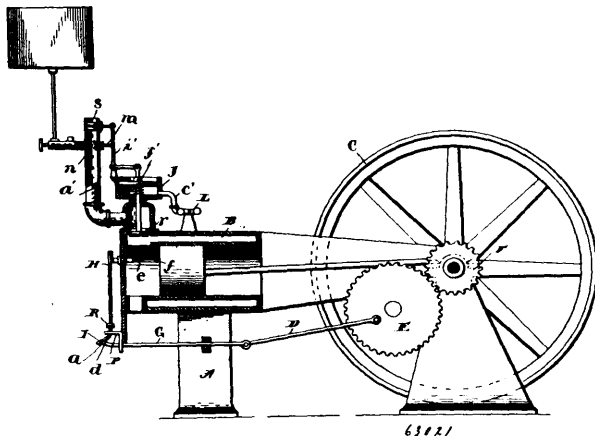


Claim.—1st. The combination with a pen-stock, having a series of vertical ports, controllable independently, of a wheel mounted below said pen-stock, said wheel having a series of vanes removably connected to the periphery thereof, and a band or rim removably connected to said vanes, said vanes being arranged to receive the impact of the water passed from said ports, substantially as described. 2nd. The combination with a pen-stock, having a series of vertical ports, controllable independently, of a wheel mounted below said pen-stock, said wheel having a series of vanes extending below the lower plane of said wheel, and a band or rim removably connected to said vane, said vanes being arranged to receive the impact of the water passed from said ports, substantially as described. 3rd. The combination with a pen-stock, having a series of vertical ports, controllable independently, of a support located below said pen-stock, a wheel pivotally mounted on said support, vanes removably connected to the periphery of said wheel, said vanes extending to a point below the top plane of said support, and a band or rim removably connected to said vanes, said vanes being arranged to receive the water passed from said ports, substantially as described. 4th. The combination with a pen-stock, of a turbine water wheel arranged thereunder, a support located below said wheel, and anti-frictional devices located between said wheel and said support, said devices being arranged in juxtaposition to the vanes of the wheel, substantially as described. 5th. In a turbine water wheel the combination with a support, of a wheel rotating on said support, and anti-friction devices, located in a raceway formed in said support and wheel, said raceway being formed contiguous to the vanes of the wheel, whereby the impact of the water on the vanes will be borne by said devices, substantially as described.

No. 63,021. Explosive Engine. (Machine explosive.)

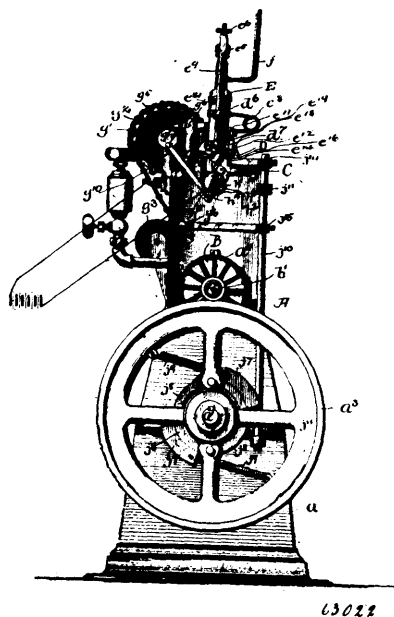


Alexander Winton, Cleveland, Ohio, U.S.A., 4th May, 1899; 6 years. (Filed 16th May, 1898.)

