Oct. 1, 1935. C. E. WALKER 2,015,980

BRICK MOLD

Filed Sept. 5, 1934 2 Sheets-Sheet 1

Fig. 1.

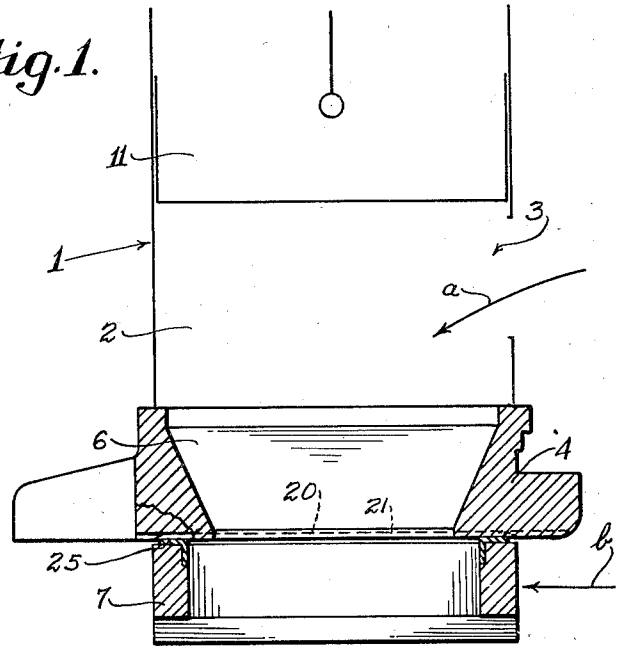


Fig. 2.

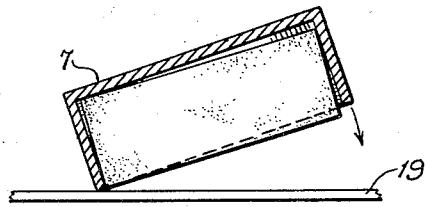


Fig. 3.

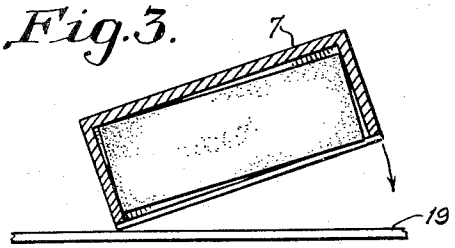


Fig. 12.

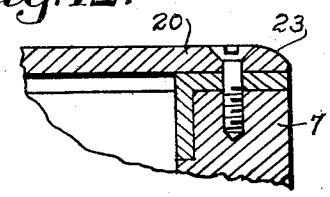
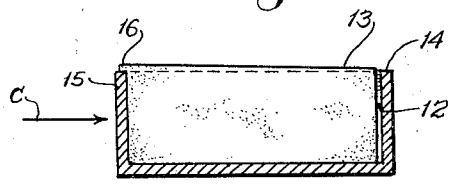


Fig. 4.



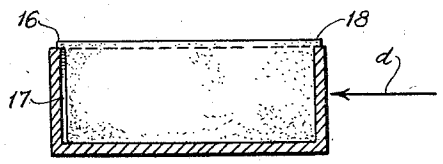


Fig. 5.

Inventor

C. E. WALKER

By Mason Fenwick & Lawrence

Attorneys

Oct. 1, 1935. C. E. WALKER 2,015,980

BRICK MOLD

Filed Sept. 5, 1934 2 Sheets-Sheet 2

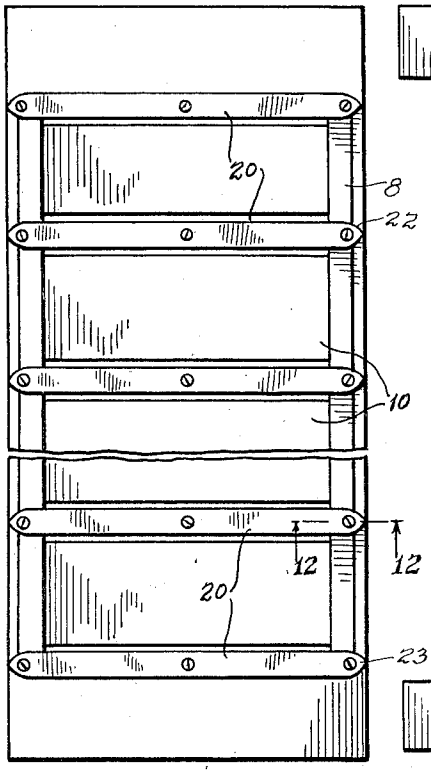


Fig. 6.

