BRICK MOULD USED IN THE HAND MOULDING PROCESS

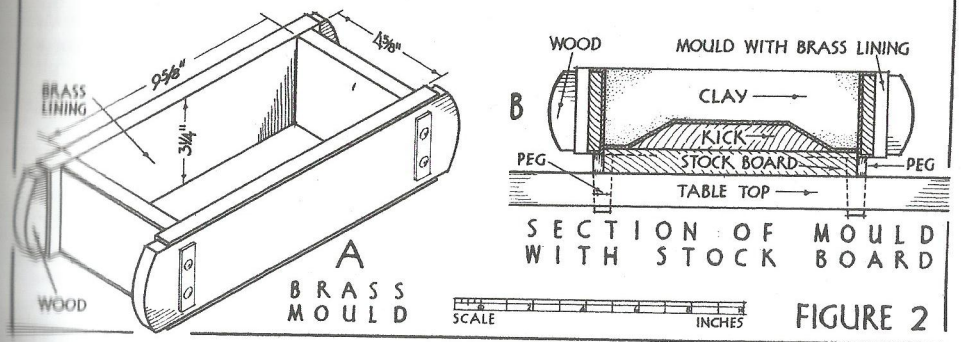

FIGURE 2

wire-cut and pressed green bricks which are used instead of clots to fill the moulds.

(b) *Slop-moulding.*— This method is now rarely employed. The clay used in this method is more plastic than that used for sand-moulding. Sand is sprinkled on the prepared portion of the table or stockboard. The mould, entirely of wood, is dipped into a trough of water (provided on the bench) and filled with a clot as above described. As the bricks are not sufficiently stiff to permit of their immediate removal on a pallet, the full moulds are taken to the drying floor and there turned out.

3. DRYING.—With exception of common bricks made by the semi-dry process (see p. 2) and certain pressed bricks moulded by the stiff-plastic process (p. 2), bricks must be dried before being placed in the kiln. This applies particularly to those made by the plastic process (p. 2), where the water content may exceed 25 per cent. Drying is effected by (*a*) artificial and (*b*) natural means.

(a) *Artificial Drying.*—The chief heating mediums are steam, direct heat from fires, and waste heat from kilns and boilers. The dryers include the (i) hot floor, (ii) shed, (iii) chamber and (iv) tunnel types.

(i) *Hot Floor System.*—This is commonly employed for drying plastic (wire-cut) bricks. The floor is usually that of the building in which the bricks are moulded and should be adjacent to the kilns. It consists of either steel plates or concrete slabs which cover conduits in which the steam pipes are laid. The steam is controlled by valves in order that the temperature may be regulated to suit the bricks. The steam may be generated from the boiler which provides the power for the crushers, grinding mills, etc.

When direct heat from coal or coke fires is the medium, a number of long flues are constructed immediately under the floor. The flues are about 18-in. square and are parallel to each other at about 8-ft. centres. Each flue is slightly inclined upwards from a fireplace at one end, and the upper ends are connected to a transverse flue which delivers into a chimney.

If waste heat from the kilns is used, the flues under the drying floor are arranged as last described, except that their lower ends are connected by a transverse flue which is connected to the kilns. The flow of gases from the kilns is controlled by a fan at one end of the upper transverse flue.

The bricks from the moulding machine or bench are preferably placed on end on the hot floor, with a space between each, when the heat gradually dries them from the bottom upwards. If the bricks are not stiff enough to permit of this, they are placed on bed on the floor. The time taken to dry bricks varies. Some bricks may be taken on barrows direct to the kiln after being left on the hot floor for one day only, whilst others may require five days before they are fit for removal to the kiln.

(ii) *Shed or Room Dryers.*—A shed is a 30 to 40-ft. wide single storey building containing *racks*. A rack is approximately 2-ft. wide and has ten or more shelves of narrow battens upon each of which a row of moulded bricks is " finger-spaced " on edge. The shed is heated by steam pipes, stoves or a hot floor. Drying is comparatively slow and somewhat irregular.

Sometimes the space above a continuous kiln (see p. 6) is partly utilized to store bricks which are dried by heat from the kiln.

(iii) *Chamber Dryers.*—A shed is divided into several chambers, each about 4-ft. wide, 8-ft. high and of variable length, with a door at each end. The bricks are placed, with a space between each, on loose narrow shelves or on cars. One type of car consists of a bogie (which runs on a track) having a metal frame or rack which supports loose pallet boards that are about 4-ft. long. Each board is loaded with a row of ten or more bricks as they are moulded and placed on edge with a space between. Another type consists of a bogie on the base of which is stacked *stool pallets*. The latter are narrow wood shelves, with 8-in. high end supports, for receiving the moulded bricks which are placed on edge. When rack-cars are used, each drying chamber has longitudinal bearers fixed to the side walls for their entire length and at about 12-in. intervals ; these support the loaded pallet boards as they are removed from the cars. Stool pallets are stacked one above the other in each chamber. Loaded cars may be wheeled into the chambers in which they remain until the bricks are dry. The heat must be applied very gradually, otherwise the bricks will warp and crack.

In some dryers the bricks are gradually heated in a saturated atmosphere until they reach a temperature of about 90° F. The humidity is then reduced by the admission of dry air, and the temperature is increased as required. This greatly minimizes damage to the bricks.

(iv) *Tunnel Dryers.*—This type of dryer resembles the tunnel kiln shown in Fig. 4 and described on pp. 10 and 11. As the loaded cars traverse the tunnel, which is about 100-ft. long, hot air (steam or waste gases) enters at the unloading end, and the current is caused to flow towards the loading end by means of a fan. The rate of drying varies, but generally a car of dried bricks is removed and one of green bricks is added every hour. The tunnel dryer may be operated intermittently like a chamber dryer, it being filled with loaded cars of green bricks and the whole of them being removed after the drying operation has been completed.

(b) *Natural Drying.*—Whilst artificial means of drying is now generally adopted, bricks must be dried naturally if heat is not available. Natural drying is usual where clamp-burning (see p. 11) is resorted to and in yards where the output is small. A well ventilated shed may be used, in which the bricks are stacked on racks and dried by the circulation of un-heated air.

Alternatively they are hack-dried. A *hack* is simply a long double row of green bricks which are stacked to a maximum height of approximately 3-ft., depending upon the softness of the bricks.