

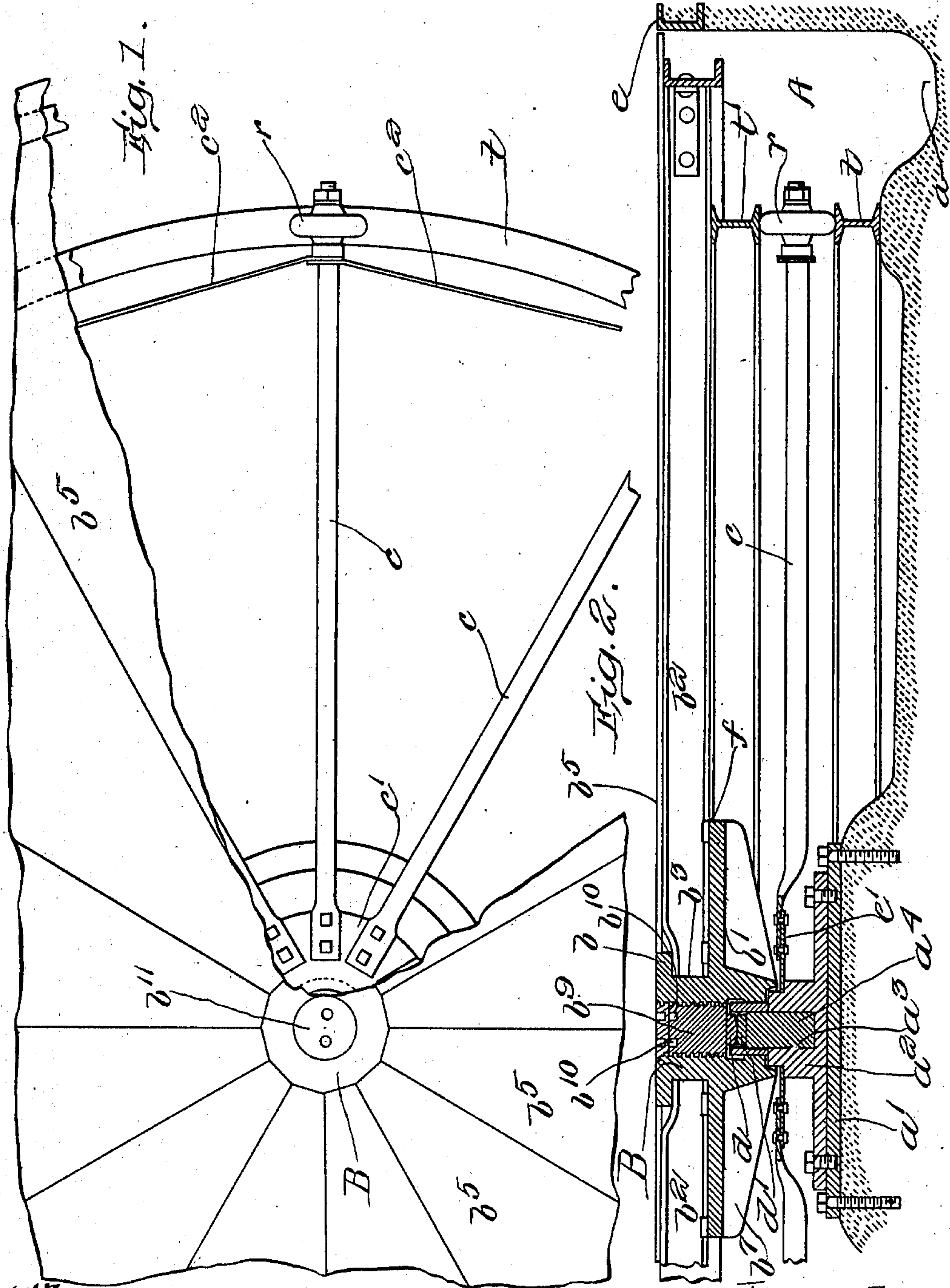
E. F. SMITH.  
TURN TABLE.

APPLICATION FILED MAY 19, 1910.

