

(No Model.)

2 Sheets—Sheet 1.

T. ELLISON.

MACHINE FOR SHARPENING ROLLER DISK HARROWS.

No. 519,841.

Patented May 15, 1894.

Fig. 1.

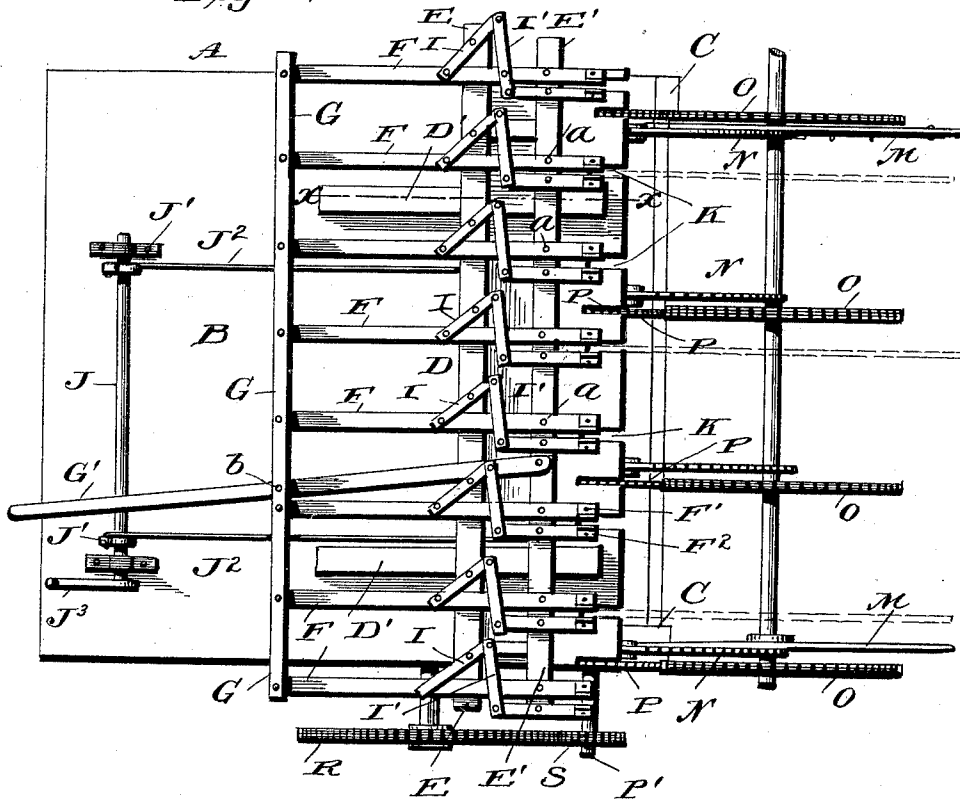
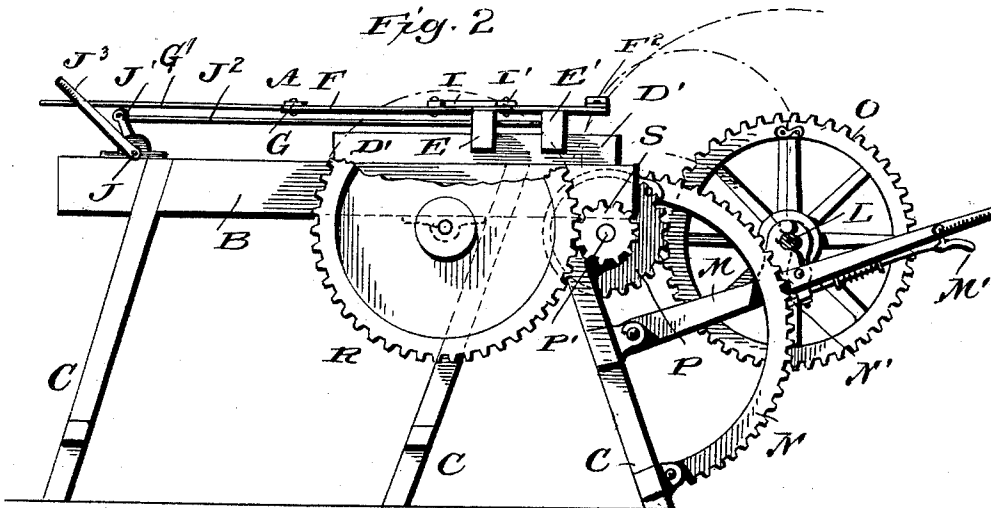


Fig. 2.



