

More About Dinky Toys

From Casting to Packing

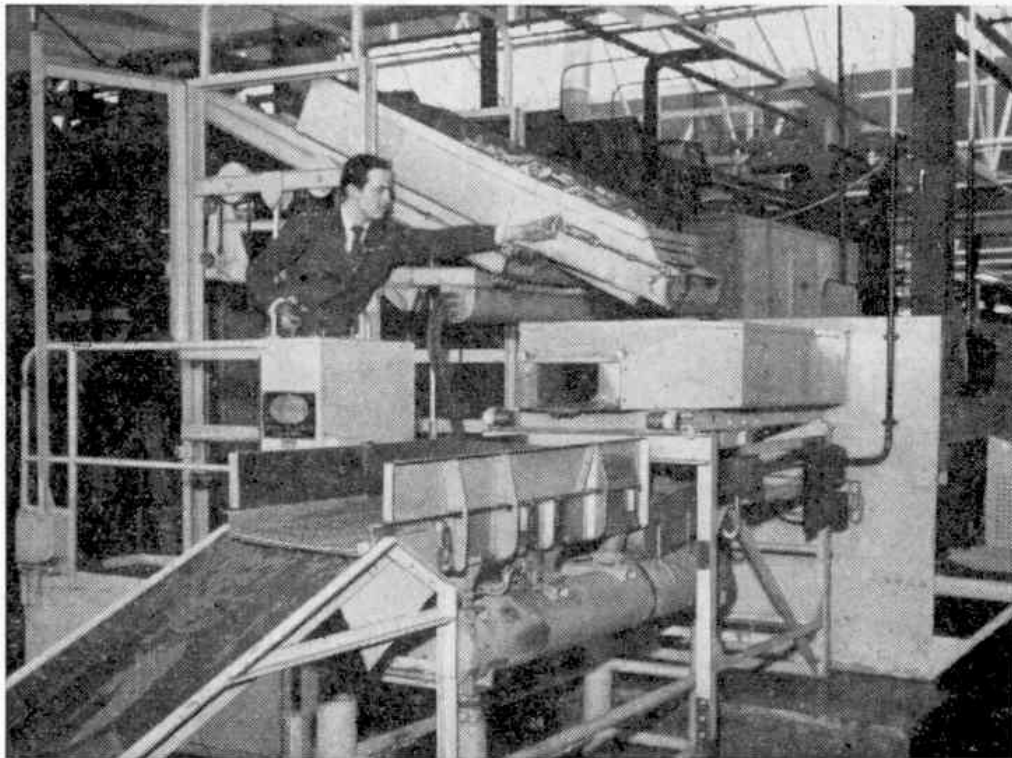
By the Editor

IN the article on page 474 I took the story of the making of a Dinky Toy as far as the production of the casting. You will remember that the casting emerging from the die has attached to it a runner, consisting of metal from the opening through which the molten metal is forced into the die, with a slight amount of flash caused by the joint lines of the mould. The runner is easily broken off, but flash cannot be removed in this way. So the castings are given what at first sight seems rather drastic treatment. They are rotated in large six-sided barrels, made of steel and rubber lined, with

to its lowest point. This time the castings fall out, accompanied of course by the pebbles.

No handling is involved in the Roto-finish process, as this treatment is called. Alongside the line of barrels runs an electrically-driven trolley, which has on it a tray that can be raised or lowered, moved forward or backward, and may also be tilted to any angle up to 45 degrees. It is placed above the barrel when this has to be charged, and is tilted to cause the castings to fall into the barrel through its narrowed outer end. When the Dinky Toys are to be taken out of the barrel,

the tray of course is placed horizontally underneath to receive the smooth cast-



Delivering Dinky Toys castings, after treatment in the Roto-finish plant, to the separator. In this the Dinky Toys are separated from the pebbles that are used to remove flash from the castings.

quantities of small pebbles and water. At the Speke works of Meccano Ltd. there is a battery of such barrels, arranged in line.

As the barrel with its contents rotates the pebbles rub on the castings and wear off the flash. Then the cover of the opening in one side of the barrel is replaced by one with a small mesh and the barrel is turned so that the water flows out. The barrel is then rotated to bring the cover uppermost. This is removed and the barrel is again turned to bring the opening

ings and the pebbles.

