April 3, 1951 W. CRAFTON ET AL 2,547,442

GRINDING DEVICE

Filed Oct. 21, 1948

Fig. 1

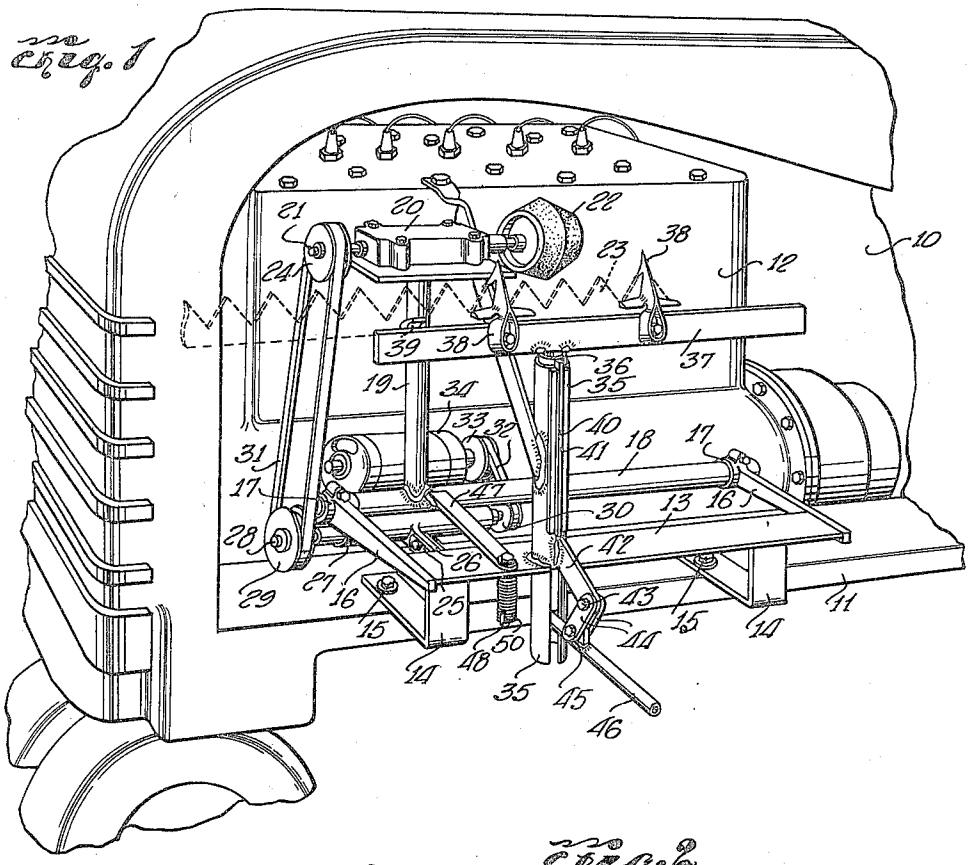


Fig. 2

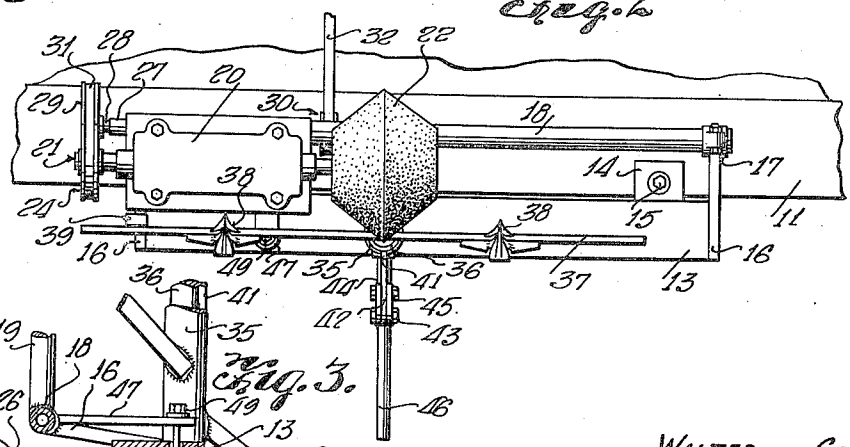
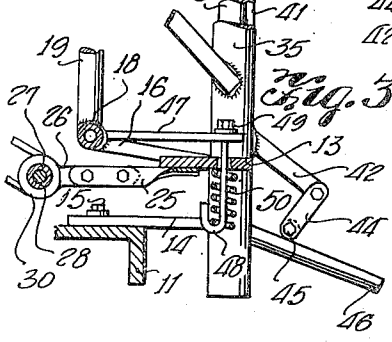


Fig. 3.



WALTER CRAFTON
JOSEPH G. YOUNG
INVENTOR.

