No. 632,954. Patented Sept. 12, 1899.

H. TUTTLE.

RIFFLE PLATE FOR ORE STAMP BATTERIES.

(Application filed Apr. 12, 1898.)

(No Model.)

Fig. 1.

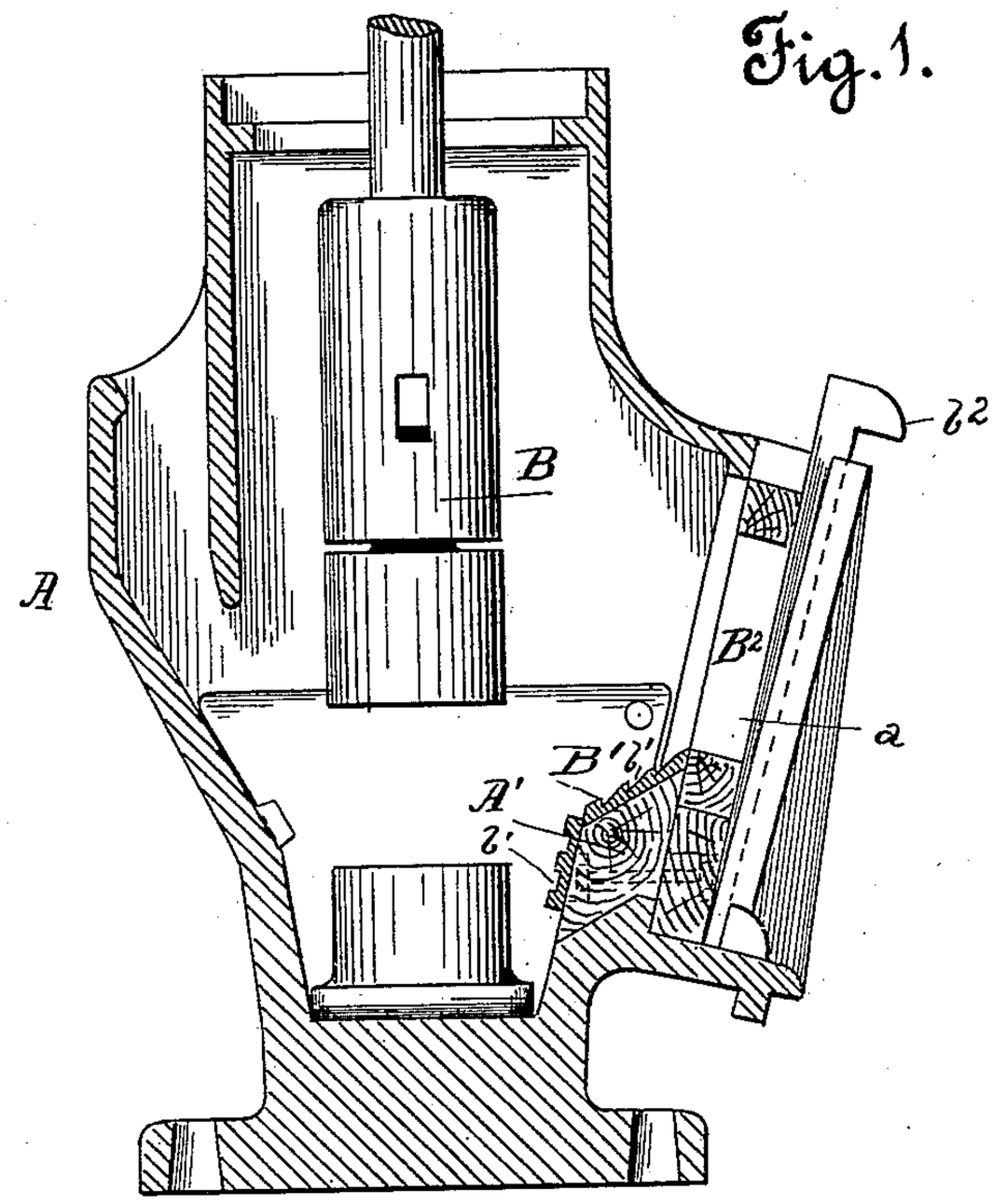

Fig. 2.

