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(54) Benævnelse: **Bærbart blandeorgan med højdeindstilleligt håndtag**

(56) Fremdragne publikationer:
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# DESCRIPTION

**Object of the invention**

**[0001]** The present invention refers to a portable mixer for construction materials, of the type of used for mixing various materials such as mortars, bonding cement, paints, resins and generally all type of dense pastes and liquids.

**[0002]** The portable mixer has special construction features oriented to permit the regulation in height of the handle so that its user may arrange the handle to the best suited height for holding and handling the portable mixer.

**Field of the invention**

**[0003]** The invention is applicable to the construction sector and particularly to various materials as those above cited.

**Background of the invention**

**[0004]** Presently mixers for construction materials are known which comprise a body holding an electric motor, a handle for holding and handling the mixer and an interchangeable mixer head, which has a rod for coupling to the driving electric motor.

**[0005]** This type of mixers have usually standard sizes and do not take into account how tall are the operator which will use them.

**[0006]** During the operation of this type of mixers, the user must hold the mixer firmly by the handle moving the same so that the mixer head, that rotates by the action of the electric motor, moves within the container which holds the materials to by mixed. Depending on the density and quantity of the material to be mixed, the effort to be carried out by the operator may be considerable, such work being more difficult when the dimensions of the mixer, particularly the height of the mixer are not adequate to the height of the user.

**[0007]** This determines that the taller operators have frequently to lower themselves to carry out the handling of the mixer and that the shorter operators must raise the hands excessively to hold and handle the mixer, both postures being inadequate.

**[0008]** Some manufactures of this type of mixers, in view of the above problem, have chosen for its solution to provide mixing rods of different lengths. However this solution is not economically profitable as the user must purchase different mixing rods of various lengths and

on the other side it is not effective as the user generally handles the mixer with the rod already assembled in it independently of being adequate or not to his height. This is due to the fact that in most cases searching for the adequate mixing rod and the substitution of the rod already assembled in the mixer brings about a bigger loss of time than that resulting from the use of the mixer as it is configurated.

**[0009]** Another known intent of solution consists in the use of a system located in the fore part of the mixing rod consisting in an extension which may be regulated at will to change its length.

**[0010]** Document CA 2393974 A1 describes a portable mixer for construction materials comprising a portable drill and a mixing attachment 15, wherein the portable drill includes a body having an integral single-protrusion handle which is attached at a fixed position to the body.

**[0011]** Document DE 9304887 U1 describes a portable drill comprising a body and a handle, wherein the body has two guide rails along a lower side thereof and the handle has two U-shaped guide elements 6 engaged to the guide rails 4 allowing a displacement of the handle 5 in the longitudinal direction of the body 1, and wherein the handle has a single protrusion which forms a single portion for holding the handle.

**[0012]** Document EP 2 172 311 A1 discloses a portable mixer provided with adjustable handles, wherein said handles are rotatably mounted on the body of the mixer.

**Description of the invention**

**[0013]** The portable mixer for construction materials of this invention corresponds to the mixer of appended claim 1, that is, those used for mixing various materials comprising: a support body, an electric driving motor, a handle for holding and handling the mixer and a mixing head with a bar for coupling to the driving electric motor. The mixer of the invention has constructive peculiarities oriented to change the height of the handle in respect to the mixing head and to establish the fixation of said handle at the desired height depending on the stature of the user and, at the same time, to permit that said operation may be carried out in a fast and easy manner.

**[0014]** To this end an according to the invention, the body supporting the mixer has an external surface on which the handle is assembled with the possibility of longitudinal displacement in respect of the axis of the rod for the mixer head and some means for blocking the handle on the external surface of the body, at a variable height in respect to the mixer head.

