The invention is directed to a wall chaser (10) for producing slots or similar recesses in masonry or the like, wherein a drive section (1) having a drive motor (2) and gear unit (3) connected on the output side and a tool section (4) having a cutting disk arrangement (5) are oriented substantially next to one another and in each case in the cutting/feed direction. In order to optimize the ergonomics for the user without impairing the cutting in edges it is proposed to assign a swivel locking device (17) to a transverse handle (16), wherein the transverse handle can thereby be pivoted and locked between a front and a rear position about a geometric swivel axis (18) set back relative to the front side of the tool section (4) with respect to the cutting/feed direction.
The present invention relates to a wall chaser for producing slots or similar recesses in masonry or the like according to the preamble of claim 1.

It is regularly necessary to make slots or similar recesses in masonry in the context of domestic electrical installation when electrical cables or conduits are to be laid under plaster.

A procedure which has gained acceptance in many areas consists in making two thin slots in the masonry or the like by two coaxially arranged cutting disks and in then breaking up the material between the two slots by means of a chisel or the like. The electrical cables, installation pipes or the like can then be laid in the resulting, broad slot.

A special requirement which is paramount here is the ergonomic operability, in particular the ergonomic introduction of actuating forces. This requirement takes into account the fact that, depending on the installation task, the work with the wall chaser can take several hours. At the same time, it has to be taken into account that the known wall chasers, despite an optimized construction, are of considerable weight in order to be able to meet the requirements with regard to performance and robustness.

In order to achieve the required ergonomics, various handle arrangements have been realized in the past.

A known wall chaser (DE 41 21 522 C2) which has defined the market for many years is equipped with two transverse handles which are arranged on opposite ends of the wall chaser. In this case, the front transverse handle in the cutting/feed direction is arranged offset rearward relative to a front abutting edge, formed by a
roller, in such a way that a sufficient engagement region for the hand of the user is left when running against a wall.

5 The known wall chaser (EP 1 044 774 B1), on which the invention is based, is equipped with a handle arrangement consisting of a longitudinal handle and a transverse handle. In this case, the longitudinal handle serves mainly to introduce the feed force, whereas the transverse handle is primarily suitable for influencing the cutting/feed direction. Here, too, one of the handles, namely the transverse handle, is arranged so as to be offset slightly rearward in order to allow easy cutting in edge regions.

10 The known wall chaser forming the starting point of the invention has a quite specific structure, which, in addition to being highly ergonomic, makes possible a high degree of compactness. The wall chaser has a drive section having a drive motor and a gear unit connected on the output side and a tool section having a cutting disk arrangement. The drive section and the cutting disk arrangement are oriented substantially next to one another and in each case in the cutting/feed direction.

15 It is now of interest that the front side, pointing substantially in the cutting/feed direction, is arranged set back relative to the corresponding front side of the tool section. This orientation of the two sections substantially next to one another and in the cutting/feed direction leads to an advance in compactness compared with arrangements in which the drive section is arranged, for example, perpendicularly to the cutting/feed direction.

20 Wall chasers which have an adjustable handle have also been disclosed (DE 296 04 780 Ul). A handle arrangement tailored ergonomically to the particular user can certainly be achieved in this way in principle. However, the resulting arrangement is less compact and
leads to impairments during cutting in edges. This is because the adjusting device is made precisely in such a way that it results in the wall chaser prematurely knocking against the wall forming the edge.

The problem addressed by the present invention is to configure and develop the known wall chaser in such a way that the ergonomics for the user are optimized without impairing the cutting in edges.

The above problem is solved in the case of a wall chaser according to the preamble of claim 1 by the features of the characterizing part of claim 1.

First of all, the idea of a swivel locking device being assigned to the transverse handle is essential, said swivel locking device being situated in or on the drive section. Due to the drive section being set back relative to the front side of the tool section, this results in a swiveling capacity and a locking capacity of the transverse handle between a front and a rear position about a geometric swivel axis which is likewise accordingly set back.

By the swivel axis being set back in the above manner, it is ensured according to the proposal that the swivel locking device as such does not get in the way during cutting in edge regions. At the same time, the wall chaser according to the proposal can be optimally adapted to the particular user.

Furthermore, an especially important aspect is the fact that the position of the swivel axis cannot be surpassed in compactness for the structure of the wall chaser having a drive section set back in the above manner.

This is because, in a corresponding design, the free space available due to the drive section being set back
when the transverse handle is in the front position forms part of the engagement region for the hand of the user, said engagement region being assigned to the transverse handle. To realize the engagement region for the hand of the user, the space which was of no use at all hitherto is therefore especially used (claim 4).

In a preferred configuration according to claim 5, the adjustability of the transverse handle can also mean that the transverse handle impairs the cutting in edge regions in its front position. However, upon reaching an edge, it is then easily possible to shift back the transverse handle slightly, which completely removes the impairment again.

