

(No Model.)

K. H. C. PRESTON.

MACHINE FOR GRINDING MOWER AND HARVESTER KNIVES.

No. 257,893.

Patented May 16, 1882.

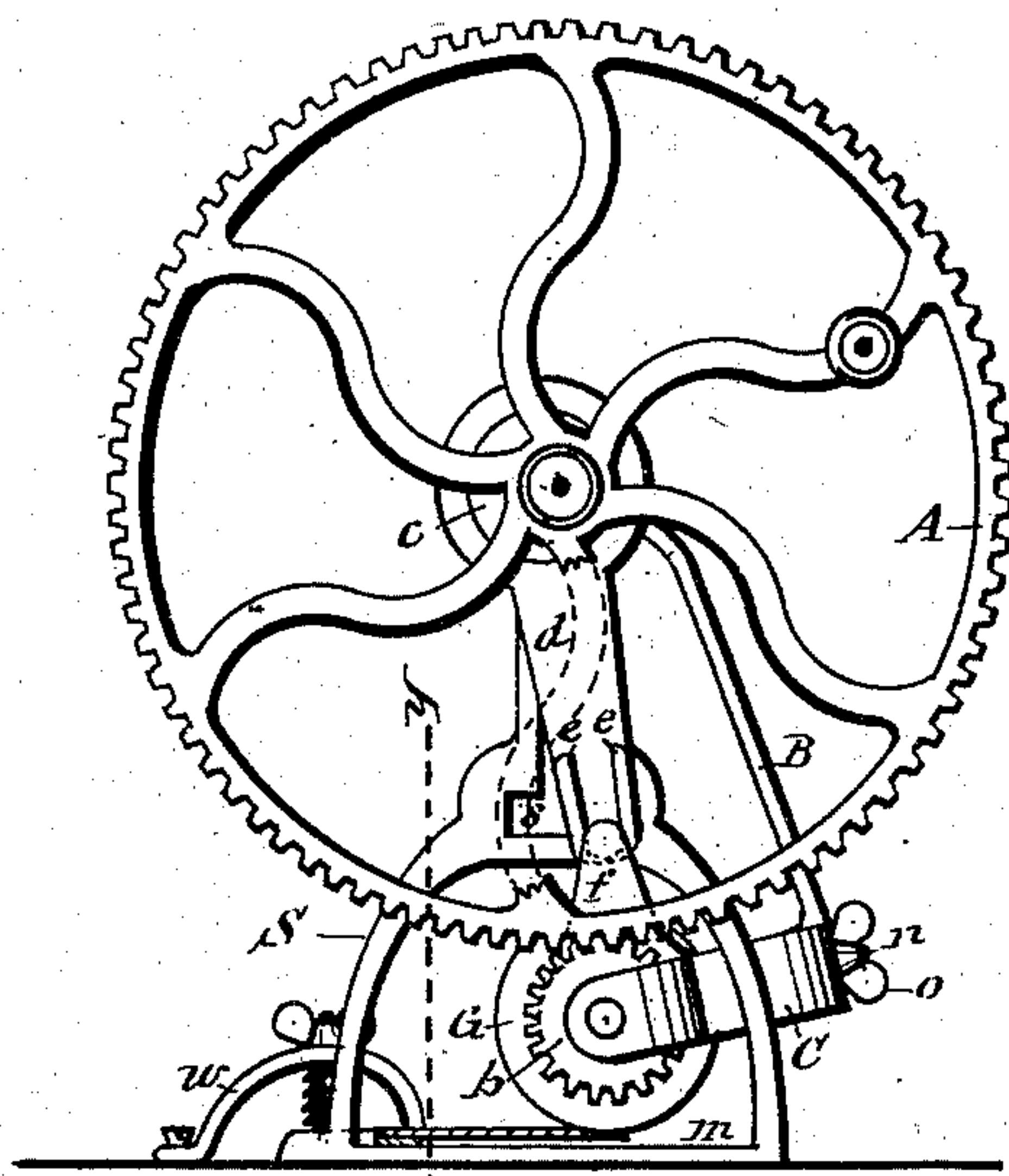


FIG-1-

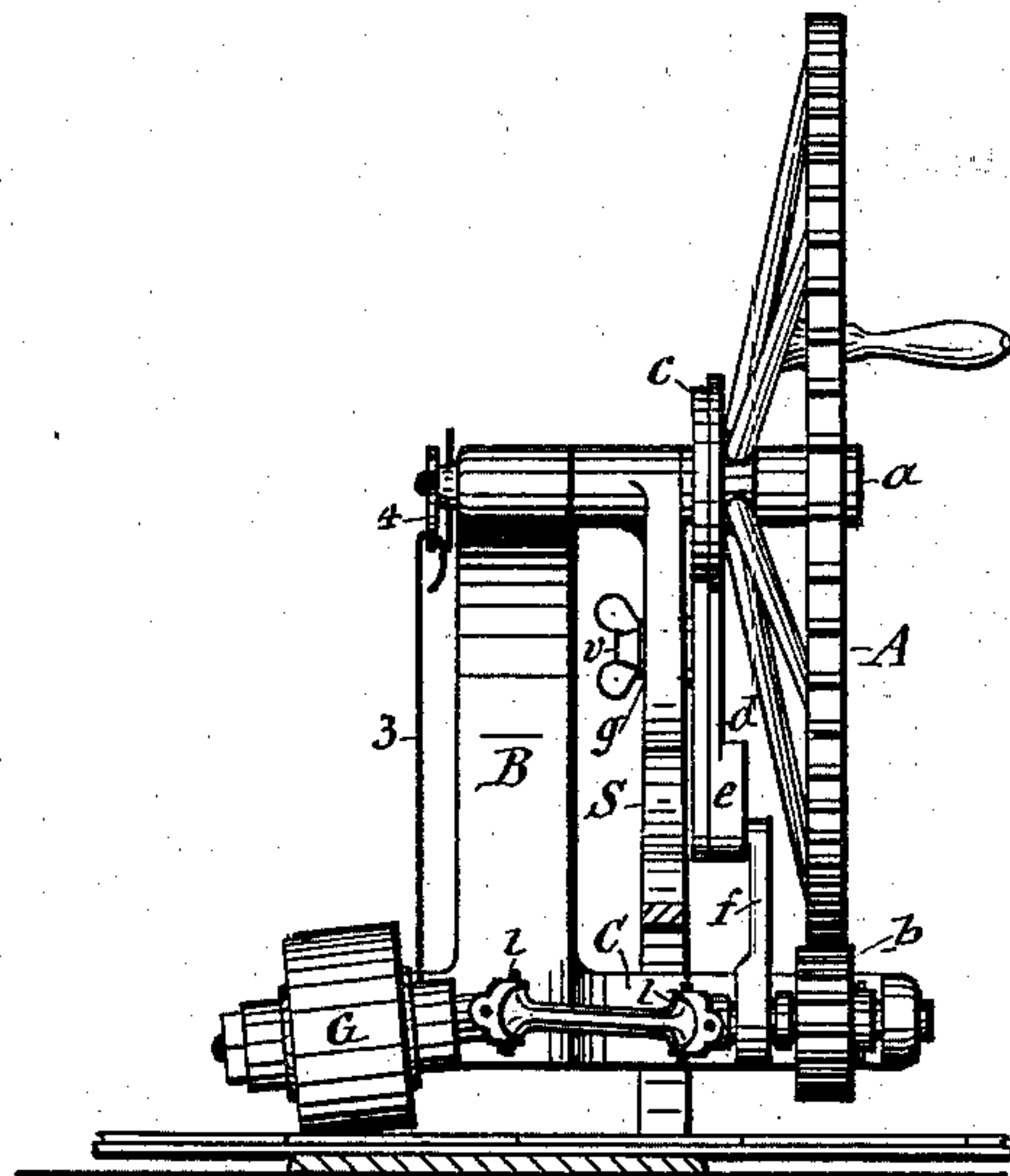


FIG-2-

