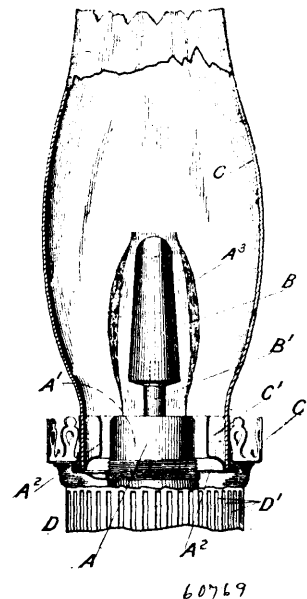


as set forth, of a field-frame carrying cores and field-coils, an armature mounted concentrically within the field-frame, a bushing-ring comprising a transversely and circumferentially slotted tire, and slotted lugs projecting inwardly from the tire to near the armature, and coils formed by conductors wound upon said lugs. 14th. In a dynamo electric machine, the combination, substantially as set forth, with a field-frame and armature, of a tire having pairs of transverse slots and having circumferential slots between the pairs of transverse slots, commutation lugs projecting from the tire between each pair of transverse slots, additional lugs projecting from the tire between the commutation lugs and divided by inward prolongations of said circumferential slots, and coils formed by conductors wound upon said lugs. 15th. In a dynamo electric machine, the combination, substantially as set forth, of a field frame, cores projecting therefrom and having dividing slots, coils on said cores, a tire supported by said cores and having circumferential slots registering with the slots in said cores, lugs projecting inwardly from the tire, and coils formed by conductors wound upon said lugs. 16th. In a dynamo electric machine, the combination with a field-frame and armature, of a ring interposed between said field-frame and armature and carrying compensating coils. 17th. In a dynamo electric machine, the combination substantially as set forth, with a field-frame and armature, of a slotted tire, lugs projecting inwardly from the tire and having less width than the tire, additional lugs projecting inwardly from the tire between the first mentioned lugs and having a greater width than the first mentioned lugs, bridges extending across the ends of the first mentioned lugs and connecting the lugs immediately at each side of the first mentioned lugs, and coils formed by conductors wound upon said lugs. 18th. In a dynamo electric machine, the combination, substantially as set forth, with a field frame and armature, of a tire held by the field-frame and lugs projecting inwardly from the tire and provided with inner feet cylindrically bored to form a chamber for the armature, and coils wound upon said lugs between said tire and feet. 19th. In a dynamo electric machine, the combination, substantially as set forth, of a field-frame carrying cores and field coils, an armature mounted concentrically within said field-frame and having a diameter less than the bore of the series of field-cores, a circumferential series of coils disposed around the armature between the armature and the field-cores, and a metallic support for said last mentioned coils and connected separably with the field-frame. 20th. In a dynamo electric machine, the combination, substantially as set forth, of a field-frame carrying inwardly projecting cores, field-coils on said cores, an armature mounted concentrically within the field-frame and having a diameter less than the bore of the series of field-cores, coils disposed in circumferential series around the armature between the armature and the field cores, the last mentioned coils having longitudinal elements parallel with the axis of the armature, and the axis of each of said last mentioned coils coming midway between the axis of the pair of field-cores, and a support engaging said field-cores and said last mentioned coils. 21st. In a dynamo electric machine, the combination, substantially as set forth, of a field-frame carrying cores and field-coils, an armature mounted concentrically within the field-frame and having a diameter less than the bore of said field-core, fixed conductors parallel with the axis of the armature and exposed in circumferential series around the armature between the armature and the field-cores, and connections to convey current through said conductors in direction opposite to that followed by the current flowing through contiguous conductors in the armature. 22nd. In a dynamo electric machine, the combination, substantially as set forth, of a field-frame carrying cores and field-coils, an armature mounted concentrically within the field-frame and having a diameter less than the bore of the series of field-cores, fixed conductors parallel with the axis of the armature and arranged in the circumferential series between the armature and the field-cores, and connections between said fixed conductors and the armature to convey the current transversing the armature conductors through said fixed conductors in such direction that the current flowing in each of said fixed conductors will magnetically oppose that flowing in the contiguous armature conductor. 23rd. In a dynamo electric machine, the combination, substantially as set forth, with a field-frame carrying cores and field-coils, and an armature mounted within the field-frame, of fixed conductors parallel with the axis of the armature and disposed in circumferential series around the armature, connections conveying current through said fixed conductors in direction to magnetically oppose the currents flowing through contiguous armature conductors, commutation lugs disposed between the field-cores and magnetically energized by the currents flowing in said fixed conductors. 24th. In a dynamo electric machine, the combination, substantially as set forth, of a field-frame carrying cores and field-coils, an armature mounted concentrically within said field-frame and having a diameter less than the bore of the field-cores, a commutation lug disposed between each pair of field-cores and presenting a pole to the armature, additional similar lugs disposed between said commutation lug, and coils formed by winding a conductor first upon a commutation lug and then outside the pair of additional lugs at each side of the commutation lug. 25th. In a dynamo electric machine, the combination, substantially as set forth, of a field-frame carrying cores and field-coils, an armature mounted concentrically within the field-frame and having a diameter less than the bore of the series of field-cores, and a series of fixed coils disposed around the armature between the armature and the field-cores, the coils of said series alternating in

