(No Model.)

G. W. HOYMAN.

SHAPENER FOR ROTARY PLOWS.

No. 548,198. Patented Oct. 22, 1895.

Fig. 4.

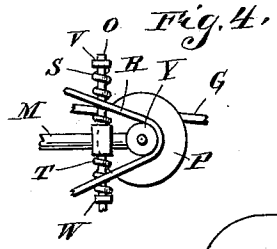
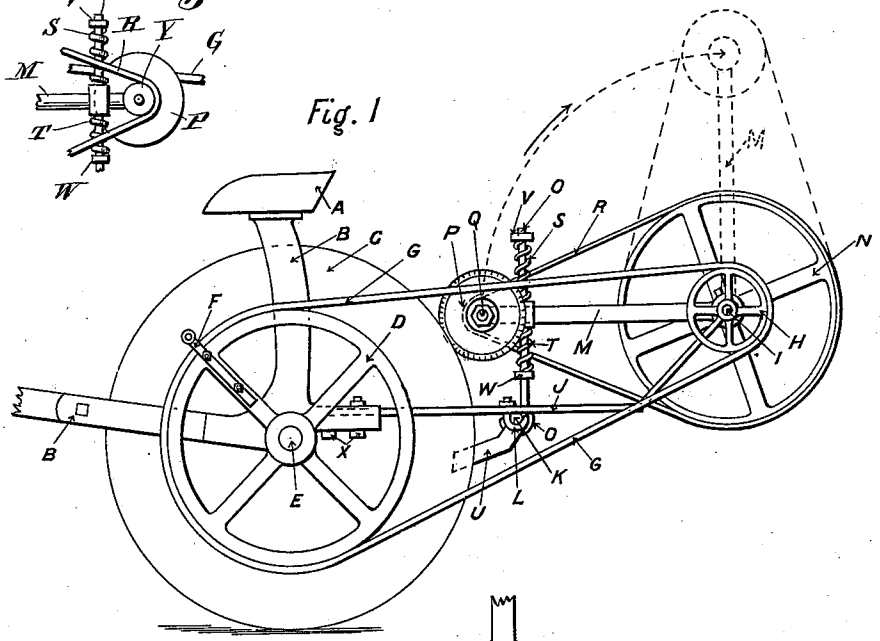


Fig. 1



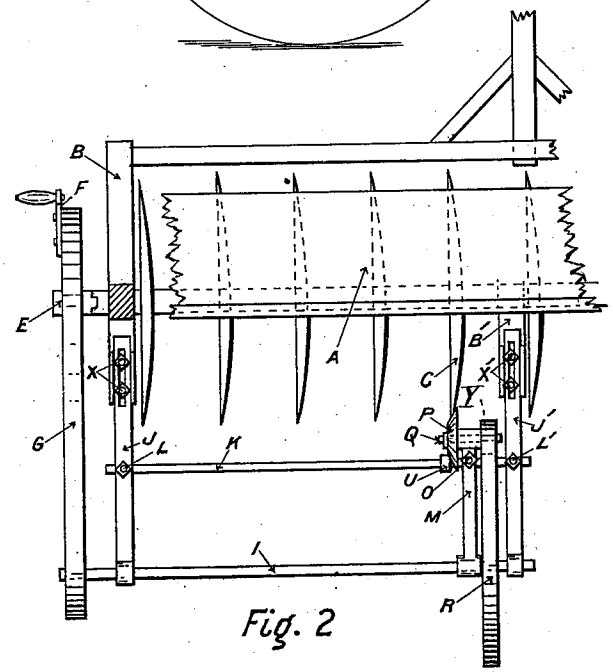


Fig. 2

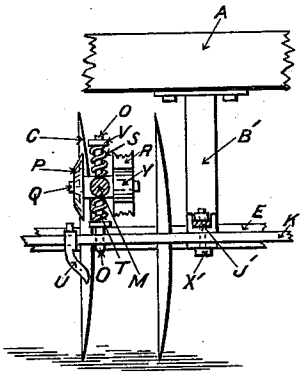


Fig. 3

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GEORGE W. HOYMAN, OF COUNCIL BLUFFS, IOWA.

SHARPENER FOR ROTARY PLOWS.

SPECIFICATION forming part of Letters Patent No. 548,198, dated October 22, 1895.

Application filed March 2, 1894. Renewed March 28, 1895. Serial No. 543,594. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. HOYMAN, of Council Bluffs, in the county of Pottawattamie and State of Iowa, have invented certain useful Improvements in Sharpeners for Rotary Plows; and I do hereby declare that the following is a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

This invention has relation to a new and novel automatic disk-sharpener for rotary plows and harrows, the object being to provide an adjustable sharpener adapted to be used in connection with a plow or harrow to sharpen the disks while the plow is being used.