BY

ATTORNEY

Patented Apr. 3, 1951

2,547,442

UNITED STATES PATENT OFFICE

2,547,442

GRINDING DEVICE

Walter Crafton, Dallas, and Joseph G. Young, Mesquite, Tex.

Application October 21, 1948, Serial No. 55,752

3 Claims. (Cl. 51—92)

1

This invention relates to grinding apparatus and it has particular reference to such an apparatus adapted for attachment to a tractor and driven by the generator thereof for sharpening sickle blades and for like uses.

The principal object of the invention is to provide a sickle blade sharpener which may be installed on a tractor as a permanent attachment, if desired, since its presence on the tractor will interfere in no way with normal use of the tractor. This is made possible by virtue of the compactness of the grinding attachment and the fact that neither power take-off of the tractor is required to be employed to operate the attachment. Instead, the invention is driven by the generator of the tractor through a simple belt drive which is readily removable when the attachment is not in use.

Another object of the invention is to provide a grinding device adapted to be attached to the frame of a tractor adjacent its forward end and which consists of a mounting from which rises a standard supporting a grinding wheel and shaft, forwardly of which is disposed for vertical reciprocation, a sickle blade support actuated by a hand or foot operated lever for moving the blade against the grinding wheel.

Still another object of the invention is to provide means maintained under spring tension to permit the grinding wheel to yield to the thrust of the blade as the latter is advanced thereagainst to locate the wheel with respect to the serrations of the blade and thus avoid fouling of the cutting edges of the serrations.

With the foregoing objects in view, the invention has further reference to certain features of accomplishment which will become apparent as the description proceeds, taken in connection with the accompanying drawing wherein:

Figure 1 is a fragmentary perspective view of a tractor showing mounted thereon a grinding machine embodying the invention.

Figure 2 is a top plan view, and

Figure 3 is a fragmentary end elevational view, partly in section, showing the means for yieldingly resisting movements of the grinding wheel and mounting.

Continuing with a more detailed description of the drawing, reference numeral 10 denotes a tractor on whose frame 11 the invention is adapted to be mounted, at one side of the engine 12.

The invention consists of a mounting plate 13 under which is affixed a pair of brackets 14. The plate 13 is supported by the brackets 14 outwardly from and slightly above the tractor frame 11,

2

the brackets being secured to the latter by bolts 15.

Welded or otherwise affixed to each end of the plate 13 is an arm 16. These arms extend inwardly towards the frame 11 and are provided at their inner ends with clamps 17 in which are retained the ends of a tubular member 18, the latter being capable of limited oscillation, for the purpose to be presently explained.

An upright or standard 19 is affixed, as by welding, to the tubular member 18 adjacent one end and on the upper end of the upright 19 is mounted a journal box 20 through which extends a shaft 21. On one end of this shaft is mounted a grinding wheel 22, peripherally beveled in a manner best suited for grinding sickle blades, such as suggested in dotted lines at 23 in Figure 1. The opposite end of shaft 21 carries a V-pulley 24.

On the undersurface of the mounting plate 13 is welded a pair of arms 25 which extend inwardly and between these arms is disposed an end of an arm 26, the opposite end thereof being welded to the tubular housing 27 of a jack shaft 28. The shaft 28 carries on one end a V-pulley 29 and on its opposite end a similar pulley 30. A belt 31 encircles the pulleys 29 and 24, thus to drive the grinding wheel shaft 21 from the shaft 28 while the latter is driven by a belt 32 connecting the pulley 30 on shaft 28 and a pulley 33, mounted on the shaft of the generator 34 of the tractor.

The mounting plate 13 is recessed to receive a tubular guide 35 intermediate its ends, the latter being affixed to the plate 13 as by welding, as shown. The guide 35 extends well above and below the plate 13 and slidably arranged within the same as a plunger 36. A transverse bar 37 is affixed to the upper end of the plunger and is disposed parallel with the axis of the grinding wheel shaft 21 and outwardly therefrom in order to support the sickle blade 23 in operative relation to the grinding wheel 22. At spaced points on the bar 37 are sickle guards 38 which serve adequately as retainers for the blade 23, permitting the same to be manually moved endwise as the serrations thereof are successively sharpened by contact with the grinding wheel. A lug 39 is arranged on the bar 37 opposite the guards 38 as a complementary means for retaining the sickle blade on the bar.

