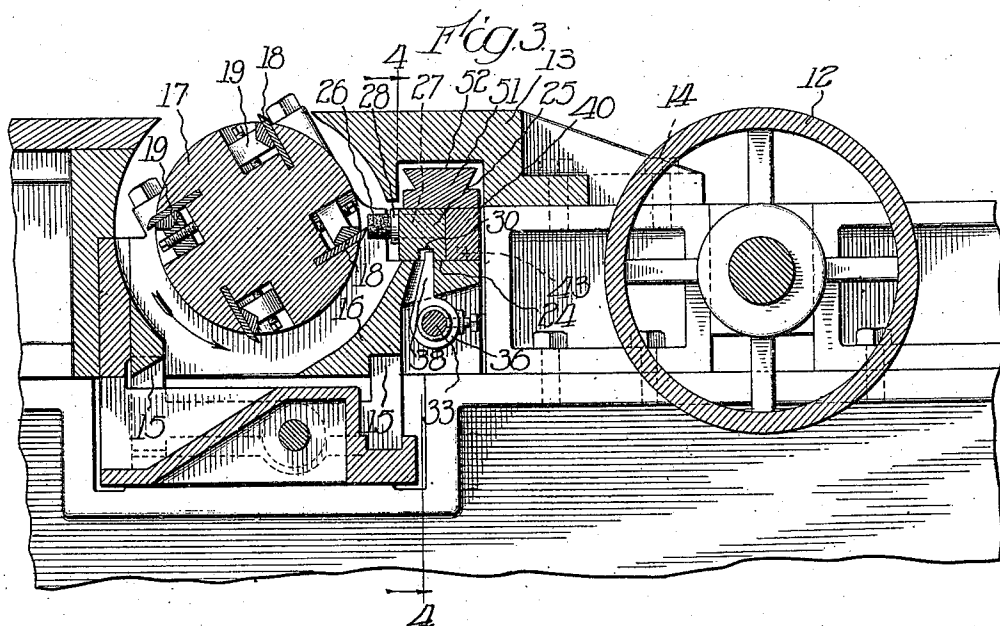
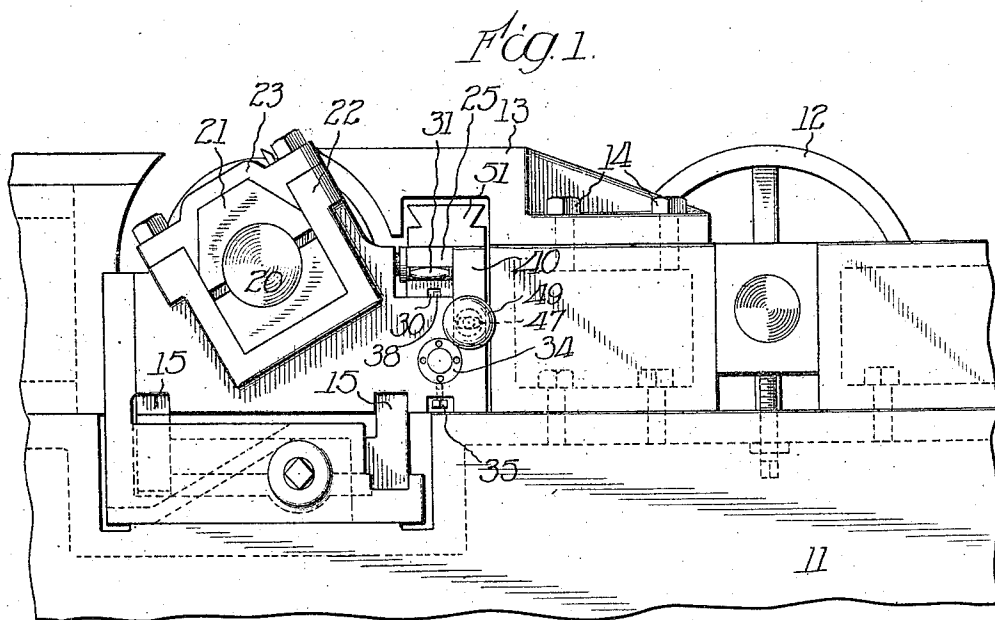


H. J. MITCHELL.
GRINDING AND JOINTING APPLIANCE FOR PLANERS.
APPLICATION FILED APR. 8, 1910.

987,478.

