A NEW FUEL SAVER.

Fuel saving and smoke consuming devices are by no means a novelty among engineers, and the mention of them sometimes brings an incredulous smile. The smoke consumers have failed because they have been devices of the mechanical kind, and soon cease to arrest the particles of smoke. Some remarkable tests have been made in Montreal, during the last month or two, with a compound which is at once a fuel saver and a smoke consumer. The preliminary tests were so satisfactory that Wm. Angus, the well-known paper manufacturer, decided to take an interest in the matter, and a company has been formed called the Coal Saving & Smoke Consuming Co., with offices at 454 and 456 St. Paul St. An exhaustive test was made on this compound in the large boot and shoe factory of Ames, Holden & Co On the day before the test was made the engineer had used the usual average of 2,400 pounds of Wishart coal; and when the compound was applied, 1,900 pounds of screenings, costing half the price, were used. During the test of the compound the proprietors went out to look at the chimney, and were surprised to find, instead of the usual dense black column rolling skyward, a feathery path of thin grey smoke When the furnace is examined with this compound in use, a white, incandescent heat is observed, and a comparatively thin layer of coal is spread over the furnace. It is claimed that, while the sprinkling of the coal with the compound gives no trouble, there is much less labor required in firing, owing to the more complete combustion of the coal. In short, a saving of 15 to 40 per cent. in fuel is guaranteed by this company after paying for the compound, and they undertake to prove their case or make no charge.

A HUNDRED years ago William Murdoch "illuminated his home with gas made in an iron kettle, and burnt at the end of an open iron tube."

AN English authority furnishes a process for mottling iron, which is said to give a beautiful appearance to the various parts of engines and general machinery. The iron is to be case hardened, is first brightly polished, care being taken to remove all grease. The articles are then placed in an iron box and covered either with bonedust or old leather that has been burned. The box is then placed in a brisk fire and allowed to remain about one hour, or until no doubt remains that all parts of the iron are heated to redness. The contents of the box are then dumped quickly into water. This operation requires great care, as the air must not strike the iron before it reaches the water. Special apparatus and practice are necessary to give the iron the desirable blue-gray mottled color, for if the air touch the iron it assumes a black or blue-black streaked hue accordingly as the experiment is more or less imperfect. After the case hardened iron is cooled it is varnished and the operation is complete.

COTTON-SEED OIL has taken an important place in the mechanic arts; it is an admirable lubricant. Heavy tools keep their edge and retain their temper better when served with it than with any other known lubricant. For cooling a heated bearing, or tempering steel, it is invaluable, and its use for such purposes is now become common among engineers.

THE following is recommended as a cement on glass, porcelain and iron: 120 grammes of gum arabic and 30 grammes of gum tragacanth are macerated separately in a little water; the latter mixture is agitated until a viscous emulsion is formed, when the gum arabic solution is added and the whole filtered through fine linen. With this liquid are then incorporated 120 grammes of glycerine, in which 2·5 grammes of oil of thyme have been dissolved. The volume is then made up to one litre by the addition of distilled water. This paste is said to possess remarkable adhesiveness, and to keep well in sealed flasks.

M. DE BOVET has brought out an ingenious system of magnetic pulleys. In the case of a chain pulley, the ordinary system with recesses wears the chain away rapidly, and in time the pitch of the chain and pulley do not correspond. M. de Bovet uses a pulley with a deep recess containing a coil. This magnetizes the pulley in such a way that the links of the chain complete the magnetic circuit. The pulley thus resembles a plain cylinder with a groove. Alternate links lie flat, completing the circuit, while the others fit lousely into the groove. Such a chain pulley as this runs smoothly and gives no trouble even when worn. It can also be used for driving flat strips of steel, which might be used as loose belts.