

A NOVEL SLOPE TRIMMING MACHINE.

IN the construction of a 750,000-bbl. reinforced concrete-lined oil reservoir built by Mr. E. D. Cole, Assoc. M. Am. Soc. C. E., at Bakersfield, Cal., a very unique method of slope trimming was adopted. The reservoir has the following dimensions: Inside diameter (bottom), 462 feet; inside diameter (top), 528 feet; depth, 22 feet; width of top of embankment, 11 feet; inside slope, $1\frac{1}{2}:1$; outside slope, $1\frac{1}{2}:1$; thickness of concrete lining (bottom), 3 inches; thickness of concrete lining (top), $2\frac{1}{2}$ inches.

The method of trimming the slopes, as described by the builder in the August number of the Transactions of the American Society of Civil Engineers, was as follows: On the completion of the main embankment and the refill, the excess material on the inner slope, which ranged in thickness from 1 ft. at the top to 2 ft. at the bottom, was trimmed off leaving the slope smooth and true to grade. Grade stakes were set on radial lines, both at the top and inner toe of the slope, approximately every 10 ft. around the circumference of the reservoir. Men with mattocks and slope-level boards then dug narrow trenches, 1 ft. wide and true to grade, from the top grade stake to the stake at the toe of the slope. Then

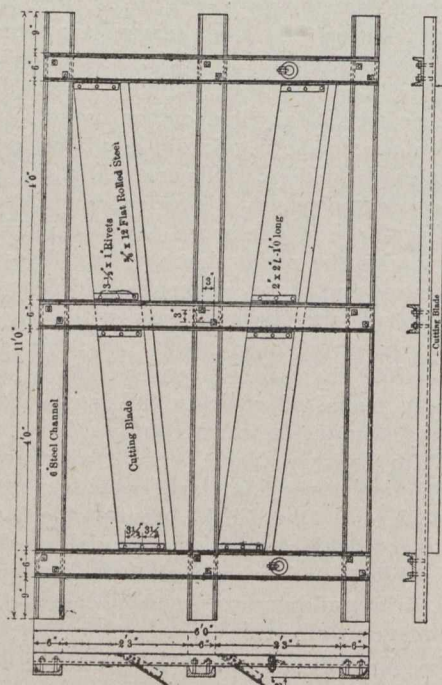


Fig. 1.—Slope-trimming Machine.

2 by 4-in. timbers, 38 ft. long, each faced with a narrow strip of strap iron, were placed in the bottom of each trench to act as guides for a trimming machine which was used to finish that portion of the slope between the hand-dug trenches. Before using the planer, however, all excess material above the top of the 2 by 4-in. timbers was scraped off the slope with a specially made scraper which was dragged up and down the slope, power being furnished by a double-drum hoisting engine at the centre of the reservoir. The back-up line from the engine passed through a 12-in. snatch-block supported at the top of the slope on a portable wooden truss designed for that purpose. This wooden truss was anchored against overturning by two heavy chains fastened to iron stakes driven into the top of the embankment. As each succeeding section of the slope was finished, the wooden truss was moved along the top of the bank with a team of horses.

After the bulk of the material above the top of the 2 by 4-in. timbers had been removed, this slope-trimming machine was substituted for the scraper and used to plane off the remaining thin layer of earth and bring the slope to grade, or flush with the bottom of the guides. Fig. 1 shows the trimming machine, which consists of a rectangular frame, 11 ft. long and 6 ft. wide, built up of 6-in. steel channels bolted together and carrying two cutting blades. The cutting blades are of $\frac{3}{8}$ by 12-in. flat rolled steel, and are set at an angle with the frame of 1 to $2\frac{1}{2}$. The blades are also set at a slight angle longitudinally with each other, and the cutting edge projects down 2 in. below the bottom of the frame. The planer is dragged back and forth on the slope until the ends of the frame ride on the top of the guides, and that particular section is shaved off flush with the bottom of the guides, or down to grade. In this way nearly nine-tenths of the slope were finished by machine and at one-half the cost of doing the work by hand. One might naturally suppose that there would be considerable difficulty in keeping the guides in place without staking them down, but very little trouble was experienced. Loose earth would fill in the trenches around the guides as the machine worked above them, and this served to hold them in place. The trenches being dug on radial lines necessarily made them closer together at the bottom of the slope than at the top, but the blades of the planer were long enough to catch all the earth between trenches at the top of the slope and still have room at the bottom without binding between the guides.

PROGRESS IN TORONTO UNION STATION MATTERS.

On September 8th an Order-in-Council was passed in Ottawa confirming the agreement between the Toronto Terminals Company and the Government, by which the postal station is to be constructed as an east wing of the proposed new Union Depot at Toronto. The Government is to pay \$17,000 a year for twenty-one years for the lease of the land, and the lease is renewable in perpetuity. The Public Works Department will pay the cost of the new wing, which is to be constructed on plans approved by its architects. The estimated cost is \$800,000, and the agreement is expected to be executed in a few days, thus permitting the work to go on without delay.

A further agreement relates to the customs warehouse. If this is required for trackage, the company is to pay \$110,000 for the building and allow the Exchequer Court to fix the price of the land. The department is to occupy the building until the new one on Front Street is completed.

There are few countries possessing so many rivers adaptable for working hydro-electric installations as the Caucasus, and yet up to now only about a dozen or so power stations exist there. A concession was granted by the Russian Government in November, 1912, to a British firm, the main feature of which was the erection of power-houses to accommodate turbines and generators for furnishing electrical energy for lighting and commercial purposes to cities, towns and industrial centres of the Northern and trans-Caucasus. Some progress was made during the first half of 1914, and all preliminary works have been completed and plans prepared. The financial side of the question has still to be solved, but it would be unreasonable to expect that this can be achieved before the close of the war.