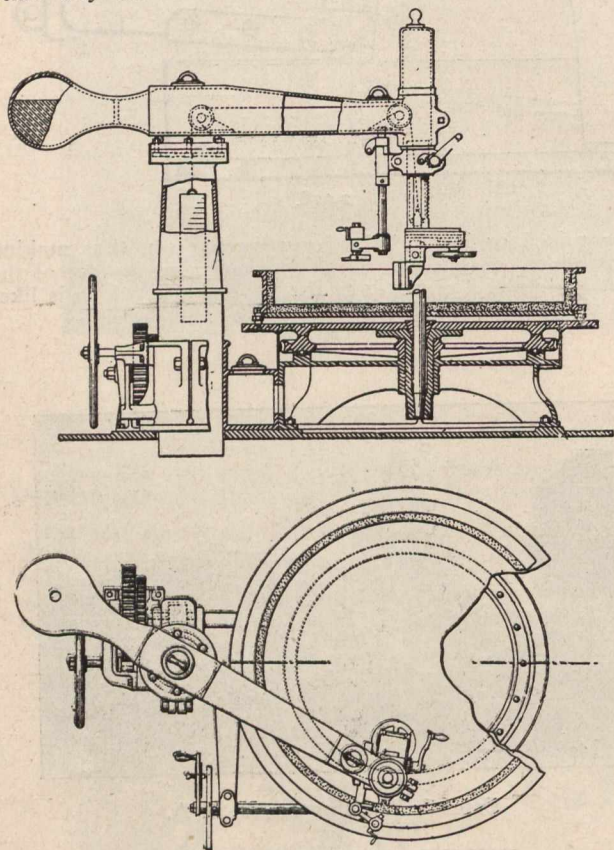


**Gear Moulding Machine.—Samuel Groves.—573,783.—**

This foundry appliance is designed for the moulding of spur, bevel, helical, staggered, or worm-toothed gearing (internal or external), from 6" to 72" diameter, and to 15" face. It is claimed that this variety of work can be done on the machine without any change of parts except tooth-block. (1) The cross arm or jib is balanced, as also is the vertical tooth-block spindle, thus guarding against the undue straining and springing, which is a defect in all existing machines. (2) The flask table is capable of easy movement, as it is supported on ball bearings, rolling in carefully turned grooves. The balls are separated, the interval being nine inches. (3) The precise centering of the tooth-block slide, and flask table, is secured by a tapered sweep spindle. The tapered cavity on slide is lowered over top of spindle, and in this way the relative accuracy of table and tooth-block



573,783.

slide is demonstrated. (4) The tooth-block pattern is lifted out of the mold by a permanent rack, but it can also be withdrawn from the sand horizontally, by means of an eccentric device, which is reversible—especially valuable in the making of helical or worm gears, with either internal or external teeth. (5) The lifting or lowering of mast and cross arm, is performed by means of trundle gearing. (6) By means of a tooth-comb device the sand of the tooth space is held down by a swing lever arm while the tooth-block pattern is being withdrawn. This overcomes the old trouble of sand pulling up under hand pressure. (7) The flask is supported upon four adjustable brass stools, having right and left hand threads, and hence can be lowered and raised readily. (8) The most economical improvement of all, is the substitution of an index plate for spacing the teeth, in place of the expensive and inconvenient system of change gears found on nearly every other machine. This device means equal accuracy, easier operation, and at the same time saves the expense of a large number of cut gears. An easily understood chart is provided, by which all even numbers up to 200 can be fixed in one minute without any change of parts.

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**NEW METHODS AND CONDITIONS OF BUILDING.**

The demand for rapidity in building construction is growing daily among owners, architects, and engineers, but up to the present time, few Canadian companies have made a specialty of this work. A recently organized company, with headquarters at Montreal, is the Dominion Engineering and Construction Co., Limited, which has adopted progressive methods in engineering and construction work. The company does all its work on the Gilbreth cost-plus-a-fixed-sum system; which system, as perfected by the company's second vice-president, (Frank B. Gilbreth), has accomplished some

remarkable results in speed, coupled with efficiency of construction. The working organization is based on economic lines, and its departments so systematized that a maximum of results is obtained with a minimum of effort. With this system, every man is enabled to do his best, and blunders and delays of the ordinary working force are eliminated. The Gilbreth system also enables the owner to tell what the work is costing him each day, and the contractor is enabled to keep posted as to the exact status of same. Speed under such a system is a natural result, and as the contractor's profit is fixed at the start, all motive to skimp the work is done away with.

The Engineering Company has been quite successful, and as Canadians have adopted their methods readily, they look upon it as a tribute to progressive Canadian methods in construction.

The directorate is made up of some of the best known men in the building world in Canada, namely, Randolph Macdonald, president; Henry Holgate, vice-president; Frank B. Gilbreth, second vice-president; Robert A. Ross, secretary; John A. Aylmer.

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**AMERICAN CAPITAL IN CANADA.**

Yankee enterprise is no mean factor in the development of Canada. Large numbers of farmers are flocking from the northwestern part of the United States to the Canadian North-West. Millions of dollars of American capital are invested in the Lake Superior Corporation plants at the "Soo." American capitalists are also largely interested in the Dominion Coal Company Limited, in the Dominion Iron and Steel Company, Limited, in the Canadian Steel and Coal Company, and in the Cramp Iron Works.

Consul Worman reports that the Union Bag and Paper Company, of New York, which has for some time carried on business at Three Rivers, has just acquired the limits, mills, water power, etc., of the Gres Falls Lumber Company, covering some 1,200 square miles. The mills are at Three Rivers. The price paid has not been made public, but it is said that the figures run between \$800,000 and \$950,000. The Singer Sewing Machine Company, of South Bend, Ind., is building a branch factory at St. Johns, Quebec, that will cost, when completed, \$1,500,000. It will be the largest plant of the kind in the Dominion, covering thirty-seven acres, and will employ 1,400 hands. Nearly all the material used in its construction is being purchased in the United States.

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**COAL GAS.**

Varies in constituents according to kind of coal used and other circumstances. Average:—

	Per Cent.
Hydrogen . . . . .	45.50
Marsh gas . . . . .	35.32
Carbon monoxide . . . . .	6.12
Ethylene, etc . . . . .	4.10
Nitrogen . . . . .	1.2
Carbon dioxide . . . . .	1.2

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**INDUSTRIAL NOTES.**

For the first time in the history of the Dominion Iron & Steel Company their four blast furnaces are now producing together.

The Hamilton Steel & Iron Company, Limited, has decided to erect a second blast furnace with a capacity of four hundred tons per day.

A sand lime brick industry will be established at Brantford, Ont. Necessary machinery will cost over \$30,000. W. D. Schultz is interested.

The Canadian General Electric Co., Peterborough, Ont., will erect additional buildings to cost some \$350,000, practically doubling their capacity.