direction of winding. 26th. In a dynamo electric machine, the combination, substantially as set forth, of a longitudinally grooved armature barrel, ribs of non-magnetic metal disposed in said grooves, a series of discs with their bores engaged by said ribs, and clamps secured to the armature barrel and engaging the end of the series of discs. 27th. In a dynamo electric machine, the combination, substantially as set forth, of an armature barrel, a series of discs thereon and provided with a circumferential series of radial slots, each slot being widened at its outer portion, and clamps carried by the armature barrel and engaging the ends of the series of discs. 28th. In a dynamo electric machine, the combination, substantially as set forth, of a longitudinally slotted armature bar disposed within said slots and projecting endwise from the body of the armature, bends formed upon the projecting end of said bars to bring the ends of a pair of bars toward each other, and flat coupling strips united to and connecting the ends of such pair of bars. 29th. In a dynamo electric machine, the combination, substantially as set forth, of a longitudinally slotted armature, bars disposed in said slots and projecting endwise from the body of the armature, bends formed upon the projecting ends of said bars to bring the ends of a pair of bars toward each other, connections between the ends of such pair of bars, and rings concentrically carried by the armature within the projecting connected ends of the bars and forming a support for such projecting ends. 30th. In a dynamo electric machine, the combination, substantially as set forth, of an armature hub, arms projecting endwise therefrom, a hollow nose carried by said arms, and a commutator hub having its bore fitting upon said nose. 31st. In a dynamo electric machine, the combination, substantially as set forth, with balancing coils for neutralizing armature reaction, of a bushing ring carrying said balancing coils and supported by the field-frame. 32nd. In a dynamo electric machine, the combination, substantially as set forth, with balancing coils for neutralizing armature reaction and disposed within the main field of magnetic forces impressed upon the armature, of commutation lugs passing through the centres of said balancing coils and energized solely by said coils. 33rd. In a dynamo electric machine, the combination, substantially as set forth, with balancing coils for neutralizing armature reaction, of a bushing-ring carrying said balancing coils, and commutation lugs passing through the centres of said balancing coils and energizing thereby. 34th. In a dynamo electric machine, the combination, substantially as set forth, with balancing coils for neutralizing armature reaction, of a bushing-ring formed of magnetic material and carrying said balancing coils, and commutation lugs passing through centres of said balancing coils and energizing thereby. 35th. In a dynamo electric machine, the combination, substantially as set forth, with an armature and a field-frame and cores, of a ring carrying balancing coils and commutation lugs contiguous to the armature.

#### No. 60,769. Gas and Oil Lighting Apparatus.

(Appareil d'éclairage à l'huile ou gaz.)



William Hudson Hand, Grena Lodge, Richmond, Surrey, England, assignee of Malcolm Horsey Hwes, and Robert Farrington, both of 71 Shoe Lane, Middlesex, all in England, 3rd August, 1898; 6 years. (Filed 1st June, 1898.)

*Claim.* 1st Increasing the illuminating power of a gas or oil lamp by the insertion of a solid refractory core in close proximity to, but not touching, the flame substantially as described. 2nd, A device for increasing the illuminating power of gas, which consists of a refractory core of suitable shape made of a mixture by weight