COMMONWEALTH of AUSTRALIA

PATENTS ACT 1952

APPLICATION FOR A STANDARD PATENT

I, ÅKE LENNART SJÖBERG,
of Torsdagsgränd 15,
S-302 53 Halmstad, Sweden

hereby apply for the grant of a Standard Patent for an invention entitled:
"IMPLEMENT CONSISTING OF A STAND ON WHICH A MACHINE FOR DRIVING BITS, DRILLS OR THE LIKE IS MOVABLY MOUNTED"

which is described in the accompanying specification.

Details of basic application(s):

<table>
<thead>
<tr>
<th>Number</th>
<th>Convention Country</th>
<th>Date</th>
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<tbody>
<tr>
<td>8004678-2</td>
<td>Sweden</td>
<td>25 June, 1980</td>
</tr>
</tbody>
</table>

The address for service is care of DAVIES & COLLISON, Patent Attorneys, of 1 Little Collins Street, Melbourne, in the State of Victoria, Commonwealth of Australia.

Dated this 30th day of March, 1981.

To: THE COMMISSIONER OF PATENTS

(a member of the firm of DAVIES & COLLISON for and on behalf of the Applicant).

Davies & Collison, Melbourne and Canberra.
DECLARATION IN SUPPORT OF CONVENTION OR NON-CONVENTION APPLICATION FOR A PATENT OR PATENT OF ADDITION

(The declaration shall be made by the applicant, or, if the applicant is a body corporate, by a person authorized by the body corporate to make the declaration on its behalf).

In support of the Application made for a Patent for an invention entitled IMPLEMENT CONSISTING OF A STAND ON WHICH A MACHINE FOR DRIVING BITS, DRILLS OR THE LIKE IS MOVABLY MOUNTED

I AKE LENNART SJÖBERG,
of Torsdagsgränd 15,
S-302 53 Halmstad, Sweden

do solemnly and sincerely declare as follows:

1. (a) I am the applicant.......... for the patent
or (b) 

A KE LENNART SJÖBERG,
of Torsdagsgränd 15,
S-302 53 Halmstad, Sweden

2. (a) I am the actual inventor....... of the invention

A KE LENNART SJÖBERG,
of Torsdagsgränd 15,
S-302 53 Halmstad, Sweden

(Paragraphs 3 and 4 apply only to Convention applications).

3. The basic application........ as defined by Section 141 of the Act was made in Sweden on the 25 June, 1980 by AKE LENNART SJÖBERG

A KE LENNART SJÖBERG,
of Torsdagsgränd 15,
S-302 53 Halmstad, Sweden

4. The basic application........ referred to in paragraph 3 of this Declaration, was the first application........ made in a Convention country in respect of the invention the subject of the application.

Declared at TYGELSJÖ, this 20th day of March, 1981

Ake Sjöberg
Claim 1. Implement consisting of a stand, on which is movably mounted a drive machine for bits, drills or similar tools operating by impact or drilling, which is supported by the drive machine and which can move backwards and forwards lengthwise in a plane of movement which is substantially parallel with the stand, and with a device for dust extraction, which is connected with a bar 8 projecting from the stand, characterized in that the dust extraction device consists of a chamber, the lower side of which has at least one cover, which is influenced by varying air pressure in the chamber and from which a hose emerges for evacuation under vacuum of the dust produced during working.
Name of Applicant: ÄKE LENNART SJÖBERG,

Address of Applicant: of Torsdagsgränd 15,
S-302 53 Halmstad,
Sweden

Actual Inventor(s): ÄKE LENNART SJÖBERG

Address for Service: DAVIES & COLLISON, Patent Attorneys,
1 Little Collins Street, Melbourne, 3000.

