May 30, 1939. G. O. KAASA 2,160,311

TOOL STAND

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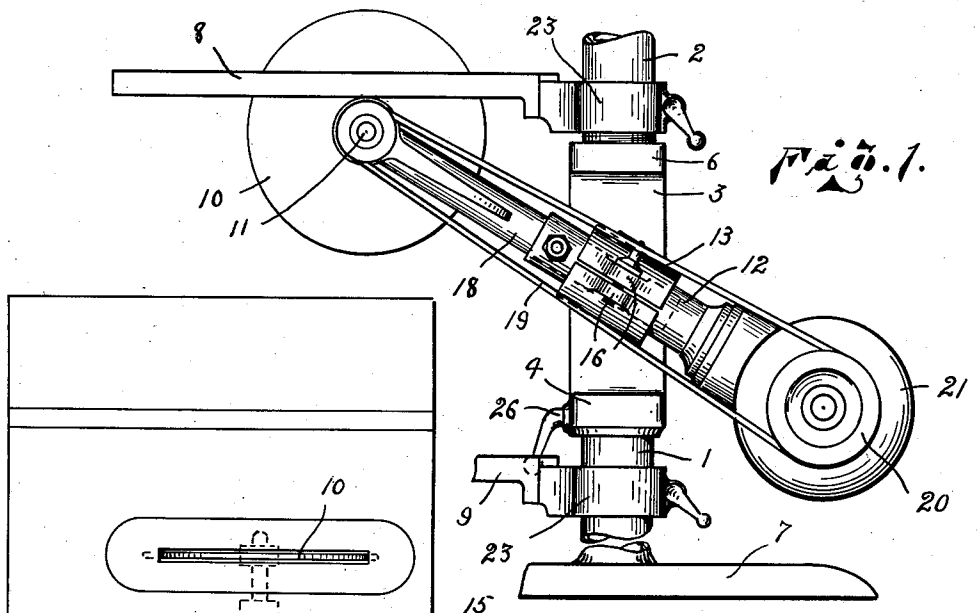


Fig. 1.

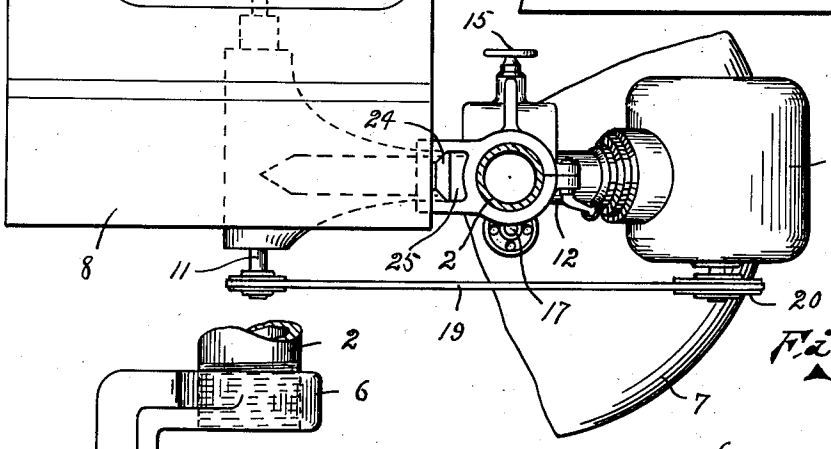


Fig. 2.

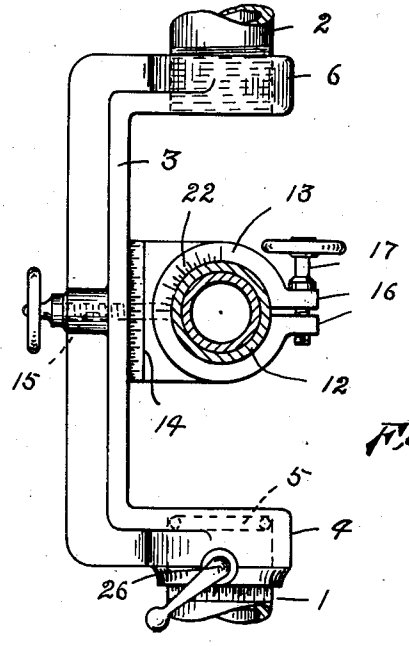


Fig. 3.

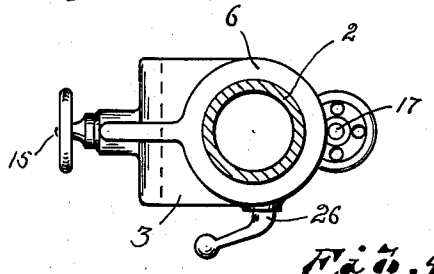


Fig. 4.

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TOOL STAND

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4 Claims. (Cl. 29—1)

This invention relates to tool stands or supports, and has special reference to that type employing but a single column, and upon which one or more tables, as well as the tool operating mechanism, may be adjustably mounted.

One of the objects sought in the instant invention is that of providing a simple and practical means whereby a tool supported upon such a stand may readily be operated in conjunction with work upon a table either above or below the mounting of the tool operating mechanism.

Another object is to provide such a device which may be used either as a drill press for mortising, shaping, or the like, or for grinding, polishing, et cetera.

Other objects and advantages of the invention will appear in the following description thereof.

