To all whom it may concern:

Be it known that I, Niels Anderson, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Mortar Mixer or Hoe, of which the following is a specification.

The object of my present invention is to devise a novel construction of a mortar mixer, hoe, or other similar device which is especially adapted for the mixing of mortar and like material so that a more intimate mixture of the component parts of the material is obtained with the same amount of labor.

To the above ends my invention in its broad aspect consists of a novel construction of a hoe or mortar mixer comprising a sheet of material which is provided with a plurality of apertures arranged in a novel manner and also with an operating handle, whereby the material which is to be mixed or stirred up may be in the operation of mixing pass through these apertures, the result of which is evident.

My invention further consists of a novel construction of a hoe or mortar mixer having an aperture blade, the apertures being arranged in such a manner that the blade is not weakened to any material extent.

In order to illustrate my invention, I have shown in the accompanying drawings those embodiments thereof which are at present preferred by me and which give satisfactory and reliable results in practice, although it is to be understood that the shape of the apertures as well as the number and location of the same may vary according to the requirements and conditions.

It further consists of other novel features of construction, all as will be hereinafter fully set forth.

Figure 1 represents a perspective view of a mortar mixer or hoe embodying my invention. Fig. 2 represents an end elevation of another embodiment thereof. Fig. 3 represents an end elevation of another embodiment of my invention.

Similar numerals of reference indicate corresponding parts in the figures.

Referring to the drawings. Referring first to Fig. 1, 1 designates a hoe blade to which is secured at the upper end the arm 2, to which is adapted to be secured in any suitable manner a handle 3. The bottom of the blade 1 is substantially flat, as seen at 4. 5 designates laterally extending slots or apertures in vertical alignment on one side of the blade and 6 designates similar slots or apertures in vertical alignment on the opposite side of the blade and in the same horizontal plane as the slots 5. It is to be especially noted that these apertures or slots are so arranged that, between the slots, there is a solid portion of the blade of sufficient width to insure the necessary strength and rigidity of the blade.

In the embodiment seen in Fig. 2, 7 designates a blade from which extends the arm 8 to which is suitably secured the handle 9. The sides 10 of the blade extend at substantially a right angle from the bottom 11 of the blade. The blade 7 is cut away, as seen at 12, and the top 13 is substantially parallel with the bottom 11. In this embodiment, I form near the bottom portion of the blade, a plurality of elongated slots 14 which are parallel to each other and extend in a substantially vertical direction. The blade 7 is provided with two rectangular shaped apertures 15 located above the two central apertures 14 and in alignment therewith and above the end apertures 14 are the elongated slots or openings 16, the top sides 17 of which are parallel with the sides 12. It will thus be apparent that between the upper and lower series of apertures or slots there is a solid portion of the blade, as indicated at 18, and between the apertures in a different vertical plane there is a solid portion of the blade, as indicated at 19, so that the blade is not weakened to any material extent owing to the number of apertures there through.

In the embodiment seen in Fig. 3, the blade 20 has secured thereto an arm 21 to which the handle 22 is fastened. In this embodiment, I have shown near the lower end of the hoe a plurality of apertures 23 preferably in the same horizontal plane. Above the lower row of apertures 23 I have shown an intermediate row of apertures in which the central aperture 24 is substantially square while the apertures 25 on each side thereof are shown as having a rectangular shape. Located above the intermediate row of apertures is an upper row of openings, the inner ones 26 of which are substantially square while the outer ones 27 have one face 28 parallel with the faces 29 of the blade 20.

It will be seen that in the embodiment shown in Fig. 2 that the apertures are surrounded on their outer faces by a solid portion of substantially uniform dimensions and in every case the apertures are so located and arranged that the blade is not materially weakened. It will be seen that in each case, the arm 2, 5 or 21 employed in my invention extends for a short distance down the surface of the blade to which it is attached in such a way that it forms a strengthening or reinforcing rib for said blade, said arm in each instance extending parallel to the adjacent side walls of the slots or apertures 5 and 6, 15 or 20, as the case may be. It will be further apparent that by arranging a plurality of polygonal slots or apertures substantially the same horizontal line, a more intimate mixture of the mortar or material to be manipulated will be effected than will be the case where only one or more round holes are present as is the case of prior art structures with which I am familiar and to which I herein make no claim. In the present instance I have preferred to show the apertures as being of a polygonal contour but it will be apparent that other shaped apertures may be employed if desired.
It will be apparent that in the operation of mixing the mortar or other material the same may pass freely through the apertures in the blade and a more intimate mixture of the mortar will be obtained.

It will now be apparent from the foregoing that I have devised a novel and useful construction of mortar mixer or hoe which embodies the features of advantage enumerated as desirable in the statement of invention and the above description and while I have in the present instance shown those embodiments at present preferred by me, which give satisfactory and reliable results in practice, it is to be understood that they are susceptible of modification in various particulars without departing from the spirit and scope of the invention or sacrificing any of its advantages.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. In a device of the character described, a blade having a plurality of rows of apertures therein in different horizontal planes, there being a uniform width of the solid portion of said blade between said apertures, and a handle secured to said blade.

2. In a device of the character described, a blade having a plurality of polygonal shaped apertures therethrough arranged in different vertical and horizontal planes, two sides of said apertures being parallel respectively with the bottom and sides of said blade, and a handle having an arm secured to said blade, said arm extending downwardly between the parallel walls of the adjacent slots, whereby said blade is reinforced.

3. In a device of the character described, a blade having a plurality of polygonal-shaped apertures therein arranged in horizontal alignment, the sides of said apertures extending in substantially horizontal lines between the top of said blade and its base, and a handle having an arm secured to said blade, said arm projecting down one side of said blade between the walls of the central pair of slots, whereby said blade is strengthened and reinforced.

Witnesses:

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