Complete specification for the invention entitled:
"IMPLEMENT CONSISTING OF A STAND ON WHICH A MACHINE FOR DRIVING BITS, DRILLS OR THE LIKE IS MOVABLY MOUNTED"

The following statement is a full description of this invention, including the best method of performing it known to me:

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Technical Field

The present invention relates to an implement consisting of a stand, on which a driving machine for bits, drills or similar tools is movably mounted, with a bar, projecting from the stand, on which a device for dust extraction is attached.

Background

One of the most demanding — and from the aspect of worker safety the most dangerous — tasks in the building trade, inter alia, is the chiselling and drilling of walls with hand-held tools of the conventional type. The operator has to hold the tool, weighing 10-15 kg, often above chest height. He has to withstand strong vibrational impacts from the drive machine. Swirling dust and chips of concrete flying from the wall pose obvious risks.

In the patent literature various ways are known of coping with the weight of the tool, e.g. by connecting the tool to a suction cup so as to fix this onto the material being worked on. It is natural for the expert to suggest — as is done in the present specification — a movable connection between the suction cup and the tool, and as indicated below this proposal does not form any part of the present invention.

As regards the problem of vibrational impacts, various ways are known of reducing these, ranging from a simple compression spring up to vibration dampers of more sophisticated type, which as a rule have the common feature that they are placed between the vibrating drive machine and the hand grip on the stand which holds the machine.

Finally, as regards, the problem of eliminating dust formation, the patent literature exhibits various proposals for this solution, such as "point extraction" (SE 221 905), a dust extraction pipe movably located on
4. The basic application referred to in paragraph 3 of this Declaration was the first application made in a Convention country in respect of the invention the subject of the application.

Declared at TYGELSJÖ, this 20th day of March, 1981

SWEDEN

Ake Sjöberg

Signature(s) of declarant(s).
(No attestation or other signature is required).

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the drilling machine (DE 2 517 926), an extraction device for use during drilling which is fastened by a suction cup to the surface being worked on (SE 7809379-6) etc.

Typical of all the arrangements hitherto known for dealing with the dust produced is that - according to experience based on the present state of the art - the desired technical effect can be achieved only to the extent to which the arrangement for dust extraction completely surrounds the surface worked on. Arrangements as shown in the Swedish patent first cited above for "point extraction" are not able to remove the dust to an acceptable extent.

As regards drilling, arrangements having the desired technical effect can be regarded as known.

The situation is different as regards chiselling. During such work not only dust is produced (as during drilling); small to large pieces of the material worked on are also released. Hence it has been deemed impossible to completely surround the working location by, say, a dome-shaped device from which an evacuation hose leads. The result would naturally be that after only a short period of working, lumps and chips would fill the dome and block the evacuation channel unless the operator were to continuously clean the assumed dome by hand.

As stated above, "point extraction" is the only method assessed as being at all theoretically feasible during chiselling. In actual practice it has proved to be unrealistic. Instead attempts are made to deal with the dust produced at the work places by water spraying, with its associated disadvantages and difficulties. The alternative is individual respiratory protection.

The Invention

The primary purpose of the present invention is, by means of a simple arrangement based on the effects of
varying atmospheric pressure, to suck out the dust produced during the operation of drive machines for chiseling and drilling of walls. The advantages which are aimed at in accordance with the invention have been achieved by imparting the characteristics to the device as indicated by the claim.

The Drawing

The invention will be described in greater detail below by reference to the appended drawing, on which Fig. 1 shows an implement consisting of a stand, on which a drive machine for bits of the conventional type is movably mounted, and with a bar projecting from the stand with arrangement for dust extraction, whereas Fig. 2 illustrates the same arrangement in perspective and on a larger scale.

