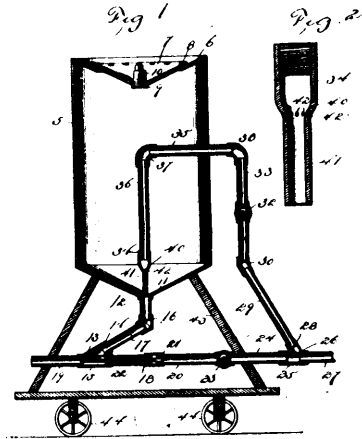


mechanism, means connecting the crank pin slide and counterweight mechanism as described, and so that they will move simultaneously and so as to balance each other and the head as a whole, resilient means arranged to oppose the movement of the pin away from the centre of the head, and means for moving the slide to adjust the eccentricity of the crank pin. 6th. A rotary head in combination with a transversely movable slide having a crank pin secured thereto, two counterweights, each moving in guides in the head parallel to the crank pin slide and one on each side of said slide, racks formed in or secured to the opposite side of the slide and counterweights, pinions journaled in the head between the slide and counterweights with their teeth in engagement with the racks, and means for actuating the slide and through it the pin and counterweight. 7th. A rotary head in combination with a transversely movable slide having a crank pin secured thereto, two counterweights, each moving in guides in the head parallel to the crank pin slide and one on each side of said slide, racks formed in or secured to the opposite sides of the slide and counterweights, pinions journaled in the head between the slide and counterweights with their teeth in engagement with the racks, resilient means arranged to oppose the movement of the pin connected parts away from the position they occupy when the pin is at the centre of the head, and means for actuating the slide and through it the pin and counterweights. 8th. The rotating head *c* having a central transversely extending cylinder *C*¹ and lateral parallel channels *C*³, a slot *C*² formed in the face of the head leading into cylinder *C*¹, connecting passages *C*⁴ *C*⁴ between the cylinder *C*¹ and the channels *C*³ *C*³ and a fluid channel *C*⁵ leading to one end of cylinder *C*¹ in combination with a plunger working in the cylinder *C*¹ and having a crank pin *E* attached to it and projecting through slot *C*², counterweights working in channels *C*³ *C*³, the plunger and counterweights having their opposite sides provided with racks, and spur wheels *H* *H* journaled in passages *C*⁴ *C*⁴ having their teeth in engagement with the racks aforesaid. 9th. The rotating head *c* having a central transversely extending cylinder *C*¹ and lateral parallel channels *C*³ *C*³, a slot *C*² formed in the face of the head leading into cylinder *C*¹, connecting passages *C*⁴ *C*⁴ between the cylinder *C*¹ and the channels *C*³ *C*³ and a fluid channel *C*⁵ leading to one end of cylinder *C*¹ in combination with a rim *C* surrounding the head, a plunger working in the cylinder *C*¹ and having a crank pin *E* attached to it and projecting through slot *C*², counterweights working in channels *C*³ *C*³, the plunger and counterweights having their opposite sides provided with racks, and spur wheels *H* *H* journaled in passages *C*⁴ *C*⁴ having their teeth in engagement with the racks aforesaid. 10th. The combination with a head having a transverse cylinder formed in it and a channel formed in the head leading from its centre to one end of the cylinder aforesaid, a shaft secured to the head and having a channel formed through it said channel connected with the channel in the head at one end and with a cylindrical enlargement *A*⁶ at the other end of the shaft, a fixed tube *O* having a portion *O*² fitting in cylinder *A*⁶ and formed with a multiplicity of annular grooves on its outer surface and a support for the outer end of the tube having a port as *N*⁶ in communication with the end of the tube. 11th. In combination with a head having a transverse cylinder formed in it and a channel formed in the head leading from its centre to one end of the cylinder aforesaid, a shaft secured to the head and having a channel formed through it, said channel connecting with the channel in the head at one end and with an inner cylindrical enlargement *A*⁶ and through said enlargement *A*⁶ into an outer larger and threaded enlargement *A*⁸ at the other end of the shaft, a fixed tube *O* having a portion *O*², fitting in cylinder *A*⁶ and formed with a multiplicity of annular grooves on its outer surface, an annular shoulder *O* adapted to rest on a shoulder *A*⁷ at the end of enlargement *A*⁶, a threaded tubular bushing *O*³ screwing into the enlargement *A*⁸ and around tube *O*, and a support for the outer end of the tube having a port as *N*⁶ in communication with the end of the tube. 12th. In combination with a rotating head having a transverse hydraulic cylinder formed in it and a crank pin actuating plunger movable therein, resilient means tending to force the plunger home in its cylinder and to hold the pin in or about a central position, a channel leading to the end of the cylinder in the head, a reservoir of liquid, a pump cylinder connected to said reservoir and to the channel leading to the cylinder in the head, a plunger working in the pump cylinder, valves arranged as described and so that the plunger will draw liquid from the reservoir and force it into the cylinder in the head, a port connecting the delivery passage of the pump and the reservoir, a normally seated valve for closing said port, means for opening said valve at will and means for actuating the pump plunger. 13th. In combination with a rotating head having a transverse hydraulic cylinder formed in it and a crank pin actuating plunger movable therein, mechanism driven by said crank pin including a brake drum, a brake arranged to check the movement of said mechanism by pressure on said drum, resilient means tending to force the plunger home in its cylinder and to hold the pin in or about a central position, a channel leading to the end of the cylinder on the head, a reservoir of liquid, a pump cylinder connected to said reservoir and to the channel leading to the cylinder in the head, a plunger working in the pump cylinder, valves arranged as described and so that the plunger will draw liquid from the reservoir and force it into the cylinder in the head, a port connecting the delivery passage of the pump and the reservoir, a normally seated valve for closing said port, a lever arranged when actuated to simultaneously open said valve and apply the brake and means for actuating the pump plunger.

