

Rocker Box

This plan is reprinted from Information Circular 6786, "Placer Mining in the Western United States " by E. D. Gardener and C. H. Johnson. It was published by the US Bureau of Mines in September, 1934

More gravel can be handled per man-day by rocking, or cradling as it is sometimes called, than by panning. Moreover, the manual labor of washing a cubic yard is less. The same method of excavating the gravel is used whether it is panned or rocked. The rocker, like the pan, is used extensively not only in small-scale placer work but also in sampling and for washing sluice concentrates and material cleaned by hand from bedrock in other placer operations.

One to three cubic yards, bank measure, can be dug and washed in a rocker per man-shift, depending upon the distance the gravel or water has to be carried, the character of the gravel, and the size of the rocker. Rockers usually are homemade and have a variety of designs. A favorite design in the Western States consists essentially of a combination washing box and screen, a canvas or carpet apron under the screen, a short sluice with two or more riffles, and rockers under the sluice. The bottom of the washing box consists of sheet metal with holes about one half inch in diameter punched in it. A rocker in use at Greaterville, Ariz., was 3 feet 4 inches long and 1 foot 9 inches wide on the inside and had a slope of 5 inches. The screen box was 6 inches deep and 20 inches square inside and had a bottom of sheet iron with 1/4- to 1/2- inch holes punched about 2 inches apart. The baffle was 28 inches long and consisted of a piece of canvas. A single riffle 3/4 inch high was used at the end of the rocker. Figure 3 is a drawing of a prospector's rocker made by W. B. Young of Tucson, Ariz. The bottom of a rocker should be made of a single wide board, if one can be obtained, and planed smooth. This will greatly facilitate cleanups. The cost of building rockers ranges from \$5 to \$15, depending mainly upon the cost of lumber.

After being dampened the gravel is placed in the box 1 or 2 shovelfuls at a time. Water is then poured on the gravel while the rocker is swayed back and forth. The water usually is dipped up in a long-handled dipper made by nailing a tin can to the end of a stick. A small stream from a pipe or hose may be used if available. The gravel is washed clean in the box and the oversize inspected for nuggets and dumped out. The undersize goes over the apron, where most of the

gold is caught. Care should be taken that too much water is not poured on at one time, as some of the gold may be flushed out. The riffles stop any gold that gets over the apron. In regular mining work the rocker is cleaned up after every 2 or 3 hours, or oftener when rich ground is worked, if gold begins to show on the apron or in the riffles. In cleaning up after a run, water is poured through while the washer is gently rocked; the top sand and dirt are washed away. Then the apron is dumped into a pan. The material back of the riffles in the sluice is taken up by a flat scoop, placed at the head of the sluice, and washed down gently once or twice with clear water. The gold remains behind on the boards, whence it is scraped up and put into the pan with the concentrate from the apron. The few colors left in the sluice are caught with the next run. The concentrate is cleaned in the pan.

With skillful manipulation of the rocker and a careful clean-up nearly all the gold is recovered. Violent rocking is avoided so that gold will not splash out of the apron or over the riffles. The sand behind the riffles should be stirred occasionally, if it shows a tendency to pack hard, to prevent loss of gold. If the gravel is very clayey it may be necessary to soak it for some hours in a tub of water before rocking it.

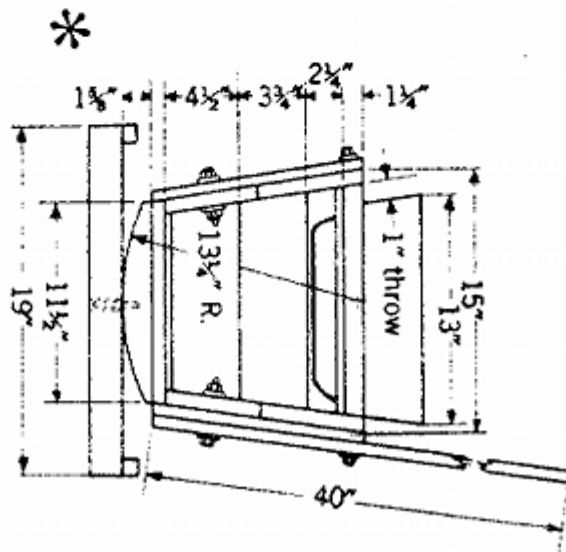
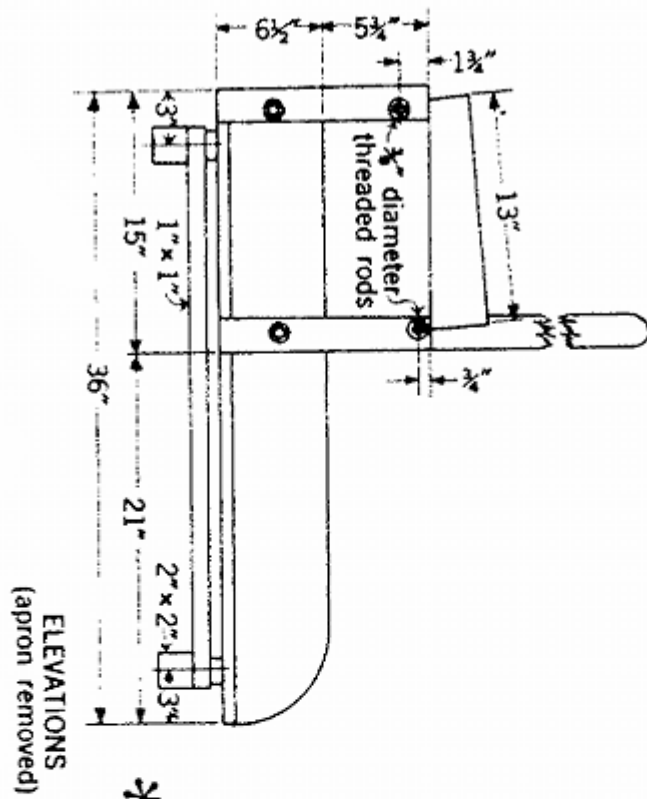
When water is scarce two small reservoirs are constructed, one in front and the other in the rear of the rocker. The reservoir at the front serves as a settling basin; the overflow goes to the one at the rear where the water is used over again.

