CONVENTION APPLICATION FOR A STANDARD PATENT

We SIMCO ENGINEERING WORKS 1969 (PROPRIETARY) LIMITED of 1 Meriot Street, Malvern, Johannesburg, Republic of South Africa hereby apply for the grant of a standard patent for an invention entitled:

"SEPARATING TABLES FOR MINERAL RECOVERY"

which is described in the accompanying complete specification.

DETAILS OF BASIC APPLICATION

Number of Basic Application:- 83/3247

Name of Convention Country in which Basic Application was filed:-
South Africa

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SIMCO ENGINEERING WORKS 1969 (PROPRIETARY) LIMITED

By:


TO: THE COMMISSIONER OF PATENTS
AUSTRALIA

JP/fje/231U

This invention relates to separating tables, including vibratory screens, for the recovery of selected minerals.
In accordance with the present invention a method of forming a surface for a separating table and the like.
SEPARATING TABLES FOR MINERAL RECOVERY

SIMCO ENGINEERING WORKS 1969 (Proprietary) Limited

A method of forming a surface for a separating table or the like including the steps of providing a mould designed to form a base for a riffled or fibrous textured surface of fabric or other suitable material, pouring and spreading in the mould a suitable settable material such as polyurethane, and forming on or applying to the base the riffled or fibrous surface.
FORM 10

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PATENTS ACT 1952

COMPLETE SPECIFICATION

(ORIGINAL)
FOR OFFICE USE:

Class Int. Class

Complete Specification Lodged: 27256/84
Accepted:
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Priority:
Related Art:

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Complete Specification for the invention entitled:

"SEPARATING TABLES FOR MINERAL RECOVERY"

The following statement is a full description of this invention, including the best method of performing it known to us.
This invention relates to separating tables, including vibratory strakes, for the recovery of selected minerals.

Separators have been used for many years in the treatment of platinum, gold and other heavy metal ore slurries wherein the metal particles are trapped in a fibrous or riffled fabric surface and the slurry, depleted with respect to the metal value, flows over the surface and is discharged.

In one such separator a sloping table is utilised as a support for the fabric which is usually a corduroy web. The slurry is fed onto the web at the raised end of the table and as the fluid flows down the slope, heavy metal particles are trapped in the fibres and riffles of the web to a far greater extent than the lighter gangue particles.

It is an object of the present invention to provide an improvement in respect of the abovementioned type of separator which the applicant believes will have useful advantages.
In accordance with the present invention a method of forming a surface for a separating table and the like includes the steps of providing a mould designed to form a base for a riffled or fibrous textured surface of fabric or other suitable material, pouring and spreading in the mould a suitable settable material such as polyurethane, and forming or applying to the base the riffled or fibrous surface.

Further according to the invention the mould is formed to provide the underside of the base with keying formations intended to engage mating formations on a supporting structure. These formations may, for instance, be of the nature of tongues adapted to engage in mating grooves.

Also according to the invention the application of the riffled or fibrous material to the base is done while the base is still of a tacky nature. The riffled or fibrous textured surface could be formed on the upper face of the base.

The invention is also directed to a surface for a separating table which is characterised in a base of
suitable material, such as polyurethane and the like, which defines or has attached thereto a rifled or fibrous textured separating surface. Preferably the underside of the base provides anchoring formations for engagement with mating formations on a supporting structure.

According further to the invention the supporting structure is or includes a tray arrangement, to the floor of which the surface unit is attached. These trays may be of various materials and the indications are that trays of fibreglass will be acceptable. The floor of the tray, in a preferred form of the invention, is equipped with anchoring formations for engagement with mating formations on the underside of the surface unit. Tongue and groove formations appear ideal.

To illustrate the invention some examples are described hereunder with reference to the accompanying drawings in which :-
Figure 1 is an end view in section of a suitable tray for a separating surface unit;
Figure 2 shows the tray with the surface unit in position therein;
Figure 3 shows a section through a mould for the surface unit with a unit formed therein, the section being on the line X-X of figure 4;
Figure 4 is a plan of the mould; and
Figure 5 is a perspective view of a separating surface unit provided by the invention.

Referring to the drawings, the invention sets out to provide a separating table in which the actual separating deck or surface is substantially as shown in figure 2. The separating surface comprises a layer of rifled material 6, e.g. corduroy, which is bonded to a base 7 of polyurethane or other suitable resiliently flexible material. The unit made up of elements 6 and 7 is adapted to form a floor covering for a tray 8 which may be made of any suitable material with tests suggesting that fibreglass would be perfectly adequate.

