(No Model.) 3 Sheets—Sheet 1.

J. C. BUTTERFIELD.

MORTAR FOR STAMP MILLS.

No. 285,391. Patented Sept. 25, 1883.

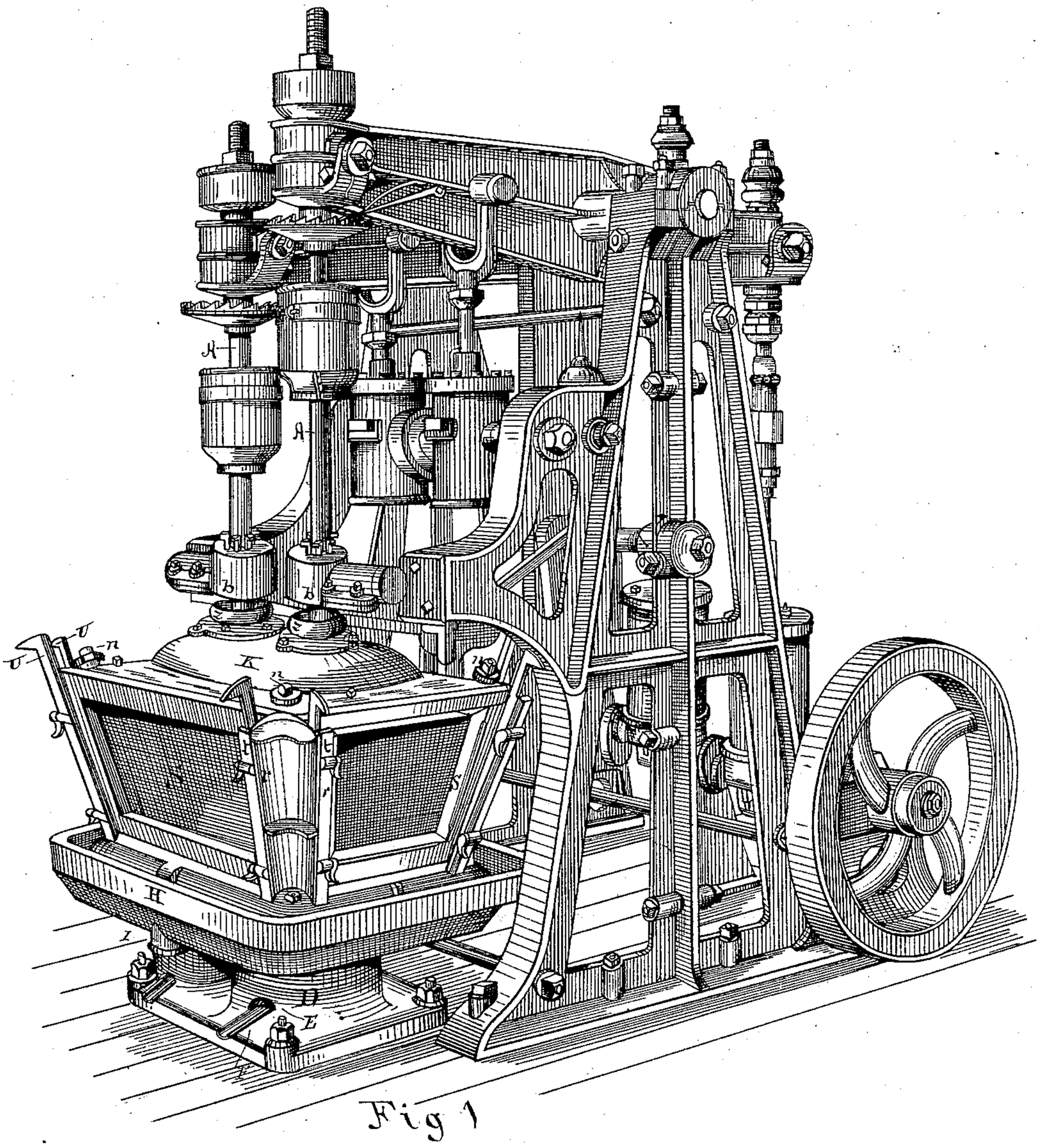

Fig 1

Witnesses:

J. Curtis Turner

Aug. S. Jordan

Inventor:

John C. Butterfield.