Patented Mar. 21, 1911.

3 SHEETS—SHEET 1.



Witnesses:
Robert H. Weir
Henry M. Schuyler.

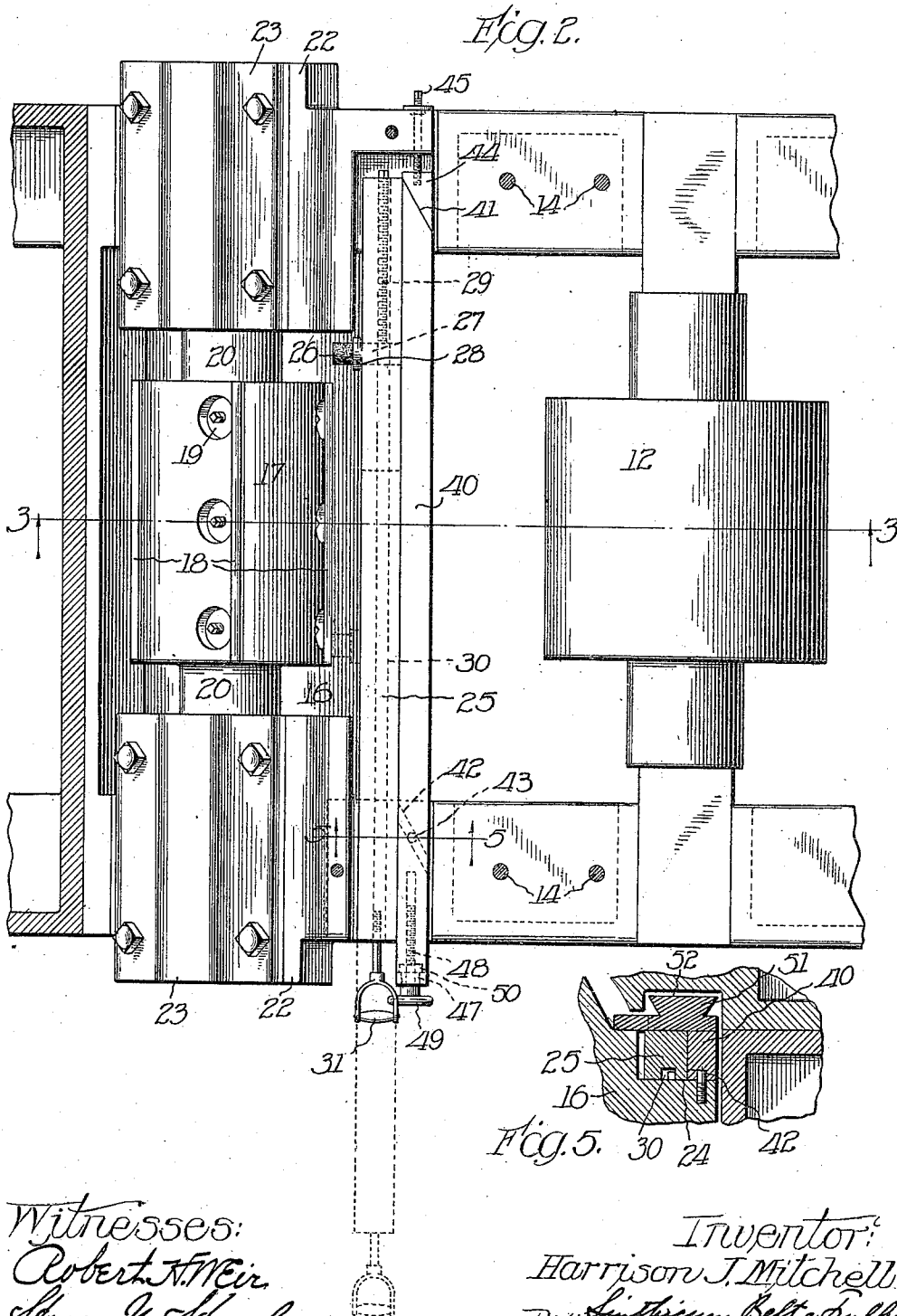
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3 SHEETS—SHEET 2.



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3 SHEETS—SHEET 3.

