

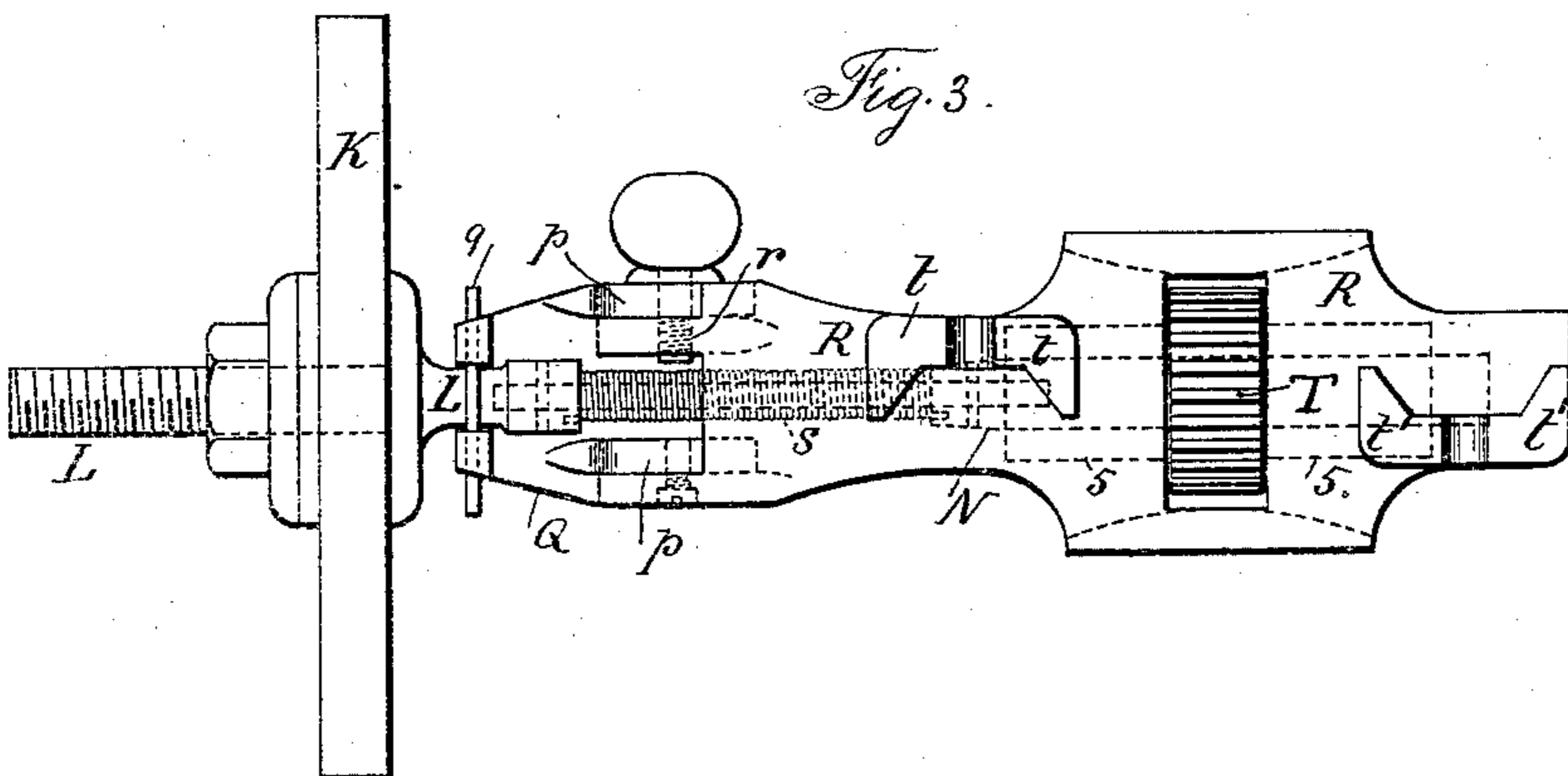
