

April 8, 1969

D. K. PAGE
HAND JOINTER

3,437,115

Filed Jan. 30, 1967

Sheet 1 of 2

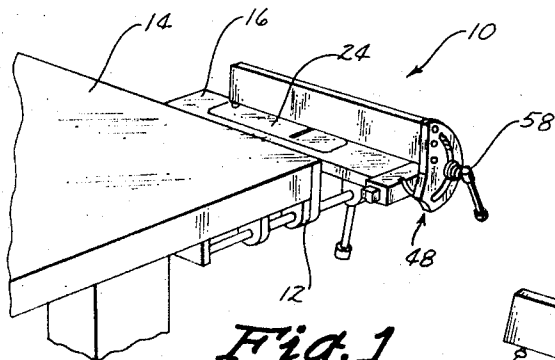


Fig. 1

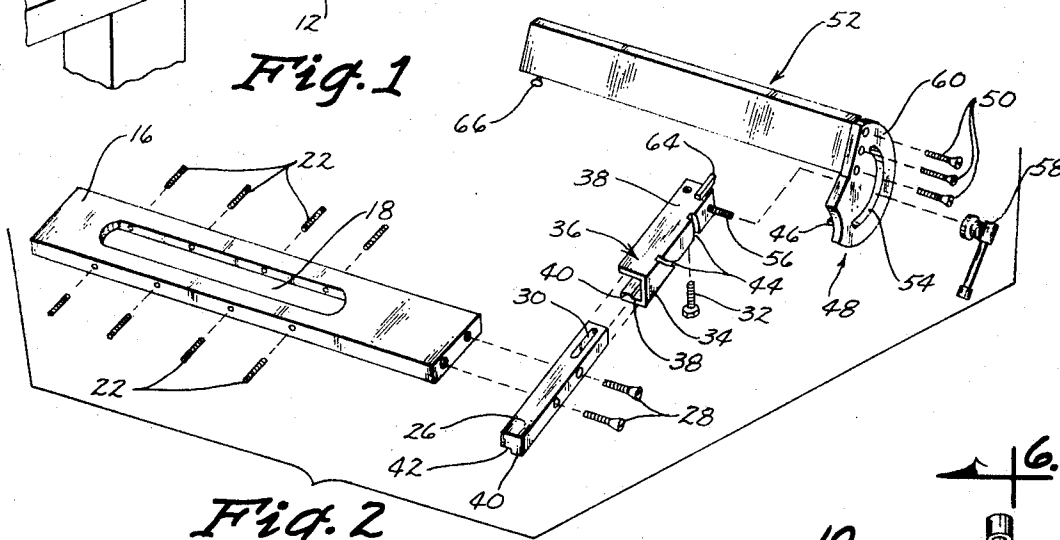


Fig. 2

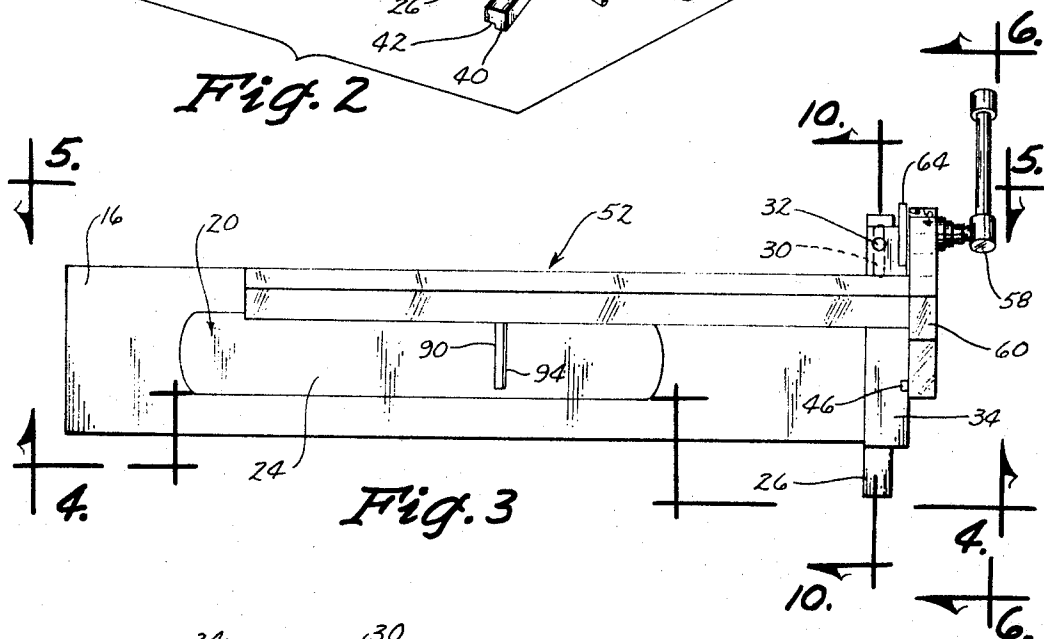


Fig. 3

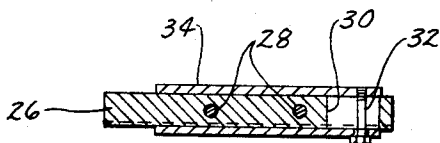


Fig. 10

