

UNITED STATES PATENT OFFICE.

JOHN B. COMSTOCK, OF NEW ORLEANS, LOUISIANA.

GRINDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 377,883, dated February 14, 1888.

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To all whom it may concern:

Be it known that I, JOHN B. COMSTOCK, of New Orleans, in the parish of Orleans and State of Louisiana, have invented a new and Improved Grinding-Machine, of which the following is a full, clear, and exact description.

The object of my invention is to provide a new and improved grinding-machine for grinding and sharpening circular knives used on plantation-plows and other machinery.

The invention consists in the construction and arrangement of certain parts and details and combinations of the same, as will be fully described hereinafter, and then pointed out in the claims.

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

Figure 1 is a side elevation of my improvement with parts in section. Fig. 2 is a vertical cross-section of the same on the line $x x$ of Fig. 1, looking in the direction of the arrow x' ; and Fig. 3 is a similar view of the same on the line $y y$ of Fig. 1, looking in the direction of the arrow y' .

The table or stand A supports the standards B and B', on which is mounted the main driving-shaft C, carrying on one end a gear-wheel, D, provided with a handle, E, for turning said wheel and main shaft C. Into the gear-wheel D meshes the pinion F, rotating on a stud, G, secured on a bracket formed on the standard B'. The pinion F is attached to the face of a gear-wheel, H, meshing into a gear-wheel, I, adjustably secured to the shaft J, mounted in the bearings K and L, of which the bearing K is hung on the screws N, screwing in the standard B'. The other bearing, L, is adapted to slide vertically in suitable guides formed in the standard B, and said bearing L is supported by the spring O, held in the said standard B, and pressing said bearing upward against the screw-rod P, which serves to adjust said bearing L up or down on the standard B.

On the outer end of the shaft J is mounted the grinding-wheel Q, of emery or other suitable material. On the outer end of the main shaft C is secured the bevel-pinion R, meshing into the bevel gear-wheel S, turning on the stud T, secured to a bracket, U, fastened on the

standard B. The bracket U supports a rod or rest, W', the upper end of which fits into a groove, S', formed in the under side of the bevel gear-wheel S, and in the center of the gear-wheel S is secured a plate, V, to the center of which is fastened the upwardly-extending screw-rod V', on which screws the cone-shaped nut-collars W, adapted to hold the knife to be ground in place on said screw-rod V', so that the knife X turns with the bevel gear-wheel S when the main shaft C is rotated.

The shaft J can be adjusted sidewise by adjusting the collar J' and the gear-wheel I, thus permitting the shaft to slide in its bearings K and L, whereby the grinding-wheel Q is moved nearer to or farther from the center of the screw-rod V'. The grinding-wheel Q is placed at an angle to the knife, X, to be ground by screwing the screw P upward or downward, so as to adjust the bearing L in the standard B, as the spring O is either compressed or expanded by screwing said screw P. The screws N, on which the bearing K is hung, permit of an up-and-down adjustment of the front end of said shaft J, as said bearing K can turn on said screws N.

The knife, X, to be ground can be raised or lowered according to the diameter of the grinding-wheel Q by adjusting the nut-collars W on the screw-rod V'. The bevel gear-wheel S is prevented from warping by the rest W' engaging the groove S' of said gear-wheel.

The operation is as follows: The operator, on turning the gear-wheel D, imparts a rotary motion to the shaft C, and at the same time a similar motion is imparted to the shaft J by means of the pinion F and the gear-wheels H and I. The rotary motion of the shaft J revolves the grinding-wheel Q, which, on coming in contact with the knife X, grinds the same. The rotary motion of the main shaft C is transmitted to the bevel gear-wheel S by the pinion R, and as the knife, X, to be ground is secured to the screw-rod V', held centrally on said revolving gear-wheel S, it is also rotated, thus presenting its entire circumference to the rim of the grinding-wheel Q.

The grinding-wheel Q rotates very rapidly, while the knife, X, to be ground turns slowly with the large bevel gear-wheel S. The spindle V' stands at an obtuse angle to the shafts C and J, so as to permit of grinding a beveled

edge on the outer rim of the knife X. The bevel may be changed by adjusting the screw-rod P up or down, so as to increase or diminish the degrees of the obtuse angle between the spindle V' and the shaft J.

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

1. The combination, with the frame B B', the upper and lower horizontal shafts, J C, journaled therein, the gearing connecting the outer ends of said shafts, the grinding-wheel Q on the inner end of shaft J, and the pinion R on the inner end of the shaft C, of the bracket U, projecting from the inner end of the frame, and having a stud, T, extending up from its outer end at an obtuse angle to the shaft C, the large gear-wheel S on the said stud, the screw-shaft V', secured to the gear-wheel S in line with the stud T, and the nuts W, substantially as set forth.

2. The combination, with the frame, the shaft J, having the grinding-wheel, the shaft C, having the pinion R below the grinding-wheel, and the gearing connecting the two said shafts, of the bracket U, having the stud T secured to its outer end at an obtuse angle to the shaft C, the large gear-wheel S on the said stud, the plate V, secured to the said gear over the stud, the screw-shaft V', secured to

said plate in line with the stud, and the nuts W, substantially as set forth.

3. In a grinding-machine, the combination, with the grinding-wheel shaft J and the grinding-wheel Q, secured on said shaft, of the bearing K, supporting one end of said shaft J, the screws N, on which said bearing K is hung, the bearing L, supporting the other end of said shaft J and adapted to slide vertically, the spring O, supporting said bearing L, and the screw P, against which said bearing is pressed by said spring O, substantially as shown and described.

4. In a grinding-machine, the combination, with the main driving-shaft C and the bevel-pinion R, secured on said shaft, of the bevel gear-wheel S, meshing into said pinion R and provided with an annular groove, S', the stud T, on which rotates the said bevel gear-wheel S, being held at an obtuse angle to said main shaft C, and the rest W', adapted to engage said annular groove S', and serving to support said bevel gear-wheel S, substantially as shown and described.

JOHN B. COMSTOCK.

Witnesses:

WM. I. NORTON,
WILLIAM BIRTLES,
FELIX J. DREYFOUS.