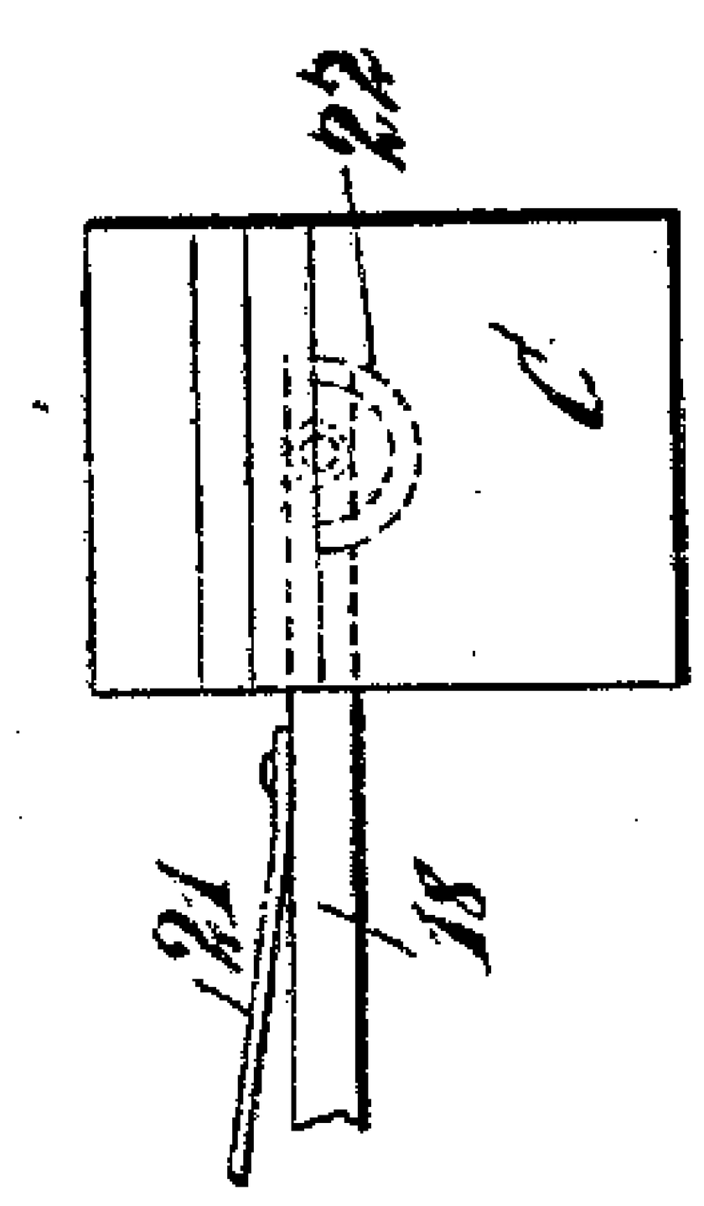


Fig. 2.

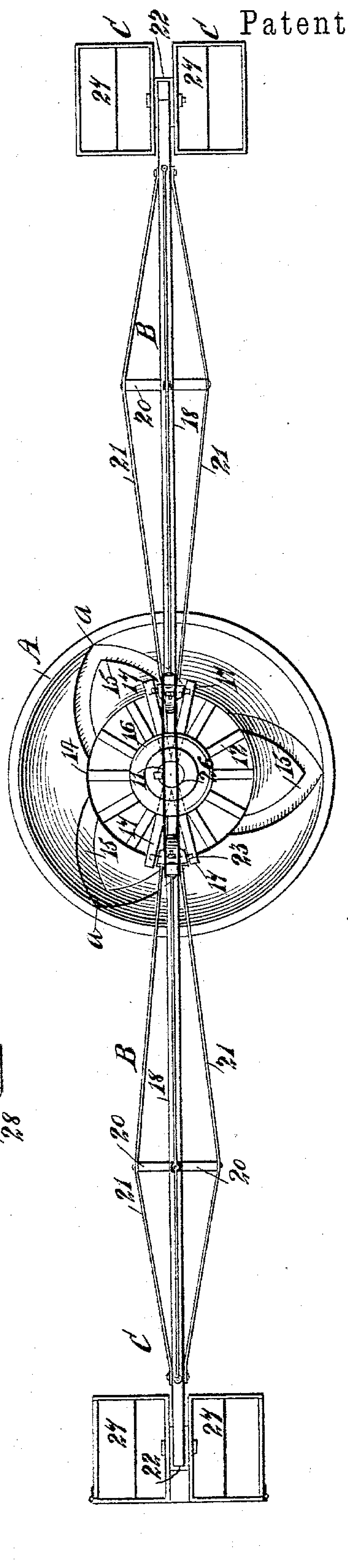


Fig. 3.

