Feb. 1, 1938. F. E. BERTRAND 2,106,712

SOLE FITTING MACHINE

Filed Oct. 29, 1935

Fig.1.

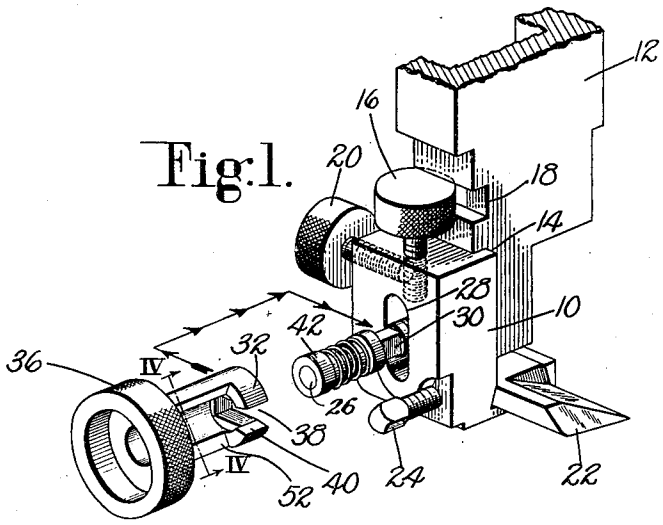


Fig.2.

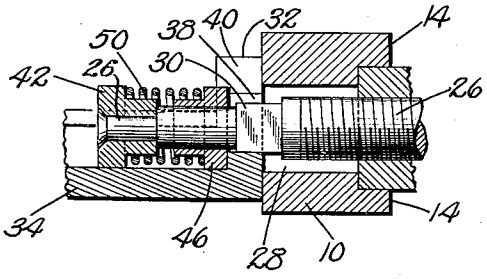


Fig.3.

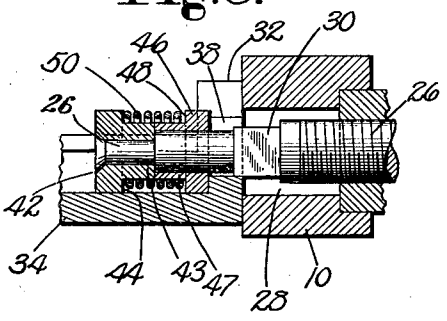


Fig.4.

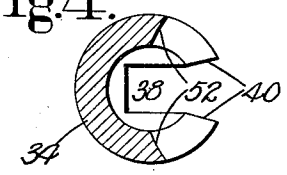
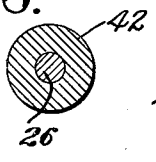


Fig.5.



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SOLE FITTING MACHINE

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Application October 29, 1935, Serial No. 47,285

7 Claims. (Cl. 12—27)

This invention relates to sole fitting machines and is herein disclosed as embodied in an improved device for securing a channel knife block in a channeling machine.

It is usual in channeling machines to secure the channel knife block in a position of vertical adjustment by means of a clamping screw. The knife block is slidably mounted for such adjustment upon its support and an adjusting screw is provided for effecting the adjustment. When the knife block is to be adjusted the clamping screw is loosened and after the adjustment has been made the clamping screw is again tightened. For an example of a device of this character reference may be had to United States Letters Patent No. 1,030,703, granted June 25, 1912 upon my application, disclosing an arrangement whereby a knife block is clamped to its support by a screw 18 which exerts clamping pressure through a horseshoe-shaped washer 22. The shape of the washer 22 enables it to be withdrawn laterally, whereupon the knife block may be readily removed for sharpening of the knife.

It is an object of the present invention to provide an improved device of the character under consideration. In accordance with a feature of the invention there is provided a clamping screw threaded into one of the parts to be clamped and passing through an opening in the other part, and a member bridging the opening to transmit clamping force from the screw, the bridging member serving in addition as a wrench for turning the screw. The bridging member thus combines the functions of wrench and washer, and it is slotted for lateral withdrawal to enable the tool carrier to be removed over the head of the clamping screw without removing the clamping screw. In the illustrated construction, a spring is interposed between the head of the screw and the bridging member. When the clamping pressure is released for adjustment of the carrier block this spring holds the carrier block with relatively light pressure against the support to keep the carrier block from falling from the support.

The invention further resides in features of construction and combinations and arrangements of parts hereinafter described and claimed, the advantages of which will be apparent to those skilled in the art from the following description.

