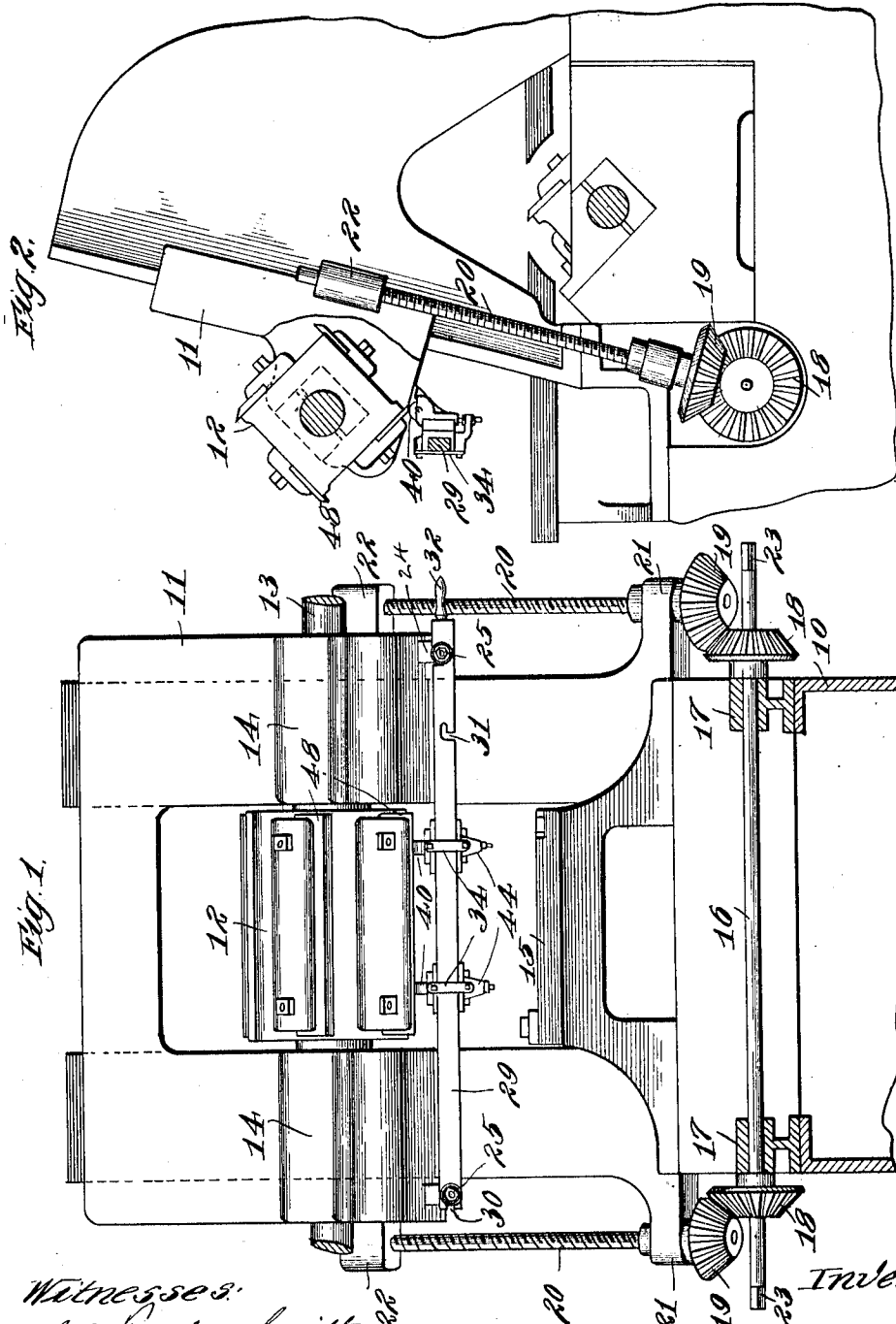


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 PLANER KNIFE ADJUSTING MECHANISM.  
 APPLICATION FILED SEPT. 18, 1908.

1,020,416.

Patented Mar. 19, 1912.

