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W. BRASSERT ET AL

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METHOD OF FORMING SILO TILES

Original Filed April 9, 1929

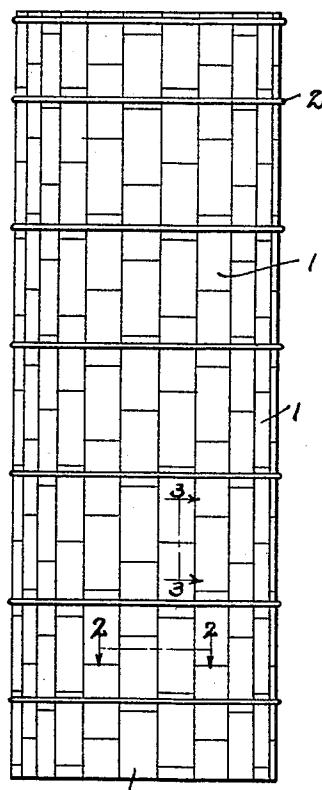


Fig. 1.

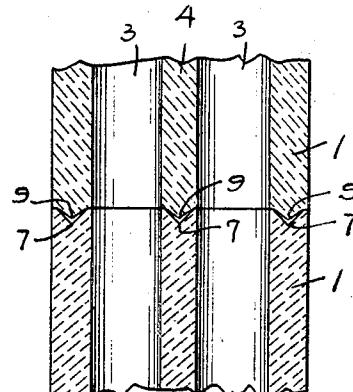


Fig. 3.

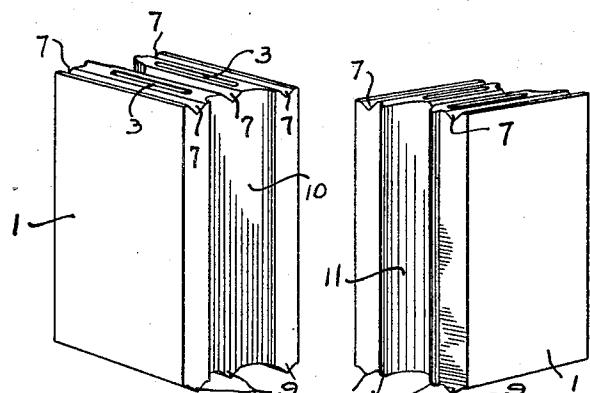


Fig. 4.

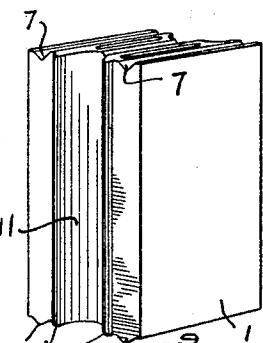


Fig. 5.

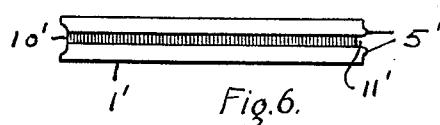


Fig. 6.

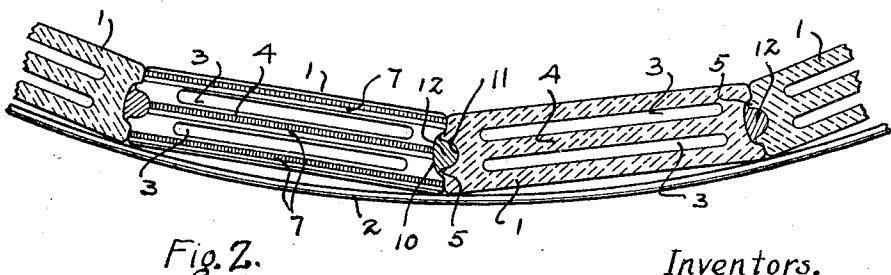


Fig. 2.

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UNITED STATES PATENT OFFICE

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METHOD OF FORMING SILO TILES

Original application filed April 9, 1929, Serial No. 358,848. Divided and this application filed July 22, 1931. Serial No. 552,344.

This is a division of our application for a patent for Tile silos, filed April 29, 1929, Serial No. 358,848, and this invention relates to a method of forming a silo tile by casting it with vertical edges of approximate bevel and then grinding said edges to the exact radial planes of the silo for which the tile is intended.

We accomplish the above and other objects which will hereinafter appear by an embodiment which is illustrated in the accompanying drawing, in which:

Fig. 1 is an elevation of a silo incorporating our invention.

Fig. 2 is a horizontal section on a larger scale on the line 2—2 of Fig. 1.

Fig. 3 is a vertical section on a larger scale on the line 3—3 of Fig. 1.

Fig. 4 is a perspective view of a silo block or tile showing the concave groove in one of its vertical edges.

Fig. 5 is a like view showing the opposite edge of the silo block showing the placing ribs, at the channel edges; and

Fig. 6 is a top view of a modified form of silo block, of much less thickness and solid, with a single horizontal groove to receive a single tongue of an upper or lower block.

Like characters of reference indicate like parts in the several views of the drawing.