The invention will be described with reference to the accompanying drawing, in which

Fig. 1 is a perspective view of a portion of a channeling machine embodying the improved device;

Fig. 2 is a sectional plan view taken through the axis of the clamping screw and showing the clamping screw loosened for adjustment of the knife block;

Fig. 3 is a view similar to Fig. 2 showing the clamping screw tightened for full clamping pressure;

Fig. 4 is a cross-sectional view of the hollow shank of the device for turning the clamping screw; and

Fig. 5 is a cross-sectional view of the head of the clamping screw.

In the illustrated device a channel knife carrier block 10 is secured with provision for vertical adjustment to a support 12 which may constitute the usual knife block carrier slide of a channeling machine. For a concrete example of such a support reference may be had to the member designated by the reference numeral 118 in United States Letters Patent No. 2,015,064, granted September 24, 1935 upon my application. The block 10 is provided with flanges 14 which slidably embrace the sides of the support 12 to enable the block to be adjusted vertically. Such adjustment is effected by a screw 16 threaded into the block 10 and having a head which is retained against vertical movement by engagement with a notch 18 formed in the support 12. To prevent undesired turning of the screw 16 a set screw 20 is provided.

Slidably mounted for adjustment in a horizontal guideway formed in the block 12 is a channel knife 22 which is clamped in its adjusted position by a pair of screws one of which is shown at 24 in Fig. 1.

The block 10 is clamped in its adjusted position by a device comprising a clamping screw 26 threaded into the support 12. The screw 26 passes loosely through a vertical slot 28 formed in the block 10. A portion of the shank of the clamping screw is squared off to provide flat faces 30 which enter into non-rotary engagement with a member which performs the functions of a wrench and also of a washer. This member in the illustrated machine has a disk-shaped end portion 32 which is connected by a hollow shank 34 to a knurled head or knob 36. The end 32 has formed in it a wrench-like slot 38 for non-rotary engagement with the faces 30. The slot 38 extends radially to the periphery of the disk to enable the member to be applied to and withdrawn from the screw by lateral movement. The peripheral opening of the slot 38 is beveled to facilitate the entrance of the shank of the screw, the beveled surfaces being indicated by the reference character 40. Upon the outer end of the screw 26 is a head 42 having a lower portion 43 of reduced diameter. The re-

duction of diameter in the head **42** provides an annular shoulder **44**. While the head **42** and the shank of the screw **26** should be separate pieces for purposes of construction, they are rigidly secured in any suitable way and may conveniently be regarded as integral. The portion of the shank of the screw **26** between the reduced portion **43** of the head and the squared portion **30** of the shank is cylindrical, and slidably mounted upon this cylindrical portion is a collar **46** having an extension **47** of reduced diameter. The reduction of the diameter of the collar **46** provides an annular shoulder **48**. Interposed between the shoulders **44** and **48** and surrounding the shank of the screw **26** is a coiled compression spring **50** which tends to urge the collar **46** into abutting engagement with the shoulder resulting from the junction of the squared-off portion of the shank with the cylindrical portion above mentioned.

The shank **34** of the turning device above mentioned is of sufficient length to enable the head **36** to clear the end of the screw **26** when the slot **38** engages the faces **30**. The device is applied laterally, as indicated by the arrows in Fig. 1, and the wall of the hollow shank **34** has a lateral opening **52** corresponding in position to the slot **38** but considerably wider than the slot **38** to accommodate the outer end of the screw including the head **42**, spring **44** and collar **46** when the device is being applied and withdrawn. The diameter of the central bore of the shank **34** is only slightly greater (to provide clearance) than the diameters of the head **42** and the collar **46**. The central bore of the shank **34** extends further down toward the end **32** than does the lateral opening **52** to provide a seat for the collar **46**. While the opening **52** is wide enough to admit the head **42** and the collar **46**, the slot **38** is of considerably less width than the diameters of these members. When, therefore, the collar **46** is seated in the bottom of the bore of the shank **34** it cannot be withdrawn laterally and the turning device is maintained in axial alinement with the screw **26**.

To replace the block **10** after the knife **22** has been sharpened the block is placed in a position indicated in the drawing and the turning device is applied laterally to bring the slot **38** into wrench-like engagement with the faces **30**. The knob **36** is then turned to tighten the screw **26** until the end shoulders of the reduced extensions **43** and **47** come into engagement, as shown in Fig. 3, to transmit positively the clamping force of the screw through the disk **32** against the block **10**. When the block **10** is to be adjusted vertically upon the support **12** the knob **36** is turned to loosen the screw **26** until the reduced extension **43** of the head no longer abuts the reduced extension **47** of the collar, as shown in Fig. 2. The spring **50** will then hold the block **10** against the support **12** with a pressure which is considerably less than full clamping pressure but which is sufficient to keep the block **10** in engagement with the support **12** while the adjustment is effected.

