

May 18, 1937.

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2,080,475

STAND FOR MOTOR DRIVEN TOOLS

Filed Jan. 4, 1936

2 Sheets-Sheet 1

Fig. 1.

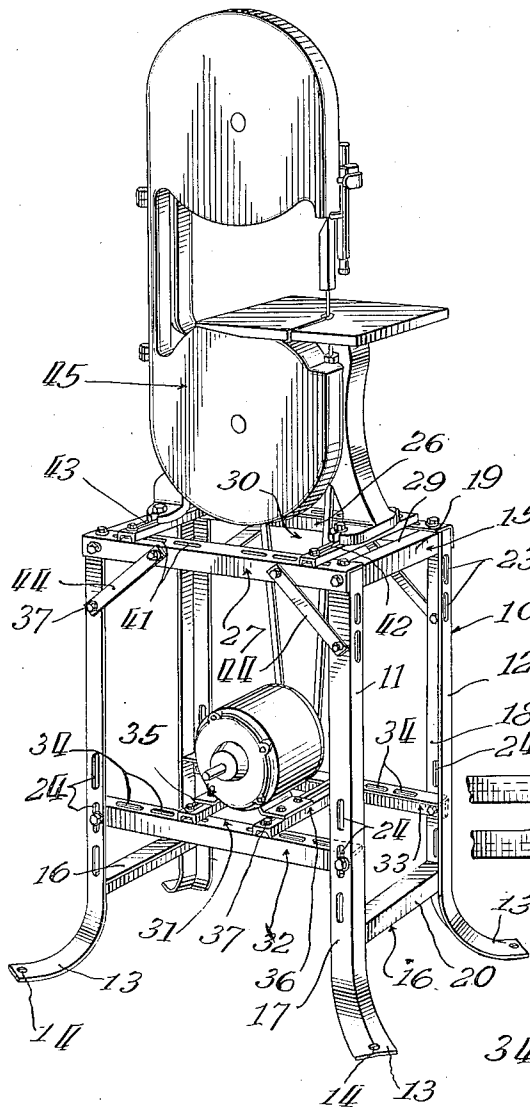


Fig. 2.

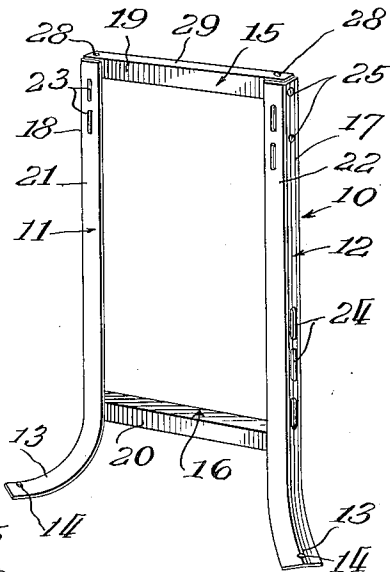


Fig. 3.

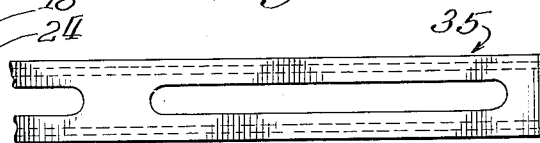
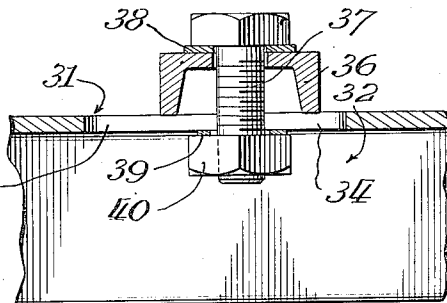


Fig. 4.



