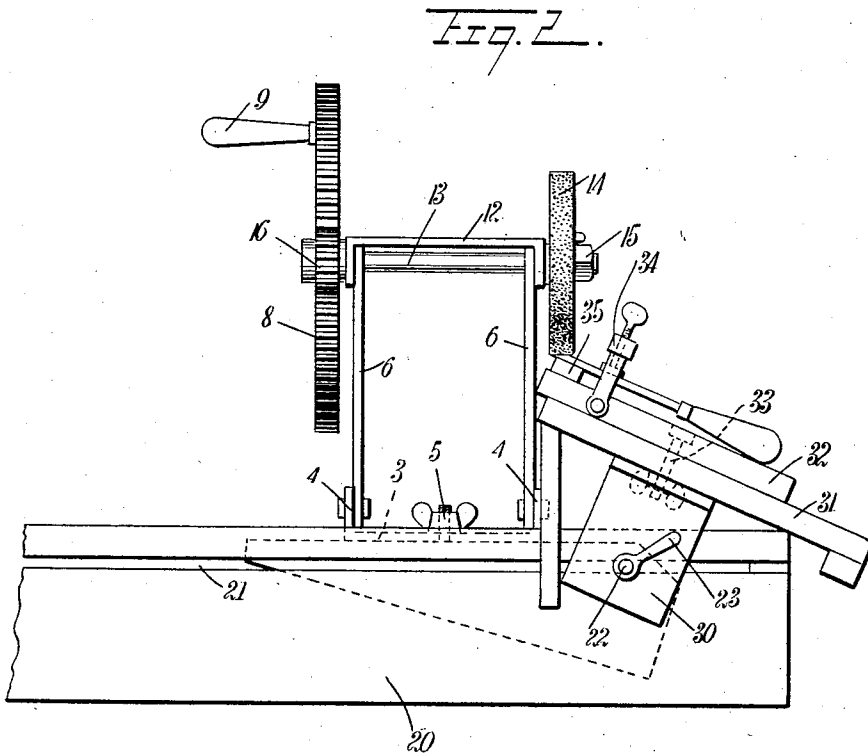
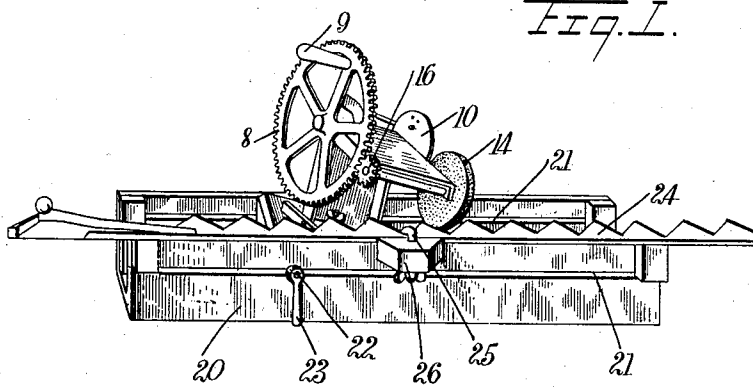


G. W. HOADLEY.
GRINDING MACHINE.
APPLICATION FILED NOV. 25, 1911.

1,033,586.

Patented July 23, 1912.

2 SHEETS-SHEET 1.



WITNESSES
H. J. Walker
L. J. Gallagher.

