

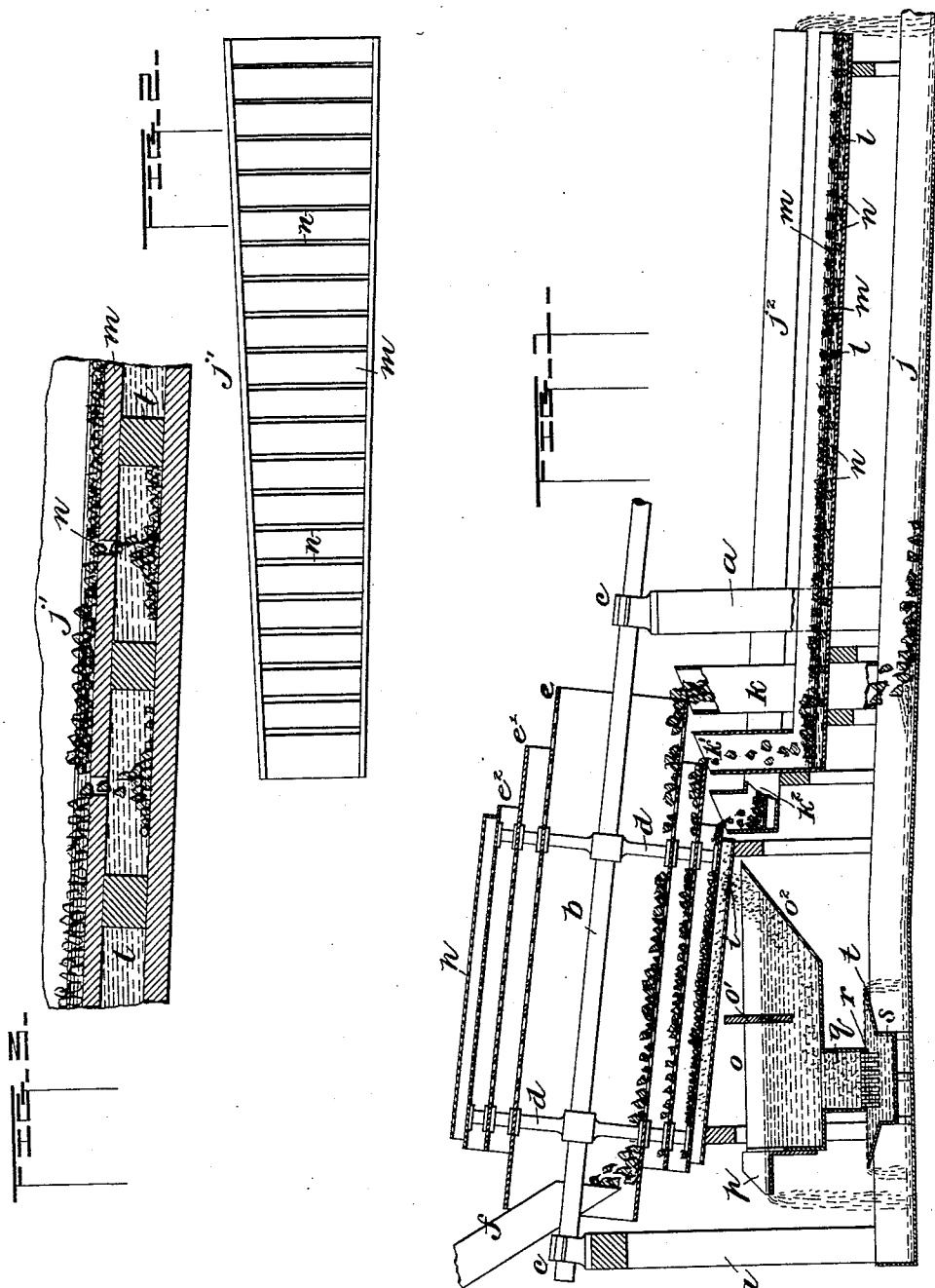
(No Model.)

T. M. BALDWIN.

APPARATUS FOR SEPARATING GOLD FROM WASH.

No. 579,945.

Patented Apr. 6, 1897.



Witnesses;

C. Byrnes
J. H. Corwin

Inventor

Thomas M. Baldwin
by his Attorneys
W. Bancevell & Sons.

UNITED STATES PATENT OFFICE.

THOMAS MONTRESOR BALDWIN, OF DUNEDIN, NEW ZEALAND.

APPARATUS FOR SEPARATING GOLD FROM WASH.

SPECIFICATION forming part of Letters Patent No. 579,945, dated April 6, 1897.

Application filed December 4, 1893. Serial No. 492,676. (No model.) Patented in New Zealand August 20, 1892, No. 5,728; in New South Wales October 5, 1892, No. 4,018; and in Victoria October 15, 1892, No. 10,044.

To all whom it may concern:

Be it known that I, THOMAS MONTRESOR BALDWIN, of Dunedin, in the Province of Otago, New Zealand, have invented a new and useful Improvement in Apparatus for Separating Gold from Wash, (for which I have obtained Letters Patent of Victoria, No. 10,044, dated October 15, 1892; of New South Wales, No. 4,018, dated October 5, 1892, and of New Zealand, No. 5,728, dated August 20, 1892;) and I do hereby declare the following to be a full, clear, and exact description thereof.