Patented Sept. 20, 1910.

2 SHEETS-SHEET 1.

970,857.



Witnesses:

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2 SHEETS—SHEET 2.

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Fig. 3.

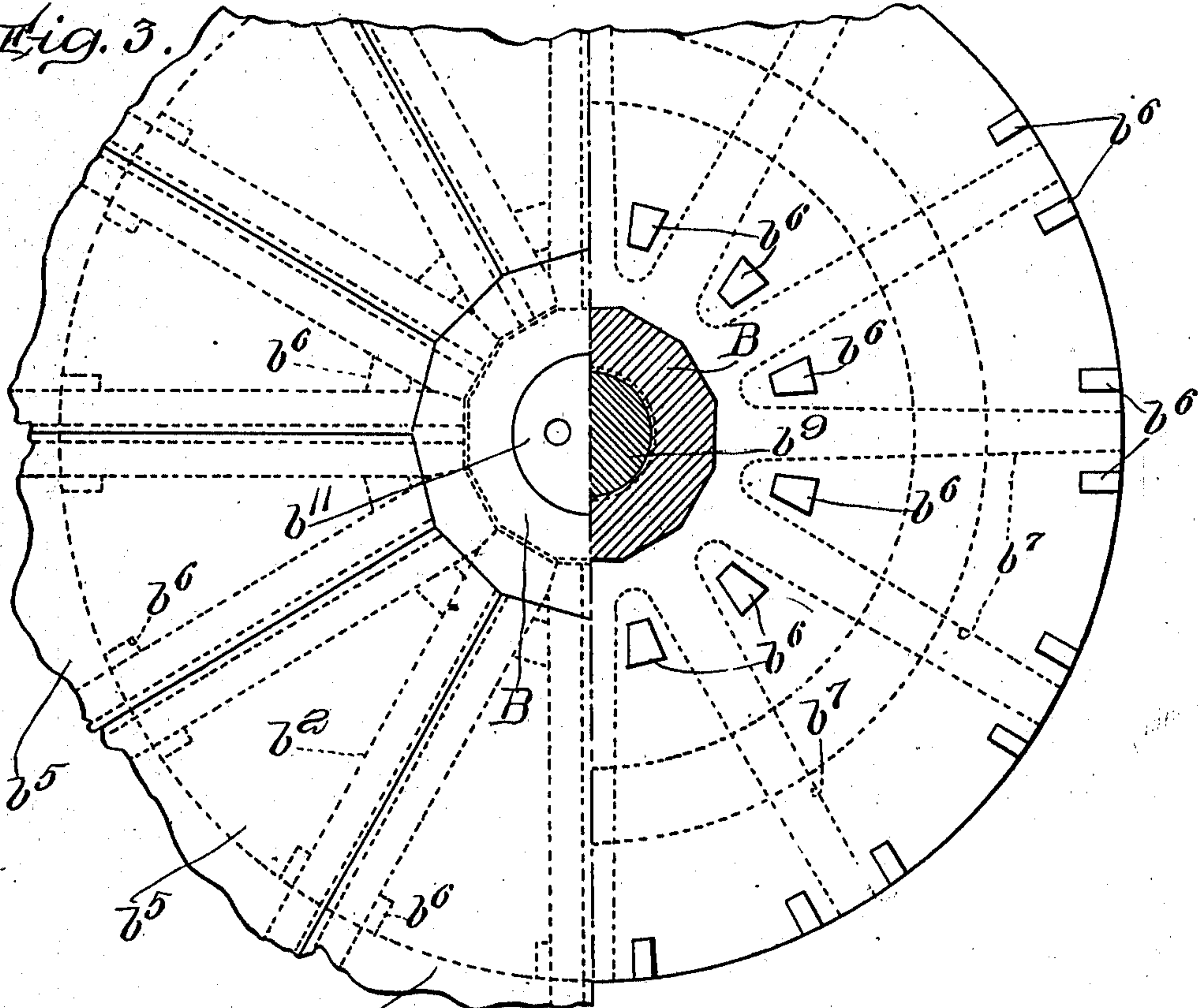
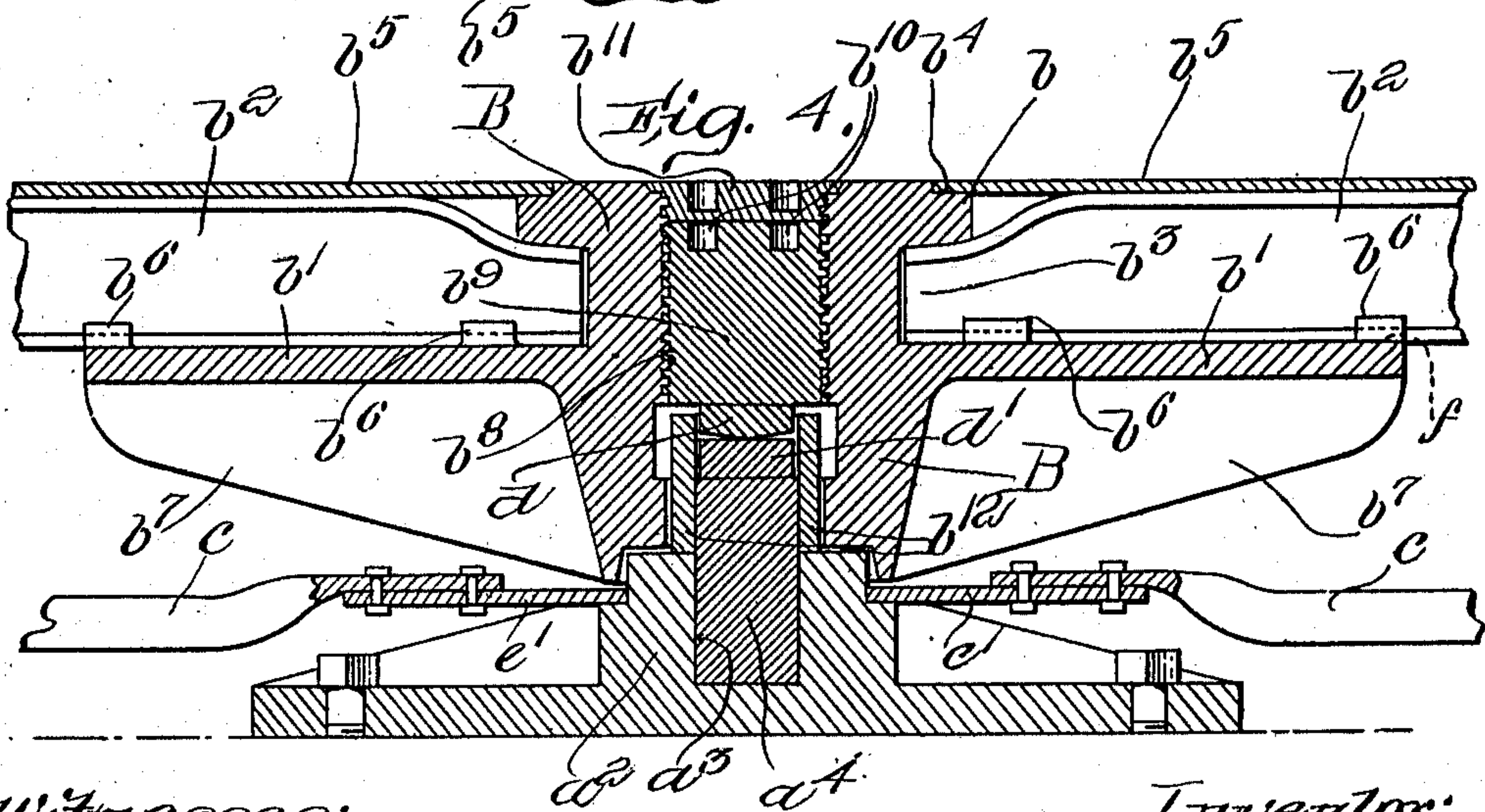


Fig. 4.



