Prospecting River Bars in Cold Countries

By THOMAS N. TURNER

It is sometimes desirable to investigate bars in river channels, either for their gold content or other qualities which the bar may have. The method for the examination of such bars, here described, is only applicable in cold climates.

Take for example a river channel of the cross-section shown in Fig. 1. Assume the river covered with ice to a depth of 4 ft., and a shaft 5 ft. in diameter to be sunk to the gravel bar 10 ft. below the surface of the

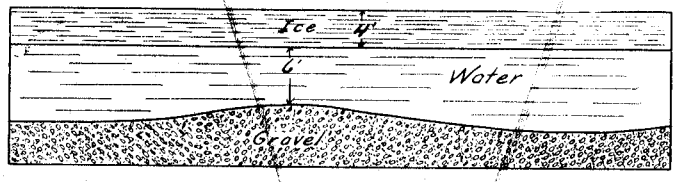


FIG. 1.

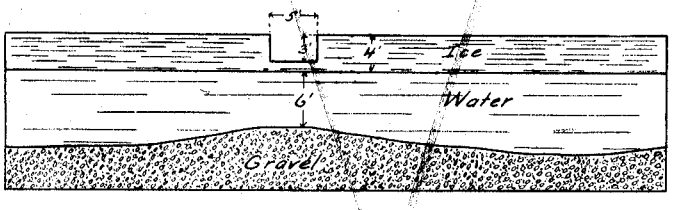


FIG. 2.

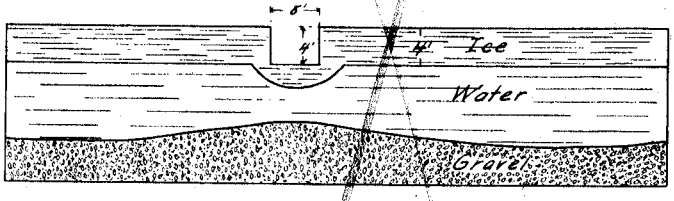


FIG. 3.

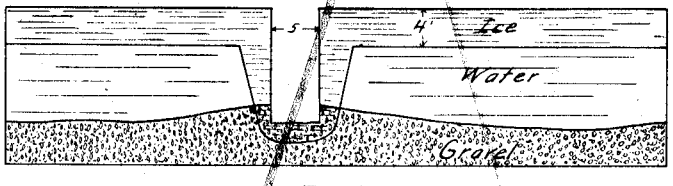


FIG. 4.

ice. Describe a 5-ft. circle on the ice over the point which you expect to prospect. Everything is now ready to start excavating. By the use of bars and picks the ice is removed, chipping carefully within the 5-ft. circle. Chipping and shoveling are continued until a depth of about three feet below the surface of the ice is reached. Great care must be taken so that the main body of the ice is not cracked, in which case the water would flood the shaft. At this point work is stopped to allow nature to do her part. The shaft is then as shown in Fig. 2.

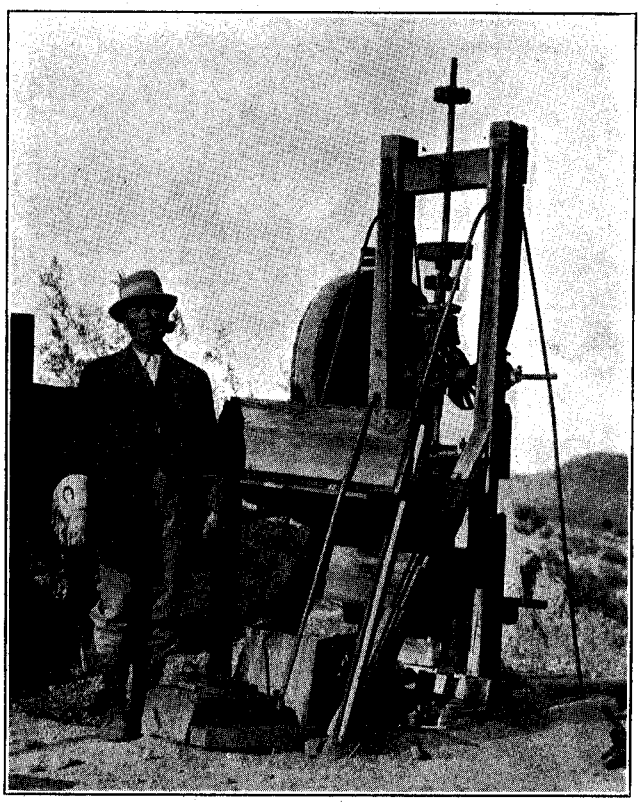
After 24 hours' exposure to the cold air, work on the bottom of the shaft may be resumed. Perhaps under some conditions it would be best to resume work only after two or three days' freezing. Local conditions will determine the best time. However, chipping is again started, and another foot of ice is removed from the bottom of the shaft (Fig. 3). These operations of freezing and chipping are continued until the shaft has been completed (Fig. 4).

In deep shafts it is sometimes necessary to set up an air-chute to send the cold air to the bottom of the shaft. This chute may be constructed of cloth or any other suitable material and of a type similar to the ventilators on a steamship. The positions of the shafts must be so arranged that the flow of water in the stream will not be impeded, for under such conditions the water pressure will break the walls of the shaft and flood the excavation.

The Sam Yet Prospecting Mill

By ALGERNON DEL MAR

On the Sam Yet mine, near Searchlight, Nevada, there lives an Anglo-Chinese who has mined in the western states for many years. The accompanying photograph



SAM YET AND HIS STAMP-MILL.

shows a one-stamp mill erected and used by Sam Yet. It will be noticed that the cam is made from a wagon wheel, the spokes being cut in the form of an involute shod with band iron. The tappet is an old cog-wheel, with others of miscellaneous character to add weight. The boss and shoe, not shown, are made from the plunger of a pump. The mortar-box is of wood, double-discharge pattern, with 40-mesh screens. The stamp is driven by a gasoline engine. Sam says the stamp weighs 500 lb., but I think it under this weight, and he claims 800 lb. of ore can be crushed per day and that he obtains from 80 to 90% extraction from his free-milling ore.