

(No Model.)

A. H. MURRAY & C. S. WELCH.
DIE OR MOLD FOR MAKING CLAY SHINGLES.

No. 532,085.

Patented Jan. 8, 1895.

Fig. 1.

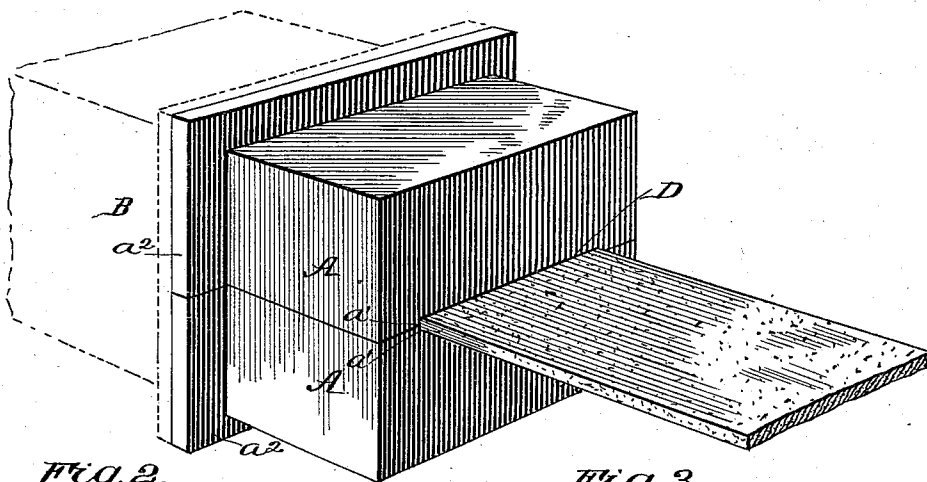


Fig. 2.

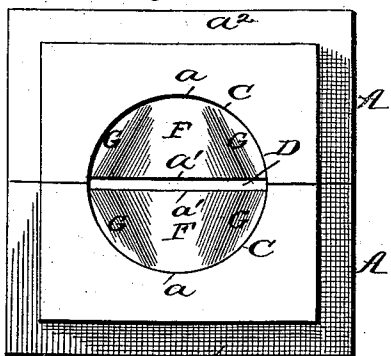


Fig. 3.

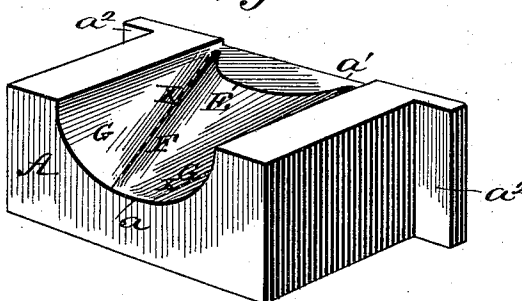


Fig. 4.

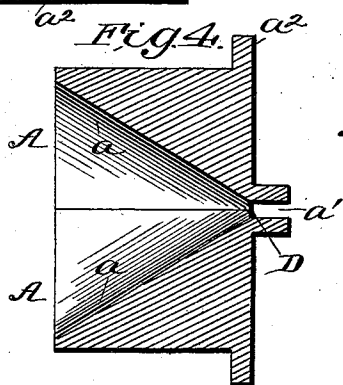
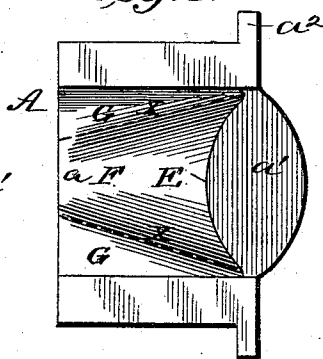


Fig. 5.



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ALEXANDER H. MURRAY AND CALVIN S. WELCH, OF HUNTINGTON, WEST VIRGINIA.-

DIE OR MOLD FOR MAKING CLAY SHINGLES.

SPECIFICATION forming part of Letters Patent No. 532,085, dated January 8, 1895.

Application filed June 22, 1894. Serial No. 515,376. (No model.)

To all whom it may concern:

Be it known that we, ALEXANDER H. MURRAY and CALVIN S. WELCH, citizens of the United States, residing at Huntington, in the county of Cabell and State of West Virginia, have invented certain new and useful Improvements in Dies or Molds for Making Clay Shingles; and we do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention is an improved die or mold for making clay shingles and other articles of similar character, and it also purports to cover the article produced thereby.

The die is adapted to be attached to any of the well known clay working machines in which the clay is worked into a plastic state and then forced from a compression chamber by a piston or worm through a die or mold to give the strip or blank of clay the desired shape, said strip or blank being subsequently cut into the desired lengths. Bricks and tiles have been made in this manner because in these articles there was considerable depth to the strip or blank, but even in these cases it has been found that the sides or edges were split owing to the central portion of the clay strip or bar moving faster than the side. This is due to the friction between the sides of the mold or die and the mass of clay. This defect has now been partially cured by lubricating the molds. Attempts have also been made to form a blank or strip for clay shingles, but inasmuch as this strip must be very thin it has heretofore been found to be impossible to form a perfect blank with perfect sides and edges suitable for shingles.