By R. D. C. Smith

His Attorney.

(No Model.) 3 Sheets—Sheet 2.

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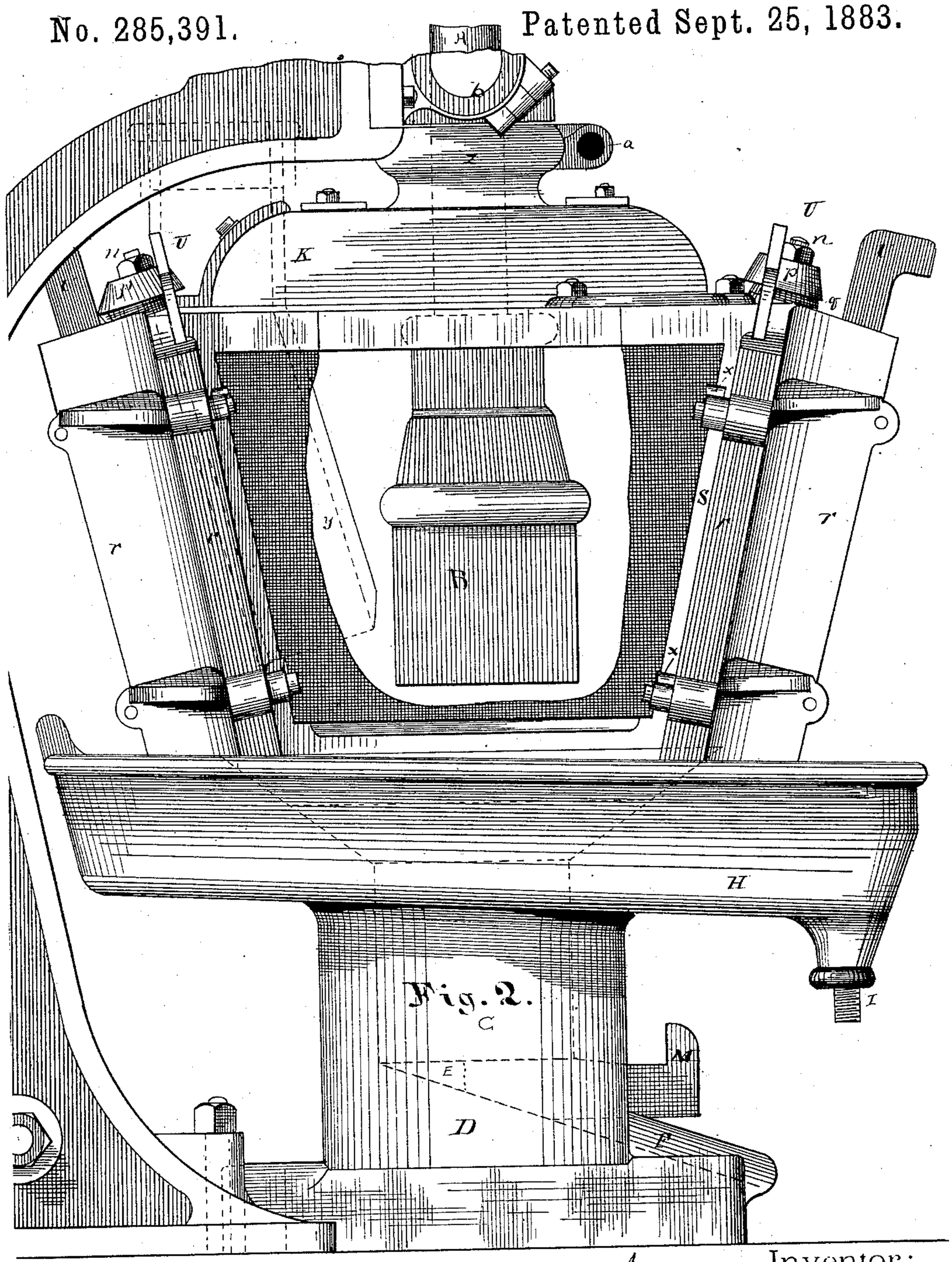

Fig. 2.

