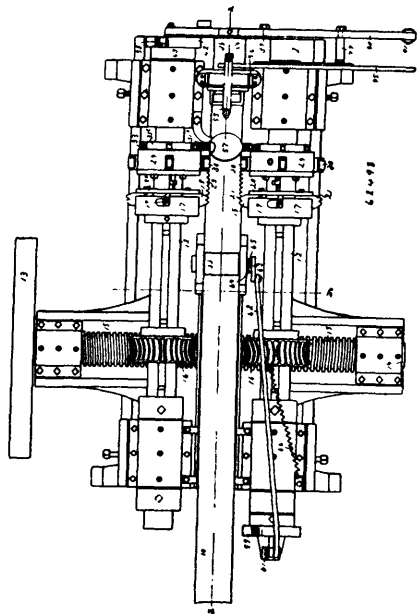


gear for steam engines, the combination of a valve, a means for producing a primary reciprocating motion, a modifying eccentric operating between said primary motion and said valve and means for connecting said eccentric to said valve, whereby a modified movement is imparted to the said valve, substantially as described. 15th. In a valve gear for steam engines the combination of a valve, means for imparting motion to said valve, a modifying eccentric operating between said means and said valve, a means for rotating said eccentric upon its axis, means for laterally oscillating said axis simultaneously with action of rotation, resulting in a compound motion and means for imparting to said valve, latter said motion, whereby the velocity of valve travel is accelerated at one point and retarded at another, substantially as set forth. 16th. In a valve gear for steam engines the combination of a valve, primary means for imparting motion to said valve, a modifying eccentric placed between said means and said valve, means for rotating said eccentric upon its axis and means for laterally oscillating said modifying eccentric across its axis accelerating the travel at the beginnings and endings of the valve motion and retarding at the intermediate portion of valve travel, as set forth and described. 17th. In gears for slide valves of steam engines the combination of a valve, suitable means for imparting motion to said valve, an eccentric between said means and said valve means for connecting said eccentric to said valve, suitable means for rotating said eccentric alternately in opposite directions, for the purpose of increasing and diminishing the velocity of said valve at certain portions of travel, as shown. 18th. In a motion for slide valves of steam engines, the combination with a slide valve, means whereby an accelerated motion is imparted to said valve at the beginnings and endings of its stroke and whereby the velocity of said valve is retarded at and during the intermediate portions of its stroke. 19th. In a gear for slide valves of steam engines the combinations of a primary or main eccentric, a rocker-arm operated by said eccentric, a modifying eccentric mounted rotatively in said rocker-arm, a toothed pinion secured to said modifying eccentric, means for connecting said valve to said modifying eccentric, a toothed sector mounted movably on said arm, a secondary or auxiliary eccentric adapted to operate said sector simultaneously in directions opposite from movements of said rocker arm. 20th. In a valve gear for engines, the combination with a cylinder provided with ports for the admission and exhaust for actuating fluid, a valve controlling said ports, and a piston in said cylinder, of a primary valve gear, connection between the piston and primary valve gear for operating the said gear, a controlling or modifying device connected to the valve and means for causing said controlling or modifying device to oppose the movement of the primary gear until the resultant retarded motion acting upon the valve causes the latter to dwell after the close of admission and before the close of exhaust during each stroke of the piston, substantially as described. 21st. In a valve gear for engines, the combinations with a cylinder provided with admission and exhaust ports for the actuating fluid, a valve for controlling said ports, a piston in said cylinder, of a primary valve gear, connection between the piston and primary gear for operating the same, a controlling or modifying eccentric device connected with the valve and connections between said eccentric device and primary gear, so disposed as to cause the eccentric device to oppose the movement of the primary gear until the resultant retarded motion imparted to the valve causes said valve to dwell after the close of admission and before the close of the exhaust during each stroke of the piston, substantially as described. 22nd. In a valve gear for engines, the combination with a cylinder provided with admission and exhaust ports for the actuating fluid, a valve for controlling said ports, and a piston in said cylinder, of a primary valve-gear, connections between said primary valve gear, and pretext for operating said gear, an auxiliary eccentric carried by and moving with said primary gear and connected to the valve, and means for giving said eccentric a motion of rotation alternately in opposite directions, and so disposed as to compel the resultant motion of the opposing movement of the auxiliary eccentric to cause the valve to dwell after the close of admission and before the close of the exhaust during each stroke of the piston, substantially as described. 23rd. In a valve-gear for engines, the combination with a cylinder provided with ports for admission and exhaust of the actuating fluid, a valve for controlling said ports, and a piston in said cylinder, a main eccentric operated by the movements of the piston, a rocker-arm connected to and operated by said eccentric, an auxiliary or modifying eccentric connected to said rocker arm and to the valve, with means intermediate of said eccentric and auxiliary eccentric for causing the auxiliary eccentric to alternately act in conjunction with and oppose the motion of the main eccentric, whereby the valve is caused to move quickly in opening and closing the admission and exhaust and move slowly until it dwells after the close of admission and before the close of exhaust, substantially as described. 24th. In a valve gear for engines, the combination with a cylinder provided with suitable ports, a valve for controlling said ports, a piston and shaft connected with the same, of a main eccentric on said shaft, a rocker arm operated by said main eccentric, an auxiliary eccentric connected with the rocker arm, so as to vibrate therewith but free to rotate, in either direction, a segmental rack, and a pinion operated thereby and connected to the auxiliary eccentric, and a link connecting said auxiliary eccentric with the valve, whereby the rate of travel of the valve is alternately accelerated and retarded according as the main eccentric and auxiliary eccentric act in the same or