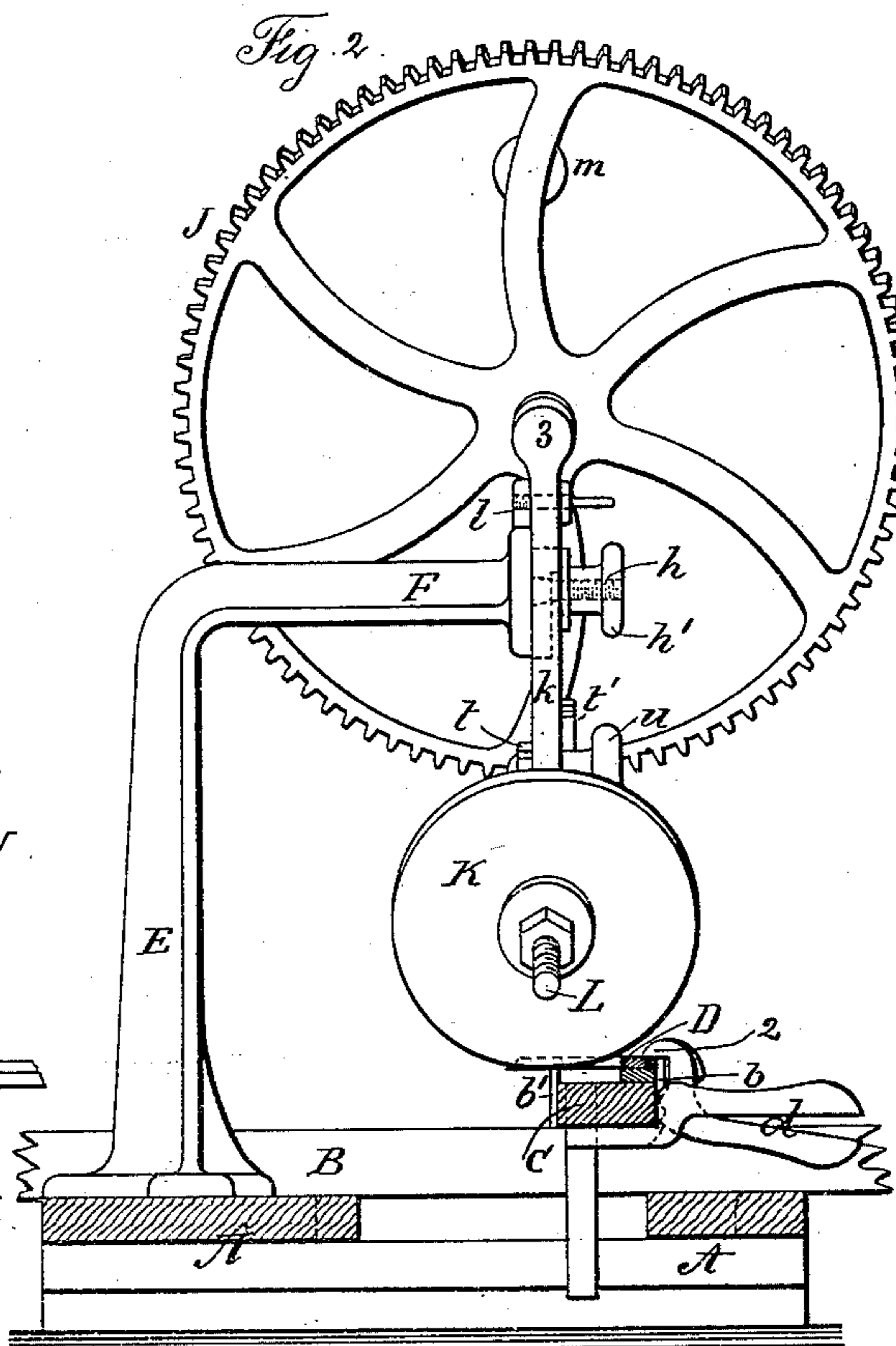
