(Model.)

A. HALL.

PUG MILL.

No. 264,875. Patented Sept. 26, 1882.

Fig. 1.

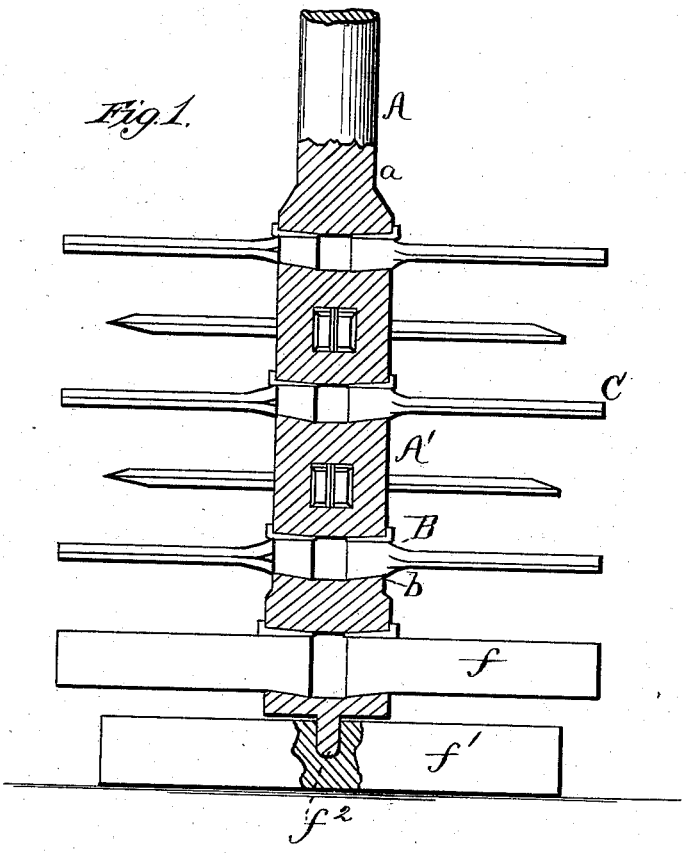


Fig. 2.

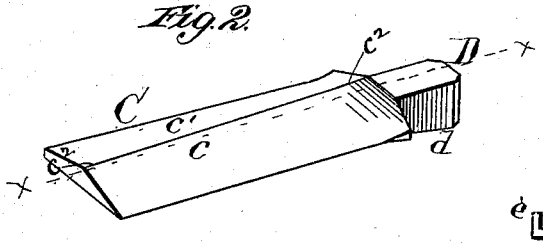
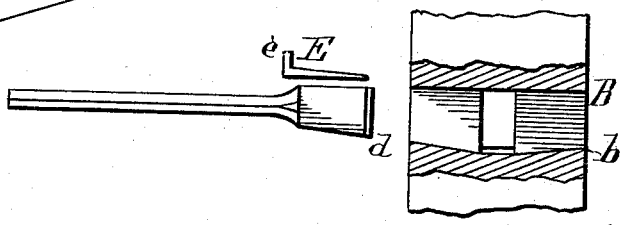


Fig. 3.



Witnesses.
J. N. Campbell
S. D. Williamson

Inventor.
Alfred Hall,
by R. S. & A. P. Lacey
Attorney.

UNITED STATES PATENT OFFICE.

ALFRED HALL, OF PERTH AMBOY, NEW JERSEY.

PUG-MILL.

SPECIFICATION forming part of Letters Patent No. 264,875, dated September 26, 1882.

Application filed April 15, 1881. Renewed March 24, 1882. (Model.)

To all whom it may concern:

Be it known that I, ALFRED HALL, a citizen of the United States, residing at Perth Amboy, in the county of Middlesex and State of New Jersey, have invented certain new and useful Improvements in Pug-Mills; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters or figures of reference marked thereon, which form a part of this specification.