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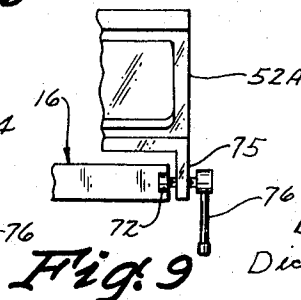
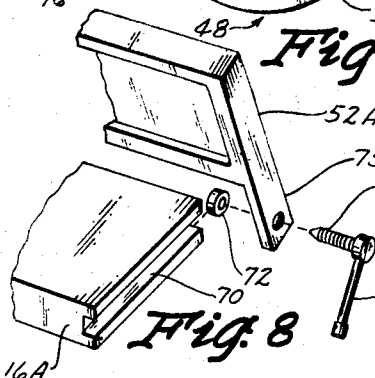
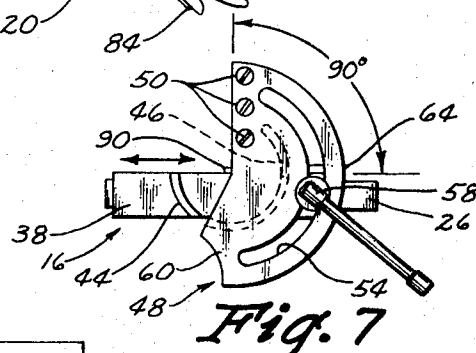
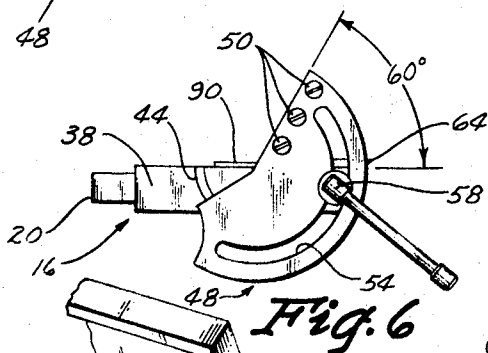
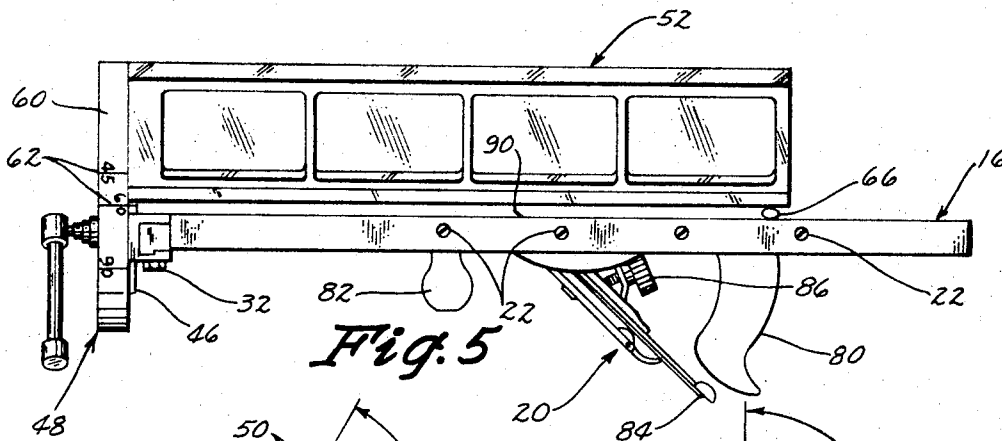
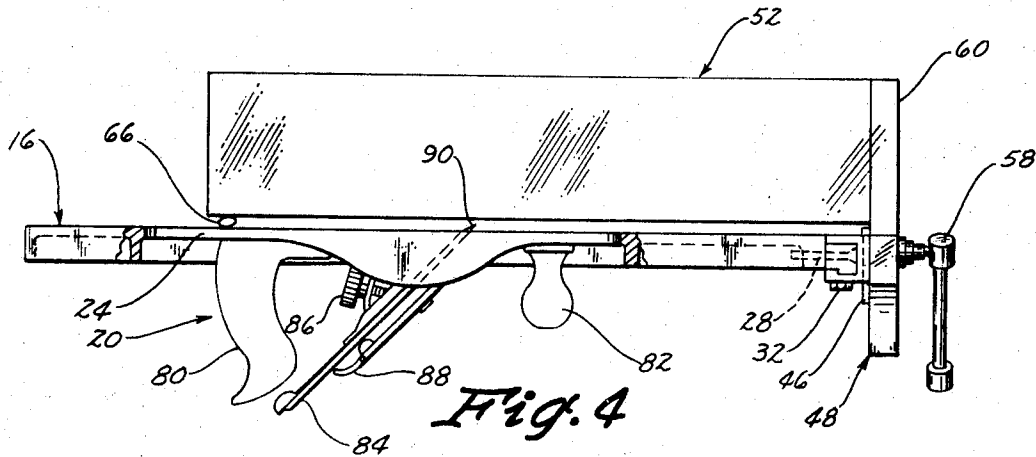
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HAND JOINTER

