

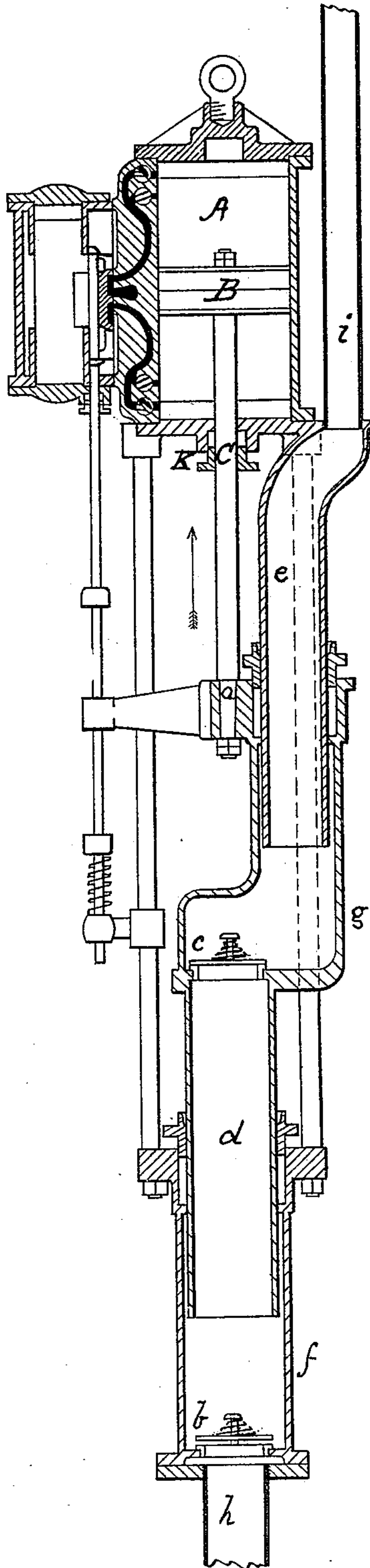
(No Model.)

C. P. DEANE.

STEAM PUMP.

No. 248,718.

Patented Oct. 25, 1881.



WITNESSES.—

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STEAM-PUMP.

SPECIFICATION forming part of Letters Patent No. 248,718, dated October 25, 1881.

Application filed July 15, 1881. (No model.)

To all whom it may concern:

Be it known that I, CHARLES P. DEANE, a citizen of the United States, residing in Springfield, in the county of Hampden and State of Massachusetts, have invented a new and useful Improvement in Double-Plunger Steam-Pumps for Mining Purposes, of which the following is a specification, reference being had to the accompanying drawing, forming a part thereof.

The drawing is a longitudinal central and vertical section of the entire machine with my improvement incorporated.

My invention relates to an improved arrangement of some of the main parts of the pump proper with respect to other parts and the driving-engine; and its object is to render the machine as a whole more compact and convenient than heretofore, by materially reducing its length, at the same time preserving all the advantages of the previous arrangement.

That my invention therein may be made plain, I will briefly refer to the general arrangement and operation of the machine as a whole.

A, B, and C denote, respectively, (in the drawing,) the cylinder, piston, and piston-rod of the driving-engine, which is connected with the pump proper at *a*. The pump consists substantially of two valves, *b* and *c*, and two hollow plungers, *d* and *e*, with their cylinders or barrels *f* and *g*. Of the plungers, *d* is movable and has double the area of *e*, which is fixed, being moved upon by its barrel *g*, attached to and moving with plunger *d*. The water raised through pipe *h* and valve *b* into barrel *f* by the upward movement of plunger *d* is, by its downward movement, forced upward through the plunger and the valve *c* into barrel *g*, and half of it, owing to the inferior capacity of this barrel, through plunger *e* and the delivery-pipe *i*. On the succeeding stroke, plunger *d* and barrel *g* moving upward, the contents of the latter are displaced by plunger *e* and forced through it and the delivery-pipe, as before.

Now, my improvement consists, chiefly, in materially reducing the length of the machine as a whole, by placing the plunger *e* and its barrel *g* out of or aside from a direct line between the steam-piston B and plunger *d*, and substantially as shown in the drawing, whereby

a central piston-rod, as C, instead of being connected with the pump at some point above the head of plunger *e*, can be carried down, as shown, by the side of this plunger and its barrel *g*, and have a lower connection, and still outside, as at *a*, by which arrangement the machine as a whole is shortened to the extent of not less than the length of one stroke of the engine—an important matter in pumps of this description—while at the same time easy access to the working parts, and especially to the immediate connection of the working parts of the engine with those of the pump, is fully preserved, and the direct, continuous, and easy upward movement of the water is practically undisturbed.

Machines similar to this in general character have been constructed in which a reduction of length is effected without placing any of the parts out of line, as described. In these the smaller plunger and barrel, as *e* and *g*, are, with respect to those shown in the drawing, inverted both in position and operation, the former being attached to the head of the large plunger *d* and moving with it, while its barrel *g* is fixed, and so placed that its farther or upper end is at a distance from the steam-cylinder A only sufficient for the manipulation of the stuffing-box *k*, and the piston-rod C is carried through this barrel, and through the hollow in its plunger, to the large plunger *d*, where the connection is made. This plan, it will be perceived, necessitates a stuffing-box where the piston-rod C enters the barrel *g*, as stated, and the connection of the engine with the pump is on the inside, while in mine no additional stuffing-box is required, and the connection is on the outside and as convenient as can be desired.

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

The combination, substantially as shown, of the piston-rod C, having an outside connection with the pump, with the upper plunger, *e*, and its barrel *g* placed out of the direct line between the steam-piston and lower plunger, and by the side of said piston-rod, substantially as and for the purpose described.

CHARLES P. DEANE.

Witnesses:

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