(No Model.)

C. J. Le ROY.

Grinding Planer Knife.

No. 234,299. Patented Nov. 9, 1880.

Fig. 1.

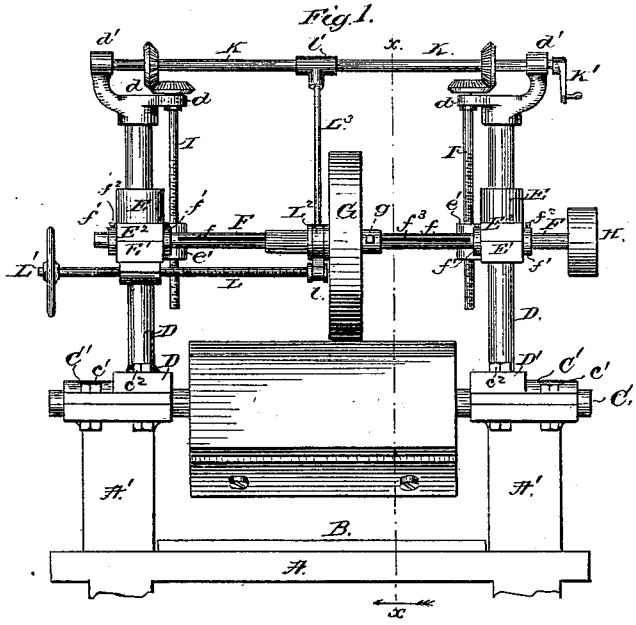


Fig. 3.

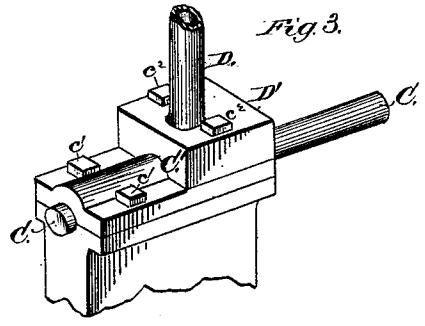
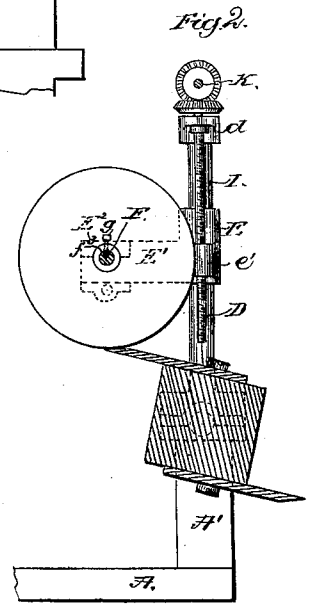


Fig. 2.



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CHARLES J. LE ROY, OF PALESTINE, TEXAS.

GRINDING PLANER-KNIVES.

SPECIFICATION forming part of Letters Patent No. 234,299, dated November 9, 1880.

Application filed May 3, 1880. (No model.)

To all whom it may concern:

Be it known that I, CHARLES JEROME LE ROY, of Palestine, in the county of Anderson and State of Texas, have invented a new and useful Improvement in Attachments for Grinding the Knives of Wood-Planing Machines; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention relates to an apparatus that may be securely attached to the frame of a wood-planing machine for grinding the revolving knives of the planer without removing the knives from its shaft or the shaft from its bearings upon the frame of the machine.

The object of my invention is mainly to provide a simple apparatus that may be readily attached to the frame of a wood-planer and be driven immediately from the pulley that drives the cutter-shaft of the planer, and, furthermore, in so constructing and combining the parts of the improved device that it may be readily adapted to suit various-sized machines.

A further object of my invention is to provide an improved means for adjustably moving the grinding-wheel of the device backward and forward upon its shaft to act upon the entire length of the knife, and at the same time permit the grinding-wheel to turn with its shaft and accurately edge the knives of the planer to a uniform angle.

In the accompanying drawings, Figure 1 is a front elevation of my improved attachment, showing its connection with the frame of a wood-planer; Fig. 2, a vertical sectional elevation in the line *x x* of the same; and Fig. 3, a detail view of the upper end of the pillow-block and the lower end of the post, arranged one immediately above the other to show their connection with each other.

In order that the peculiar mode of connecting the attachment to the framing of the planer may be more fully understood, the outlines of such parts of a wood-planer are shown as will illustrate the connection and co-operation of the various parts.