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7 Claims

ABSTRACT OF THE DISCLOSURE

A woodworking tool including a bed member having an opening in which a hand plane is secured in an inverted position such that the blade of the plane will shape the material moving across the bed. A fence is laterally and angularly secured along the length of the bed.

The common woodworker's hand plane requires considerable skill to operate and is particularly difficult for elementary school students. A power jointer having a rotating cutter head is too dangerous for young and inexperienced workers. Woodworking is one of the industrial arts now being taught at the elementary school level and thus assistance is needed to enable the elementary age student to operate the hand plane satisfactorily.

This invention will give to all workers including the elementary students the capability of squaring a board accurately and without hazard or trial and error. The student accordingly gains confidence in his ability, pride in his work and an unprecedented safe introduction to power jointer operation. Many operations and design opportunities evolve from a successful joining operation. An accurate butt joint is possible, thus facilitating better construction and appearance in the finished product. A smooth exposed edge and gluing edge to edge is possible without the use of power equipment using the tool of this invention. The student it is appreciated gains a better understanding of the industrial process including the fact that in industry the product moves past the tools rather than the tools moving past the product.

In summary, this invention involves the combination of a hand plane and a work bed wherein the hand plane is turned upside down and mounted in an opening in the work bed whereby the blade of the plane is exposed to shape material moved across the top surface of the bed. The bed may be mounted in a vice or the like. A fence which is laterally adjustable relative to the bed and is adapted to pivot about a longitudinal axis extending through the bed is mounted on the bed for facilitating the hand jointing operation.

