(No Model.)

G. W. KING.

HARVESTER KNIFE GRINDER.

No. 270,548. Patented Jan. 9, 1883.

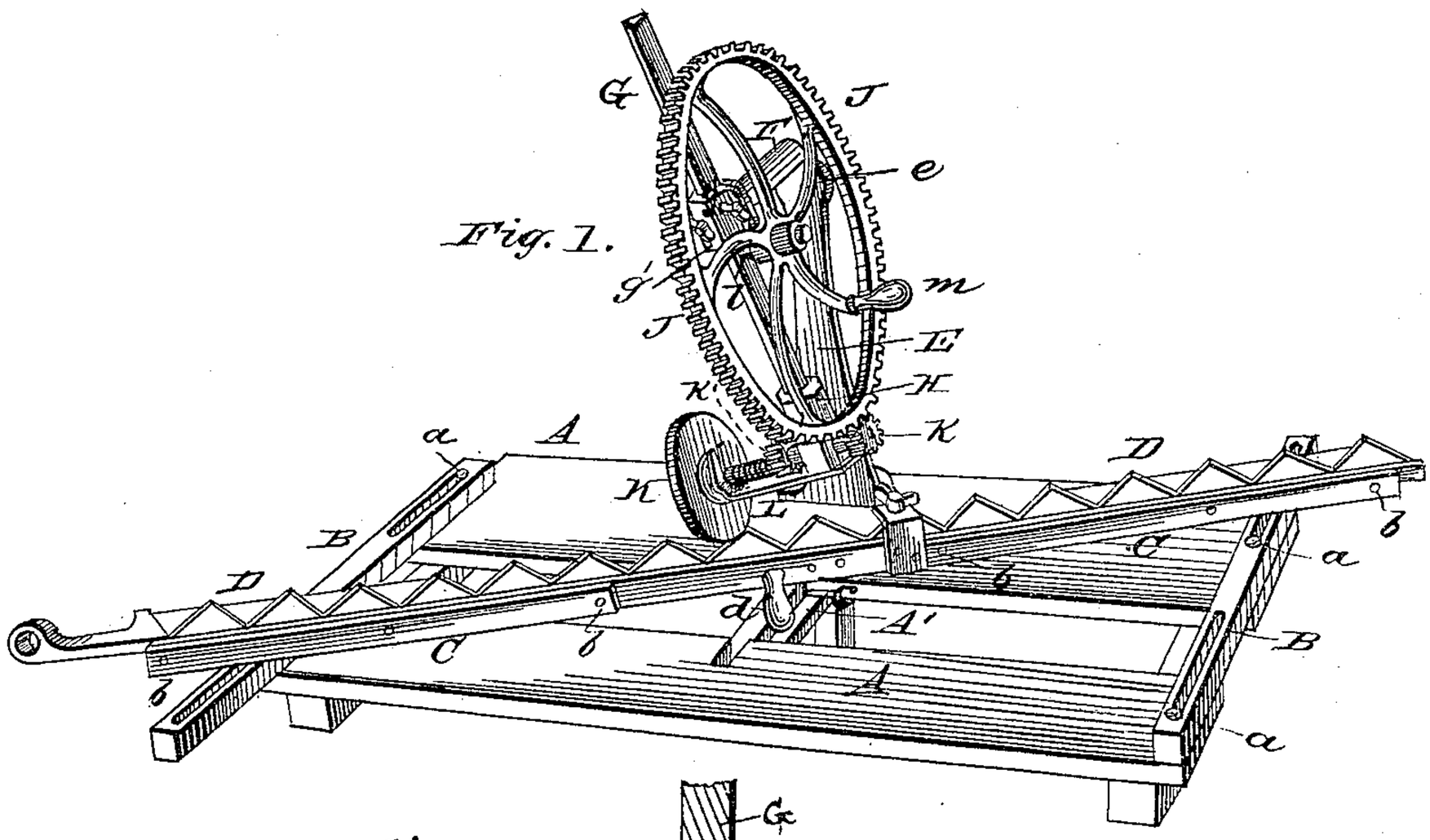

Fig. 1.

