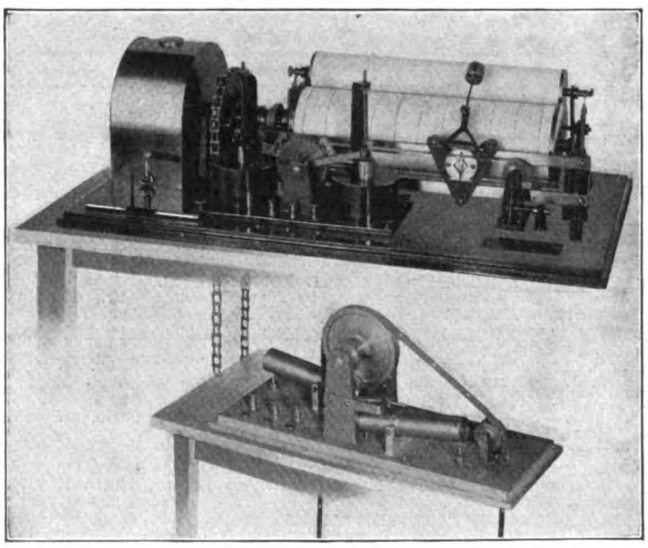
**Canadian Society of Civil Engineers**—The following have been nominated for the various offices of the Canadian Society of Civil Engineers: President, F. C. Gamble, Chief Engineer, Public Works Department, Victoria, B. C.; Vice-President for three years, A. E. Doucet, District Engineer, National Transcontinental Ry., Quebec; A. St. Laurent, Public Works Department, Ottawa. Vice-President for one year, E. E. Brydone-Jack, professor of Civil Engineering, Manitoba University; Gordon Grant, Chief Engineer, National Transcontinental Ry., Ottawa.

## Appliances and Materials

### Stevens Distant Water-Stage Recorder

The utility of the Stevens water-stage recorder, described in "Engineering News," July 25, 1912, has been increased by a long-distance reporting attachment (shown in the accompanying view). The "sender" has a spine pulley over which runs a perforated bronze band connecting a float and counterpoise. On the same shaft are two ratchet wheels, with opposed teeth, operating spring hammers; a blow is delivered once for each stage interval (as 0.05 ft. height, for example). One hammer is for rising stage and one for falling. When a hammer is released it strikes the end of a pivoted inclined tube. A metal ball within is driven forward by the impact, causing the tube to dip and to hold an electric circuit closed until the ball rolls back (interval arranged to be about 1 sec. to insure operation of recorder).



STEVENS LONG-DISTANCE WATER-STAGE RECORDER

The receiver is fixed to the bedplate of a recorder; in place of the float pulley on the shaft of the spine wheel that drives the pencil carriage, there are fixed two ratchet wheels with opposed teeth Playing over these ratchets are pawls carried by loose arms on the spine-wheel shaft. One or the other of the arms is pulled down by a solenoid whenever the proper circuit is closed by the sender. The ratchet wheels are moved each time a distance proportional to one-stage interval and the pencil carriage moved to the right or left to record the change in water level. The simple machine requires two circuits and three wires, unless a good ground connection is secured. Only intermittent current is required and ordinary dry cells serve. Any length of circuit may be used over which a telegraph relay can be operated. The system is also adapted to duplex and differential stage recorders where two distant levels or their difference is to be recorded. The apparatus was designed and patented by J. F. Stevens, Consulting Engineer, Portland, Ore., and is made by Leupold, Voelpel & Co., of Portland.