These and other features and advantages of this invention will become readily apparent to those skilled in the art upon reference to the following description when taken into consideration with the accompanying drawings, wherein:

FIG. 1 is a fragmentary perspective view of the hand jointer of this invention mounted in a supporting vice on a work table;

FIG. 2 is an exploded view of only the hand jointer tool;

FIG. 3 is a top plan view of the hand jointer;

FIG. 4 is a side elevation view of the hand jointer taken along line 4—4 in FIG. 3;

FIG. 5 is a side elevational view taken along line 5—5 in FIG. 3;

FIG. 6 is an end elevation view taken along line 6—6 in FIG. 3;

FIG. 7 is an end elevation view similar to FIG. 6 showing the fence moved laterally and having been rotated relative to its position in FIG. 6;

FIG. 8 is a perspective view of an alternate embodi-

ment of the fence as it is secured at its outer free end to the bed;

FIG. 9 is a fragmentary side elevation view of the securing means of FIG. 8 connecting the fence to the outer free end of the bed; and

FIG. 10 is a cross-sectional view taken along line 10—10 in FIG. 3 illustrating the structure providing lateral adjustment of the fence relative to the bed.

This invention is referred to generally in FIG. 1 by the reference numeral 10 and is positioned in a vice 12 mounted on a work bench 14.

The hand jointer 10 includes an elongated bed member 16 having an elongated opening 18 formed therein to receive a hand plane 20 (FIG. 3) which is secured by set screws 22 engaging the longitudinal edges of the sole plate 24 of the hand plane 20. The bed 16 has a transversely extending male member 26 secured by screws 28 to one end. An elongated opening 30 is formed in the member 26 to receive an adjustable bolt fastener 32 extending through a bottom leg 34 of a channel shaped member 36. The adjusting bolt 32 is threadably engaged in the other leg 38 of the channel member 36. The bottom leg 34 of the channel member 36 is provided with a depression 38 and a shoulder 40 running the length thereof which matingly engage a shoulder 40 and a depression 42 on the bottom side of the male member 26. Accordingly, the channel member 36 may move laterally relative to the bed 16 but cannot move longitudinally although it does move longitudinally of the male member 26.

A pair of arcuate shaped slot segments 44 are formed in the outer face of the channel member 36 to matingly receive an arcuate shoulder 46 formed on the inner face of an end plate 48 rigidly secured by screws 50 to a fence member 52. The end plate 48 includes an arcuate slot 54 having a common center axis with the slot 44 and the shoulder 46. An adjustment screw 56 is threadably engaged in the outer face of the channel member 36 and extends through the arcuate slot 54 where it terminates in a handle member 58.

The fence 52 may thus be rotated to any desired angular position such as at 90 degrees relative to the bed 16 as shown in FIG. 7 or at 60 degrees as shown in FIG. 6. The outer periphery 60 of the end plate 48 includes degree marking 62 of 45 degrees, 60 degrees and 90 degrees since they are the ones most commonly used. A pointer 64 is mounted on the top leg 38 of the channel member 36 for an alignment with the degree marking 62 to indicate the angular position of the fence 52.

The outer free end of the fence member 52 includes a foot element 66 on the bottom edge thereof for frictional engagement with the bed 16. The fence 52 having the foot element 66 may be used on a bed having any length and the fence may be moved laterally or rotated angularly as desired. Upon tightening the lateral adjustment screw 32 and the rotational adjustment screw 56 the fence 52 being made of rigid material will remain in a fixed position relative to the bed 16.