Referring now to the accompanying drawing, forming part of this application, and wherein like reference characters indicate like parts:

Figure 1 is a side elevation of a fragmental portion of the tool stand embodying the invention.

Figure 2 is a top plan view of the same.

Figure 3 is an enlarged elevation of the coupling member of the column illustrating one application of the tool carrying means attached thereto.

Figure 4 is a top plan view of Figure 3.

In the drawing the numerals 1 and 2 represent the lower and upper portions of the cylindrical column of the stand, and which are united as by the coupling member 3, this latter being shown as being of substantially U-shape (see Fig. 3), the lower laterally extended portion 4 being rotatably mounted upon the upper end of the lower portion 1 of the column 1—2, and for such mounting I have illustrated the possible installation of for example the thrust bearing indicated at 5, while within the uppermost lateral extension 6 of the coupling member 3 is installed the upper portion 2 of the column as by being threaded therewithin to make as solid and dependable a union as possible of the parts. The column as thus disclosed is mounted or formed as an integral part of the base 7, common to such installations.

In Figure 1 I have shown a work table 8 which may be of any desired form, not comprising part of the invention, for sawing purposes, tool grinding, or the like, and which may be adjustable vertically and rotatable upon the upper portion 2 of the column. At 9 I have shown a similar table common in the art and adjustable upon the lower portion 1 of the column as is also common, so that any class of work desired may be associated with these tables or like supports for engagement with whatever instrument is being employed in conjunction with the stand. Obviously such instrument may be a wheel or saw as suggested at 10, mounted upon a suitable arbor 11 and carried upon the instrument end of the tool supporting arm indicated at 12, or the instrument being supported may be a drill head commonly used in such stands.

The mounting of the instrument arm 12 in this embodiment is accomplished by the split clamp like member 13 having a circularly shaped base portion 14 which abuts against the flat face of the body portion of the coupling member 3 and is held there as by a suitable hand operated bolt indicated at 15 extending through the body or coupling member 3, so that the member 13 may be held as fixed in any desired rotatable position, for instance when the arm 12 is tilted as shown in Figures 1 and 2 of the drawing. The clamping member 13 is provided with free spaced luglike termini 16 which are adjustable as by the hand operated screw threaded bolt 17 for clamping the member 12 in any desired rotative position.

This tool carrying arm 12 is further novel in that it is provided with a telescopic extension indicated at 18 in which the arbor 11 of the tool being employed is mounted, this forming an ideal bolt tightening or loosening element, as in the embodiment here shown the arbor 11 is driven as by the belt 19 from the driving sheave 20 of the motor 21.

It is well known to those versed in the art that in the common drill press mounted upon a single unitary column that to perform shaping operations or the like in connection with a table above the drill press, it is necessary to remove the entire instrument operating mechanism from the column and turn it upside-down, and which, obviously, in my improved structure, becomes unnecessary, as a simple rotation of the instrument supporting arm suffices for the purpose.

From the foregoing it is evident that I have produced a novel and practical assembly of unit of this type, capable of practically universal adjustment insofar as the direction of the tool in relation to the work at hand is concerned, and, as indicated in Figure 3 of the drawing, any desired form of degree markings for gauging the position of the tool carrying arm 12 may be employed, and the same is true in respect to the relative rotative position of the tool carrying

arm in respect to the cylindrical clamping member 13, as illustrated at 22.

For convenience in the manipulation of the various cooperative parts of the stand and tables to accommodate the different classes of work to which the machine is adapted, it will be noted that the tables 8 and 9 are interchangeable in respect to their supporting collars 23, which latter are vertically adjustable upon the column. For this purpose I have shown the tables as each carrying a fixed dovetailed spline 24 which is registrable vertically within the channel shaped opening 25 in each collar, and from which latter they may be easily removed simply by raising vertically.

Also it will be noted that in connection with the rotatable mounting of the coupling 3 upon the upper end of the lower portion 1 of the column 1—2, I have shown means whereby the same may be locked in any desired position, said means being indicated at 26.

Having thus described my invention, what I claim and desire to secure by Letters Patent, is:

1. A single column tool stand of the character described, characterized by the column being composed of two axially aligned portions cooperatively united by an open coupling member in which the tool operating mechanism is pivotally mounted on an axis transverse the axis of said column, and means for locking said mechanism in any pivotal position within said coupling member.

2. A single column tool stand comprising in combination a two part separable cylindrical column, a union for said parts comprising a substantially U-shaped coupling member intermediate of said parts and forming a part of said column, tool operating means rotatably and tiltably mounted within said coupling member, a work carrying table mounted upon said column below said coupling member, and a work carrying table mounted upon said column above said coupling member whereby said tool operating means, being rotatable, may be readily operated in conjunction with work upon either of said tables.

3. A tool stand for supporting a tool holder and means for rotating said tool holder, comprising a two-part column, a U-shaped coupling for said parts having a bearing therein the axis of which intersects the axis of said column, a shaft rotatably mounted within said bearing for supporting in any rotative position a tool holder at one end and means for rotating said tool holder at the other end, and means for locking said shaft in any rotated position.

4. A tool stand for supporting a tool holder and means for rotating said tool holder, comprising a two-part column, a coupling for uniting said parts in axial alignment, said coupling having a bearing therein, the axis of which intersects the axis of said column, and a tool holder and rotating means therefor journalled within said bearing, and means for locking said tool holder and rotating means in any position within said bearing.

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