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WOODWORKING MACHINE AND MOUNTING AND ADJUSTING MEANS
FOR THE ROTARY CYLINDRICAL CUTTER THEREOF
Filed Sept. 12, 1950 3 Sheets-Sheet 1

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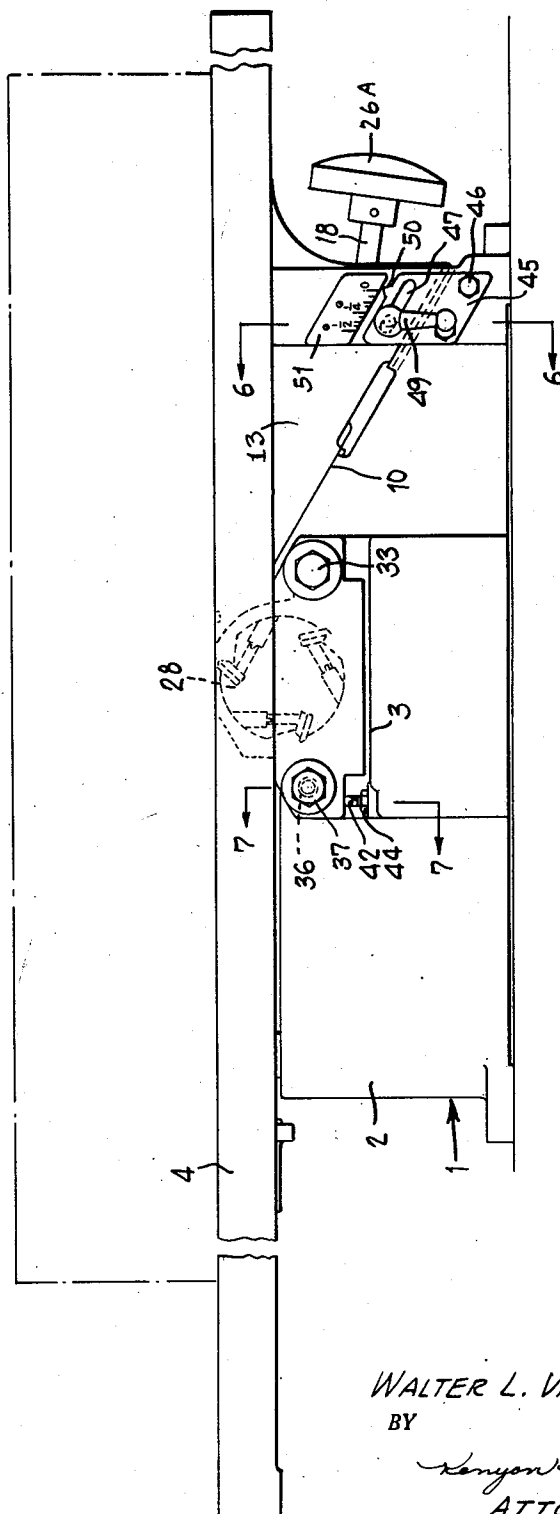
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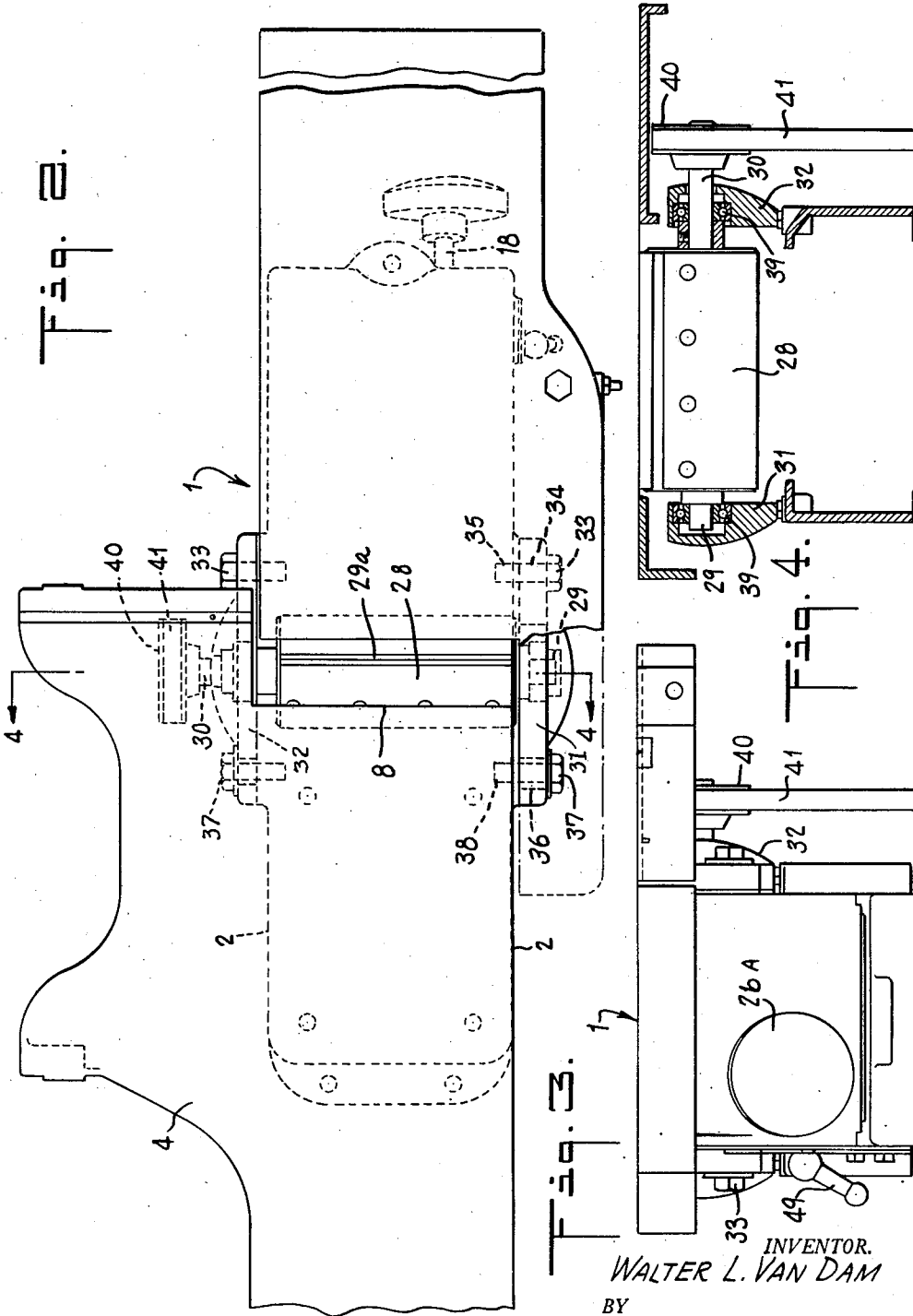
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3 Sheets-Sheet 3