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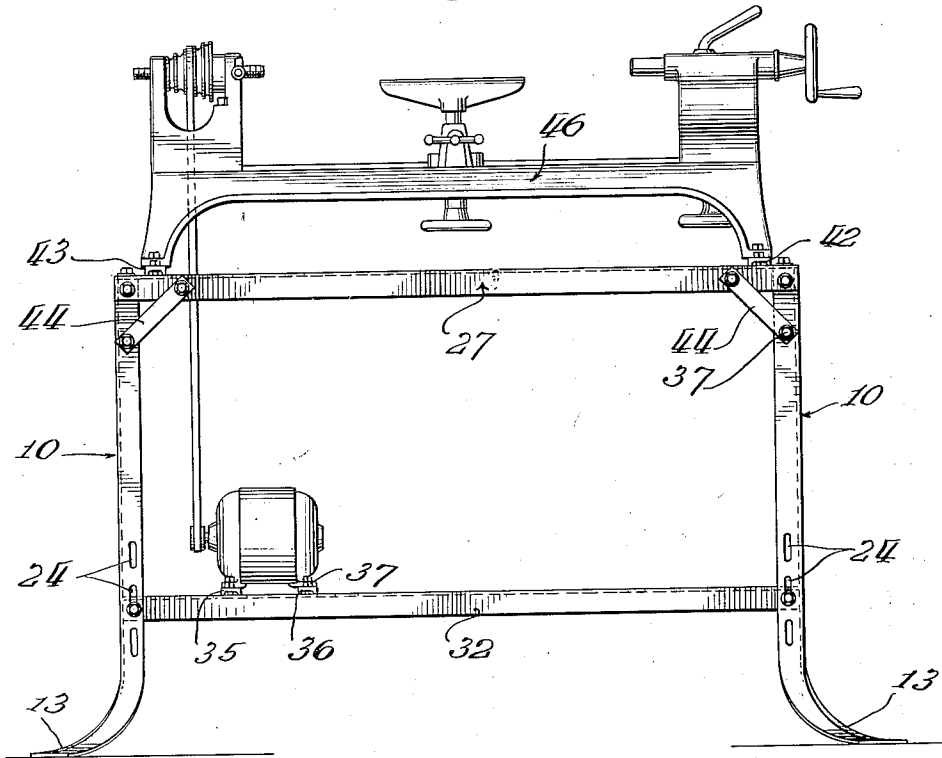
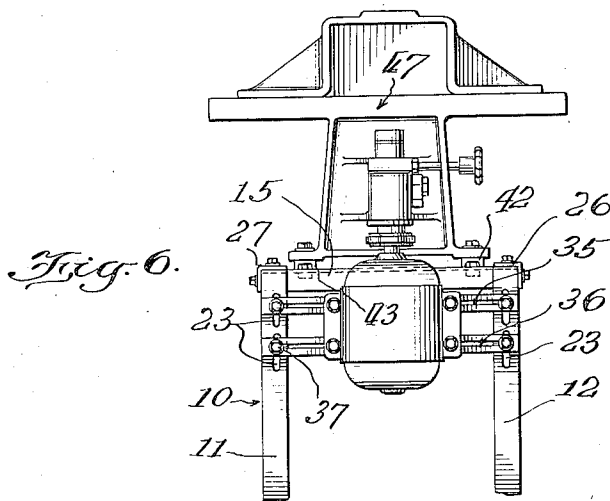
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2 Sheets-Sheet 2

Fig. 5.



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UNITED STATES PATENT OFFICE

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STAND FOR MOTOR DRIVEN TOOLS

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Application January 4, 1936, Serial No. 57,485

3 Claims. (Cl. 144—1)

The present invention relates to stands for motor driven tools, and is particularly concerned with the provision of an improved stand for motor driven tools of the kinds now generally employed by amateur craftsmen. Among such tools are drill presses, band saws, bench saws, jig saws, scroll saws, table saws, lathes, jointers, shapers, sanders, grinders, etc.

Such a tool usually is driven by a separate motor which requires a support in fixed relation to the tool—so that a belt may be employed to transmit power from the motor shaft to the drive shaft of the tool.

Heretofore it has been the custom to supply a special stand, of fixed parts and dimensions, for use with nearly every kind of tool. Since the different kinds of tools vary widely as to base sizes, and the points where they are attachable to stands, jobbers and dealers carrying such tools in stock also have been required to carry large numbers of stands—many of which will receive but one kind of tool, or but a very few tools. Moreover, such special stands, designed to accommodate but one tool, or a very few tools, have usually required for their adaptation to any given tool, the cutting of bolt holes for tool and motor attachment, and belt slots, which have rendered the stands unsuitable for use with different tools which they might otherwise fit. One of the objects of the present invention is the provision of various units which may be employed to make up stands, without cutting or mutilation of any unit, which will accommodate all of the many kinds of motor driven tools aforesaid. The jobber and dealer are thereby enabled to reduce their stand stocks to those units which may be assembled in differing relationships to make stands for all of the many kinds of tools.

