

C. E. BURNETT.

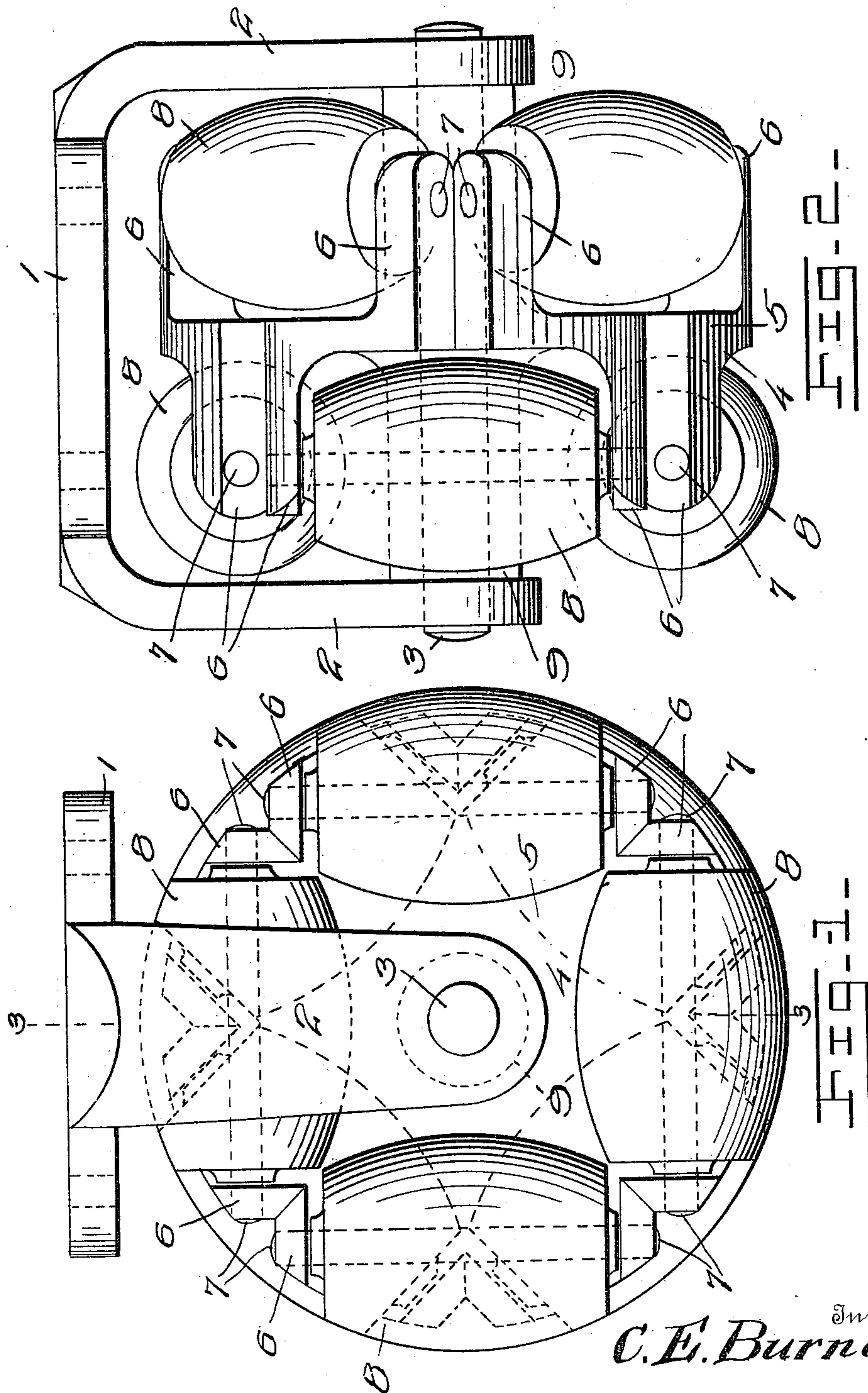
CASTER.

