

No. 771,792.

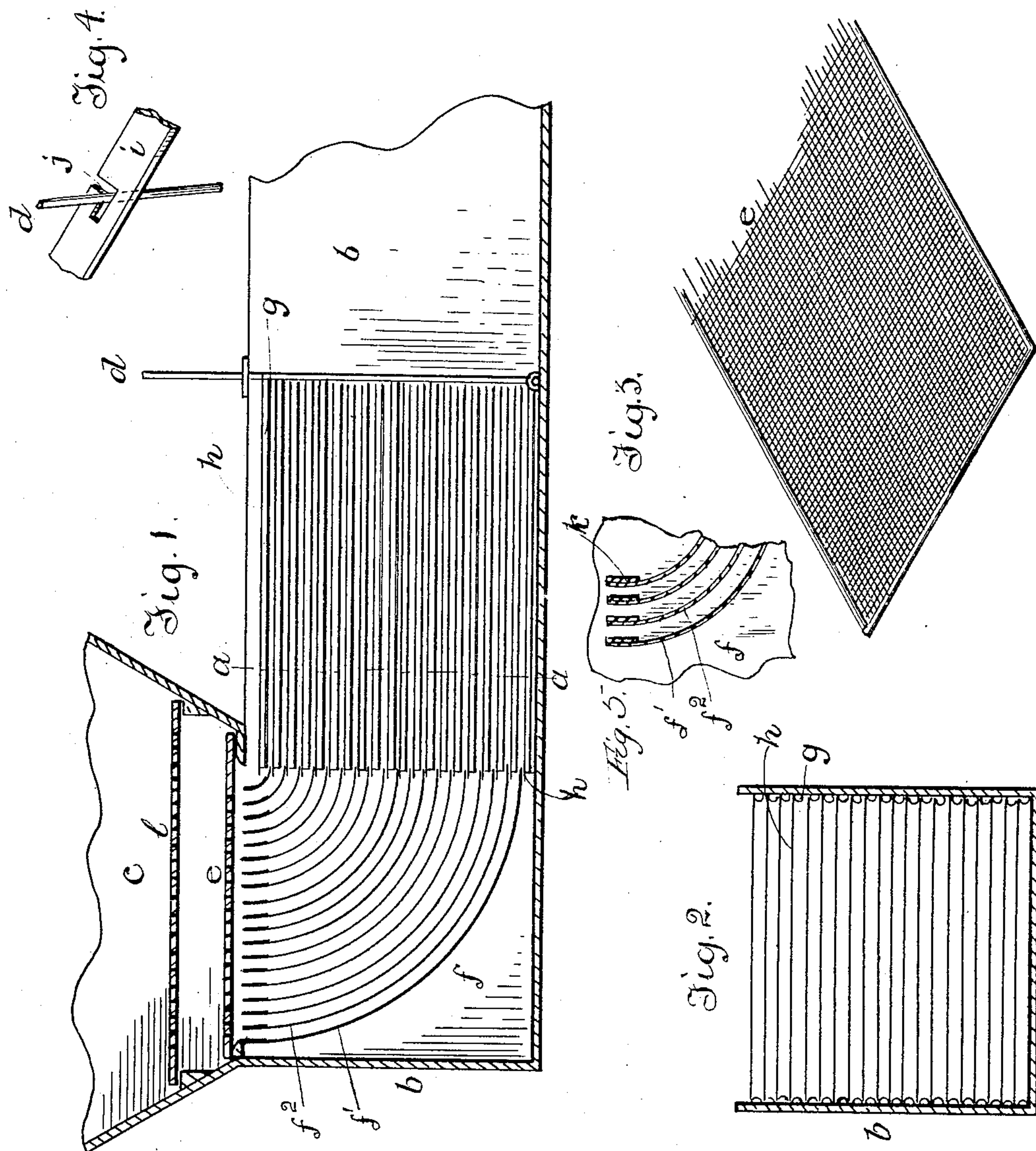
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G. W. WILDERMAN.

HYDRAULIC FLUME FOR MINING FINE MATERIAL.

APPLICATION FILED FEB. 5, 1904.

NO MODEL.



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UNITED STATES PATENT OFFICE.

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HYDRAULIC FLUME FOR MINING FINE MATERIAL.

SPECIFICATION forming part of Letters Patent No. 771,792, dated October 4, 1904.

Application filed February 5, 1904. Serial No. 192,254. (No model.)

To all whom it may concern:

Be it known that I, GEORGE WASHINGTON WILDERMAN, a citizen of the United States, and a resident of Portland, county of Multnomah, State of Oregon, have invented a new and useful Improvement in Hydraulic Flumes for Mining Fine Material, of which the following is a specification, reference being had to the accompanying drawings as a part thereof.

My invention relates to the art of recovering fine gold from fine sand or pulp by passing the same in a solution over amalgamating-plates.

My invention has for its object to facilitate the recovery of the fine gold by an improved method and mechanical contrivances by which the pulp issuing from the hopper is mechanically divided into a plurality of thin parallel streams of more or less equal volume and then passing the several streams simultaneously between parallelly-arranged amalgamating-plates placed equidistant apart and arranged in a tier, so that the upper and lower surfaces of each stream of pulp and solution will be in continuous contact with the surfaces of the two plates between which it passes, both the top and bottom surfaces of each of said tier of plates being plated with an amalgamating-film.

The contrivances by which I accomplish my object are illustrated in the drawings.

