W. H. KAHLE & M. HIMMELREICH.

GRINDER FOR WOOD PLANER KNIVES.

APPLICATION FILED MAR. 9, 1908.

900,284. Patented Oct. 6, 1908.

2 SHEETS—SHEET 1.

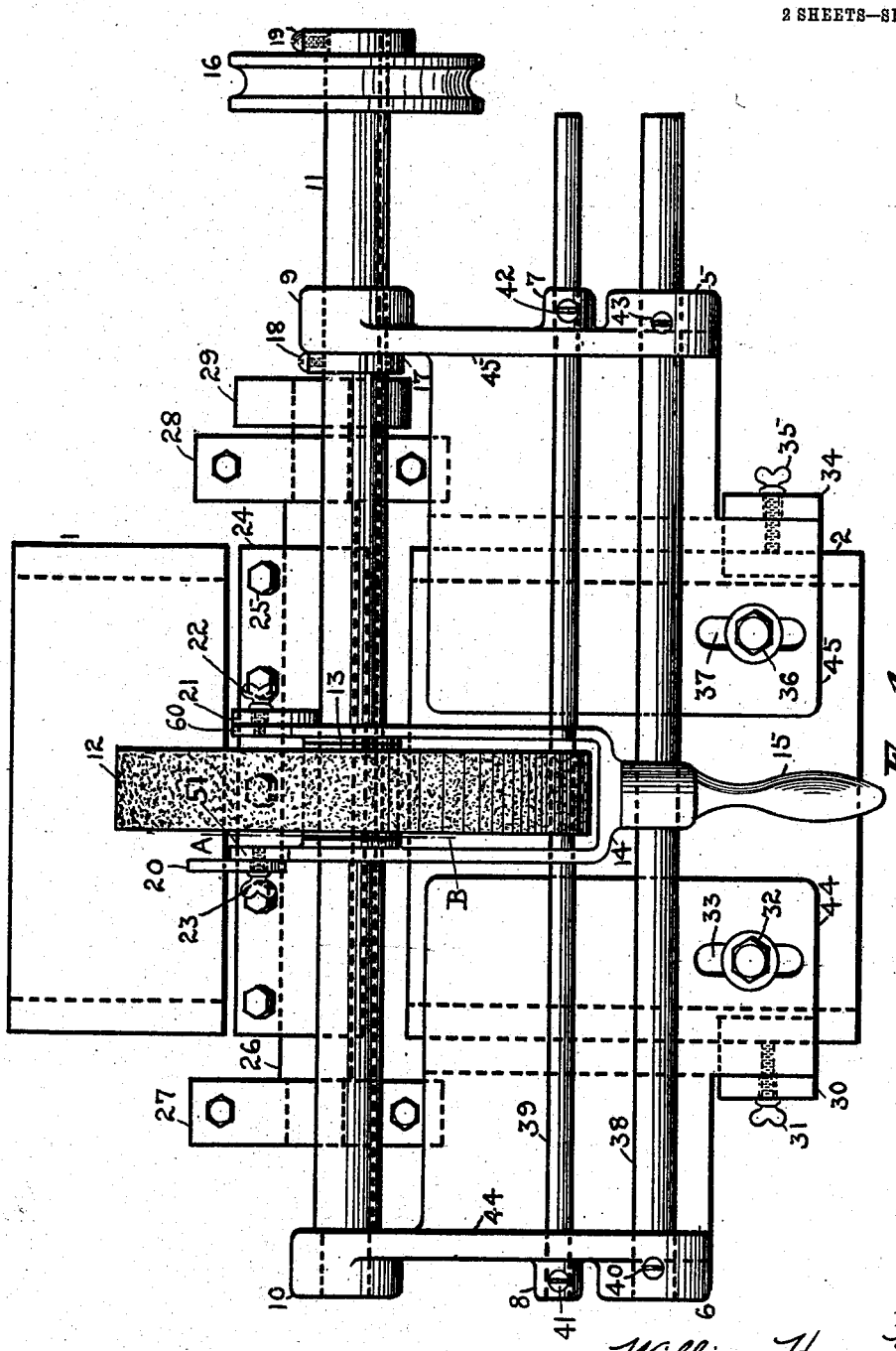


FIG. 1

Witnesses
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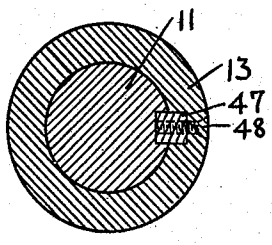