The operator of the trolley, riding on the platform where the control levers are placed, takes the load to a special plant where the castings are separated from the pebbles. This plant is at the end of the line of Roto-finish barrels. The tray full of castings and stones is raised, moved forward and finally tilted, so that its contents are delivered into the receiving tray of the separating plant. It is then withdrawn, lowered and placed in position farther along the plant, where later it will receive the stones after separation.

All is now ready for this process. The receiving tray of the separator is tilted,

so that Dinky Toys and stones together fall on a wire grid, the mesh of which is too small to allow the Dinky Toys to fall through, but large enough to permit the stones to pass. The grid is vibrated rapidly forward and backward, so that the Dinky Toys and stones run along it. The stones do not get far before they fall

undergo. In this they are Bonderised, which means that they are treated with a phosphate solution that gives protection against corrosion and also etches their surfaces slightly, so providing a key for the coating of enamel.

Let us follow the progress of Dinky Toys through this treatment. The plant in which it is carried out is large and impressive, as can be seen from the illustration on this page. Here again the castings are loaded into six-sided barrels, but these are smaller than those of the Roto-finish plant, and differ also in that they are made of stainless steel and have perforated sides. The barrels are carried on an endless chain that takes them, empty, along the top of the plant, and carries them downward at the feeding end. There Dinky Toys from the separator are placed into each in turn. The charged barrels then pass under the plant, where they are dipped successively into three tanks. In the first is the Bonderising liquid, and the second and third contain cold and hot water respectively, which washes the castings. The chains then carry the barrels upward and through an oven heated by gas in which they are dried. Each barrel is opened on reaching the delivery end of the plant, and from it the Dinky Toys, now Bonderised, washed and dried, fall on to a conveyor



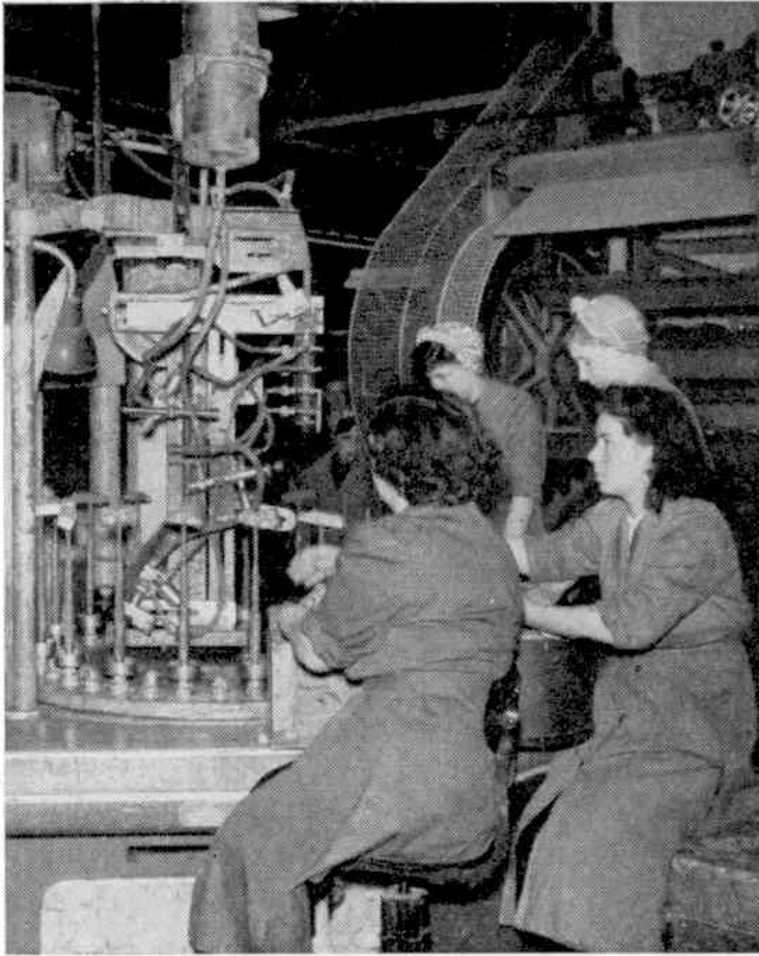
The delivery end of the Bonderising plant. Dinky Toys that have been Bonderised can be seen on the conveyor belt in the right foreground.

through the mesh and are delivered into the conveyor tray of the trolley. The Dinky Toys pass over the full length of the wire grid, and from its end are delivered into containers that carry them forward to the next treatment. The stones of course are taken by the trolley back to one or other of the Roto-finish barrels, to deal with a further batch of castings.

