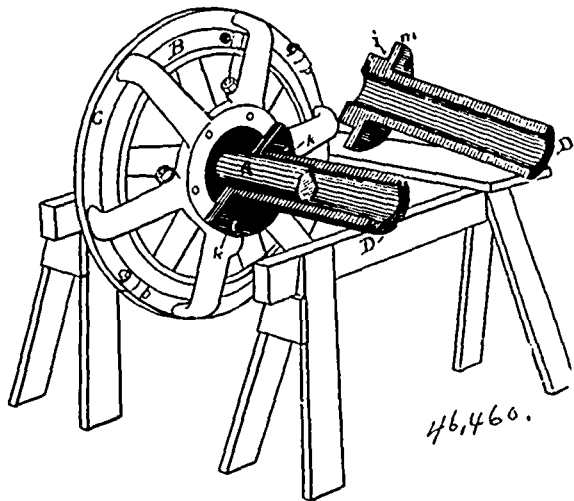


The combination of the upper chord 1, of the casting B, having the aperture 21, of the spindle 26, extending between the casting and chord and through the aperture, and the roller 24, on said spindle resting on the upper chord, substantially as described. 68th. The combination of the casting 49, having the ways 54, and the roller 56, on said ways, with the friction plate 66, suitably supported, substantially as described. 69th. The combination of the casting 49, having the ways 54, and the roller 56, on said ways, with the superposed plate 59, having the segmental friction plate 66, in contact with the said roller, substantially as described. 70th. The combination with the casting 49, having the segmental bearing surface 58, of the superposed plate 59, having the bracket 61, and a roller 62, journaled in said bracket, adapted to bear on the said bearing surface, substantially as described. 71st. The combination with the casting 49, having the ways 54, roller 56, on said ways, and the segmental bearing surface 58, of the superposed plate 59, having the bracket 61, and journaled roller 62, therein, and the friction plate 66, the roller 62, bearing against the said segmental surface, and the friction plate bearing on the roller 56, substantially as described. 72nd. The combination with the casting 49, having the segmental bearing surfaces 58, 58^a, of the superposed plate 59, having the brackets 61, 61^a, and rollers 62, 62^a, therein, journaled and adapted to bear on the said bearing surfaces, substantially as described. 73rd. The combination with the casting 49, having the ways 54, roller 56, on said ways, and the segmental bearing surfaces 58, 58^a, of the superposed plate 59, having the brackets 61, 61^a, with the rollers 62, 62^a, journaled therein, and the friction plate 66, the rollers 62, 62^a, bearing against the said segmental surfaces, and the friction plate bearing on the roller 56, substantially as described. 74th. The plate 59, having the downwardly extending brackets 61, 61^a, the bolts 63, 63^a, passing through said brackets, and the cross bar 68, uniting said bolts, substantially as described. 75th. The combination with the castings B, having the apertured lug 17, of the truck frame, having spring posts, and an upper chord, said posts passing through the said lugs and having nuts on the end for holding said castings down on the chord, substantially as described.

No. 46,460. Friction Clutch. (*Embrayage à friction.*)



Dodge Wood Split Pulley Co., Toronto, Ontario, Canada, assignee of George Philon, Mishawaka, Indiana, U.S.A., 3rd July, 1894; 6 years.

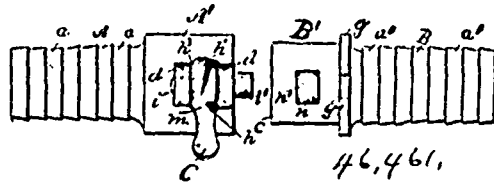
Claim.—1st. In a clutch, the combination of a clutch member having the hub seat *g* bored to a standard size, the hub made separate from said clutch member and provided with the cylindrical end or shoulder *i* formed of a size to fit said seat, having the flange *m* and formed at its end beyond said flange with the cylindrical sleeve, substantially as set forth. 2nd. In a clutch, adapted to be used as a shaft coupling, the combination of the clutch member provided with the hub seat *g* bored to a standard size, and the hub provided with the shoulder or bearing *i* formed of a diameter to fit said seat, having the flange *m*, and beyond said flange with the split sleeve adapted to be compressed upon the end of the shaft, substantially as set forth. 3rd. In a clutch, the combination of a clutch member having the hub seat *g* bored to a standard size, the hub made separate from said clutch member, and provided with the cylindrical end or shoulder *i* formed of a size to fit said standard seat, substantially as set forth.

