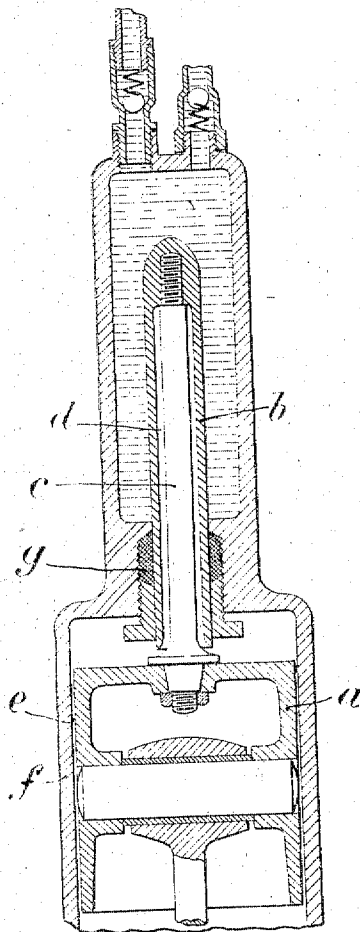


R. ESNAULT-PELTERIE.
PISTON FOR HYDRAULIC PUMPS.
APPLICATION FILED OCT. 12, 1917.

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1,254,784.



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ROBERT ESNAULT-PELTERIE, OF PARIS, FRANCE.

PISTON FOR HYDRAULIC PUMPS.

1,254,784.

Specification of Letters Patent.

Patented Jan. 29, 1918.

Application filed October 12, 1917. Serial No. 196,314.

To all whom it may concern:

Be it known that I, ROBERT ESNAULT-PELTERIE, a citizen of the Republic of France, residing at 11 Rue de Milan, Paris, Seine, in the Republic of France, have invented certain new and useful Improvements in Pistons for Hydraulic Pumps, of which the following is a specification.

The present invention relates to an improved piston for a high pressure hydraulic pump.

In a hydraulic pump producing considerable power, the pressure attains such a value that the diameter of the piston is too small to receive the lower end of the connecting rod internally and in consequence one is led to make use of a piston crosshead of much larger dimensions than the piston itself, inside which it will be feasible to lodge the lower end of the connecting rod.

Even under these conditions it is not permissible to allow the piston to have any play in its packing, since it is necessary to obviate leakage, on the contrary it is necessary for the cross head to have a certain amount of play in its guide, since it must not seize.

It follows from this necessity of giving the cross-head some play that when the piston and cross-head are at the beginning of their power stroke, the thrust of cross-head connecting rod or pitman is such that the cross-head becomes, by wear, slightly eccentric with respect to the pump cylinder, and there results a lateral stress on the piston packing prejudicial to the preservation thereof and capable of becoming so excessive as to seize. This would occur even in the case, not realizable in practice, in which the bore of the pump cylinder and that of the cross-head guide are rigorously concentric.

The object of the present invention is to obviate this disadvantage.

To this end the crosshead *a* instead of receiving the lower part of the piston *b* directly carries a rod *c*, which enters the said

hollow piston with clearance *d* slightly greater than clearance *e* of the crosshead *a* in its guide *f*, the said rod *c* being connected to the said piston only at its upper extremity.

It is quite obvious, that in consequence of the slight transverse flexibility of the rod *c* in question, the piston *b* has the power always to remain centered in its packing *g*, notwithstanding the clearance *e* which the crosshead *a* must necessarily have in its guide *f*.

In the accompanying drawing, the clearances *d* and *e* have been intentionally exaggerated to facilitate comprehension. The piston illustrated is of the plunger type, but it goes without saying that the present invention is identically applicable to any other type of piston.

What is claimed is—

1. A high pressure pump comprising a piston and a cross-head, said cross-head having a width relatively great as regards the diameter of the piston, said piston having greater transverse freedom with respect to the cross-head than the transverse clearance of said cross-head to its guide.

2. A high pressure pump according to claim 1, said piston having a recess in its underside and said cross head having a rod thereon connected to said piston within said recess, said rod having the clearance in said recess necessary to allow said greater transverse freedom of the piston with respect to the cross-head.

3. A high pressure pump according to claim 1, said cross-head having a rod thereon connected to said piston, said rod having the clearance necessary to allow said greater transverse freedom of the piston with respect to the cross-head.

In testimony whereof I affix my signature in presence of two witnesses.

ROBERT ESNAULT-PELTERIE.

Witnesses:

CHAS. P. PRESSLY,
HENRI CARTIER.