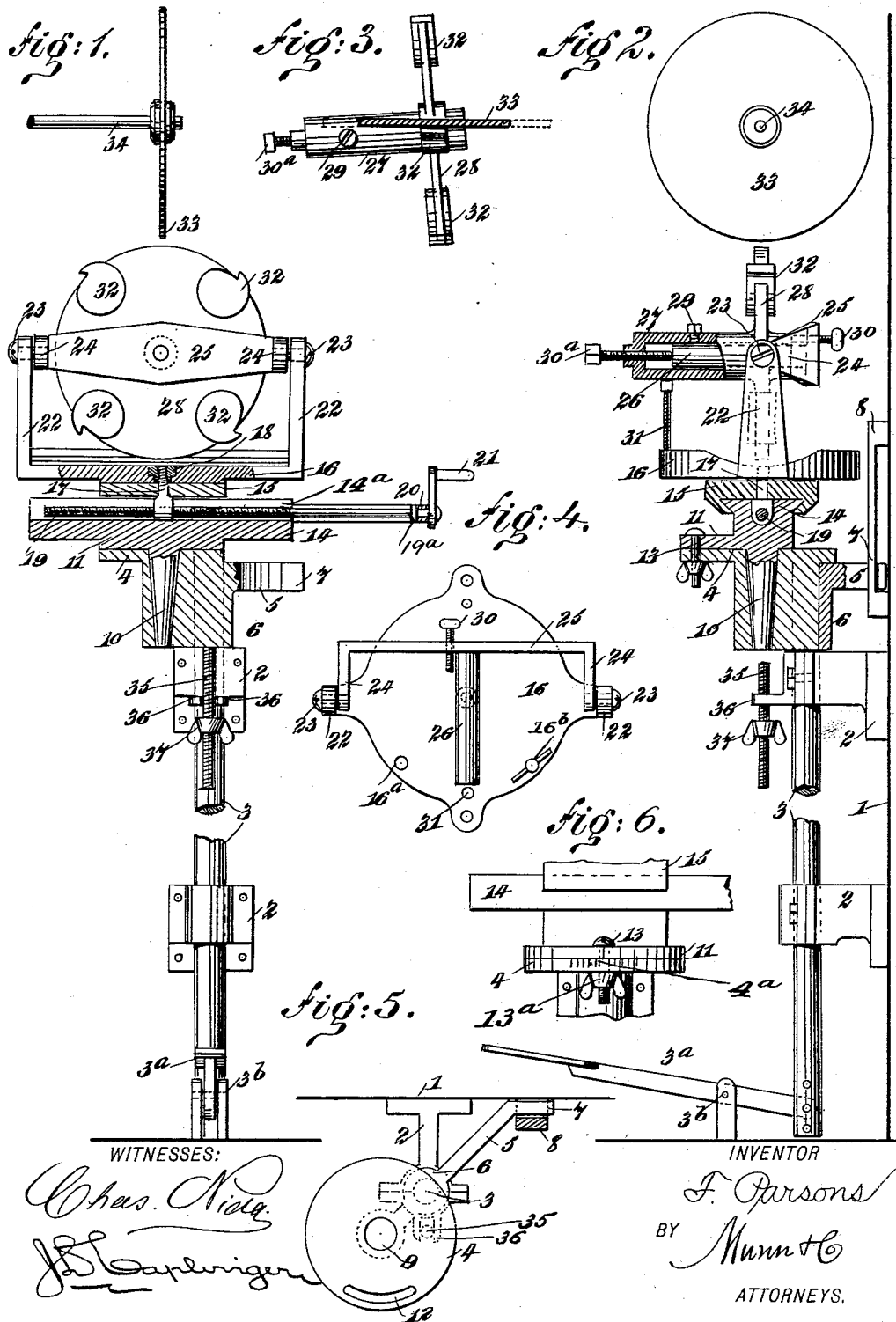


(No Model.)

F. PARSONS.
GRINDING MACHINE.

No. 570,766.

Patented Nov. 3, 1896.



UNITED STATES PATENT OFFICE.

FRANK PARSONS, OF MONTGOMERY, MISSISSIPPI.

GRINDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 570,766, dated November 3, 1896.

Application filed November 27, 1895. Serial No. 570,270. (No model.)