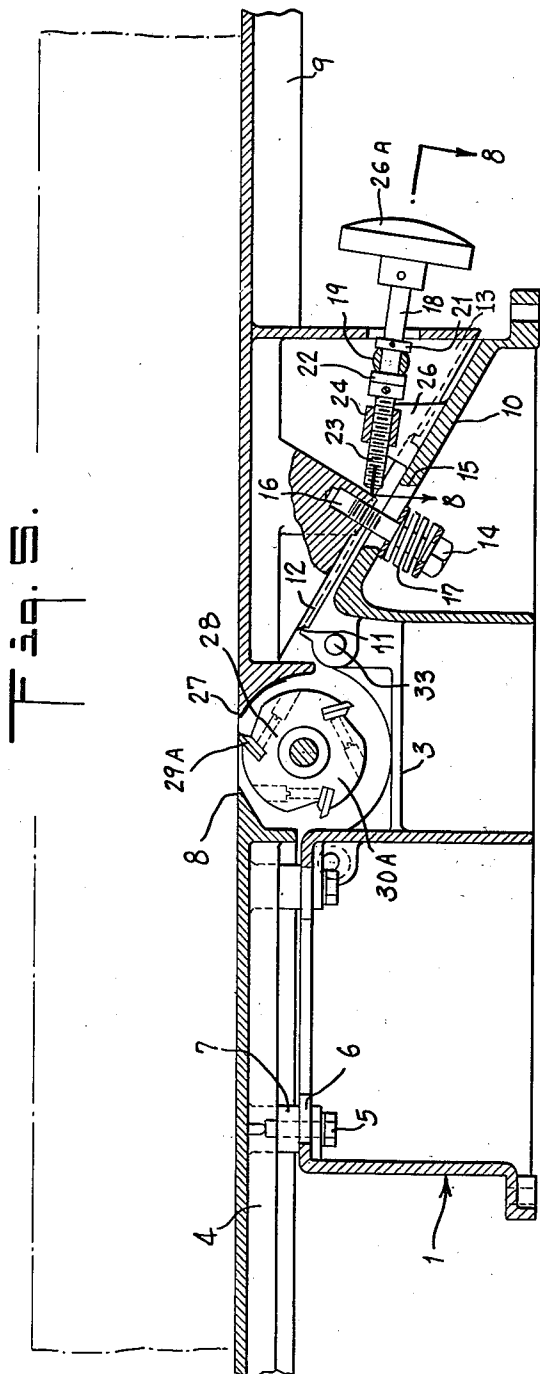
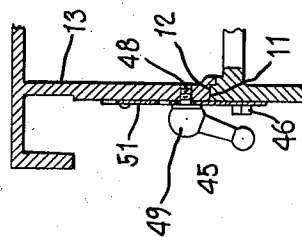
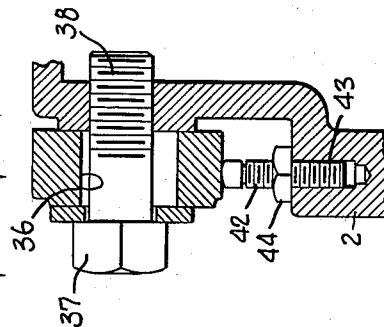
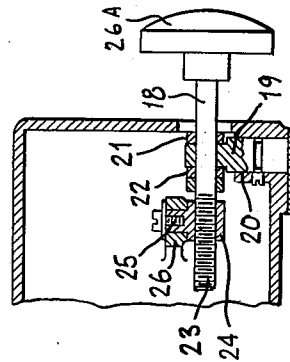