It will be noted that when the screw **26** is turned to full clamping position, as shown in Fig. 3, or to the position shown in Fig. 2, the pressure of the spring **50** holds the collar **46** seated within the bottom of the bore of the shank **34**, and the turning device cannot be withdrawn. To remove the turning device, the screw **26** must be turned until the shoulders of the squared off faces **30** engage the collar **46** and carry the collar **46** far enough up the bore of the shank **34** to enable the collar to emerge through the opening **52**. The turning device and then the channel knife block can thereafter readily be removed while leaving the clamping screw in position, the slot **28** being wide enough to pass over the collar **46** and the head **42**. After the knife block has been replaced, the operator, in applying the turning member, may give the turning member a slight outward pull to cause the collar **46** to seat within the bottom of the bore. After a few turns of the knob **36**, the screw **26** will have advanced far enough to bring the collar **46** below the opening **52**. The turning device will then be maintained in axial alinement with the screw and will be held against lateral withdrawal.

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

1. In a sole fitting machine, a support, a tool carrier slidably mounted for adjustment on said support, a clamping screw threaded into one of said parts and extending through an opening in the other part, and a member bridging the opening through which said screw passes to transmit force from the screw to one of the parts to clamp that part against the other part, said member and said screw being constructed and arranged for non-rotary engagement to enable said member to serve as a wrench for turning said screw.

2. In a sole fitting machine, a support, a tool carrier slidably mounted for adjustment on said support, a clamping screw threaded into said support and passing through a slot in said carrier, and a member embracing said screw for non-rotary engagement therewith and bridging said opening to transmit force from the screw to clamp said carrier against said support, said member serving as a wrench for turning said screw and being constructed and arranged for lateral withdrawal from said screw to release said carrier.

3. In a sole fitting machine, a support, a tool carrier slidably mounted for adjustment on said support, a clamping screw threaded into said support and passing through an opening in said carrier, a member bridging said opening and embracing said screw for transmitting force from said screw to press said carrier against said support, and a coil spring surrounding said screw and interposed between the head of said screw and said member thereby yieldingly transmitting force from said screw to said member, said member being constructed and arranged for lateral withdrawal from said screw to release said carrier.

4. A clamping device comprising a screw having a shank threaded at one end for engagement with one of the articles to be clamped and having a shoulder adjacent to its other end, a portion of said shank having flat bearing surfaces, a member having non-rotary engagement with said bearing surfaces, said member being slotted for lateral withdrawal from said shank and having a portion constructed and arranged to facilitate the application of turning forces for tightening or loosening said screw, and resilient means interposed between said shoulder and said member for exerting pressure through said member to urge the other article which is to be clamped against the first-mentioned article.

5. In a sole fitting machine, a support, a tool carrier slidably mounted for adjustment on said support, a clamping screw threaded into said support, said clamping screw having a head and a shank and said tool carrier having a slot through which said clamping screw passes, a member adapted to bridge said slot and to enter

into non-rotary engagement with the shank of said screw for turning said screw, the portion of the shank engaged by said turning member being square, a collar slidably mounted on said shank between the head of said screw and said square portion of the shank, and a coil spring surrounding said shank and interposed between said head and said slidable collar, said spring operating to hold said tool carrier yieldingly in engagement with said support when said clamping screw has been loosened for adjustment of said tool carrier, the head of said screw being constructed and arranged to engage said slidable collar and to exert positive pressure through said collar and said turning member to clamp said tool carrier against said support upon tightening of said clamping screw.

6. A clamping device by which the tool carrier of a sole fitting machine may be secured to a supporting member of the machine, comprising a clamping screw passing through a slot in the tool carrier and being threaded for engagement with the supporting member, said clamping screw having a head and a squared shank, a member adapted to bridge said slot and to enter into non-rotary engagement with the squared shank of said screw for turning said screw, and means interposed between the head of said screw and said turning member for transmitting a clamping pressure through said turning member against said tool carrier, said turning member being constructed and arranged for ready withdrawal from said clamping screw to enable said tool carrier to be removed from said support without interference from said screw.

7. In a sole fitting machine, a support, a tool carrier slidable for adjustment on said support, a clamping screw threaded into said support and passing loosely through a slot in said tool carrier, said clamping screw having flat faces formed on its shank, a member bridging the slot in said tool carrier and having non-rotary engagement with the flat faces of said screw for turning the screw, said turning member being constructed and arranged for lateral withdrawal from said screw to enable the tool carrier to be removed from the support, and resilient means for transmitting force from said screw to said turning member to press said tool carrier against said support.

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