**[0015]** With these features, when the user wishes to operate the mixer he can release the blocking means of the handle displacing the same vertically, that is in the longitudinal direction in respect to the external surface of the body of the mixer, to arrange the handle to the height

which is more convenient in relation to the height of the operator and operating again the blocking means of the handle to hold the same in the desired position. This operation is specially fast and simple for the user and permits the variation of the height of the handle depending on the height of the operator without the need to provide multiple mixing bars to be used by different operators nor to carry out continuous changes of said bars in the mixer.

**[0016]** According to the invention, the external surface of the body has a portion with constant thickness for the longitudinal displacement of the handle and some planes or longitudinal guides which prevent the relative rotation of the handle in respect to the body. In its turn, the handle has a guiding passage with a cross section which is complementary to the cross section of the external surface of the body, which makes its longitudinal displacement possible to change the height, preventing the rotation of the handle in respect to the body.

**[0017]** In one embodiment of the invention the means for blocking the handle located on the external surface of the body of the mixer have a threaded pressure knob radially assembled in respect to the guide for the handle. Said threaded knob may be arranged in an operative position to exert pressure in a radial direction against the external surface of the body of the mixer, preventing the longitudinal displacement of the handle, and may be also arranged in a idle position in which it is located with a certain separation in respect to the guiding passage, having no action against the external surface of the body of the mixer. This idle position permits the longitudinal displacement of the handle in respect to the body of the mixer. According to the invention, the handle has two ring-like protrusions diametrically opposed in respect to the guiding passage, which form two holding areas for the handle. This permits the user to effectively hold the handle with both hands during the operation of the mixer.

**Description of the figures**

**[0018]** To complement the description of the invention and with the aim to facilitate the understanding of the features of the same, a set of drawings is attached to this description, as a non limitative example, representing as follows:

- Figure 1 shows a front view of an example of the portable mixer of the invention for construction materials, with a handle arranged in a lower position in respect of the body of the mixer.
- Figure 2 shows a figure similar to figure 1 with the handle arranged in a higher position.
- Figure 3 shows a plant view of the handle assembled on the body of the mixer.
- Figure 4 shows a view similar to figure 3 in which a part of the handle has been removed to facilitate the observation of the threaded pressure knob.

**Preferred embodiment of the invention**

**[0019]** The mixer shown in the attached drawings consists of a support body (1), an electric driving motor (2), a handle (3) and a mixer head (4) with a rod (5) for its coupling to the driving electric motor (2).

**[0020]** The body (1) has an external surface (11) on which the handle (3) is assembled with the possibility of longitudinal displacement, that is, in the direction of the axis of the rod (5), said handle having the capacity to be located at different heights between a bottom position represented in figure 1 and an upper end position shown in figure 2.

**[0021]** The external surface (11) of the body of the mixer has a portion with a constant thickness for the longitudinal displacement of the handle (3). In the example being shown said external surface (11) is substantially cylindrical having some diametrically opposed longitudinal planes (12) which prevent the rotation of the handle (3) in respect to the body (1) of the mixer.

**[0022]** In its turn, the handle (3) has internally a guiding passage (31) with a cross section which is complementary to the cross section of the body (1) of the mixer.

**[0023]** In the example as shown the handle (3) has, as may be observed in figures 3 and 4, two ring-like protrusions (32, 33) diametrically opposed in respect to the guiding passage (31) forming two regions to permit the user to hold the mixer, with both hands.

**[0024]** The means for blocking the handle at different heights in respect to the body (1) of the mixer are shown in figures 3 and 4, having a threaded pressure knob (34) assembled on the handle (3) in a direction which is radial in respect to the guiding passage (31). Sais threaded knob (34) upon being operated in one on another direction of rotation determines the blocking or the release of the handle (3) in respect of the body (1) of the mixer.

**[0025]** Once sufficiently described the nature of the invention as well as an example of a preferred embodiment, it is stated to all effects that the materials, shape, size and arrangement of the described elements may by modified whenever this does not mean an alteration of the essential characteristics of the invention which is claimed as follows.

# REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

**Patent documents cited in the description**

- CA2393974A1 **[0010]**
- DE9304887U1 **[0011]**
- EP2172311A1 **[0012]**

## Patentkrav

1. Bærbart blandeorgan til konstruktionsmaterialer af den art, som anvendes til blanding af forskellige materialer, såsom mørtler, malinger, harpikser og i almindelighed både tykke pastaer og væsker; omfattende: et bærelegeme (1), en elektromotor (2), et håndtag (3) til at holde og håndtere blandeorganet, og et blandehoved (4) med en stang (5) til sammenkobling af blandehovedet (4) med den drivende elektromotor (2), og hvor blandeorganets bærelegeme (1) har: en yderflade (11), hvorpå håndtaget (3) er samlet med mulighed for forskydning, og organer til blokering af håndtaget (3) på yderfladen (11) af blandeorganets bærelegeme (1) i en variabel højde i forhold til blandehovedet (4), og hvor håndtaget (3) er samlet på yderfladen (11) af blandeorganets legeme (1) med mulighed for lineær længdeforskydning i retning af stangen (5) med henblik på kobling af blandehovedet (4), og hvor yderfladen (11) af blandeorganets legeme (1) har en del, som har et konstant tværsnit med henblik på længdeforskydning af håndtaget (3) og nogle langsgående flader (12) eller føringer, som kan forhindre drejning af håndtaget (3) i forhold til blandeorganets legeme (1), og hvor håndtaget (3) har en føringskanal (31) med et tværsnit, som er komplementært i forhold til tværsnittet af blandelegemets yderflade (11), og hvor håndtaget (3) har to ring-lignende fremspring (32, 33), som er anbragt diametralt modsat i forhold til føringskanalen (31), og som fastlægger to dele, hvormed håndtaget (3) kan holdes.

2. Blandeorgan ifølge krav 1, hvor organet til blokering af håndtaget (3) på yderfladen (11) af blandeorganets legeme (1) omfatter en gevindskåret trykknap (34), som er "radialt" samlet på håndtaget (3) i forhold til føringskanalen (31) for håndtaget (3).

3. Blandeorgan ifølge krav 1, hvor håndtaget (3) er monteret på yderfladen (11) af blandeorganets legeme (1), så at håndtaget (3) kan forskydes som et enkelt legeme efter en lige linje uden relativ bevægelse mellem sine to ringlignende fremspring (32, 33).