Figure 1 is a longitudinal section of the apparatus. Fig. 2 is a plan of a sluice-box; and Fig. 3 is an enlarged view, in vertical longitudinal section, of part of the bottom of a sluice-box.

a are standards carrying a shaft *b*, free to revolve in bearings *c* on the said standards *a*. Rotary motion is given to the said shaft by belt or other gear in any convenient way. *d* are arms firmly secured to the said shaft. *b e e' e''* are cylindrical concentric sieves or screens secured to the said arms *d*.

f is a chute through which the wash from which the gold is to be separated is run into the central sieve or screen *e*. The sieve or screen *e* is conveniently made of boiler-plate or of iron bars placed longitudinally and separated, say, a quarter of an inch, more or less, as required, and extends at each end beyond the surrounding sieves, that portion between the arms, if made of boiler-plate, being perforated with slots one-quarter of an inch by two inches, more or less, as required, while the portions beyond the arms are not perforated and serve to carry the material into the screen at the upper end and into the boxes and tail-race at the lower end. The sieves or screens *e'* and *e''* are made of wire having, respectively, about one-eighth-inch and one-sixteenth-inch meshes.

h is a fixed case surrounding the sieves or screens and having an aperture *i* at its lower end.

Although the sieves or screens have been shown secured to and revolving with a shaft, the shaft may advantageously be dispensed with, and the said sieves or screens may be provided with circular rails and be carried on pulleys in any well-known manner, so that if

it is desired to wash the gold-containing materials in the sieves or screens a pipe may be carried into the central sieve or screen *e*.

j is the tail-race, into which the wash which will not pass through the perforations or slots in the sieve or screen *e* is delivered through the chute *k*, and into which finally passes the wash from the sluice-boxes *j'* and *j''* and the casing *h*. The sieves or screens *e'* and *e''* communicate with the sluice-boxes *j'* and *j''* by means of the chutes *k'* and *k''*. The said sluice-boxes are made wider at the delivery end than at the receiving end, so that the pressure of water is lessened by being spread over a greater area. The bottom of each sluice-box is fitted with transverse ribs *l*, which carry a false bottom *m*, made in one or more pieces. The tapered form of the false bottom allows of its being easily withdrawn from the lower or delivery end. The false bottom is made with transverse apertures *n* between each pair of ribs, and the said apertures decrease in width from the receiving to the delivery end. The width of the apertures *n* at the upper or receiving end of the sluice-box *j'* is about one-quarter of an inch, or, in accordance with the size of the material screened, about three-sixteenths in the middle and about an eighth of an inch at the lower or delivery end. The sluice-box apertures *j''* are about one-eighth of an inch wide at the upper or receiving end, about three thirty-seconds of an inch wide at the middle, and about one-sixteenth of an inch wide at the lower or delivery end.

o is a tank having the end where the wash enters it sloping down toward the bottom. *p* is the overflow, which can be used to convey water to the sluice-boxes *j'* and *j''*. *o'* is a movable partition placed across the said tank between the inlet and the overflow and descending below the level of the water in the tank, so that any float gold is prevented from passing direct from the inlet to the overflow and must sink into the collecting-box *q* beneath the said tank. The said box *q* is freely open to the tank *o* above and is fitted at the bottom with numerous tubes *r*, say about three-eighths of an inch in diameter, which convey the material onto mercury in a tray *s*. The tubes *q* may be inclined from the

vertical in a circumferential direction. *t* is the overflow edge of the tray, leading to the tail-race *j*.

The wash enters the sieve or screen *e* from
 5 the chute *f*, and any material larger than the size of the perforations or slots passes out of the said screen through the *k* chute to the tail-race *j*, while all the smaller material passes through the perforations or slots in the said
 10 sieve or screen into the sieve or screen *e'*. Here any particles of material greater than the size of the mesh pass by the chute *k'* into the sluice-box *j'*, while the remainder of the wash passes through the meshes into the
 15 sieve or screen *e''*. Here the particles greater than the size of the mesh pass by the chute *k''* into the sluice-box *j''*, the remainder passing through the mesh into the case *h*, and thence by the aperture *i* into the tank *o*.
 20 The gold in the wash passing into the sluice-boxes is collected in the spaces between the ribs. The lighter gravel or material flows away, as there is no suction of water into the said spaces. The particles of material in the
 25 wash which enter the tank *o* pass into the box *g*, and thence through the tubes *r* onto the mercury in the tray *s*. The pressure of water in the tank above the mercury should be such that the surface of the mercury is indented as much as possible without being
 30 broken into globules. The gold is caught by

the mercury, while the sand and fine particles and water glide over the surface and are carried off through the tail-race.

I claim—

1. A sluice-box which widens gradually toward the discharge end, said box having upon its bottom transverse ribs upon which rests a removable false bottom, said false bottom also widening toward its discharge end, and
 40 having between the supporting-ribs a series of progressively narrower transverse apertures, substantially as described.

2. In a gold-separator, the combination with a series of inclined concentric cylindrical screens, each screen being successively shorter than the next screen inside the same,
 45 of collecting sluice-boxes at the lower ends of the screens, each sluice-box widening toward its discharge end, and having transverse ribs
 50 upon which is carried a false bottom having transverse apertures between the ribs, said apertures growing progressively narrower toward the discharge end, substantially as described.

In testimony whereof I have hereunto set my hand this 30th day of October, A. D. 1893.

THOMAS MONTRESOR BALDWIN.

Witnesses:

S. B. HOWLETT,
 P. DUNCAN.