Witnesses:
J. Curtis Turner
Aug. S. Sordan

Inventor:
John C. Butterfield
By R. D. Smith
his Attorney.

(No Model.)

3 Sheets—Sheet 3.

J. C. BUTTERFIELD.

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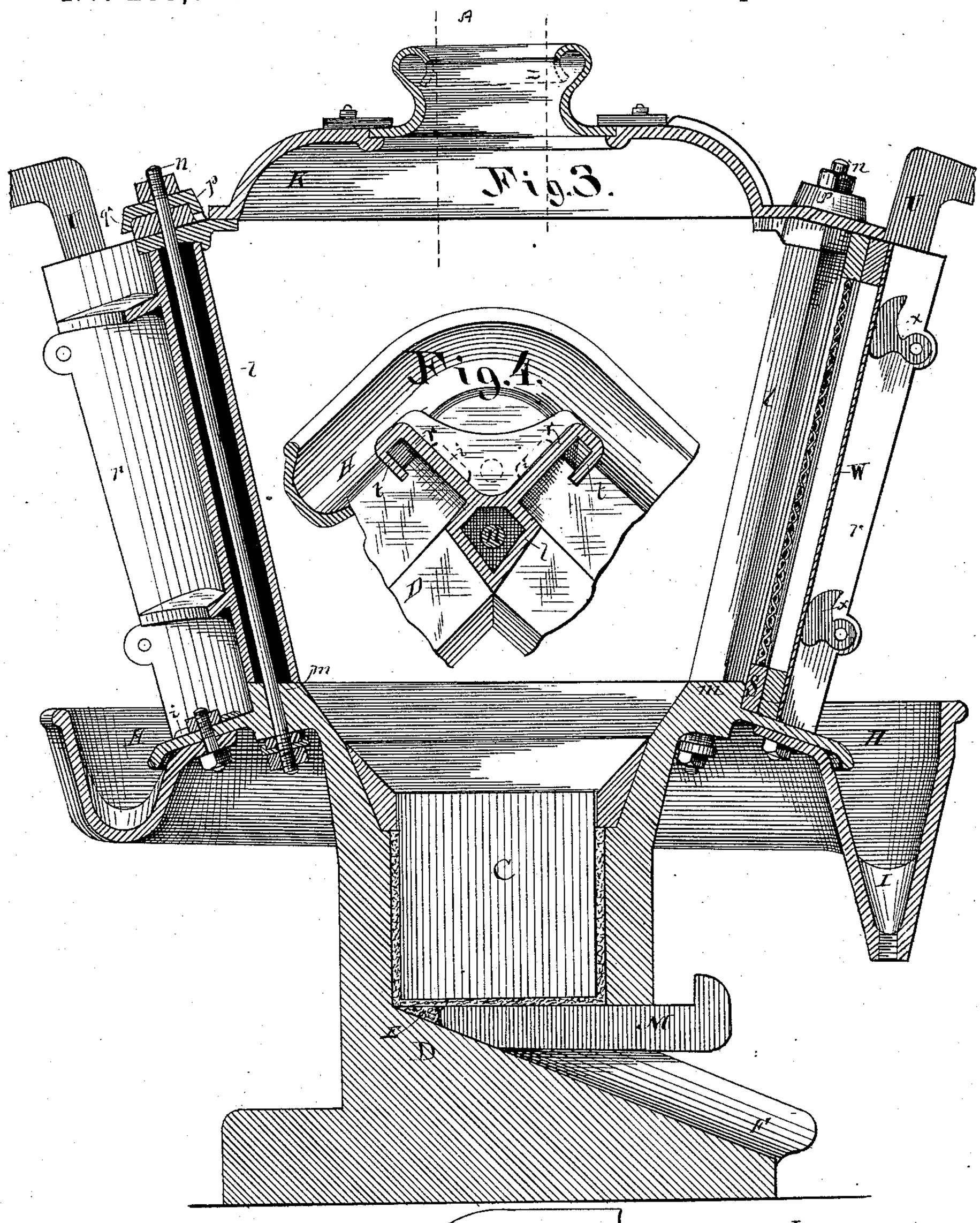