FIG. 3

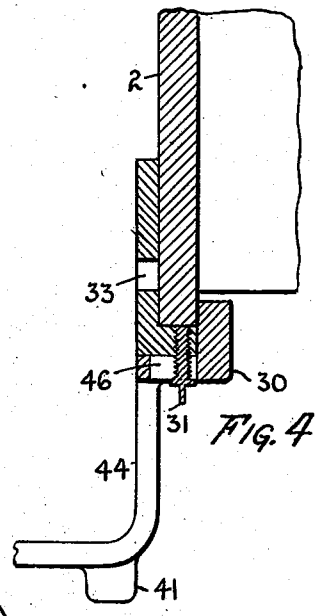


FIG. 4

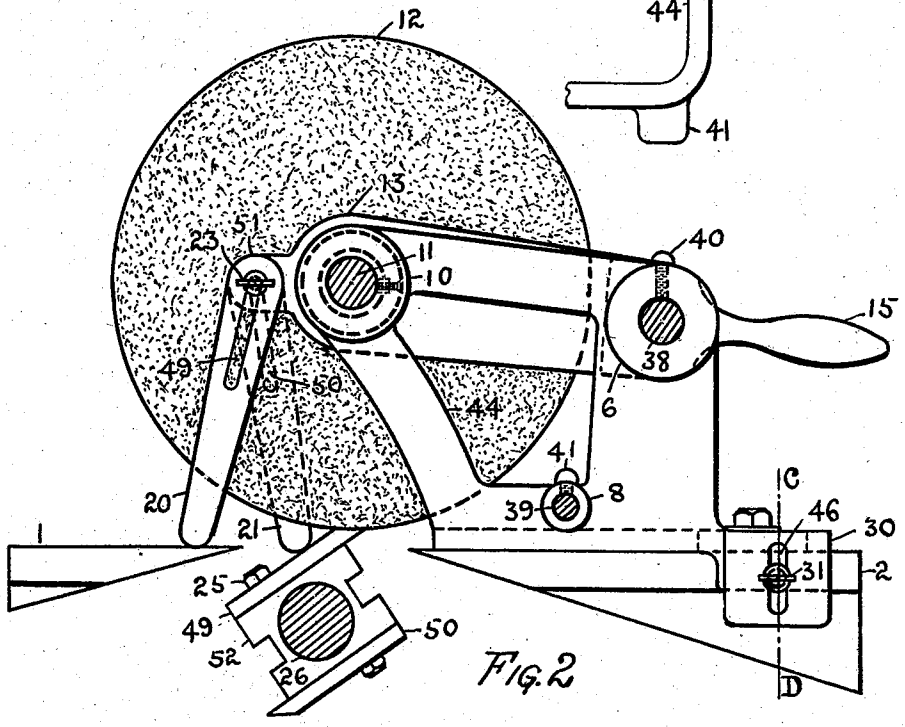


FIG. 2

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UNITED STATES PATENT OFFICE.

WILLIAM HENRY KAHLE, OF POTTSVILLE, AND MAX HIMMELREICH, OF PHILADELPHIA, PENNSYLVANIA.

GRINDER FOR WOOD-PLANER KNIVES.

No. 900,284. Specification of Letters Patent. Patented Oct. 6, 1908.

Application filed March 9, 1908. Serial No. 420,040.

To all whom it may concern:

Be it known that we, WILLIAM HENRY KAHLE and MAX HIMMELREICH, citizens of the United States, residing, respectively, at Pottsville, in the county of Schuylkill, and at Philadelphia, in the county of Philadelphia, both in the State of Pennsylvania, have invented certain new and useful Improvements in Grinders for Wood-Planer Knives, of which the following is a specification.

Our invention relates to improvements in grinders adapted to grind wood planer knives and our objects are, first, to provide a means whereby the knives of wood planers can be sharpened or ground without necessitating their removal from the planer, second, to provide a means whereby the knives of said planer can be set to be ground at the same angle, third, to provide a means whereby the grinder can be made adjustable to fit any width of table and adjustably secured thereto and fourth, to provide a means whereby the grinder can be adjustably secured to planer tables of various thicknesses. We attain these objects by the mechanism illustrated in the accompanying drawings and forming part of the specification, in which,

Figure 1 represents a plan view of the grinder with its operating mechanism attached to a planer table. Fig. 2 represents an end elevation of same showing more clearly the knives of the planer to be sharpened or ground. Fig. 3 represents a section taken through the bushing and operating shaft of grinder wheel at A—B, Fig. 1. Fig. 4 represents a section taken at C—D, Fig. 2 and shows an adjustable arrangement whereby the grinder can be made adjustable to tables of various thicknesses.