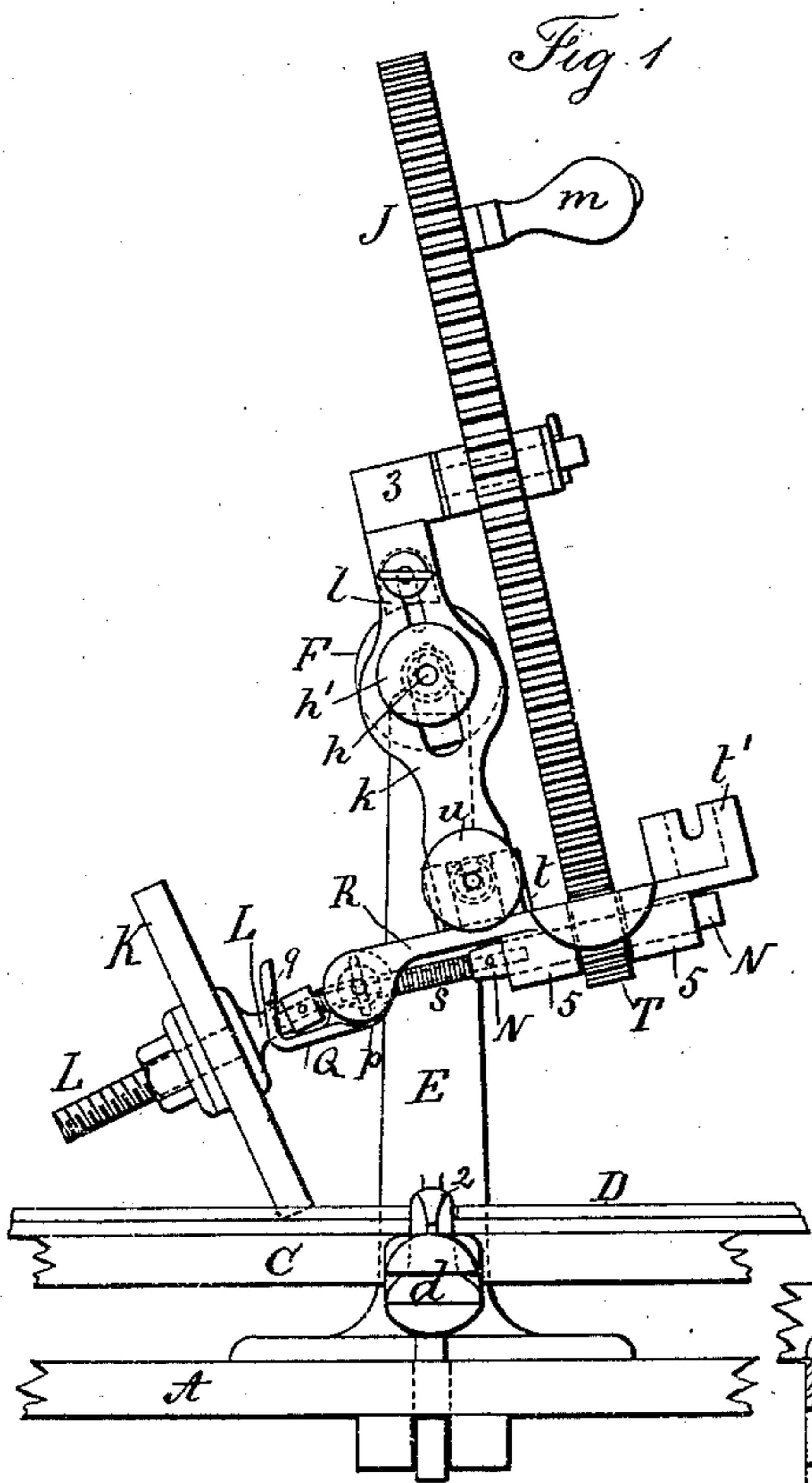
(No Model.)

