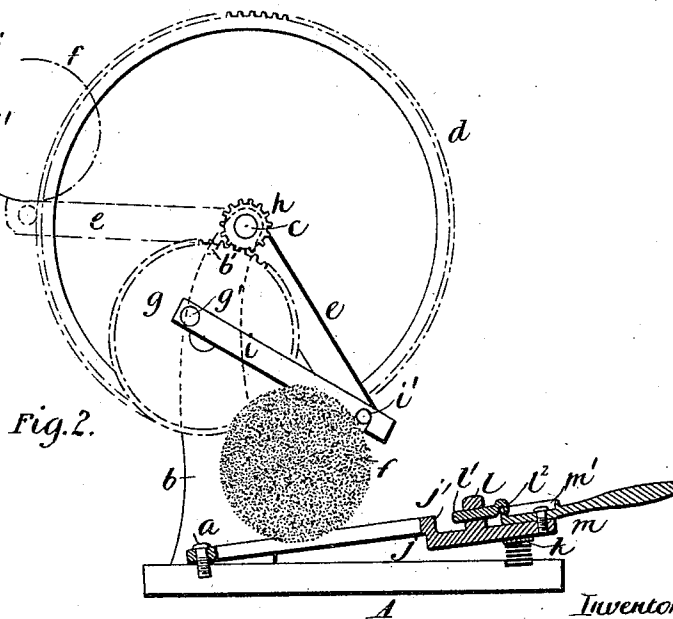
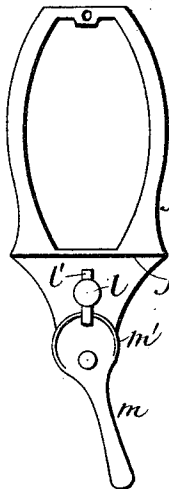
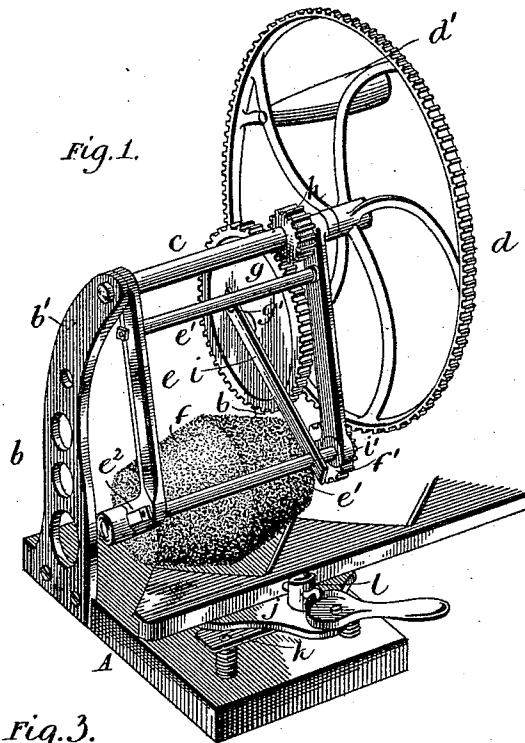


(No Model.)

D. A. DANFORTH.
APPARATUS FOR GRINDING SICKLES.

No. 464,817.

Patented Dec. 8, 1891.



Witnesses:

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UNITED STATES PATENT OFFICE.

DELOS A. DANFORTH, OF ELKHART, INDIANA, ASSIGNOR OF ONE-HALF TO
ALBERT N. CHAMBERLAIN, OF SAME PLACE.

APPARATUS FOR GRINDING SICKLES.

SPECIFICATION forming part of Letters Patent No. 464,817, dated December 8, 1891.

Application filed July 29, 1891. Serial No. 401,030. (No model.)

To all whom it may concern:

Be it known that I, DELOS A. DANFORTH, a citizen of the United States, residing at Elkhart, in the county of Elkhart and State of Indiana, have invented certain new and useful Improvements in Apparatus for Grinding Sickles; and I do hereby 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.

My invention relates to machines for grinding harvester-knives, and has for its object to improve the general construction, to provide means for automatically reciprocating the frame which carries the grinding-wheel, and to provide new and improved means for holding the knife in position during the grinding operation.