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# UNITED STATES PATENT OFFICE.

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## TURN-TABLE.

970,857.

Specification of Letters Patent. Patented Sept. 20, 1910.

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*To all whom it may concern:*

Be it known that I, ELMER F. SMITH, a citizen of the United States, and resident of Marion, in the county of Plymouth and State of Massachusetts, have invented new and useful Improvements in Turn-Tables, of which the following is a specification.

This invention relates to turn-tables and particularly to automobile turn-tables adapted to be used in automobile garages, factories, etc. It has been heretofore proposed to construct turn-tables of this character wholly out of structural steel, consisting of ordinary steel beams or girders and steel plates, and to support such turn-tables upon a central ball-bearing, with peripheral rollers or wheels. The weight of the turn-table and its load is preferably carried for the most part by the central bearing, and the peripheral rollers or wheels are used to prevent undue tilting of the turn-table, and, if the load is properly balanced, are brought into play only incidentally. Turn-tables of this sort made of steel girders and plates, supported chiefly at the center, have been unsatisfactory and impracticable by reason of their tendency under a load to sag and become distorted, and to bulge at the center in the vicinity of the central bearing. It has also been found that a central ball-bearing is unsatisfactory, by reason of the slight tilting of the turn-table which prevents the bearing from running true, or for some other reason.

The chief object of the present invention is to overcome these objections and otherwise improve the construction of turn-tables.

In carrying out my invention I provide an integral, central, supporting casting of novel construction for the revolving platform or turn-table proper, from which radiate the girders for supporting the platform floor. In this steel casting I provide a new and improved form of adjustable bearing by which the turn-table may be raised or lowered to adjust properly the relation between the peripheral rollers or wheels and their running surfaces. As the invention has chiefly to do with this central casting and its associated parts, I have shown in the drawings only such parts of the turn-table as are necessary to illustrate this central casting in its relation to the other parts of the turn-table.

In the accompanying drawings, which illustrate one embodiment of the invention,—Figure 1 is a plan view, partly broken

away, of a turn-table containing my invention; Fig. 2 is a vertical section through the center of said turn-table, partly broken away; Fig. 3 is an enlarged view, partly broken away, of the central part of said turn-table, partly in plan and partly on a horizontal section taken between the flanges of the central casting; and Fig. 4 is a vertical central section through said casting and the center bearing.

In the floor in which the turn-table is to be placed a circular pit A is made (see Fig. 2) preferably lined with cement or concrete, and sloping away from its center toward a marginal gutter  $a$ . At the center of the pit is secured a bed plate  $a'$  to which is screwed or bolted a standard  $a^2$  which supports the center bearing of the turn-table. The standard  $a^2$  is provided with a central bore  $a^3$  in which is lodged the upwardly projecting post  $a^4$ . Instead of setting the device in a specially constructed pit, it could obviously be set into an aperture in the floor, and the supporting parts in the basement or next lower story of the building.

The revolving platform, or turn-table proper, comprises a platform frame consisting of a centrally disposed, integral, supporting casting B, of cast steel or cast iron, made with an upper flange  $b$  and a lower, wider flange  $b'$ , forming a channel between them. Secured to the central supporting casting are the radially arranged I-beams  $b^2$ , the ends of which are pressed or flattened as shown at  $b^3$  to extend into the channel between the upper and lower flanges,  $b$ ,  $b'$ , of the casting B. Thus it will be seen that the I-beams  $b^2$ , supported at their inner ends under flange  $b'$ , and at a point  $f$  considerably removed from the inner bearing, by the periphery of flange  $b'$ , constitute radially arranged cantalivers for the turn-table floor, thus affording a very strong and rigid construction.

A marginal recess is provided on the upper surface of the casting as shown at  $b^4$ , to receive the edges of the floor plates  $b^5$  of the platform; and the upper edges of the I-beams  $b^2$  lie in the same plane with the surface  $b^4$  so that when the floor plates  $b^5$  are applied as shown, a substantially continuous and level floor will be provided by the top of the casting B and floor plates  $b^5$ .