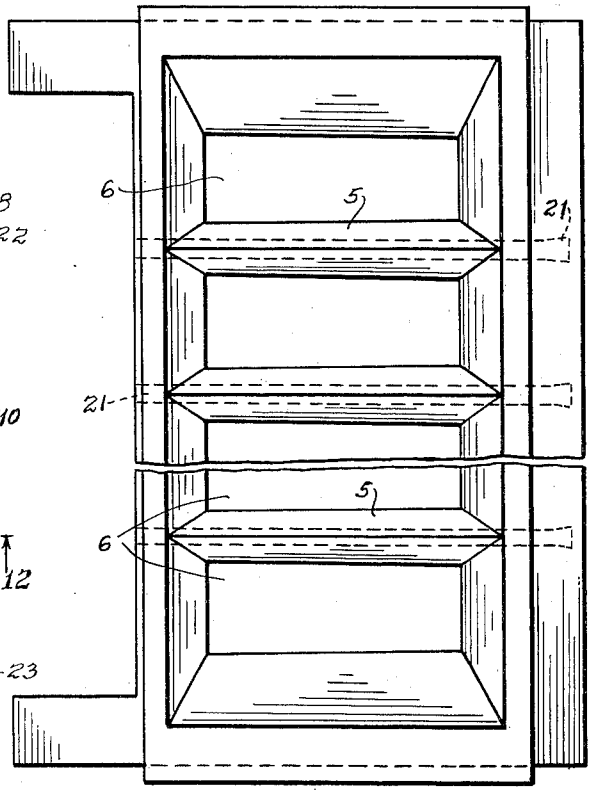


Fig. 7.

Fig. 9.

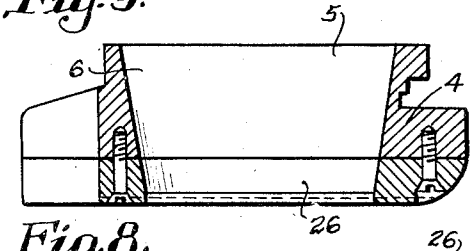


Fig. 10.

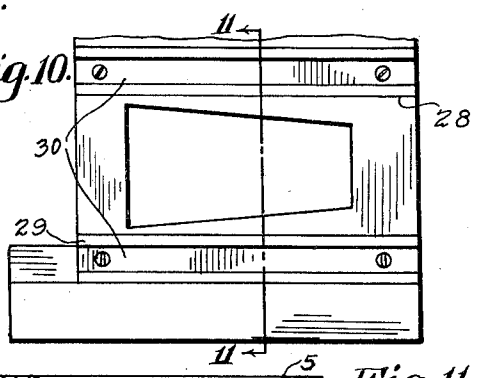
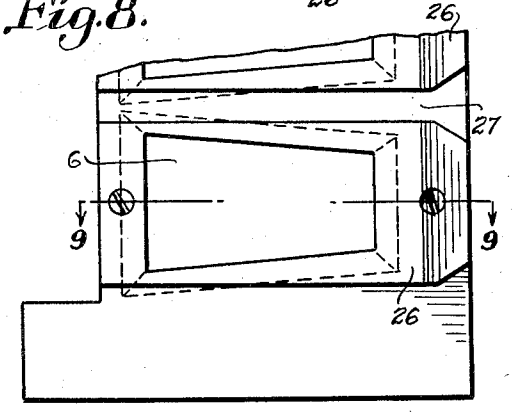


Fig. 8.



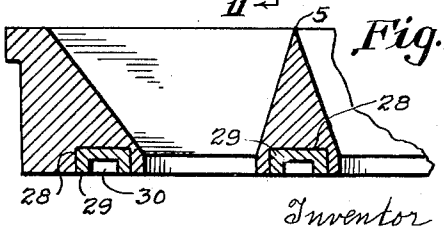


Fig. 11.

Inventor

C. E. WALKER

By Mason Fenwick & Lawrence

Attorneys

Patented Oct. 1, 1935

2,015,980

UNITED STATES PATENT OFFICE

2,015,980

BRICK MOLD

Charles E. Walker, Catskill, N. Y.