Fig. 4.

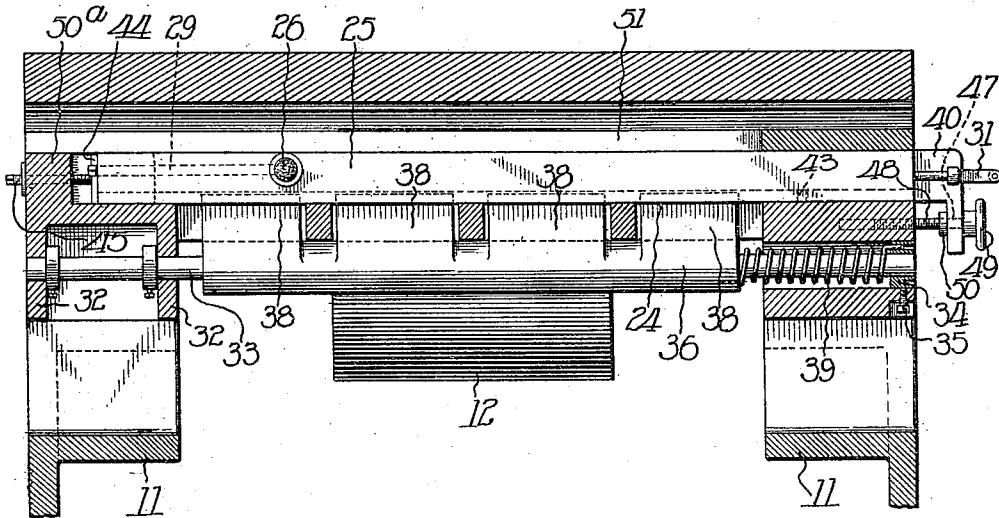


Fig. 6.

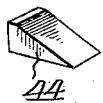
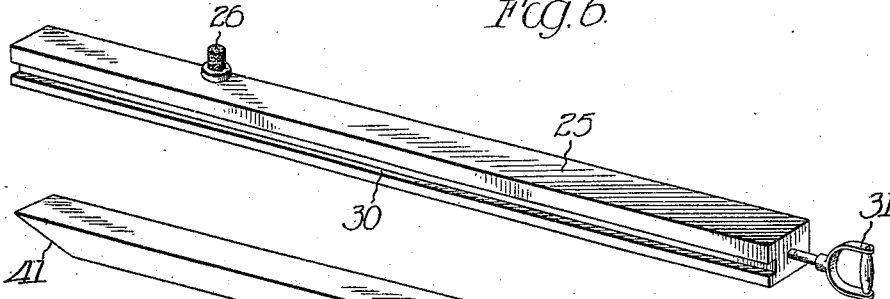


Fig. 8.

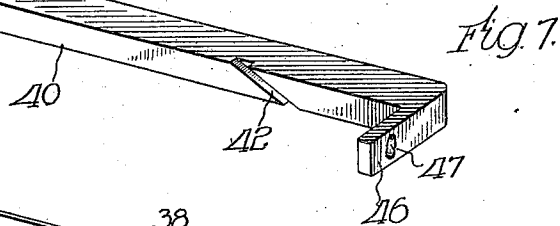
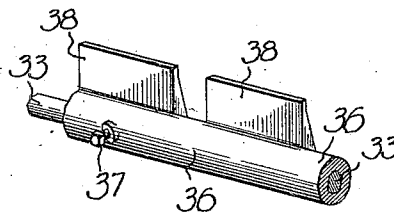


Fig. 9.



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UNITED STATES PATENT OFFICE.

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GRINDING AND JOINTING APPLIANCE FOR PLANERS.

987,478.

Specification of Letters Patent.

Patented Mar. 21, 1911.

Application filed April 8, 1910. Serial No. 554,143.

To all whom it may concern:

Be it known that I, HARRISON J. MITCHELL, 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 Grinding and Jointing Appliances for Planers, of which the following is a specification.

My invention relates to grinding and jointing appliances for planers, and has particular reference to the mechanism which is employed for the purpose of adjusting the grinding and jointing means.