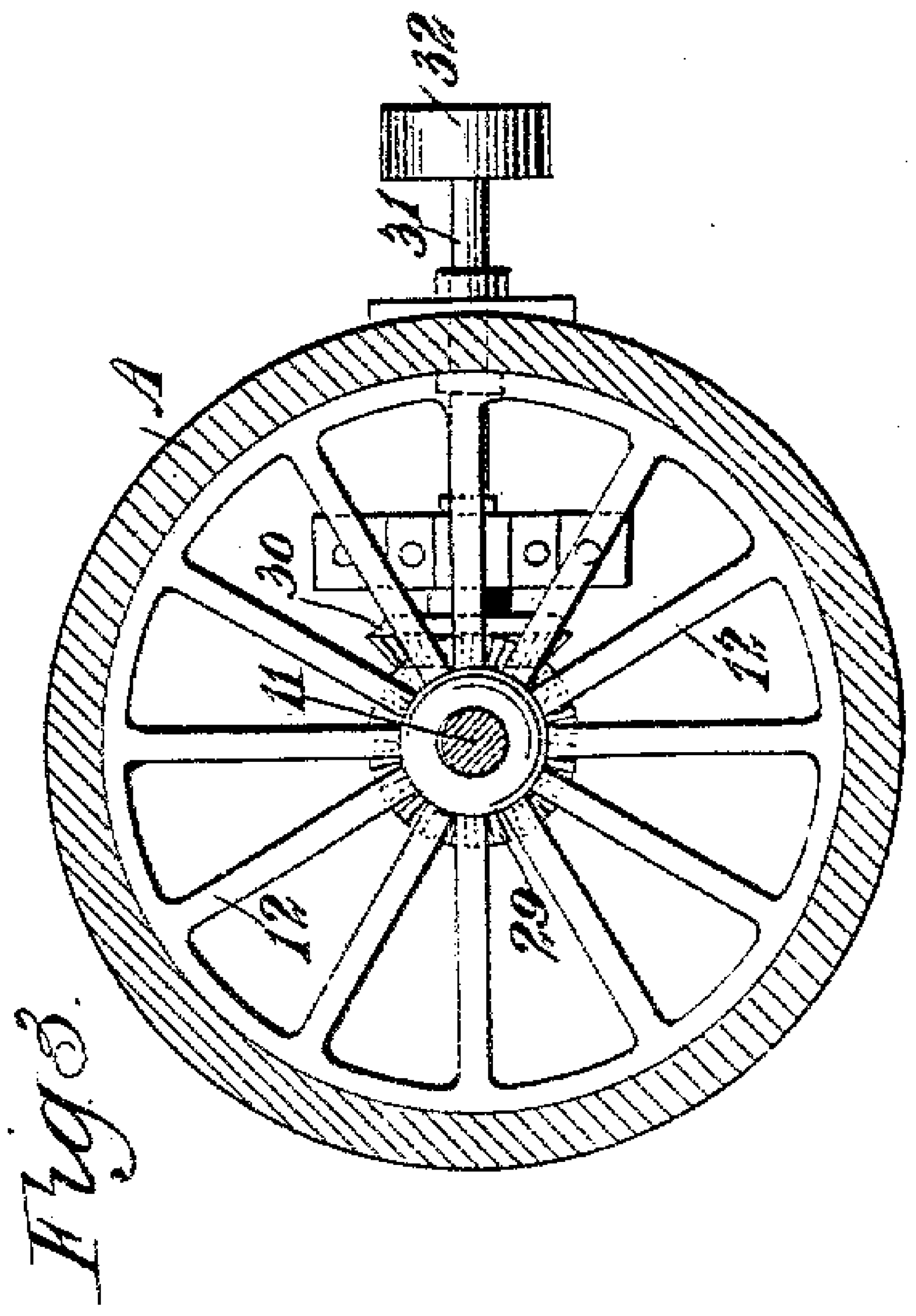