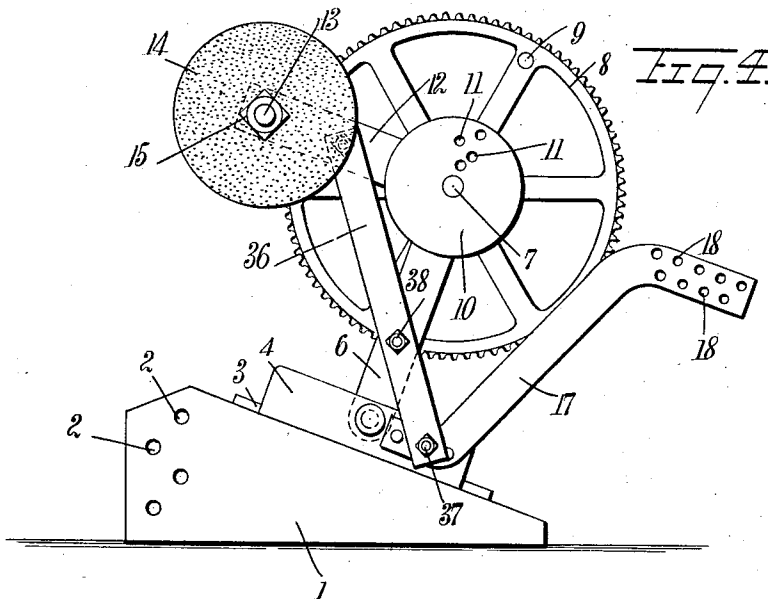
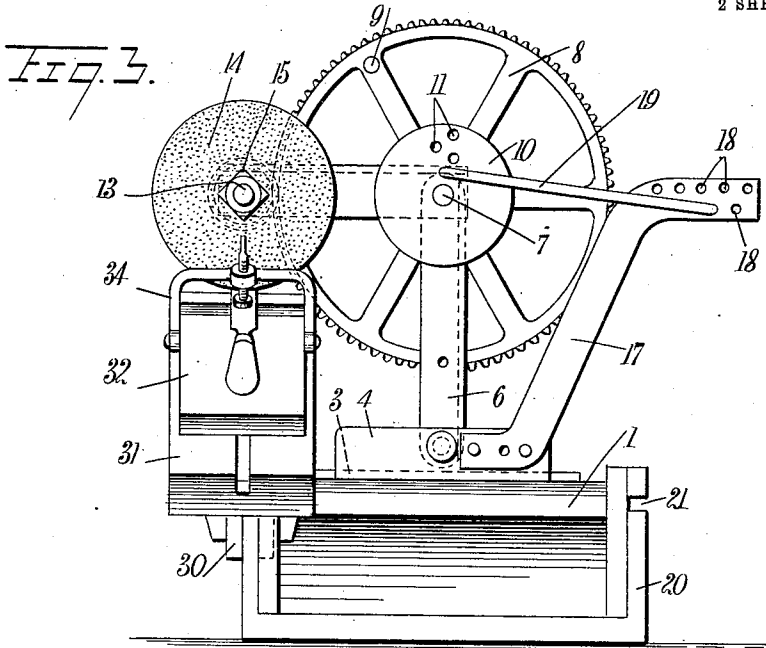
INVENTOR
George W. Hoadley
BY *Munn & Co.*
ATTORNEYS

G. W. HOADLEY.
GRINDING MACHINE.
APPLICATION FILED NOV. 25, 1911.

1,033,586.

Patented July 23, 1912.

2 SHEETS—SHEET 2.



WITNESSES

H. J. Walker.
L. J. Gallagher.

INVENTOR

George W. Hoadley

BY *Merrill Co*
ATTORNEYS

UNITED STATES PATENT OFFICE.

GEORGE WM. HOADLEY, OF GARDEN GROVE, IOWA.

GRINDING-MACHINE.

1,033,586.

Specification of Letters Patent.

Patented July 23, 1912.

Application filed November 25, 1911. Serial No. 662,303.

To all whom it may concern:

Be it known that I, GEORGE W. HOADLEY, a citizen of the United States, and a resident of Garden Grove, in the county of Decatur and State of Iowa, have invented a new and Improved Grinding-Machine, of which the following is a full, clear, and exact description.

My invention relates generally to a grinding machine and more particularly is adapted to a simple and compact device especially adapted for use in grinding sickle bars used in mowing machines, as well as hand tools, the construction and arrangement being such that an improved device of this class is provided at a minimum cost of manufacture.

The principal object of the invention is to provide a new and improved grinding machine made up of parts which are so arranged that the grinding wheel may be adjusted to different bevels and angles when it is desired to sharpen the sickle of a mowing machine, the construction and arrangement of the parts being such that the device may also be used for grinding chisels, axes, and the like.

A further object of the invention is to provide a device of the class described which, in addition to its capacity for grinding sickles and hand tools, is also adapted to be held in such position that it may be used as is the ordinary grinding wheel.

Other objects and advantages of the invention will appear as the description thereof proceeds, all of which is particularly pointed out and included in the appended claims.

Reference is to be had to the accompanying drawings forming a part of this specification in which similar characters of reference denote corresponding parts in all the views, and in which—

Figure 1 is a perspective view of the device in operative position when used in grinding a mowing machine sickle; Fig. 2 is a side view of the device in operative position for grinding a hand tool; Fig. 3 is a front view of the same; Fig. 4 is a front view of the device in position to operate as an ordinary grinding wheel.

The grinding machine comprises a suitable base 1 having a number of openings 2 therein, the top of the base being preferably inclined, as shown particularly in Fig. 4, the inclined side supporting a stand 3

preferably provided with upturned ends 4, the stand being adjustably mounted on the base by means of a winged nut or bolt 5; pivotally secured between the upturned ends 4 are the oppositely-placed and preferably similarly-shaped supports 6, each having an opening at its upper end which are registering, a shaft 7 extending through the openings.