2 Sheets—Sheet 1.

G. W. KING.
HARVESTER KNIFE GRINDER.

No. 285,492.

Patented Sept. 25, 1883.



Witnesses
J. Staib
Chas. H. Smith

Inventor:
George W. King
per Lemuel W. Perrell atty

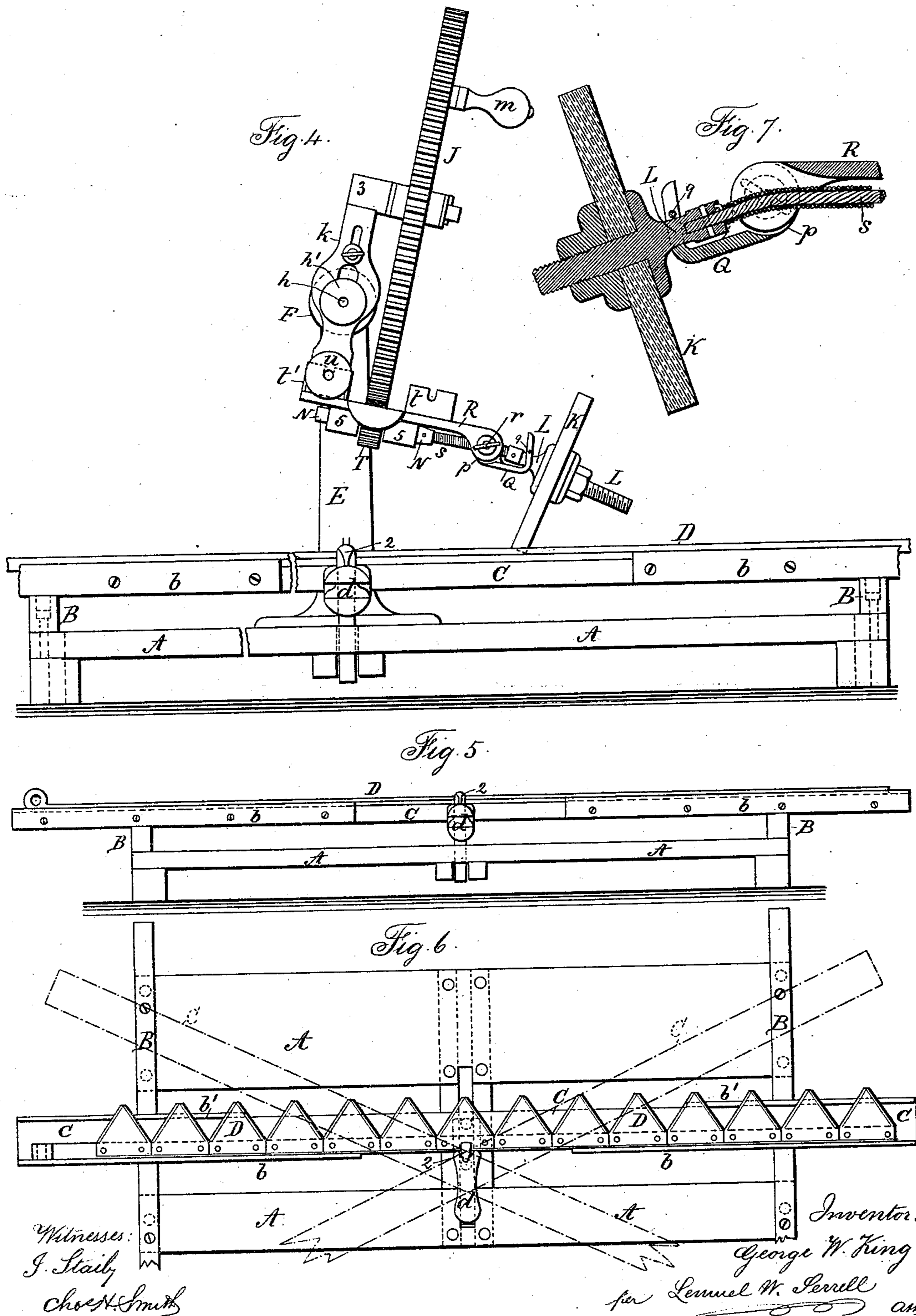
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UNITED STATES PATENT OFFICE.

GEORGE W. KING, OF NEW YORK, N. Y.

HARVESTER-KNIFE GRINDER.

SPECIFICATION forming part of Letters Patent No. 285,492, dated September 25, 1883.

Application filed August 15, 1883. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. KING, of the city and State of New York, have invented an Improvement in Harvester-Knife Grinders, of which the following is a specification.

In Letters Patent No. 270,548, granted to me, there is a gear-wheel that is revolved by hand, and a grinding-wheel held by a changeable stock, so that it may be placed to grind either bevel of the cutters in harvesters. In this case, however, it is necessary to have two pinions upon the shaft of the grinding-wheel, and the leverage of the parts holding the grinding-wheel renders them liable to turn at the places of connection to the standing arm.

My invention is made for rendering the joints that support the shoe of the grinding-wheel more rigid and reliable, and for dispensing with the second pinion on the shaft of the grinding-wheel.

In the drawings, Figure 1 is a front elevation of the grinding portion of my machine. Fig. 2 is a side elevation, partially in section, of the same. Fig. 3 is a plan view, in larger size of the shoe and grinding-wheel. Fig. 4 is a front elevation of the machine with the grinding-wheel set for grinding the outer bevel of the cutters. Fig. 5 is a front view of the bed-frame and the bar carrying the knife. Fig. 6 is a plan view of the same; and Fig. 7 is a section, in larger size, of the grinding-wheel and its connection with the revolving shaft.

The cutter-bar or harvester-knife D is of any ordinary character. It is laid upon the bar c, and there is a ledge, b, to sustain the harvester-knife at the back, and rests at b' beneath the cutters D, and the handle d is made in two parts, so that upon grasping such handle the toe 2 will press upon and hold the harvester-knife. There is also a pin projecting down from the bar C into a slot in the bed-frame A, to guide the parts as moved back and forth in grinding the edges of the knives D. The end bearers, B, upon the bed-frame A support the bar C, and allow it to be freely moved, with the knife, beneath the grinder. These parts are similar to those in my aforesaid patent.

