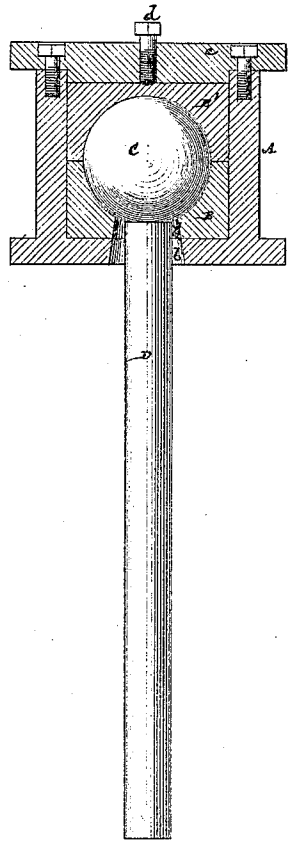
H. F. Pease,

Piston.

No. 102,703. Patented May 3. 1870.



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HART F. PEASE, OF BROOKLYN, NEW YORK.

Letters Patent No. 102,703, *dated May* 3, 1870.

IMPROVEMENT IN PISTON CONNECTIONS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, HART F. PEASE, of Brooklyn, in the county of Kings and State of New York, have invented a new and useful Improvement in Piston Connections, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing forming part of this specification, and which represents a sectional view of my improved piston connection taken in direction of the length of the rod.

While generally applicable to engines and pumps of various kinds, it is more particularly my intention to apply the improved piston connection I am about to describe to the engine invented by Henry Bailey, as patented March 9, 1867, also January 21, 1868.

It is not necessary here, however, to describe it, other than as a piston connection in which the rod is required to have vibratory play as it is reciprocated, in order to accommodate itself to the various angles assumed by the crank.

My invention consists in a certain means for effecting the adjustment of a ball-and-socket connection of the rod with its piston.

Referring to the accompanying drawing—

A represents the piston, which is of a hollow cylindrical construction on its inside, to receive within it half boxes B B′ of like contour to the interior of the piston, and fitted so as to be capable of sliding and turning within the same, the axial lines of said half boxes being coincident with that of the piston.

These half boxes B B′ are of cupped configuration internally, so as to form sockets for a ball, C, or spherical termination to the inner end of the piston-rod D, that thus establishes a universal-joint connection with the piston at or about the middle of its length.

The front half box B, may butt up against the forward end of the piston, and is formed with a free opening, *b*, through it, mainly of oblong character, to provide for the easy play and vibratory motion of the rod D through it in its connection with the crank, the forward end of the piston having a similar opening, *b′*, through it for the like purpose.

The other or rear half box B′, is made adjustable in direction of its length to provide for wear of the ball-and-socket joint or piston connection. This is effected by means of a set-screw, *d*, fitted into or through the follower *c*, as by such arrangement the same may be got at, and the necessary adjustment effected by or through a small bonnet fitted into the end of the cylinder, which prevents the taking off of the cover to the latter for the purpose.

By the central arrangement of the ball-and-socket joint, relatively both to the length and diameter of the piston and freedom of the half boxes to turn within the latter, there is not merely a most perfect universal self-adjustment secured for the piston-rod, to accommodate itself alike to the motion of the crank, and to meet any lateral, twisting, or irregular play of or strain on said rod, but the stress upon the piston coming at its center, both longitudinally and diametrically does away with or reduces racking and objectionable tipping of the piston within its cylinder. A piston connection thus established, materially aids the free run of the engine, and conduces to its economy and durability.

The half boxes or sockets may be suitably grooved, to provide for the lubrication of the joint by the steam or fluid passing through the openings *b b′* through which the piston-rod plays.

I do not claim a ball-and-socket connection of the pitman with the piston, *per se*, as that has been done in a different manner, and differently arranged from mine, but

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

The adjustment of the cylindrical half sockets B B′ within the piston A by means of the set-screw *d*, as herein shown and described.

HART F. PEASE.

Witnesses:

JOHN D. ROSSET,

HENRY PALMER.