APPLICATION FILED JULY 19, 1909.

Patented June 21, 1910.

3 SHEETS—SHEET 1.

962,308.



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Witnesses:  
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Attorneys

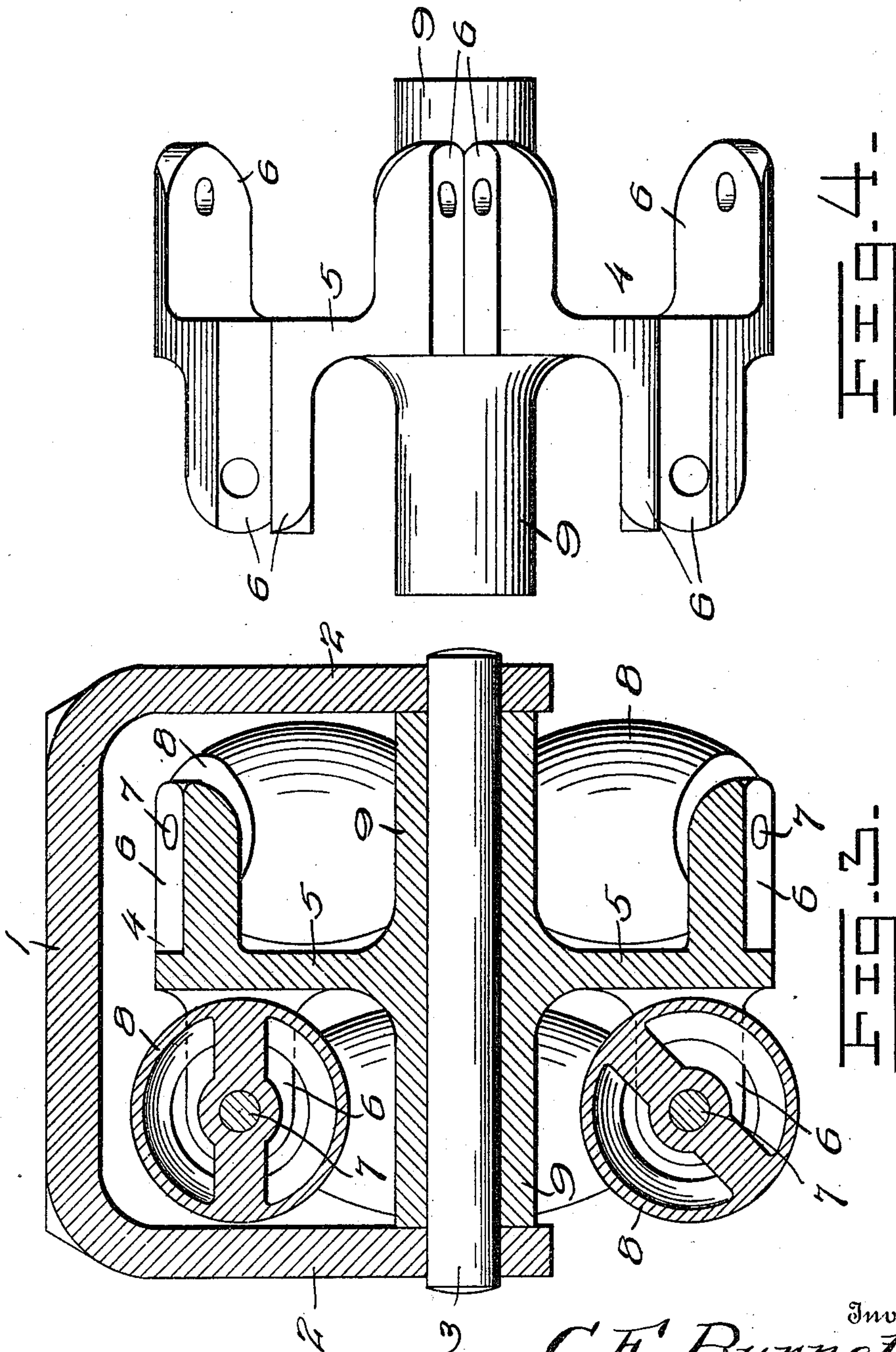
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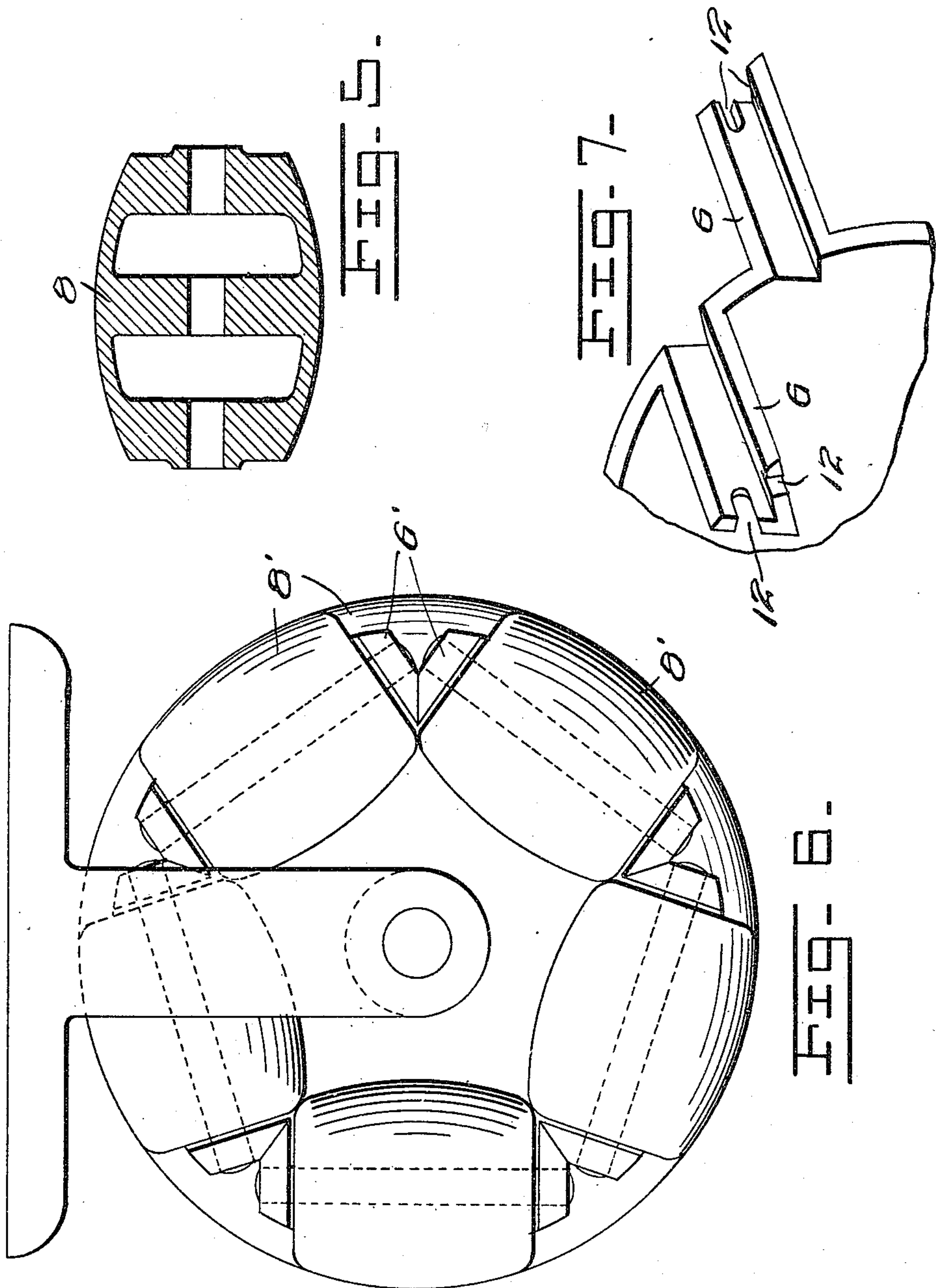
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# UNITED STATES PATENT OFFICE.