The broad lower flange  $b'$  which serves as a shelf on which the inner portions of the



radial cantaliver girders  $b^2$  are supported, is provided with lugs  $b^6$ , arranged to hold said girders in their radial positions. Strengthening webs  $b^7$ , preferably corresponding with the girders  $b^2$ , may be provided underneath the flange  $b^1$ .

The casting B is made with a central vertical bore extending therethrough, screw-threaded at its upper end as shown at  $b^8$ . A threaded post or screw  $b^9$  is screwed into said bore and serves to adjust the bearing as presently to be described. The screw  $b^9$  is provided with wrench or spanner holes  $b^{10}$ , by which it is turned. As the screw  $b^9$  will occupy various positions in the bore as it is adjusted up or down, it is made of such dimensions that it will at all positions of adjustment terminate short of the upper end of the bore, leaving room for a screw cap  $b^{11}$ , which closes the end of the bore and affords a level surface flush with the floor of the platform.

Below the adjusting screw  $b^9$  is a hardened steel bearing-disk  $d$  made convex on its lower surface as shown. The convex surface of the bearing-disk  $d$  engages the flat surface of the hardened steel bearing-disk  $d'$ , which is supported on the top of the post  $a^4$  of the standard. To hold the post  $a^4$  and the bearing disks  $d$  and  $d'$  in alinement, a sleeve  $b^{12}$  is provided resting on the top of the standard  $a^2$  and surrounding the upper end of the post  $a^4$ , and the bearing-disks  $d$  and  $d'$ . The bearing-disks being made of hardened steel, and having exceedingly hard and highly polished surfaces, one at least of which is convex, afford a pivotal bearing between the revolving table and its supporting standard which is exceedingly durable and which almost eliminates friction, since the bearing surfaces meet at substantially a point whether the turn-table is perfectly balanced and level or slightly tilted. And the turn-table structure comprising the above described integral central casting B and the radial girders, is exceedingly rigid and strong and free from any tendency to sag at the periphery or bulge at the center.

Within the pit A is a circular track  $t$  describing a circle about the center of the post  $a^4$ ; and on the under side of the platform frame is a similar circular track  $t'$ . Between the tracks  $t$  and  $t'$  are the rollers or wheels  $r$  carried by a spider consisting of the radial arms  $c$ , the inner ends of which are secured to an annular plate  $c'$  which turns on a shoulder at the top of standard  $a^2$ . The outer ends of the arms  $c$  are connected by braces or ties  $c^2$ .

The turn-table or revolving platform is preferably adjusted to such position that when perfectly balanced it will turn on its central bearing, and the tracks  $t'$  will stand clear of the rollers  $r$ . The desired vertical

adjustment of the central bearing may be made by turning the screw  $b^9$  within the bore of the central casting B, thus thrusting the casting and the platform frame carried thereby, upward or letting it downward to the desired point. When the load is being rolled on or off the turn-table the rollers  $r$  will limit the extent to which the platform will tilt, and similarly when the load is not exactly balanced the rollers  $r$  will limit the tilt of the platform, and will also permit it to revolve, the rollers  $r$  turning substantially as idler rollers between the tracks  $t$  and  $t'$ .

The edge of the pit A or floor aperture may be finished by a channel iron ring  $e$ , in close proximity to the periphery of the floor of the turn-table. By providing the pit with the marginal gutter  $a$  the turn-table is well adapted to be used for washing automobiles since the gutter  $a$  will receive and carry away water which drains from the edge of the turn-table.

I claim:

1. In a turn-table, a platform frame comprising a central supporting casting, radially arranged girders, said casting provided with means engaging the upper sides of the inner ends of said girders, and with means engaging the under sides of said girders at points remote from their inner ends, whereby said girders constitute radial cantalivers adapted to support the platform floor, and a bearing for said casting.

2. In a turn-table, a platform frame comprising an integral, central, supporting casting, provided with an upper flange and a lower flange, girders radially secured to said casting for supporting the floor of the platform, the ends of said girders being held in the channel between said flanges of the casting, and a bearing on which said casting is journaled.