Another object of the invention is the provision of a stand having a motor supporting unit which is readily adjustable to permit the use of many different sizes of belts to transmit power from the motor to the tool supported by the stand—thus minimizing the number of belt sizes which jobbers and dealers must carry in stock and also eliminating the likelihood of a jobber or dealer losing a sale because of his inability immediately to deliver a belt of a precise size.

In the use of stands of the prior art it has been necessary to have a belt of a definite size to adapt the stand to any given tool, whereas, by virtue of the wide range of adjustment provided in stands of the present invention, various sizes of belts may be used with any combination of tool and stand,—the position of the motor of each such

combination, with respect to the tool driven thereby, being capable of adjustment within wide limits. Furthermore, by virtue of my present invention, it is no longer necessary to resort to the use of shims under a motor or a tool for the purpose of adjusting the tension of a belt after the belt has been stretched in use.

The present invention contemplates and permits the tightening of a belt at any time and enables the user, by a simple operation, to take up the slack in the belt without disturbing the attachment of the tool with its appropriate support, or the attachment of the motor with its appropriate support.

Another object of the invention is the provision of an improved stand which is readily and easily assembled, sturdy, adequately braced, and which may be economically manufactured with a minimum number of machine operations.

Referring to the accompanying two sheets of drawings,

Figure 1 is a view in perspective of a stand of the present invention, such stand being employed in conjunction with a band saw;

Figure 2 is a view in perspective of the end unit—two of which are employed in each stand of the present invention;

Figure 3 is a fragmentary elevational view showing a portion of a frame member with the slots which permit adjustment of other frame members attached thereto;

Figure 4 is a fragmentary sectional view showing the mode of attachment of one frame member which is adjustably secured to another;

Figure 5 is a front elevational view of the stand of the present invention extended to accommodate a lathe of substantial length; and

Figure 6 is a fragmentary rear elevational view of the top of the stand as it appears when employed for supporting a shaper or other tool having a vertical shaft to which power is applied through a suitable belt operating in a horizontal plane.

Referring first to Fig. 2, the end unit (of which the stand comprises two) is indicated in its entirety by the numeral 10. This unit comprises a pair of legs 11 and 12, each leg being formed of a suitable length of angle iron, the lower end of each angle iron being flattened out at 13 to form a foot and being bent laterally to bring the foot into the same plane as the floor or other surface upon which it rests. The feet 13 are provided with apertures 14 which facilitate fastening of the assembled stand to the floor by suitable bolts, lag screws, or the like.

The two leg members 11 and 12 are preferably secured together by a pair of transverse frame members 15, 16, also in the form of metal angles, which are alike as to cross-sectional shape and size and are of equal length. The ends of the frame members 15 and 16 abut against the side flanges 17 and 18 of the legs, and the vertically extending flanges 19, 20 of the transverse frame members lie flatly against the end flanges 21 and 22 of the legs.

Transverse frame members 15 and 16 are preferably premanently secured to the leg members by spot welding, or by welding along the joints between the respective contacting flanges. Each of the legs 11 and 12 is provided with a pair of vertically extending slots 23 adjacent the upper end of the leg for the purpose of adjustably securing the parallel channels of the hereinafter mentioned motor supporting unit, when a motor is attached as shown in Fig. 6.

The side flanges 17 and 18 of the legs 11 and 12 are also provided with a multiplicity of vertically extending slots 24, located above the lower frame members 15, 16, employed for the purpose of adjustably securing the motor supporting unit, later to be described.

The legs are also preferably provided with apertures 25, located in the upper ends of the side flanges 17 and 18, for the purpose of the securing of longitudinally extending rails 26, 27. Additional apertures 28 may be formed, adjacent the upper ends of the legs, in the top flanges 29 of the upper transverse frame members 15 for the securement of the same rails.

The complete stand may be formed by assembling a pair of end units 10 with the tool supporting unit 30 and the motor supporting unit 31. In addition to performing their functions of supporting the tool and the motor respectively, the units 30 and 31 also serve to connect the end units 10 together and thus complete a very firm skeleton structure for carrying the tool and its motor.