To all whom it may concern:

Be it known that I, FRANK PARSONS, of Montgomery, in the county of Lincoln and State of Mississippi, have invented certain new and useful Improvements in Grinding-Machines, of which the following is a full, clear, and exact description.

This invention relates to certain improvements in grinding-machines, and especially that class of such machines designed and adapted for grinding and sharpening the cutter-heads of planing-machines; and the object of the invention is to provide a device of this character of a simple and inexpensive construction adapted to grind such cutter-heads in an even and uniform manner, whereby an important economy in time and labor may be effected.

The invention consists in a machine comprising an adjustable sliding carrier adapted to hold the cutter-head to be ground, means for actuating said carrier, and a grind-wheel adjacent to the carrier and adapted to engage the cutter-head carried thereon.

The invention also contemplates certain novel features of the construction, combination, and arrangement of the various parts of the device, whereby certain important advantages are attained and the device is made simpler, less expensive, and otherwise better adapted and more convenient for use than various other similar devices heretofore employed, all as will be hereinafter fully set forth.

The novel features of the invention will be carefully defined in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of the grinding-machine, the central part thereof being shown broken away and the upper part being shown in section. Fig. 2 is a view similar to Fig. 1, but taken at right angles thereto. Fig. 3 is a partial plan view showing the grind-wheel and cutter-head in position for grinding. Fig. 4 is a plan view showing the carrier for the cutter-head. Fig. 5 is a plan view showing the vertically-movable table whereon the carrier is mounted, and Fig. 6 is a partial side view showing the same part.

In the views, 1 indicates a suitable support whereto the grinding-machine is secured, and 2 2 represent brackets bolted to said support and having vertically-aligned bearings at their outer ends, wherein slides a vertical shaft 3, the lower end of which is adjustably coupled to one end of a treadle-lever 3^a, pivoted at 3^b and arranged to be operated by the foot of an attendant, so as to move the shaft 3 vertically, said shaft being held normally in its lowered position by gravity.

On the upper end of shaft 3 is carried a table 4, being held on one end of an arm 5, having a socket 6 at its central portion to receive the upper end of said shaft 3, and the opposite end 7 of said arm 5 is bent and arranged to slide in a vertical guideway formed by a bracket 8, secured to the support 1, as clearly shown in Figs. 2 and 5.

The table 4 is of circular form and is provided with a central socket 9, having a conical form, being tapered toward its lower end, and in said socket 9 fits a conical stud or stem 10, projecting from the lower end of a guide-block 11, the under side of which is flush with the top of the table 4. The said table is provided with a curved slot 12, wherein plays a screw 13, set in the guide-block 11, and said screw is provided with a nut 13^a, whereby when the parts are adjusted they may be securely clamped together. To permit of accurately adjusting the guide-block on the table, these parts are provided, as seen at 4^a in Fig. 6, with graduations formed on their edges.

The upper part of the guide-block 11 is provided with a transverse elongated portion 14, forming a guide whereon is arranged to move a slide 15, having its edges dovetailed, as clearly seen, to engage the undercut edges of said guide 14, and on said slide is secured the carrier 16, consisting of a plate of substantially circular flattened form, held on said slide by means of a bolt 17, which passes through said carrier and slide 15 and is provided at its upper end with a nut 18 to hold the carrier in place. The carrier 16 is provided with apertures 16^a, arranged by preference ninety degrees apart and adapted to register with a single aperture in the slide 15, and said apertures 16^a are adapted to be engaged by a set-screw 16^b, as seen in Fig. 4. By this construction it is evident that the

cutter-head may be set at various angles to or parallel with the grinding-wheel, according to the angle on which the cutting edges are to be ground.

5 The lower end of the bolt 17 is enlarged and counterbored and arranged to play, when the slide 15 moves along the guide 14, in a guideway 14^a, formed longitudinally along the center of the upper face of said guide. The bore
10 of said head of the bolt 17 is screw-threaded to receive a screw 19, extending along the guideway 14^a and provided with a collar 19^a, bearing against the yoke 20, in which yoke the screw 19 is rotatably mounted. The yoke
15 20 projects from the guide 14, and the screw 19 is provided with a handle 21, whereby it may be conveniently turned to move the slide 15 along the guide 14.