Similar figures refer to similar parts throughout the several views.

1 designates the back table of a wood planer and 2 designates the front table of same.

44 and 45 designates bearing supports and whose bases are provided respectively with slots 33 and 37 coöperating with the holding down bolts 32 and 36 to rigidly secure said bearing supports in adjustable relation to the table 2 and thereby secure a means of adjustment of the grinding wheel relative to the knives to be ground.

11 designates a shaft which is provided with a keyway cut traversely along the shaft. The shaft revolves in the bearings 9 and 10 and is traversely adjustable to bearing support 45.

16 designates a pulley rigidly attached to the shaft 11 for the transmission of motion to same.

12 designates a grinding wheel whose bushing 13 has rigidly secured in the bore thereof the key 47, coöperating with the keyway in shaft 11 and enabling the grinding wheel to traverse the shaft.

14 is a yoke embracing the grinding wheel 12 and having projecting lugs 51 and 60.

15 is a handle rigidly secured to the yoke 14 for moving the grinding wheel traversely along the shaft 11. The lugs 51 and 60 carry the arms 20 and 21 adjustably secured thereto by the wing nuts 23 and 22 acting in coöperation with slots 49 and 50 in arms 20 and 21 respectively.

17 is a collar for rigidly securing the shaft 11 traversely to the bearing 9 and is provided with the set screw 18 for securing said collar to said shaft.

39 designates a tie rod which is rigidly secured to the boss 8 of the bearing support 44 by the set screw 41. The tie rod 39 is capable of adjustment with the boss 7 of the bearing support 45 and can be rigidly connected with the boss 7 by the set screw 42.

38 is a tie rod rigidly secured to the boss 6 of the bearing support 44 by the set screw 40. The tie rod 38 is capable of adjustment with the boss 5 of the bearing support 45 and can be rigidly secured to the boss 5 by the set screw 43. The tie rod 38 acts as a guide to the handle 15 of the yoke 14, said handle 15 having an aperture in same which is adapted to engage and traverse the tie rod 38.

30 and 34 designates adjustable clips, the clip 30 has a slot 46 in same, said slot coöperating with the wing nut 31 to adjustably secure the base of the bearing support 44 to the clip 30. The clip 34 has a similar arrangement to clip 30 and can be adjustably secured to the base of the bearing support 45 by means of the wing nut 34.

26 designates a shaft carrying the planer knives 49 and 50, said knives being secured to a block 52 by means of nuts 25 or other means usually employed for such purposes.

27 and 28 designates bearings for the shaft 26, said shaft being provided with the pulley, as aforesaid, for imparting motion thereto.

The table 2 is provided with the usual means for raising and lowering the table.

Having thus described the various parts throughout the several views and upon its being proportioned throughout, its operation will be substantially as follows: In practice we wedge the pulley 29 against the bearing 28 by a suitable wedge after the desired grinding angle has been decided upon, thereby rigidly securing the shaft 26 carrying the planer knives 49 and 50. Motion being imparted to the pulley 16, the shaft 11 revolves, thereby revolving the grinding wheel 12. By lowering the table 2 the grinding wheel 12 is brought to bear on the planer knife 25 and by the revolving of the grinding wheel 12 and the movement of the yoke 14 through the handle 15, a traverse motion is imparted over the length of the knife. The key 47 being adapted to traverse the said keyway in shaft 11 a fixed rotatable relation is maintained between said shaft and said wheel and thereby accomplishing the aforesaid first mentioned object of our said invention. By adjusting the arm 21 to rest on the planer knife 25 and rigidly securing the arm 21 to lug 60 by the wing nut 22 and by setting the arm 20 to rest on the back table 1 and rigidly securing the arm 20 to the lug 51 by the wing nut 23 the grinding angle of the planer knife is determined. By moving the grinding wheel traversely along the shaft until it clears the knives and by removing the wedge between the pulley 29 and the bearing 28 as heretofore stated, the shaft 26 will be free to revolve. The unground knife is then brought in the same relative position for grinding as the one previously ground which is determined by moving the yoke 14 so that the arm 21 is disposed over the knife. The knife can then be moved so that the arm 21 and the top plane of the knife coincide thereby insuring the same angle as the knife previously ground. A similar operation can be repeated for grinding as heretofore described and thus accomplish the heretofore mentioned second object of our said invention. By unscrewing the set screw 42 for securing the tie rod 39 to the boss 7 of the bearing support 45 and by unscrewing the set screw 43 for securing the tie rod 38 to the boss 5 of the bearing support 45 and by removing the holding down bolt 36, the bearing support 45 can be traversely moved on the shaft 11, and tie rods 39 and 38, and thereby made to fit any width of table and be adjustably secured thereto. The set screw 18 of the collar 17 being unscrewed and the collar moved to suit any position of the bearing 9, the grinder can thereby be secured to the table as heretofore described and thus accomplish the heretofore third mentioned object of our said invention.

