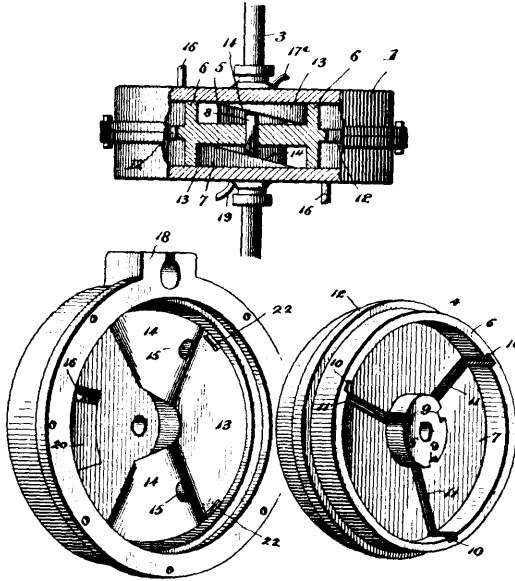


*Claim.*—1st. In a dynamo-electric machine having a rotating inductor, laminated polar projections separately fastened to the inductor core by dovetail fastenings, substantially as described. 2nd. In a dynamo-electric machine having a rotating inductor, polar projections fastened to the inductor core by dovetails, the core and the dovetails having air gaps between them, substantially as described.

**No. 63,011. Rotary Engine.** (*Machine rotatoire.*)



Henry A. Schaper, William W. Boutlier, and Charles B. Ward, all of Britt, Iowa, U.S.A., 2nd May, 1899; 6 years. (Filed 10th December, 1898.)

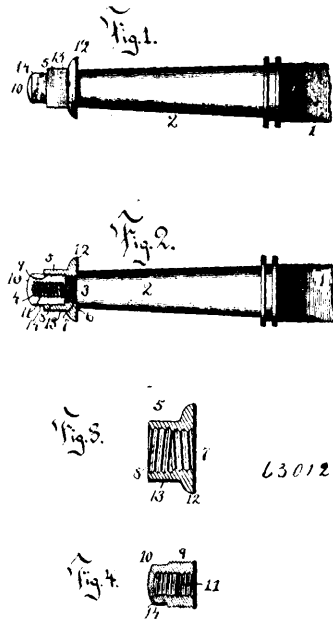
*Claim.*—1st. A rotary engine having a casing comprising oppositely positioned sections or heads having inwardly extending connected flanges forming a cylindrical wall, a rotary piston having a hub and a peripheral rim connected by a web, from the plane of which said hub and rim project in opposite directions, the rim being in contact with the inner surface of the cylindrical wall of the casing, the web being provided with a plurality of radial slots, and the facing surfaces of the hub and rim with guide-grooves registering respectively with said slots at their opposite ends, approximately semi-circular enlargements projecting inwardly from the casing sections or heads between the hub and flange of the piston, and arranged alternately with relation to the path of the piston, and wings fitted to slide in said radial grooves of the piston, with their outer and inner edges in the grooves, respectively, of the rim and hub, and hence in contact with the casing only at their opposite side edges, substantially as specified. 2nd. A rotary engine having a casing comprising oppositely positioned sections or heads provided with inwardly extending connected flanges having registering rabbets to form an annular groove, a rotary piston having a hub, a rim parallel with the hub having contact with the inner surfaces of the flanges of the casing heads, an exterior rib 12 fitting in said annular groove, a web 7 connecting the hub and rim and arranged between the side edges thereof, and in the plane of said rib 12, the web being provided with a plurality of radial slots, and the facing surfaces of the hub and rim with grooves registering with said slots respectively at the inner and outer ends thereof, and wings fitted to slide laterally in said radial slots and arranged at their outer and inner edges in the grooves, respectively, of the rim and hub, approximately semi-circular, terminally cam-faced enlargements, projecting inwardly from the heads of the casing between the facing surface of said rim and hub of the piston, and arranged alternately with relation to the path of the piston-wings, and valve mechanism for controlling the admission and exhaust of motive-agent, substantially as specified.

**No. 63,012. Axle Nut.** (*Noix pour essieux.*)

Cortis Collins and Albert N. Meals, both of Dallas, Texas, U.S.A., 2nd May, 1899; 6 years. (Filed 12th November, 1898.)

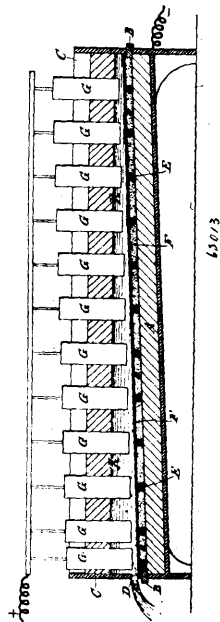
*Claim.*—1st. The combination of an axle or bar having at its end a portion threaded in one direction and adjacent thereto a portion threaded in the opposite direction, a nut threaded on one of said portions having also a second thread of opposite direction to that engaging the axle, and a washer secured on the oppositely-threaded portion of the axle and also engaging the second thread of the nut, substantially as described. 2nd. The combination of an axle or bar having at one end a portion threaded in one direction and adjacent thereto a portion threaded in the opposite direction, a nut threaded

on one of said portions having also a second female thread of opposite direction to that engaging the axle, and a washer having a



female thread engaging the oppositely-threaded portion of the axle and a male thread engaging the second thread of the washer, substantially as described.

**No. 63,013. Electric Furnace.** (*Fournaise électrique.*)



La Volta Societe Anonyme Suisse de L'Industrie Electro Chimique, assignee of Hugues Bovy, all of Geneva, Switzerland, 2nd May, 1899; 6 years. (Filed 12th April, 1898.)

*Claim.*—An electrical furnace, consisting of a metal trough electrically connected with one of the conductors, a series of carbon blocks connected with the trough and forming the lower electrodes of the furnace, a carbon filling between said blocks, carbon plates resting on said filling and between said blocks, electrodes arranged and supported above said carbon blocks, the lower electrodes being of such size to be rendered incandescent by the passage of the electricity through them, substantially as set forth.