I. T. HOWARD.

PLANER.

APPLICATION FILED SEPT. 23, 1915.

1,264,934.

Patented May 7, 1918.

2 SHEETS—SHEET 1.

Fig. 1.

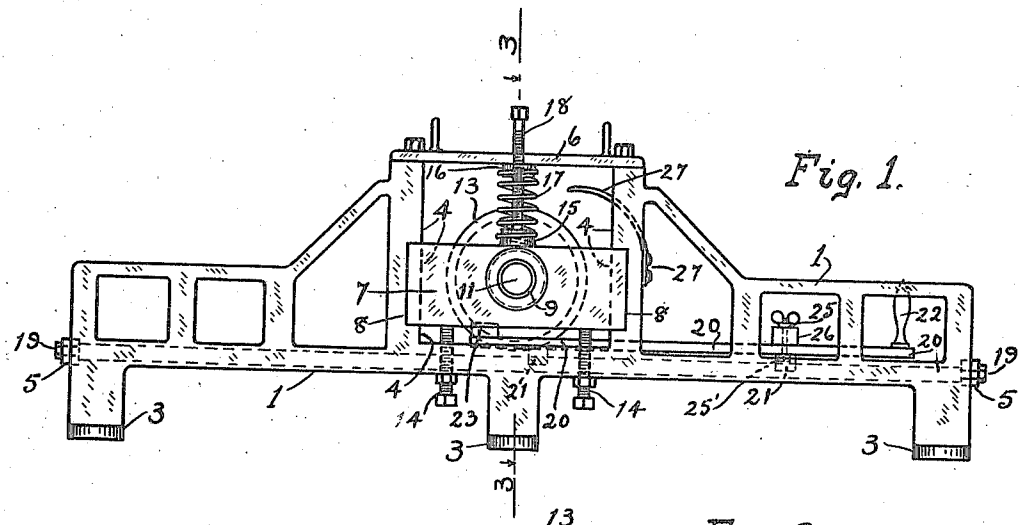


Fig. 2.

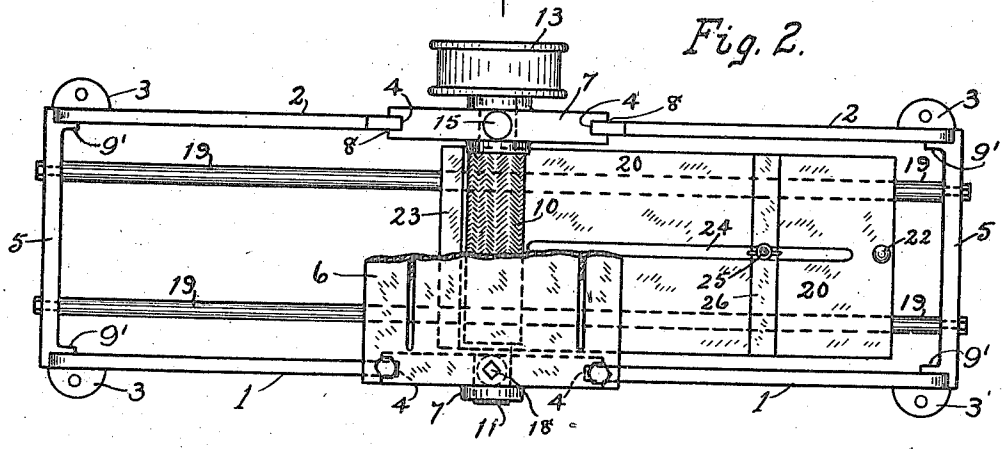
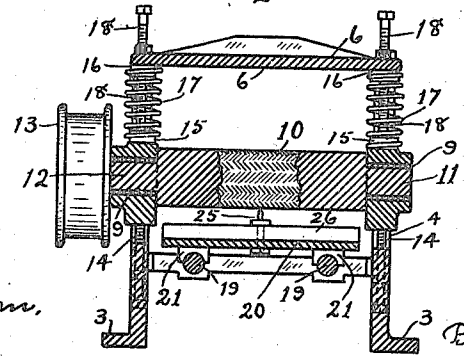


Fig. 3.