By unscrewing the wing nut 31 on the clip 30 and the bearing support 44 and moving the clip 30 along the wing nut 31 through the slot 46, the clip is made adjustable to any thickness of table. The clip 34 has a similar arrangement to the clip 30 previously described.

The screwing up of the wing nuts 31 and 35 secures the grinder to the table and thereby accomplishing the heretofore mentioned fourth object of our said invention.

It is obvious that the bearing supports can be adjusted to the length of the table by unscrewing the holding down bolts 32 and 36 and moving the bearing supports 44 and 45 through their slots along the length of the table until the desired position is reached and upon the screwing down of the said bolts the grinder is secured to the table.

Having thus described the nature and objects of our said invention, what we claim as new and desire to secure by Letters Patent, is:

1. In a grinder for wood planer knives of the character described in combination with a planer table, a grinding wheel adapted to traverse a shaft and in revolving engagement therewith, a supporting means on said planer table for said shaft, a yoke embracing said grinding wheel and a driving means for said shaft; two radial arms each provided with a slot, a set screw engaging therewith and attached to said yoke by threaded engagement, one of said arms being adapted to engage with said planer table and the other with said planer knives, all substantially as and for the purpose shown and described.

2. In a grinder for wood planer knives of the character described the combination of a planer table and a grinding wheel adapted to traverse a shaft and in revolving engagement therewith; a yoke embracing said grinding wheel provided with two removably adjustable radial arms, one of which is adapted to engage with said planer table and the other with said planer knives and bearing supports for said shaft provided with a slot which is provided with securing means on said planer table, all substantially as and for the purpose shown and described.

3. In a grinder for wood planer knives of the character described in combination with a planer table, a grinding wheel adapted to traverse a shaft and in revolving engagement therewith, bearing supports for said shaft, a yoke embracing said grinding wheel and a driving means for said shaft; two radial arms adjustably attached to said yoke one of which is adapted to engage with said planer table and the other with said planer knives, a slot in said base, a set screw in threaded engagement with said planer table and adapted to engage with said slot, all substantially as and for the purpose shown and described.

4. In a grinder for wood planer knives of

the character described in combination with a planer table, a grinding wheel adapted to traverse a shaft and in revolving engagement therewith, a yoke embracing said grinding wheel and a driving means for said shaft; two radial arms adjustably attached to said yoke, one of which is adapted to engage with said planer table and the other with said planer knives, bearing supports for said shaft provided with a slot in the base thereof, set screws in threaded engagement with said planer table and adapted to engage with said slot, angle clips having a slot in one leg thereof, set screws in threaded engagement with the vertical side of said bearing supports and adapted to engage with said slots in said angle clips and one leg of said clips adapted to engage with the under side of said planer table, all substantially as and for the purpose shown and described.

5. In a grinder for wood planer knives of the character described in combination with a planer table 1 and 2, a grinding wheel 12 adapted to traverse a shaft 11 and in revolving engagement therewith, a yoke 15 embracing said grinding wheel and a driving means for said shaft; a collar 18 removably adjustably attached to said shaft, two radial arms 20 and 21 attached to said yoke, one of which is adapted to engage with said planer table 1 and the other with said planer knives, bearing supports 44 and 45, adjustably removably secured to said planer table 2 by means of set screws 32 and 36 engaging with slots 33 and 37 in said bearing supports 44 and 45, angle clips 30 and 34 having a slot 46 in one leg thereof which is adapted to engage with set screws 31 and 35 which are in threaded engagement with said supports 44 and 45, and the other leg of said clips adapted to engage with the under side of said planer table, all substantially as and for the purpose shown and described.

In testimony whereof we have signed our respective names to this specification in the presence of two subscribing witnesses.

WILLIAM HENRY KAHLE.
MAX HIMMELREICH.

Witnesses:
WILLIAM D. WAGNER,
GEORGE H. WILSON.