THE CANADIAN ENGINEER

A French type of engine that will be made in Canada at an early date can be used for automobiles, yachts, direct connection of dynamos for lighting, etc., running pumps in place of wind mills, running centrifugal pumps for mining purposes, for general farm work, threshing and several other purposes. A 10 or 12-h.p. engine will weigh in the neighborhood of about 300 lbs. Gas engine plants can be installed for one-half of an electric plant, and 25 per cent. of a steam plant.

> Respectfully yours, F. C. BROOKS.

Niagara Falls, Ont.

DEVICE FOR PREVENTING EXPLOSIONS OF GASO-LINE AND OTHER INFLAMMABLE LIQUIDS.

An invention in Birmingham, England, called "nonex," is a device for preventing the explosion of receptacles containing highly inflammable liquids like gasoline, benzine, etc., which give off explosive gases. It is an application of the principle of the Humphrey Davy safety lamp used in gaseous mines, supplemented by a fusible cap or plug. If a vessel of ordinary type containing an explosive liquid be subjected to sufficient outside heat, or if the contents be lighted at the orifice, the walls of the tank will burst by the force of the expansion. At an exhibition given by the Non-Explosive Device Company, a 20-gallon tank was partly filled with gasoline and placed upon a lighted bonfire. The fusible screw cap, made in two parts, which were simply soldered together, soon blew out, the solder having melted, and the ascending vapor caught fire immedi-ately; but no explosion followed, because the orifice of the tank formed the upper end of a tube which projected down inside the vessel to its bottom, where it was closed. To allow the oil or gas to percolate from the interior of the tank each of the metal layers of which this tube was composed had been perforated, and, while the perforations would permit the spirit to be poured out, they prevented the passage of the burning gas to the interior by absorbing its heat as the wire gauze does in the Davy lamp. While the gasoline contained in the tube burned, the flame did not extend to the liquid or accumulated vapor in the half-full tank. The flame was easily extinguished with a bundle of rags and then lighted and put out several times. A motor car tank to which the device was affixed was lighted with a match and extinguished at will. A gasoline can without the device exploded almost instantaneously when lighted.

HYDRAULIC FLANGER.

Fielding & Platt, of Gloucester, England, who have equipped the majority of the leading locomotive and engineering shops of the world, have supplied the Hydraulic Steel Flanger, here illustrated, to the Locomotive and Machine Company, of Montreal.

This machine has a gap of 4 feet, and an opening of 5 feet, the total power exerted by the two vertical rams 100 tons (112 short tons), and by the horizontal rams 50 tons (56 short tons), generally as described below. The main frame is of cast iron of box section, amply strong and rigid, fitted with horizontal ram for flattening ends of plates. The frame is planed to receive cylinders which are secured by a pair of strong steel turned bolts fitting in bored holes. There are two vertical rams of cast iron, turned and polished and fitted with hemp packing, also one horizontal ram, the cylinder being gunmetal lined. The drawback cylinders are bolted to main cylinders and connected to the main rams by means of flat steel wire ropes passing over equalizing pulleys as shown, the cylinders being of cast iron, with cast iron rams turned and polished, and fitted with glands for hemp packing. The horizontal ram is fitted with direct piston drawback formed in cylinder cover. The operating valves are of Fielding's patent piston type, with gunmetal bushes and fittings. These valves to be designed to ensure ease of working, easy removal and renewal of same, having extra large area of water-ways. The machine is fitted with one set of blocks for sectional flanging circular plates, consisting

of bottom block, with two curves of different radii; one vice block fitted with vertical ram; one flanging block fitted to rear vertical ram; one planed angle guide bracket for guiding flanging and horizontal rams; one horizontal ram extension piece and squaring uptool.

A crane was also supplied by Fielding & Platt, for lifting the plates into position in connection with this Hydraulic Flanger. It was designed for lifting 5 gross tons through a height of 5 feet, and with a rake of 20 feet, being to the following specification. The post and jib are of steel of I section, and the tee bars of steel. Contained between the posts is a cylinder of cast iron, bored out for ram with hemp packing, the cylinder also supports the jib, turned steel shafts are carried in bosses on the cylinder which carry rollers that guide the cylinder, and brackets with gudgeons



Hydraulic Flanger.

are fitted in top and bottom of post to support the crane, pressure is admitted through the ram, a carriage or jib with rollers and swivelling hook are provided, as shown. The working valve to be placed on the Hydraulic Flanging Press that this crane would serve.

The Canadian representatives of this company are Peacock Brothers, Canada Life Building, Montreal, who have been pioneers in the introduction in later years of British machinery, having imported the large majority of the heavy British machines brought here in the last six years for mining and general engineering purposes.

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MACHINE SHOP NOTES FROM THE STATES.

By Chas. S. Gingrich, M.E.

IX.

One of the most tedious and most expensive pieces of work that are met with in manufacturing woodworking machinery is squaring and grooving the steel cutter heads to which the cutters of rotary wood planers are secured. For years it has been the custom to turn up the journals, and then work the body of the piece down square to the correct shape on a planer. These pieces are made of high carbon steel in order that the journals may be durable at the high speed at which they must work; consequently the machining process is a very slow one, particularly slow because of the accuracy required in order that the edge of each of the four cutters which each piece carries will be on a radial line and exactly the same distance from the centre of the piece.

The extensive use of the milling machine has simplified