Application September 5, 1934, Serial No. 742,837

9 Claims. (Cl. 25—119)

This invention relates to brick molds and in particular to a mold employed in that process of making brick which includes the step of filling a sanded mold under pressure, striking the clay off level with the top edges of the mold, jolting the mold from side to side to loosen the brick, and inverting the mold on a pallet to discharge the brick.

The brick molds, as constituted prior to the present invention, have all four of the top edges terminating in one plane so that when the surplus clay is struck off, the brick is flush with the lateral as well as the front and rear top edges of the mold. Then, when the sides of the mold are successively jolted, the lateral impact displaces the material slightly upward while at the same time the inertia of the plastic mass causes it to flow over the lateral edges of the mold in the direction from which the impact is received, forming a fin on the lateral edges of the brick overhanging the mold and which persists when the brick is turned out on the pallet.

This fin cannot be removed from the plastic brick without deforming it or creating an alteration in texture along the line of removal, which shows up in the burned brick, nor can it be practically removed from the burned brick on account of the expensiveness of grinding and the fact that the ground surface of the burned brick has a different appearance and texture from that of the normal sanded surface of the brick.

The presence of the fin in the finished brick is highly objectionable inasmuch as it cuts the hands of the bricklayer, and in the wall, forms ledges that collect water which seeps into the adjacent mortar joints, creating wet walls.

The general object of the present invention is to prevent the formation of the fin by changing the construction of the mold.

Since the new construction involves the upper face of the mold which cooperates with the die of the brick machine in striking off the surplus clay, the die is subject to corresponding and complementary changes in structure, so that the invention includes, not only the mold, but the combination of the mold with the die.

A more specific object of the invention is to make the mold with the lateral top edges a little higher than the end edges, and to recess the die accordingly so that the die will contact the end edges of the mold and strike off a brick flush with the end edges and therefore a little lower than the lateral edges. When this brick is jolted, it will not rise to the height of the lateral edges and will not overflow the lateral edges. Therefore, no fin will be formed.

Other objects of the invention will appear as the following description of a preferred and practical embodiment thereof proceeds.

In the drawings which accompany and form a part of the following specification and throughout the several figures of which the same characters of reference have been employed to designate identical parts:

Figure 1 is a vertical section through a die and brick mold embodying the features of the present invention, the appurtenant parts of the brick machine being illustrated in single line and diagrammatic;

Figures 2 and 3 are companion views taken in vertical transverse section showing in exaggerated manner the relative movement between the brick and mold when the latter is overturned to discharge the brick upon the pallet, contrasting the old construction, Figure 2, with the new construction, Figure 3;

Figures 4 and 5 are diagrammatic views in vertical section illustrating the principle involved in the formation of fins, the arrows indicating the direction of the impact blow employed in jolting the bricks loose from the sides of the mold;

Figure 6 is a top plan view of the mold embodying the features of the present invention, the intermediate part being broken away;

Figure 7 is a top plan view of the die which cooperates with the mold shown in Figure 6;

Figure 8 is a bottom plan view of a modified form of the die;

Figure 9 is a cross section taken along the line 9—9 of Figure 8;

Figure 10 is a bottom plan view of another modification of the die;

Figure 11 is a cross section taken along the line 11—11 of Figure 10; and

Figure 12 is a cross section taken along the line 12—12 of Figure 6.

Referring now in detail to the several figures, the numeral 1 represents in general and diagrammatically, a brick making machine comprising a chamber 2 having an opening 3 into which clay is fed in the direction of the arrow *a* by suitable mechanism, not shown. A die 4 forms the bottom of the chamber 2, said die comprising a frame divided by partitions 5 into a plurality of compartments 6 having convergent sides and being open at the bottom. Beneath the die is the brick mold 7, the same comprising a rectangular box-like member 8 divided by partitions 9 into a plurality of rectangular sec-

tions 10, each of which is the shape and size of a single brick.

At intervals, that is to say, when a brick mold is in position with respect to the machine, a piston 11 descends upon the clay within the chamber 2 forcing it downwardly into the convergent compartments 6 of the die.