In brick machines the column of clay is so thick that by lubrication a comparatively even brick can be produced, but where the clay is forced through a long narrow slot, still greater difficulties are to be met with as instead of the skin or outer portion only of the clay being retarded the entire side portions are retarded and the clay strip has frequently divided in the center and curled the same as a wooden shaving.

Now the object of this invention is to remedy these defects and provide a die or mold

which can be attached to any machine and produce a thin even shingle blank, the edges and sides of which shall be perfect and free from splits.

With these objects in view our invention consists broadly of a die or mold having a circular opening at the rear, the desired shaped opening at the front, flat retarding surfaces arranged adjacent to the front of said die or mold and the central curved portions which serve to guide the clay evenly and steadily to the sides and retarding portions of the mold.

Our invention consists also in making a two part die or mold each portion having a semi-circular opening at the rear, a flat retarding surface at the front, a central convex portion and the concaved surfaces adjacent to said central portion.

Our invention consists also in certain details of construction and novelties of combination all of which will be more fully described hereinafter and designated in the appended claims.

In the drawings hereunto annexed, forming a part of this specification, and in which similar reference characters designate the same or similar parts, Figure 1 is a perspective view of the die or mold showing the clay blank, ribbon or strip issuing therefrom. Fig. 2 is a rear view of the two part mold. Fig. 3 is a perspective view of the lower half. Figs. 4 and 5 show slight modifications.

In carrying out our invention we preferably construct our mold or die in two pieces A A which may be connected to each other in any desired manner and also to the compression chamber B of a clay working machine in any preferred way. At its rear end the die or mold has a circular opening C, and the opening in the compression chamber will be made circular also.

At the forward end the die or mold has an opening D which is shaped according to the article desired, but is usually an oblong as shown in Figs. 1 and 2.

The die or mold though preferably made in two pieces can be made integral. However, in the treatment of this specification, we shall consider the mold made of two parts similar in construction and a description of one part, therefore, will suffice for both.

Each section of the die or mold is formed of a solid block and at its rear end is cut out, at *a*, in the form of a semi-circle, so that when the two parts are placed together they produce the circular opening C. At the forward end is formed a recess or depression *a'* so shaped that when the two parts are in position they will produce the oblong opening D. Adjacent to the depression *a'* and level therewith is the central retarding surface E essentially segment shaped, broadest at the center and tapering from said center toward each corner of the depression *a'*. The surface between the retarding surface and end of the block is convexed between the corners of the surface and the center of the rear end, as shown at F, or that portion confined between the retarding portion and the dotted lines X X while the surface on each side of the lines X X is concaved as clearly shown at G G. This construction produces a central convex portion and guiding tapering grooves or concaved surfaces upon each side to feed the clay evenly to the edges while the central portion is being retarded.

In Figs. 4 and 5 we have shown a slight modification wholly within the scope of our invention, from which it will be seen that instead of placing the retarding surface within the die or mold, it may be placed at the forward end, as shown at G, and the central raised portion can be dispensed with, if desired, and the interior of the mold be made conical in shape, or the retarding surfaces may be convex on both sides, as shown in Fig. 5.

The parts of the mold are provided with suitable flanges *a*² by means of which they are connected together and to the compression chamber.

In operation the parts are assembled and connected with the machine as shown in Fig. 1. The clay in a plastic state is then fed to the die or mold by means of a piston or the spiral or worm conveyer as desired. As it enters the mold or die the central convex portion divides it and spreads it into the channels G G so that the sides are supplied plentifully and evenly. When the retarding surface is reached here equalization again takes place as it will be noticed that this surface is widest at the center and decreases toward both ends. By this construction the blank strip or ribbon issuing from the mold will be found to be perfect and free from flaws and splits at the edges as heretofore described. It will thus be seen that we are enabled to produce a thin blank or strip of clay suitable for making shingles, and such as has never been produced before. Where the lip or retarding

surface is arranged upon the outer side it is also widest at the center.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

1. An improved die or mold having a central retarding surface or surfaces broadest at the center and decreasing toward each end, said retarding surface being flat and level with the mouth or opening of the die substantially as shown and described.

2. An improved die or mold having a central retarding surface or surfaces at its forward end, said surface being flat and level with the mouth of the die, broadest at the center and decreasing toward each side, substantially as described.

3. An improved die or mold having a flat central retarding surface or surfaces level with the mouth of the die, broadest at the center and decreasing toward each end, and a central convex portion or portions extending from the retarding surface to the rear end of the die, substantially as described.

4. An improved die or mold made in two parts each part having a flat central retarding surface, broadest at the center, a central convex portion and concaved surfaces upon each side of the convex portion, substantially as shown and described.

5. An improved die or mold made in two parts each part having a flat central retarding surface, broadest at its center, a central convex portion broadest at the forward end, and the concaved surfaces on each side of the central convex portion, said concaved surfaces being broadest at the rear ends and forming a semi circular opening or recess at the rear end of the die, substantially as shown and described.

6. An improved die or mold composed of two parts, and having a circular opening at the rear and an opening of the desired shape at the front, retarding surfaces E, level with the face of the opening, convex portions F and concave portions G G all substantially as described.

7. An improved die or mold having a retarding lip or surface upon the front of said die or mold, said die being made in two parts having a conical shaped chamber within the same, substantially as shown and described.

In testimony whereof we affix our signatures in presence of two witnesses.

ALEXANDER H. MURRAY.
CALVIN S. WELCH.

Witnesses:

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