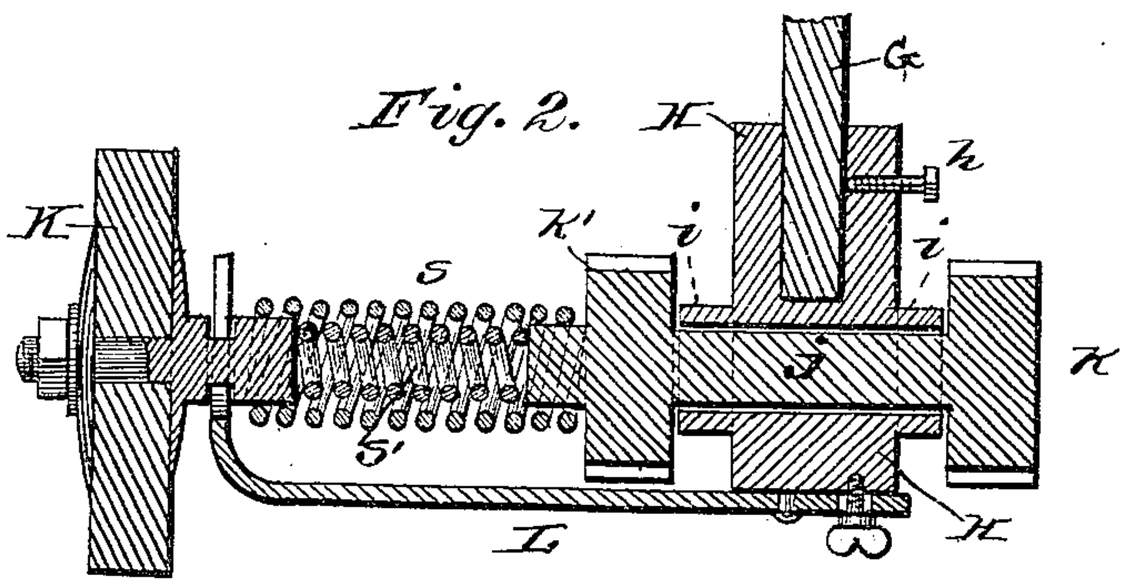

Fig. 2.

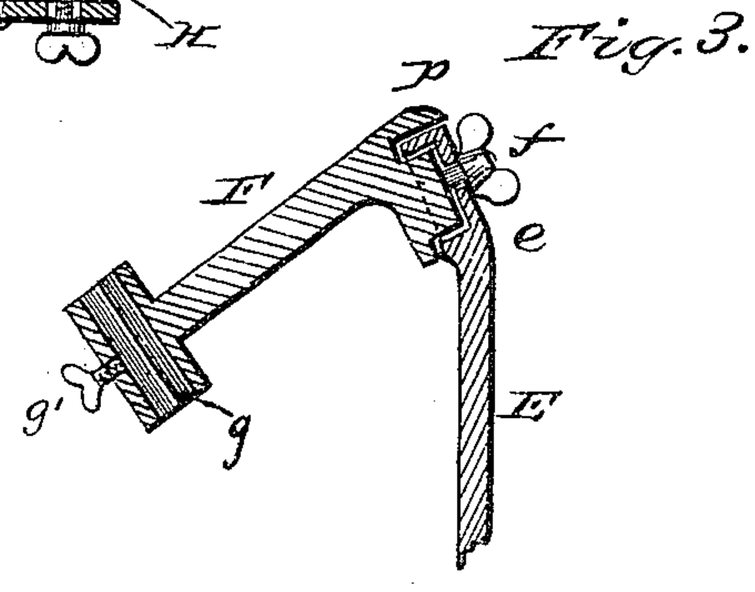

Fig. 3.

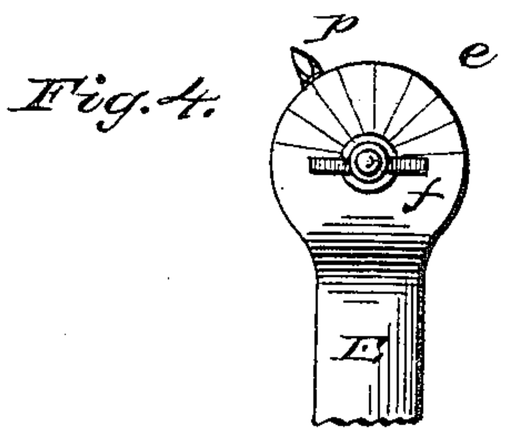

Fig. 4.

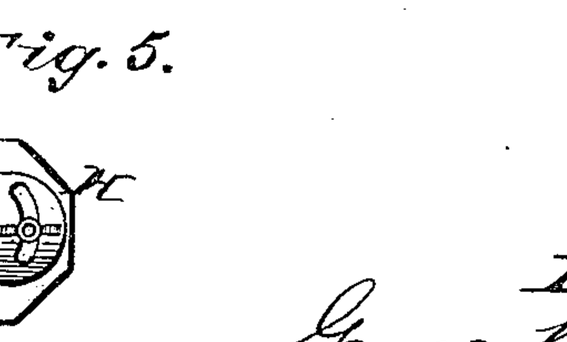

Fig. 5.

Witnesses:
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UNITED STATES PATENT OFFICE.

GEORGE W. KING, OF CHICAGO, ILLINOIS, ASSIGNOR TO WM. W. KING AND CHARLES E. COBURN, OF SAME PLACE.

HARVESTER-KNIFE GRINDER.

SPECIFICATION forming part of Letters Patent No. 270,548, dated January 9, 1883.

Application filed November 15, 1882. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. KING, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Harvester-Knife Grinders; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification, in which—

Figure 1 is a perspective view of my improved harvester-knife grinder, showing the several parts in position for grinding the blades. Fig. 2 is an enlarged view in detail of the grinding-wheel, its flexible joint, the two pinion spur-wheels, and the reversible bearing-block, all shown in section. Fig. 3 is a view in detail of the upper part of the fixed standard and the adjustable bracket which is secured thereto. Fig. 4 is a view of the back of the standard at its upper end, showing the gage-marks; and Fig. 5 is a view in detail.