In the type of planer in which a plurality of knives are used in connection with the planer-head, it is very necessary that the edges of these knives should be at an exactly equal distance from the axis of rotation of the planer-head, otherwise, when a board or other similar object to be planed is passed over the platen and the knives of the planer-head come in contact with the board, the different knives would cause cuts of unequal depth to be made in the surface of the board. In order to overcome this difficulty it is customary to employ a so-called jointing device, which has abrading material with which the edges of the knives successively come in contact. When this operation is performed the planer-head is rotating at a high rate of speed under what are practically working conditions. As the edges of the different knives come in contact with the abrading material of the jointing device, it will be clear that they will be ground in such manner that the edges of all the knives are at exactly the same distance from the axis of rotation.

It is one of the objects of my invention to provide a jointing device which is permanently mounted on the framework of the machine and which may readily be moved into operative position as desired.

The carrier for the abrading material consists in a rod which, by suitable spring means, is held in contact with a guide bar. This guide bar is beveled on one end, and is also provided with an oblique groove which is parallel to the beveled end. By moving the guide bar in a longitudinal direction, it will be evident that the abrasive carrier of the jointing device will be moved toward or away from the planer-head, as the case may be. When it is desired to perform the operation of jointing the knives, the abra-

sive carrier is moved in a direction parallel to the axis of rotation of the planer-head, and each of the knives is thereby jointed, the longitudinal movement of the carrier being continued until the entire length of each knife has been subjected to the jointing action. When it is desired to sharpen the knives which are mounted on the planer-head, I provide means by which the entire planer-head with its bearings may be moved in a direction corresponding to the axis of the planer-head, out of its normal position. A dovetailed bar is mounted on the portion of the framework which is movable with the planer-head, and on this bar the sharpening device or grinding wheel may be mounted. When the planer-head is moved back into its normal position, the dovetailed bar fits in a suitable recess in the under side of the platen, so that it is entirely out of the way and concealed from view.

These and other advantages of my invention will be more readily understood by reference to the accompanying drawings, which show a preferred embodiment of my improvements, and in which—

Figure 1 is a side elevation of a portion of a planer in which my improvements are used; Fig. 2 is a plan view of the parts shown in Fig. 1, certain of the parts on the upper portion of the machine being removed in order to show the underlying parts more clearly; Fig. 3 is a longitudinal, vertical section on the line 3—3 of Fig. 2, the parts which were removed in Fig. 2 being shown in Fig. 3; Fig. 4 is a vertical transverse section on the line 4—4 of Fig. 3; Fig. 5 is an enlarged, longitudinal, vertical section on the line 5—5 of Fig. 2; Fig. 6 is a perspective view of the abrasive carrier; Fig. 7 is a perspective view of the guide bar associated with the abrasive carrier; Fig. 8 is a perspective view of the end block associated with the guide bar shown in Fig. 7; and Fig. 9 is a fragmentary perspective view of the mechanism used for holding the abrasive carrier in contact with the guide bar.

Suitably mounted on the main framework of the planer is the guide roll 12, over which a board which is to be planed passes before it reaches the platen 13, which is also attached to the framework 11 by means of bolts 14. The guides 15, 15 are mounted on

the main framework 11, and on these guides the planer-head frame 16 is adapted to be moved in a direction corresponding with the main axis of the planer-head 17. A plurality of knives 18 are mounted in the planer-head 17, being held in position by means of suitable fastening devices 19. The planer-head 17 is provided on each end with a journal 20, which is adapted to rotate within the journal boxes 21, 21, which are in turn held in position by the bearing support 22 co-operating with the cap member 23.

As most clearly shown in Fig. 3, the planer-head frame is provided, at a plane slightly below the axis of the planer-head, with a horizontal surface 24. Adapted to move in a direction parallel to the main axis of the planer-head and mounted on the surface 24 is the abrasive carrier 25, on which is mounted the abrasive material 26, which is secured to the pin 27 adapted to be inserted in a suitable opening in the side of the carrier 25. This pin 27 is provided with a suitable collar 28. The pin 27 is securely held in position by means of the set screw 29, which passes through the end of the carrier 25. As most clearly shown in Figs. 3 and 6, a groove 30 runs longitudinally throughout the entire length of the carrier, on the bottom thereof. The carrier 25 is provided with a handle 31, by means of which it may be moved as desired in a direction parallel to the axis of the planer-head.

