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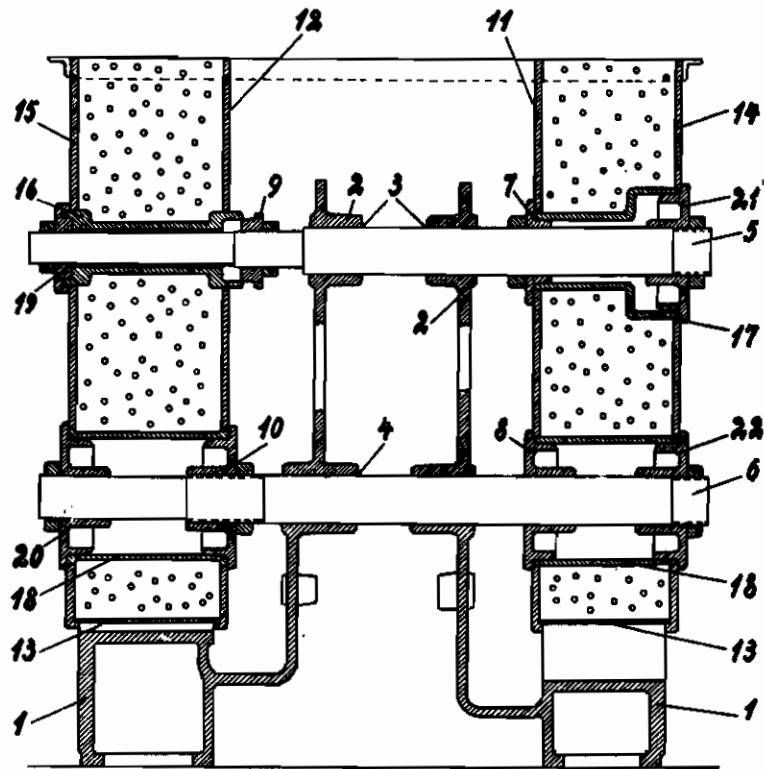
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LATHE OR SIMILAR MACHINE TOOL AND A METHOD  
AND DEVICE FOR PUTTING THE SAME TOGETHER  
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# ALIEN PROPERTY CUSTODIAN

## LATHE OR SIMILAR MACHINE TOOL AND A METHOD AND DEVICE FOR PUTTING THE SAME TOGETHER

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This invention relates to a lathe or similar machine tool, in which the bed-body, uprights or the like carrying the working-, controlling- and driving-elements and the like, contrary to the usual constructions, only partly consist of metallic material such as cast iron, cast steel, for instance only on the side and end faces, and the other elements consist of concrete or a similar plastic and then hardening material.

It is known, to produce certain elements of a machine tool of metals and then to simply embed these elements in concrete. In this manner all occurring forces are also transmitted upon the parts of the machine which consist of concrete and evidently must also be taken up. As in this instance pressing forces are less considerable but very strong tensile-, bending- and torsion-forces have to be taken up, which cannot be taken up just by the concrete owing to the physical properties of this material, the result is, that the connection points between metal and concrete loosen rapidly and the concrete itself becomes brittle and breaks. Herefrom results that this proposition is not suitable for the construction of machine tools.

By the invention the inconveniences of this older proposition are, however, overcome and thereby that the end- or side parts of the upright or frame elements consist of continuous metallic parts which in turn take up all occurring external forces thereby that the arrangements for feeding and other movements, usually provided in the frames or uprights, are rigidly connected or connected by screws with these end- or side parts after the still existing hollow spaces have been filled with concrete, so that the concrete filling as such is relieved of these forces and stressed merely on pressure. Only hereby the employment of concrete is possible also for the construction of uprights or frames for machine tools.

The application of the idea to spar benches, that is to lathes in which the steel carrier slides on a round guide, is especially advantageous, as the spar bench is carried by two uprights separated the one from the other.

In spar benches according to the invention only the end faces besides the driving and control elements are made of comparatively thin plates of cast iron or cast steel. All what is between them is of concrete or similar material.

By this new manner of construction of beds or uprights of lathes considerably simplified preliminary conditions for the putting together result, so that even the putting together can be carried out with the aid of unskilled men. This

is valid also for spar benches, in which the further advantage is obtained, that the uprights, contrary to the usual method of putting together, need not be finished any more apart from the necessary finishing work of the flat cast plates for the end faces.

The uprights built up according to the invention require therefore no drilling on a horizontal drilling mechanism nor milling and planing, so that the putting together of the benches is considerably simplified and can therefore be carried out in a short time, so that it is possible to produce a large number of such benches in a short time.

From the method for putting together spar benches, to which the present invention further relates and which will be hereinafter described, can be seen how simple the building up is.

In the method according to the invention one starts from a base body which, with the aid of suitable eyes, extensions, bores, indentations or the like, determines the position of the individual elements of the bench such as spars, head stock, tail stock and so forth, and two end face plates, spaced at a distance equal to the width of the upright, are mounted on either side of the base body in the direction transversely to the axis of the spar. Through the apertures cast into these comparatively thin face plates the corresponding individual elements are inserted from the side so that they bear on the base body at predetermined points.