Description of a Preferred Embodiment

Fig. 1 illustrates a drive machine 1 for bits, which by means of a holder 2 is movably mounted on a stand 3, preferably a square-section tube. On the stand 3 there is a hand grip 4 and a hand grip 7, the latter being rigidly connected with the stand 3 and, under spring resistance 6, movably mounted against the holder 2. From the hand grip 7 an air hose 10 leads, which controls a pilot valve not shown here, which operates the drive machine when the controller on the hand grip 7 is pressed inwards. On the stand 3 there is a box 5 of the same type and properties as those which enclose reel-type belts on vehicles. Mounted inside the stand 3 is a compression spring 9, which forces a bar 8 to project outwards substantially in parallel with the tool on the drive machine 1. A spring 11 connects the bar 8 with a device 12 for dust extraction, described most simply as a chamber 12A of arbitrary appearance and shape, with a hose 15 for dust extraction having a bellows-shaped front aperture 13 and two covers 14. A belt 19 of the same type and
properties as vehicle reel belts emerges from the box 5 to a suction cup 18 to which it is fastened. An evacuation hose 20 passes outwards from the suction cup 18.

Fig. 2 illustrates the device 12 described above for dust extraction. The perspective view chosen shows the covers 14 in the half-open position and also the rear face 16 of the device 12, which consists of a suitable elastic wall with a passage 17 for the tool on the drive machine 1.

When the implement is to be operated, the operator holds the suction cup 18 and places it at the chosen height on the wall above the selected work location. The closer the cup 18 is placed to the position which is to be worked on, then naturally the greater will be the impact effect on the material being worked.

The operator then takes hold of the hand grips 4 and 7 and lifts the tool to the chosen height. By tilting the tool he locks the brake mechanism in the box 5, and the suction cup 18 now supports the tool which, with the drive machine 1, attempts to reach the wall. He presses in the controller on the hand grip 7, and the drive machine starts to function at any required angle with respect to the wall. If the operator wishes to change the vertical position, he moves the implement smoothly upwards or downwards and then causes the brake mechanism to function once more by jerking or tilting the implement.

By virtue of its connection with the bar 8, the dust extraction device 12 follows the movements of the stand 3. When the device 12 with its bellows-shaped aperture 13 is flush against the wall - a preferred position which is ensured thanks firstly to the compression spring 9, secondly to the bellows-shape and thirdly to the spring 11 - a vacuum is formed inside the device 12 and the covers 14 close completely. There is now no other path for the dust formed during chiselling than through the evac-
When the operator removes the implement and thus the device 12 from the wall, atmospheric pressure is immediately restored inside the device 12 as a result of the air flowing in via the aperture 13. Simultaneously the covers 14 open and lumps, chips and the coarser material which has collected inside the device 12 and which has not been transported away through the hose 15 drop to the ground. When the operator once more moves the implement together with the device 12 towards the work location, the covers 14 close once more and work can continue without any dust being generated at the work location.

With the device 12 as described above not only is the dust eliminated; the risk of injury as a result of flying chips of concrete etc. has also been eliminated.

The invention should not be regarded as being restricted to what has been described above and shown on the drawing, but can be modified in various ways within the framework of the protection requested. Thus the appearance and shape of the device 12 can naturally differ from the cylinder preferred here. Instead of two covers 14 it is possible to have only one. The connection with the bar 8 can be by means other than the spring 11 etc.
THE CLAIMS DEFINING THE INVENTION ARE AS FollowS:-

1. Implement consisting of a stand, on which is movably mounted a drive machine for bits, drills or similar tools operating by impact or drilling, which is supported by the drive machine and which can move backwards and forwards lengthwise in a plane of movement which is substantially parallel with the stand, and with a device for dust extraction, which is connected with a bar 8 projecting from the stand, characterized in that the dust extraction device consists of a chamber, the lower side of which has at least one cover, which is influenced by varying air pressure in the chamber and from which a hose emerges for evacuation under vacuum of the dust produced during working.

2. An implement consisting of a stand substantially as hereinbefore described with reference to the accompanying drawings.

3. The steps or features disclosed herein or any combination thereof.

Dated this 30th day of March, 1981

ÅKE LENNART SJÖBERG

by his Patent Attorneys

DAVIES & COLLISON.