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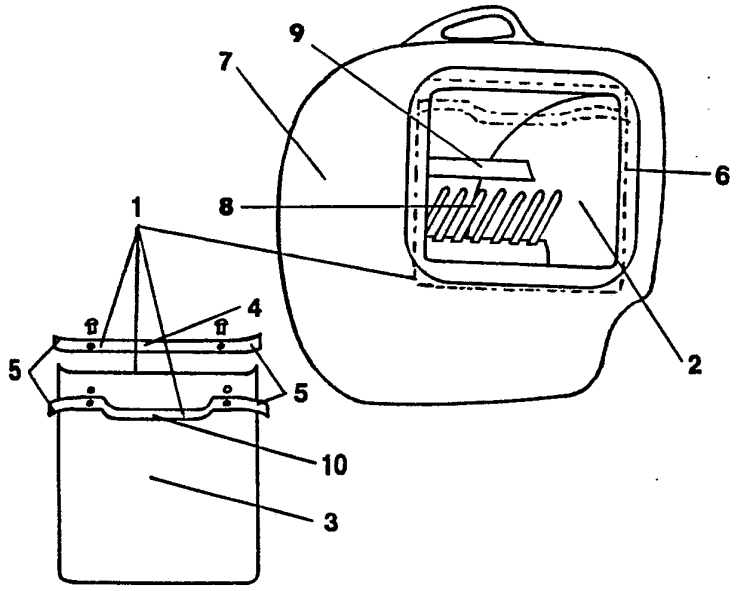
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(71)(72) Applicant and Inventor: JACOBS, Barry [GB/GB]; 1 Sudbury Court Road, Harrow, Middlesex HA1 3SD (GB).

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(54) Title: IMPROVEMENTS IN, OR RELATING TO, PORTABLE SPRAYING APPARATUS



(57) Abstract

A portable hand- or power-driven apparatus of the Tyrolean kind for spraying cement or other surface-coating building and/or decorating material, including a flicker mechanism (8) for spraying the material through an aperture (2) of a hand-held container (7), is provided with a shutter (1) for selectively closing the aperture (2) to enable material retained within the container (7) to be subjected to be mixed prior to spraying. The shutter (1), which is located within the container (7), is slidable to enable the aperture (2) to be opened to whatever extent is appropriate to the materials and quantity of spraying required.

* See back of page

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IMPROVEMENTS IN, OR RELATING TO, PORTABLE SPRAYING APPARATUS

This invention relates to a portable apparatus of the kind having a hand or power-driven mechanism for spraying cement or other suface-coating building and/or decorating material, in which the material is sprayed by a flicker mechanism through an opening of a hand-held container for the material.

With known apparatus of the above specified kind, generally known as a Tyrolean machine, the body of the apparatus is a container and the materials to be cast are fed into the container through the opening through which the material may be projected in a rough spray. The cement or other suitable material is placed in the container so that rotating sprung blades, or "flickers", of the flicker mechanism dip into the material. A flicker regulating bar obstructs the free movement of the flickers so that they are momentarily arrested and suddenly released, causing the material to be flicked or projected through the outlet opening towards the surface to be coated.

It is an object of the present invention to provide improved apparatus of the said above specified kind.

According to the present invention, apparatus of said above-specified kind is characterised in that a shutter is provided for selectively closing the aperture such that when the aperture is closed by the shutter the material is retained within the container to be subjected to a mixing action therein.

The provision of the closing shutter enables the spraying apparatus to be used also for mixing the materials to be sprayed. This increases the versatility of the apparatus.

The shutter may be adjustable relative to the container into one or more positions in which it only partially closes the opening. This allows the shutter to be used also to vary the spray produced by the apparatus to suit different applications.

Although the above mentioned portable spraying apparatus has been known and manufactured worldwide since the 1920's up to the present day, it has not previously been proposed to utilize a shutter to achieve the significant advantages of the closed and/or variable-opening shutter of the present invention. By completely closing the aperture, the portable spraying apparatus instantly becomes an extremely efficient mixer. The revolving action of the flicker mechanism mixes the materials at the bottom of the container, and the action of the flickers, obstructed by the flicker regulating

bar, flicks the materials against the closed opening, providing three mixing actions simultaneously; mixing, flicking and a breakdown of the particles hitting the closed aperture.

By pouring in ingredients and closing the aperture with the shutter, the apparatus will mix the ingredients many times faster than any other form of mixing. Also, the variety of materials which can be mixed and sprayed will be greatly increased.

It may be arranged that while the apparatus is in operation, the operator can open the shutter partially (in particular by pushing the bottom part of the shutter) to see the materials being mixed; further materials can be added in the same way, without leakage. This is a significant time-saver since the operator does not have to stop and lower the shutter for each inspection. Advantage can be achieved by instant mixing and spraying by one operator instead of two. Furthermore, quick-solidification materials can be mixed and sprayed instantly.