Witness
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2 SHEETS—SHEET 2.

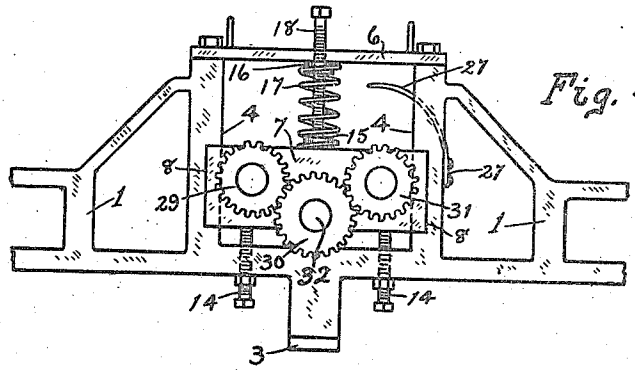


Fig. 4.

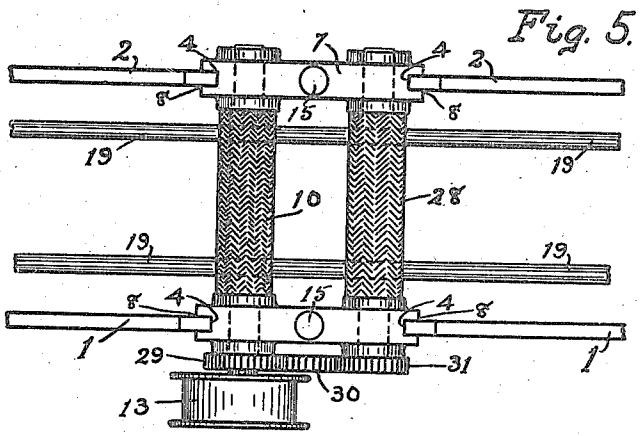


Fig. 5.

Fig. 6.

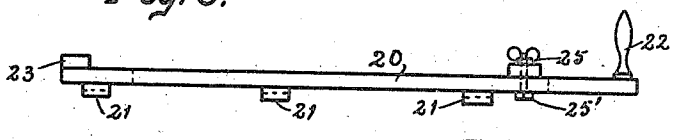


Fig. 7.

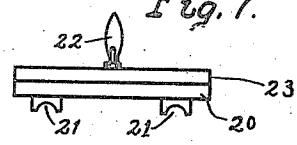
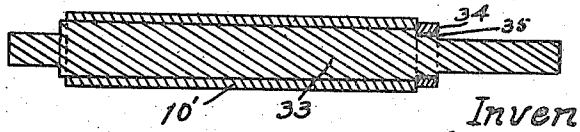


Fig. 8.



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UNITED STATES PATENT OFFICE.

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PLANER.

1,264,934. Specification of Letters Patent. Patented May 7, 1918.

Application filed September 23, 1915. Serial No. 52,148.

To all whom it may concern:

Be it known that I, IRA T. HOWARD, a citizen of the United States, residing at Goshen, in the county of Elkhart and State of Indiana, have invented new and useful Improvements in Planers, of which the following is a specification.

My invention relates to improvements in planers, and is especially adapted to plane or dress stereotype and wood mounted cuts to type height, although its object is not limited to that field, it being understood that one of its most important objects is the planing and finishing of the surface of any metal which can be filed.

Another important object of my invention is the planing and dressing of lumber in which art it is highly effective, being very much more efficient in the dressing of hard wood lumber than the ordinary planer. Where lumber is knotty, or irregularly grained, the knots are smoothly planed flush with the surrounding surface without shattering the knot or ripping it from the lumber, and the irregularly grained lumber is readily planed to a smooth finish and without detaching and hurling splinters therefrom. If the lumber carries nail or screw fragments therein my invention readily reduces and files them down flush with the surrounding surface without injury to the file or rasp member.