Secured to one end of the shaft 7 is a cog wheel 8 having a laterally extending handle 9 thereon whereby the shaft may be turned, the opposite end of the shaft being provided with a plate 10 preferably circular in outline and provided with a suitable number of holes 11. Also pivotally secured on the shaft 7 is a structure 12 which I term a table, the outer end thereof being provided with a transversely extending shaft 13, to one end of which a grinding or polishing wheel 14 is secured in any suitable manner, preferably by means of a nut 15, the other end of this shaft being provided with a pinion 16 meshing with the cog wheel 8.

Since the table with the pinion and grinding wheel thereon is freely supported on the shaft 7 it may occupy a variety of positions with respect to the device as a whole and this fact, together with the pivotal mounting of the uprights 6 on the base 3, makes it possible to permit the grinding wheel and the actuating cog wheel 8 to be adjustable with respect to any tool which is held in grinding position; in order to make the operation of the device automatic and also to adapt it for use in grinding different tools and tools with different bevels and angles I provide a construction, the preferred form of which is as follows. Secured to the base 3 and preferably to one of the upturned ends 4 is an arm 17 having a plurality of openings 18 at its upper end, any one of which is adapted to engage the bent end of a pitman 19, the other end of the pitman engaging in one of the openings 11 in the circular plate 10 secured to the end of the shaft 7.

Referring particularly to Fig. 1 wherein the grinding device is shown in operative position for sharpening a mowing machine sickle, it will be noted that I provide a suitable supporting device 20, preferably of trough-construction, having slots 21 extending longitudinally of each side thereof, there being a rod 22 extending transversely of the

supporting device 20 and passing through the slots 21, one end of this rod being provided with a handle 23, the intermediate portion of the rod passing through the base 1 of the machine and engaging in any of the openings 2 therein; the machine as a whole is thus adjustably mounted between the sides of the trough-supporting device and may be secured in any desired position with respect to a sickle 24 thereon by tightening the handle 23 which thereby secures the base 1 in position. In order to hold the sickle 24 in position on the supporting device any suitable means may be used, preferably a hook-shaped clamp 25, carried by a suitable block 26 secured to one of the sides of the supporting device. The grinding device having been brought to the proper position on the support, the angular relation thereto is determined by the bevel of the teeth of the sickle, the machine being moved until the surface of the grinding wheel extends at an angle corresponding to this bevel, as shown in Fig. 1, the machine being then adjusted on the base by turning the stand 3 on the base, the stand and the base being conveniently secured by means of the winged nut 5. The pitman 19 is then placed in operative position, as shown particularly in Fig. 3, one end thereof engaging in one of the openings 18 at the upper end of the arm 17, the other end engaging in one of the openings 11 in the circular plate 10, the particular openings in the arm and plate with which the ends of the pitman engage being determined by the length of the cutting edge on the sickle, which length determines the amount of travel of the grinding tool when it is operated. By turning the cog wheel 8 through the medium of the handle 9 the shaft 13 is operated and with it the polishing wheel 14, the polishing wheel and the table 12, together with the cog wheel 8 reciprocating back and forth by reason of the fixed engagement of one end of the pitman 19 with the upper end of the arm 17.

The device is adapted for use on blades of different lengths by reason of the various openings 18 and 11 whereby the to-and-fro motion of the grinding wheel may be varied; the grinding wheel is also adapted to sharpen tools with different bevels by reason of the adjustability of the base on the supporting member and the adjustability of the stand on the base. It may be desirable in the operation of the grinding device, as shown in Fig. 1 and also in Fig. 2, to apply some pressure to the grinding wheel as it travels over the beveled surfaces of the tools and to this end the table 12 affords a very convenient support for the hand whereby the pressure may be varied, depending on the tool being sharpened.

When one of the edges of one of the teeth of the sickle 24 has been sharpened the

sharpening device may be moved along the trough 20 by loosening the handle 23 and brought into position adjacent a new edge; since the length of the trough will probably be less than the length of the sickle bar, the sickle bar may be moved relatively to the trough by releasing the clamp 25. The movement of the grinding device along the trough is repeated after one edge of each tooth has been sharpened until all have been thus treated.

Referring particularly to Figs. 2 and 3 it will be noted that I have shown a grinding device adapted to sharpen a hand tool, such as a chisel, the chisel being held in position on a bracket 30 which is engaged at the outer end of the transversely extending rod 22 which extends through the slots 21 in the supporting member 20, one end of the bracket comprising a table 31 on which a rest 32 is adjustably mounted by means of a winged nut 33, the table being also provided with an adjustable clamp 34 whereby the tool is held adjacent the grinding wheel; if so desired a support 35 may be positioned on the table adjacent the wheel, the end of the chisel carrying the cutting edge resting on this support, the bevel of the chisel being such that the surface of the wheel extends entirely thereacross, as shown particularly in Fig. 2. In this case the pitman 19 is inserted into the proper openings 11 in the circular plate on the shaft 7 and openings 18 in the upper end of the arm 17 whereby turning of the cog wheel 8 will rotate the grinding wheel and also reciprocate it across the beveled end of the chisel.