2 SHEETS—SHEET 1.



Witnesses:

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*Walter M. Fuller*

Inventor:

*William Harper*

*By Alfred Towle & Luthicum*

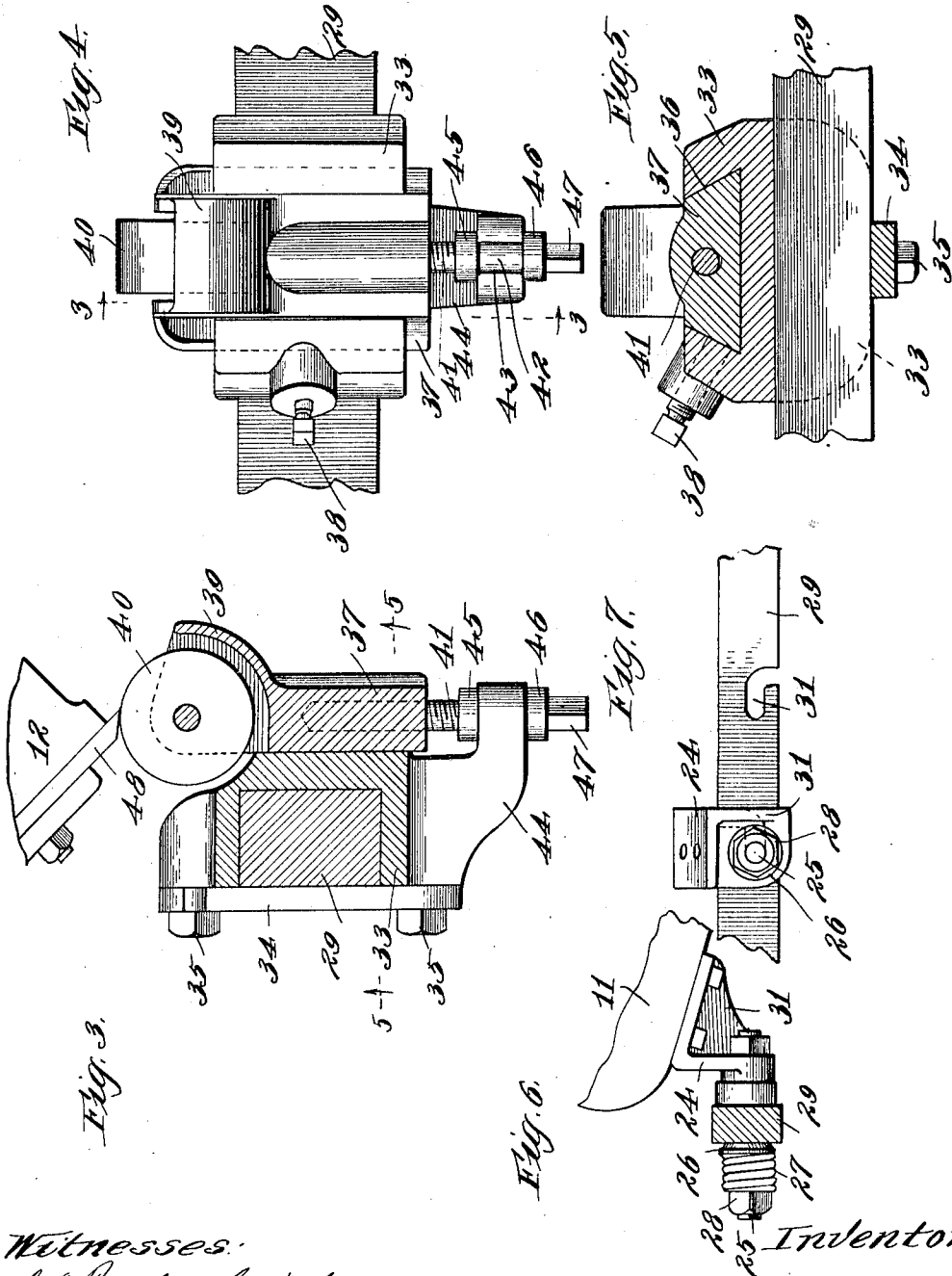
*Attys.*

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Witnesses:  
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# UNITED STATES PATENT OFFICE.

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## PLANER-KNIFE-ADJUSTING MECHANISM.

1,020,416.

Specification of Letters Patent.

Patented Mar. 19, 1912.

Application filed September 18, 1908. Serial No. 453,626.

*To all whom it may concern:*

Be it known that I, WILLIAM HARPER, a citizen of the United States, residing at Beloit, in the county of Rock and State of Wisconsin, have invented certain new and useful Improvements in Planer-Knife-Adjusting Mechanisms, of which the following is a specification.

