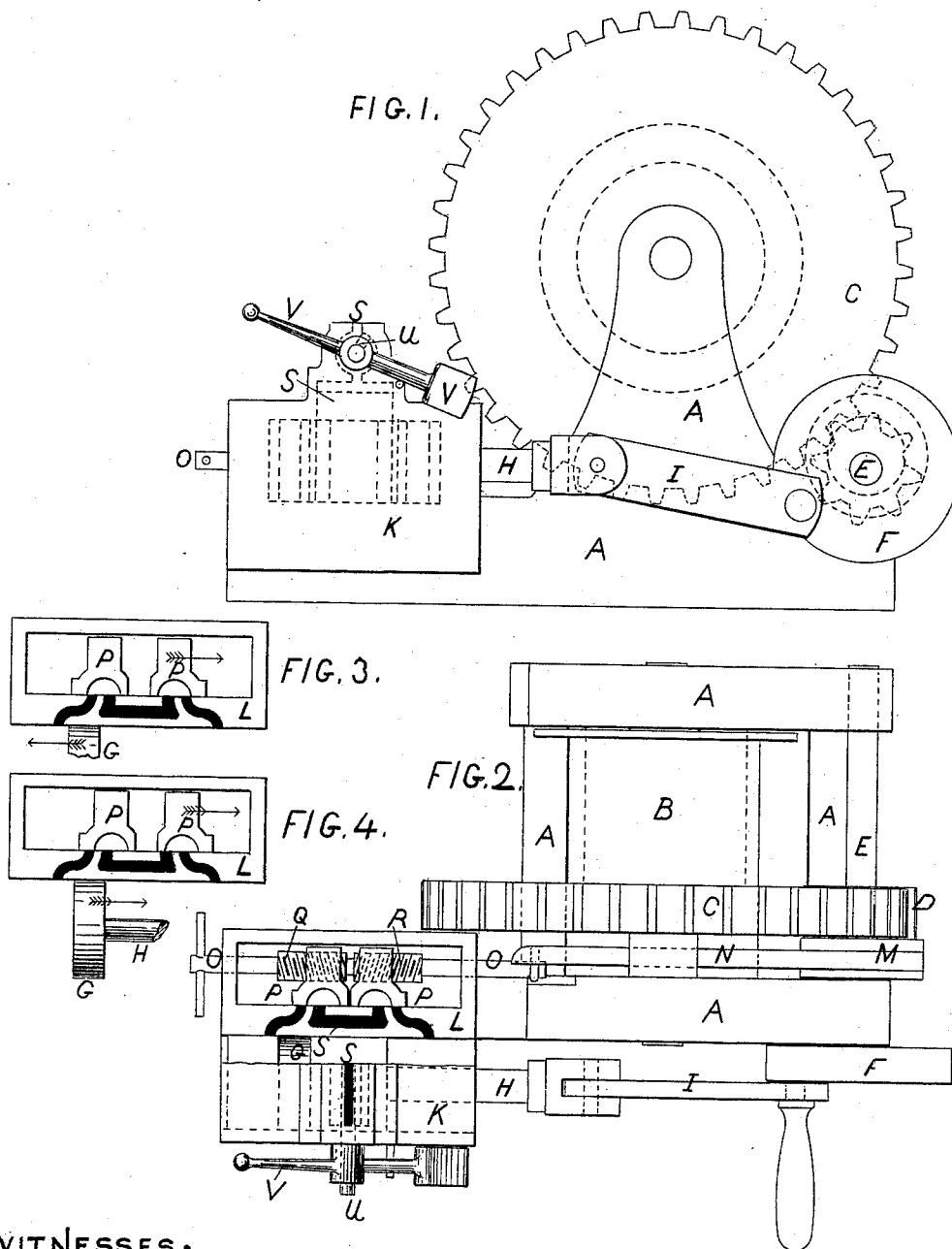


(No Model.)

P. CRAMER.
VALVE FOR STEAM WINCHES.

No. 463,140.

Patented Nov. 17, 1891.



WITNESSES.