Claim.—1st. An electric sparker comprising contact points, a rod as H connected with and adapted to move one of the contacts, the lower end of the rod having its end turned laterally to form an inclined plane and a groove upon its inclined surface and an endwise moving rod adapted to engage said groove, the parts adapted to co-operate as described. 2nd. A governor for explosive engines comprising a fluid-feed, a valve *n* for regulating the same, a diaphragm or piston adapted to control the valve, a pump actuated by the engine and in combination with the said diaphragm or piston, a governor, an escape situated in the communication between the pump and the diaphragm or piston, and a governor operating a valve adapted to close the escape in either direction of movement, substantially as described. 3rd. An electric sparker comprising two contacts one movable in relation to the other, a spring normally holding the contacts out of engagement, an arm rigidly connected to one of the contacts, a rod H having one end pivoted to the said rigid arm, and its opposite end carrying a cam-surface and an endwise moving rod actuated by the engine and engaging the said cam-surface and having a movement beyond the same, whereby the rod H is released, substantially as described. 4th. An electric sparker comprising two contacts, one carried by an oscillating shaft, an arm connected with the projecting end of the shaft, a spring actuated rod H having one end flexibly connected with the said arm and its opposite end moving in a guide limiting its downward and lateral movements, an endwise moving rod actuated by the engine, and a cam-surface co-acting between the endwise moving rod and the spring actuated rod H for moving the latter upward against the tension of the spring and causing the contacts to engage, the cam-surface being constructed to engage the endwise moving rod and thereby separate the contacts, substantially as described. 5th. An electric sparker comprising two contacts one movable in relation to the other, a cam-surface operatively connected with the movable contact, the cam-surface having a groove ending in an incline, and

movable laterally, and an endwise moving rod actuated by the engine and engaging the groove, the movement of the rod being beyond the groove to engage the incline of the surface, thus permitting the incline or cam-surface to move downward and laterally out of engagement with the rod to permit the rod to be again withdrawn, substantially as described. 6th. A governor for explosive engines comprising an explosive inlet port, a valve controlling the same, a pressure actuated member controlling the valve, a pressure-producing device, a communication between the pressure producing device and the pressure actuated member, an escape opening regulating the pressure upon the pressure actuated member, a valve at each side of said escape opening, and a governor controlling said valves, substantially as described. 7th. A governor for explosive engines comprising an explosive inlet port, a valve controlling the same, a pressure actuated member controlling said valve, a pressure-producing device, a communication between the pressure producing device and the pressure controlled member, an escape opening controlling the pressure on said pressure actuated member, a governor, a double acting controller for said escape controlled by the governor, whereby the movement in either direction of the governor to its limit will close said escape opening, substantially as described. 8th. An electric sparker comprising two contacts one movable in relation to the other, a spring normally holding the contacts out of engagement, a rod H positively connected at one end with the movable contact and provided at its opposite end with a cam-surface, and an endwise moving rod G engaging said cam-surface for moving the rod H endwise, said rod G being operatively connected with the engine, substantially as described. 9th. An electric sparker comprising two contacts, one movable in relation to the other, a rod positively connected with the movable contact, a rod positively connected with and operated by the engine relatively to the contact rod, one of said rods being provided with a cam-surface engaged by the other rod, said cam surface through the movement of the engine actuated rod causing the contacts to engage, said cam-surface constructed to release the contact rod, and a spring normally holding the contacts separated, substantially as described. 10th. An electric sparker comprising two contacts, one movable in relation to the other, an endwise moving spring actuated rod positively connected at one end with the movable contact, the opposite end of the rod having a lateral movement, a spring actuating the free end of the rod laterally in one direction, an endwise moving rod actuated by the engine, one of the rods having a cam surface, said cam-surface constructed to move its rod endwise and laterally by engagement with the free end of the other rod, substantially as described.

No. 63,022. Engine. (Machine à vapeur.)



Paul Lair, Lothbiniere, Quebec, Canada, 4th May, 1899; 6 years. (Filed 16th December, 1897.)

Claim.—1st. In a vapour engine, the combination with an extension having a vapour forming chamber, of a top having an opening, a plunger in said opening, a valved inlet for the oil, said inlet being regulated by the back pressure developed in said opening, and means for actuating said plunger in a regulated intermittent manner. 2nd. In a vapour engine, the combination with an extension, having a vapour forming chamber, of a top having an opening, a plunger in said opening, an inlet for the oil, and means, actuated by the movement of the engine for regulating the length of stroke of said plunger, whereby the oil will be passed from said opening in