In the accompanying drawings, Figure 1 shows a side elevation of a plow embodying my invention. Fig. 2 is a top view with parts broken away, while Fig. 3 shows a rear view thereof. Fig. 4 is a detail.

E represents an ordinary main supporting-shaft, which is provided with a supporting-standard B and seat A and the series of disks C, as is usual in devices of this class. Secured to the platform B are two extending arms J, removably and adjustably secured by means of their ends X, which work over the slotted ends of the bars J, as shown in Fig. 2. These bars J are provided with suitable bearings L L′, giving support to the transverse rod K, and at the outer ends with bearings adapted to give support to the operating-shaft I. Mounted upon this shaft I are two pulleys H and N. The main shaft E is in addition provided with the pulley D, as shown in Fig. 1, which is secured thereto by means of an ordinary key-collar, as is shown in Fig. 2, so that this pulley D may be thrown in or out of gear with the shaft E. This pulley D is connected to the pulley H by means of the belt G. The pulley N, mounted upon the shaft I at the opposite end, is in connection with a pulley (hidden in the drawings) upon the emery-shaft Q, which shaft is held at the forward end of the arm M, which arm M is loosely supported upon the shaft I. Extending through this rod M is an upwardly-extending rod O, which is provided with the shoulders V and W. Riding upon these shoulders are two coil-springs S and T. These springs work against the bar M, and so movably and adjustably hold the bar M to the supporting-rod O. At one end this shaft Q is provided with a bevel-edged emery-wheel P, which is adapted to work against one of the disks C. Below the transverse bar K is further provided with a scraper U, which aids in keeping the disk clean.

When all the elements are properly constructed the operation of my device would be as follows: As the plow would be carried through the field in tilling the same the axle E would, of course, be revolved and carry with it the pulley D. This pulley in turn would actuate the pulley H, being in belt connection therewith, and this pulley would revolve the shaft I and the connected pulley N, and this pulley in turn would revolve the pulleys upon the shaft Q to revolve the emery-wheel P, as shown in Fig. 3. Now if any dent or angle in the disk should be encountered the emery would find its way into the same by means of the springs T and S, which permit the emery-wheel to either raise or lower if forced up or down. The scraper U of course aids in keeping the disk clean while it is being sharpened.

It will be noticed that the device is light and that the plow is of course sharpened without loss of time, as the same is operated while the plow is in operation.

It is of course understood that there could be an emery-grinder for each of the several disks, though in making the bar O adjustable by means of a bolt the device can be shifted to any of the adjoining disks.

If the device is to be operated while the plow or cultivator is not in use, it is simply necessary to throw the pulley D out of connection with the shaft E and revolve the same by means of the operating-handle F. The bar O would then, of course, be released from the support, which is adapted to carry the emery-wheel in an upward position, as shown in dotted lines in Fig. 1, so that the sickle, ax, or any other tool could be readily sharpened.

Now, having thus described my said invention, what I claim as new, and desire to secure by United States Letters Patent, is—

1. In a sharpening device for disks and ro-

tary plows, the combination of an adjustable shaft, said shaft being detachably secured to the plow frame and provided with an emery wheel working against one of said disks, said wheel being in shaft and pulley connection with the main disk shaft, all substantially as and for the purpose set forth.

2. In a sharpening device for rotary plows and disk cultivators, the combination with a plow frame of an adjustable shaft support, a shaft within said support provided with two pulleys, one of said pulleys being in connection with the disk shaft, of an arm loosely mounted upon said supporting shaft, provided at its free end with a grinding shaft having a grinding wheel, and a pulley, said pulley being in belt connection with one of said pulleys upon said supporting shaft, and an upwardly extending rod secured to said adjustable frame and passing through said arm and provided with two shoulders and springs working upon said rod and against said shoulders and arm, all substantially as and for the purpose set forth.

3. In a sharpening device for disks and rotary plows, the combination of an adjustable shaft, said shaft being detachably secured to the plow frame and provided with a grinding wheel working against one of said disks, said shaft being in shaft and pulley connection with the main disk shaft, and a transverse rod provided with a scraper working against one of said disks, all arranged substantially as and for the purpose set forth.

4. In a rotary plow and disk cultivator the combination with a supporting frame, a main axle therein, of the pulley, E, adjustably secured to the said main supporting shaft, of an adjustable support comprising the bars, J, J′, and the rod, K, the transverse shaft, I, provided with the pulleys, H and N, said pulley, H, being in belt connection with said pulley, D, of the outwardly extending movable arm, M, working upon said shaft, of the upwardly extending bar, O, secured to said transverse bar, K, and provided with the shoulders, V and W, said bar, O, passing through an opening within said bar, M, of the springs, S and T, working against said shoulders, V and W, and against said bar, M, and provided with the pulley, Y, and grinding wheel, P, said pulley, Y, being in belt connection with said pulley, N, all substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE W. HOYMAN.

Witnesses:
G. W. SUES,
A. T. HOYMAN.