This invention relates to certain novel improvements on machines for grinding or sharpening the knives of reaping and mowing machines, which improvements will be fully understood from the following description when taken in connection with the annexed drawings.

The letter A designates the horizontal bed of the machine, which is composed of parallel boards separated by a broad space and secured to transverse end pieces, and an intermediate slotted piece, A′, which crosses the space above referred to. At the extremities of the bed A, and endwise adjustable thereon, are bearers B B, which are slotted longitudinally and secured down upon the bed by set-screws *a*. These bearers afford supports for the straight bar C, to which the knives D are secured by clamp-screws *b b*. At the middle of the length of the bar C, and rigidly secured to its under side, is a post or pivot, *c*, which is received into the slot in the piece A′, and thus serves as a guide for the knife carriage or bar C while manipulating the same during the process of grinding the knives D. This manipulation is effected by the operator, who grasps the handle *d* on bar C.

E designates a standard, which is rigidly secured upon the back-board of the bed A, and which is constructed with a socket in its enlarged perforated head *e*, adapted to receive a round tenon formed on the rear end of a bracket-arm, F, which latter is rigidly but adjustably secured to said head by means of a set-screw, *f*. To the front end of the bracket-arm F, I secure a vertically or endwise adjustable rod, G, which is prismatic in cross section, and is held in a box, *g*, on the end of arm F. By loosening a set-screw, *g′*, which is tapped through the box *g*, the rod G may be adjusted endwise, and by loosening the set-screw *f*, which confines the arm F to the standard E, the rod G can be adjusted at any desired angle to the right or left of a vertical plane.

To the lower end of the rod G, I rigidly secure, by means of a set-screw, *h*, a bearing-block, H, to two opposite sides of which are secured, in any suitable manner, sleeves *i*, through which and the block H passes a short shaft, *j*, on the ends of which are keyed pinion spur-wheels *k k′*, adapted to engage, one at a time, with a large spur-wheel, J, which has its bearing on a stud, *l*, fast on the rod G. This large wheel J has a handle, *m*, by which the attendant can conveniently turn it. On one end of the short shaft *j* are secured two helical springs, *s s′*, one within the other, and to the outer ends of these springs the grinding-wheel K is suitably secured. I thus form a flexible connection between the grinding-wheel and the shaft which gives it rotation, which connection will allow the said wheel K to accommodate itself to its work with a yielding pressure. The internal spring, *s′*, of said joint is coiled in an opposite direction to the coil of the external spring, *s*.

To the bottom of the block H, I rigidly secure a shoe or guide, L, the outer bifurcated end of which is turned up, and in the crotch of this shoe is applied the flexible joint of the grinding-wheel K. The forked portion of the shoe prevents lateral motion of the flexible joint, but allows the latter freedom to move up and down during the operation of the machine. The shoe L is slotted, and receives through the slot a set-screw, as shown in Fig. 5, for the purpose of allowing this shoe to be set at an

angle with respect to the block H. This adjustment will not affect the working of the grinding-wheel, for the reason that the flexible joint will accommodate itself to any required angle given to the shoe and the grinding-wheel. After grinding the edges of the teeth on one side thereof the angle of the bar C is reversed on the bed A, and the angle of the rod G is also reversed. The block H is removed from the bar C and reversed, so that the grinding-wheel will now be on the right-hand side of said bar. The pinion-wheel *k'* will in this case engage with the large driving-wheel J, and the machine is ready for grinding the teeth on the opposite edges to those previously sharpened. I am thus able to change the grinding-wheel and its bearings from right to left, and vice versa without changing the main driving-wheel. By means of gage-marks on the back of the standard-head and a pointer, *p*, on the rear end of the bracket-arm F the exact angle of the stone can be determined either for the right or left adjustment.

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

1. The combination of the removable or reversible block H, the shaft bearing pinions, the bifurcated shoe, the flexible portion *s s'*, the grinding-wheel, and the rod G, adjustable at different angles, all adapted to operate substantially in the manner and for the purposes described.

2. The combination of the standard E, the bracket-arm adjustably applied thereto, the rod G, endwise adjustably applied to said arm, the block H, the shaft passed through the same and bearing pinions, the grinding-wheel flexibly connected to this shaft, the bifurcated shoe adjustably applied to the reversible block H, and the large spur-wheel J, all combined and adapted to operate substantially in the manner and for the purposes described.

3. In a harvester-knife grinder, the combination of the grinding-wheel, the pinion-shaft, the bearing-block, its shoe, and a flexible connection between the grinding-wheel and the said pinion-shaft, substantially as described.

4. The combination of the grinding-wheel, the flexible connection of this wheel with the pinion-shaft, the reversible bearing-block, and the adjustable shoe, constructed and adapted to operate substantially as described.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

GEORGE W. KING.

Witnesses:

A. R. SHERRILL,

GEORGE WASHINGTON SICKELS.