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VALVE FOR STEAM-WINCHES.

SPECIFICATION forming part of Letters Patent No. 463,140, dated November 17, 1891.

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To all whom it may concern:

Be it known that I, PHILIPP CRAMER, a citizen of the Kingdom of Bavaria, having made my first declaration to become a citizen of the United States, residing at Montreal, in the Dominion of Canada, have invented certain Improvements in Valves for Steam-Winches of the Kind which are Worked by One Steam-Cylinder Only, of which the following is a specification.

Exhaust-steam throttling has heretofore been applied for braking or retarding the action of a piston in the cylinders of hoisting-engines. A steam-winch embodying my complete invention includes, in combination with an exhaust-pipe and throttle-valve, a cylinder provided with valves and valve-ports so organized that the engine-crank can freely pass its centers under the back pull of a load, as when lowering, because the said valves and exhaust-ports are constructed and organized in accordance with another portion of my invention, which includes, in combination with a steam-cylinder, two sets of steam and exhaust ports upon the valve-seat and two valves, the exhaust-cavities of which are longer than usual, and the positions of which are controlled by a right-and-left screw upon the valve-rod in a manner that turning or rotating the rod will change the relative positions of valves and ports. The object of this part of my invention is to enable lowering with the winch without the use of an expensive friction-clutch or additional brake-band. I attain this favorable result by appropriately varying the relative positions of the two slide-valves, and thereby placing both ends of the cylinder into variable communication because of the variable closure of the ports of the valves, thus dispersing the pressure of a cushion and allowing the crank to pass the centers of its travel freely when under back pull from the load.

In the drawings, Figure 1 is a side elevation of a steam-winch embodying my invention. Fig. 2 is a plan of the same. Figs. 3 and 4 are plans of the parts of my machine, which illustrate the action in the steam-chest.

Similar letters refer to similar parts throughout the several views.

A is the frame of the winch, of which one side is sufficiently lengthened to receive the engine.

B is the drum; C, the big gear-wheel; D, the pinion; E, the crank-shaft; F, the crank-wheel; G, the piston; H, the piston-rod; I, the connecting-rod; K, the cylinder; L, the steam-chest; M, the eccentric; N, the eccentric-rod; O, the valve-rod; P P, the valves; Q the right and R the left screw upon the oppositely-threaded rotative valve-rod; S, the general exhaust; U, the valve controlling the general exhaust, which, acting under counterweight upon its lever, is supposed to keep the exhaust automatically open, as shown in Fig. 1.

In Fig. 2 the valves are shown in their natural central position for forward motion.

In Fig. 3 the valves are drawn apart in their central position so as to bring each steam-port into communication with its exhaust-port, and the exhaust-ports afterward running into one general exhaust communication exists between both ends of the cylinder, preventing a cushion, which would prevent the crank passing a center of its travel. The crank, therefore, can give way to the back pull of the load, or, in short, one can lower with the winch without use of friction or brake.

In Fig. 4 the piston has passed the end of its oscillation and moves in the same direction as the valves, of which one, however, has stopped the free communication between the cylinder ends, and thus cushions will be formed between the centers of the crank-travel to prevent a too free motion of the piston, and as the strength of these cushions can be controlled by adjusting the valves less or more apart the lowering, also, can be controlled.

What I claim, and desire to secure by Letters Patent, is—

1. In a steam-winch, the combination, with the steam-cylinder, of two connected exhaust-ports, an exhaust-throttle valve controlled by a lever, and a pair of valves which co-operate with said exhaust-ports and are connected by a readily rotative valve-rod provided with an oppositely-threaded screw for promptly varying the positions of said

valves with relation to each other and to said exhaust-ports, as and for the purposes specified.

2. The combination, with the cylinder of a
5 steam-winch, of two connected exhaust-ports and two valves which are provided with lengthened exhaust-cavities, are coupled together by a reversely-screw-threaded rotative

valve-rod, and are adapted to be variably operated by the rotation of said rod, substantially as and for the purposes specified.

PHILIPP CRAMER.

Witnesses:

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