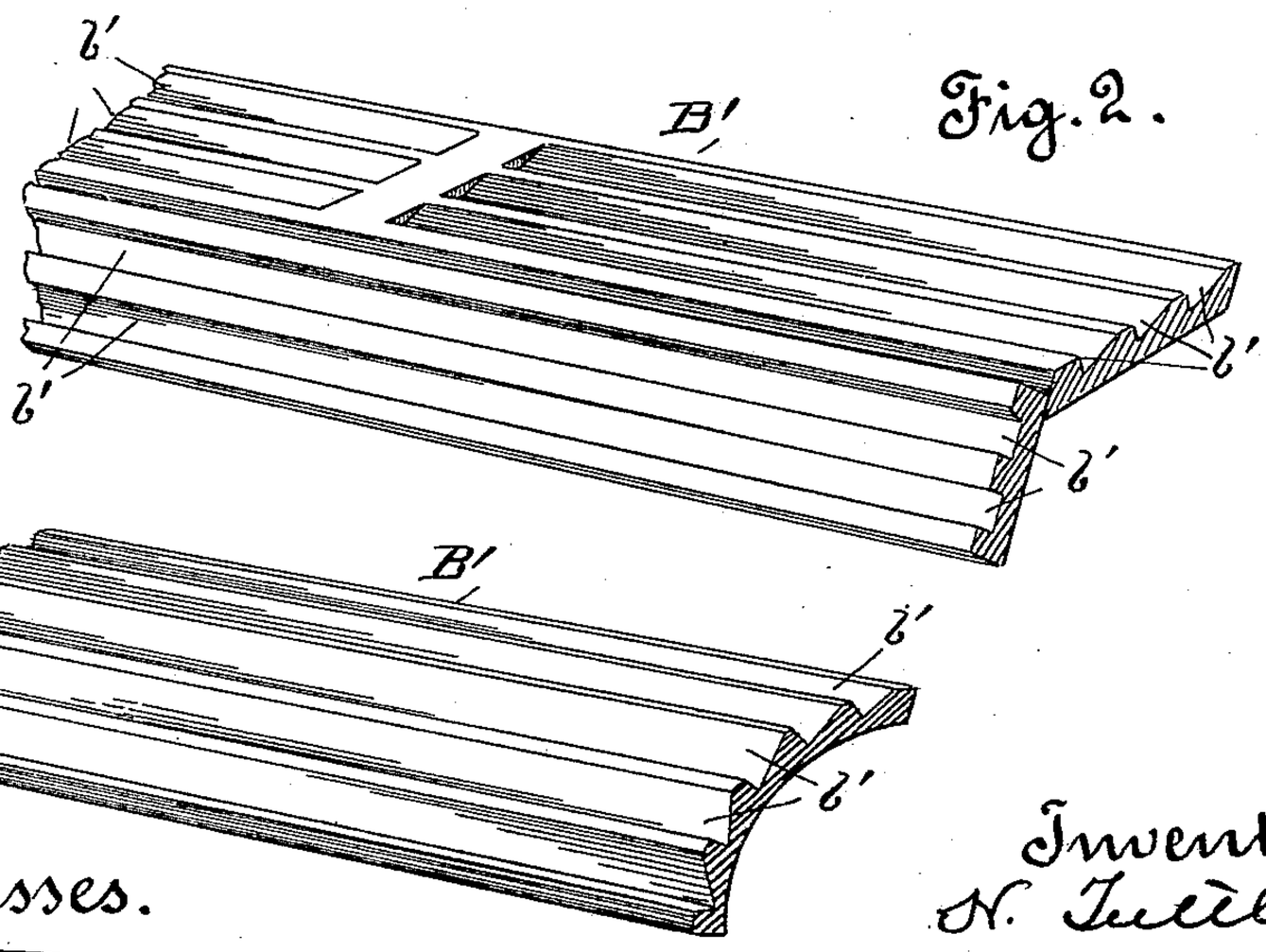

Fig. 3.

Witnesses.

F. E. Montenerdt.

W. N. Cobb.

Inventor.

H. Tuttle

by Macrae & Macrae.

his atty.

UNITED STATES PATENT OFFICE.

HARTSON TUTTLE, OF QUARTZ, CALIFORNIA.

RIFFLE-PLATE FOR ORE STAMP-BATTERIES.

SPECIFICATION forming part of Letters Patent No. 632,954, dated September 12, 1899.

Application filed April 12, 1898. Serial No. 677,293. (No model.)

To all whom it may concern:

Be it known that I, HARTSON TUTTLE, a citizen of the United States, residing at Quartz, in the county of Tuolumne and State of California, have invented certain new and useful Improvements in Riffle-Plates for Ore Stamp-Batteries; and I do hereby declare that the following is a full, clear, and exact description thereof.

This invention relates to a certain new and useful riffle-plate for use in connection with the mortar of an ore stamp-battery, which consists in the arrangement of parts and details of construction, as will be hereinafter fully set forth in the drawings and described and pointed out in the specification.

In the amalgamation of ores containing gold the most important feature of the process and what all workers aim to do is to retain within the mortar the greatest possible percentage of the value of the crushed ore and to prevent the escape thereof from the mortar as the pulp passes therefrom. To this end quicksilver is introduced into the mortar during the operation of the stamp-battery in order to amalgamate the fine gold contained in the ore. However, as the amalgamated gold is splashed against the screen which covers the outlet-opening of the mortar it is obvious that considerable of the said amalgamated gold is carried off or from within the mortar by the pulp or finely-crushed ore escaping through the screen covering the outlet-opening. Unless amalgamating-plates are located between the battery and the outside plates to collect and recover the escaping quicksilver or amalgamated gold the same will run onto the concentrators and be lost. In either case the quicksilver is lost so far as its use within the mortar is concerned during the working of the battery, and in order to secure proper amalgamation of the fine gold within the mortar and to retain said amalgam therein it is necessary that quicksilver be constantly fed into the mortar in order to take the place of that which escapes therefrom.