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CASTER.

962,308.

Specification of Letters Patent. Patented June 21, 1910.

Application filed July 19, 1909. Serial No. 508,269.

*To all whom it may concern:*

Be it known that I, CHARLES E. BURNETT, a citizen of the United States, residing at Walworth, in the county of Wayne and State of New York, have invented certain new and useful Improvements in Casters, of which the following is a specification.

This invention relates to new and useful improvements in casters, and more particularly to a caster which is designed and constructed for use upon trucks, such as are used for the moving of pianos, stoves, heavy pieces of machinery and like cumbersome bodies which are of too great a weight and too unwieldly to be moved by means of the ordinary light trucks.

The primary object of my invention is to provide a caster having a plurality of rollers mounted upon either side of a revoluble centrally positioned frame plate, the rollers upon one side of said plate being angularly arranged with relation to the corresponding roller upon the opposite side of said plate.

Another object is to provide a plurality of convex rollers, which are so positioned upon the opposite sides of the circular frame plate, that the peripheries thereof will lie in the same plane with the periphery of said plate, thus forming a caster, by means of which the heaviest objects may be easily moved in any direction with but little effort upon the part of the operator.

A further object is to provide a simple and novel mounting for the bearing rollers whereby they may be readily arranged in the supporting frame, and frictional contact between the rollers and said frame entirely eliminated.

With these and other objects in view, the present invention consists in the combination and arrangement of parts as will be hereinafter more fully described and particularly pointed out in the appended claims, it being understood that changes in the specific structure shown and described may be made within the scope of the claims without departing from the spirit of the invention.

In the drawings forming a portion of this specification, and in which like numerals of reference indicate similar parts in the several views, Figure 1 is a side elevation of my improved caster, Fig. 2 is an edge view thereof, Fig. 3 is a vertical section taken on the line 3—3 of Fig. 1, Fig. 4 is a top plan view of the roller supporting frame, Fig. 5 is a longitudinal section of one of the rollers,

Fig. 6 is a side elevation of a slightly modified construction of the caster, Fig. 7 is a detail perspective view of a portion of the supporting frame illustrating the means of mounting the rollers.

Referring to the drawings, 1 indicates the attaching plate, by means of which the caster may be attached to a truck or other object to be movably supported. This plate is formed with the integral oppositely disposed depending ears 2, thus forming a suitable frame-supporting yoke. The lower ends of these ears are formed with openings receiving the ends of the supporting shaft 3.

Mounted revolvably upon the shaft 3, between the ears 2 of the yoke is a roller supporting frame 4. This frame comprises a centrally disposed circular plate 5 upon each side of which are formed the horizontal arms 6, which are adapted to receive the ends of the roller shafts 7. The arms 6 are integrally formed with the plate 5 and extend in parallel relation to the shaft 3 from either side thereof.

The rollers 8 which are mounted upon the shafts 7 are of longitudinally convex arcuate formation and extend beyond the periphery of the frame plate 5, thus supporting the frame plate out of contact with the roller engaging surface. Extending centrally and axially from each side of the plate 5, a sleeve or bushing 9 is formed, and extends therefrom to the depending ears 2, thus spacing the frame plate 5 centrally of the yoke support at all times. It will be noted that the rollers 8 upon one side of the frame 5 are disposed in staggered relation to the rollers upon the opposite side, the supporting arms 6 upon one side of the plate 5 being formed intermediately of the standards on the opposite side of the plate. This disposition of the rollers serves to relieve the frame 4 from torsional strain when the device is moved laterally in contact with a supporting surface, and at the same time allows the ready movement of a truck supported thereon in any direction, as the disposition of the convex rollers 8 will provide for the contact of one of the rollers with the floor surface at all times. This will produce rotation either of the frame or of the rollers relatively or simultaneous rotation of the frame and contacting rollers, according to the direction of movement with respect to the caster. The rollers 8 are properly spaced from the plate 5 to prevent frictional con-