In said drawings, Figure 1 shows a longitudinal trough or flume and the superimposed receiving-hopper of the same. Fig. 2 is a cross-section on line *a a* of Fig. 1. Fig. 3 shows in perspective a screen removably placed in the bottom of the hopper. Fig. 4 is a detail in perspective of means for securing the amalgamating-plates against shifting out of place, and Fig. 5 shows a partial longitudinal section of the inlet or receiving end of the feeder and illustrates the means provided for preventing the clogging of the spaces or channels between the feeder-plates.

Referring now to the reference-letters, the trough or flume *b* may be made of any convenient material and size. It has mounted

on its receiving end a hopper *c*, in the bottom of which is removably placed a screen *e*. The function of the screen *e* is to sift or screen the material introduced into the hopper and also to distribute the same over the mouth of the feeder.

The feeder is a device inserted in the receiving end of the flume underneath the hopper and operates to divide the pulp and sand and solution as discharged through the screen of the hopper into a plurality of thin streams of about equal volume in order that said pulp and solution may be properly fed to the amalgamating-plates. In construction said feeder comprises a plurality of curved parallelly-arranged plates *f'* *f''*, fastened crosswise between the two sides of the inlet end of the trough or flume.

Abutting the discharge ends of the feeder-plates is inserted a tier of amalgamating-plates *h*. These plates are supported on longitudinal ribs provided on both sides of the trough, so that one or more of the said amalgamating-plates may be removed, cleaned, and re-dressed with an amalgamating-film as required. The distances between the amalgamating-plates correspond with those between the feeder-plates.

As observed from Fig. 1, the amalgamating-plates are supported slightly below, and the receiving ends of the amalgamating-plates project slightly under, the discharge ends of the feeder-plates. The object of this construction is to insure that the material will flow readily through the flume. To prevent the clogging of the pulp and sand run through my flume, the spaces between the feeder-plates at the receiving end of the feeder are made slightly narrower, so that the material entering such contracted openings will be slightly of lesser volume than the spaces or channels between the feeder-plates throughout their course will easily hold. Said narrowing of the inlets of the channels between the feeder-plates *f'* *f''* may be conveniently done by soldering along the inlet ends of the feeder-plates narrow metal strips *k*, as shown in Fig. 5. The feeder-plates are set

about three-sixteenths of an inch apart. This distance may, however, be varied, if desired, the object being to divide, by means of these plates, the pulp, sand, and solution discharging from the hopper into a plurality of streams of sufficient thinness, so that the same will flow readily through the flume and that at the same time the whole volume of each stream will as nearly as possible be in continuous contact with the surfaces of the two amalgamating-plates between which it flows. Each of the amalgamating-plates is plated on both its top and bottom surfaces with a suitable amalgamating-film, and the plates are removably locked in place by means of a locking-bar *d*, which is hinged to the bottom of the trough and the upper or free end of which is secured by a bar *i*, secured crosswise on the trough, provided with an L-notch *j*, in which said upper end of the bar *d* may be inserted.

The screen *e* is made of the usual wire-cloth of any desired mesh.

l is a spreader of the usual construction.

It will be noted that the underlying idea of my invention is to obtain a large area of amalgamating-plate surface within as small a compass as possible and also to be enabled to effectively work on a large quantity of pulp and solution within a small space of time. The flume is of course to be set up so as to give to the same any convenient incline or pitch.

The described system and apparatus is adapted for use on all kinds of crushed pulp, black or magnetic sands, and gray sands. It is especially adapted for working beach-sands and the discharging undercurrent of hydraulic flumes used in placer-mining.

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

1. A hydraulic fluming apparatus, comprising a hopper or receiver, means for screening and distributing the material discharged from the same, a flume or trough, a feeder in the trough under the hopper, said feeder comprising a series of curved, parallel plates adapted to mechanically divide the pulp and solution discharging from the hopper into a plurality of thin streams, a tier of removable amalga-

mating-plates adapted to provide a plurality of parallel channels, so as to allow each of the streams of pulp and solution issuing from the feeder to pass between two plates of said tier; said plates being respectively plated with an amalgamating-film on both their top and bottom surfaces, and supported, one above the other, at such distance apart as to cause the top and bottom surfaces of each stream of pulp and solution to be in continuous contact with the surfaces of the two plates between which it passes; and means for holding the amalgamating-plates in place; substantially as described.

2. A hydraulic fluming apparatus, comprising a hopper or receiver, means for screening and distributing the material discharged from the same, a flume or trough, a feeder in the trough under the hopper, said feeder comprising a series of curved, parallel plates adapted to mechanically divide the pulp and solution discharging from the hopper into a plurality of thin streams, a tier of removable amalgamating-plates adapted to provide a plurality of parallel channels, so as to allow each of the streams of pulp and solution issuing from the feeder to pass between the two plates of said tier; said plates being respectively plated with an amalgamating-film on both their top and bottom surfaces, and supported one above the other, at such distance apart as to cause the top and bottom surface of each stream of pulp and solution to be in continuous contact with the surfaces of the plates between which it passes; and means for holding the amalgamating-plates in place; the mouth of the channels or spaces between the plates of said feeder being made slightly narrower, so as to prevent over-feeding and clogging of the feeder and the flume, and the discharge ends of the feeder-plates slightly overlapping the receiving ends of the amalgamating-plates, substantially as described.

In witness whereof I have hereunto affixed my signature in the presence of two witnesses.

GEORGE WASHINGTON WILDERMAN.

Witnesses:

T. J. GEISLER,

DOROTHY GILLIAM.