No. 46,461. Coupling. (*Joint.*)

Irvin P. Doolittle, Los Angeles, California, U.S.A., 3rd July, 1894; 6 years.

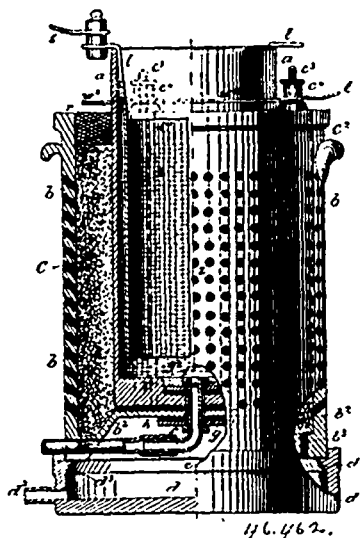
Claim.—1st. In a coupling, a spiral-cam locking-lever which is pivoted in a slot on the female coupling-section and has an adjustable interlocking connection with the channel-shoulder on the other

or male coupling-section, substantially as described. 2nd. The combination, with a male coupling-section and a female coupling-section, of a spiral-ribbed cam lever pivoted to vibrate transversely on the



female section and adapted to interlock its rib with a transverse shoulder on the male section, substantially as described. 3rd. The combination, with a male coupling-section having a diagonal channel on it near one end and a female coupling-section whereon two parallel transverse ears are formed with a slot between, of a lever having a hub-enlargement on one end pivoted between the ears, a spiral rib on the hub, and a joint-washer between the coupling-sections, substantially as described. 4th. The combination, with a male coupling-section having a diagonal channel formed near one end and a radial collar near said end having a single scalloped notch, of a female coupling-section having two parallel transverse ears thereon and slotted between said ears, a lever having a hub on one end, a spiral cam-rib on the hub, a fulcrum-bolt passing through the ears and hub, and a head on said bolt which enters the scalloped notch of the collar when the sections are assembled, substantially as described. 5th. A coupling comprising a male section diagonally channelled near one end, a female section, two transverse ears thereon near one end, spaced apart and slotted between, a locking-lever, a cylindrical hub on said lever, which is pivoted between the ears, and a spiral cam-rib on said hub which merges into a radial flange along one side edge of the hub, substantially as described. 6th. The combination, with a cylindrical male coupling-section having a diagonally-transverse channel in it near one end and a radial collar on this section near the same end, having a single scallop in its edge, of a female coupling-section, a pair of spaced ears thereon between which a slot is formed, a bent lever pivoted between the ears and provided with a hub at one end, a spiral rib on the hub which merges into a radial flange on one side of the hub, a fulcrum-bolt passing through the collar and hub, and a head on the fulcrum-bolt, which engages the scallop on the male coupling-section when the coupling sections are connected, substantially as described.

No. 46,462. Primary Voltaic Batteries. (*Pile voltaïque.*)



William Walker, Birmingham, Frank Richard Wilkins, Hands-worth, and Jabez Jones, Smethwick, England, 3rd July, 1894; 6 years.

Claim.—1st. A single liquid primary voltaic battery, consisting essentially of a perforated glazed earthenware jar or vessel, and a porous cell of much smaller diameter than and situated concentrically in the perforated earthenware jar for containing the electrolyte in which the zinc or positive element is suspended, the space between the perforated jar and porous cell being filled with powdered carbon in which one, two or more plates or rods of solid carbon are inserted, the heads or tops of which are in electrical contact with each other, the said primary voltaic battery being constructed and arranged substantially as hereinbefore described. 2nd. A single liquid primary voltaic battery consisting of a porous cell containing the exciting liquid in which the zinc or positive element is suspended, the