tact of the rollers with the plate. The arc of the longitudinal convexity of the rollers 8 is common with a circle having as its radius the distance between the axis of the shaft 3 and the central periphery of the rollers outwardly of the shaft. Thus, as shown in Figs. 1 and 6 a continuous contact line is presented concentrically of the shaft 3. It will be understood that the entire frame and the rollers are adapted to rotate upon the supporting shaft 3, and the convexed rollers have independent rotative movement upon the shafts 7 between the arms 6. Thus a high degree of efficiency is attained and the heaviest object may be easily transported from place to place with but little tractive effort upon the part of the operator.

In Fig. 6 a slight modification of my improved caster is illustrated, wherein five rollers 8' are located upon each side of the frame plate. These rollers are considerably shorter than those employed in the form above described, but it will be understood that the proportions of the rollers will be determined by the diameter of the roller supporting frame. It will likewise be understood that a greater or less number of said rollers may be employed if desired. The supporting arms 6' will be positioned upon either side of the supporting plate in a like manner to the standards 6 as above described, and are the same in every respect, the only difference in the construction of the frame being that the number of supporting arms must necessarily be increased to accommodate the increased number of rollers 8'.

As shown in Fig. 5, the rollers 8 are of hollow formation, and are formed with a central wall 10, longitudinal openings 11 extending centrally through said rollers for the reception of the roller shafts 7. These rollers are preferably formed of cast iron, thus greatly cheapening their manufacture.

The supporting frame 3 could also be cast in one piece, whereby the maximum amount of strength and weight resistance is attained.

In Fig. 7 there is illustrated a convenient manner in which the supporting arms may be formed so that the roller shafts 7 may be readily secured in the outer ends thereof. The arms are V-shaped in cross section, thus forming two walls the proximal adjacent arms being in parallel relation and transverse the axis of the rollers. These walls are formed with the longitudinally extending recesses 12 in which the ends of the roller shafts are positioned. The metal is to be swaged down upon the ends of the roller shafts, whereby the shafts will be securely retained therein against any possibility of displacement.

From the foregoing it will be seen that I have provided a very novel form of truck

caster, which is peculiarly adapted to the moving of heavy and cumbersome objects such as stoves, large pieces of machinery, pianos, or other furniture and that the smooth movement of the same may be had thus avoiding the liability of dislodgment of the article supported thereon.

When the casters are properly mounted under a truck, the friction induced at all points of the several casters is so near equal that they will act in unison, and the movement of the truck and article carried thereby in the desired direction may be effected with but little effort upon the part of the operator. It will also be noted that the ends of the rollers upon opposite sides of the supporting frame overlap each other, and describe one continuous circle, thus obviating the liability of the floor being scratched or marred during the movement of the truck.

What is claimed is:

1. A caster comprising a vertically rotatable frame and rollers rotatably mounted upon said frame and extending beyond the periphery thereof, said rollers being rotatable in planes at an angle to that of the frame.

2. A caster comprising a plurality of rollers of longitudinally convex form rotatably mounted upon either side of a vertically rotatable frame, each of said rollers being disposed at an angle to the next adjacent roller, the axes of the rollers at one side of said frame extending at an angle to the axes of the rollers upon the opposite side of said frame.

3. A caster comprising a plurality of rollers, said rollers being arranged upon either side of a frame plate, a sleeve carried by said plate and extending beyond the peripheries of said rollers on opposite sides of the plate, a shaft extending through said sleeve and plate, and an attaching yoke connected to the ends of said shaft.

