

with different weights of the explosive, beginning with a quantity so small as not to effect rupture, and increasing by regular amounts to a charge which will be more than sufficient. Select the blast which has produced the desired effect as the one by which to determine the coefficient. If this hole was charged with $\frac{3}{8}$ lb. (0.625lb.) of dynamite, then the rock coefficient is $\frac{0.625}{23^{(=8)}} = 0.0781$. The charge to be used in future blasts is found by multiplying the cube of the length in feet of the line of least resistance by this coefficient. For instance, in this rock, a line of least resistance $2\frac{3}{4}$ feet long would require $2.75^3 (=20.797) \times 0.0781 = 1.624$ lb. of dynamite. As the specific gravity of well-compacted high-grade dynamite is about 1.6 (giving 0.0576 lb. per cu. in.), and as the bore hole has a diameter of $1\frac{1}{2}$ inch, the charge will occupy a length of 1.25 feet in the hole. This is approximately correct also as to the length of charge in the bore-hole, which should have been $1.5 \times 12 = 18$ inches. Guttman recommends that when there are more than two free faces the proper charge will be the following:

For three free sides, $\frac{2}{3}$ of the calculated charge.
 " four " $\frac{1}{2}$ " "
 " five " $\frac{1}{3}$ " "
 " six " $\frac{1}{4}$ " "

The economy in simultaneous firing will vary with the strength of the rock, but on an average it may be said to save about 25 per cent. of explosive. The economy of boring under the best conditions will amount to about 24 per cent. This depends on the distance apart of the bore-holes.

For very strong compact rock the distance between holes in simultaneous firing should be at least twice the length of the line of least resistance; for average strong rock, $1\frac{1}{2}$ to 2 times; for moderately strong rock, from the same length as the line of least resistance to $1\frac{1}{2}$ times that distance; and for weak rock only the length of the line of least resistance.

(To be continued.)

IMPORTANT EXHIBITION OF ARCHITECTURAL DRAWINGS.

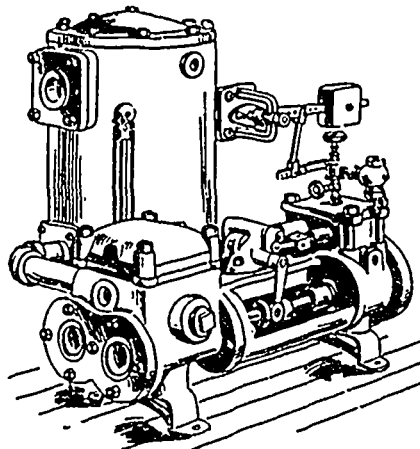
By far the largest and most important exhibition of architectural drawings ever held in Canada is the one which is now open free to the public in the Galleries of the Ontario Society of Artists, King St. West, Toronto. This exhibition is being held under the auspices and direction of the Toronto Architectural Eighteen Club, in affiliation with the Architectural League of America. The American drawings for this exhibition were very carefully selected by a committee of the Architectural League in the leading cities of the United States. They represent the work of many

of the most skillful architects of the United States. The collection includes the original drawings for the Pan-American Exposition buildings at Buffalo. There are also in the collection a considerable number of drawings by Canadian architects. The exhibition, as already stated, is free to the public, being open every day from ten to five o'clock. Architects, builders, draughtsmen, and all persons who feel an interest in architecture, should make it a point, if possible, to visit this exhibition.

A. E. AMES & CO.
 BANKERS.
 18 King Street East, TORONTO.
Buy and Sell
GOVERNMENT, RAILROAD and
MUNICIPAL SECURITIES.

Please mention the CONTRACT RECORD when corresponding with advertisers.

THE NORTHEY AUTOMATIC FEED PUMP AND RECEIVER

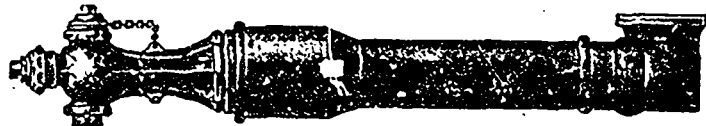


The most successful device in the market for returning water of condensation from pipes and coils of steam-heating systems at the highest possible temperature to the boilers. By keeping the pipes clear for the steam it ensures a quickly operated, noiseless, regular heating service. Takes up little room. A favorite with prominent Engineers and Architects.

Send for New Free Pump Catalogue, containing designs of Pumps for every conceivable duty. Should be in the hands of every Architect and Engineer.

The Northey Co.
 Limited TORONTO
 1015 King Street, Subway.

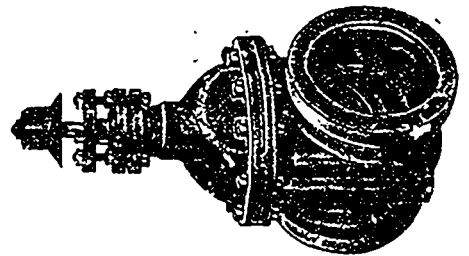
The KERR ENGINE COMPANY, Limited



Corporations and Contractors... should not fail to obtain our prices on

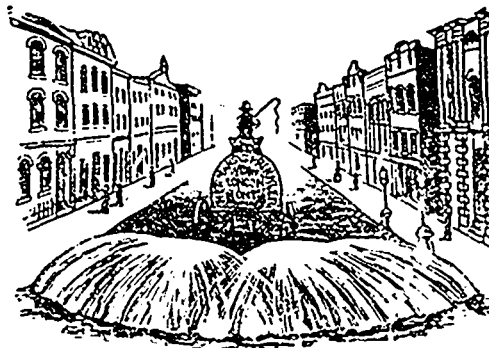
PUMPING MACHINERY, HYDRANTS and VALVES

WALKERVILLE, - ONTARIO



- Studebaker Sprinkler -

(PATENT IMPROVED)



Does not Clog or get out of Order.

Greatest Width of Spray.

Can be Gradeed from Driver's Seat to any Volume.

We also make an. . . .

Improved Vertical Spray

. . . . for Pavements

Write for Prices and Catalogue to

Geo. Heaman, Mfr.
 LONDON, ONT.

CENTRAL CANADA LOAN AND SAVINGS COMPANY
 Cor. King and Victoria Sts, TORONTO

Highest Market Prices paid for

Municipal Debentures

F. W. BAILLIE, Secretary. E. R. WOOD, Managing Director.

STONE Crushers, Stone Spreading Wagons, Wheelers and Drag Scrapers, Plows, Steam and Horse Rollers, Road Graders, &c.

SAWYER & MASSEY COMPANY, Limited - Hamilton, Canada