# DRAWINGS

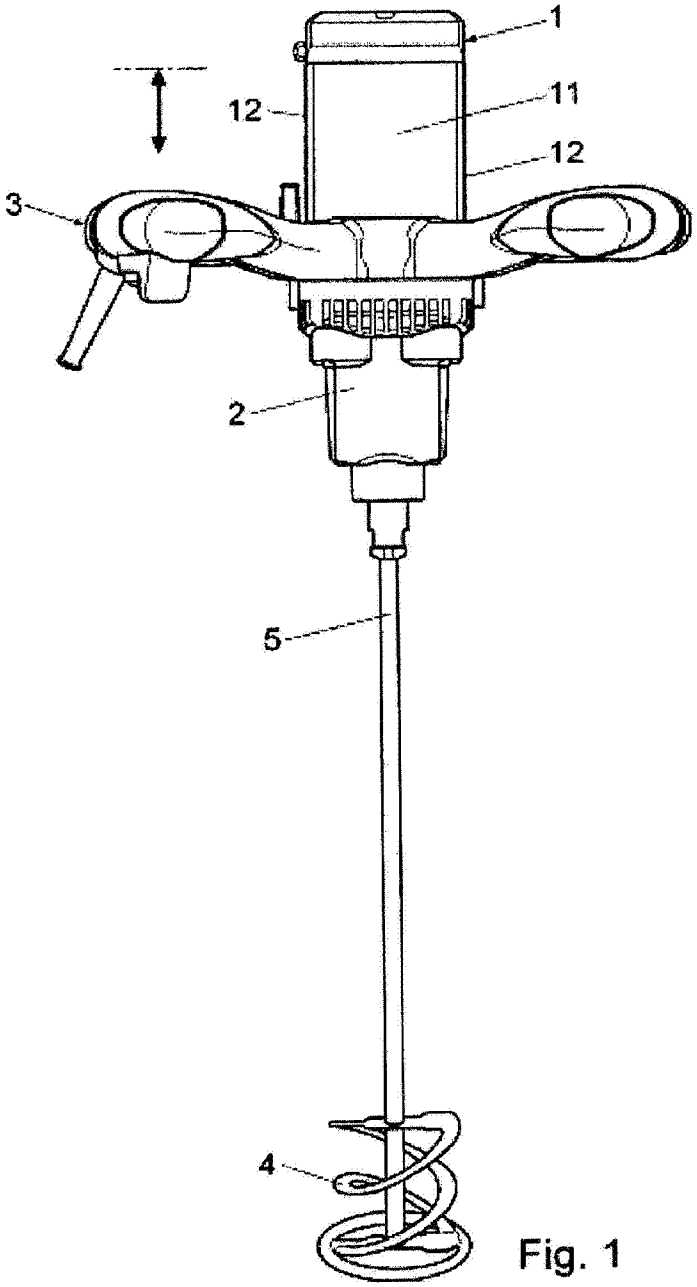


Fig. 1

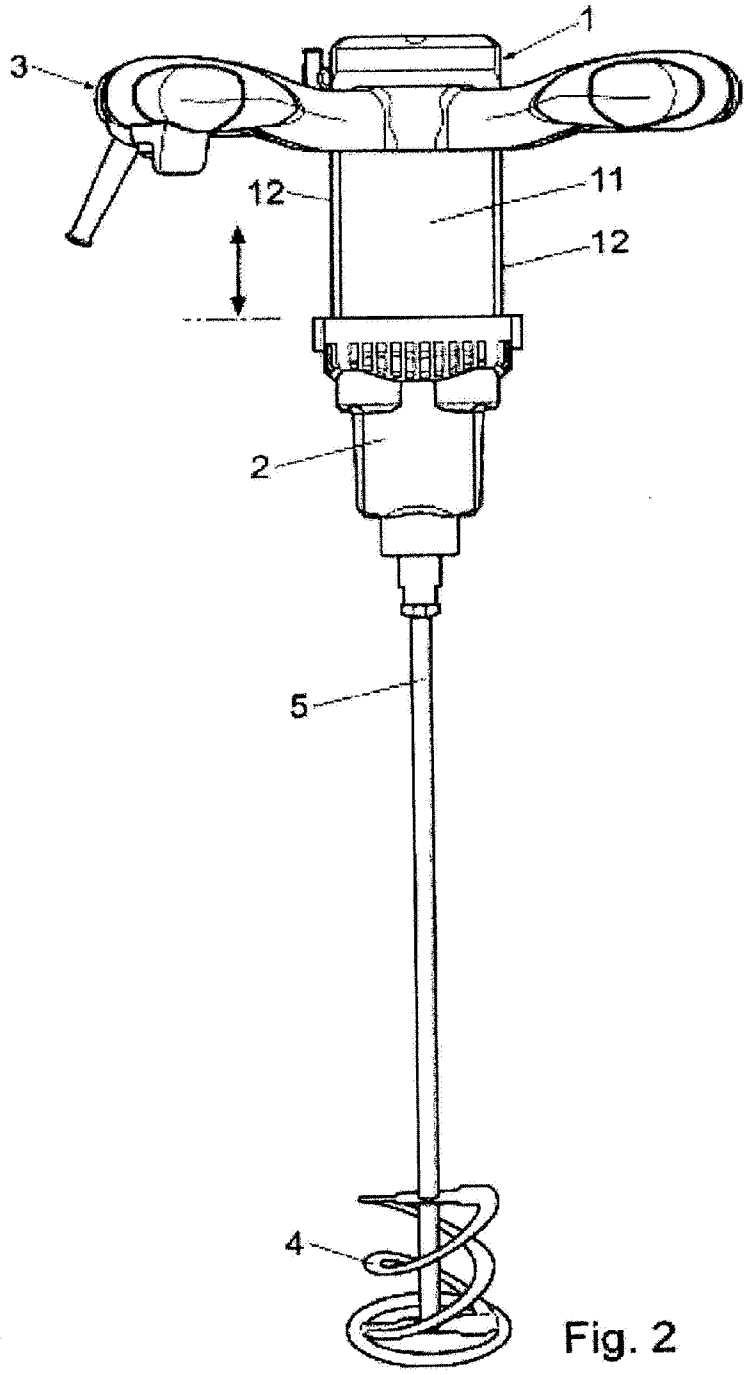


