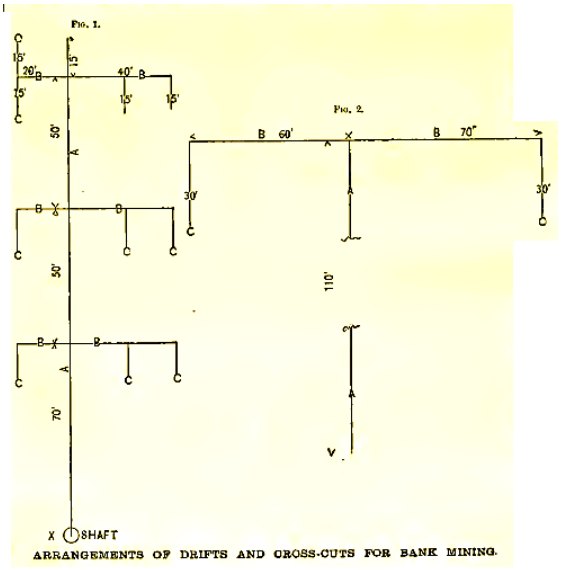
Bank Blasting.

In blasting gravel banks in such places as hydraulic mining is carried on in this State, the ordinary method is as follows: A drift is run is from the face of the bottom of the deposit a distance proportionate to the hight of the bank and the character of the ground to be moved. From the end of this drift a cross-drifts drives each way, forming a T. The cross-drift is charged with kegs of powder, and the main drift is securely tamped by filling it up solid with the material which has been extracted, and the powder is exploded by a time fuse or electric battery. In some instances where the ground is “heavy and bound" several cross-drifts are made. The amount of powder used is determined by the position, character and hight of the bank, a quantity sufficient only to shatter the ground being employed.

The arrangement of the powder chambers for a 1201 keg blast made by the Smartsville Hydraulic Mining Company some years ago, is shown in Fig. 1 of the accompanying diagrams, taken from Bowie's “ Hydraulic Mining in California."



ARRANGEMENTS OF DRIFTS AND CROSS-CUTS FOR BANK MINING.

X was a shaft 74 feet deep, from the bottom of which the main drift, A, was driven 185 feet. The cross drifts, B, three in number, were driven at distances respectively of 70 feet, 120 feet and 170 feet from the shaft, X. They extended each 120 feet on one side of the main drift, and 40 feet on the other side. The several drifts marked C are called "lifters." Each "lifter" was 15 feet long. The total length of the drifts aggregated 570 feet. They were 2 ½ feet wide and 3 ½ feet high. The cross drifts were charged with 1201 kegs (25 pounds each) of black powder. The main drift was securely tamped from the shaft to the first cross drift, a distance of 70 feet. The powder was simultaneously ignited by electricity at 12 different points.

The ground moved was 270 feet long, 180 feet wide, with an average depth of 100 feet. The cost of the blast was about $6000.

At a blast in the Paragon mine, Placer county, where 700 kegs of powder were exploded, the arrangement is shown in Fig. 2. The main drift A was tamped for 75 feet from the near end, and the cross-drifts tamped 10 feet each way, a space being left in the lifters for the expansion of the gas generated by the explosion of the powder. The drifts were 4^ feet high by 5 feet wide, and the bank was 150 feet high. The blast was fired by electricity, and the ground covered by the drifts was thoroughly shattered.

At the Dardanelles hydraulic and drift mine, near Forest Hill, Placer county, a blast was made with 36,400 pounds of Judson powder (old), shattering about 500,000 cubic yards of cement gravel. The gravel bank bad a face of some 1200 feet in length, with a hight of 175 feet. This deposit reposed on a rising bedrock. Five parallel drifts, 150 feet apart, were run in from the face of a length of 70 feet each. From the end of each of these drifts two arms (right and left) or crosscuts were driven 70 feet long, thus leaving a space of 40 feet between the ends of the crosscuts from the several main drifts. The powder, in 50 pound boxes, was charged in lots of 1000 to 1500 pounds in the different chambers. In each chamber three exploders were placed in the powder, each exploder being carefully connected by an insulated copper wire, with the main wires on the outside of the drifts.

The drifts were all well tamped with clay and bowlders. The wires from the exploders connected outside of the main drifts with two copper wires from an electro-magnetic battery which was situated to

the right and about 200 feet from the face of the bank. When everything was ready the blast was fired. The background was raised bodily four or five feet, and the face was thrown forward. At the Blue Tent mine, Nevada county, in 1880, a bank 200 feet high was thrown down with 43,000 pounds of powder.

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