No. 66,511. Sand Blast. (*Soufflerie à sable.*)



James McNewhouse, Marble Cliffe, Ohio, and Charles Irwin, Chicago, Illinois, and Clinton Newhouse, Marble Cliffe, aforesaid, all in the U.S.A., 7th March, 1900; 6 years. (Filed 9th February, 1900.)

Claim.—1st. A sand blast, comprising a sand reservoir, a discharge pipe leading from the reservoir, an air nozzle opening into said discharge pipe, and adapted to create suction therethrough from the reservoir, openings in the nozzle for directing air against the contents of the reservoir, a second nozzle leading into the discharge pipe below the first named nozzle and adapted to create suction between it and the first named nozzle and to exert a discharge pressure between it and the outlet of the discharge pipe, and means for supplying air pressure to said nozzles. 2nd. A sand blast, comprising a sand reservoir, a discharge pipe having branches, a siphon in one of said branches adapted to create suction from the reservoir, a siphon in a second branch adapted to create suction in the first named branch and to create pressure in the discharge pipe, and means for supplying air pressure to the siphons. 3rd. A sand blast, comprising a casing or reservoir adapted to receive sand, an outlet for the reservoir, a nozzle within the reservoir and opening through the outlet, openings in the nozzle communicating directly with the reservoir, a discharge pipe connected with the outlet, and means for supplying pressure to the nozzle. 4th. A sand blast comprising a reservoir and adapted to receive sand, an outlet for the reservoir, a nozzle within the reservoir, an opening through the outlet, a discharge pipe comprising branches, one of which is connected with said outlet, a second nozzle in the second branch of the discharge pipe and adapted to create suction in the first named branch, and means for supplying pressure to the nozzle. 5th. A sand blast, comprising a sand reservoir having an outlet opening, a siphon in operative relation to said opening and adapted to create suction therethrough from the reservoir, a discharge pipe connected with said opening, a second siphon in the discharge pipe and adapted to create suction from the reservoir opening and to establish pressure at the outlet of the discharge pipe, means for supplying a fluid under pressure to the siphons, and means for regulating the fluid supplies independently.

No. 66 512. System of Electrical Distribution. ✓

(*Système de distribution électrique.*)

The Westinghouse Electric and Manufacturing Company, assignee of Charles F. Scott, all of Pittsburgh, Pennsylvania, U.S.A. 7th March, 1900; 6 years. (Filed 10th February, 1900.)

Claim.—1st. In a system of alternating current electrical distribution, the combination with a single winding or a plurality of connected windings traversed by out-of-phase currents, of two pairs of leads so connected to said winding or windings as to receive currents in quadrature, two line conductors connected to one pair of said leads, a transformer having its primary connected to the other pair of leads, and a third line conductor connected to one terminal of the transformer secondary, the transformer windings being so proportioned that the three line conductors receive three out-of-phase currents of substantially equal electromotive force. 2nd. In a system of alternating current electrical distribution, the combination with a generator of two phase currents, of three line conductors, two of which are connected to the generator terminals corresponding to one phase of current, a transformer having its windings connected to the generator terminals corresponding to the other phase current and to the third line conductor, whereby said transformer co-operates with said generator to supply the line conductors with three-phase working currents. 3rd. A system of alternating current