(No Model.)

A. B. PAIGE.

AMALGAMATOR.

No. 294,263. Patented Feb. 26, 1884.

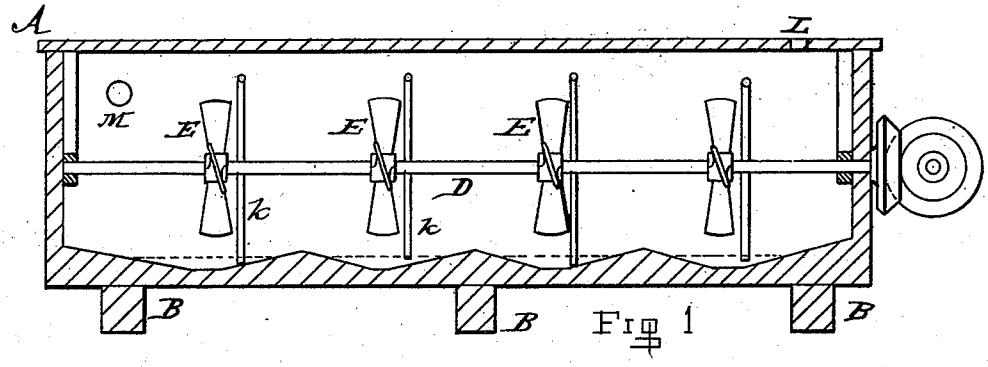


Fig 1

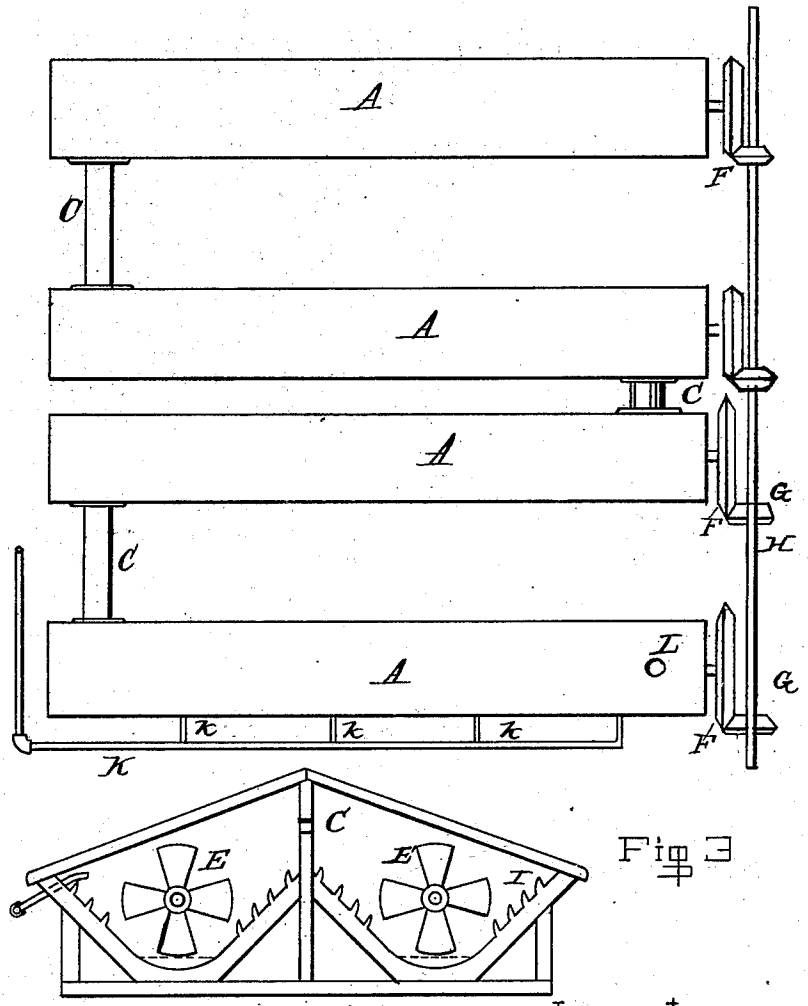


Fig 2

Fig 3

Witnesses
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UNITED STATES PATENT OFFICE.

AUSTIN B. PAIGE, OF CHICAGO, ILLINOIS.

AMALGAMATOR.

SPECIFICATION forming part of Letters Patent No. 294,263, dated February 26, 1884.

Application filed April 18, 1883. (No model.)

To all whom it may concern:

Be it known that I, AUSTIN B. PAIGE, of Chicago, in the county of Cook and State of Illinois, have invented certain Improvements in Amalgamators, of which the following is a specification, reference being had to the accompanying drawings.

My invention consists of a novel arrangement of a series of chests or troughs having revolving agitators therein, and other devices, all of which will be fully understood by the following description and claims.

In the accompanying drawings, Figure 1 is a vertical section through one of my chests or troughs, showing the revolving agitator in place. Fig. 2 is a top view of a series of chests with agitators therein. Fig. 3 is a cross-section of two chests or troughs with the agitators therein.

A series of chests or covered troughs, A, are placed on bed-pieces B and connected by pipes C. Each of these chests has a revolving agitator, consisting of shaft D and radial fans or arms E. The several shafts D are provided with gear-wheels F, and receive motion from bevel-gear wheel G and driving-shaft H. The bottoms of chests or troughs A are uneven, having depressions, as shown in Fig. 1, and a quantity of mercury is placed in each of these depressions, as indicated in dotted lines. Also, the oblique sides of the chests have a series of shelves or ledges, I, Fig. 3, running the whole length of the chests, forming channels or long narrow receptacles for mercury. The first chest in the series has a steam-pipe, K, with a series of branch pipes, *k*, entering the sides and extending to the bottom of the chest A, to introduce more or less steam, as may be desired.

Operation: The ground ore, as washed from the mill, or with an abundance of water, is introduced into the first chest of the agitator through hole or pipe L, Fig. 2, and all the shafts D set in revolution. In the first two chests the agitators should be driven at much greater speed than in the last two. By this high speed the mercury is mixed with the pulp and water, and thus sprayed and forced through the mass of the pulp. Then, in the slower motion of the agitators in the last two chests, the small globules of mercury again collect and settle down to the bottom of the chests. Also, the agitators drive the pulp against the mercury in the shelves I, Fig. 3, and thus facilitate amalgamation in the higher stratum of water and flowing pulp. After the water and pulp have passed through the series of agitators A or chests, the whole is discharged through the hole or pipe M, the amalgamated metal being left in the chests. This operation is continuous, and does not require to be stopped to charge and discharge the machine.

The number of chests may be more or less, and the series increased indefinitely at pleasure, as the condition and character of the ore may require.

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

1. The combination of a series of chests, A, having a series of depressions therein, shafts D, provided with radial arms E, working in said depressions, and means whereby shafts D and radial arms E are revolved at different rates of speed, substantially as set forth, for the purposes specified.

2. The combination of a series of chests, A, connected by pipes C, said chests having a series of depressions for mercury along the bottom thereof, a series of shafts, D, having radial arms E, working in said depressions, means for revolving said shafts at different rates of speed, and a series of pipes, *k*, for discharging steam upon the mercury and pulp in the bottom of said depressions, substantially as and for the purposes set forth.

AUSTIN B. PAIGE.

Witnesses:

DANIEL BREED,

ISAAC T. GIBSON.