Fig. 2

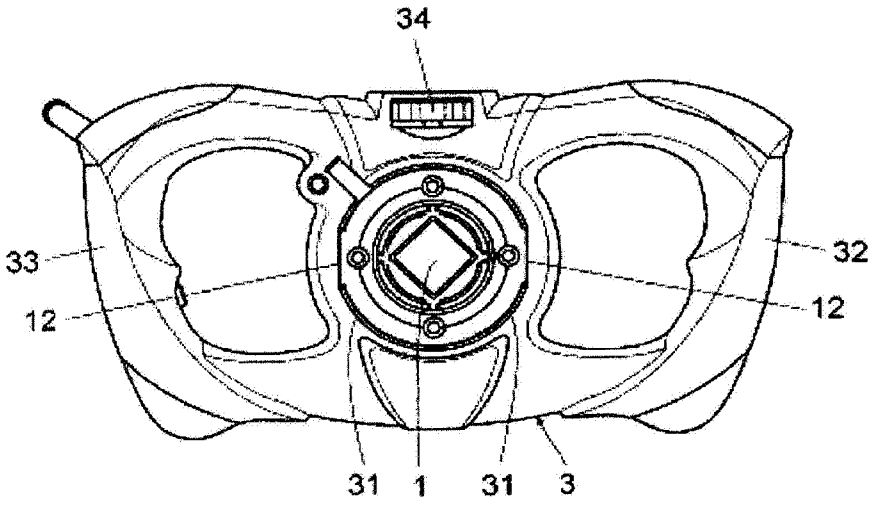


Fig. 3

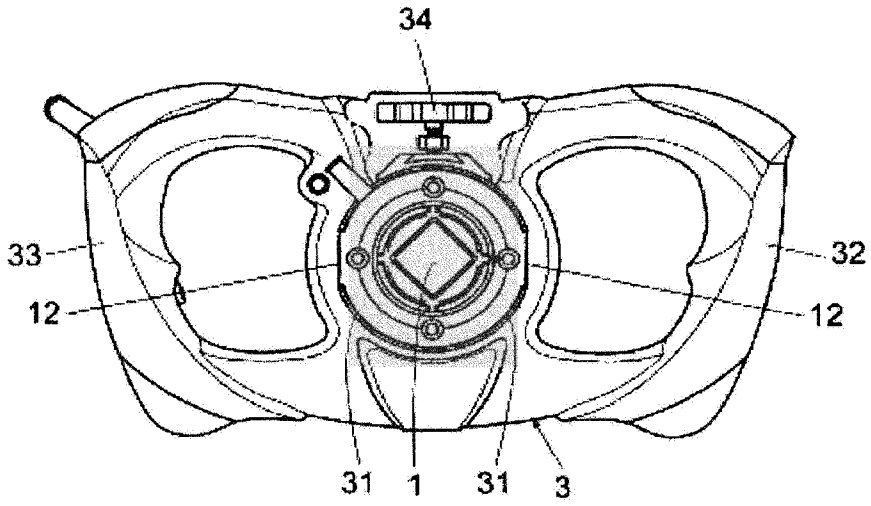


Fig. 4