Preferred claims 7 and 8 relate, inter alia, to a configuration in which the transverse handle consists of a handle part and a handle lever, wherein the transverse handle as a whole is preferably attached laterally to the drive section. The adjustable transverse handle can scarcely be realized in a more compact manner.

The further preferred configurations according to claims 9 and 10 relate to a swivel locking device having an actuating button which can be actuated in the direction of the swivel axis. In this way, an adjustment of the transverse handle in one-hand operation can be ensured.

The invention is explained in more detail below with reference to a drawing showing only one exemplary embodiment. In the drawing:

fig. 1 shows a wall chaser according to the proposal in a perspective view in the state ready for operation,
fig. 2 shows the wall chaser according to fig. 1 in a side view,

fig. 3 shows the wall chaser according to fig. 1 in a plan view, and

fig. 4 shows the transverse handle of the wall chaser according to fig. 1 with a part of the pivot locking device in the detached state, in a perspective illustration.

The wall chaser shown in the drawing serves for producing slots or similar recesses in masonry or the like. There may be two individual slots, which are broken free in a subsequent chiseling step. This has been explained in the introductory part of the description. In principle, the wall chaser may also be suitable for producing the slot desired per se without the need for a subsequent chiseling step.

The wall chaser shown has a drive section 1 having a drive motor 2 and a gear unit 3 connected on the output side. Furthermore, a tool section 4 having a cutting disk arrangement 5 is provided. The cutting disk arrangement 5 preferably concerns two slightly spaced-apart, coaxial cutting disks 5, 5a in order to be able to produce the abovementioned double slots.

The elongated drive section 1 with drive motor 2 and gear unit 3 is orientated in the cutting/feed direction 6 which also determines the longitudinal direction of the wall chaser. Here, the orientation is substantially obtained by the drive shaft (not shown) of the drive motor 2 being oriented in the cutting/feed direction 6.

Here, the gear unit 3 is configured as an angular gear unit. The realization of the gear unit 3 in this respect is known from the prior art.
The tool section 4 is arranged next to the drive section 1 and is likewise oriented in the cutting/feed direction 6. This means that the geometric cutting disk axis 7 is oriented perpendicularly to the cutting/feed direction 6. This inevitably results from the functioning of the wall chaser according to the proposal.

Assigned to the drive section 1 is a housing 8, which in this case is preferably at least split in two. Accordingly, the housing 8 is divided into motor housing 8a, gear housing 8b and possibly further housing parts.

Likewise assigned to the tool section 4 is a housing 9, which in this case is preferably of hood-like design. In principle, provision may be made for the two housings 8, 9 to merge one into the other. A structurally separate configuration of drive section 1 and tool section 4 is therefore not necessary. Accordingly, the subdivision can be provided merely from the functional point of view.

The drive section 1 and the tool section 4 are arranged in a swiveling manner on a chassis 10 which allows both sections 1, 4 to be lowered when following the slots to be cut.

With the swiveling capacity of the two sections 1, 4 relative to the chassis 10, the cutting disk arrangement 5 can be swung up, that is to say disengaged from the masonry or the like, and swung down, that is to say brought into engagement with the masonry or the like. The realizing of the swiveling capacity of the two sections 1, 4 relative to the chassis 10 from the structural point of view is of no importance for the solution according to the proposal and is therefore not addressed in any more detail.
It can be seen from the illustration in fig. 3 that the drive section 1 is arranged offset overall from the tool section 4 overall in transverse direction 11, wherein the front side 12, pointing substantially in the cutting/feed direction 6, of the drive section 1 is arranged set back relative to the corresponding front side 13 of the tool section 4 with respect to the cutting/feed direction 6. The offset is designated by "14" in fig. 3.

When figures 1 and 3 are viewed together, this shows that a longitudinal handle 15 aligned here in transverse direction 11 substantially with the tool section 4 and a transverse handle 16 aligned here in transverse direction 11 substantially with the drive section 1 are provided. The longitudinal handle 15 is provided with a handle part 15a, which serves for the engagement with the hand of the user. Accordingly, a handle part 16a having a corresponding function is assigned to the transverse handle 16. Both handle parts 15a, 16a are of substantially elongated configuration. In this case, the handle part 15a of the longitudinal handle 15 extends in the cutting/feed direction 6, whereas the handle part 16a of the transverse handle 16 extends substantially transversely to the cutting/feed direction 6.

It is essential that a swivel locking device 17 situated in the drive section 1 is assigned to the transverse handle 16, as a result of which the transverse handle 16 can be pivoted and locked between a front and a rear position about a geometric swivel axis 18 set back relative to the front side 13 of the tool section 4. The front position and the rear position are shown by broken lines in figures 1 to 3.