1 are the silo blocks or tiles forming the walls of a round silo, and 2 are the supporting hoops preferably of iron rod.

In the embodiment of our invention shown in Figs. 2, 3, 4 and 5, there are two longitudinal hollow spaces 3, 3 one on each side of a central web 4. The two sides of each tile where they make vertical joints with adjacent tile are beveled on radial planes of

the silo, and formed in each beveled side is a longitudinal central channel 10 and 11. The channel walls on one side are continued to form the sides of tongues 5, 5. The channel on the other side is wide enough to receive

the two tongues 5, 5, the function of which is to assist in the assembly of the tile units in the direction of the silo.

The upper end 6 of the tile is horizontal and square and is provided with three parallel grooves 7, 7, 7, and the lower end 8 is

parallel with end 6 and is provided with three tongues 9, 9, 9, opposite the grooves and of considerably less extension than the depth of the grooves, whereby, when the tiles are assembled one above the other in building a silo the tongues of one will enter the grooves of the other, leaving, however, a considerable space for the introduction of a suitable caulking material as tar, cement or mortar.

The tile may have but a single hollow space and for small and inexpensive silos the hollow space may be entirely omitted as shown in the modification, Fig. 6, in which the vertical edge channels are retained and single tongues and grooves are provided in top and bottom ends.

The tiles are placed in kilns on end, several tiers high, the tongues in one end fitting loosely into the grooves in the other end of the next piece above or below.

After the tile have been burned and glazed they are put through a grinding machine, in which all are ground to a uniform width. At the same time they are given the correct bevel in accordance with the diameter of the silo for which they are intended. The amount of grinding necessary is here reduced to a minimum: In the first place the grinding wheels

only touch on the two protruding surfaces on the sides of the staves; these need not be more than three-fourths of an inch wide each, and might be less, making a combined grinding surface one and one-half inches wide only.

If a "ball and socket" type of joint had been chosen, such as is commonly encountered in concrete slab silo construction and also in the so called "book tile", the grinding surface would be the entire width of the stave and the grinding operation would be much more expensive.

We are further providing different sets of moulding dies for the more common diameters of silos, such as ten feet, twelve feet, and fourteen feet. In this way the tile are already approximately accurate as to bevel of sides when they come from the kilns, which greatly lessens the amount of corrective grinding necessary.

On the grinding machine the tile are moved across the flat faces of two carborundum wheels of identical diameter, mounted

on and revolving around the same horizontal shaft.

The tile are held on the moving bed of the grinding machine at an angle from the vertical; this angle varies in accordance with the bevel to which the tile are to be ground. Each wheel is approximately three-fourths of an inch wide and grinds one of the two protruding narrow faces at the sides of the tile. The longitudinal center of the tile is between the two grinding wheels and in this way the small tongues 5, 5, shown on one side of each tile, adjacent to the groove, will not be touched.

15 These small tongues 5, 5, as stated, merely serve to facilitate the placing of tile in the silo wall during construction. They have no other function and are not intended to add to the structural strength of the silo.

20 The structural strength is largely brought about by the fact that each tile is a perfectly fitting keystone between the two tiles on either side of it. It is enhanced by the breakage of the horizontal joints in a manner shown in

25 Fig.1, wherein the tile form spiral or oblique rows in two directions as well as vertical rows.

In the illustration of the tile we show three grooves in the ends and it must be understood that in ordinary silo construction it is necessary only to fill the inner groove with mortar or caulking material. In those cases where it is very essential that all moisture be kept from entering through the silo walls from the outside, it is best to fill the center and outer grooves also. The same is true where a tank is built out of the tile for holding liquids.

While the illustration shows a tile about 40 four inches wide with a double row of hollow spaces on either side of a center web, a narrower tile, with only one row of hollow spaces and only one or two grooves and ridges in the ends will answer the purposes especially for 45 farm silos of small average diameter. It is also contemplated to use a thin tile without hollow spaces and only one groove and ridge in the ends but otherwise shaped and beveled the same as the hollow tile herein described 50 as shown in Fig. 6.

It is to be noted that whatever material 12 is placed in the vertical openings between adjacent tiles or such material as may be placed in any or all of the horizontal grooves 55 7, the adjacent tiles are in physical contact tile against tile on each side of such material, and that the material does not separate the tile surfaces or carry any of the load of the tiles.

60 We claim:

1. The method of forming silo tiles which consists of casting tiles to have vertical edges on approximate radial planes of the silo for which the tiles are intended, forming one or 65 more vertical grooves in the vertical edges to

reduce the area of the edges, burning and glazing the tiles, and grinding the vertical edges on each side of the grooves to exact common radial plane surfaces.

2. The method of forming silo tiles which consists of casting tiles to have vertical edges on approximate radial planes of the silo for which the tiles are intended, burning and glazing the tiles, and grinding the vertical edges to exact common radial plane surfaces.

In testimony whereof I affix my signature.
WALTER BRASSETT.

In testimony whereof I affix my signature.
GLENN V. GLADVILLE.

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