The Dinky Toys castings are now clean and smooth, and at first glance look quite ready for enamelling—apart of course from the fact that they are wet. But to make sure that the coating of enamel that is given them will be very firmly attached they have yet another treatment to

belt that delivers them into containers, for carriage to the next stage of their production.

Careful inspection follows in order to make sure that each casting is absolutely perfect before it goes on to the spraying process that gives it its attractive appearance. This process is carried out chiefly on machines, one of which can be seen in the upper illustration on the next page. A circular table has around its rim a series of equally spaced pillars carrying holders. The castings from the Bonderising plant are placed on the holders, the table in the meantime rotating in stages. These stages bring each casting in turn into the spraying



Spraying Dinky Toys on an automatic machine. In the background is one end of the rotary stove in which their enamel is dried and hardened by baking.

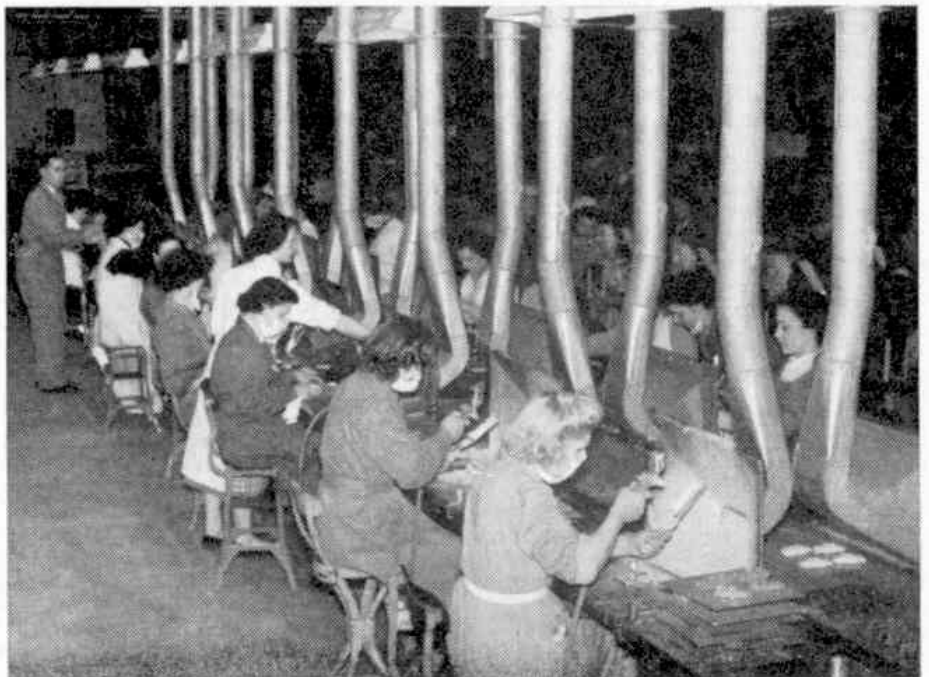
of 200 deg. F., which dries and hardens the coating of enamel. When they emerge at the far end of the oven, over 30 ft. away, the sprayed castings are cool and their enamel is capable of standing up to hard wear.

This is not the finish of the enamelling process. What has been applied in the spraying machine is the basic colour, and many Dinky Toys require a second colour, perhaps covering such parts as radiators and lamps or perhaps in the form of a flash. For applying this special means are employed. Take for instance our Big Bedford Lorry. On the front of the cab are the radiator grille and representations of the headlamps, which have to be sprayed aluminium colour. For this a special mask is used, in which there are two holes of exactly the same size as the lamps, and the correct distance apart, and a larger opening for

the grille. The sprayed casting is placed behind this mask, which carries guides to ensure that it is placed in exactly the right position, and a touch of aluminium spray from a hand spray gun then applies the necessary coating, which the mask restricts to the radiator (Continued on page 469)

position, and while it halts there spray guns move towards it, to coat it evenly and finely with enamel. The holder and the part itself rotate rapidly at this point to ensure that every bit of its surface receives its coating of enamel. As the castings move on with the rotation of the table they are lifted off and put on trays, which are immediately placed on racks at one end of an immense drying oven. This end can be seen in the background of the picture of the spraying machine. By means of an endless chain travelling over sprocket wheels, the trays are then carried slowly through the oven, in which they reach a temperature

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Mask spraying of Dinky Toys.