It has been proposed heretofore to adjust the knives of a planer-cylinder so that their edges will be in proper position by first loosely holding the knives on the cylinder and then pushing them back to position by means of rollers suitably supported on the cylinder shaft, either the cylinder or the rollers being rotated about the axis of the shaft. It is true that by this means the edges of the knives may be brought parallel to the axis of the cylinder-shaft, but such adjustment does not insure that the lumber planed by the machine will be of uniform thickness, because if one bearing of the shaft becomes worn more than the other, as it is quite likely to do, the shaft will lose its parallelism with the platen of the planer, and the knife-edges will also be thrown out of proper position.

It is to overcome the defects of such devices and to provide for the production of lumber of uniform thickness throughout that I have invented the novel device and arrangement of parts hereinafter described in detail. Accordingly, and with this purpose in view, I provide the frame of the planer, such as the vertically-adjustable yoke supporting the upper planer-head, with a pair of fixed studs or other supports, and on this I detachably mount a transverse supporting-bar, on which is slidably adjustable a pair of bearings or blocks each equipped with a knife-adjusting roller. As in the previous instance, the knives on the planer-cylinder are loosely held thereon with their edges farther from the axis of the shaft than is intended when the knives are in final or adjusted position. The rollers are placed on the supporting-bar so as to engage the knife-edges near their opposite ends, it being understood that the studs or posts supporting the bar maintain the same in exactly parallel relation to the planer-platen. Then, as the cylinder and knives are revolved, the rollers act to push the knives inwardly with all their edges exactly parallel to and at equal distances from the platen

when in cutting or planing position. Then the bolts or other knife-securing means are tightened without disturbing the positions of the knives. By my improved means it matters not whether the cylinder-shaft is parallel to the platen, the rollers positioning the knives correctly regardless of an improper or defective disposition of the shaft.

On the accompanying drawings, which form a part of this specification, and to which reference should be made in connection with the following description, I have illustrated a preferred and desirable embodiment of this invention, like reference characters referring to the same parts throughout all the views.

On these drawings,—Figure 1 is a fragmentary vertical section through a planer of the ordinary construction, illustrating the attachment of my improved knife-adjusting means thereto; Fig. 2 is a fragmentary side elevation, partly in section and partly broken away, of the construction shown in Fig. 1; Fig. 3 is a section on line 3—3 of Fig. 4, also illustrating a portion of the planer-head; Fig. 4 is a face view of one of the adjustable blocks and its roller, showing also a part of the supporting-bar; Fig. 5 is a horizontal section on line 5—5 of Fig. 3; Fig. 6 illustrates a portion of the yoke of the planer, showing one of the supporting studs or posts mounted thereon; and Fig. 7 is a rear view of one of these supporting posts, illustrating the coöperation of the roller-supporting bar therewith.

The planer has the usual supporting frame or base 10, on which and vertically adjustable is a yoke 11 carrying the upper planer-head or cylinder 12, the shaft 13 of which is rotatable in bearings 14, 14. This yoke is vertically adjustable in parallel relation with the base 10 and its platen 15, by means of a transverse shaft 16 rotatable in bearings 17 on the lower frame or base 10, and equipped outside of the frame at both ends with beveled pinions 18 meshing with similar gears 19 on the lower ends of screws 20 rotatable in bearings 21 and having threaded connections at their upper ends with the lateral or side extensions or ears 22. To enable this adjusting shaft 16 to be turned, I make its ends 23 angular in cross-section and adapted to receive a wrench, whereby it may be turned.