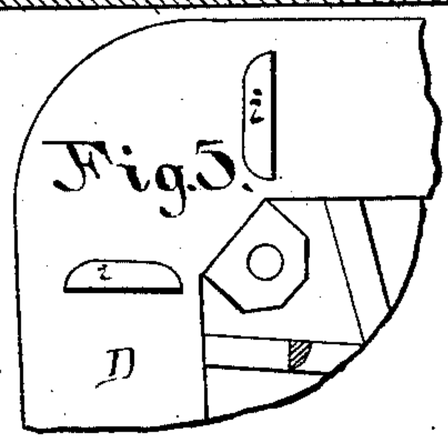

Witnesses:
J. Curtis Turner.
Aug. S. Jordan

Inventor:
John C. Butterfield
By R. D. O'Smith
his Attorney.

UNITED STATES PATENT OFFICE.

JOHN C. BUTTERFIELD, OF CHICAGO, ILLINOIS.

MORTAR FOR STAMP-MILLS.

SPECIFICATION forming part of Letters Patent No. 285,391, dated September 25, 1883.

Application filed May 17, 1883. (No model.)

To all whom it may concern:

Be it known that I, JOHN C. BUTTERFIELD, of Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Mortars for Stamp-Mills; and I do hereby declare that the following is a full and accurate description of the same.

That others may fully understand these improvements, I will particularly describe them, having reference to the accompanying drawings, wherein—

Figure 1 is a perspective view of my double stamp-mill. Fig. 2 is a side elevation of the mortar with screen in section. Fig. 3 is a vertical section through one corner and side of mortar and screen. Fig. 4 is a horizontal section of one of the corner-posts. Fig. 5 is a plan of the corner of flange-plate.

A is the stamp-rod, which may be actuated by any proper mechanism, and B is the stamp attached to the lower end of said rod.

C is the die, loosely set in a cell made in the bed-block D, said block being usually of cast-iron and supported upon a suitable foundation.

In the drawings the stamp is shown in connection with and operated by the atmospheric machine for which Letters Patent Nos. 176,400 and 230,611 have been granted to me; but it is to be understood that my improvement set forth herein is entirely independent of said machinery, and that therefore I do not propose to limit myself to the means for actuating the stamps shown in said patents.

The die C is set loosely in its cell and bedded in sand in the ordinary way. As its surface is worn away, it becomes necessary occasionally to raise it up, and it is also desirable to remove the sand bedding from time to time to recover the precious metals which work down into the same. I therefore make a groove, E, in the bed-block at the bottom of the cell, and extend the same out through the front of said bed-block and terminate it in a pitcher, lip, or spout, F. A lifting-bar may be inserted within said groove E, to raise the die C out of its cell sufficiently far to enable the attendants to grapple and lift it entirely out, or to permit a thorough washing of the sand and slime out of the cell and from the sides of the same. While the die is in use, the groove E is stopped with a plug, M. When the surface of the die has been worn away, its level may be restored by placing under it a plate of iron, and this may be repeated as often as necessary until the die has been worn so thin as to be no longer serviceable. The plates may then be removed and a new die substituted.

The bed-block D is provided with a surrounding-trough, H, which it is convenient to cast separate from said block and attach by bolts. This trough passes entirely around the upper margin of the bed-block, and its bottom surface is arranged to drain toward an outlet-spout, I, from which the slime is conducted away to the apparatus for further treatment.