3. In a turn-table, a platform frame comprising a central supporting casting provided with an upper flange and a lower supporting shelf of sufficient breadth to serve as the middle support of a cantaliver, the end support of which is the upper flange, and radially arranged girders resting on said shelf and projecting under said upper flange, forming cantalivers adapted to support the platform floor.

4. In a turn-table, a platform frame comprising an integral, central, supporting casting, provided with an upper flange and a lower flange, girders radially secured to said casting for supporting the floor of the platform, the ends of said girders being held in the channel between said flanges of the casting, a bearing on which said casting is journaled, and lugs on said lower flange adapted to hold said girders in radial position.

5. In a turn-table, a platform frame comprising an integral, central, supporting cast-



ing, girders radially secured to said casting for supporting the floor of the platform, a bearing on which said casting is journaled, and means to adjust said casting vertically with relation to said bearing.

6. In a turn-table, a platform frame comprising an integral, central, supporting casting provided with a bearing member having a hardened steel bearing surface, means to adjust said bearing member vertically with relation to the casting, girders radially secured to said casting for supporting the floor of the platform, and a support for said casting having a hardened steel bearing surface engaged by the bearing member of the casting.

7. In a turn-table, a platform frame comprising an integral, central, supporting casting, provided with a bore, a hardened steel bearing disk in said bore, means to adjust said disk vertically in said bore, and a support for said casting having a hardened steel bearing surface engaged by said bearing disk.

8. In a turn-table, a platform frame comprising an integral, central, supporting casting, provided with a screw threaded bore, a hardened steel bearing disk in said bore, an adjusting screw threaded into said bore, adapted to adjust said disk vertically therein, and a support for said casting having a hardened steel bearing surface engaged by said bearing disk.

9. In a turn-table, a platform frame comprising an integral, central, supporting casting, provided with a screw threaded bore, a hardened steel bearing disk in said bore, an adjusting screw threaded into said bore terminating short of the upper end of said bore, and adapted to adjust said disk vertically therein, a removable cap in the upper end of said bore, and a support for said casting having a hardened steel bearing surface engaged by said bearing disk.

10. In a turn-table, in combination, a platform frame comprising an integral, central, supporting casting provided with a screw threaded bore, a hardened steel bearing disk in said bore, an adjusting post threaded into said bore adapted to adjust said disk vertically therein, and a removable

cap in the upper end of said bore, and a standard provided with a bore with which the bore of said casting registers, a post in said last named bore, and a hardened steel bearing disk at the top of said last named post, one of said posts extending into the opposite bore, and one of said bearing disks being provided with a convex bearing surface.

11. In a turn-table, a stationary standard having a hardened steel bearing, a circular track described about said bearing as a center, and a platform comprising a central, supporting casting, radial girders secured to said casting, rollers between said platform frame and said track, said casting having a central screw threaded bore, a hardened steel bearing disk in said bore engaging said bearing on the standard, and an adjusting screw threaded into said bore adapted to adjust said bearing disk vertically in said bore, and thereby relatively adjust said rollers and their running surfaces.

12. In a turn-table, a platform frame comprising an integral, central, supporting casting provided with a screw threaded bore, a hardened steel bearing disk in said bore, an adjusting screw threaded into said bore adapted to adjust said disk vertically therein, and a standard provided with a post extending into the bore of said casting having a hardened steel disk at the top thereof engaged by said first named bearing disk.

13. In a turn-table, a platform frame comprising an integral, central, supporting casting provided with a screw threaded bore, a hardened steel bearing disk in said bore, an adjusting screw threaded into said bore adapted to adjust said disk vertically therein, and a standard provided with a post extending into the bore of said casting having a hardened steel disk at the top of said post engaged by said first named bearing disk, and a sleeve surrounding said post and both of said disks to hold the same in alinement.

Signed by me at Boston, Massachusetts, this 14th day of May 1910.

ELMER F. SMITH.

Witnesses:

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CHARLES D. WOODBERRY.