An alternate embodiment of this invention concerning the fence 62 as to its connection to the bed at its outer free end is shown in FIGS. 8 and 9. The bed 16A includes a transversely extending slot 70 which receives a roller 72 in which the pointed end of an adjustment screw 74 is positioned. The adjustment screw 74 is threadably mounted in a downwardly extending leg portion 75 on the outer free end of the fence member 52A whereby the tightening of the screw 74 by the handle 76 will frictionally lock the outer ends of the bed 16A and the fence 52A. Conversely, upon loosening the adjustment screw 74 the fence 52A may move laterally or be rotated since the pointed screw and the roller 72 minimize the frictional resistance.

The hand plane 20 includes in its normal orientation a rear handle 80 and a forward handle 82 secured to the sole plate 24 and as seen in FIG. 4 extend downwardly when mounted in the bed 16. A blade 84 is adjustably mounted by adjusting screw 86 and the lock fastener 88 to the sole plate 24 such that a cutting edge 90 is exposed through a transversely formed slot 94 in the sole plate 24. As seen in FIGS. 4 and 5, the fence 52 is held above the bed 16 by the shoe 66 such that its bottom longitudinal edge does not engage the cutting edge 90 of the blade 84 and accordingly the fence 52 may be moved over the cutting edge 90 if desired as seen in FIGS. 6 and 7.

The hand jointer 10 may be quickly assembled by use of the set screws 22 engaging the sole plate 24 of the hand plane 20. The bed 16 similarly may be quickly mounted in the vice 12 on a work bench 14. As previously discussed, the fence 52 may be moved laterally and rotated relative to the bed 16 by adjustment of the adjusting screws 32 and 56. It is apparent that the use of the hand jointer in working a piece of material is similar to a power jointer except that additional pressure is required to push the wood over the hand jointer blade. The pressure required is not of an amount that would make it difficult for an elementary school student to perform the operation. Another important factor which should be obvious is that serious accidents from the use of the hand jointer are very unlikely since there are no moving parts as in a powered jointer.

Some changes may be made in the construction and arrangement of my hand jointer without departing from the real spirit and purpose of my invention, and it is my intention to cover by my claims, any modified forms of structure or use of mechanical equivalents which may be reasonably included within their scope.

I claim:

1. A hand jointer, comprising:
 - an elongated bed member having an opening,
 - a support holding said bed,
 - a tool having a frame secured to said bed in said opening, and
 - a stationary cutting blade on said tool exposed through said opening, said bed being detachable from said support and said tool frame being detachable from said opening in said bed, said frame of said tool substantially closing said opening, said frame and said bed having coplanar surfaces, adjustable means on said tool for positioning said blade in said opening, handle members at the opposite ends of said tool, said handle members extending in the opposite direction from said bed relative to the direction said blade

extends from said bed, and an elongated upstanding fence member being longitudinally mounted on said bed and adjacent said blade, said blade extending transversely of said opening and perpendicular to said fence.

2. The structure of claim 1 wherein means is provided for lateral positioning of said fence on said bed, and means is provided for angular positioning of said fence relative to the plane of said bed.

3. The structure of claim 2 wherein said lateral positioning means includes a channel member telescopically movable over one end of said bed, means connecting said fence to one end of said channel member.

4. The structure of claim 3 wherein said means connecting said fence to one end of said channel member includes an arcuate rib and groove connection for rotation of said fence relative to said channel member and said bed.

5. The structure of claim 4 wherein said fence has a transversely extending plate portion extending along a portion of said channel member, said arcuate rib and groove connection being formed on opposing faces of said plate and said channel member.

6. The structure of claim 5 wherein an arcuate slot is formed in said plate and an adjustable bolt extends through said slot and is secured to said channel member, said arcuate slot and said arcuate rib and groove having a common axis of rotation.

7. The structure of claim 2 wherein said means for angular positioning of said fence includes a plate member on said fence extending along the end of said bed and an annular groove and rib connection formed in opposite faces of said plate and the end of said bed, an annular slot formed in said plate and an adjustable pin extending through said slot and secured to the end of said bed, said annular slot and said annular rib and groove having a common center axis of rotation.

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U.S. Cl. X.R.

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