Aug. 26, 1947. J. A. TAYLOR 2,426,249

MIXING MAT

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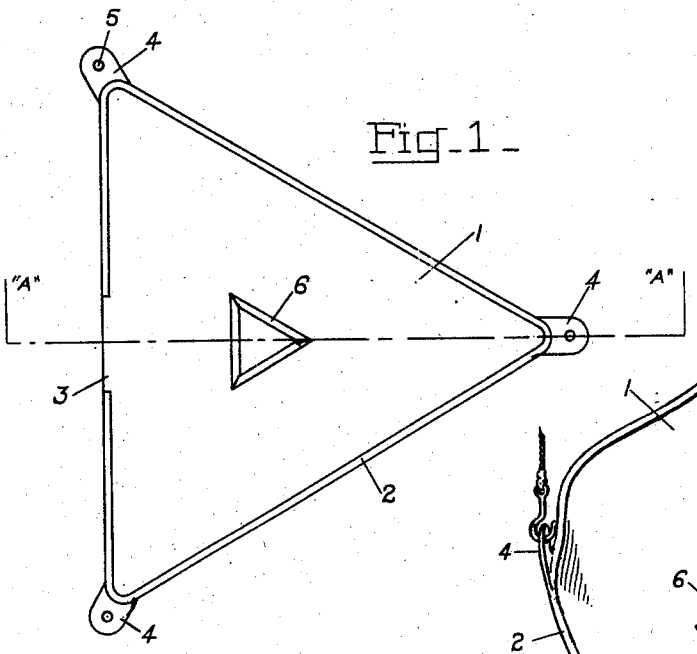


Fig. 1.

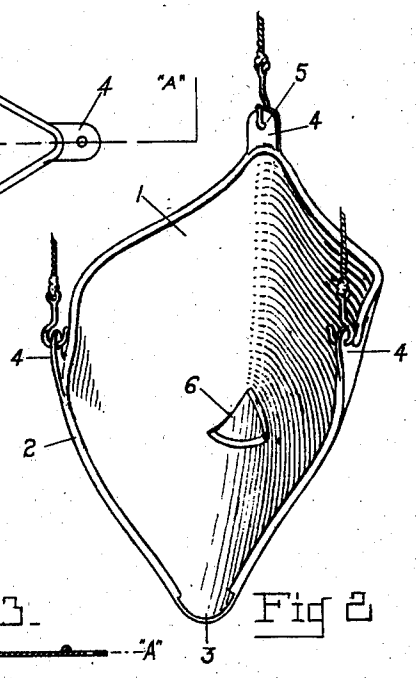


Fig 2

Fig. 3.





Fig. 4.



Fig. 5.



Fig. 6.

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MIXING MAT

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9 Claims. (Cl. 259—72)

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The invention described herein may be manufactured and used by or for the Government for governmental purposes, without the payment to me of any royalty thereon.

This invention relates to a mat adapted for use in the batch mixing of explosive powders.

In the preparation of certain mixed powdered explosives the requirement often arises that the powder grains of each type be thoroughly intermingled and combined.

A simple manner of an attempted means to accomplish the desired result was to use a triangular shaped flexible rubber mat. The powder to be mixed was placed on the mat and each corner of the mat was alternately raised and lowered in an attempt to effect a mixing of the powder grains.

It has been discovered that a complete and thorough mixing could not be accomplished due to the fact that individual spots or batches of powder of one type would accumulate in a "dead spot" on the center of the mat.

The primary object of the present invention is to provide an improved means for effecting the close and intimate intermingling of explosive powder grains in batch mixing of the type described.

A still further object of the inventor is to obtain more complete mixing with a minimum of movement of the mixing blanket.

The invention can best be understood from the following description to be read in view of the accompanying drawing in which:

Figure 1 is a plan view of the preferred embodiment of the invention.

Figure 2 is a view in perspective of the mixing mat in position in use.

Figure 3 is a cross sectional view of the mat taken on the line A—A of Figure 1.

Figures 4, 5 and 6 are sectional views of modified forms of the mixing mat.