Upon the bed-frame A there is a fixed standard, E, and a bracket-arm, F, extending out therefrom. The end of the arm F is made as a circular hub containing a screw-bolt, h, with

a clamp-nut, h', and this bolt passes through the gudgeon-bar k, that is slotted, and at its upper end there is a gudgeon, 3, for the driving gear-wheel J, having a handle, m, by which it is revolved. It is necessary to clamp the gudgeon-bar k very firmly to the end of the arm F, to prevent any movement of the same as the wheel J is revolved. To insure this object I make the portion of the bolt h—that is, within the slot of the gudgeon-bar—tapering, and the sides of the slot converge at the same angle, so that the clamping-nut will force the gudgeon-bar firmly upon the tapering portion of the bolt h, as well as firmly against the flat end of the arm F, and thereby effectually secure the gudgeon-bar. The end of the arm F is circular, and I employ a gage, l, upon the back of the gudgeon-bar, with a bolt passing through a slot in the gudgeon-bar, and a nut to clamp such gage, so that this gage, resting upon the circular end of the arm F, will prevent the gudgeon-bar slipping down when the clamping-nut h' is loosened; but such gudgeon-bar can be swung into an inclined position, either one way or the other, in adjusting the position of the grinding-wheel, and then clamped as aforesaid.

The grinding-wheel K is usually of emery and clamped to the short shaft L. The main shaft N of the grinder is supported in bearings 5 upon the under part of the shoe R, and there is a flexible wire cable at s, secured at one end within a socket in the end of the shaft N, and at the other end in a socket in the end of the shaft L, so that the grinding-wheel will be revolved by and with the shaft N through this flexible cable. I prefer to use a helix of wire wound tightly around the cable, as shown. At one end of the shoe there is a hinged rest, Q, that forms a bearing for the inner end of the shaft L, there being a fork at the outer end of the rest for receiving such shaft. The inner end of the rest is connected to the shoe by a pair of rule-joints, p, with a screw pivot-pin, r, having a head that can be easily grasped, so that the joint can be loosened for adjusting the rest, or clamped firmly by the screw for holding the parts in place. This construction allows for the grinding-wheel being slightly raised or lowered, and so adjusted that its edge will properly act upon the bevel of the

knives upon the harvester-cutter. The flexible connection between the parts L N of the grinder-shaft will allow such parts to stand at an inclination to each other, and at the same time the grinding-wheel can be freely revolved, and it will accommodate itself to inequalities in the edges of the cutters and sharpen the edges uniformly, because the grinder can rise or fall as it passes over the surfaces to be ground.

In order to connect the shoe R to the lower end of the gudgeon-bar, I provide upon the upper part of such shoe the slotted lugs $t t'$, having side flanges, and there is a clamping-screw, u , that passes through the lower part of the gudgeon-bar. When the shoe is placed at the lower end of the gudgeon-bar, the lug t is brought against such bar, the lower end thereof is received between the flanges of the lug, and the screw u passes into the slot of the lug, with the head behind such lug, so that on tightening the nut u the shoe is firmly fastened to the lower end of this gudgeon-bar. In that position the teeth of the driving-wheel will gear into the teeth of the pinion T on the shaft of the grinding-wheel. It is now to be understood that when the harvester-knife grinder is employed to sharpen the left-hand beveled edges of the cutters, the parts are in the positions shown in Fig. 1, and that when the right-hand inclined edges of the harvester-cutters are to be ground, the shoe will be turned around into the position shown in Fig. 4, and attached by the lug t' to the lower end of such gudgeon-bar, and the nut h' will be loosened and the gudgeon-bar inclined so as to bring

the grinding-wheel into the proper position for grinding such cutters. The gudgeon-bar is either raised or lowered, as required, for adjusting the grinding-wheel and its shaft to the required position for acting upon the harvester-knives.

A pin may be placed at q through holes in the jaw, to keep the shaft L of the grinding-wheel from rising, if desired.

I claim as my invention—

1. The combination, with the gear-wheel J and standard E F, of the slotted gudgeon-bar k , the clamping-screw h and nut h' , and the adjustable gage l , resting upon the round end of the arm F, substantially as set forth.

2. The combination, with the wheel J, standard E F, and slotted gudgeon-bar, of the movable shoe R, having the slotted lugs $t t'$, the shaft N, with one pinion gearing with the wheel J, and the grinding-wheel K, substantially as set forth.

3. In a harvester-knife grinder, the combination, with the frame and bar for holding and presenting the harvester-knife, of the grinding-wheel K, the shafts L and N, and pinion T, the flexible connection S, the hinged adjustable rest Q, the shoe R, supporting the shaft N and rest Q, the movable gudgeon-bar, the support for the same, and the gear-wheel J, substantially as set forth.

Signed by me this 10th day of August, A. D. 1883.

GEO. W. KING.

Witnesses:

GEO. T. PINCKNEY,
WILLIAM G. MOTT.