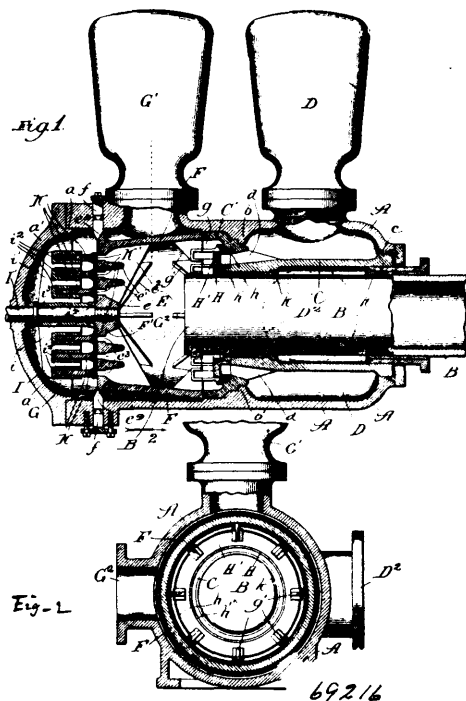
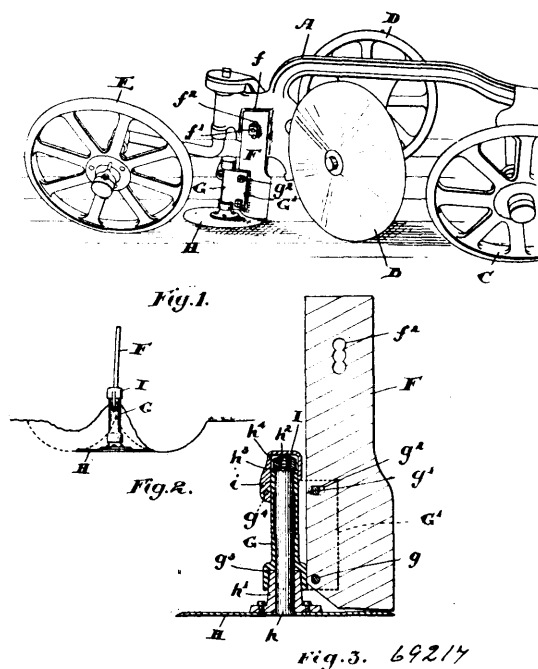


pressure chamber casing within and surrounded by the discharge chamber, a piston working in the pressure chamber, a valved suc-



tion port about the piston and a valved pressure port coaxial with the piston leading to the discharge chamber, substantially as described.

No. 69,217. Disc Plough. (Charrue à disque.)

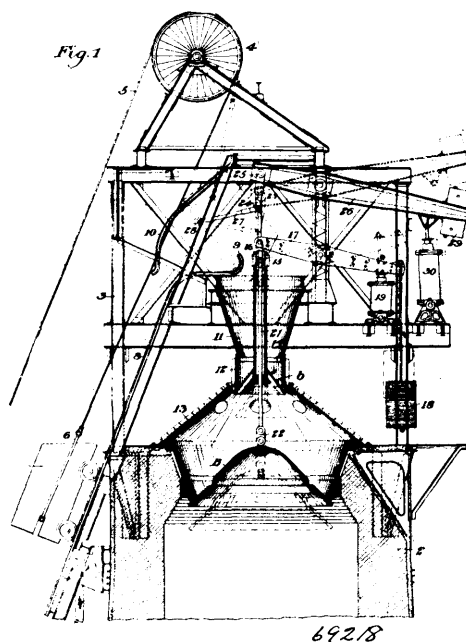


The Verity Plough Company, assignee of Melroy J. Miller, all of Brantford, Ontario, Canada, 2nd November, 1900; 6 years. (Filed 10th October, 1900.)

Claim.—1st. In a disc plough, the combination with the frame, wheels, and disc suitably disposed and journaled in the frame, of a horizontally disposed disc located within and to the rear of the main ploughing disc and means for suitably securing it to the frame, as

and for the purpose specified. 2nd. In a disc plough, the combination with the frame, wheels, and disc suitably disposed and journaled in the frame, of a horizontally disposed disc located within and to the rear of the main ploughing disc, a coulter suitably held on the frame and extending over the front of the latter disc and suitable bearings for such disc secured to the rear of the coulter, as and for the purpose specified. 3rd. In a disc plough, the combination with the frame, wheels, and disc suitably disposed and journaled in the frame, of a coulter suitably secured to the frame in a substantially vertical position, a disc provided with an upwardly extending vertical shaft and suitable supporting bearings secured to the rear of the coulter supporting the shaft in position and allowing of the rotation of the disc, as and for the purpose specified. 4th. In a device of the class described, the combination with the coulter, of a sleeve provided with a flange bolts for securing the flange to the coulter, a disc provided with a suitable hub at the upper side extending into a cup at the bottom of the sleeve, the shaft and nut on the top of the shaft for securing it from vertical displacement within the sleeve, as and for the purpose specified. 5th. In a device of the class described, the combination with the coulter, of a sleeve provided with a flange, bolts for securing the flange to the coulter, a disc provided with a suitable hub at the upper side extending into a cup at the bottom of the sleeve, the shaft and nut on the top of the shaft for securing it from vertical displacement within the sleeve and a cap surmounting the top of the sleeve and suitably connected thereto, as and for the purpose specified.

No. 69,218. Blast Furnace. (Haut fourneau.)



The Carnegie Steel Company, Pittsburg, Pennsylvania, assignee of Edwin Elmer Slick, Braddock, Pennsylvania, U.S.A., 2nd November, 1900; 6 years. (Filed 20th February, 1900.)

Claim.—1st. The combination with a blast furnace having at its upper end a main charging hopper and bell, of a supplemental hopper supported above the main hopper and having an inwardly converging side, a throat at the lower end of the supplemental hopper into which the material drops from the converging side of the supplemental hopper, said throat being at least substantially as wide at its mouth at its upper end, and of smaller cross sectional area than the main hopper, a bell seated against the lower end of the throat, a track leading to the supplemental hopper, and a skip movable upon the track and arranged to discharge the material upon the inclined converging side of the upper hopper, substantially as described. 2nd. The combination with a blast furnace having at its upper end a main charging hopper and bell, of a supplemental hopper supported above the main hopper and having an inwardly converging side, a throat at the lower end of the supplemental hopper into which the material drops from the converging side of the supplemental hopper, said throat having at least substantially great an area at its mouth as at its upper end, and of smaller cross sectional area than the main hopper, a bell seated against the lower end of the throat, mechanism for operating both bells, a track leading to the supplemental hopper, and a skip movable upon the track and arranged to discharge the material upon the inclined converging side of the upper hopper, substantially as described. 3rd. The com-