Referring to the drawing, 1 indicates the triangular shaped mat, preferably made of conductive rubber, forming the main body of the mixing mat. A raised lip 2 partially borders the rim of the mat. A gap on the border of this mat is allowed resulting in the formation of a discharge cut out 3.

Cemented or vulcanized to each of the angular corners of the mat are extension pieces 4 having holes 5 therethrough, through which hooks secured to a cable can be suspended in order to effect movement of the mat.

Located approximately in the center of the mat is an elevated portion 6 made of rubber, either molded to or cemented on the mat. The elevation is preferably shaped in the form of an equilateral triangle, but is not to be limited to that particular form of design or shape. If triangularly shaped it is preferred that the edges be sloped to an angle of about 45°.

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In Figures 4, 5 and 6 there are shown modified forms of the elevation shown in Figure 3. Shown are forms of elevation either rounded, pyramidal or squared with sloping edges as shown respectively.

If desired the elevated portion can be formed integrally with the mat by casting it at the time that the mat is made.

In the use of the mat heretofore described, the desired amounts of respective powder batches are placed onto the mat. As shown in Figure 2, the mat is then raised by inserting hooks suspended to cables in the manner shown. Each of the cables is then alternately raised and lowered thus imparting a tumbling action or motion to the mat. In this movement the powder grains will circulate about on the mat. The elevation 6 will serve effectively to cause the powder grains to tumble about and not settle in a "dead spot" which condition may cause improper and incomplete mixing of the grains.

After the mat has been tumbled sufficiently, and the proper batch mixing is accomplished, the powder can be poured from the mat, through the cut out 3 into any desired container.

While the invention has been described in its particular application to the batch mixing of explosive powders, it is to be understood that the mat herein described can be used equally well with any types of powder or similar materials.

I claim:

1. A device for blending powder mixes comprising a mat having an elevated portion located centrally thereon, a lip partially extending about the periphery of said mat, and means for suspending said mat to impart a tumbling motion thereto, said means being located entirely near the periphery of said mat.

2. A device for blending powder mixes comprising a mat of substantially plane surface when unflexed, and having a fixed central elevated portion extending above the said plane surface when the mat is in unflexed condition.

3. A device for blending powder mixes comprising a mat of substantially plane surface when unflexed, and having a fixed central elevated portion extending above the said plane surface when the mat is in unflexed condition a distance of the order of the thickness of the mat and hav-

ing an area relatively small in comparison with the area of the mat.

4. In a flexible mixing mat having a body portion with a normally flat triangular surface and having an elevated rim extending all around the periphery of said mat except along a central portion of one side of said surface, and adapted for mixing finely divided materials loosely arranged on said surface by successively raising and lowering each corner of said mat, the improvement comprising a triangular member centrally arranged on said surface of said body portion with its sides parallel to homologous sides of said body portion.

5. The construction of claim 4 wherein said triangular member has a thickness comparable to that of said body portion.

6. The construction of claim 4 wherein said triangular member has a top surface area relatively small compared with that of said body portion.

7. The construction of claim 4 wherein the top surface of said triangular member is parallel to the surface of said body portion.

8. The construction of claim 4 wherein the upper surface of said triangular member is parallel to the surface of said body portion and the surfaces of the side edges of said triangular member lie in planes passing through but not perpendicular to the surface of said body portion.

9. In a flexible mixing mat having a normally flat triangular body portion and having an elevated peripheral rim, and adapted for mixing

finely divided materials loosely arranged on said body portion by alternately raising and lowering each corner of said mat, whereby said materials are caused to move on said mat away from the corner being raised, the improvement comprising means constructed and arranged for dividing at least a part of the moving materials into two portions, one portion moving generally in the direction toward one of the corners remote from the corner being raised and the other portion moving generally in the direction toward the remaining corner remote from the corner being raised, said means comprising a flexible triangular member centrally arranged on the upper surface of said body portion with its sides parallel to homologous sides of said body portion and having a flat upper surface elevated above the upper surface of said body portion.

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