

(No Model.)

C. P. DEANE.
STEAM PUMPING ENGINE.

No. 288,214.

Patented Nov. 13, 1883.

Fig. 3.

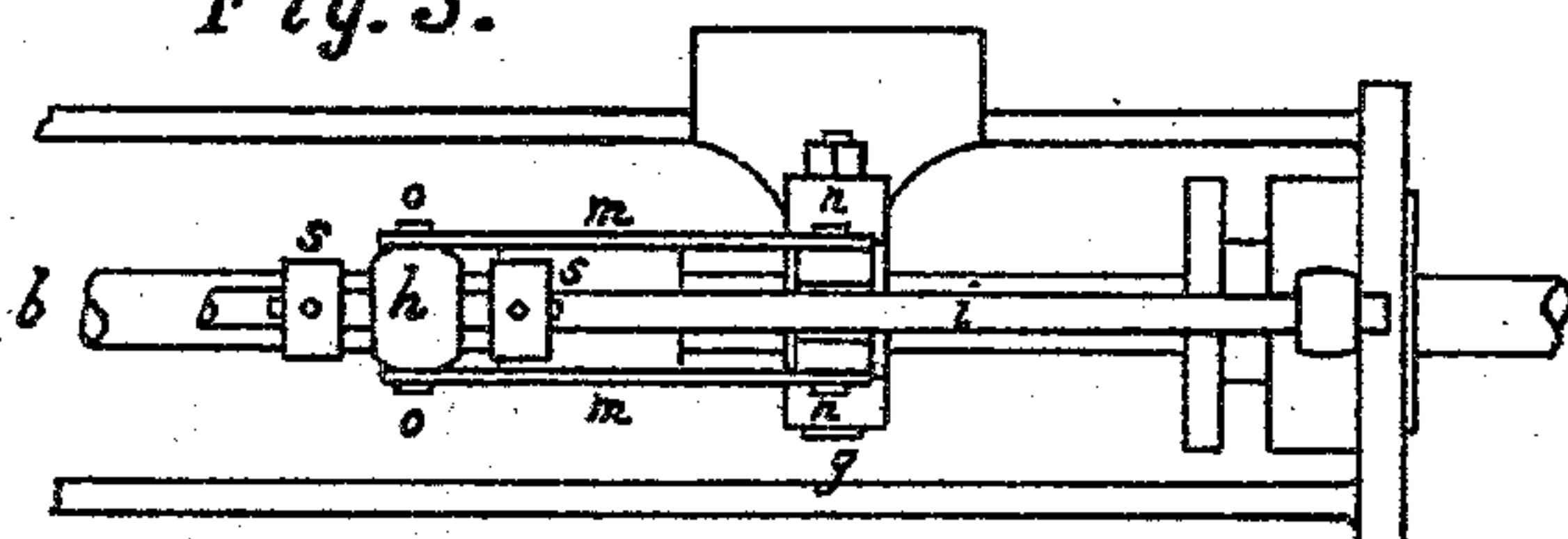


Fig. 2.