My invention relates to a device which operates in a cylinder in the manufacture of brick, terra-cotta, pottery, and all work or articles where clay, plaster-of-paris, or the like have to be brought into a homogeneous and uniform condition to form brick, pottery, or other articles of earthenware; and the novelty consists in the construction and arrangement of parts in regard to vertical revolving shaft and the blades or knives, as will be more fully hereinafter set forth, and specifically pointed out in the claims.

The invention is fully illustrated in the accompanying drawings.

Figure 1 is a vertical central section; Fig. 2, a perspective detail of one of the arms or knives; Fig. 3, details of the parts separated, showing their relative formation.

In machines of this kind it has been customary to employ knives, pressers, and muddlers of different and various constructions, and they have been secured to a vertical revolving shaft in various ways.

This invention consists in a peculiar blade or arm (shown in perspective in Fig. 2) and a shaft having a special and peculiar mortise, into which the said arm or knife is secured.

A is the vertical shaft, to be placed in any suitable cylinder for holding the material to be operated upon. It is supported in position by the framing, so that it can be readily revolved. It has formed in it a series of cross or horizontal mortises, B, each adapted to hold the tenon D of the blade C. Each mortise B has its upper side made on a horizontal line, while its lower surface, *b*, is inclined downward from the outer end inward to or nearly to the center of the shaft, thus giving to the mortise the shape or form in its vertical width of a half-dovetail. The tenon D of the blade C is made in form corresponding to the shape of the mortise B—that is, its under face, *d*, is cut away so as to give it an upward incline from the outer end to the inner end of the blade proper, and its outer end is made of such size that it will just fit and enter snugly into the mouth or outer end of the said mortise. As the tenon is pushed farther into the mortise it drops downward on the inclined surface *b* and away from the upper side of said mortise, and leaves a space above it, into which the key E is driven. When the tenon and key are both inserted the blade will not work loose, because the inclined surface *b* and the increasing thickness of the tenon operate to give increasing force to hold the said blade against any movements tending to draw the blade outward. The material which is being acted upon by the blades will exert a pressure on the ends of the keys E and prevent them from working loose. The blade C has its under face flat or made to a horizontal plane. Its upper side is gradually thickened from the edges to a line drawn diagonally from the middle of the outer end to a point on the inner end next the tenon, midway between the middle of said blade and the rear edge.

In Fig. 2 the dotted line *x x* represents the middle line of the blade. The diagonal line c^2 c^2 is the line of greatest thickness of the blade. The blade thus formed provides an upwardly-inclined front face, *c*, which is wider at its inner end next the shaft and narrower at its outer end. The rear face, *c'*, is wider at its outer end than at its inner end. This peculiar construction of the blade gives much better results in mixing the material in the cylinder or pits. The material is sooner brought into a homogeneous mass and into the required condition for the molds.

The key E is preferably wedge shape, as shown.

f are the lower scrapers, which are provided with tenons of half-dovetailed form, and are secured in the shaft in same manner as the blades C.

In case of accidental breaking of one of the blades the broken blade can easily be removed and another unbroken one be substituted.

I aware that pug-mills have been made in which blades were employed having thin edges and thickened along a line central from the outer end to the inner end, and that blades have been employed which could be removed, when desired, from the main shaft, and that such blades have been secured in a main hollow shaft by a key and a straight tang or shank provided on its inner end with a hook which engaged on the inner side of the said hollow shaft, and I do not broadly claim such as my invention.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination, with the shaft A, having a series of mortises, B, having their under faces or sides inclined downward and inward nearly to the center of the shaft, giving a half-dovetail form thereto, of the tenons D on the blades C, made half-dovetail in form, corresponding to the form of the mortise B, and key E, substantially and for the purposes set forth.

2. In a pug-mill, the blade C, made flat on its under side, and having its upper side thickened from its edges to a diagonal line running from the middle of the outer end to a point midway between the middle of the inner end, next the vertical shaft and the rear edge, so as to provide a front beveled face gradually increasing in width from the outer to the inner end, substantially as set forth.

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

ALFRED HALL.

Witnesses:
WILLIAM HALL,
F. W. GORDON.