

CHISEL HOLDER

FIELD OF THE INVENTION

The invention relates to a chisel holder for a road milling machine or the like, having a base element which supports a holding neck, wherein the holding neck has a chisel receiver and wherein a protrusion is connected to the base element upstream of the holding neck when viewed in the advancing direction of the tool.

BACKGROUND OF THE INVENTION

Such a chisel holder is known from DE 43 22 401 C2. The chisel holder there is provided with a plug-in neck, by means of which it is exchangeably held in a plug-in receiver of a base body. The base body is fastened on the outer circumference of a milling roller tube. The plug-in neck of the chisel holder is connected in one piece to a base element. On the side facing away from the plug-in neck, the base element has a holding neck. The holding neck is provided with a bore into which a shank chisel can be inserted in a known manner. By way of example, DE 37 01 905 C1 shows a possible assembly situation.

The holding neck of the chisel holder is provided with a cylindrical section, into which wear markers designed as encircling groove-like depressions have been cut. In the area upstream of the holding neck, when viewed in the advancing direction of the tool, the base element has a protrusion designed in the form of an apron, which covers a surface of the base body into which the plug-in receiver for

the plug-in neck has been cut. This area of the base body is protected in this way. Chisel holders are also known in the

prior art which are directly fastened on the milling roller tube without a base body.

The above described chisel holders are employed in road milling machines, but also in species-related earth processing machinery, such as soil stabilizers, mining machinery, etc. The power consumption of the machine changes as a function of the nature of the ground to be worked. It has been shown that coverings built up in layers which, when being cut, tend to form clod-like chips, offer a high resistance to the tool. Such chip shapes are generated, for example, when cutting asphalt surfaces in which an insufficient holding bond exists between the cover layer (mostly approximately 4 cm thick) and the binder layer.

OBJECT AND SUMMARY OF THE INVENTION

It is the object of the invention to produce a chisel holder of the type mentioned at the outset, by means of which the cutting output of a road milling cutter or the like can be improved.

This object is attained in that the base element has a connecting section designed as a chip breaker, which is formed on the base element and extends, starting at the holding neck, at least partially over the protrusion.

It is possible by means of the chip breaker to effectively cut up the created chips, in particular larger clods. The cutting resistance which the chisel holder offers the milled material is reduced by means of this, which results in a reduction of the power consumption.

An improvement of the machine efficiency can be

obtained in this way.

It has furthermore been shown that the connection of the holding neck with the protrusion by means of the connecting section results in an improved tool stiffness. This has a positive effect, in particular in connection with exposed holding necks and/or protrusions, and leads to an increase in the tool life.

In accordance with a preferred embodiment of the invention it is provided that the connecting section extends in the tool advancement direction. A cutting geometry is created in this way which offers a low penetration resistance to the milled material.

A conceivable variation of the invention can be such that the connecting section forms a strip section, that the holding neck has an end section protruding past the base element, and that the strip width extending transversely in respect to the advancement direction is less than the dimension of the end section in this direction.

A further variation of the invention is distinguished in that the end section of the holding neck has a chisel receiver embodied as a bore, that the end section has a support surface encircling the center longitudinal axis of the chisel receiver in an annular manner, that the support surface extends radially outward as far as the dimensional limits of a cylindrical area of the end section, and that the connecting section is connected, set back in the axial direction in respect to the support surface, with the holding neck. The cylindrical area of the holding neck constitutes a wear zone such as described in principle in DE 199 02 766.8- 24. The disclosure of this document in this connection is made the subject of the instant document.

The head of the shank chisel is supported on the annular support surface with a wear-protection disk placed

between them. The wear-protection disk extends at least as far as the dimensional limits of the support surface. A wear system is created by means of this. In the course of the employment of the tool, the wear-protection disk rotates on the support surface and continuously wears the cylindrical area off. The holding neck is stabilized by the set-back arrangement of the connecting section, but this wear system is not impaired.

In order to assure a continuous chip deflection it can be provided by means of the invention that the connecting section has chip guidance faces on both sides of the strip section which, starting at the strip section, diverge in the direction toward the base element, and that the connecting section is connected to the holding neck via groove-shaped transition sections.

An optimization of the cutting geometry of the chisel holders results in that the base element is laterally delimited by two inclined faces in the area of the protrusion, which are arranged in an arrow shape in respect to each other in the tool advancement direction, and that the connecting section and the inclined faces terminate in a frontal end section of the protrusion. The frontal end section constitutes a tapered section which makes possible a good chip removal, in particular in connection with rough-chipped milling bases.

The service life of the chip holder can be optimized in that the connecting section is hardened and/or that at least a mechanically resistant element is applied to the connecting section. A hard alloy, for example, can be employed as the mechanically resistant element.

A good chip-breaking geometry results in that the connecting section has a conical or rounded cutter shape.

The invention will be explained in greater detail in

what follows by means of an exemplary embodiment represented in the drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 shows a chisel holder in a perspective front view, and

Fig. 2 shows the chisel holder in accordance with Fig. 1 in a lateral view, and

Fig. 3 is a lateral view of a tool combination with the chisel holder represented in Fig. 1 and Fig. 2, as well as a base body and a round shank chisel mounted in the chisel holder.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Fig. 1 shows a chisel holder with a base element 10. The base element 10 has a support section with a downward-oriented support surface 11. In the advancement direction the support element makes a transition into a protrusion 11. In this case the protrusion 15 is arranged at an angle in respect to the support element.