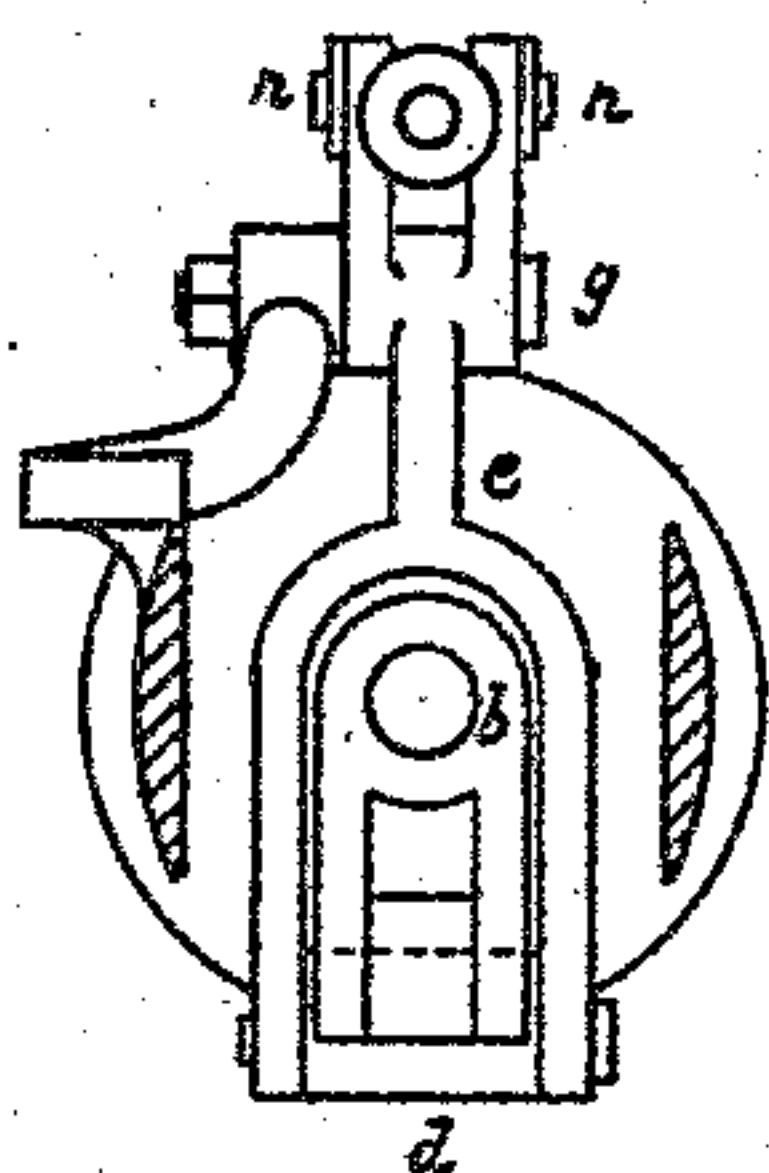


Fig. 4.



Fig. 5.

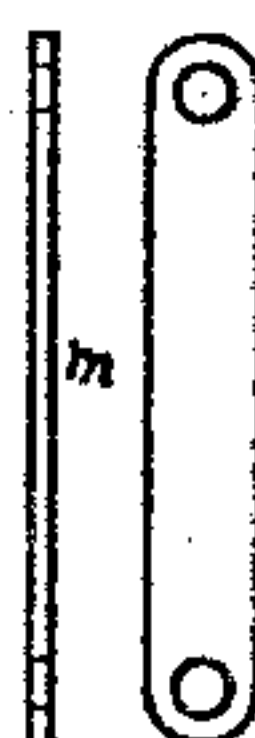


Fig. 6.

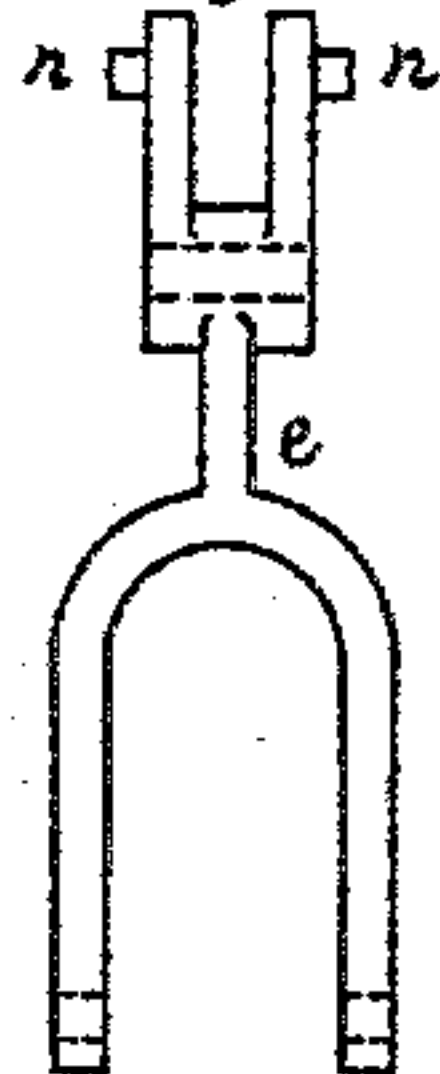


Fig. 7.