Witnesses:

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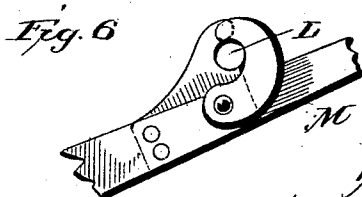
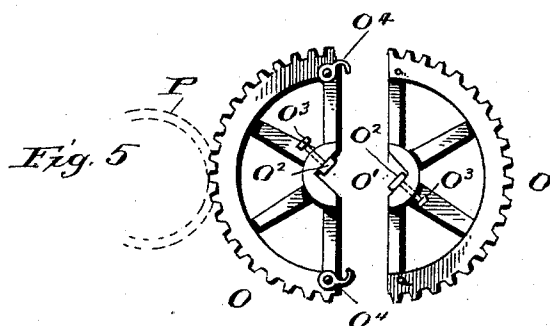
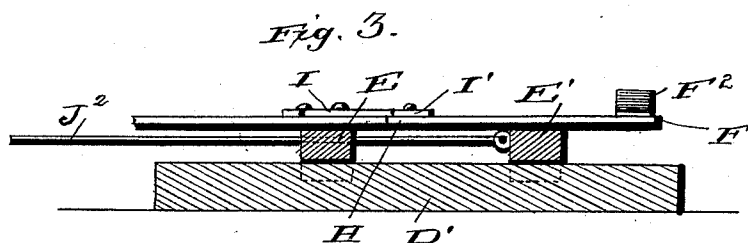
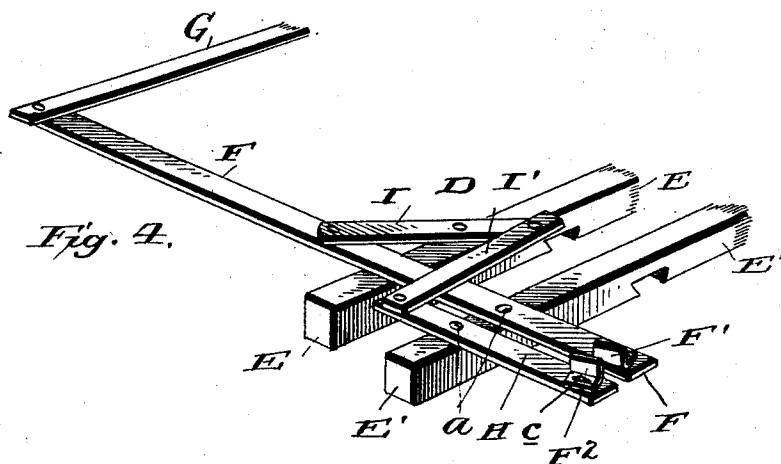
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MACHINE FOR SHARPENING ROLLER-DISK HARROWS.

SPECIFICATION forming part of Letters Patent No. 519,841, dated May 15, 1894.

Application filed March 8, 1894. Serial No. 502,854. (No model.)

To all whom it may concern:

Be it known that I, THOMAS ELLISON, a citizen of the United States, residing at Vermont, in the county of Fulton and State of Illinois, have invented certain new and useful Improvements in Machines for Sharpening Roller-Disk Harrows; and I do declare the following to be 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, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to certain new and useful improvements in machines for sharpening harrows, and it has for its object to provide a simple and inexpensive machine of the character mentioned, which is specially adapted for use in sharpening the roller disks upon roller disk pulverizers or harrows, without the necessity of removing the disks from the harrow, means being provided for so adjusting the cutting mechanism of the sharpeners as to adapt the machine for use with equal facility upon disks of different diameters and of different thicknesses.

To these ends and to such others as the invention may pertain the same consists in the peculiar construction and in the novel combination, arrangement and adaptation of parts, all as more fully hereinafter described, shown in the accompanying drawings, and then specifically defined in the appended claims.

The invention is clearly illustrated in the accompanying drawings, which, with the letter of reference marked thereon form a part of this specification, like letters of reference indicating the same parts in all of the several views, and in which drawings—

Figure 1 is a plan view of the machine. Fig. 2, is a side view of the same. Fig. 3, is a section upon the line x, x of Fig. 1. Fig. 4, is an enlarged detail view in perspective of a portion of the sharpening mechanism. Fig. 5, is a detail view of the sectional gear. Fig. 6, is a detail of the lever m , with its bearing.

Reference now being had to the details of the drawings by letter, A designates the machine, which consists essentially of the main frame or platform B, having suitable legs or supports C, C.

D represents the sharpening mechanism of the machine, and is constructed as follows: Secured to the top of the platform B, are two or more bars D' , which are preferably wider at the top than at the bottom, and the strips or bars when secured in position extend longitudinally of the machine at the end of the platform which is provided with the sharpeners, as will presently appear.

E, E' are parallel bars which extend transversely across the machine above the rods or bars D' , being provided with dovetailed recesses which loosely engage the same and permit their being moved freely thereon, to adjust the cutting mechanism to disks of varying diameters, as will be more fully hereinafter described.

F, F, are parallel strips of steel or other suitable metal. These strips, which at their free ends carry the sharpening knives F' , are each pivoted at points near their free ends to the bar E' , by means of vertical pins or pivots a, a , and at the opposite or inner ends of the strips they are in like manner pivoted to a metallic strip G. A lever G' pivotally secured at one of its ends to the bar E' and also pivoted at b to the strip G, serves to permit the angle of the several knife carrying strips or levers F, with reference to the platform B to be simultaneously and uniformly varied, as will be readily understood.