In the arrangement shown in the figures the underside of the base 7 is provided with slightly dovetailed
tongues 9 which are intended to clip into mating
grooves 10 in the floor of the tray 8. The size of
tray will vary according to circumstances and the trays
may be linked together to form separators of various
sizes and capacities. The trays may also be linked
together to form separating surfaces of the character
of an endless belt arrangement.

Figures 3 and 4 deal with the formation of the
separating surface. Reference 11 shows
diagrammatically a suitable mould for the base 7.
Mould 11 is formed with a moulding cavity into which
the selected settable material, for instance
polyurethane, in liquid form, is poured. The
material may be smoothed over to provide an acceptable
finish to its upper surface and while it is still
suitably tacky the laminate 6 of rifled material,
e.g. corduroy, is applied thereto as shown
diagrammatically in figure 3.

The mould provides additional cavities 12 for the
formation of the tongues 9 on the underside of the base
7.
When the surface unit made up of elements 6 and 7 has been properly formed and the base 7 has set it may be lifted out of the mould without difficulty. For this purpose the mould shown in figure 4 has a gate 13 which may be opened to allow for the insertion of a lifting tool beneath the base 7.

Only practical limitations would dictate the size of the separating surface which may be formed in accordance with the invention. Nor does the applicant preclude the possibility of the arrangement of the invention being used over a wide range of materials.

The tray 8 is intended to slope downwardly at a chosen angle from a slurry supply or feed point with the slurry passing over the riffled surface 6 towards an overflow at low level relative to the feed point. Selected heavy materials are intended to be trapped on or in surface 6 for subsequent recovery.

The arrangement of the invention makes for very simple replacement of worn surfaces 6. All that is required
is that the worn unit 6 be lifted out of the grooves 10 in the tray 8 for replacement by a new unit 6. Units 6 could be formed in fairly long lengths for pieces to be cut therefrom. There is normally no need to remove the tray from a separating table made up of a plurality of such linked trays when replacement of elements 6 is required.

Many more examples of the invention exist each differing from the other in matters of detail only.

Thus in a further example of the invention the riffling could be provided by forming such a surface directly on the base during the moulding operation. The invention is directed to the separating surface units, to separating equipment employing such units and to the method of forming the units.
The claims defining the invention are as follows:

1. A method of forming a surface for a separating table or the like including the steps of providing a mould designed to form a base for a rifled or fibrous textured surface of fabric or other suitable material, pouring and spreading in the mould a suitable settable material such as polyurethane, and forming on or applying to the base the rifled or fibrous surface.

2. The method claimed in claim 1 in which the mould is formed to provide the underside of the base with keying formations intended to engage mating formations on a supporting structure.

3. The method claimed in claim 2 wherein the keying formations are of the nature of tongues adapted to engage in mating grooves.

4. A surface for a separating table characterised in a base of suitable material, such as polyurethane and the like, defining or having attached thereto a rifled or fibrous textured separating surface.

5. The surface claimed in claim 4 in which the base is part of, or is intended to be anchored to, a supporting structure.
6. The surface claimed in claim 5 in which the underside of the base provides anchoring formations for engagement with mating formations on the supporting structure.

7. The surface claimed in either claim 5 or claim 6 in which the supporting structure is a tray to the floor of which the base is attached.

8. The surface claimed in claim 7 insofar as it depends on claim 6 in which the floor of the tray provides anchoring formations for engagement with the anchoring formations on the underside of the base.

9. The surface claimed in either claim 7 or claim 8 in which the trays are adapted to be linked together pivotally to form a train of such trays.

10. A method of forming a surface for a separating table or the like substantially as herein described.

11. A separating surface substantially as herein described.
12. A method of forming a surface for a separating table substantially as herein described with reference to the accompanying drawings.

13. A separating surface substantially as herein described with reference to the accompanying drawings.

14. A separating table substantially as herein described with reference to the accompanying drawings.

DATED this TWENTY FOURTH day of APRIL 1984

SIMCO ENGINEERING WORKS 1969 (PROPRIETARY) LIMITED

Patent Attorneys for the Applicant

SPRUSON & FERGUSON
The following statement is a full description of this invention, including the best method of performing it known to us.