The bed-block D is surmounted by a screen-frame composed of corner pieces or posts and a cap-plate or cover, K, and these parts are designed to fit together and be united by corner bolts, so as to give the greatest security and firmness of union. Each post consists, essentially, of a hollow part, *l*, having a lozenge-shaped cross-section. This part *l* extends the whole length of the screen-frame and constitutes the post proper. Its top and bottom surfaces are inclined to the direction of the sides, so as to permit the post to stand with an outward inclination to make the top of the screen-frame larger than the bottom. The lower end of the post *l* stands upon the upper flange, *m*, of the bed-block D, and the corner of the cover-plate K rests upon its upper end. The whole is firmly tied together at the corners by the bolts *n*, which pass down through the cover, the hollow posts *l*, and through the flange *m*, and are secured by nuts at each end.

Beneath the upper nut I have placed a cup-shaped plate, *p*, and washer *q*, of leather or india-rubber, for the purpose of preventing displacement of said nut by the concussion of the stamp-blows upon the die C. This latter precaution, however, may not always be deemed necessary. To render the parts at the corner immovable when the bolt is tightened up, socket-ribs *i* are cast upon the base-plate in proper position.

From the advance or outer corners of each post *l* two longitudinal flanges, *r*, extend at right angles to each other. Then when the several corner-posts are in place the several flanges *r* constitute perpendicular and parallel mar-

ginal flanges extending outwardly, as shown, to receive the edges of the screen-frames S.

At the outer edge of each of the flanges *r* there is a marginal hook or returning-flange, *t*, forming a recess or groove for the taper key U, which is used to wedge the edge of the screen-frame S firmly against the face of the post *l*, and therefore hold it securely in place.

Outside of the screens S, I place removable cover-plates W, which may be amalgamated on their inner surfaces to prevent loss of the fine ore which passes through the meshes of the screen. As these cover-plates will require frequent removal for cleansing, I secure them in place by the cam-latches *x*, which are pivoted to the sides of the flanges *r*. The cover-plate K has suitable openings for the passage of the stamp rod or rods A and for the feed-chute *y*. On said plate, surrounding each stamp-rod opening, I place a funnel-shaped cup, *z*, the upper edge of which is turned over inwardly, so as to form an overhanging hollow flange, and on one side of said cup, close under said flange, I make an inlet, *a*, for water, so arranged that the water shall enter the cup *z* in a horizontal direction, or thereabout, and in a line tangential to the inner periphery under said flange; or the flange may be carried over so far (see dotted lines, Fig. 3) as to constitute a hollow water-conduit, from which the water may be discharged in converging streams covering the inner surface of the cup. I prefer, however, the tangential discharge, as being less liable to obstruction. The effect of this is to cause the water to flow down the inner surface of the funnel *z* and pour on all sides of the stamp-rod as it moves up and down, so as to keep it washed clean of slime, and the surface being kept wet with water at a point so high as the funnel *z*, which is immediately below the guide-box *b*, said box is thereby constantly lubricated.

Having described my invention, what I claim as new is—

1. In combination with the flanged bed-block provided with the ribs *i* and the cover-plate, the hollow lozenge-shaped corner-posts *l*, each provided with the hooking-flanges *r t*, fitted to engage with said ribs *i*, and the tie-rods *n*, as set forth.

2. A mortar for stamp-mills, consisting of a base-block, D, provided with a die, C, hollow corner-posts *l*, provided with flanges *r* and hooks *t*, cover-plate K, and bolts *n*, combined with the screen-frames S and taper keys U, substantially as set forth.

3. A mortar for stamp-mills, consisting of a bed-block, D, provided with a die, C, a cover-plate, K, and corner-posts *l*, provided with flanges *r t*, and cam-latches *x*, bound together by the bolts *n*, and combined with the screen-frames S, taper keys U, and cover-frames W, substantially for the purpose set forth.

4. The mortar for a stamp-mill, provided with a cover-plate, K, having a funnel-shaped cup mounted thereon, surrounding the stamp-rod, and a water-inlet, combined with a stamp-rod, and a guide-box for the same, located close down upon or near to said funnel-shaped cup, whereby the water poured upon said stamp-rod from said cup will clean said rod and lubricate said box, substantially as set forth.

JOHN C. BUTTERFIELD.

Witnesses:
R. D. O. SMITH,
J. C. TURNER.