Figure 1 shows that the edges of the die overhang the edges of the underlying brick mold and a comparison of Figures 6 and 7 shows that while the open bottoms of the die compartments are of trapezoidal shape, the sections of the brick mold which they serve are rectangular. Both of these features are old in the art and merely described here for the purpose of giving background to the invention. In practice, the mold is wetted and sanded prior to its assuming a receiving position with respect to the die, and the edges of the die overhang the edges of the mold so that when the clay is extruded through the bottoms of the die compartments into the sections of the mold, it will not contact the sides of the mold and wipe off the sand, but will first make contact with the bottom of the mold in a direction perpendicular to the bottom and then under pressure spread laterally in a direction perpendicular to the four sides of the mold sections, leaving the sand undisturbed. Since the clay enters the chamber 2 from one side, it will be denser near the opening 3 of said chamber than adjacent the opposite side. Consequently the open bottoms of the die compartments are made wider where the clay is less dense so as to permit more clay to enter the mold sections in that region, thus balancing the brick.

The mold is adapted to slide beneath the die and in contact therewith in the direction of the arrow *b* in Figure 1. The die acts as a striker scraping the surplus clay off flush with the top of the brick mold.

As ordinarily constructed, all four sides of the brick mold sections terminate in a single plane so that when the surplus clay is stricken off in the manner described the mass of clay within the brick mold is level with the top edges of all sides thereof. The mold must next be jolted to loosen the plastic brick so that it may be freely discharged when the mold is overturned.

Figures 4 and 5 illustrate graphically the behavior of the plastic brick under the jolting operation. In Figure 4, the arrow *c* indicates the direction in which an impact blow is imparted to one side of the brick mold. The jar compacts the brick in a width direction, shortening its width and causing the brick to recede from the opposite wall of the brick mold, leaving the space 12 as in Figure 4. The displaced material causes a slight increase in the height of the plastic brick, the top face 13 being at a slightly higher level than the top edge 14 of the brick mold. As the brick mold moves in the direction of the arrow under the force of the impact, the inertia of the plastic mass causes the clay to flow over the side 15 of the brick mold lodging on top of said side in the form of a fin 16. The brick mold is then struck from the opposite side as indicated by the arrow *d* in Figure 5. This causes the plastic mass to shift toward the side of the mold which is struck leaving a space 17 between the brick and the opposite side of the brick mold. Inertia of the mass causes it to flow over the top edge of the side of the brick mold forming a fin 18. These fins as has been stated in connection with the objects of the invention remain throughout the overturning of the mold upon the pallet and the burning of the brick.

Another factor tending to produce or increase the extent of the fin is illustrated in Figure 2. Where the brick is of exactly the same depth as the four sides of the mold, and it is attempted to overturn the mold on the pallet 19, the brick may fall out a very slight distance relative to the sides of the brick mold striking the pallet a small fraction of a second before the edges of the mold make contact with the pallet, spreading out slightly in the form of a fin.

The present invention prevents the formation of a fin altogether by making the opposite lateral sides of the brick mold sections slightly higher than the ends of the brick mold sections and modifying the lower surface of the die so that the die rests upon the ends of the sections and strikes off all clay above the level of said ends, forming a plastic brick within the mold sections, the upper face of which is flush with the ends of the mold, but slightly below the sides thereof. When the movement of the plastic mass takes place under the jolting operation, the material instead of overflowing the sides of the brick mold as illustrated in Figures 4 and 5, flows against the relatively elevated sides, but not above them. Consequently, a fin is not formed. Furthermore, when the mold is upset upon the pallet, the plastic brick as illustrated in Figure 3 does not have time to fall out of the mold beyond the level of the relatively high sides thereof, which sides reach the pallet first and therefore prevent the brick spreading.

In carrying out my invention, I provide the mold with a plurality of ribs 20 preferably metallic and in order to have the die make contact with the ends of the mold sections I provide the die with a series of transverse grooves 21 receiving the ribs 20 and in which said ribs slide. Since the mold is customarily brought to position beneath the die by a conveyor, the ends of the ribs 20 are provided with ends 22, rounded both at their sides and downwardly as indicated at 23, in Figure 12, and the anterior ends of the grooves 21 are flared as shown at 24, to receive the anterior ends of the said ribs.