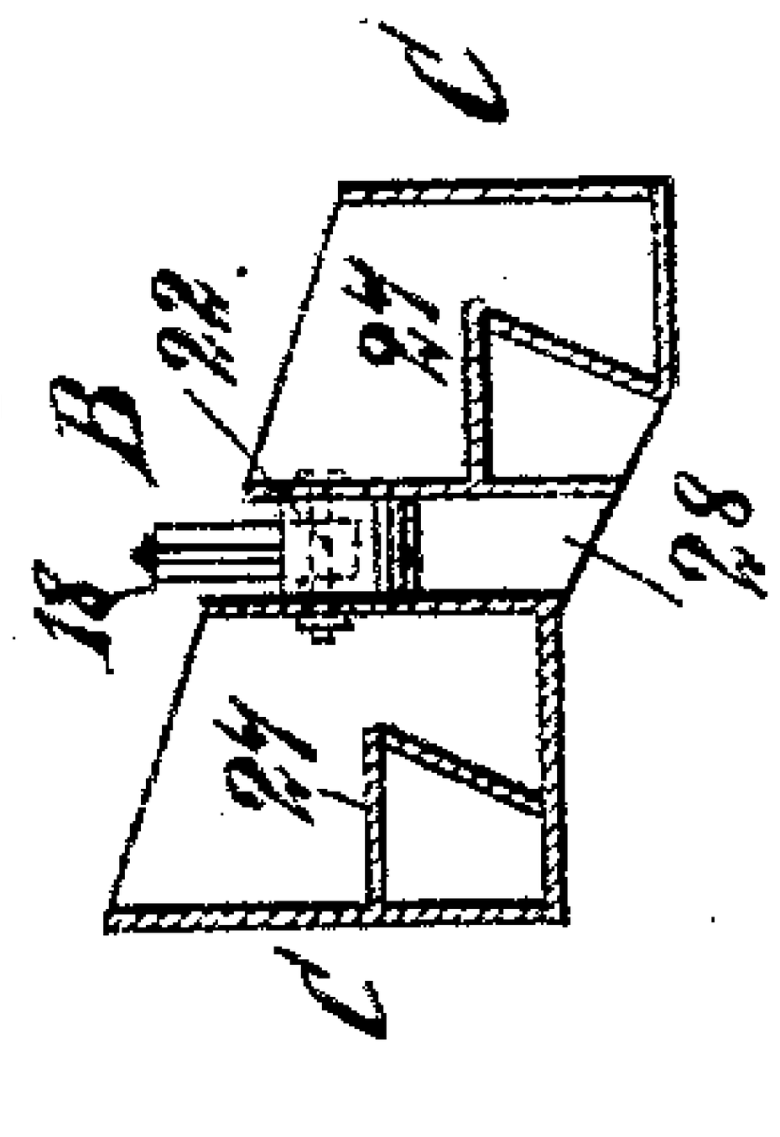