Fig. 1.

Fig. 2.

Fig. 3.



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WOODWORKING MACHINE AND MOUNTING
AND ADJUSTING MEANS FOR THE RO-
TARY CYLINDRICAL CUTTER THEREOFWalter L. Van Dam, Kalamazoo, Mich., assignor
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corporation of Michigan

Application September 12, 1950, Serial No. 184,469

6 Claims. (Cl. 144—131)

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This invention relates to jointers primarily for use in woodworking. One of the objects of this invention is to provide a jointer which can be made easily and inexpensively. Another object of the invention is to provide a jointer in which the cutter head is removably mounted on adjustable mounts so that it can be easily removed for sharpening as a unit by mounting it on suitable centers in a grinding machine. Another object of the invention is to provide a simple, inexpensive and easily adjustable mounting mechanism for use in such a jointer. Other objects and advantages of this invention will appear from the following descriptions and from the drawings in which

Fig. 1 is a side elevational view of a jointer embodying the invention;

Fig. 2 is a top plan view of a jointer embodying the invention;

Fig. 3 is an end elevational view of the jointer shown in Fig. 2;

Fig. 4 is a detailed sectional view taken on the line 4—4 of Fig. 2;

Fig. 5 is a longitudinal sectional view of the jointer showing the mechanism for adjusting the adjustable table;

Fig. 6 is a detailed sectional view taken on the line 6—6 of Fig. 1;

Fig. 7 is a detailed sectional view taken on the line 7—7 of Fig. 1; and

Fig. 8 is a detailed sectional view taken on the line 8—8 of Fig. 5.

The jointer has a base indicated generally at 1 which has side walls at 2 each of which is provided with central laterally opening apertures 3. The rear table or table section indicated at 4 is fixed on the base 1 by means of bolts 5 which extend through suitable apertures 6 in the base and are screw threaded in the boss 7 formed on the bottom of table section 4. The forward end 8 of the table section terminates centrally of the jointer and near the lateral apertures 3.