It is obvious that the ribs 20 may be constructed in any suitable manner. The molds are customarily faced with a metallic wear piece 25, and the ribs 20 can be riveted, screwed or welded to said wear piece. It is also within the purview of the invention to make the ribs integral with said wear piece.

While Figures 1 and 7 contemplate the formation of the grooves 21 directly in the lower face of the die 4, there are any number of ways in which the grooves can be provided, all coming within the scope of the invention. Figures 8 and 9, for example, show a form of the invention in which the lower side of the die 4 is faced with wear plates 26, said wear plates being spaced apart and of such thickness as to provide between them grooves 27 capable of slidably receiving the ribs 20.

Figures 10 and 11 show another modification in which the lower face of the die is formed with channels 28 and having metallic members 29 seated in said channels, the latter being provided with the grooves 30 adapted to receive the ribs of the brick mold.

While I have in the above description disclosed what I believe to be a preferred and practical embodiment of my invention, it will be understood by those skilled in the art that the details of con-

struction as shown and described are merely by way of example and not to be construed as limiting the scope of the invention as claimed.

What I claim is:

1. Brick mold comprising a box having the sides projecting slightly above the ends, the top edges of said sides and ends being straight, said box being adapted to slide with the top edges of its ends in contact with a die by which the surplus clay is struck off leaving the plastic brick in said mold at the level of the top edges of said ends and below the level of the top edges of said sides.

2. In combination, a brick mold and cooperating die, the brick mold having the sides projecting slightly above the ends, the top edges of said sides and ends being straight and the die having the under-surface grooved to receive slidably the projecting portions of said sides, said brick mold being adapted to slide with the top edges of its ends in contact with the under-surface of said die, by which the surplus clay is struck off, leaving the plastic brick in said mold at the level of the top edges of said ends and below the level of the top edges of said sides.

3. Brick mold comprising a plurality of rectangular unitarily related box-like sections having common dividing partitions, the straight top edges of the ends of said sections lying in a common plane, and the straight top edges of the sides of said sections lying in another common plane at a slightly higher level than the plane of the ends, said brick mold being adapted to slide with the straight top edges of said ends in contact with a die by which the surplus clay is struck off, leaving plastic bricks in said sections at the level of the straight top edges of said ends and below the level of the straight top edges of said sides.

4. In combination, a brick mold and cooperating die, the brick mold comprising a plurality of box-like sections unitarily related and having common dividing partitions, the straight top edges of the ends of said sections lying in a common plane, and the straight top edges of the sides of said sections lying in another common plane at a slightly higher level than the plane of the ends, the die having the under-surface grooved to receive the extending portions of the sides of said sections, so as to contact said ends, said brick mold and die being relatively slidable whereby the die strikes off the surplus clay from said sections leaving the plastic bricks in said sections at the level of the straight top edges of said ends and below the level of the straight top edges of said sides.

5. Brick mold comprising a box, and ribs secured longitudinally upon the top edges of the sides of said box making the sides higher than the ends, the top edges of said sides and ends being straight whereby a die contacting the top edges of the ends and slidable relative to said mold will strike off the plastic brick within said mold to the level of the top edges of said ends and below the level of the tops of said ribs.

6. Brick mold as claimed in claim 5, said ribs having rounded noses adapted to enter complementary grooves in the under-surface of the die.

7. In combination, a brick mold and a die, said brick mold comprising a plurality of box-like sections unitarily arranged side by side with common dividing partitions, ribs secured longitudinally upon the top edges of the sides of said sections, making said top edges of said sides higher than the top edges of said ends, the top edges of said sides and ends being straight, the under-surface of said die being formed with grooves complementary to said ribs for receiving said ribs whereby said die contacts the top edges of said ends, said mold and die being relatively slidable whereby the die will strike off the plastic brick within said mold to the level of the top edges of the ends and below the level of the top edges of said ribs.

8. In combination, a brick mold and die as claimed in claim 7, the ribs having rounded noses adapting them to freely enter the grooves in said die, the anterior ends of said grooves being flared.

9. Die adapted to cooperate with a brick mold of the type having the straight edged sides of the brick sections projecting slightly higher than the straight edged ends of said sections, said die including a frame having clay discharge openings individual to the brick mold sections, and wear plates on the lower face of said die and framing said openings, said wear plates being spaced apart forming grooves for receiving the projecting portions of the sides of said brick mold sections.

CHARLES E. WALKER.