Loosely mounted at one end in the downwardly projecting walls 32, 32 of the planer-head frame 16 is the shaft 33, this shaft being loosely mounted on its opposite end in the bearing 34, which is held in position in the frame 16 by means of the set screw 35. Rigidly mounted on the shaft 33 is the sleeve 36, held in position by set screws 37. This sleeve has upward projections 38, which engage within the groove 30 in the bottom of the abrasive carrier 25. A torsion spring 39 is fastened on one end to the bearing 34, and on its other end to the sleeve 36, thereby causing the projections 38 to exert pressure against the abrasive carrier 25 in such manner that this carrier tends to be moved in a direction away from the planer-head 17.

Also mounted on the horizontal surface 24 is the guide bar 40, which has the beveled end 41. The under surface of the guide bar 40 is provided with the groove 42, which is parallel with the beveled end 41 and engages a pin 43 which is rigidly mounted on the surface 24. A guide block 44 is movably mounted on the planer-head frame 16, and may be adjusted by means of the set screw 45. The beveled surface of this guide block is adapted to engage the end 41 of the guide bar 40. The opposite end of the guide bar 40 is provided with a downwardly

extending portion 46, in which is the slot 47. A screw 48 engages a suitably threaded hole in the planer-head frame 16, and between its head 49 and the collar 50 engages the downward extension 46 of the guide bar 40. It will now be apparent that as the screw 48 is rotated by means of its head 49, pressure will be exerted on the extension 46 of the guide bar 40, and this guide bar will thereby be moved in a direction parallel to the main axis of the planer head. Simultaneously, however, with this longitudinal movement, there will be a secondary movement caused by the action of the pin 43 within the groove 42 and the guide block 44 acting on the end of the guide bar 40, which will cause this guide bar to be moved either toward or away from the planer-head 17, as the case may be.

Extending over the abrasive carrier 25 and the guide bar 40, and rigidly mounted on the portion 50^a of the planer-head frame 16, is the dovetailed bar 51, on which a suitable grinding or sharpening wheel may be mounted.

Having thus described the construction of my device, its operation may now be readily understood. When it is desired to joint the knives 18 of the planer-head 17, the planer-head is rapidly rotated and the abrasive material 26 is moved toward or away from the planer-head into the desired position by means of rotating the screw 48. When the desired position is reached, the abrasive material 26 may be moved in a direction parallel with the axis of rotation of the planer-head 17 by means of the handle 31. The edges of the knives 18 successively coming in contact with the abrasive material 26, these edges will be ground or worn to such an extent that all of them will be at exactly the same distance from the axis of rotation of the planer-head. When the knives are jointed to the desired extent, the abrasive carrier 25 is moved into the position shown in full lines in Fig. 2, and is thus out of the way of the planer-head 17. According to my construction, it will be apparent that the jointing action may be very easily performed at any time, even when the planing operation is progressing. Now, when it is desired to sharpen the knives on the planer-head 17, the planer-head frame 16 may be grasped at any convenient point and moved bodily in a direction corresponding to the main axis of the planer-head into a position in which the planer-head 17 will be outside of the main framework 11 of the planer. The direction in which this movement is made will be toward the side of the planer on which the handle 31 and the screw-head 49 are located. After the mechanism having the sharpening or grinding wheel has been attached to the dovetailed bar 51, the sharpening operation

is performed, and the sharpening device then being removed, the planer-head may be returned to its normal position within the planer, the dovetailed bar 50 occupying its position within the recess 52 of the platen 13.

It will be evident that many changes may be made in the exact construction of the mechanism which I have described without departing from the spirit of my invention.

What I claim as new and desire to cover by United States Letters Patent is:

1. In a planer, the combination of a planer-head having a plurality of knives mounted thereon, an abrasive carrier movable in a direction parallel to the axis of the planer-head, a guide bar, resilient means for holding the abrasive carrier in contact with said guide bar, and means for moving said guide bar in a direction perpendicular to the axis of rotation of said planer-head, substantially as described.

2. In a planer, the combination of a planer-head having a plurality of knives mounted thereon, an abrasive carrier movable in a direction parallel to the axis of the planer-head, a guide bar engaged by said abrasive carrier, means for resiliently pressing said abrasive carrier against said guide bar, and means for moving said guide bar toward the planer-head, thereby moving the abrasive carrier into the path of the knives on the planer-head, substantially as described.