Here, the swivel axis 18 is preferably oriented parallel to the geometric cutting disk axis 7 in order to permit optimum adaptability of the position of the
transverse handle 16 to the particular user. Furthermore, fig. 2 shows that the swivel axis 18 here is situated in the region of the cutting disk axis 7. In particular, the swivel axis 18 lies slightly above the cutting disk axis 7. It would also be conceivable to orient the swivel axis 18 coaxially to the cutting disk axis 7.

The arrangement of the swivel axis 18 in the region of the cutting disk axis 7 leads to comparatively low positioning of the swivel axis 18, which has advantages with regard to compactness and to the utilization of construction space which is available anyway, as will be shown.

In particular, the geometric swivel axis 18 and the drive shaft (not shown) of the drive motor 2 preferably each run horizontally, perpendicularly to one another and substantially at the same vertical level.

Especially advantageous in this connection is the fact that, when the transverse handle 16 is in the front position, the free space 19 available due to the drive section 1 being set back forms part of the engagement region, assigned to the transverse handle 16, for the hand of the user. This simply means that the user can put his hand in the free space 19.

The wall chaser according to the proposal has a front abutting edge 20 which, when cutting in edge regions, comes into contact with the wall forming the edge. Ultimately, the abutting edge 20 determines the extent to which the wall chaser can be moved into the edge region.

Fig. 2 shows that the transverse handle 16, depending on the adjusting position with respect to the cutting/feed direction 6, projects beyond the abutting edge 20 (front position) or is set back completely
behind the abutting edge 20 (center position, rear position). It is therefore readily possible to shift back the transverse handle 16 for cutting in edge regions. This is possible by one-hand operation, as will be shown.

It has been found in user tests that the transverse handle 16 should always be arranged in front of the longitudinal handle 15 with respect to the cutting/feed direction 6 for ergonomic reasons. Accordingly, the handle part 16a of the transverse handle 16 is situated in front of the handle part 15a of the longitudinal handle 15 with respect to the cutting/feed direction 6 at least over the substantial part of the adjusting region (front and center adjusting regions) of the transverse handle 16.

Here, the handle part 16a of the transverse handle 16 is preferably coupled to the swivel locking device 17 via a handle lever 21. With respect to the swivel axis 18, the handle lever 21 extends, at any rate, radially, such that the handle part 16a of the transverse handle 16 is accordingly at a radial distance from the swivel axis 18. The handle lever 21 is preferably a one-armed handle lever.

Viewing figs 1 and 4 together shows that the handle lever 21 acts solely on one end 22 of the handle part 16a of the transverse handle 16, and so the other end 23 of the handle part 16a is accordingly free. Keeping the other end 23 of the handle part 16a free in this way enlarges the engagement region for the hand of the user, a factor which is accordingly associated with an increase in comfort.

In the context of an especially compact configuration, the free end 23 of the handle part 16a is directed toward the tool section 4, the handle lever 21 preferably extending at least partly to the side of the
drive section 1. Apart from that, the transverse handle 16 is nested here, as it were, with the wall chaser. Viewing figs 1 and 2 together clearly shows that the free space 19 available due to the drive section 1 being set back can now be readily used as an engagement region for the hand of the user.

An especially compact arrangement that is simple from the structural point of view can be achieved by the solution according to the proposal by the transverse handle 16 as a whole being attached laterally to the drive section 1. This can also be seen when viewing figs 1 and 2 together.

The exemplary embodiment shown shows an especially simple variant for releasing the swivel locking device 17. For this purpose, the swivel locking device 17 is provided with an actuating button 24 for releasing the transverse handle 16, wherein the actuating button 24 is aligned with the swivel axis 18 and can be actuated in the direction of the swivel axis 18. This permits the abovementioned one-hand operation during the adjustment of the transverse handle 16.

The illustration according to fig. 4 shows that the swivel locking device 17 comprises a locking body 25 which in this case is preferably adjustable in the direction of the swivel axis 18 and which can be adjusted, displaced to the left in fig. 4, by actuating the actuating button 24. In the non-adjusted state shown in fig. 4, the locking body 25 is in engagement in a locking form-fitting manner with the transverse handle 16, here with the handle part 16a, and otherwise with the wall chaser, here with the gear housing 8b.

The depressing of the actuating button 24 leads to the locking body 25 being adjusted to the left in fig. 4 and being disengaged in the process from the transverse handle 16, here from the handle lever 21. Alternatively
or additionally, the locking body 25 can otherwise be disengaged here, too, from the wall chaser, that is to say from the gear housing 8a.

The above form fit is preferably realized here by the locking body 25, the handle lever 21 and the gear housing 8b being provided with a corresponding tooth system.