The forward table or table section 9 is mounted for vertical adjustment on the base 1. The upper edges of the side walls 2 slant downwardly as indicated at 10 and are provided with ways 11 which engage the ways 12 on the downwardly extending wedge shaped portion 13 of the front table section 9. Means are provided for maintaining the front table section 9 yieldingly on the ways. This means consists of bolts 14 which extend through slots 15 in the ways 11 and are screw threaded in bosses 16 which form part of the ways 12. Compression springs 17 surround the bolts 14 to exert pressure to hold the front table section 9 yieldingly in position.

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Means are provided for moving the table section 9 on the ways 11. They consist of a screw 18 which is rotatably mounted in a bearing 19 which is pivoted in the apertures 20 in one of the side walls 2. The screw 18 is held against longitudinal movement in the bearing 19 by means of collars 21 and 22 which bear on either side of the bearing 19, the screw is screw threaded at 23 in a nut 24 which is pivotally mounted as indicated at 25 on a boss 26 which extends from the table section 9. The hand wheel 26a is provided for turning the screw 18. The inner or rear end 27 of the table 9 terminates centrally at the apertures 3.

A cutter head 28 having projecting shafts 29 and 30 is mounted in working position between the ends 8 and 27 of the table sections 4 and 9 respectively. It is provided with suitable blades 29a which are mounted in a hub 30a.

The cutter head 28 is removably and adjustably mounted in bearing hangers 31 and 32 which are horizontally disposed to span the apertures 3 in the side walls 2. The forward ends of the hangers 31 and 32 are mounted in fixed but pivotal relationship on the side walls 2 by means of fixed pivot members in the form of stud bolts 33 which are fitted and extended through openings 34 in the hangers. The stud bolts are screw threaded into the side walls 2 at 35 and are aligned on a horizontal line.

The other or free ends of the hangers 31 and 32 are provided with enlarged holes 36 which fit loosely over clamping members in the form of stud bolts 37 which are screw threaded at 38 into the side walls 2.

Bearings 39 are mounted in the hangers 31 and 32 in opposed and alignable relationship. These bearings are mounted midway between the ends of the hangers and receive the shafts 29 and 30 of the cutter head.

A suitable pulley 40 is mounted on the shaft 30 and is provided with a belt 41 to connect to a suitable prime mover.

The stud bolts 37 are of smaller diameter than the holes 36 to permit adjustment of the cutter head by adjustment of the hangers pivotally about the stud bolts 33. The jack screws 42 which are screw threaded into the base as shown at 43 are provided with lock nut 44 which serve to hold the ends of the hangers in adjustable position by bearing against the lower sides of the free ends. When in adjusted position the stud bolts 33 and 37 serve to clamp the hangers firmly in position.

Means are also provided for clamping the table 9 in adjusted position. These means consist of

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a plate 45 which is fastened by bolts 46 to the base 1 and which extends along the side of the downwardly projecting portion 13 of the table section 9. This plate is provided with a slot 47 which receives a bolt 48 which is screw threaded into the portion 13 of the table 9 and is provided with a suitable operating handle 49. If desired the plate may be provided with a pointer 50 which cooperates with a gauge 51 which is mounted on the side of the portion 13 of the table 9 adjacent the pointer 50.

When in use the cutter head is suitably supported in adjustable position by means of the stud bolts 33 and 37 and the jack screws 42. If it becomes necessary to sharpen the knives 29a this can be done easily and simply by removing the cutter head 28. This is done preferably by removing the hanger 32 by removing the stud bolts 33 and 37. This permits removal of the cutter head 28 and the hanger 32 either by removing the shaft 29 from its bearing 39 or by removing that bearing from the hanger 31.

The pulley 40 may be removed so that the shaft 30 may be removed from its bearing 39. When this has been done the cutter head may be mounted on shafts 29 and 30 in a suitable grinding machine and the knives may be ground so that their cutting edges all lie on the periphery of a cylinder having its central axis at the central axis of the cutter head 28. The cutter head then may be re-inserted in the machine by reversing the procedure above outlined for removal. The hangers may then be suitably adjusted to bring the cutting arc of the blades 29a into the plane of the fixed rear table section 4. The bolts may be tightened, the pulley 40 replaced and the machine is ready for use.

With the mounting arrangement above described it is possible to grind accurately and to position the cutter head so that the blades are in proper cutting position. The fixed table top section 4 need not be adjusted because it is possible to adjust the position of the cutter head.