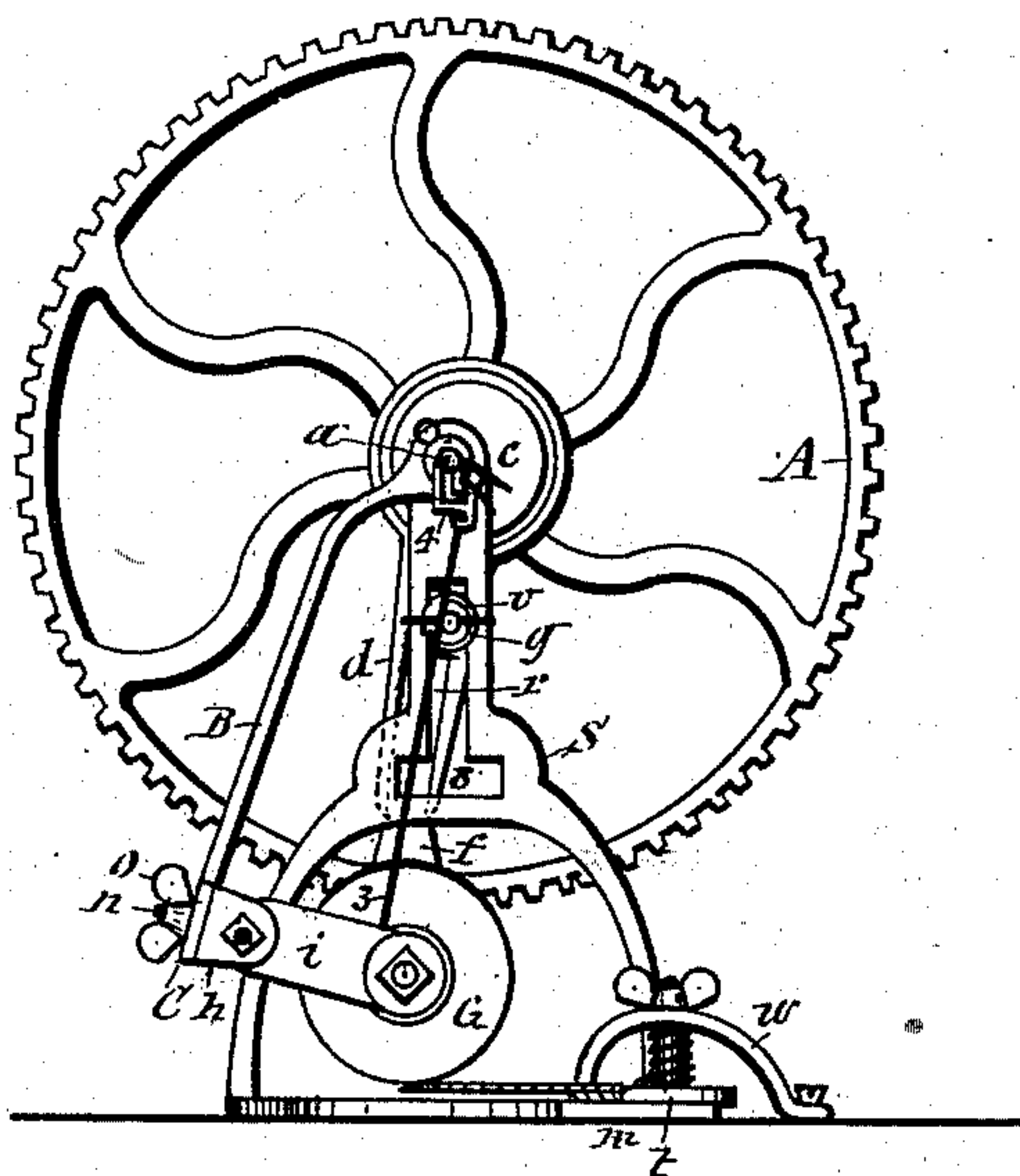


FIG-3-

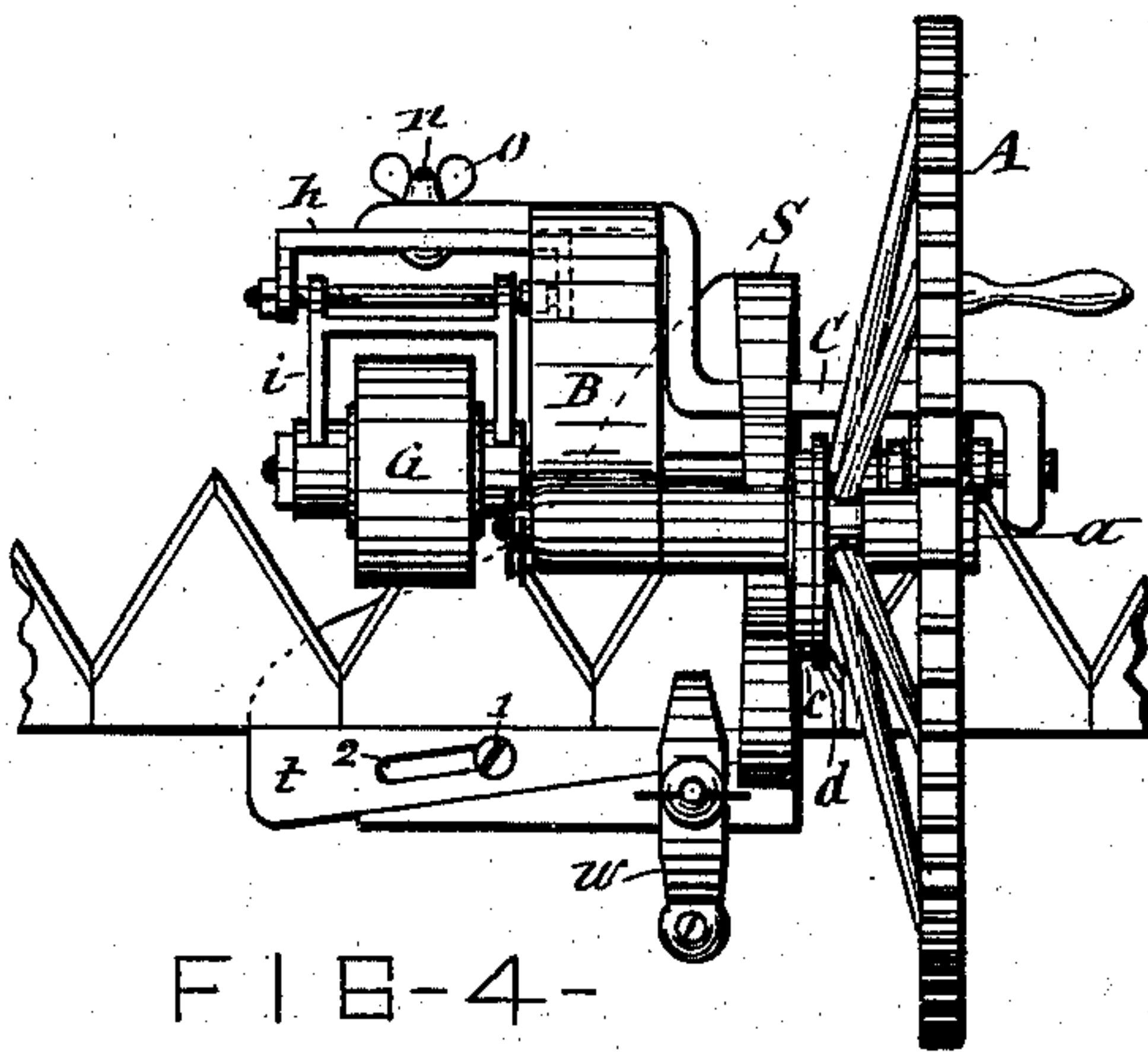


FIG-4-

WITNESSES=

Wm B. Raymond
C. H. Duell

INVENTOR=

King H. C. Preston
per Duell, Loomis & Key
his Atty

UNITED STATES PATENT OFFICE.