H, H are short levers which upon their free ends carry the sharpening knives F^2 . These levers H, are pivotally attached at their longitudinal centers to the upper face of the transverse movable timber or bar E' .

I are short levers, pivoted at their longitudinal centers to the upper face of the transverse movable bar E. Each of the said pivoted levers I, is pivoted at one end to one of the strips F, while the opposite ends of said levers are pivotally connected with the links I' , which links are in turn pivoted at their opposite ends to the inner ends of the knife-carrying levers H.

To permit the frame carrying the sharpening knives to be adjusted forward or back, in order to adapt the sharpening mechanism to disks of different diameters, I provide upon the platform B, a suitably journaled rock-shaft J, the arms J' of which shaft are connected with the transverse timbers E and E' ,

by means of rods or links J². The rock shaft is adapted to be turned by means of a suitable operating lever J³ at one of its ends, as shown.

5 The end of the platform which is provided with the sharpening knives, is provided with a series of slots K, K, corresponding in number and relative location with the number and positions of the sets of cutting tools.
10 These slots are designed to receive the disks of the harrow or pulverizer to be sharpened, and are of a width sufficient to permit said disks to be loosely inserted therein.

The shaft of the harrow with the disks still
15 attached thereto is journaled in the bearings L, L, which are provided at the free ends of the pivoted arms or levers M, said levers being at their inner ends pivoted to the main frame of the machine, and being adapted to
20 be moved upon their pivots by means of suitable levers M', and to be locked in their adjusted positions by the engagement of pawls N' with the teeth or notches of the quadrants N.

25 The disk-shaft of the harrow is provided with a series of cogged wheels O, which wheels are made in sections as shown, so as to permit them to be readily attached and secured to the shaft. These sectional gear wheels are
30 each made in two parts or sections, and the wheel is provided with a square central opening O' of considerably greater width than the diameter of the disk shaft, and at opposite
35 sides of this central opening are placed metallic blocks having sharpened inner edges to engage the shaft. These blocks O² are adapted to be forced into close engagement with the shaft, by means of set-screws O³,
40 and the two sections of the wheel when united around the shaft are locked together in any suitable manner, as for instance by the latch O⁴. These sectional gear wheels O are placed
45 at intervals of the length of the disk shaft of the harrow, so that one wheel will be placed between each set of sharpening knives as shown, and said wheels gear with the cogged
50 wheels P, P which are carried by the transverse shaft P', which shaft is provided with suitable journal bearings beneath the end of the platform B of the machine, and to the
said shaft motion is conveyed from any suitable source of power through the train of
gearing represented by the gears Q, R and S.

55 It is at once evident that the machine can be readily adapted for use by hand power, by making the necessary changes in construction which would permit the use of either hand wheel or tread mechanism.

60 The operation of the machine is simple and from the foregoing description will be readily understood. The disk shaft of the harrow having been secured in place, and the sectional gear wheels secured thereto, the edges of the disks will enter the slots K. The
65 sharpening mechanism is then properly ad-

justed by the hand lever connected with the rock-shaft J. The sharpening knives F', (which, it will be observed each consist of an angular plate of steel having one portion which is provided with a slot, resting upon
70 the upper face of the end of the levers F, a pin c passing through the slot, while the other arm of the knife extends vertically and is provided with the cutting edge) are properly
75 adjusted. Motion being now imparted to the gear mechanism of the machine, hereinbefore described, all of the disks upon the disk shaft of the harrow will be simultaneously sharp-

80 ened. The sharpening knives are of such shape and are so attached as to admit of their ready removal for sharpening when necessary.

Having thus described my invention, what I claim to be new, and desire to secure by Letters Patent, is—

1. The herein described sharpening mechanism for simultaneously sharpening a series of harrow disks while the said disks are still held to the shaft, comprising in combination
90 a shaft carrying a series of harrow disks, a sectional geared wheel adapted to hold the said shaft for revolution with a geared mechanism, a geared segment, lever and pawl to raise and lower said shaft, all substantially as shown and described.

2. In combination with the platform B and its supports, the transverse bars or timbers movable thereon, the levers pivoted to said bars and carrying sharpening knives, lever mechanism for simultaneously changing the
100 angles of the knives, the rock shaft, having an actuating lever, and connections between said shaft and the cross bars whereby the said bars may be moved, substantially as described and for the purpose specified.

3. In combination with the levers carrying the sharpening knives, the knives mounted thereon, said knives consisting of strips of metal bent at right angles at their longitudinal
110 centers, one arm resting upon the lever and adjustable thereon, and its other end extending vertically and provided with a cutting edge, substantially as described.

4. In a machine of the character described, the combination with the machine, its levers, sharpening knives, and adjusting mechanism for the knives, adjustable bearings for the disk shaft of a harrow, sectional gear wheels adapted to be secured to the disk shaft
120 and to mesh with gear wheels upon the machine, and mechanism substantially as described for rotating the disk-shaft, substantially as described and for the purpose specified.

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

THOMAS ELLISON.

Witnesses:

MILTON JENKINS,
E. B. NELSON.