The motor supporting unit 31 consists of a pair of longitudinally extending rails 32, 33, similar to the upper rails 26, 27. Rails 32, 33 are provided with a multiplicity of longitudinally extending slots 34, located in their upper or horizontal flanges, for use in attaching a pair of motor supporting members 35, 36. The rails 32, 33 also have substantially circular apertures located in their vertical flanges, at each end of each rail, in such position that these apertures register with the slots 24 in the legs 11, 12 when the ends of the rails 32, 33 abut against the end flanges 21, 22 of the legs.

The motor supporting members 35, 36 may consist of small standard channels placed with the webs presented upwardly and of sufficient length to extend from the outside of the rail 32 to the outside of rail 33. Each member 35, 36 is provided with slots in its web, each of these slots being adapted to receive a vertically extending bolt 37 which passes through such slot and through the top flange of a rail 32 or 33. The same slots may also be used for receiving the bolts which pass through the base of the motor. It will thus be observed that the motor may be adjusted laterally upon its supporting unit so as to cause the motor pulley to come into alignment with the tool shaft pulley.

In Fig. 4 the mode of securement of the parts just described is illustrated in connection with the bolt 37 which is preferably provided with a washer 38 and a lock washer 39 as well as nut

40. Similar bolts, washers and nuts may be used to secure all of the bolted parts of the stand units together, as shown in Fig. 1.

The tool supporting unit 30 comprises the longitudinally extending rails 26 and 27, which have their ends secured, by pairs of bolts, to the upper corners of the end units 10. The upper rails 26, 27 also have a multiplicity of longitudinally extending slots 41, located in their upper flanges, for reception of the bolts which secure the tool supporting members 42, 43. These tool supporting members are, like the motor supporting members 35, 36, constructed of channels of suitable length with the webs disposed upwardly. The channels 42, 43 have suitable slots punched in their webs for reception of bolts 37 which secure them, in spaced relation to each other, to the rails 26 and 27. The slots in the tool supporting members 42 and 43 also receive the bolts whereby the base of the tool is firmly but adjustably secured to the said tool supporting members.

The end units 10 being composed of legs 11, 12 and transverse members 15, 16 permanently secured together by welding, there is no absolute necessity for any bracing to maintain the shape of these end units. It is preferred, however, that suitable braces 44 be extended diagonally across the bolted upper corners of the stand. For example, braces 44 are extended from the top rail 27 diagonally downward toward each contiguous leg. These braces are in the form of straps of metal stock provided with apertures, punched in each end of each strap, to receive bolts 37, which also cooperate with apertures in the legs 11, 12 and rails 27.

The present stands may be shipped "knocked down," thereby effecting a considerable saving in the cost of packaging them for shipment.

Referring to Fig. 1, the motor driven tool there shown mounted on the stand is a band saw 45. The stand readily may be made to accommodate tools having bases either larger or smaller than the base of band saw 45. For example, it may be arranged to accommodate a lathe 46, as shown in Fig. 5. In this event the same end units 10, 10 and braces 44 are employed, and the same transverse channels 35, 36 and 42, 43 may be used for supporting the motor and the lathe. The stand is made longer by the use of rails 26, 27 and 32, 33 of a length commensurate with the length of the lathe. Thus, it is only necessary for the jobber or dealer to keep on hand a suitable supply of the rails 26, 27 and 32, 33, in order to make all of the other stand parts available to meet the needs of any particular tool. It is not necessary for him to carry in stock stands of many different sizes. This is of the utmost importance, because it enables the jobber or dealer to conserve storage space, and keep his inventory low, without impairing his ability to meet the tool stand requirements of any customer.

Fig. 6 illustrates an application of the invention wherein the tool is a shaper 47 having a vertical extending pulley shaft. In this case the motor supporting unit comprises the pair of legs 11, 12 which are provided with the slots 23 for carrying the motor supporting members 35, 36. By means of the slots located at the top of the legs, the motor has here been disposed with its shaft in a vertical position. Here again the position of the tool may be adjusted with respect to the motor because the tool supporting members 42, 43 are provided with longitudinally extending slots for receiving the bolts 37 which secure the tool base to the stand. Furthermore, the motor pulley may be brought

into alignment with the tool shaft pulley by virtue of the adjustment permitted by the slots 23 in the legs of the adjacent end unit 10.