KING H. C. PRESTON, OF MANLIUS, NEW YORK.

MACHINE FOR GRINDING MOWER AND HARVESTER KNIVES.

SPECIFICATION forming part of Letters Patent No. 257,893, dated May 16, 1882.

Application filed October 18, 1881. (No model.)

To all whom it may concern:

Be it known that I, KING H. C. PRESTON, of Manlius, in the county of Onondaga, in the State of New York, have invented new and useful Improvements in Machines for Grinding Mower and Harvester Knives, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to an improved machine for grinding mower and harvester knives, organized so as to be adjustable in all its movements, and thus rendered more convenient and efficient in its operation; and it consists essentially of a driving-wheel journaled at a fixed point on a stationary pedestal or standard, a grinding-wheel and its shaft hung in a frame supported by a vibratory arm, a pinion or suitable gear connected to the shaft of the grinding-wheel and actuated by the driving-wheel, and an oscillating lever fulcrumed on the pedestal and actuated by the driving-wheel, and engaging with its free end the frame which carries the grinding-wheel, thereby imparting to the said frame the requisite oscillating motion for moving the grinding-wheel back and forth over the knives to be ground simultaneously with the rotation of said grinding-wheel.

The invention also consists in certain peculiarities in the details of the aforesaid machine, all as hereinafter more fully explained, and specifically set forth in the claims.

In the annexed drawings, Figure 1 is a front elevation of my invention; Fig. 2, a side view of the same, taken back of line *yy*; Fig. 3, a rear view, and Fig. 4 a plan view.

Similar letters of reference indicate corresponding parts.

S represents a pedestal or standard rising from a bed-plate, *m*, by means of which it is rigidly secured to a suitable support. At a fixed point across the top of the standard *S* is attached an arbor, *a*, which projects at opposite sides of the standard, and has at the front of the latter the driving-wheel or spur-wheel *A* journaled on it. On the rear end of the arbor is hung the vibratory pendent arm *B*, the lower extremity of which has a horizontal extension, *C*, reaching across the periphery of the driving-wheel *A*.

To the rear end of the extension *C*, or near its junction with the arm *B*, is swiveled and

adjustably connected a bar, *h*, which is allowed to either turn on its connecting-bolt *n* or turn with said bolt on the extension *C*. By means of a clamping-nut, *o*, on the end of the bolt *n* the bar *h* can be secured at the desired angle.

On the bar *h* is hinged a frame, *i*, having the axis of its connection at right angles to the axis of the bolt *n*, or pivot of the bar *h*. The grinding-wheel *G* is journaled on the frame *i*, parallel to the axis of the hinge thereof. By the adjustment of the bar *h* the axis of the grinding-wheel *G* can be set at various angles, while the hinged connection of the frame *i* with the bar *h* allows the grinding-wheel to freely rise and fall. The axle of the grinding-wheel is extended to the front end of the extension *C* and journaled thereon, and its intermediate portion is made flexible by universal joints *ll*, or by joints of said axle coupled by pivotal pins arranged at right angles to each other. The front end of the axle of the grinding-wheel is provided with a pinion, *b*, which engages with the driving-wheel *A* and transmits rotary motion to the grinding-wheel.

