P. A. SOLEM.
POSITIONING MEANS FOR ADJUSTABLE SUPPORTS.
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Witnesses:
Jacob A. Hickey
Theresa M. Eiler

Inventor:
P. A. Solem

COLUMBIA成為GRAPH CO., WASHINGTON, D.C.
UNITED STATES PATENT OFFICE.

PETER A. SOLEM, OF CINCINNATI, OHIO, ASSIGNOR TO J. A. FAY & EGAN COMPANY, OF CINCINNATI, OHIO, A CORPORATION OF WEST VIRGINIA.

POSITIONING MEANS FOR ADJUSTABLE SUPPORTS.

1,077,945.


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To all whom it may concern:

Be it known that I, PETER A. SOLEM, a citizen of the United States, residing at Cin- 5 cinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Positioning Means for Adjustable Supports, of which the follow- ing is a specification.

My invention relates to positioning means for adjustable supports, and is especially applicable to the support or housing which supports the horizontally disposed cutter-head in wood planing machinery arranged to operate on the upper side of the stock. I have shown and described my invention in connection with such housing, it being understood that said horizontally disposed cutter-head may be the sole cutter-head in the machine, or other cutter-heads operating for instance on the bottom or on one or more edges of the stock may be employed.

It is the object of my invention to provide new and improved means for positioning a support of the character mentioned, whereby said support is clamped simultaneously and to equal degree at all clamping points for insuring maintenance of adjusted positions of the support; and, further, to so construct and arrange the guiding means and so relate the clamping means thereto in novel manner as to cause maintenance of adjusted relation of the parts; and the invention will be further readily understood from the following description and claims, and from the drawings, in which latter:

Figure 1 is an end elevation of my improved device shown in connection with so much of a wood planing machine as is necessary to illustrate my invention. Fig. 2 is a plan view of the same. Fig. 3 is a rear elevation of the same; and, Fig. 4 is a detail in section on the line 4—4 of Fig. 3.

11 represents the main frame, partly broken away, of an exemplified wood plan- ing machine, on which there are standards 12 having guides 13 thereon, these guides extending laterally and outwardly with relation to the standards. Each of the guides 15 has opposed flat guide-faces 14, 15, and end guide-face 16 thereon. The frame and standards form a rigid guiding structure for supporting the support or housing. The support, exemplified at 17, in the pres- ent instance supports a rotary cutter-head 18 and a chip-breaker 19 therefor, mounted in suitable manner. The support is adjustable up and down on the guides 13. This support, shown as a cutter-head housing, has guideways therein cooperating with said guides. The guideways are formed by rab- betts at the respective ends of the housing, these rabbits each having a bottom wall 21 having a flat bottom guide-face 22 and an end wall 23 having a flat end guide-face 24, the end guide-face 24 being perpendicular to the flat bottom guide-face 22, plates 25 being secured to the end walls 23 by means of bolts 26 and having inner flat guide-faces 27. The opposed guide-faces 14, 15 and 22, 27, are parallel with each other. Said guideways open inwardly toward each other and receive the lateral outwardly extending guides for forming a sliding fit. The arrangements of the guides and the guideways insure parallelism of movement of the support, the guides being encompassed by the walls of the guideways at the respective ends of the support, these guide- ways having right-angular guiding faces which incline said guiding faces thereon, shown as a squared end 38 adapted to be received in the squared socket of a suitable wrench, for turning said cross-shaft and thereby turning said screw-rods and ad- justing said support up and down.

100 For effecting the sliding movement of the support, screw-rods 31 are threaded into threaded lugs 32 on the support, the screw- rods being journaled and held longitudi- nally stationary in bearings 33 in the main frame. Each of the screw-rods has a bevel- gear 34 secured thereto. 35 is a cross-shaft journaled in bearings 36 in the main frame and having bevel-gears 37 fast thereon, the bevel-gears 37 meshing with the bevel-gears 34. The cross-shaft has a turning means thereon, shown as a squared end 38 adapted to be received in the squared socket of a suitable wrench, for turning said cross-shaft and thereby turning said screw-rods and ad- justing said support up and down.

After adjustment the support is clamped in place by clamping means which exert clamping stress in directions at right angles to the opposed parallel clamping faces 105 clamped, for clamping the opposed walls of the guideways and the guides at the respective ends of the support toward one another in directions perpendicular to their parallel clamping faces so as to obtain a clamping agency exerting clamping force
over a considerable area in such manner that the clamping action will avoid disturbance of adjusted relation in the parts. I prefer to effect the clamping by clamping the guides between the bottom walls 21, which are rigid parts of the support, and the plates 25 which have sufficient resiliency to permit guided movement of the support when the clamps are unclamped.