In brief, the salient advantages of my invention are:

- (a) The end units 10 are available for the construction of stands of any length;
- (b) The tool supporting channels 42, 43 may be incorporated, in properly spaced relationship, in a stand of any length;
- (c) The motor supporting channels 35, 36 may be incorporated, in properly spaced relationship, in a stand of any length;
- (d) The braces 44 (if employed) are available for use in a stand of any length;
- (e) Only the rails 26, 27 of the tool supporting unit, and the rails 32, 33 of the motor supporting unit need be stocked in a plurality of sizes in order for a jobber or dealer to keep himself prepared to meet the tool stand requirements of any customer,—provided, of course, such jobber or dealer has on hand at least one pair of end units 10, one pair of tool supporting channels 42, 43 and one pair of motor supporting channels 35, 36, plus the necessary bolts, nuts and washers. The sum and substance of this is that a jobber or dealer with but a very limited inventory of tool stand parts, and that inventory stored in a small space, may always be ready to supply a stand for any one of many kinds of tools all varying as to length, base size and location of base bolt holes;
- (f) The ready adjustability between the tool and the channels 42, 43, plus the similar adjustability between the motor and the channels 35, 36, make proper alignment of the tool and motor a simple matter;
- (g) The readiness with which the motor supporting unit (rails 32, 33 plus channels, 35, 36) may be vertically adjusted with respect to the end units 10, makes any combination of tool and stand capable of using belts of substantially different lengths, and eliminates the long familiar nuisance of being required to "shim up" a tool to compensate for the stretching of a belt in use;
- (h) The skeleton-like character of the stand makes the cutting of belt slots unnecessary;
- (i) The stand can be shipped and stored in "knock down" condition, is easily assembled and adjusted, and though light, is both firm and sturdy.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent of the United States is:

1. A stand for motor driven tools comprising a pair of end units, a motor supporting unit and a tool supporting unit, said end units being substantially similar in size and shape and said motor and tool supporting units comprising rails extending between and rigidly and detachably secured to the end units to form the stand, one of said end units comprising legs having vertically extending slots near the tops of said legs for the adjustable reception of bolts to secure motor supporting members when a motor is to be secured on said last mentioned end unit.

2. In a stand for motor driven tools, a pair of end units, each end unit comprising a pair of vertical angle irons and a pair of horizontal angle irons arranged to form a rectangular frame with depending legs, the vertical angle irons having two flanges in the same plane welded to the parallel vertical flanges of the horizontal angle irons, said stand having a tool supporting top frame comprising a pair of angle irons extending between the adjacent upper corners of said end unit frames, said latter angle irons having vertical flanges secured to the vertical flanges of said vertical angle irons, and having horizontal flanges secured to the horizontal flanges of said upper horizontal angle irons of said units, and a pair of horizontal angle irons having the ends of their vertical flanges secured to said vertical angle irons and providing a motor support, the horizontal flanges of the top frame angle irons being provided with a plurality of slots, a pair of channeled members extending transversely and resting on said horizontal flanges, and securing elements for said transverse channeled members adjustable in the slots of said horizontal flanges to position the transverse members for the support of tools of different length.

3. In a stand for motor driven tools, a pair of end units, each comprising a pair of vertical angle irons formed with slots intermediate their length and a pair of horizontal angle irons connected thereto to form a rectangular frame with depending legs, a pair of angle iron side rails joining the pair of end units at their upper ends and detachably secured thereto, the horizontal surfaces of said side rails being slotted, a plurality of transverse supporting members resting on the horizontal surfaces of said side rails, bolts passing through openings in the ends of said transverse supporting members and through the aforesaid slots in the side rails for adjustably securing said transverse members in desired spaced position, the said transverse members being slotted intermediate their length to receive and retain bolts for securing machine tools of various dimensions thereon, the said stand having a second pair of angle iron side rails the vertical flanges of which are formed with openings, bolts passing through said openings and the slots in said vertical angle iron legs thereby to secure the said lower side rails in vertically adjusted position, the horizontal surfaces of said lower side rails being slotted, a plurality of lower transverse supporting members resting on the horizontal surfaces of said side rails, bolts passing through openings in the ends of said lower transverse supporting members and through the aforesaid slots in the lower side rails for securing said lower transverse members in desired spaced relation, the said lower transverse members being slotted intermediate their length to receive and retain bolts for securing a tool driving motor, whereby the supporting frame for the motor is vertically and axially adjustable with respect to the machine tool mounted on said stand.

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