On the drawings, Figure 1 is a side elevation of the planer; Fig. 2 is a plan view with a portion of the top plate broken away to disclose the file member; Fig. 3 is a section through Fig. 1 on the line 3—3; Fig. 4 is a side elevation of a modification embodying a plurality of file members; Fig. 5 is a fragmentary plan view of the modification shown in Fig. 4; Fig. 6 is a side elevation of the carriage member; Fig. 7 is an end view of the carriage; and Fig. 8 is a modification of file and file shaft structure.

Similar numerals refer to similar members and parts of members throughout the several views and figures on the drawings.

Referring in detail to the drawings, the numerals 1 and 2 designate frame side members provided with the feet 3, 3 and the upright box guides 4, 4 which are parallel with each other. The numerals 5, 5 designate frame end members rigidly secured to the ends of frame members 1 and 2, whereby the members 1 and 2 are spaced apart. The frame end members 5 are each provided near their opposite ends with a pair of right angular lugs 9′, which engage and contact the frame side members 1, as illustrated in Fig. 2. The numeral 6 designates a frame top plate extending transversely of frame members 1 and 2 and having its opposite ends secured thereto adjacent the upper terminals of guides 4, 4. The numerals 7, 7 designate shaft boxes slotted at 8, 8 and slidably arranged within the guides 4, 4 on each frame member 1 and 2, and provided with the transverse shaft bearings 9, 9, preferably formed of some anti-friction metal, and rigidly fastened in openings formed in the boxes 7, 7.

The numeral 10 designates a rotary cylindrical planer member the outer, or circumferential, periphery of which constitutes a file or rasp, of any desired degree of fineness or coarseness, provided with the end shafts 11 and 12 which are journaled within the bearings 9, 9 and adapted to be rapidly rotated by a pulley 13 rigidly fastened to the end of shaft member 12, to which power may be applied by belt, or otherwise. The numerals 14, 14 designate adjustable screws carried in threaded openings in each frame member 1 and 2 and bearing against the under side or surface of the boxes 7, 7 for upwardly moving, or adjusting, same within the guides 4, 4.

The numeral 15 designates a spring seat boss on the upper surface of each box 7, and a corresponding spring seat boss on the under surface of each end of the top plate 6 is designated by the numeral 16, around which bosses the tension springs 17, 17 are seated and bear against the boxes 7, 7, being adapted to downwardly impel the boxes 7, 7 when the adjusting screws 14, 14 are retracted. The numerals 18, 18 indicate set screws carried in threaded apertures in each end of the top plate 6 centrally of the boss 16 and within the spring 17, and adapted to be screwed into rigid engagement with the bearing box boss 15, subsequent to the adjustment of the box 7 by the manipulation of the adjusting screws 14, 14, to render the abrasive member 10 unyieldable for service. The numerals 19, 19 designate carriage guide rods secured in apertures formed in the end frame members 5, 5 in any suitable manner for supporting and guiding the carriage 20 which is provided on its under surface with suitable half boxes 21, 21 in slidable engagement with said rods 19, 19. The car-

riage 20 is provided at one end with a handle 22 to manually operate it along the guide rods 19, 19 and back and forth thereon beneath the rotatable file 10.

The numeral 23 designates a transversely disposed stop piece secured to one end of the upper surface of the carriage 20 against which the member to be planed is placed. The numeral 24 designates a slot formed longitudinally of the carriage and therein, within which is slidably mounted a thumbscrew 25 which is carried by a transversely disposed locking member 26 adapted to be moved along the carriage surface and placed against the back end of the member to be planed to rigidly retain it in position on the carriage by screwing the thumbscrew 25 tightly against the member 26. The thumbscrew 25 is provided with a head 25′ which is arranged on the under side of the slot 24, and impassible thereof, projecting through said slot 24 and is threaded into an aperture formed in the lock member 26. The numeral 27 designates a curved transversely disposed guard plate suitably secured to the guide uprights of the frame members 1 and 2 in front of the file 10 and extending downward toward the carriage surface to prevent contact of the operator's hands with the rotating file 10. In Figs. 4 and 5 the numeral 28 designates a cylindrical rotatable rasp coöperating with the cylindrical file 10, driven by gears 29, 30 and 31 meshing into each other, gears 29 and 31 being mounted upon the shaft ends of files 10 and 28, respectively, and idle gear 30 being suitably mounted upon a pin or shaft 32 carried by one of the boxes 7, 7 and movable therewith. Gears 29, 30 and 31 preferably have the same number of teeth to drive the rasp 28 at a speed equal to that of the file 10, the idler 30 being provided to obtain the same direction of rotation for both abrasive members 10 and 28.

