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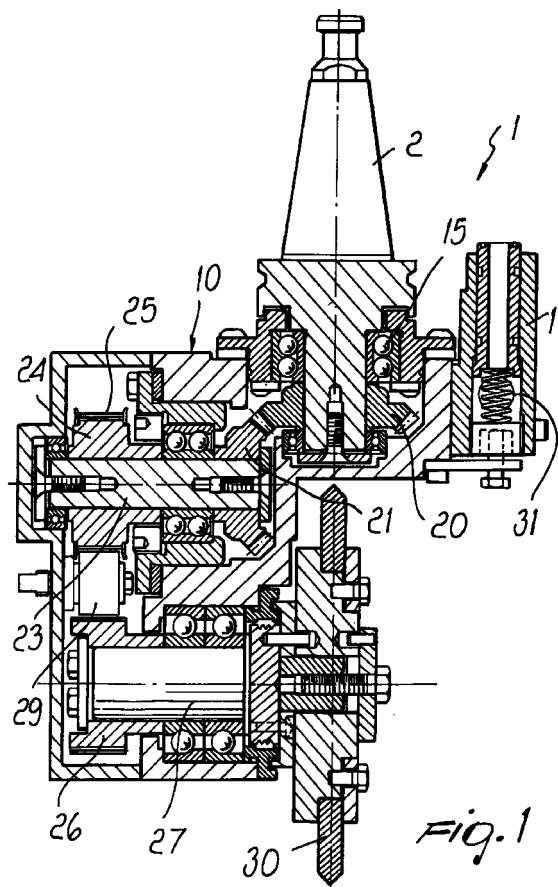
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(54) **Tool for engraving, particularly on glass plates and the like**

(57) A tool for engraving, particularly on glass plates and the like, comprising a shank (2) for insertion in a spindle (12) of a working head (3). The shank is connected to a kinematic chain (20,21,23,24,26,27) for transmitting motion to a grinding wheel (30) whose axis of rotation is substantially perpendicular to the axis of the spindle (12) and whose plane of arrangement comprises the axis of the spindle.



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Description

[0001] The present invention relates to a tool for engraving, particularly on glass plates and the like.

[0002] It is known that machines for working glass plates which must profile or grind the edges are generally constituted by means of working heads which have a spindle which is arranged with a substantially vertical axis and to which the grinding wheels are coupled.

[0003] If it is necessary to engrave the surface of the glass, it is necessary to resort to another type of device in which the working head has a horizontal axis, so that the grinding wheel can engrave tangentially.

[0004] Accordingly, with the above-described situation it is necessary to have two different devices.

[0005] It is also known that glass plates are cut by using tools whose coupling shank has a vertical axis and which have two gears so as to arrange the cutting wheel so that its axis is horizontal, i.e., at right angles to the axis of the spindle; in this case, however, the cutting wheel is spaced with respect to the axis of the shank and accordingly it is not possible to perform engraving, since the axial offset would inevitably cause work defects.

[0006] The aim of the invention is to solve the above-mentioned problem, by providing a tool for engraving, particularly on glass plates and the like, which allows to use a conventional machine with a working head which has a vertical spindle and to use grinding wheels arranged so as to have a horizontal axis.

[0007] Within the scope of the above aim, an object of the present invention is to provide a tool which can be coupled simply and conventionally, thus allowing to achieve engraving on the surface of the glass by using the conventional machines normally used for profiling.

[0008] Another object of the present invention is to provide a tool which, thanks to its particular constructive characteristics, is capable of giving the greatest assurances of reliability and safety in use.

[0009] Another object of the present invention is to provide a tool which can be easily obtained starting from commonly commercially available elements and materials and is also competitive from a merely economical point of view.

[0010] These and other objects which will become better apparent hereinafter are achieved by a tool for engraving, particularly on glass plates and the like, according to the present invention, characterized in that it comprises a shank for insertion in the spindle of the working head, said shank being connected to a kinematic chain for transmitting motion to a grinding wheel whose axis of rotation is substantially perpendicular to the axis of said spindle and whose plane of arrangement comprises the axis of said spindle.

[0011] Further characteristics and advantages of the present invention will become better apparent from the following detailed description of a tool for engraving,

particularly on glass plates and the like, illustrated only by way of non-limitative example in the accompanying drawings, wherein:

Figure 1 is a sectional view of the tool according to the present invention, taken along an axial plane; Figure 2 is a schematic view of the tool coupled to a working head.