The main frame or bed A of a wood-planer of ordinary construction is shown in outline, and supports a movable table, B, to which the work is secured in a well-known manner. The bed A has pillow-blocks A′, extending upwardly from its sides, that support the ends of the knife-arbor C. The bearing of the pillow-blocks is covered by a rounded cap, C′, and is held firmly to the block by two bolts, c' c^2, upon each side of the cap C′. The lower portions of the upright frame-posts D are formed with foot-blocks D′, having a rounded depression upon the under sides to closely fit over the corresponding caps C′, and are held in place upon the pillow-blocks by the inner bolts, c^2. By this means, when it is desired to make a connection between the attachment and the planer, the inner bolts, c^2, only are removed and longer bolts are substituted, which pass not only through the pillow-block and cap, but also through the foot-blocks, and thus securely hold the grinding attachment in a convenient position to the arbor of the cutters without removing any of the parts which would change the adjustment of the cutters.

The posts D are preferably made of the form of hollow tubes, and are turned down to accurately fit the bore through the hub E of bearing-blocks E′ upon each of them. The bearings E′ are formed to receive the journals of a horizontal shaft, F, that is secured to them by caps E^2 and screw-bolts in a well-known manner.

The shaft F carries the grinding-wheel G, and is secured to it by a set-screw, *g*, passing through the hub of the wheel that engages in a slot running lengthwise of the shaft, so that the wheel may be moved longitudinally upon the shaft, but will turn with it. The shaft F is formed with long journals *f f*, turned upon each of its ends, and is fitted with collars f' f', that are adjustably secured upon the shaft by set-screws f^2. When the attachment is set to exactly fit the machine, these set-screws are loosened, and when the posts have been firmly screwed to the pillow-blocks of the knife-arbor the collars may be securely fixed to the shaft F upon each side of the bearing E′, and permanently fix the shaft and grinding-wheel relatively to the framing of the machine.

A driving-pulley, H, is secured to the end of the shaft F above the pulley on the knife-arbor, so that the grinder may be run from the same shaft that drives the knife-arbor of the planer by using a different belt.

The shaft F may be raised or lowered upon the posts D, to adjust the grinding-wheel to

the edge of the knife, by means of vertical screw-shafts I I, journaled in lugs *d d*, that project from the posts D and pass through screw-nuts in the lugs *c'* of the hubs E. The upper end of the shafts I have small beveled wheels, that mesh with similar wheels upon a counter-shaft, K, journaled in bearings *d' d'*, that project from the upper end of the posts D, so that when the shaft K is turned by a crank, K', upon the end of the shaft the shafts I will both be turned in the same direction, and the bearing-block E' and grinding-wheel shaft F will both be raised to any desired position.

The grinding-wheel G is adjusted longitudinally upon the shaft F by means of a screw-shaft, L, that passes through a nut upon the under side of the bearing E' at the end of the shaft opposite the driving-pulley H, and is provided at its outer end with a hand-wheel, L', or crank for conveniently turning it. The inner end of the shaft L passes through a lug, *l*, upon a loose collar, L^2, that fits in a groove in the hub of the grinding-wheel G, and is secured to the said lug *l* in such manner that as the shaft is moved in its nut it will draw the collar L^2 and grinding-wheel G backward and forward with it. This is admissible because of the method above described of connecting the wheel to the shaft.

In order to prevent the collar L^2 from binding upon the hub of the wheel G, the upper end of the collar is provided with an upright rod, L^3, that extends to the counter-shaft K and passes through a loose sleeve, *l'*, upon it, so that the rod and collar are guided by the three shafts K, F, and L, and may move freely upon each other.

The wheel G is always held in proper relation to the edge of the knives upon the arbor, and when the same wheel is used the cutting-angle of the knife need not be changed in grinding its edge.

By using wheels of different sizes different angles may be given to the cutting-edges of the knives to adapt them to cut material of different degrees of hardness.

I claim as my invention and desire to secure by Letters Patent—

1. In an attachment for grinding the knives of planing-machines without removing the knives from the planer, the combination of the knife-arbor C, bearing-cup C', secured in place by bolts *c' c²*, the tubular upright post D, provided with foot-block D', that fits over the cap and is held in place by the bolts *c²*, and a grinding-wheel shaft adjustably secured to the post D by bearing-block E', provided with hubs E, that envelop the tubular posts, and vertical screw-shafts I, journaled to the post and passing through nuts in the bearing-blocks, substantially as specified.

2. The combination of the post D, bearing-block E', grinding-wheel G, set-screw *g*, slotted shaft F, collar L^2, screw-shaft L, and rod L^3, that passes freely through a sliding collar upon the counter-shaft K, that gears with vertical screw-shafts to raise and lower the grinding-wheel shaft, these parts being combined for joint operation to adjust the grinding-wheel both vertically and laterally, substantially as described.

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