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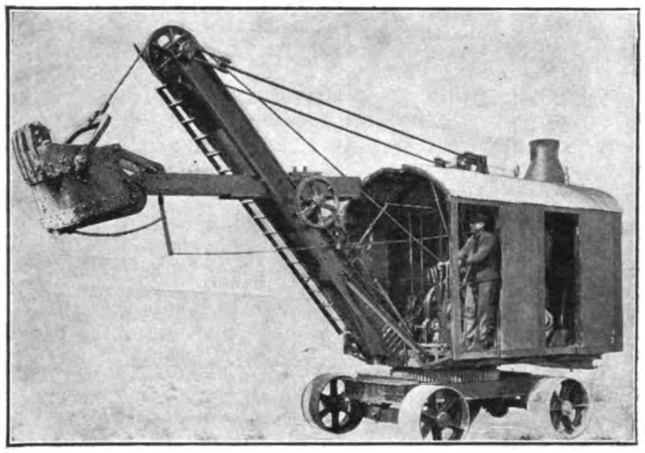
### Small "Single-Line" Steam Shovel

A single-line revolving steam shovel, equipped with a ⅝-cu.yd. dipper was recently placed on the market. The following information about it has been furnished by J. G. Rauch, of the American Steel Dredge Co., Fort Wayne, Ind., the makers.

Ordinarily the hoisting cable is reeved over three sheaves between dipper and boom point; with the single line there is no tackle so exposed. For the same boom position there is somewhat more horizontal pull on the dipper, due to the large single sheave. Elimination of tackle increases reach and lift some 2 ft. Only about one-third the amount of cable is wound up as with a three-part line, which gives a smaller drum and more cab room. The engine size is not unusual, but speed is reduced by compound gearing to the drum. Independent swinging engines are placed at the side of the hoisting engines, leaving the space between the latter and the boiler



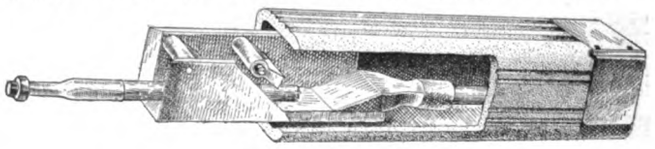
A ONE-MAN STEAM SHOVEL

unobstructed. The dipper, attached to a 16½-ft. boom by a structural-steel handle, can dig 2 ft. below the wheel level. The working weight of the entire machine is 35,000 lb. Only one operator is required.

The nearest prior approach to a single-line shovel was a railway machine built for the Atlantic Equipment Co. and described in "Engineering News," Aug. 4, 1904. In place of one heavy line, there was a smaller cable doubled; both ends were fastened to the drum, the boom-point sheave was double grooved, and there was an equalizing thimble sheave at the dipper. The hoist engines were mounted on the boom.

* * *

**An Improved Scheme for Recovering Broken Conduit Rods**—The pickup device shown in the accompanying illustration has recently been designed for recovering broken rods and lost tools in underground conduits more easily than possible with any fishing scheme or by tearing up conduit. A box loosely fits the interior of a duct and carries two flaps or



A PICKUP TOOL FOR CONDUIT WORK

doors. It is pushed ahead by a handle to which the ordinary jointed conduit rods may be attached. When the lost tool or broken rod is met, the sharp front edges of the box guide it inside; after it has passed the flaps, a backward pull on the pickup causes these to grip so that the obstruction can be pulled out with the pickup. This device was invented by M. Blumenthal and is made by B. S. Barnard & Co., 50 Church St., New York.

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### Grade-Crossing Warnings

A flashing signal to warn automobilists of dangerous curves and railway crossings at night is being tried out by the City of Philadelphia at Wynnewood Ave. and City line, Overbrook. This device, called the "Highway Beacon," is a production of the American Gas Accumulator Co., of Philadelphia, and experiments are reported under way in London and at Potomac Park, Washington, D. C. The new lamp has a lens, 5 in. in diameter, a flasher and a gas-pressure regulator. It is mounted on a 10-ft. wood post, at the base of which in an acetylene-gas tank with storage capacity for 50 cu.ft. The beacon flashes 60 times per minute, and the gas costs about 40c. per month, the tank not requiring renewal for two months. This flasher is, of course, of the same general design as that used in railway signaling. The latter type has been fully described in "Engineering News," Apr. 9, 1914, p. 776.