To these ends my invention consists in the new and novel construction and arrangement of the several parts constituting my improved grinding-machine, all of which will be fully described in this specification and specifically pointed out in the claims.

Reference being had to the accompanying drawings, which form a part of this specification, Figure 1 represents in perspective view my improved grinding-machine. Fig. 2 is a vertical central section; Fig. 3, a top view of the knife table or support and the device for locking the knife in position.

Like letters of reference in the several figures of the drawings denote like parts.

The reference-letter A denotes the base which supports the working parts, and which may, if desired be secured to a table or stand. Extending upward from the base are two standards *b b*, in the upper ends of which is journaled the driving-shaft *c*, which serves also as a connecting-brace for said standards.

d is a driving-gear, which is adapted to be revolved by hand, a suitable handle, as at *d'*, being employed for this purpose.

e represents a frame formed of two arms rigidly connected by cross-braces *e' e'* and having extending at right angles therefrom short standards *e² e²*, in which is mounted the grinding-wheel *f*, of the usual double-cone

shape. On one end of the shaft of the grinding-wheel is a pinion *f'*, which gears with the driving-gear *d* and through which the grinder is rotated. Lugs or stops *b'* are formed on the inner sides of the standards *b b* and support the frame *e* when in the position shown by dotted lines in Fig. 2. Journaled on one of the standards is a gear *g*, which receives motion from a pinion *h* on the driving-shaft.

i is a pitman, which is secured at one end to a crank-pin *g'* on the gear *g*, and which is provided at its other end with a recess *i'*, which receives the outer brace-rod *e'*. By reason of this pitman connection the frame *e* and grinder receive a reciprocating movement backward and forward over the knife, which brings the grinder into contact with every portion of the teeth of the knife and insures the proper grinding and sharpening thereof.

j is the table or support on which the knife rests during the grinding operation and to which the knife is secured in a way presently to be described. The table is loosely connected at its inner end to the base by a screw or bolt *a* and rests at its outer end on a spring-frame *k*, which forms a yielding support. Near the outer end of the table is formed a shoulder *j'*, against which abuts the shoulder formed on the under side of the knife. The knife is locked in position by means of devices now to be described.

l represents a stud formed on the table, having an opening through the same through which passes a pin *l'*, having a head thereon formed with a recess *l²*, which receives the flange *m'* of a cam-shaped locking-piece *m*. This locking-piece *m* is pivoted on the outer end of the table and is provided with a handle for manipulation. When the handle is swung from right to left, the cam forces the pin inward against the knife and effectually locks it in place.

In the operation of the machine the handle of the locking-piece is grasped by the operator, and by reason of the spring-support the table may be raised or depressed or moved to either side in order to grind out nicks or other imperfections in the metal.

It will be evident by my construction that

I am enabled to manufacture very inexpensively a grinding-machine in which the general structure is improved, and by reason of the several novel features great accuracy and good work can be attained.

What I claim is—

1. In a grinding-machine of the class described, the combination, with the main frame and with a gear mounted thereon and adapted to be rotated, as described, of the grinder-frame pivoted to the main frame and having pitman connection with a pin eccentrically set on said gear, for the purpose set forth.

2. In a grinding-machine of the class described, the combination, with the main frame and with the driving-shaft supported therein, having the driving-gear and pinion thereon, as described, of the grinder-frame pivotally connected to the main frame and having a pinion thereon connected to the grinder-shaft and engaging the driving-gear, the crank-gear hung on the main frame and engaging with the pinion on the driving-shaft, and a pitman connecting the outer portion of the grinder-frame and a pin on the crank-

gear, substantially as and for the purpose described.

3. In a grinding-machine of the class described, and in combination with the grinder and its operating mechanism, a table for supporting the knife, constituted of a plate connected to the base at its inner end and resting on a yielding support at its outer end and having a handle thereon, whereby an adjustment by hand of the table in any desired direction may be permitted.

4. In a grinding-machine of the class described, the combination, with a knife-holding table having a shoulder formed thereon, of a pin for locking the knife in place, supported in a stud on the table and having a recess in its outer end, and a locking-piece formed of a cam having a flange engaging said recess, for the purpose set forth.

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

DELOS A. DANFORTH.

Witnesses:

JESSIE WILLIAMS,

CHARLES H. WATSON.