[0012] With reference to the above figures, the tool for engraving, particularly on glass plates and the like, generally designated by the reference numeral 1, comprises a coupling shank 2 which is preferably frustum-shaped and can be coupled in the spindle 12 of a working head, generally designated by the reference numeral 3, of the type normally used for profiling glass.

[0013] The tool has a supporting body 10 which is provided with an inlet 11 for connection to a circuit for feeding cooling water which is normally provided in the working head 3; the inlet 11 is also designed to prevent the rotation of the supporting body 10.

[0014] The shank 2, which is rotatably connected to the body 10 by means of interposed bearings 15, is connected to a first bevel gear 20 which meshes with a second bevel gear 21 which is keyed on a first horizontal shaft 23 which is rotatably supported by the body 10 and rotates rigidly with a first sprocket 24 around which connecting means such as a toothed belt 24 winds; said belt in turn winds around a second sprocket 26 which is keyed on a second horizontal shaft 27 to which a grinding wheel 30 is connected whose axis of rotation coincides with the axis of the second shaft, is arranged substantially at right angles to the axis of the spindle and lies so that the axis of the spindle passes through the plane of arrangement of the grinding wheel 30, so that every movement is transmitted directly to the grinding wheel 30 without causing any changes in trajectory due to axial offset, as occurs in the prior art.

[0015] In the specific solution, it is fundamentally important that a belt drive has been used to actuate the grinding wheel 30 by means of the toothed belt 25 on which a belt tensioner 29 supported by the enclosure acts, since this mechanical solution allows to space the second axis from the first horizontal axis without producing mechanical complications, thus allowing to accommodate the grinding wheel 30 below the axis of the spindle.

[0016] For the sake of completeness in description, it should also be added that the inlet 11 is provided with a passage port 31 to which a normal articulated duct 32 for feeding cooling water during work is connected.

[0017] From the above description it is thus evident that the present invention achieves the intended aim and objects, and in particular a tool is provided which is designed specifically to allow to engrave glass plates by using normal edge profiling and working machines which have a spindle which has a vertical axis and which accordingly would not be able to drive an engraving

ing wheel which must work tangentially with a horizontal axis.

[0018] In practice, the materials employed, so long as they are compatible with the specific use, as well as the contingent shapes and dimensions, may be any according to requirements. 5

[0019] The disclosures in Italian Utility Model Application No. MI99U000470 from which this application claims priority are incorporated herein by reference.

[0020] Where technical features mentioned in any claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly, such reference signs do not have any limiting effect on the interpretation of each element identified by way of example by such reference signs. 10 15

Claims

1. A tool for engraving, particularly on glass plates and the like, characterized in that it comprises a shank (2) for insertion in a spindle (12) of a working head (3), said shank being connected to a kinematic chain (20,21,23,24,26,27) for transmitting motion to a grinding wheel (30) whose axis of rotation is substantially perpendicular to the axis of said spindle (12) and whose plane of arrangement comprises the axis of said spindle. 20 25
2. The tool according to claim 1, characterized in that it comprises an inlet (11) which is associable with a duct (32) for feeding cooling water which is formed in said working head (3) and is rigidly provided on a supporting body (10) of said kinematic chain. 30 35
3. The tool according to the preceding claims, characterized in that said kinematic chain has a first bevel gear (20) which meshes with a second bevel gear (21) which is keyed on a first axis which is substantially perpendicular to the axis of said spindle (12). 40
4. The tool according to one or more of the preceding claims, characterized in that it comprises a first shaft (23) and a second shaft (27) which have mutually parallel axes which are perpendicular to the axis of said spindle (12), said shafts being mutually operatively connected by means of a connecting means (24). 45
5. The tool according to one or more of the preceding claims, characterized in that said connecting means comprise a belt (24). 50
6. The tool according to claim 5, characterized in that said belt (24) is toothed. 55
7. The tool according to claim 6, characterized in that it comprises a belt tensioner (28) supported by said supporting body (10).
8. The tool according to one or more of the preceding claims, characterized in that said grinding wheel (30) is arranged below said shank (2) and so that the axis of said shank passes through its center.