Fig. 4.



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WILLIAM X. SIMPSON, OF AURORA, ILLINOIS.

MERRY-GO-ROUND.

SPECIFICATION forming part of Letters Patent No. 571,626, dated November 17, 1896.

Application filed November 30, 1895. Serial No. 570,597. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM X. SIMPSON, of Aurora, in the county of Kane and State of Illinois, have invented a new and useful Improvement in Merry-Go-Rounds, of which the following is a full, clear, and exact description.

My invention relates to an improvement in merry-go-rounds or carousels; and the object of the invention is to combine the motion obtainable in an ordinary merry-go-round with a seesaw motion, whereby the dizzy sensation experienced by many persons when riding in a merry-go-round will be obviated by reason of the rotary motion being in a measure interrupted.

A further object of the invention is to provide a machine of the above description which will be exceedingly simple, durable, and economic in its construction.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a vertical section through the base portion of the machine, the arms adapted to carry the seats or carriages being in side elevation and in two positions. Fig. 2 is a plan view of the machine. Fig. 3 is a horizontal section taken substantially on the line 3 3 of Fig. 1. Fig. 4 is a vertical section through one of the carriages or cars, and Fig. 5 is a side elevation of the same.

In carrying out the invention a framework A is erected, which may be and preferably is in the form of a tower, and in the bottom 10 of the said framework or tower the lower end of a vertical shaft 11 is journaled, the upper end of the shaft being journaled in a partition 12, preferably of a spider-like construction, as shown in Fig. 3, the said partition being secured to the framework or tower. The shaft 11 extends some distance beyond the upper end of the tower or framework, and upon the upper face of the partition 12 a bed 13 is constructed which may be of metal, wood, or other material. This bed is of ring-like construction and is preferably of circular contour, fitting at its outer edge to the upper portion of the framework or tower. The bed is provided with a circular opening 14 at its center, exposing a portion of the partition 12, and the upper face of the bed is given an upward inclination or bevel, whereby it is lowest at its inner margin, and in this bed a series of cam grooves or recesses 15 is produced, the recesses or grooves having the same inclination as the bed. Preferably three of these cam grooves or recesses are used, and they are also preferably of somewhat segmental form and their members, which commence at the inner margin of the bed, are made to join at the upper or outer margin at substantially an acute angle, forming a point *a*, as shown best in Fig. 2.

A sleeve or hub 16 is secured firmly to the upper end of the shaft 11, and from this sleeve or hub a number of arms 17 is made to radiate, the said arms being arranged in pairs. In the drawings two pairs only of such arms are shown, arranged diametrically opposite each other. Each pair of arms is adapted to pivot the inner end of a carrying-arm B, and each carrying-arm preferably consists of a body-bar 18, having a shoe 19 secured to its inner end, and the said shoe extends beyond the sides and top and bottom of the bar, and the inner ends of a series of truss-rods 21 are attached to the shoe, the said rods being preferably located one above, one below, and one at each side of the body-bar 18, as shown in Figs. 1 and 2. These truss-rods are secured directly to the body-bar at their outer ends and are projected from the body-bar between their ends by spokes 20, attached to the said bar.

A pivot-pin 23 is secured to the shoe 19 of each carrying-arm, and these pins serve to pivot the carrying-arms in the hub-arms 17, as shown best in Fig. 2. The carrying-arms are adapted to balance one another, being of equal weight, and at the shoe portion of each carrying-arm a vertical bar 24 is firmly secured, and the lower end of each of the said bars is provided with a friction roller 25 adapted to travel in the cam grooves or recesses 15. The bars 24 may be termed "guide-bars," since they serve directly to guide the carrying-arms in their vertical or seesaw movements, and the guide-arms 24 of a pair

of carrying-arms are pivotally connected at their upper ends above the shaft 11 by means of a link or links 26.

A car C is pivoted at each side of each carrying-arm B at the outer end of the said arm, the outer end of each carrying-arm being provided with a weight 22. The cars C, as shown in Fig. 4, are placed, preferably, one slightly below the other, and one or more seats 27 are located in each car; but the arrangement of the cars relative to one another may be varied if found desirable and the two cars may be connected at their outer ends by a partition 28, as is likewise shown in Fig. 4.

The shaft 11 may be rotated in any suitable or approved manner; as, for example, a beveled gear 29 may be secured to the shaft and made to mesh with a like gear 30, located upon a short shaft 31, the said shaft being provided with a pulley 32 for connection with a motor, and the pulley may be located within the tower A, as may also the motor.

The arrangement of the guide-bars 24 is such that as the shaft 11 is rotated and the rollers 25 of the guide-bars are brought into action the rollers on one of the guide-bars of a pair of carrying-arms will be ascending one member of the cam-groove, while the roller connected with the opposite arm will be descending the member of another cam-groove, and when the ascending roller reaches the apex of the cam-groove in which it is traveling the opposite roller will be departing from the cam-groove in which it has been traveling, and in the slight further rotation of the shaft the roller that is still in its cam-groove will commence to descend, thus drawing the opposing roller downward to meet the next groove by reason of the link connection 26 between the guide-bars 24, carrying these rollers. Thus it will be observed that the carrying-arms B will be given not only rotary motion, but likewise an up-and-down or see-saw motion at the same time.