Clamp-screws 41 are arranged to exert clamping force between the plates and the bottoms of the guideways and are shown (see Fig. 4) journaled in bearings 42 in the plates 25 and have threaded engagement in the threaded bearings 43 in the bottom walls 21 of said guideways and pass through slots 44 in the guides. A set-nut 45 and a jam-nut 46 are screwed about the outer threaded ends 47 of each of said clamp-screws.

Turning means are provided for each of the screws, shown in each instance in the form of an arm 48 the hub 49 of which has spline-connection with the clamp-screw for turning the clamp-screw upon swinging movement of the arm, but permitting relative axial movement between the clamp-screw and the hub of the arm. This spline-connection is shown accomplished by a key 50 in the clamp-screw received in a spline-groove 51 in the hub.

The arms at the respective ends of the adjustable support are connected by links 52 having articulations with said arms at 33 for causing simultaneous movement of the clamp-screws at the respective ends of the support.

I further prefer to connect the clamping means at the respective ends of the support, which I have shown accomplished by means of arms 54 extending from the hubs of the upper ones of the arms 48, the arms 54 being connected by a link 55 articulated therewith by articulations 36. The arms 54 preferably have hand-grips 57 thereon arranged to be grasped for clamping or unclamping the adjusted support from positions at either side of the machine. The upper arms 48 and the arms 54 form bell-crank levers.

By means of my improved device the adjusted support will be clamped in adjusted position after adjustment without disarranging the adjustment, and the adjusted support may be released to any desired extent for providing a loose or comparatively tight sliding fit between said guide and guideways, as may be desired for the purpose of adjustment. It further provides means whereby the clamping strain acts upon faces of the guides and guideways which extend in planes at right angles to the axes of the clamp-screws, whereby endwise or other displacement of the adjusted support is prevented in the clamping operation, which is especially desirable in that it pre-vents disarrangement of the supported operative agency, exemplified as the cutterhead, with relation to the stock-support or other operative portion of the machine. My improved device further provides means whereby the clamping action of each clamp-screw may be adjusted, so that all of the clamping means may exert equal clamping action simultaneously, thereby aiding in avoiding disarrangement of the adjusted part.

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

1. In combination, a supporting structure having laterally outwardly extending guides at the respective ends thereof extending up and down, each of said guides comprising opposed parallel guide-faces, and an adjustable support provided at each end thereof with a guideway having opposed walls and an end wall, said guideways opening toward each other with said guides received between said opposed walls and said end walls received outside said guides, said opposed walls provided with opposed parallel guide-faces parallel with and cooperating with said first-named opposed parallel guide-faces, and an adjustable support provided at each end thereof with a guideway having opposed walls respectively comprising connecting members between said opposed walls which are perpendicular to all said opposed parallel guide-faces, and constructed and arranged for simultaneously exerting clamping stress between and perpendicular to said cooperating opposed parallel guide-faces, for the purpose described.

2. In combination, a supporting structure having laterally outwardly extending guideways at the respective ends thereof extending up and down, each of said guides comprising opposed parallel guide-faces, and an adjustable support provided at each end thereof with a guiding rabbot comprising a bottom wall and an end wall, said walls rigid with said support, and a resilient guide-plate secured to each of said end walls, said bottom wall and said resilient guide-plate provided with opposed parallel guide-faces parallel with and cooperating with said first-named opposed parallel guide-faces, and a plurality of interconnected clamping means respectively comprising connecting members between said bottom walls and resilient plates passing said laterally outwardly extending guides and perpendicular to all said opposed parallel guide-faces, and constructed and arranged for exerting clamping stress between and perpendicular to said cooperating opposed parallel guide-faces, for the purpose described.

3. In combination, a supporting structure having a laterally extending guide thereon extending up and down, said guide compris-
ing opposed parallel guide-faces, and an adjustable support provided with a guiding rabbet comprising a bottom wall and an end wall, said walls rigid with said support, and a resilient guide-plate secured to said end wall, said bottom wall and said resilient guide-plate provided with opposed parallel guide-faces parallel with and cooperating with said first-named opposed parallel guide-faces, said bottom wall and resilient guide-plate forming opposed walls between which said guide is received, a bolt having threaded connection in one of said opposed walls and rotary and axial movement in the other of said opposed walls and located with its axis perpendicular to said cooperating opposed parallel guide-faces, an adjusting means for adjusting the clamping effect of said bolt, and a turning device for said bolt in which said bolt has axial movement, said turning device located between said adjusting means and said other of said opposed walls, and constructed and arranged for resiliently clamping said resilient guide-plate toward said bottom wall as and for the purpose described.

In testimony whereof, I have hereunto signed my name in the presence of two subscribing witnesses.

PETER A. SOLEM.

Witnesses:
Charles E. Weber,
Theresa M. Silber.

Copies of this patent may be obtained for five cents each, by addressing the “Commissioner of Patents, Washington, D.C.”