opposite directions so that the valve is caused to dwell or stop just after the close of admission and just before the close of exhaust, substantially as described. 25th. In a valve gear for steam engines, the combination with a distributing valve, a modifying eccentric, a rod connecting said eccentric and said main valve, of a rocker arm, an eccentric shaft carried by said rocker arm, a pinion on said shaft, a segment pivoted on said rocker-arm and meshing with said pinion, and means for oscillating said rocker arm and said segment, whereby the valve is caused to dwell or stop just after the close of admission and just before the close of exhaust, during each stroke of the piston. 26th. In a valve gear for steam engines, the combination with a distributing valve, a modifying eccentric, a rod connecting said eccentric to the valve, of a rocker arm, a shaft on which the eccentric is mounted and carried by said rocker arm, a pinion of said shaft, a segment pivoted on said rocker arm and meshing with said pinion, and means for oscillating said rocker arm and said segment in opposite directions, whereby the valve is caused to dwell just after the close of admission and just before the close of exhaust, during each stroke of the piston. 27th. In a valve gear for steam engines, the combination with a distributing valve, a main eccentric, a modifying eccentric and a rod connecting said valve and said modifying eccentric, of a rocker arm, a shaft on which the eccentric is mounted carried by said rocker-arm, a pinion on said shaft, a segment rack pivoted on the rocker-arm and meshing with said pinion, and suitable connecting rods connecting said rocker arm and said segment to the main eccentric to oscillate said rocker arm and said segment simultaneously in opposite directions, whereby the valve is caused to dwell or stop just after the close of admission and just before the close of exhaust, during each stroke of the piston, substantially as set forth. 28th. In a valve gear for steam engines, the combination with a cylinder provided with ports for the admission and exhaust of actuating fluid, a piston in said cylinder, and a valve controlling said ports, of a valve-operating mechanism connected with the valve, and connections between said valve-operating mechanism and the piston, said valve-operating mechanism and connections being so disposed and timed with respect to the movements of the piston that a differential movement is imparted to the valve, comprising quick motions to open and close the admission and exhaust and motions retarded until the valve is caused to dwell or stop just after the close of admission and before the close of exhaust, all during each stroke of the piston.

No. 62,498. Machine for Making Seal Retaining Staples. (Machine pour faire des crampons.)



Max E. Biersach, Milwaukee, Wisconsin, U.S.A., 1st February, 1899; 6 years. (Filed 29th August, 1898.)

Claim.—1st. A machine for making seal retaining staples, comprising a bed, one or more shafts supported at the sides thereof, a set of feed rollers arranged to feed strips of material intermittently over the bed, and a set of operating tools actuated from said shaft or shafts and adapted to serrate the edges of the material, bend down the points or teeth of the serrated edges, and to separate the material transversely, substantially for the purpose set forth. 2nd. A machine for making seal retaining staples, comprising a bed, one or more shafts supported at the sides thereof, a set of feed rollers arranged to feed strips of material intermittently over the bed, and a set of operating tools actuated from said shaft or shafts and adapted