

No. 667,415.

Patented Feb. 5, 1901.

F. WHITE.
STAMP DIE.

(Application filed Sept. 4, 1900.)

(No Model.)

Fig. 1.

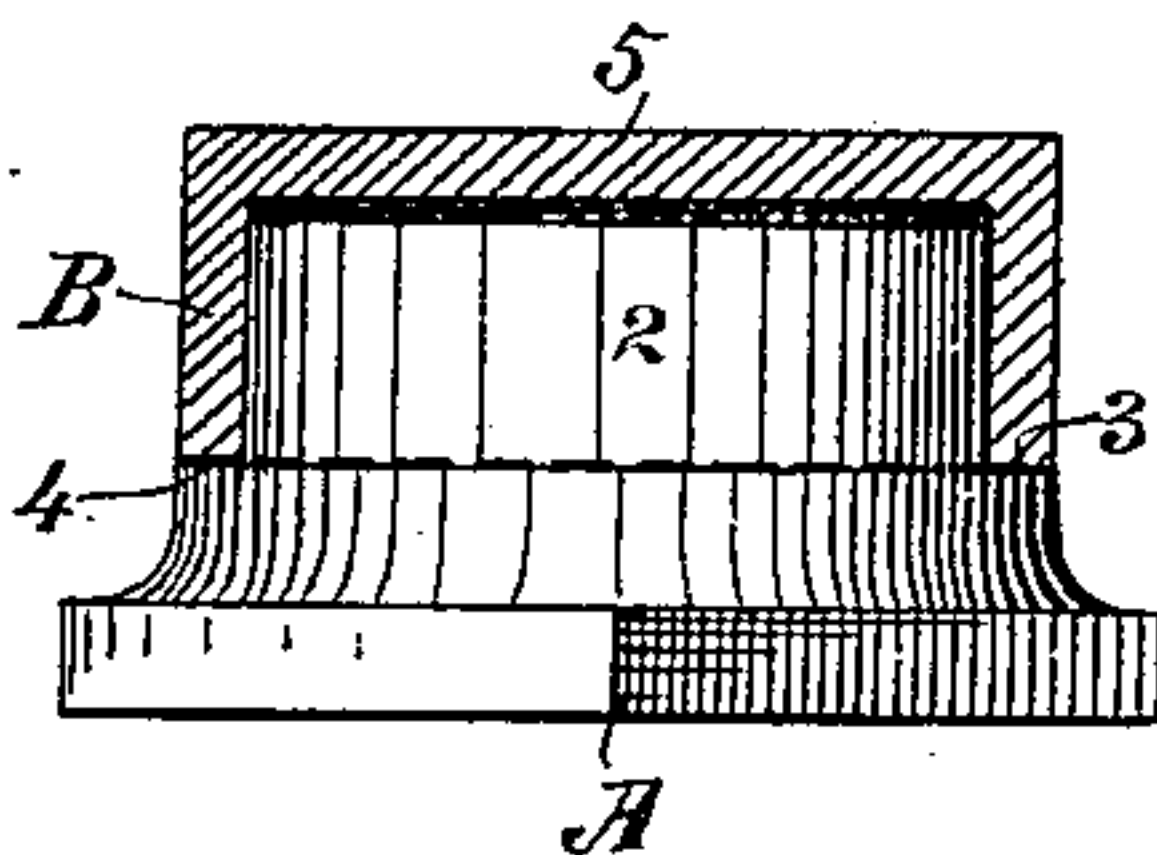
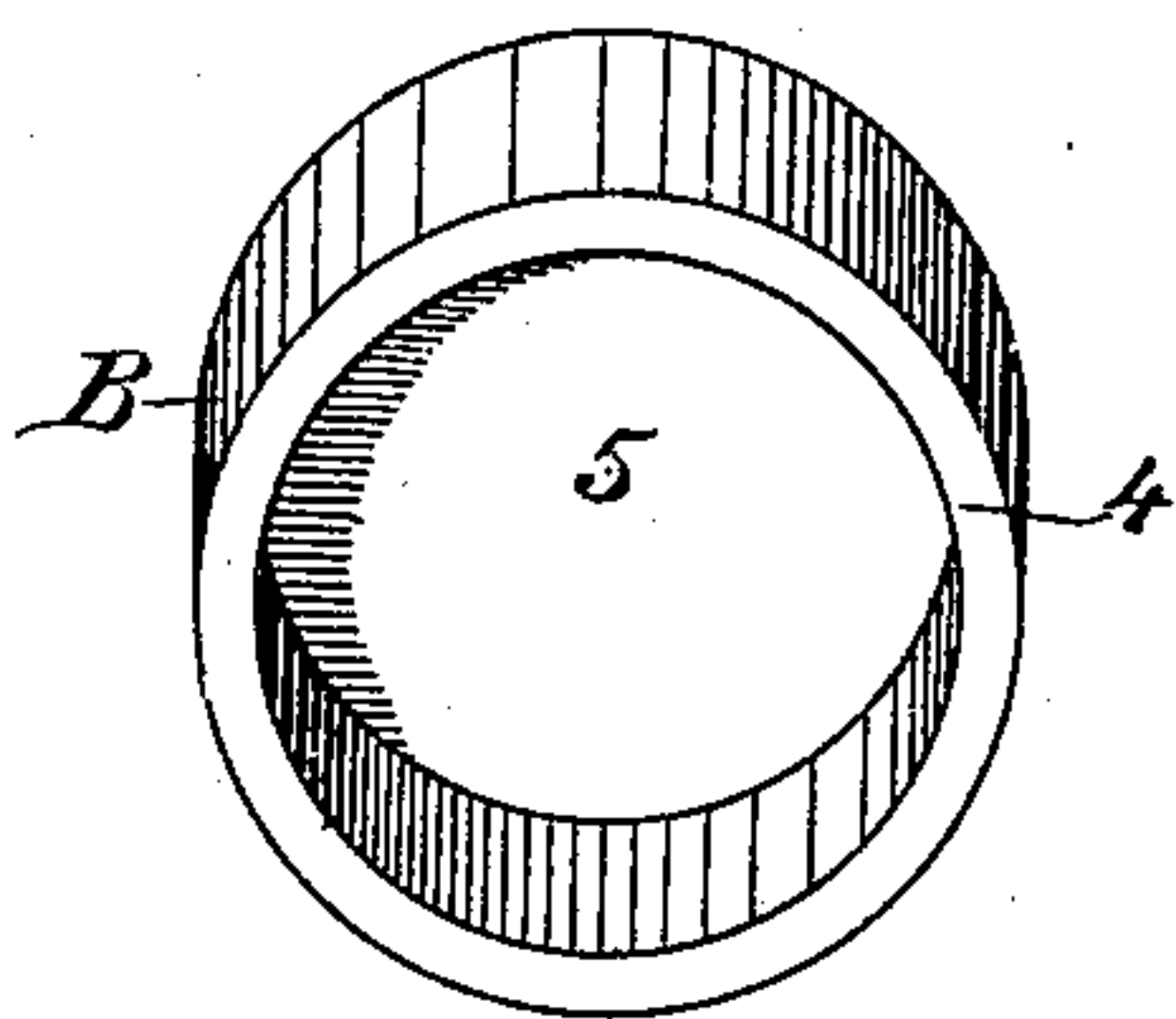