3. In a planer, the combination of a planer-head having a plurality of knives mounted thereon, an abrasive carrier movable in a direction parallel to the axis of said planer-head, a guide bar parallel to said abrasive carrier, means for resiliently pressing said abrasive carrier against said guide bar, and screw means for moving said guide bar toward the planer-head, thereby moving the abrasive on said abrasive carrier into the path of the knives on the planer-head, substantially as described.

4. In a planer, the combination of a planer-head having a plurality of knives mounted thereon, a member movable in a direction parallel to the axis of the planer-head and carrying an abrasive thereon, a guide bar parallel to said abrasive carrying member, said guide bar having an oblique groove therein, a pin mounted on the planer and engaging said groove, and means for moving said guide bar in a direction parallel to the axis of the planer-head, said pin thereby simultaneously forcing the guide bar in a direction perpendicular to the axis of the planer-head, substantially as described.

5. In a planer, the combination of a planer-head having a plurality of knives mounted thereon, a member movable in a direction parallel to the axis of the planer-

head and carrying an abrasive thereon, a guide bar parallel to said abrasive carrying member, said guide bar having an oblique groove therein and an oblique end parallel to said groove, an end block having an oblique surface engaging the corresponding end of said guide bar, a pin mounted on the planer and engaging the oblique groove in the guide bar, and means for moving said guide bar in a direction parallel to the axis of rotation of the planer-head, thereby simultaneously causing the guide bar to be moved in a direction perpendicular to the planer-head, substantially as described.

6. In a planer, the combination of a planer-head having a plurality of knives mounted thereon, an abrasive carrier movable in a direction parallel to the axis of the planer-head, a guide bar parallel to said abrasive carrier, said guide bar having an oblique groove therein, a pin mounted on said planer and engaging said groove, resilient means for holding said abrasive carrier in contact with said guide bar, and means for moving said guide bar in a direction parallel to the axis of said planer-head, the pin engaging said grooves simultaneously causing the guide bar to be moved in a direction perpendicular to the planer-head, substantially as described.

7. In a planer, the combination of a planer-head having a plurality of knives mounted thereon, an abrasive carrier movable in a direction parallel to the axis of said planer-head, a guide bar parallel to said abrasive carrier, said guide bar having an oblique groove on its lower surface and having an oblique end parallel to said groove, a pin mounted on the planer and engaging said groove, an end block mounted on the planer and having an oblique surface engaging the end of said guide bar, means for resiliently retaining the abrasive carrier in contact with the guide bar, and screw means for moving said guide bar in a direction parallel to the axis of said planer-head, the pin and end block serving to simultaneously move the guide bar toward the planer-head, thereby simultaneously moving the abrasive carrier toward the planer-head, substantially as described.

8. In a planer, the combination of a planer-head, a transversely movable planer-head frame mounted on the planer, a platen mounted on the planer and having a recess therein, and a sharpener holding member mounted on the planer-head frame and contained within the recess in said platen when the planer-head is in its normal position, substantially as described.

9. In a planer, the combination of a main supporting frame, a transversely movable planer-head frame mounted on said main frame, a rotatable planer-head carried by said planer-head frame, a platen mounted on

said main frame, said platen having a transverse recess on its under side, and a sharpener carrying member mounted on the planer-head frame and contained within the recess
5 in said platen when the planer-head frame is in its normal position, said sharpener carrying member adapted to have a sharpener mounted thereon when the planer-head frame is moved transversely, thereby removing said
10 sharpener carrying member from the recess in said platen, substantially as described.

10. In a planer, the combination of a main supporting frame, a planer-head frame transversely movable on said main frame, a
15 rotatable planer-head carried on said planer-head frame, jointing means mounted on said planer-head frame, a sharpener carrying

member rigidly mounted on said planer-head frame and associated with said jointing means, and a platen mounted on the
20 main planer-frame, said platen having a recess adapted to contain the sharpener carrying member when the planer-head frame is in its normal position, said sharpener carrying member adapted to have a sharpener
25 mounted thereon when the planer-head frame is moved transversely to the side of the main planer-frame, substantially as described.

HARRISON J. MITCHELL.

Witnesses:

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L. A. ROSS.

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