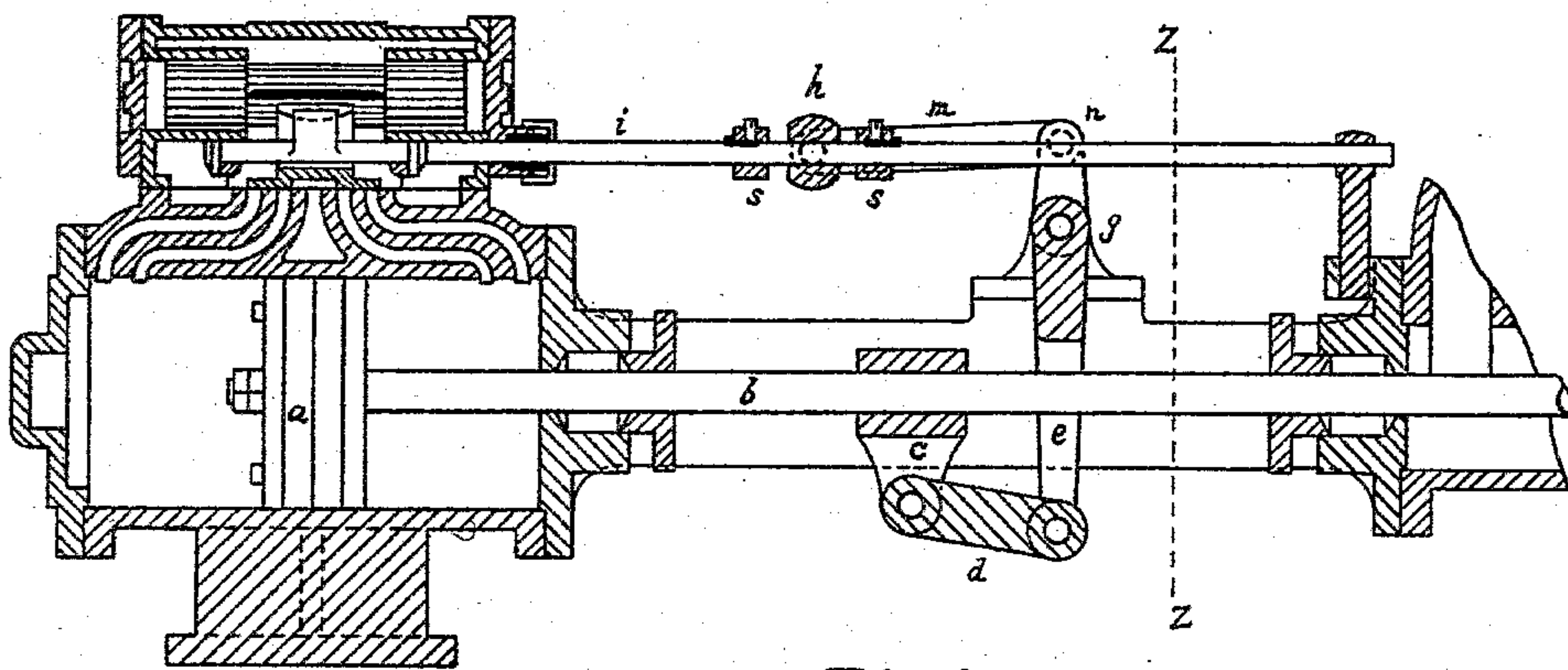


Fig. 1.

Witnesses

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STEAM PUMPING-ENGINE.

SPECIFICATION forming part of Letters Patent No. 288,214, dated November 13, 1883.

Application filed September 1, 1883. (No model.)

To all whom it may concern:

Be it known that I, CHARLES P. DEANE, a citizen of the United States, residing at Springfield, in the county of Hampden and State of Massachusetts, have invented an Improvement in Steam Pumping-Engines, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof.

My invention relates to the valve-gear of the engine in direct-acting steam-pumps; and its object is to provide improved mechanism for operating the valve by means of a lever moved by the engine.

Figure 1 of the drawings is a vertical longitudinal section of a steam-pump in which my device is shown as applied; Fig. 2, a cross-section on the dotted line $z z$; Fig. 3, a plan view, exhibiting parts to which my invention relates; and Figs. 4, 5, 6, and 7, detail views of parts, shown also in Figs. 1 and 3, and there indicated by the same letters.

The construction and operation of a steam-pump in general is not material to my invention, and, being well understood, need not be here described. Of course, as shown in Fig. 1, the reciprocating movement of the main piston a communicates, through the rod b , collar c , and link d , a corresponding movement to the valve-actuating lever e .

Hitherto in steam-pumps where a tappet sliding upon the valve-rod has been employed in connection with a lever the construction and arrangement have been such that the action of the lever upon the tappet has been not merely an oblique, but necessarily a wrenching and binding one. This will be understood by supposing the fulcrum of the lever e in Fig. 1 placed at m , instead of at g , as shown; and by supposing the stock of the tappet h increased downward to a level with g , and the end of this extension connected by a link with the lever at g . Under this arrangement, as will be obvious, the necessary effect of the action of the lever upon the tappet, when effectively engaged, will be to wrench

its bearing-surface out of parallelism with the rod, and thus to make it pinch where it is important it should move without friction. This effect is wholly avoided by my invention, which I now describe.

In my device the short arm of the lever e , as shown in Figs. 1, 2, and 6 of the drawings, is bifurcated, allowing the valve-rod i to pass between its branches, whereon are two pivots, $n n$, upon which, and upon the pivots $o o$, carried by the sliding tappet h , are mounted the two connecting-pieces $m m$. (Shown in Figs. 3 and 5.) It will be seen that by this arrangement the effects above referred to will be avoided, since the power communicated by the lever, whose fulcrum is at g , is applied to the tappet at points central to it and to the valve-rod, and when the tappet is effectively engaged the position of the lever will be such that the direction of its action will be nearly in a line with the rod.

As giving an easy and central action to the whole, I employ in my device a lever, e , whose long as well as short arm is forked, as shown in Figs. 1, 2, and 3, the piston-rod working between the branches.

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

1. In a steam-pump, the combination, with the valve-moving lever e , the short arm thereof being forked and carrying the two pivots $n n$, as described, of the connecting-pieces $m m$, the tappet h , carrying the two pivots $o o$, and the collars $s s$, attached to the valve-rod i , all so arranged that while the valve is being moved the connecting-pieces will be nearly in a line with the rod.

2. In combination with the valve-rod i , collars s , sliding tappet h , and pivots n , a lever, e , whose long arm is forked and connected with the piston-rod, substantially as and for the purpose described.

CHARLES P. DEANE.

Witnesses:

L. E. BELLOWS,
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