Where the shutter is adjustable to vary the open aperture of the apparatus, the operator has better control over the spray of materials. According to the application, he can adjust the aperture to suit various materials and to match his own working pace. Naturally, it will be easier to clean the apparatus with the shutter closed and the operator has no need to be near an ample supply of running water.

A specific embodiment of the invention will now be described, by way of example, with reference to the accompanying drawing in which:-

Figure 1 shows in perspective a portable spraying apparatus according to the present invention with its shutter removed.

Referring to the drawing, the hand-held container 7 of the spraying apparatus has an aperture 2 for entry of the cement or other surface-coating building and/or decorating material to be sprayed. A flicker mechanism 8 combining rotable assembly of sprung blades or flicker 8 and a flicker regulating bar 9 is mounted within the container 7. The assembly of flickers 8 is rotated by hand-or power-operated means (not shown), so that each flicker 8 dips into the material entered in the container 7 and is then moved round to the obstructing bar 9. The bar 9 momentarily arrests, and then suddenly releases the tip of the flicker 8 causing "blobs" of the material carried round with the flickers 8 to be projected through the aperture 2.

The aperture 2 of the container 7 can be closed by the shutter 1 as shown in the chain and dotted outline.

The shutter 1 has a handle 10 and is adapted to be mounted on the container 7, to slide up and down in the aperture 2.

The body of the shutter 3 is preferably made from a clear flexible chemical resistant material (for example, plastic sheet or any other flexible material) which is held between the handle 10 and a superimposed retaining plate 4. The handle 10 and the retaining plate 4 are designed to provide a groove 5 which will engage with the edge of the aperture 2 of the container 7. As an alternative, the shutter 1 may be of moulded construction.

The body 3 of the shutter 1 is fitted inside the aperture 2 of the container 7 to about the margin around the aperture 2 within the container 7, as shown in the chain and dotted outline on the aperture 2 of the container 7, and thereby close the aperture 2 fully. In order to fit the shutter it is necessary to insert it diagonally through the aperture 2 holding it by its handle 10.

By aligning the handle 10 diagonally to the aperture 2 so that the grooves provided between the handle 10, the main body 3 and the retaining plate 4 of the shutter will engage within the edges 6 of the aperture 2 of the apparatus 7. Then the shutter 1 can be slid up and down using the edges 6 of the aperture 2 as a track, whilst the body 3 of the shutter 1 slides inside the portable spraying apparatus 7.

In order to remove the shutter 1, the handle 10 is simply twisted to turn the body diagonally and enable to be withdrawn through the aperture 2.

For use as a mixer, the operator will first pour the various ingredients into the container 7 and then slide the shutter 1 closed. Operation of the machine to drive the flicker mechanism 8 now mixes the contents of the container 7.

For spraying applications, the operator will open the shutter 1 to whatever extent is appropriate for the materials being used and the quantity of spraying required.

CLAIMS

1. Portable apparatus having a hand- or power-driven mechanism for spraying cement or other surface-coating building and/or decorating material, in which the material is sprayed by a flicker mechanism (8) through an aperture (2) of a hand-held container (7) for the material, characterised in that a shutter (1) is provided for selectively closing the opening such that when the aperture (2) is closed by the shutter (1) the material is retained within the container (7) to be subjected to a mixing action therein.

2. Apparatus according to Claim 1 wherein the shutter (1) is adjustable relative to the container (7) into one or more positions in which it only partially closes the aperture (2).

3. Apparatus according to Claim 1 or Claim 2 wherein the shutter (1) is an element that is mounted for sliding movement relative to the container (7) aperture (2).

4. Apparatus according to Claim 3 wherein the aperture (2) shutter (1) element engages opposed edges (6) of the aperture (2).

5. Apparatus according to any one of the preceding claims wherein the shutter (1) is located within the container (7).

6. Apparatus according to Claim 5 wherein the shutter (1) is removable from within the container (7) by manipulation and withdrawal through the aperture (2).

