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PROCESS OF MANUFACTURING MANHOLE COVERS.

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My invention relates to certain improvements in the process of making manhole covers, such as illustrated in application for patent filed by me on the second day of December, 1927, under Serial No. 237,288.

The object of my present invention is to simplify the method of manufacturing a manhole cover, in which a bolt-receiving plate is secured firmly in place in the manhole cover.

In the accompanying drawings:

Figure 1 is a sectional view of a press, showing the first step in the process of making the manhole cover plate;

Fig. 2 is a view similar to Fig. 1, with certain parts removed, showing the second step in the process;

Fig. 3 is a view similar to Fig. 2, showing the third step in the process, namely, forming the flange and that portion which is turned over to retain the bolt-receiving plate in position;

Fig. 4 is a view showing the sectional dies for finishing the pressing operation illustrated in Fig. 3;

Fig. 5 is a view showing the dies for pressing the body portion of the cover plate over the bolt-receiving plate which is placed in position at this step in the process;

Fig. 6 is a view showing the completion of the operation, the dies having pressed the body portion of the manhole cover over the bolt-receiving plate so as to retain the plate in the cover;

Fig. 7 is a plan view of a cover plate made in accordance with my invention;

Fig. 8 is a longitudinal sectional view on the line 8–8 of Fig. 7, and

Fig. 9 is a transverse sectional view on the line 9–9 of Fig. 7.

Referring to Figs. 7 and 8, 1 is the manhole cover having a flange 7. This cover is depressed at the center as at 3 for the reception of the bolt-receiving plate 4. The cover is further depressed as at 5 for the heads of the securing bolts. The bolts extend through openings 6 in the plate 4, the openings being wider at one point than another to allow for the insertion of the heads of the bolts.

The body portion 2 of the manhole cover is pressed so as to overlap the bolt-receiving plate as clearly shown in Fig. 8, and the process which I will now proceed to describe refers to the method of shaping the manhole cover plate so as to retain the bolt-receiving plate in a fixed position in said cover. In the first place, the manhole cover is made from a flat plate and inserted between the dies shown in Fig. 1.

10 is a base carrying a lower fixed die, and in the fixed die 11 is a movable die 12 having a projection 13 which forms the depression 5 in the manhole cover plate.

14 is the upper die having a projection 15 beveled at its lower edge. This projection eventually forms the bend in the body portion 2. Within the upper die 14 is a movable die 16 having a recess 17 for the reception of the metal of the blank which is forced into shape by the movable lower die 12. After the metal has been shaped, as shown in Fig. 1, the movable lower die 12 is forced up into the fixed die 14, the projection portion 15 of the upper die holding the main portion of the blank upon the fixed lower die 11.

The movable upper die 16 recedes as the lower die is projected. This movement shapes the metal of the manhole cover so as to form the recess 3 for the bolt-receiving plate 4.

In Fig. 3 the upper die 14 has been forced down with the movable upper die 16, so as to form the rounded body portion 2 of the manhole cover and also to initially shape the flange 7.

The cover plate is now in shape to receive the bolt-receiving plate 4 which is set into the recess 3, as shown in Fig. 5, and a die 18 is used to hold the flange firmly in position, while a movable upper die 19, having a beveled surface 20, is used to force the body portion 2 of the manhole cover towards the center, causing it to overlap to a certain extent the bolt-receiving plate 2. The upper dies 18 and 19 are then removed and the die 21 lowered into position as shown in Fig. 6, and as it is lowered it presses the body portion so that it extends over the edge of the bolt-receiving plate and holds it firmly in position. This operation completes the formation of the manhole cover plate.

I claim:

The process herein described of making a manhole cover with a bolt-receiving plate retained therein, said process consisting in the pressing of a blank for the manhole cover to form a depression for the heads of securing bolts by means of a lower die; then continuing the operation by projecting the lower die into an upper die to make a further depres-
sion in the blank for the reception of the bolt-receiving plate; then lowering an upper die having a projecting portion which shapes the body of the manhole cover blank; placing the bolt-receiving plate in position in the recess formed by the lower die; then, by the use of a beveled upper die, forcing the metal of the manhole cover over the bolt-receiving plate; and finally reducing the height of the body portion of the said manhole cover by pressing the body portion of the manhole cover, causing it to extend over the edge of the bolt-receiving plate.

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