4. A caster comprising a plurality of rollers arranged upon a circular frame plate, said rollers being disposed at an angle to each other, supporting standards carried by said plate and adapted to receive the ends of the roller shafts, said plate being rotatably mounted in a supporting yoke member, and said rollers having independent rotative movement thereof.

5. A caster comprising a plurality of rollers arranged upon either side of a circular frame plate rotatable on a horizontal axis, said rollers being of convex formation, the peripheries of which are parallel with the periphery of the frame plate and extend beyond the same, supporting standards extending laterally from the sides of said plate, said standards being arranged in pairs and intermediately disposed with relation to each other upon opposite sides of the frame plate, openings formed in the outer ends of



said standards to receive the roller shafts, a supporting shaft centrally extending through said plate, an attaching plate having oppositely disposed depending ears provided with openings to receive the ends of said shaft, said frame plate and said rollers having independent rotative movement.

6. A caster comprising a plurality of rollers arranged upon either side of a circular frame plate, standards carried by said plate, openings in the ends of said standards to receive the roller shafts, said rollers being of convex formation and having an opening through which said roller shaft extends.

7. A caster comprising a vertically rotatable frame and a plurality of rollers rotatably mounted upon either side of said frame, and rotatable in planes at an angle to that of the frame.

8. A caster comprising a retaining means, a revoluble member carried thereby having a plurality of oppositely extending bearing arms and rollers carried between the arms for orbital movement, the peripheries of the rollers being longitudinally convex in arcs concentric with their orbit; and arranged to form a bearing surface continuously at the outer limit of their orbit.

9. A caster comprising a revoluble frame, a plurality of rollers mounted for rotation in planes at right angles to the rotative plane of the frame on either side thereof, the axes of the rollers on one side extending at an angle to the axes of the rollers upon the other side of the frame.

10. A caster including a plurality of rollers mounted on axes disposed angularly with respect to each other, the surfaces of the rollers being convex longitudinally of their axes, the rollers being disposed to form a continuous bearing surface in an orbit intersecting their planes of rotation.

11. A caster including a revoluble supporting frame, a plurality of rollers mounted thereon on axes at an angle to the axis of the frame, the rollers being longitudinally convex in arcs of a common radius from the axis of the revoluble frame.

12. In a caster of the class described, the

combination with a supporting shaft, of a revoluble member carried thereon having spaced pairs of supporting arms, rollers carried revolubly therebetween for successive contact with the supporting surface upon rotation of the frame, said rollers being revoluble in planes intersecting the plane of rotation of the frame.

13. In a device of the class described, an integrally formed revoluble frame comprising a central body portion and spaced arms projecting laterally from opposite sides thereof, and rollers carried revolubly between the arms.

14. In a caster of the class described, the combination with a supporting shaft, of a revoluble member comprising a centrally perforated body portion, a plurality of centrally formed arms extending from opposite sides of said body portion, the arms upon one side being alternated with those upon the opposite side, and revoluble rollers carried between the arms and projecting outwardly of the frame for the purpose described.

15. A caster comprising a vertically revoluble frame plate and a plurality of rollers mounted upon the side of the frame plate and arranged for rotation in planes at right angles to the rotative plane of the frame plate, said rollers being projected at their peripheries beyond the periphery of the frame plate.

16. A caster comprising a vertically revoluble frame plate and a series of rollers revolubly mounted upon each side of the frame plate, said rollers being arranged for rotation in planes at right angles to the plane of rotation of the frame plate and the rollers at each side of the frame plate being disposed to extend beyond the mutually adjacent end of the rollers at the opposite side of the frame plate.

In testimony whereof I affix my signature, in presence of two witnesses.

CHARLES E. BURNETT.

Witnesses:

ERNEST E. ESLEY,  
GEORGE L. LEE.