The device which has been defined is equally well adapted for use in the manner of the ordinary grinding and polishing wheel and to this end I have shown in Fig. 4 a convenient means adapted for engagement with the arm 17 and one of the up-rights 6 along with one side of the table 12 whereby these three parts may be held fixed with relation to each other; this means is preferably a strap 36 having openings therein at suitable points whereby a bolt 37 may be passed therethrough and through the strap 17, another bolt 38 being passed therethrough and also through one of the up-rights 6, a third bolt engaging this strap and one side of the table 12. In this instance the pitman 19 may be dispensed with, the grinding wheel 14 turning directly and always in the same fixed position through operation of the cog wheel 8 so that different cutting edges may be held against the grinding surface of the wheel being thereby sharpened.

From the above description taken in connection with the accompanying drawings it will be apparent that I have devised a construction especially adapted to the purposes and functions as set forth in the beginning

of this specification, it being clear, however, that in matters of size and shape, as well as the choice of materials, variations may be made, such changes being determined not only in the making of a device adapted to withstand hard usages but also one which may be sold at a given price.

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

1. Mechanism of the class described comprising a base, uprights movably mounted therein, a shaft carried by the uprights, a wheel on the shaft, a table mounted on the shaft, a second shaft carried by the table, a grinding wheel thereon, a pinion also on the second shaft, and engaging the said wheel, whereby turning of the wheel on the first shaft will rotate the grinding wheel, and means for moving the uprights with respect to the base, whereby the grinding wheel is given a to and fro motion.

2. Mechanism of the class described comprising a base, uprights pivotally mounted therein, a shaft carried by the uprights, a wheel on the shaft, a table supported on the shaft, a second shaft carried by the table, a grinding wheel on the second shaft, a pinion on the second shaft, the pinion engaging the wheel on the first shaft, whereby turning of the wheel will rotate the grinding wheel, a plate carried by the first shaft, and cooperating parts in engagement with each other and in engagement with the base and the said plate respectively, whereby the table and the grinding wheel will be given a to and fro motion when the said wheel is turned.

3. Mechanism of the class described comprising a base, uprights pivotally mounted thereon, a shaft carried by the uprights, a wheel on the shaft, a perforated plate on the shaft, a table supported on the shaft, a second shaft carried by the table, a grinding wheel on the second shaft, a pinion on the second shaft and engaging the wheel on the first shaft, a fixed arm carried by the base, and means engaging the arm and the said wheel whereby, when the first shaft is turned, the table and grinding wheel will be moved to and fro, the grinding wheel being rotated.

4. Mechanism of the class described comprising a base, uprights pivotally mounted thereon, a shaft carried by the uprights, a wheel on the shaft, a perforated plate on the shaft, a table movably mounted on the shaft, a second shaft carried by the table, a

grinding wheel on the second shaft, a pinion on the second shaft, the pinion engaging the said wheel, an arm carried by the base, the arm being provided with a number of openings, and a rod engaging one of the openings, in the arm and the said perforated plate, whereby, when the said wheel is turned, the grinding wheel will also be turned and the table wheel will be given a to and fro motion.

5. Mechanism of the class described comprising a base, uprights pivotally mounted thereon, a shaft revolvably mounted in the uprights, a wheel fixed on the shaft, a plate fixed on the shaft and turning therewith, the plate being provided with openings eccentric to the center of the said shaft, a second shaft carried by the said table, a grinding wheel on the second shaft, a pinion on the second shaft, the pinion engaging the said wheel, an arm carried by the base, the said arm being provided with a number of openings, and a pitman having bent ends, the said ends being adapted to engage in one of the different openings in the arm, and an opening in the said plate whereby, when the wheel is turned, the grinding wheel will also be turned and the table and grinding wheel will be given a to and fro motion.

6. Mechanism of the class described comprising a base, uprights movably mounted on the base, a shaft carried by the uprights, a wheel on the shaft, a plate carried by the shaft, the said plate being provided with openings eccentric to the center of the said shaft, a table supported on the said shaft, a second shaft carried by the table, a grinding wheel and second shaft, a pinion on the second shaft engaging the wheel on the first shaft, a fixed arm carried by the base, the arm being provided with a number of openings, and means engaging the said arm, one of the said uprights and the said table, whereby the parts are prevented from relative movement, turning of the said wheel operating the grinding wheel, the said means being removable, whereby a rod may be brought into engagement with the arm and the said plate in order to permit a to and fro movement of the table and grinding wheel as the grinding wheel is turned.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEORGE WM. HOADLEY.

Witnesses:

CHAS. P. SCHOFIELD,
C. S. STEARNS.