

British House of Parliament. CREAT BRITAIN.

Fuel Supply.—John Broadwood and Sons, Limited, and R. H. Collen, London.—2,042, 1906.—This invention relates to means for feeding fuel to boiler and other furnaces, and is adapted for fuel consisting of wood refuse, ligneous or other combustible material, with or without liquid fuel, small coal, or coal or coke-dust, and consists in a combination of devices whereby fuel is pneumatically fed to the boiler or other furnace. In the accompanying drawing, **a** is the fan or blower, whereof the inlet is connected by means of a pipe **b**1 to a fuel-receiver **b**, while the outlet is connected by means of a pipe **c**1 to a fuel delivery **c**. The fuel is preferably delivered into the upper part of the boiler furnace **d** through an opening **d**1, which may be regulated by a damper. Refuse is conveyed by means of a pneumatic or other conveyor to a centrifugal separator **f**, commonly known as a "cyclone," wherein the refuse is whirled round in such a



manner that the solid particles are separated from the air, the latter escaping at the top of the apparatus, whilst the solid particles are discharged at the bottom into the hopper **b**. The open mouth of the hopper **b** also serves for the reception of small coal, or coal or coke-dust, which may in this manner be mixed with the refuse. The supply of air and fuel to the furnace may, if desired, be diminished or cut off by a damper placed on the inlet side of the fan **a**, and the furnace worked in the usual manner through the furnace door. When this damper is closed, or partially closed, and the centrifugal separator maintained in full operation, the refuse discharged from the separator may be greater in quantity than can be carried away by the fan **a**, in which case the surplus material is free to escape from the openmouth of the hopper. By the means described refuse and other combustible materials may be burned smokelessly.

Reversing Mechanism.—Ceneral Contracts Company, Limited, and J. W. Kelly, London.—5,536, 1906.—This invention has reference to the reversing mechanism of screw-cuting, tapping, and drilling-machines. The object is to provide mechanism which will be continuously automatic in its reversing action, not only to withdraw the tap from the hole when the required depth has been reached, but to restart the tap in its forward movement, immediately it has arrived at the end of the backward travel. **a** is the tool-holder, **d** is a clutch which is capable of movement lengthwise of the toolholder by means of a lever **e**; **h**. **h**r. **h**2 are gear-wheels, to which motion is imparted from a pulley **i**; **k**. **k** are teeth on the gear-wheels **h**. **h**r, which take into corresponding teeth on the clutch **d**. The lever **e** is connected to a sliding-piece **p**, having a stud **r** that takes into a path **s** in a circular campiece **t**, driven from a worm **v** on a shaft **w**. On motion being imparted to the pulley the tool-holder will be driven and caused to approach the work. While this motion is taking place the rotation on the cam-piece **t** will cause the stud or projection **r** on the slide **p** to move the lever **e**, so that when the required forward travel of the tool-holder has been obtained, the clutch **d** will be moved out of contact with the wheel **h** and into contact with the wheel **h**r, thereby imparting a reverse motion to the tool-holder, the backward and forward movement being repeated at each revolution of the cam-piece t. It will be evident that the duration of the backward and forward travel of



5,536.

the tool-holder will be regulated by the speed of rotation of the cam-shaft \mathbf{t} , which may be readily varied by means of differential band wheels \mathbf{x} , \mathbf{x} .

Permanent-Way Blocks.—W.. Baxter, Sen., Leith.—20,-341, 1906.—This invention relates to blocks used in connection with the permanent-way of tramways to prevent the excessive tear and wear of the paving setts or other road-paving material immediately adjoining the sides of each rail, and its object is to improve the construction of such blocks so as to render them more satisfactory and efficient in use, non-slipping, whilst at the same time materially reducing their weight and cost of production. The block A, which is solid, and made of metal, may be cast, forged or stamped, with or without perforations or recesses B. The exposed surface C is of comparatively small breadth, and may be chilled or hardened to wear equally with the stone or other road-paving material. The inner face D of each block A is, as usual, formed to correspond to the side of the rail, or any fittings in connection with the rail, against which it bears, and each block is of such a length that it extends outwards for a short distance beyond the base of the rail. To reduce or eliminate risk of displacement the base of each block A is enlarged by an angle-iron E. If preferred, however, two of these blocks A may be made in one piece. The blocks A



are arranged in pairs, with their angle-irons E facing each other. The distance between each block forming a pair, and between each pair of blocks, may be varied. Between each block A forming a pair there is inserted a stone or other paving sett F which is the same length as the exposed surface of the blocks, but the next abutting sett G is approximately twice the length of the first sett F or of the ordinary size, so as to break joint with the row of setts H on either side.

United States Consul S. H. Shank reports from Winnipeg that during the past year there have been sold in that Canadian district about 10,000 grain drills, about one-third of which were American made, and about 1,000 cultivators, almost all of which were Canadian-made machines. He adds that there are some five or six American firms already in that market, but the development of the country will make a good opening for agricultural implements of all kinds.