At Fig. 8 is shown a modified file structure consisting of a cylindrical file 10′ conically bored for its full length for detachable arrangement upon a conically formed file core 33, circular in cross section, and retained thereon by a collar 34 screw threaded on one end of the shaft, or file core, 33 at 35.

In the practical application of my invention the article to be planed or dressed down is secured to the upper surface of the carriage and the file rapidly rotated by the application of power to the driving pulley. By moving the carriage back and forth beneath the rotating file at a height where the file and the article to be planed are placed in contact, the latter may be planed off to any desired thickness.

I claim,

1. In a device of the kind described, in combination, a pair of frame side members having intermediate upright box guide a pair of frame end members formed at spaced points inwardly of its opposite ends with right angular lugs, the ends of said frame side members abutting the ends of said frame end members as well as said lugs, and a pair of longitudinal carriage guide rods secured at their ends to said frame end members, and a frame top member secured flat upon the top edges of said upright box guides so as to hold the pair of frame side members against lateral displacement.

2. In a device of the kind described, in combination, a frame including a pair of spaced apart upright box guides, a frame top member secured to the upper edges of said upright box guides, shaft boxes having bifurcated end portions slidably engaging the sides of said box guides, vertically adjustable rods projecting through the bottom of said frame and engaging the lower edge of each upright box guide, a vertically-adjustable rod tapped through the frame top member, a boss formed on the upper edge of each box guide, a boss depending from the frame top member at each side thereof, and compression springs coiled around the bosses on said box guides and on said frame top member respectively, and surrounding said last-named adjustable rods.

3. In a device of the kind described, in combination, a frame having side upright box guides, vertically yieldable journal boxes mounted in said upright box guides, a cylindrical rotatable rasp journaled in said journal boxes, a pair of longitudinal rods connected to said frame in parallel relation, a plate-like carriage, a fixed and a longitudinally adjustable stop piece carried by said carriage upon its opposite ends, a handle on said carriage, and depending members on said carriage having curved portions straddling and slidable upon said rods.

4. In a planer, a mount, a plurality of rotatable abrasive members carried by said mount, means for unyieldingly holding said rotatable abrasive members, said members being also rendered yieldable vertically, the abrading surfaces of said members being graduated in quality as to each other, and a planer carriage adapted to carry the object to be planed under said members.

5. In a device of the kind described a frame, an abrasive member, vertically adjustable means for holding said member rigidly against movement, said means being disposed upon said frame, and a slidable carriage guided for horizontal movement beneath said abrasive member.

6. In a device of the kind described, in combination, a mount, bearings thereon, journal boxes vertically slidable in said bearings, a cylindrical file carried by said journal box, vertically adjustable members bearing against the upper and lower por-

tions of each journal box to hold the cylindrical file unyieldable, and resilient means arranged to engage said journal boxes and adapted to yieldingly support said cylindrical file when either of said adjustable members is out of contact with either of said journal boxes.

7. In a device of the kind described, in combination a mount, bearings on the sides thereof, journal boxes in said bearings slidable thereon, a cylindrical rotatable file in said journal boxes, upper and lower screws in said mount pressing against the respective upper and lower portions of said journal boxes, a longitudinally slidable carriage beneath said rotatable file, and a stock confining member carried by said carriage.

In testimony whereof I hereunto affix my signature.

IRA T. HOWARD.

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