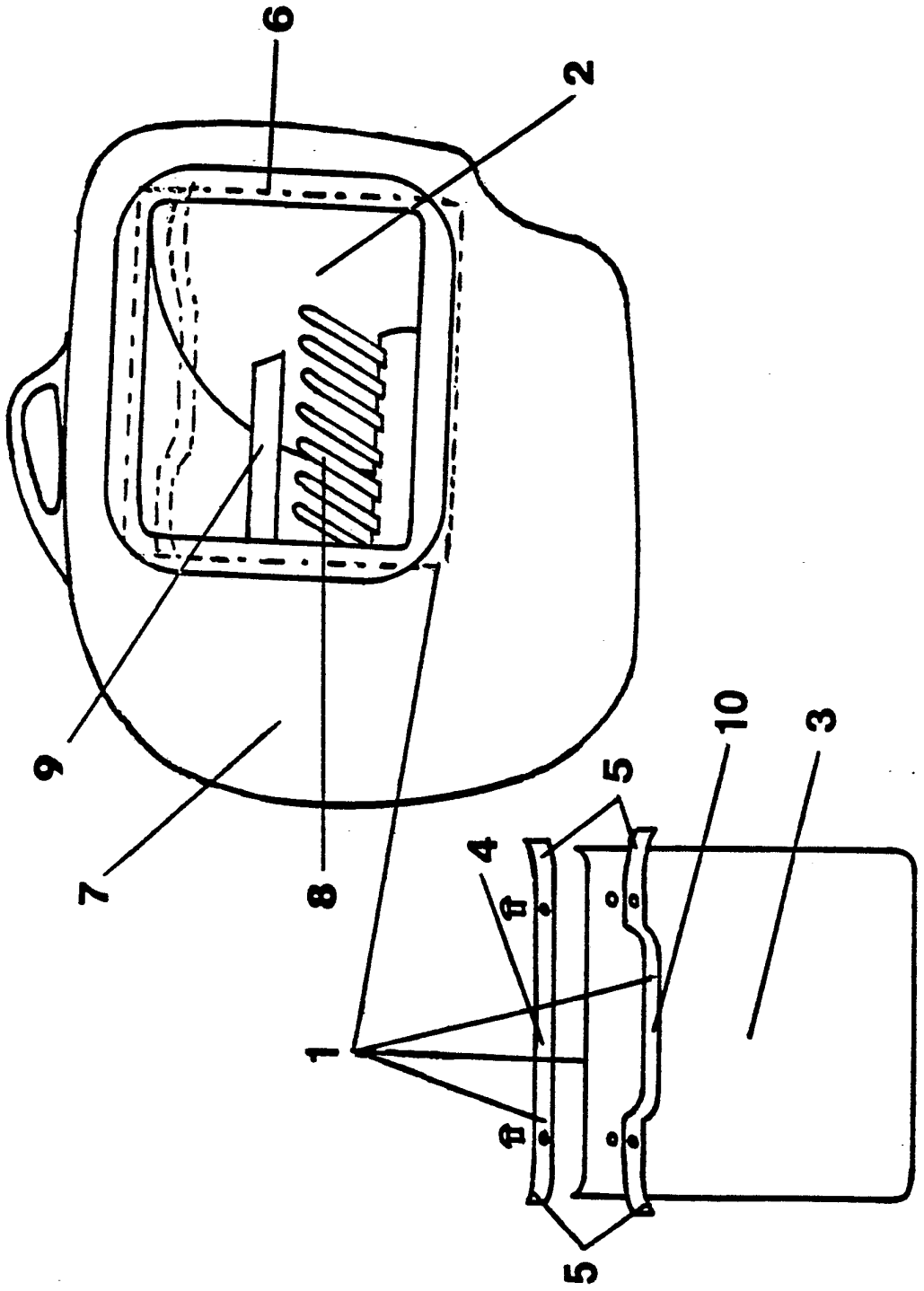
7. Apparatus according to any one of the preceding claims wherein the body (3) of the shutter (1) is of flexible material.

8. Apparatus according to any one of the preceding claims wherein the shutter (1) has a facility to aid adjustment of its position relative to the aperture (2).

9. Apparatus according to any one of the preceding claims wherein the body (3) of the shutter (1) is fitted inside the container (7).

10. Apparatus according to any one of the preceding claims wherein the shutter (1) is of plastics materials.

FIG 1



INTERNATIONAL SEARCH REPORT

International Application No PCT/GB 90/01202

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all)[6]

According to International Patent Classification (IPC) or to both National Classification and IPC

Int.Cl. 5 E04F21/10

II. FIELDS SEARCHED

Minimum Documentation Searched[7]

Classification System	Classification Symbols
Int.Cl. 5	E04F

Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched[8]

III. DOCUMENTS CONSIDERED TO BE RELEVANT[9]

Category [10]	Citation of Document, [11] with indication, where appropriate, of the relevant passages [12]	Relevant to Claim No.[13]
A	DE,C,961297 (TRAUTSCH) 04 April 1957 see page 2, lines 13 - 76; figure	1-3, 8
A	DE,C,933409 (BRUCHE) 25 August 1955 see page 2, lines 74 - 88 see page 3, lines 49 - 85; figures 1-4	1-3
A	BE,A,521438 (TRAUTSCH) 31 July 1953 see page 3, line 43 - page 4, line 4; figure 1	1, 2
P,A	WO,A,8909317 (JACOBS) 05 October 1989 see page 4, lines 4 - 19 see page 6, lines 1 - 6; figure	1, 2, 6, 8

[10] Special categories of cited documents :

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IV. CERTIFICATION

Date of the Actual Completion of the International Search	Date of Mailing of this International Search Report
29 OCTOBER 1990	16. 11. 90
International Searching Authority	**Signature of Authorized Officer**
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ANNEX TO THE INTERNATIONAL SEARCH REPORT ON INTERNATIONAL PATENT APPLICATION NO. PCT/GB 90/01202

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This annex lists the patent family members relating to the patent documents cited in the above-mentioned international search report.
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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE-C-961297		None	
DE-C-933409		None	
BE-A-521438		None	
WO-A-8909317	05-10-89	AU-A- 3366289	16-10-89