Power rockers,- The capacity of rockers may be increased by using power drives. The use of such a machine was illustrated by the operation of George Graves in the Lynn district, Eureka County, Nev., during the summer of 1932. The rocker was 49 inches long, 27 inches wide at the top, and 21 inches wide at the bottom. It was 24 inches high in front and 21 inches at the rear. The screen had 5/8-inch round holes. The gold was caught on three aprons of canvas and wood. Riffles of 1/2- by 1/4-inch wooden strips were used on the aprons. The undersize from the screen passed over each apron in turn. Nearly all the gold was caught on the first apron. The slope of the aprons was 3 inches to the foot.

The device was rocked by an eccentric arm at the rate of forty 6-inch strokes per minute. The capacity of the machine with two men working was 1 cubic yard per hour. Where gravel was free of clay the capacity was said to be as great as 3 cubic yards per hour. The cost of the rocker and the engine for driving it was \$160. At \$4 per 8-hour shift

and 1 cubic yard per hour the labor cost of washing the gravel would be \$1 per cubic yard.

A number of small machines patterned more or less after the power rocker are on the market. They usually are built of iron or steel and driven by small gasoline engines. Although of various designs they generally consist of a trommel or a shaking screen to remove coarse material, a short shaking sluice to save the gold, and a pump to circulate the water. Some of them contain a settling tank from which the solids are removed by a rake or drag. These machines have an advertised capacity of 1/2 to 2 1/2 cubic yards per hour and cost \$225 to \$700. No operating data are available.



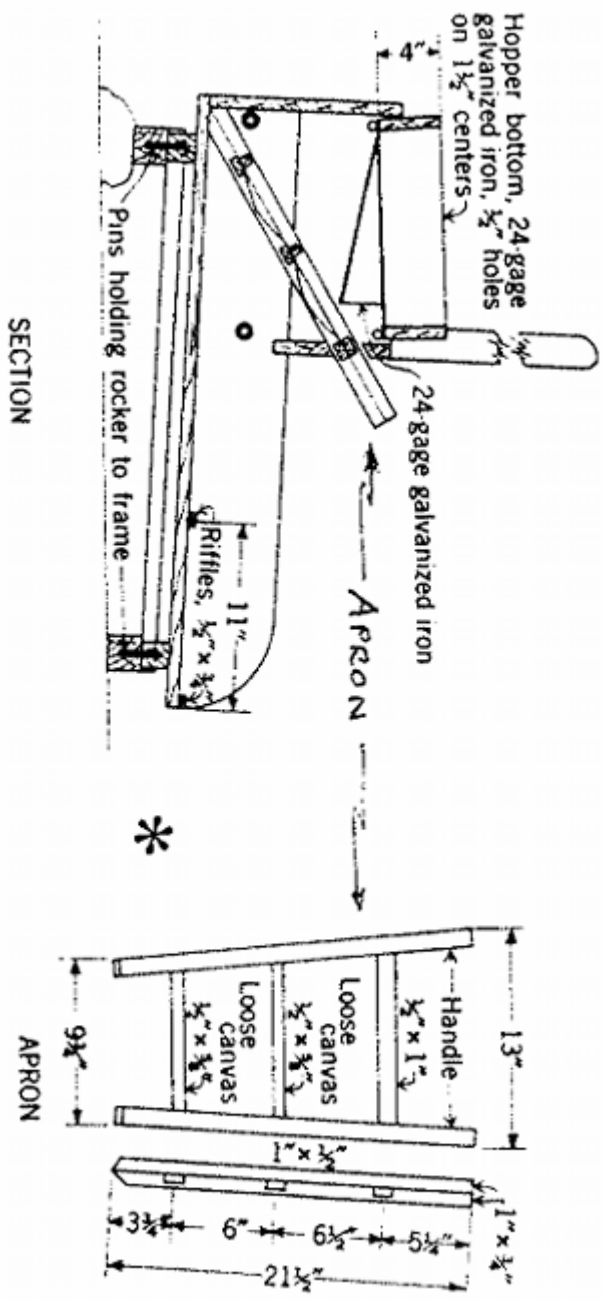


Figure 3.—Prospector's rocker: