2 Sheets—Sheet 1.

J. M. CONNEL.

Harvester Knife-Sharpener.

No. 210,011. **Patented Nov. 19, 1878.**

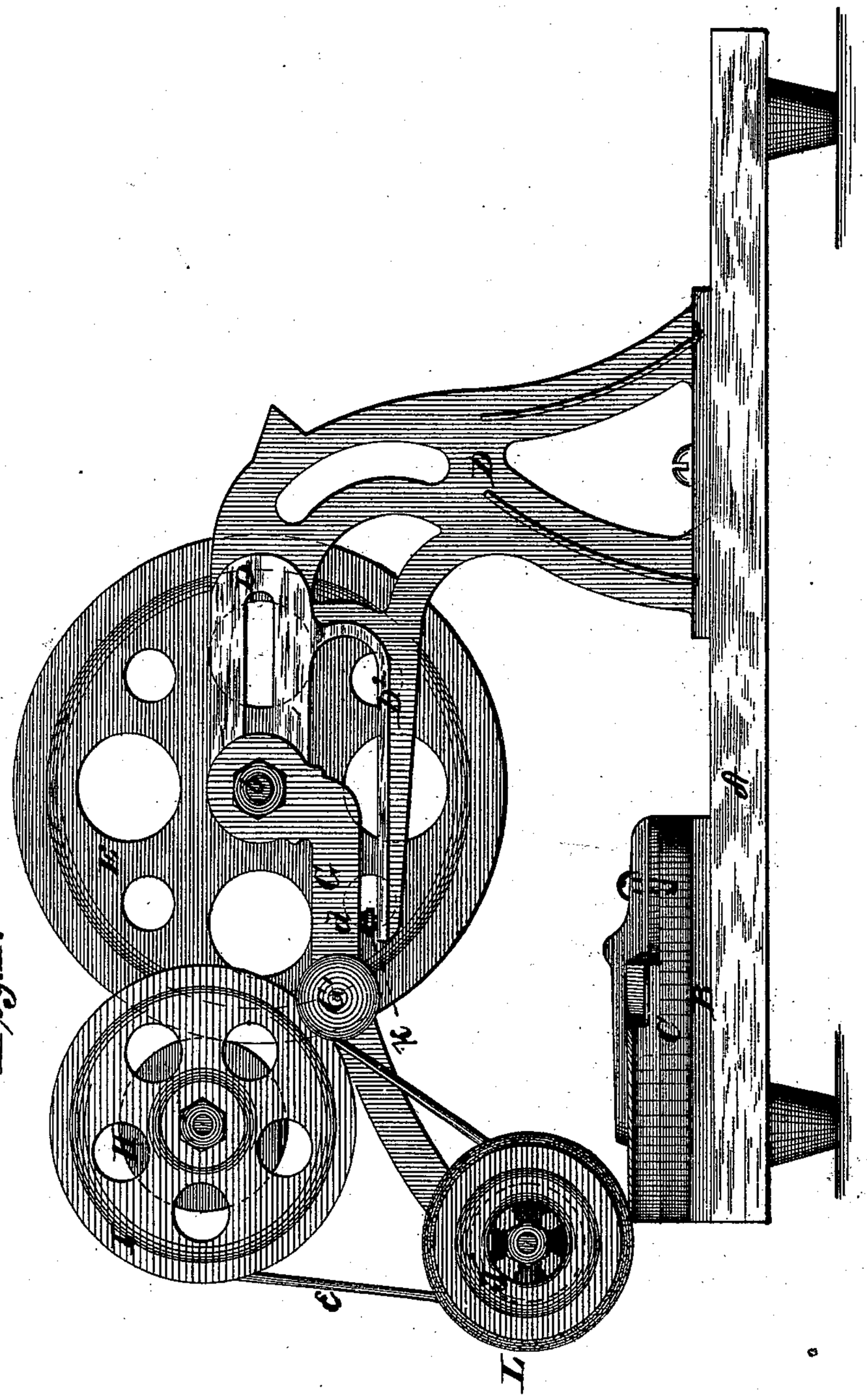

Fig. 1.

WITNESSES

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Frank Gault

INVENTOR

James M. Connel

Alexander Dyasse

ATTORNEYS

2 Sheets—Sheet 2.

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Fig. 3.

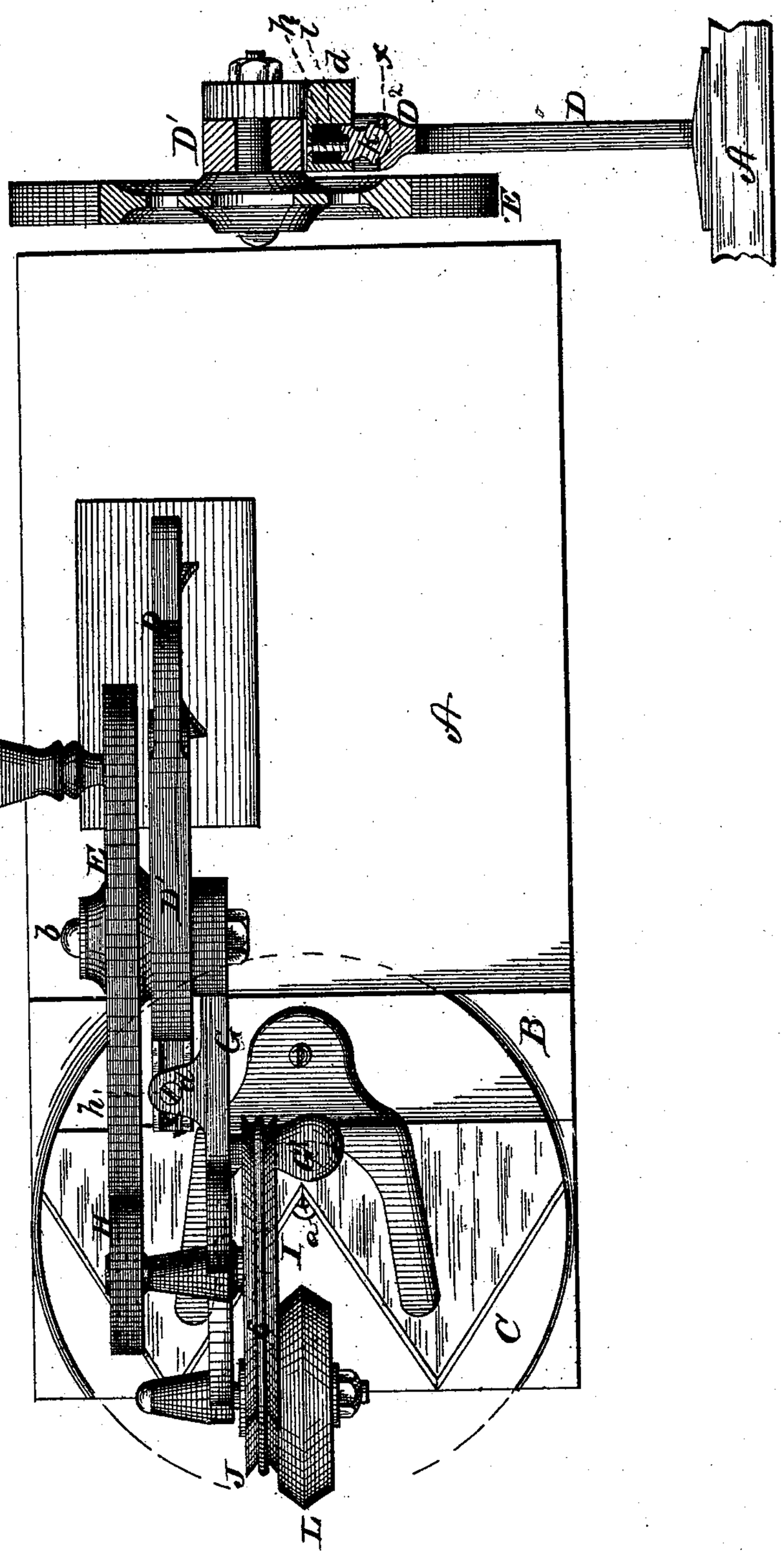

Fig. 2.

WITNESSES

Franck L. Oxrand.

INVENTOR

James M. Connel

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UNITED STATES PATENT OFFICE.

JAMES M. CONNEL, OF NEWARK, OHIO.

IMPROVEMENT IN HARVESTER-KNIFE SHARPENERS.

Specification forming part of Letters Patent No. **210,011,** dated November 19, 1878; application filed October 21, 1878.

To all whom it may concern:

Be it known that I, JAMES M. CONNEL, of Newark, in the county of Licking, and in the State of Ohio, have invented certain new and useful Improvements in Harvester-Knife Sharpeners; and do hereby declare that the following is a full, clear, and exact description of the invention, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

The nature of my invention consists in the construction and arrangement of a machine for grinding harvester-knives, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawings, in which—

Figure 1 is a side elevation of my machine. Fig. 2 is a plan view of the same. Fig. 3 is a detailed section of a part thereof.

A represents the platform of the machine, upon which is a stationary head-block, B, and upon this head-block is pivoted a movable or vibrating head-rest plate, C, by means of a central bolt, *a*, connecting the two together; and the harvester-knives to be ground are applied to said head-rest, so that by a movement of said plate any angle may be obtained for the purposes hereinafter explained. D represents the standard or upright portion of the machine, formed at its upper end with a horizontal arm, D^1, having a longitudinal slot, as shown, and below said arm D^1 is another arm, D^2, parallel to the base, for the purpose of supporting the sliding arm G, the upper end of which is held by a bolt, *b*, in the slotted arm D^1.

Upon one end of the bolt *b* is mounted the driving-wheel E, which, by friction, cogs, or other means, drives a wheel, H, mounted on a shaft passing through the sliding arm G. Upon this shaft is also secured a pulley, I, connected by a belt or cord, *e*, with a pulley, J, on a shaft in the lower end of the arm G, and upon this latter shaft is also secured the emery-wheel L.

At a fixed point on the arm G is situated a cylindrical projection, *d*, and a follower, *k*, is inserted and held therein by an adjusting-screw, *h*, which passes through an elastic cushion, *i*, in the cylinder above the follower. Thus an elastic compress is effected, so that a contraction or expansion thereafter may be effected by the adjustment of said screw, and thus depress or elevate the outer end of the arm on which the emery-wheel L is attached.

On the movable plate C is the seat or rest for the harvesting-knife bar and knives, and when suitably applied any desired angle may be obtained, so that the edge to be ground rests directly parallel with the arm D^2. Thus when power is applied to the machine a rotary and vibratory motion is imparted to the emery-wheel over the edge of the knife, and it is thereby made to assume a corresponding plane with said arm D^2. The elastic cushion is subject to pressure from automatic causes.

It will readily be seen that the centrifugal force of the driving-wheel E is imparted in a downward direction on the wheel H in contact therewith.

Should there be a depression in the edge of the knife being ground, the operator's hand naturally resting on the knob G′ of said arm, a greater degree of pressure may readily be applied, thus grinding any irregularity as well as conducting the arm in a reciprocating manner.

As soon as the grinding of the knife is completed a relaxation of the motion of the machine causes a corresponding release of the elastic cushion within its cylinder, thereby effecting an adjustment of the emery-wheel, so that the knives to be ground may be moved forward or backward without coming in contact with the emery-wheel, thus avoiding all undue movement of the same.

In the upper edge of the arm D^2 is a longitudinal groove, *x*, having a corresponding concave to that of the convex point of the plunger or follower *k*, which has for its object to so guide the inner end of the arm that there will be no undue impingement between it and the standard, and also prevent any undue lateral movement of the emery-wheel while in motion.

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

1. The standard D, provided with the arms D^1 and D^2, in combination with the sliding

arm G, carrying the entire operating mechanism, said arm G being pivoted and sliding in the arm D^1, and is supported on the arm D^2, substantially as herein set forth.

2. An elastic cushion, *i*, with an adjustable plunger or follower, *k*, arranged in the sliding arm G, in combination with the supporting-arm D^2 and the operating mechanism carried upon said sliding arm, and arranged substantially as described, whereby the centrifugal force of the driving-wheel exerts a downward tendency on said sliding arm, for the purposes herein set forth.

3. The arm D^2, having concave groove, in combination with the plunger *k* and cushion *i*, in the sliding arm G, for the purposes set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 22d day of August, 1877.

JAS. M. CONNEL.

Witnesses:
GEO. M. GRAYSEN,
JOHN DAVID JONES.