It is further very material for the simple and rapid putting together that the individual parts of the bench, such as for instance the spars, the cylinders for the carriage drive when compressed air is used as driving medium, are first produced and consist essentially of turned bodies which can be made comparatively easily. These individual elements are placed as a whole into the plates of the upright. According to the constructive conditions and the other construction of the spar bench it may also be possible or necessary to fix on the base body certain elements before the end face plates of the two uprights are put on. If the putting together has progressed so far that the plates for the end faces are fixed at a distance apart corresponding to the width of the upright, a jacket of sheet metal may be placed between the corresponding edge beads of the plates for the end faces and destined for covering the side faces and end faces of the uprights. The hollow space thus formed in the upright is then filled with concrete or with a similar material which is first plastic and hardens subsequently.

It is material to fill also with concrete or similar material the intervals between the elements inserted into the uprights and the corresponding apertures in the end face plates, so that after hardening of the concrete not only pressure-proof uprights exist, which have been produced with as little metallic material as possible, but also the concrete carries the elements inserted into the uprights.

In this manner it is possible, as already stated above, to use the end face plates without treatment on drilling mechanisms or the like directly after the casting and finishing, as accurate drilling of the apertures for the individual elements on the end face plates is not material, as intentionally a narrow annular space is provided at the points opposite the inserted elements, this hollow annular space being also filled with concrete. Only after the concrete or the like has hardened the positive connecting direct connection between the elements embedded in the concrete with the plates for the end faces of the uprights is produced, so that the external forces are taken up by metallic elements as in known fully-metallic uprights. On the one hand to the metallic elements and on the other hand to the concrete only those stresses are allotted by this kind of mounting and by the introduction of the forces, which can really be taken over by the individual materials owing to their physical properties.

The invention relates further to a device for carrying out this method for the production of spar benches.

According to the invention a base plate is provided in the middle of which the base body is arranged which, with the aid of indentations, projections, bores or the like, determines the position of the individual elements of the lathe, so that at the putting together it is merely necessary to push in the individual elements of the lathe at the corresponding points of the base body, or to fix them anyhow. For building the uprights frames are further arranged on the base plate one at each side of the base body in the direction of the spar axis. This frame consists substantially of two pairs of upwardly directed walls with faces parallel to the spar axis the width of these faces corresponding to the width of the upright and the inner surfaces of them to the sides and end faces of the uprights, so that these walls are completed to a U-shaped cross-section with arms preferably extending in upward direction.

In the accompanying drawing a device for putting together a spar lathe is diagrammatically illustrated by way of example, the whole bench being built together standing upside down.

In the drawing the base plate of the apparatus

is designated by 1 and the base body, which is only partly shown, is designated by 2 and cast in one piece with the base plate. The base body 2 has bores, indentations and the like such as the bores 3 and 4 shown by way of example. Into these bores shafts 5 and 6 are inserted from the right side. Stops 7 and 8 are rigidly connected with the shafts, whereas the other stops 9 and 10 are screwed on from the other side and secured in position on the correct point by nuts. Cast end face plates 11 and 12 are pushed in from the side until they bear against the corresponding parts of the base plate 1. Covers 13 of sheet metal are then erected which determine the width of the uprights and serve at the same time for covering the top and side faces of the uprights. The outer cast end plates 14 and 15 are then put on and from the sides the corresponding parts of the spar bench are inserted into the apertures cast in all end plates of the uprights. In the left upright formed by the plates 12 and 15 the sleeve 16 for guiding the spindle is inserted and on the opposite side the tailstock feeding cylinder 17 and further the guide sleeve 18 for the spars on both uprights. The position of these elements is determined by the shafts 5 and 6 or by the stops provided on these shafts, and so that after the elements of the spar bench have been inserted other stops 19, 20, 21, and 22 are mounted on the shafts 5 and 6. The shafts 5 and 6 ensure in this manner a centering of the parts to be inserted between the end plates, the position of these parts being thus accurately determined. If thus the position of all individual elements relative to the end plates of the uprights and their mutual position have been determined the space existing between the end plates 12 and 15 and the sheet metal cover 13 on the left hand side of the spar bench and on the other hand between the end plates 11 and 14 and the sheet metal cover 13 on the right hand side of the spar bench is filled with concrete which may be rammed in if desired. The whole construction may be left standing until the concrete has hardened and then the shafts 5 and 6 and all stops are removed, and only into the elements 16, 17 and 18 embedded in the concrete the corresponding arrangements on the spar bench, that is in the present instance the spindle with the catch arrangement, the piston for pushing forward the headstock and the spars are inserted and the connection of all these elements with the face plates 11, 12, 14 and 15 is established.

In order not to complicate the drawing too much the clearance between the bodies to be inserted and the corresponding apertures in the end plates has not been shown.

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