A downward protruding plug-in neck 12 is formed on the base element 10 in the transition area from the support element to the protrusion 15. The chisel holder can be inserted by means of the plug-in neck 12 into a plug-in receiver of a base body 50. Then the plug-in neck 12 can be fixed in place in the plug-in receiver by clamping.

Here, centering faces 13 at the front, as well as a rear clamping face 12.1 of the plug-in neck 12 represented in Fig. 2, are used as a support. In the assembled state the chisel holder is supported by means of its support surface 11 on an opposite surface of the base body 50. The

protrusion 15 covers a shoulder 51 of the base body 50 and in this way protects it against the wearing action of the cut milled material. A holding neck 30 is formed by means of a connecting section 35 on the base element 10 of the chisel holder. The connecting section 35 can also have a geometry in the shape of a truncated cone or a groove. On its end facing away from the connecting section 35, the holding neck 30 terminates in a protruding cylindrical end section 34. Two wear markers 34.1 have been turned into this end section 34 and extend concentrically around a bore (chisel receiver 31) cut into the holding neck 30. Thus, the wear markers 34.1 constitute groove-shaped depressions, which are arranged behind a support surface 33 which closes off the cylindrical end section 34.

As Fig. 3 shows, a shank section of a round shank chisel 40 can be inserted into the chisel receiver 31. Following the shank section, the round shaft chisel has a chisel head 41 with a chisel tip made of a hard alloy. With the interposition of a wear-protection disk 42, the chisel head 41 is supported on the support face 33 of the holding neck 30.

As Fig. 2 clearly shows, the holding neck 30 constitutes a center connecting element 34.2 between the cylindrical end section 34 and the rounded section 35. The connecting element is connected in one piece to the protrusion 15 by means of a connecting section 20.

Here, the connecting section 20 extends in the tool advancement direction, starting at the connecting element 34.1. It has a flattened strip segment 21, which makes a transition via inclined chip faces 22 into the lateral faces 19 of the protrusion 15. The connecting section 20 runs continuously in the direction of a front end area of the protrusion 15.

Two inclined faces 14, which laterally delimit the protrusion 15, also terminate in this area, so that an arrow-shaped contour results together with the connecting section 20 and the inclined faces 14.

The protrusion 15 is closed off in the end area by means of a rounded transition area 16. The inclined faces 14 follow the lateral faces 19 via rounding transitions 17. For reasons of clamping optimization, on the one hand, and for improved chip removal on the other, the connecting section 20 is connected to the holding neck 30 by means of rounded transition sections 18, 23.

WHAT IS CLAIMED IS:

1. A chisel holder for a road milling machine or the like, having a base element (10) which supports a holding neck (30), wherein the holding neck (30) has a chisel receiver (31), and wherein a protrusion (15) is connected to the base element (10) upstream of the holding neck (30) when viewed in the advancing direction of the tool,

characterized in that

the base element (10) has a connecting section (20) designed as a chip breaker, which is formed on the base element (10) and extends, starting at the holding neck (30), at least partially over the protrusion (15).

2. The chisel holder in accordance with claim 1, characterized in that

the connecting section (20) extends in the tool advancement direction.

3. The chisel holder in accordance with claim 1 or 2, characterized in that

the connecting section (20) forms a strip section (21),

the holding neck (3) has an end section (34) protruding past the base element (10), and

the strip width extending transversely in respect to the advancement direction is less than the dimension of the end section (34) in this direction.

4. The chisel holder in accordance with one of claims 1 to 3,

characterized in that

the end section (34) of the holding neck (30) has a chisel receiver (31) embodied as a bore,

the end section (34) has a support surface (33) encircling the center longitudinal axis of the chisel receiver (31) in an annular manner,

the support surface (33) extends radially outward as far as the dimensional limits of a cylindrical area of the end section (34), and

the connecting section (20) is connected to the holding neck (30) set back in the axial direction in respect to the support surface (33).

5. The chisel holder in accordance with claim 3 or 4, characterized in that

the connecting section (20) has chip guidance faces (22) on both sides of the strip section (21) which, starting at the strip section (21), diverge in the direction toward the base element (10).

6. The chisel holder in accordance with claims 1 to 5,

characterized in that

the connecting section (20) is connected to the holding neck (30) via groove-shaped transition sections (18).

7. The chisel holder in accordance with one of claims 1 to 6,

characterized in that

the base element (10) is laterally limited by two inclined faces (14) in the area of the protrusion (15), which are arranged in an arrow shape in respect to each other in the tool advancement direction, and

the connecting section (20) and the inclined faces (14) terminate in a frontal end section of the protrusion (15).

8. The chisel holder in accordance with one of claims 1 to 7,
characterized in that
the connecting section (20) is hardened.

9. The chisel holder in accordance with one of claims 1 to 8,
characterized in that
at least a mechanically resistant element is applied to the connecting section (20).

10. The chisel holder in accordance with one of claims 1 to 9,
characterized in that
the connecting section (20) has a conical or rounded cutter shape.