The object of my invention is to reduce to a great extent the escape of the amalgamated gold from within the motar, which is accomplished by inserting within the mortar at the bottom of and in front of the screen one or more riffle-plates, which will collect the splashed amalgam as it runs down the screen and hold the same within the mortar.

In order to understand the invention, reference must be had to the accompanying sheet of drawings, wherein—

Figure 1 is a vertical sectional view of a stamp-battery mortar, showing the riffle-plate secured to the chuck-block of the mortar. Fig. 2 is a perspective view of the riffle-plate, and Fig. 3 is a similar view showing a modified form of the riffle-plate.

In the drawings the letter A is used to indicate any well-known mortar of an ore stamp-battery, the outlet-opening *a* for the pulp being covered by the usual screen. Within the mortar is placed a given quantity of quicksilver, which is used to amalgamate the finer particles of gold freed from the ore during the working of the stamps B. One of the objects sought to be attained is to secure perfect amalgamation within the mortar and to prevent the escape of the amalgam therefrom, and to secure and attain perfect amalgamation of the gold within the battery and thereafter by its lodgment in said battery to largely prevent its escape through the screens and onto the outside copper or silver plates. During the working of the stamps in order to crush the ore fed into the mortar the amalgam is splashed against the screen, which covers the outlet-opening for the pulp, and as it passes down (unless prevented) escapes from within the mortar through the screen.

Within the outlet-opening of the mortar, at the bottom and in front of the screen, (not shown,) is placed a wooden chuck-block A′, upon which is secured the riffle-plate B′. The shape of the riffle-plate depends upon the surface of the chuck-block. This chuck-block is the same as that ordinarily employed in connection with the mortar of an ore stamp-battery and the purpose thereof likewise the same—that is, to maintain an approximate level of discharge proportionate to the splash within the mortar due to the working of the stamps. This feature and utility of the chuck-block is so well known to those familiar with the art of amalgamation that a detailed description of its use is deemed needless in the present application.

In the drawings, Figs. 2 and 3, I have shown

two different styles of riffle-plates, although the said plates may be made in any desired shape. Inasmuch as the chuck-block is shown with an inclined edge and a straight face, I illustrate an angle-shaped riffle-plate to fit thereover as the preferred form, although, as above stated, the shape of the plate depends upon the chuck-block. The riffle-plate may be formed of any suitable material, and the upper face thereof is serrated, corrugated, or formed with a series of collecting grooves, channels, or pockets b', which collect and retain the amalgam. When in place, the outer edge of the riffle-plate bears against the lower piece of the screen frame or holder B^2, which is held in place by the key-wedge b^2.

The riffle-plate is secured to the chuck-block in any well-known way which will permit of its being readily removed.

As the amalgam splashed against the screen during the working of the battery passes down it falls upon the riffle-plate, is retained in one or more of the grooves, channels, or pockets, and is prevented from escaping from within the mortar. As one groove, channel, or pocket becomes filled, the overflow enters into the next pocket, channel, or groove until the plate is filled, after which the amalgam will pass downward into the mortar. By thus catching the amalgamated gold the same is prevented from falling back into the bottom of the mortar, which is an important feature, as it is of importance to catch the gold at as early a stage of the working of the stamps as possible. If the splashed amalgamated gold be permitted to fall back below the stamps, it is apt to be crushed, by repeated operation of the stamps, too fine or into flour-gold and make its escape through the screen. Thus it is of importance to catch the gold as quickly as freed from the ore.

Although this present invention is of a simple nature, it overcomes a difficulty which has heretofore been insurmountable, and the advantage of its use in connection with the mortar of a stamp-battery will be readily appreciated by those familiar with the working of this class of machinery. Practical working has demonstrated the fact that by the use of this riffle-plate in front of the screen the escape of the splashed amalgam from within the mortar is largely prevented.

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

1. In a stamp-battery, the combination with the mortar provided with a pulp-outlet opening, of a chuck-block arranged therein, and of the riffle-plate secured to the inner face of the chuck-block and extending into the mortar to a point opposite the stamp, said plate having its upper face provided with a series of collecting pockets, grooves or channels within which is collected the amalgam.

2. In an ore-stamp-battery mortar, the combination with a chuck-block, of a riffle-plate extending from the screen-opening downward to a point adjacent to the lower edge of the block, opposite the stamp.

3. In an ore-stamp-battery mortar, the combination with a chuck-block having an inwardly-inclined face, of a riffle-plate removably held on and substantially covering the inclined face.

In testimony whereof I affix my signature, in presence of two witnesses, this 15th day of March, 1898.

HARTSON TUTTLE.

Witnesses:
LOUIS R. TULLOCH,
O. NEUEBAUMER.