c is an eccentric attached to the driving-wheel, and *d* is an eccentric rod or lever connected with said eccentric. The free end of the said lever *d* is provided on its front face with two parallel ribs or bearings, *ee*, which engage with opposite sides of a lug, *f*, on the arm-extension *C*. The lever *d* works on a fulcrum, *g*, connected to the standard *S*. Thus by turning the driving-wheel *A* the eccentric *c* is caused to impart to the lever *d* an oscillating motion as well as a reciprocating motion. The oscillation of the lever *d* is transmitted to the arm-extension *C*, and thereby carries the grinding-wheel back and forth over the edge of the knife to be ground. The extent of the aforesaid motion is made adjustable by providing the back of the eccentric rod or lever *d* with a longitudinal slot, *r*, which occupies only a part of the thickness of the lever *d*, and is widened at the inside thereof to receive the head of a bolt which slides in said slot and constitutes the adjustable fulcrum *g* of said lever. The shank of said bolt is screw-threaded, and passes through a vertical slot, *s*, in the standard *S*, and is retained at the desired position by means of a clamping-nut, *v*. The aforesaid slots *r* and *s* allow the fulcrum *g* to be set at a greater or less distance

from the end of the lever *d*, and thus increase or diminish the oscillation of the lever *d* and the arm-extension C, which carries the grinding-wheel. The slots of the standard is of sufficient
 5 length to allow the fulcrum to be set directly opposite the point of connection between the lever *d* and lug *f* on the arm-extension C, and thus completely stops the oscillation of said parts. This permits the grinding-wheel
 10 to be maintained over one point on the knife when required to grind out deep nicks therein. By lateral extensions of the slot *s* at the last-mentioned point the fulcrum can be set so as to hold the grinding-wheel at any desired point
 15 on the knife to be ground. The knife is held in position on the bed *m* by means of a clamp, *w*, which is connected with said bed and presses upon the top of the knife, and a wedge-shaped plate, *t*, which bears against the back of the
 20 knife, and is held adjustably in its position by a set-screw, 1, passing through a slot, 2, in said plate.

When the machine is not in operation the grinding-wheel is supported by a wire, 3, which
 25 is connected to the frame *i*, and suspended from the end of the arbor *a*, to which latter it is adjustably connected by means of a plate, 4, on the end of the wire, said plate having slots which engage a stud-pin on the arbor *a*, and
 30 are so arranged as to hold the wire and the frame at a greater or less elevation from the end of the machine.

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

1. A machine for grinding mower and harvester knives, consisting of a driving-wheel journaled at a fixed point on a stationary stand-
 40 ard, a grinding-wheel hung in a vibratory frame, a suitable gear connected to the shaft of the grinding-wheel and actuated directly by the driving-wheel, an eccentric connected to the driving-wheel, and an oscillating lever

having an adjustable fulcrum on the standard and actuated by the aforesaid eccentric, and
 45 engaging with its free end the frame which carries the grinding-wheel, all as described and shown.

2. In combination with the standard S, the arbor *a*, having connected to it the driving-
 50 wheel A and vibratory arm B, said arm having at its free end the horizontal extension C, and supporting thereby the grinding-wheel G and the shaft thereof, the pinion *b* on said shaft, the eccentric *c*, fixed to the driving-wheel, and the
 55 eccentric rod or lever *d*, fulcrumed on the standard S, and having at its free end the elongated bearings *ee*, engaging the lug *f* on the arm-extension C, substantially as described and shown.

3. In combination with the vibratory arm B, 60 supporting at its free end the grinding-wheel and its axle, and the driving-wheel A, provided with the eccentric *c*, the eccentric-rod *d*, engaging with its free end the support of the grinding-wheel, and provided with the slot *r*, the
 65 standard S, provided with the slot *s*, and the fulcrum *g*, having a screw-threaded shank passing through the slot of the standard, and provided with the clamping-nut *v*, substantially
 70 in the manner set forth and shown.

4. The combination, with the grinding-wheel G, journaled on a frame which is connected
 75 with the vibratory arm B by a swivel or universal joint, of the shaft *k*, made flexible, or with universal joints *ll*, substantially as and for the purpose shown and set forth.

In testimony whereof I have hereunto signed my name and affixed my seal, in the presence of two attesting witnesses, at Syracuse, in the
 80 county of Onondaga, in the State of New York, this 12th day of October, 1881.

KING H. C. PRESTON. [L. s.]

Witnesses:

C. H. DUELL,
 WM. C. RAYMOND.