The above explanations show that the gear housing 8b partly accommodates (locking body 25) and partly itself provides (tooth system) the swivel locking device 17 for the transverse handle 16. Other variants are of course conceivable here. In a simple manner from the structural point of view, the locking body 25 is preloaded in the non-actuated state by a helical compression spring 26.
Patent claims

1. A wall chaser for producing slots or similar recesses in masonry or the like, wherein a drive section (1) having a drive motor (2) and gear unit (3) connected on the output side and a tool section (4) having a cutting disk arrangement (5) are oriented substantially next to one another and in each case in the cutting/feed direction (6), wherein the front side (12) of the drive section (1) is arranged set back relative to the corresponding front side (13) of the tool section (4) with respect to the cutting/feed direction (6), wherein a longitudinal handle (15) and a transverse handle (16) are each provided with an associated handle part (15a, 16a), characterized in that a swivel locking device (17) situated in or on the drive section (1) is assigned to the transverse handle (16), and in that the transverse handle (16) can thereby be pivoted and locked between a front and a rear position about a geometric swivel axis (18) set back relative to the front side (13) of the tool section (4) with respect to the cutting/feed direction (6).

2. The wall chaser as claimed in claim 1, characterized in that the swivel axis (18) is oriented parallel to the geometric cutting disk axis (7), preferably in that the swivel axis (18) is situated in the region of the cutting disk axis (7), in particular coaxially to the cutting disk axis (7).

3. The wall chaser as claimed in claim 1 or 2, characterized in that the geometric swivel axis (18) and the drive shaft of the drive motor (2) each run horizontally, perpendicularly to one another, and substantially at the same vertical level.

4. The wall chaser as claimed in one of the preceding claims, characterized in that, when the transverse
handle (16) is in the front position, the free space (19) available due to the drive section (1) being set back forms part of the engagement region, assigned to the transverse handle (16), for the hand of the user.

5. The wall chaser as claimed in one of the preceding claims, characterized in that the wall chaser has a front abutting edge (20), and in that the transverse handle (16), depending on the adjusting position with respect to the cutting/feed direction, projects beyond the abutting edge (20) or is set back completely behind the abutting edge (20).

6. The wall chaser as claimed in one of the preceding claims, characterized in that the handle part (16a) of the transverse handle (16) is situated in front of the handle part (15a) of the longitudinal handle (15) with respect to the cutting/feed direction (6) at least over the substantial part of the adjusting region of the transverse handle (16).

7. The wall chaser as claimed in one of the preceding claims, characterized in that the handle part (16a) of the transverse handle (16) is coupled to the swivel locking device (17) via an in particular one-armed handle lever (21) which extends, at any rate, radially with respect to the swivel axis (18), and in that the handle lever (21) acts solely on one end (22) of the handle part (16a) of the transverse handle (16), preferably in that the free end (23) of the handle part (16a) of the transverse handle (16) is directed toward the tool section (4), and furthermore preferably in that the handle lever (21) extends at least partly to the side of the drive section (1).

8. The wall chaser as claimed in one of the preceding claims, characterized in that the transverse handle (16) as a whole is attached to the drive section (1) laterally from the outside.
9. The wall chaser as claimed in one of the preceding claims, characterized in that the swivel locking device (17) has an actuating button (24) for releasing the transverse handle (16), and in that the actuating button (24) is aligned with the swivel axis (18) and can be actuated in the direction of the swivel axis (18).

10. The wall chaser as claimed in claim 9, characterized in that the swivel locking device (17) comprises a locking body (25) which is adjustable in the direction of the swivel axis (18) and which can be adjusted by actuating the actuating button (24) and which, in the non-adjusted state, is in engagement in a locking form-fitting manner with the transverse handle (16) and otherwise with the wall chaser and which, in the adjusted state, is disengaged from the transverse handle (16) and/or otherwise from the wall chaser.

11. The wall chaser as claimed in one of the preceding claims, characterized in that the gear unit (3) has a gear housing (8b) which at least partly accommodates and/or provides the swivel locking device (17) for the transverse handle (16).
## INTERNATIONAL SEARCH REPORT

**International application No**

PCT/US2011/030154

### A. CLASSIFICATION OF SUBJECT MATTER

INV. B28D1/04 B28D1/18 B25F5/02

**ADD.**

According to International Patent Classification (IPC) **or** to both national classification and IPC

### B. FIELDS SEARCHED

**Minimum documentation searched (classification system followed by classification symbols)**

B28D B25F

**Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched**

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

**EPO-Internal**

### C. DOCUMENTS CONSIDERED TO BE RELEVANT

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### Further documents are listed in the continuation of Box C.

### See patent family annex.

**Date of the actual completion of the international search**

28 June 2011

**Date of mailing of the international search report**

05/07/2011

**Name and mailing address of the ISA/Authorized officer**

European Patent Office P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040 Fax: (+31-70) 340-3016

Popma, Ronald
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