By making the machine in this way considerable expense is eliminated because it is not necessary to provide two sets of ways such as the ways 11 and 12 and two sets of adjusting mechanisms therefore such as the screw 18 and its associated parts. The top of the table section 4 may be ground to a fixed relationship with the pivots for the forward ends of the hangers so that exact adjustment is maintained at all times.

Although a preferred form of the invention has been described it will be understood that other forms may be made and that there is no intention to limit the invention by describing only the preferred form.

I claim:

1. In a jointer a base having side walls each having a centrally disposed lateral aperture, aligned laterally projecting horizontal pivot and clamping members on said side walls adjacent corresponding sides of said apertures comprising stud bolts screw threaded in said walls, horizontally disposed bearing hangers spanning said apertures and having holes fitting said pivots and by means of which said hangers are removably pivoted at corresponding ends in fixed pivotal relationship to said base, aligned clamping means disposed on said walls across said apertures from said pivots comprising stud bolts screw threaded in said walls and loosely fitted in enlarged holes in the free ends of said hangers to permit vertical adjustment and detachment of said free ends, vertically adjustable jack screws

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screw threaded in the base below and in position to engage the lower portions of said free ends of said hangers, alignably disposed bearings mounted in said hangers between their ends and opposite said apertures and a cutter head having projecting end shafts fitted in said bearings, a fixed rear table mounted on said base and terminating adjacent said cutter head and an adjustable front table mounted on said base and terminating adjacent said cutter head.

2. In a jointer a base having side walls each having a centrally disposed lateral aperture, aligned laterally projecting horizontal pivot and clamping members on said side walls adjacent corresponding sides of said apertures comprising stud bolts screw threaded in said walls, horizontally disposed bearing hangers spanning said apertures and having holes fitting said pivots and by means of which said hangers are removably pivoted at corresponding ends in fixed pivotal relationship to said base, aligned clamping means disposed on said walls across said apertures from said pivots comprising stud bolts screw threaded in said walls and loosely fitted in enlarged holes in the free ends of said hangers to permit vertical adjustment and detachment of said free ends, vertically adjustable jack screws screw threaded in the base below and in position to engage the lower portions of said free ends of said hangers, alignably disposed bearings mounted in said hangers between their ends and opposite said apertures and a cutter head having projecting end shafts fitted in said bearings.

3. In a jointer a base having side walls each having a centrally disposed lateral aperture, aligned laterally projecting horizontal pivot and clamping members on said side walls adjacent corresponding sides of said apertures, horizontally disposed bearing hangers spanning said apertures and fitting said pivots and removably pivoted at corresponding ends in fixed pivotal relationship to said base, aligned clamping means disposed on said walls across said apertures from said pivots to permit vertical adjustments and detachment of said free ends, alignably disposed bearings mounted in said hangers between their ends and opposite said apertures and a cutter head having projecting end shafts fitted in said bearings, a fixed rear table mounted on said base and terminating adjacent said cutter head and an adjustable front table mounted on said base and terminating adjacent said cutter head.

4. In a jointer a base having side walls each having a centrally disposed lateral aperture, aligned laterally projecting horizontal pivot and clamping members on said side walls adjacent corresponding sides of said apertures, horizontally disposed bearing hangers spanning said apertures and fitting said pivots and removably pivoted at corresponding ends in fixed pivotal relationship to said base, aligned clamping means disposed on said walls across said apertures from said pivots to clamp and to permit vertical adjustment and detachment of said free ends, alignably disposed bearings mounted in said hangers between their ends and opposite said apertures and a cutter head having projecting end shafts fitted in said bearings.

5. In a jointer a base having side walls each having a centrally disposed lateral aperture, horizontally disposed bearing hangers spanning said apertures, alignably disposed bearings mounted in said hangers opposite said apertures, means mounting said hangers for vertical adjustment, at least one of said means being disengageable

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from its hanger, and a cutter head removably supported in said bearings in said hangers, and a fixed rear table and a vertically adjustable front table.

6. In a jointer a base having side walls each having a centrally disposed lateral aperture, horizontally disposed bearing hangers spanning said apertures, alignably disposed bearings mounted in said hangers opposite said apertures, means mounting said hangers for vertical adjustment, at least one of said means being disengageable from its hanger, and a cutter head removably supported in said bearings in said hangers.

WALTER L. VAN DAM.

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