Any desired number of carrying-arms may be employed, but the said arms must be in pairs; and if, for example, six are used but three cam-grooves will be necessary, and the connecting-links 26 of each pair of carrying-arms will be arranged one above the other.

If in practice it is found desirable, friction-rollers may be placed at the bottom of the guide-arms 24, so as to overcome friction as much as possible.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a merry-go-round or like machine, a vertically-arranged shaft mounted to rotate, means for driving the same, carrying-arms pivoted in supports connected with the said shaft, the said arms being arranged in pairs, a bed surrounding the shaft and having its upper surface inclined or beveled and provided with cam grooves or recesses having substantially the same inclination as the bed, a guide-bar secured to each carrying-arm near its pivot-point and adapted to travel at its lower end in the inclined cam-grooves of the bed, a connection between the guide-bars of each pair of carrying-arms, and cars pivotally connected with the outer ends of said carrying-arms, as and for the purpose specified.

2. In a merry-go-round or like machine, a supporting-frame, a rotating shaft mounted in said frame and extending above the top of the same, a bed at the top of the frame and surrounding the said shaft, the said bed having an inclined upper face and a central opening and provided with cam-grooves in its upper face following the inclination thereof and extending from its inner margin to a predetermined outer point, carrying-arms pivotally attached to the rotating shaft in pairs, a guide-bar secured to each carrying-arm near its pivot-point being provided with rollers adapted to enter the cam-grooves in the upper face of the bed, and a link connection between the guide-bars of each pair of carrying-arms, as and for the purpose set forth.

3. In a merry-go-round or like machine, the combination with a vertical shaft, journals for the same, a driving mechanism connected with the shaft, and a bed supported around the shaft having an inclined upper face and a central opening, the said bed being provided with substantially segmental cam-grooves produced in its inclined face following the direction thereof and extending from its inner margin outward, of a sleeve or hub secured to the upper end of said shaft, arms radiating from the said hub, carrying-arms pivoted at their inner ends in the said hub-arms, the said carrying-arms being arranged in pairs and balanced as to weight, guide-bars secured to the carrying-arms, the guide-bars of each pair of arms having a link connection, and each guide-bar being adapted to travel at its lower end in the cam-grooves of the bed, as and for the purpose specified.

4. In a merry-go-round or like machine, the combination with a supporting-tower, a drive-shaft mounted in said tower, a driving mechanism connected with the said shaft, and a bed supported on said tower and arranged around the shaft, the said bed having a central circular opening and an inclined outer face, the inclination being upward from its inner margin, the said inclined face of the bed being provided with a series of cam-grooves, each groove comprising two members uniting near the outer periphery of the bed, the grooves commencing at the inner margin thereof, of a hub or sleeve secured on the upper end of the said shaft, arms arranged in pairs and radiating from the said hub, carrying-arms each provided with a shoe at its inner end pivotally connected with a pair of hub-arms, the said carrying-arms being adapted to be rotated by the said shaft, guide-arms attached to the said carrying-arms and extending downward therefrom, the lower ends of said guide-arms being provided with friction-rollers adapted to enter

the cam-grooves of the bed, and a link connection between the guide-bars of each pair of carrying-arms, as and for the purpose specified.

5. In a merry-go-round, the combination with a supporting-tower, a partition arranged near the top of said tower, a vertical shaft mounted at its lower end in the bottom of said tower and near its upper end in the said partition, the said shaft extending above the top of the tower, and a driving mechanism connected with the said shaft, of a bed located on the upper face of the partition and surrounding the said shaft, the said bed being provided with an inclined upper surface having cam-grooves formed therein, the said grooves being inclined correspondingly to the inclination of the bed, a hub on the upper end of the shaft, arms arranged in pairs and radiating from the said hub, carrying-arms each provided with a shoe at its inner end pivotally connected with a pair of hub-arms, and guide-bars connected with the carrying-arms and each provided with a friction-roller at its lower end adapted to travel in the cam-grooves of the bed, the guide-bars of each pair of arms having a link connection, as and for the purpose specified.

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