At each side of the machine on the under

surface of the yoke 11, I attach, by means of bolts, screws or otherwise, a supporting bracket 24, Figs. 1 and 6, having an outstanding stud 25, a sliding washer 26  
 5 pressed toward the bracket 24 by a coiled spring 27, the action of this spring being regulated by an adjustable nut 28 bearing against its outer end. These two studs are at equal distances above the top plane horizontal surface of the platen 15, and are  
 10 adapted to support a roller-supporting bar 29 notched at 30 at one end to pass over one of the studs 25, and having one or more right-angle notches 31 near its other end, one of which depending upon the spacing  
 15 of the studs 25 is intended to cooperate with the other stud 25 in supporting the bar. To facilitate the application of this bar to and its removal from the pair of supporting  
 20 studs or posts 25, I provide one end with a handle 32, it being understood that one of the notches 31 is first applied to one of the studs 25, after which the whole bar can be slid lengthwise, so that the other stud 25  
 25 will be received in the end slot 30, whereby these outstanding studs or posts operate to sustain this roller-supporting bar 29 in exactly parallel relation with the surface of the horizontal platen 15. Slidingly  
 30 mounted on this bar are a pair of blocks or members 33 recessed to accommodate the bar, and each held thereon by a vertical strap or smaller bar 34 bolted or otherwise secured at 35—35 to the main block or member  
 35 33. This block or member has on its face a vertical under-cut groove 36, Fig. 5, which has slidable therein a roller support or block 37 maintained in adjusted position by a set-screw 38 passing through a boss on  
 40 the block 33 and bearing against the member 37. At its upper end, each of these blocks 37 has a housing or casing 39 partially surrounding a roller 40 rotatably supported therein, the block or member 37 being adjustable by means of a screw 41 having  
 45 threaded connection therewith and having a bearing at 42 in a slot or recess 43 provided in the end of a depending bracket-arm 44 on the under surface of the sliding  
 50 block 33. To prevent lengthwise shifting of this screw or threaded shaft 41 in this bearing or recess 43, I provide the screw with integral collars 45 and 46 disposed above and below the bearing, respectively,  
 55 while the lower end of the screw or shaft 41 is squared at 47 for the application of a wrench. It should be obvious, therefore, that by loosening the set-screw 38 and turning the screw or threaded shaft 41, the block  
 60 or member 37 carrying the roller may be slidingly adjusted in the block or support 33, the adjustment being effectively maintained by again tightening the set or locking screw 38.  
 65 To properly adjust and position the

knives 48 of the planer-head or cylinder 12, the knives are pushed outwardly on the cylinder-head farther than they are intended to be when in adjusted or final position, the knives being loosely held in these temporary  
 70 or preliminary positions by the usual adjusting means. The bar 29 is applied or mounted on the studs 25 in the manner described above, and the blocks 33 slidable thereon are slid into such position that the  
 75 rollers 40 will be near the ends of the knives on the planer-cylinder. After the rollers have been adjusted, if they require such adjustment, the planer-head is turned, its shaft revolving in its bearings 14 so as to bring the edges of the knives successively  
 80 into engagement with the pair of rollers 40, which act to push or force the knives back until the edges of all of them are at exactly the same distance from the platen and in  
 85 parallel relation to the top surface of the platen, after which the bar 29 and its rollers may be readily removed. While this bar is on the studs or posts 25, it is held securely and firmly in position by the washers 26  
 90 pressed against the same by the expansion springs 27, as will be readily understood.

It should be apparent from this description and illustration, that by my improved means the planer-knives are properly positioned in exact parallelism with the platen,  
 95 when in cutting or planing position, regardless of the worn condition of the boxes containing the cylinder-shaft or the possibly inclined relation of such shaft to the platen,  
 100 whereby boards or lumber of uniform thickness may be readily produced under all conditions of working.

Whereas I have shown and described this knife-adjusting mechanism as applicable to  
 105 and operative upon the knives of an upper planer-cylinder, it is to be understood that the same can be used in connection with the lower cylinder-head, the method of operation being substantially the same in both  
 110 cases.

This invention is not limited to the exact details of construction set forth, because these can be modified and changed to a considerable degree and within wide limits  
 115 without departure from the substance of my invention, which is set forth in the appended claims.

I claim—

1. In a planer, the combination of a  
 120 platen, a cylinder equipped with knives, a pair of rollers, means for detachably mounting said rollers on the frame of the planer near opposite ends of the knives of  
 125 the cylinder in a plane parallel with the planer-platen, said rollers adapted when the cylinder is rotated to engage the edges of the loosely held knives while in planing position and force them back into position, whereby the edges of all the knives when in  
 130

planing position will be at the same distance from the planer-platen, substantially as described.

2. In a planer, the combination of a  
5 platen, a cylinder equipped with knives, and a pair of rollers, supports therefor mounted on the frame of the planer near opposite ends of the knives of the cylinder, said rollers being adjustable toward and from  
10 said knives parallel with the plane of the platen, and adapted when the cylinder-head is rotated to engage the edges of the loosely-held knives while in planing position and force them back into position  
15 whereby the edges of all the knives when in planing position will be at the same distance from the planer-platen, substantially as described.

