The results, in round numbers, were as follows:

<table>
<thead>
<tr>
<th>Mesh</th>
<th>Average per ton for</th>
<th>S02</th>
<th>Average for</th>
<th>Percentage of whole</th>
<th>S02</th>
<th>Average for</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 to 40</td>
<td>60</td>
<td>8</td>
<td>$7.33</td>
<td>$26.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>40 to 80</td>
<td>50</td>
<td>8</td>
<td>8.81</td>
<td>104.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Below 80</td>
<td>30</td>
<td>5</td>
<td>9.64</td>
<td>54.2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In the first case the product below 80-mesh, although only about one-fifth of the whole in quantity, carried 17% of the gold. In the second case it carried 49%. The fine (below 80-mesh) was carefully examined under the microscope for free gold, but none was observed. The tailing from the pannings was not sampled in this particular set of determinations. In another similar set, however, it had run $8.77, $2.06, and $4.90 per ton. It seemed quite certain therefore that the gold was contained either in the pyrite, or in some mineral very closely associated with it. Qualitative tests of the fine concentrate showed that it contained neither copper, tellurium, arsenic, nor bismuth. The pyrite was apparently exceptionally pure. On treating the fine with nitric acid and examining the washed residue under the microscope, a large number of minute particles of gold appeared. These particles in many cases had a dull surface. A few had a side or corner ruffled bright.

The experiments seemed to us to indicate that most of the gold was situated on or just within the pyrite, along cracks or close to the surface of the grains. On breaking the grains in the mortar the surface or richer portions would be reduced to powder first, and this would account for the concentration of the minute particles of gold in the fine.

The higher value of the pyrite in level B, which is below A, is clearly due to secondary enrichment.

When it becomes necessary to mine a vein or ore deposit under a stream or body of water care must be taken not to carry the workings too close to the surface. It is much better to remove ore from the deeper portions first, leaving that nearer the surface until the last, for in a number of cases where haste has been made to recover ore extending under water it has resulted in the flooding of the mine to an uncontrollable extent from carrying the workings too close to the danger point.

The overbearing manner of the average American in Mexico, with his indeliscrete contempt for the people of every station in life, which he makes no effort to disguise, is not only humiliating, but is bad policy on the economic side. It arrays the people against us, and is responsible for a large share of that extortion which embarrasses nearly every enterprise which we establish in that republic. It is notable that Americans who affiliate cordially with the Mexicans do not suffer in this manner. We are now about to witness an attempt at the commercial conquest of Sinaloa by our people, which can be achieved with mutual good-fellowship to the eminent advantage of both if we are careful to maintain a spirit of fairness and fraternity. But Sinaloa is not California, and the brutal overbearing of the Mexican population, which our courts and public opinion permitted there, cannot occur under the Mexican flag. The spirit and manners of the California pioneers will not all in our peaceful invasion of Sinaloa, and it must be confessed that these unworthy characteristics are too much in evidence among the forerunners of that invasion. — Courtenay De kalb, in _The evening Post_.
APPARATUS FOR RECOVERING PRECIOUS METALS. No. 822,940. E. J. Garcia, Portland, Oregon.

In an apparatus of the class-described, the combination with a main tank for receiving the pulverized ore and solvent, of a precipitating-tank, including means for separating the material, attached to the main tank near its top, and an amalgamating-tank including means for amalgamating the material suspended above the main tank, a hopper or funnel suspended within the main tank, and a spreading cone on the bottom of the main tank, and means for causing a continuous circulation of the materials and solution through said tanks.


In the treatment of arseniferous cobalt and nickel ores, containing silver, the process which consists in grinding and sifting the same to eighty-mesh fineness to separate metallics, fusing the sifted ore with sodium bisulphate to expel and recover arsenic, dissolving the melt and reducing dissolved silver with a fresh portion of ore, removing iron and residual arsenic together from the solution, removing cobalt and nickel by fractional precipitation with hypochlorite, and recovering sodium sulphate for reuse.

CRUSHING-MILL. No. 822,913. Martin P. Ross, San Francisco, California.

In a crushing-mill, a pan having a rivet with an exterior channel, said channel having at one end an entrance communication with the pan, and return communications into the pan beyond the entrance communication, feeder-plates disposed to guard against an outward flow from the pan through said return communications, while permitting an inward flow therethrough, and an overflow from the other end of said channel.