The carriage 16 is provided at diametrically
20 opposite sides with standards or posts 22, the upper ends of which carry screws or pins 23, whereon are pivoted the arms 24 of a yoke 25, having at its central portion a stud or mandrel 26, alined with the guide 14 and adapted
25 to fit in the bore of the stock 27 of the cutter-head 28, said stock being held in place on said mandrel by means of a set-screw 29 or the like. The yoke 25 is provided near the mandrel 26 with an adjusting-screw 30 to engage the end of the stock 27, whereby it may
30 be held in position, the opposite end of said stock having a screw 30^a to engage the end of the said mandrel. In this way the cutter-head may be conveniently adjusted on the
35 mandrel and held against movement.

At its forward side the carrier 16 is provided with an adjusting-screw 31, the upper end of which is arranged to engage under the end of the stock 27, so as to permit the angle
40 at which the cutter-head stands to the horizontal to be conveniently varied, the yoke 25 swinging pivotally when said screw 31 is adjusted, and to grind the cutters 32 of the cutter-head a grind-wheel 33 is employed, mounted
45 on a shaft 34 above the carrier 16 and driven from any source of power.

To limit the upward movement of the carrier and prevent the cutter-head from being damaged by the grind-wheel, I employ a screw
50 35, secured to the table 4 and depending between forks or lugs 36 on the upper bracket 2, below which a nut 37 is arranged to screw on said screw 35, so as to form an adjustable stop to limit the upward movement of the
55 shaft 3 when actuated by the treadle-lever.

In operation the guide-block 11 is adjusted to stand at the proper angle to the table 4 to give the desired cut for the knives of the cutter-head, and said cutter-head is secured on
60 the mandrel, as seen in Figs. 1 and 2, after which the treadle-lever 3^a is depressed, so as to bring the cutter-head into engagement with the grind-wheel 33, whereupon the screw 19 is turned to cause the slide 15 to move along
65 the guide 14, thereby adjusting the cutting

edge of the cutter-head with relation to the grinding-wheel 33.

The device constructed as above described is extremely simple and inexpensive and affords a convenient means for grinding cutter-heads with less labor and in a shorter time
70 than is required in sharpening by hand, and, furthermore, the device is of such a nature that no particular skill is required to properly grind and sharpen the knives.
75

It will be obvious from the above description of my invention that the device is susceptible of considerable modification without material departure from the principles and spirit of my invention, and for this reason I
80 do not wish to be understood as limiting myself to the precise form of the parts herein set forth.

Having thus described my invention, I claim as new and desire to secure by Letters
85 Patent—

1. The combination with a support, of a longitudinally-movable shaft, a treadle connected with the lower end of the shaft, a table carried on the shaft, a guide-block axially
90 adjustable on the table, a carrier sliding on the guide-block, a yoke supported on the carrier, and a grinding-tool, substantially as described.

2. The combination with a support having
95 alined bearings, of a longitudinally-movable shaft in the bearings, a treadle connected to the shaft, a table carried on the shaft, an arm fixed to the table, a guide on the support with which the arm is slidably connected, a guide-block axially adjustable on the table, a slide
100 movable on the guide-block, a screw carried by the guide-block and connected with the slide, a carrier fixed to the slide-arms rising from the carrier, a yoke carried by said arms,
105 and a grinding-tool, substantially as described.

3. The combination with a support, of a longitudinally-movable shaft, a treadle connected with the shaft, a table carried by
110 the shaft, a carrier supported on the table, arms rising from the carrier, a yoke pivotally mounted in the arms, a mandrel on the yoke, a screw supported on the carrier and capable of adjusting the yoke, and a grinding-tool,
115 substantially as described.

4. The combination with a support having alined bearings, of a shaft longitudinally movable in the bearings, a treadle, a carrier supported on the shaft, a grinding-tool, a screw
120 moving with the shaft and having a nut thereon, and two lugs rigid with the support and adapted to be engaged by the nut, substantially as described.

5. The combination of a longitudinally-movable shaft, means for moving the shaft, a carrier supported on the shaft, arms rising from the carrier, a yoke rockably held on the arms and a grinding-tool, substantially as described.
130

6. The combination with a support, of a carrier, a yoke pivotally mounted on said carrier, a mandrel carried by the yoke, and a screw supported on the carrier and capable of adjusting the yoke, substantially as described.

rier, and a screw supported on the carrier and capable of adjusting the yoke, substantially as described.

FRANK PARSONS.

Witnesses:

W. E. OLIVER,
J. S. REA.

7. The combination with a support, of a carrier, a yoke pivotally mounted on said car-