To raise the blade 23 into engagement with the grinding wheel, the tubular plunger guide 35 is longitudinally slotted at 40 and a longitudinal rib 41 is welded to the plunger to slide in the slot of

the guide, thus to prohibit rotative displacement of the plunger. Below the midsection of the guide 35 is welded thereto an angular arm 42 and to the outer end of this arm is pivoted at 43 a pair of parallel links 44. The opposite ends of these links are pivoted at 45 to an operating handle 46 whose inner end extends through the slot in the guide 35 to engage under the lower end of the plunger 36, thus to lift the same when the opposite end of the handle 46 is depressed by foot or hand. The blade supporting bar 37 is moved upwardly to bring the blade into engagement with the wheel 22 and the weight of the assembly lowers the same to allow shifting of the blade manually to new positions.

In order that the grinding wheel may yield slightly to the upward thrust of the blade 23 thereagainst, thus to preclude damage thereto in event of improper setting, an arm 47 is welded at one end to the tubular element 18, on which is mounted the standard 19. A hook 48, having a threaded shank extending through an aperture in the mounting plate 13 is connected to the outer end of the arm 47 by a nut 49 and depends below the plate 13. A compression spring 50 surrounds the shank of the hook 48 and the latter retains the lower end of the spring, the upper end thereof bearing against the underside of the plate 13.

It is apparent from the foregoing that when undue pressure is exerted on the lever 46 to bring the sickle blade 23 too forcibly against the grinding wheel 22, the tubular member 18 will rotate in the bearings 17, lifting the arm 47 and compressing the spring 50. The spring will expand when pressure on the grinding wheel is relieved, returning the latter to its normal position.

Manifestly, the construction as shown and described is capable of some modification and such modification as may be construed to fall within the scope and meaning of the appended claims is also considered to be within the spirit and intent of the invention.

What is claimed is:

1. In a grinding attachment for a tractor having an engine and generator a stationary mounting plate adapted to be secured to the frame of the tractor in juxtaposition to said engine, a tubular member coextensive with and supported by said plate and capable of limited oscillative displacement relation thereto, an upright affixed to said tubular member and supporting on its upper end a journal box, a shaft journaled in said box, a grinding wheel on one end of said shaft, a pulley on the opposite end of said shaft, a jack shaft parallel with and supported by said mounting plate and carrying a pulley on each end thereof, one of which has belt connection with the pulley of said shaft, a tubular guide mounted on and perpendicular to said mounting plate having a longitudinal slot therein, a plunger reciprocable in said guide, a transverse work supporting bar mounted on the upper end of said plunger, in operative relation to said grinding wheel, a lever pivoted to said tubular guide and operable in the slot thereof to actuate said plunger and work supporting bar and means adapted to connect the companion pulley of said jack shaft with a pulley on said generator for

driving said jack shaft and said grinding wheel shaft from said jack shaft.

2. A grinding device comprising a mounting plate, a tubular member coextensive with and attached to said mounting plate for limited oscillation about its longitudinal axis, an upright mounted on said tubular member, a transverse shaft supported on the upper end of said upright, a grinding wheel on one end of said shaft, a pulley on the opposite end of said shaft, a tubular guide attached to and disposed perpendicularly with respect to said mounting plate, a plunger reciprocable in said guide, a work support mounted transversely on the upper end of said plunger, a lever pivoted to said guide for reciprocating said plunger to actuate said work support to dispose work thereon operatively in relation to said grinding wheel, a jack shaft supported by and in parallelism with said mounting plate, means for driving said jack shaft and means connecting said jack shaft and the pulley on said transverse shaft for operating the latter.

3. A grinding device comprising a mounting plate and a vertically disposed, hollow guide supported thereby, a plunger reciprocable in said guide, a work support carried by the upper end of said plunger, a horizontal tubular member supported by said mounting plate for oscillation about its longitudinal axis, an upright on said tubular member, a shaft supported rotatably by said upright in substantial parallelism with said work support, a grinding wheel on said shaft, means for raising said plunger to dispose work on said support in operative relationship with said grinding wheel, an arm attached to an extending laterally from the tubular member and over said mounting plate, a hook having a shank depending from the outer end of said arm through an aperture in said plate and a coil spring compressible between said hook and said mounting plate adapted to resist oscillative displacement of said tubular member and means for rotating said grinding wheel shaft.

WALTER CRAFTON.
JOSEPH G. YOUNG.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
286,429	Haigis	Oct. 9, 1883
359,151	Hamilton	Mar. 8, 1887
623,683	Neuns et al.	Apr. 25, 1899
665,916	Latimer	Jan. 15, 1901
1,294,315	Smithson et al.	Feb. 11, 1919
2,191,764	Leon	Feb. 27, 1940
2,298,394	Littlefield	Oct. 13, 1942
2,420,645	Beeler	May 20, 1947
2,456,827	Greeley	Dec. 21, 1948
2,486,119	Coffeen	Oct. 25, 1949
2,490,244	Wahlstrom	Dec. 6, 1949

FOREIGN PATENTS

Number	Country	Date
840,274	France	Jan. 11, 1939