Fig. 2.



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UNITED STATES PATENT OFFICE.

FRANK WHITE, OF NEVADA CITY, CALIFORNIA.

STAMP-DIE.

SPECIFICATION forming part of Letters Patent No. 667,415, dated February 5, 1901.

Application filed September 4, 1900. Serial No. 28,930. (No model.)

To all whom it may concern:

Be it known that I, FRANK WHITE, a citizen of the United States, residing at Nevada City, county of Nevada, State of California, have invented an Improvement in Stamp-Dies; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to an improved die for quartz or other stamp crushing mills.

It consists of a metal base supporting and partly covered by a removable metal cap, and of details which will be more fully set forth in the following specification and drawings. Figure 1 is a view of the die, the cap being shown in section. Fig. 2 is a detail view of the cap.

In the bottom of the mortar-box of stamp-mills it is customary to place heavy dies or metal blocks to receive the impact of the stamp, which is alternately raised and dropped upon the material between it and the die. These dies are ordinarily seven or eight inches high and about ten inches in diameter and weigh upwards of two hundred pounds. The constant dropping of the stamps upon the hard rock interposed between these crushing-surfaces rapidly "cups" and wears away and chips the face of the die. This wear is seldom or never evenly distributed, and the crushing force of the mill is consequently impaired. The expense of replacement of the dies is too great to permit of frequent change, and accordingly a die is continued in use until often it is less than half its original height, with the resulting variation in the length of drop of the stamps. In this case the stamps and their connections of cams, &c., all require readjustment, or their wearing parts will otherwise be subjected to unusual and destructive strain. Furthermore, these solid dies must be made of metal of equal quality. This is usually steel or a very hard form of iron and is quite expensive compared with the ordinary cast-iron. Much costly material is thereby thrown to waste when a die is finally discarded.

In my invention I make the die of two parts. The base A, which is the bulkier portion, may be made of cheap iron, as no wear is to come upon it.

B is a cap fitting upon A and is made of

steel or hard iron. The top 5 of this cap is the crushing-surface of the die.

The upright portion 2 of A is cylindrical in form. About the base of 2 is a flat annular shoulder 3, upon which the edge 4 of B is adapted to rest.

Upon the top of A a thin layer of quartz-sand is placed before putting on the cap. This sand evens off any inequalities in the contacting surfaces of the castings, soon pounds or packs solidly, prevents breakage of the parts or wear of the part A, and offers a firm support for the stamp to fall upon. The parts are all held together by their weight, their shape, and by the suction of the water in which they are continually immersed.

With my device I am able to offer a practical cheap renewable die, for which there has long been a demand. With this die it is intended to renew the crushing-surface or cap B frequently—say every thirty days—as that has been found to be about the length of time during which best results can be accomplished.

It has been found that the extra amount of rock that can be treated by having new crushing-faces is more than sufficient to compensate for loss of iron discarded.

The heavier part or base of the die will not need renewing in years with ordinary care. The consequent economy in cost to the mill owner and increased efficiency of the mill becomes plainly apparent. Furthermore, as many mills are situated in places difficult of access, where everything has to be "packed" in by mules or similar means, the cost of freighting is a very considerable item. Hence as dies are continually needed for the old ones discarded the difference in the item of freight alone between a die of the ordinary type and mine is a very considerable factor in favor of the latter and in view of the foregoing.

No special form of mortar or mill is necessary for my dies.

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

1. The combination with a die having an upper extension, of a cap capable of being dropped over said extension, the flange of said cap having such vertical depth that it

incloses the said extension and forms a long bearing to properly seat the cap.

2. A stamp-die comprising a metal base having a cylindrical extension and a flat annular shoulder about the base of the extension, and a cylindrical cap of harder material adapted to fit removably over the extension on the base, and the lower edges of the cap bearing upon the said annular shoulder.

10 3. In a stamp-die, the combination of a solid metal base, a removable metal cap adapted to fit and to be retained solidly upon this base, and a packing interposed between the inner face of the cap, and the top of the base
15 whereby the unevennesses of these two sur-

faces are compensated, and the parts made to bear solidly upon each other.

4. In a stamp-die, the combination of a metal base having a central solid extension, and a hollow metal cap, fitting upon and re- 20 movable from, said extension, and a packing consisting of a thin layer of sand or finely-ground rock interposed between the top of the extension and the interior of the cap.

In witness whereof I have hereunto set my 25 hand.

FRANK WHITE.

Witnesses:

JAS. J. OTT,

JNO. WERRY.