3. In a planer, the combination of a  
20 platen, a cylinder equipped with knives, a pair of studs connected to the frame of the planer, a bar detachably mounted on said studs, and a pair of rollers mounted on said bar in a plane parallel with the plane of the  
25 platen and adapted when the cylinder is rotated to engage the edges of the loosely-held knives near their opposite ends when the knives are in planing position and force them back into position, whereby the edges  
30 of all the knives while in planing position will be at the same distance from the planer-platen, substantially as described.

4. In a planer, the combination of a  
35 platen, a cylinder equipped with knives, a pair of studs connected to the frame of the planer, a bar detachably mounted on said studs, a pair of brackets slidable on said bar, and a roller mounted on each of said  
40 brackets, said rollers being disposed in a plane parallel with the plane of the platen and adapted when the cylinder is rotated to engage the edges of the loosely-held knives near their opposite ends when the knives  
45 are in planing position and force them back into position whereby lumber of uniform thickness may be produced, substantially as described.

5. The combination of a planer, its platen, and cylinder equipped with knives, a pair  
50 of studs connected to the frame of the planer, a supporting bar detachably mounted on said studs, a pair of brackets slidable on said bar, a roller on each of said brackets and adjustable toward and from the cyl-  
55 nder, and a screw to adjust each of said rollers into operative position in a plane parallel with the plane of the platen, the rollers being adapted when the cylinder is rotated to engage the edges of the loosely-held knives near their opposite ends when the knives are in planing position and force  
60 them back into position whereby lumber of uniform thickness may be produced, substantially as described.

65 6. The combination of a planer having a

platen, a cylinder-support adjustable toward and from said platen, a rotatable planer-cylinder equipped with knives mounted on and adjustable with said support, and one or more rollers mounted on said  
70 cylinder-support in a plane parallel with the plane of the platen, and adapted when the cylinder is rotated to engage the edges of the loosely-held knives while in planing position and force them back into position  
75 whereby lumber of uniform thickness may be produced, substantially as described.

7. The combination of a planer having a platen, a cylinder-support adjustable toward and from said platen at right angles  
80 thereto, a rotatable planer-cylinder equipped with knives mounted on and adjustable with said support, and a pair of rollers mounted on said cylinder-support near opposite ends of the knives of the cylinder in  
85 a plane parallel with the plane of the platen, and adapted when the cylinder is rotated to engage the edges of the loosely-held knives while in planing position and force them  
90 back into position whereby lumber of uniform thickness may be produced, substantially as described.

8. The combination of a planer having a platen, a cylinder-support adjustable toward and from said platen, a rotatable  
95 planer-cylinder equipped with knives mounted on and adjustable with said cylinder-support, and a pair of rollers mounted on said cylinder-support in a plane parallel with the platen and adjustable toward and  
100 from said knives, said rollers being adapted when the cylinder is rotated to engage the edges of the loosely-held knives while in planing position and force them back into position whereby lumber of uniform thick-  
105 ness may be produced, substantially as described.

9. The combination of a planer having a platen, a cylinder-support adjustable toward and from said platen, a rotatable  
110 planer-cylinder equipped with knives mounted on and adjustable with said support, a pair of studs on said cylinder-support, a bar detachably mounted on said studs, and a pair of rollers mounted on said bar in a  
115 plane parallel with the platen, and adapted when the cylinder is rotated to engage the edges of the loosely-held knives while in planing position and force them back into position whereby lumber of uniform thick-  
120 ness may be produced, substantially as described.

10. The combination of a planer having a platen, a cylinder support adjustable toward and from said platen, a rotatable cyl-  
125 nder equipped with knives mounted on and adjustable with said support, a pair of studs on said cylinder support, a bar detachably mounted on said studs, a pair of brackets slidable on said bar, a roller on each of said  
130

brackets, and means to adjust each of said  
rollers relatively to its bracket and toward  
and from said knives so that said rollers  
upon rotation of the cylinder will engage  
5 the edges of the loosely held knives while in  
planing position and force said knives back  
into position whereby lumber of uniform

thickness may be produced, substantially as  
described.

WILLIAM HARPER.

Witnesses:

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

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