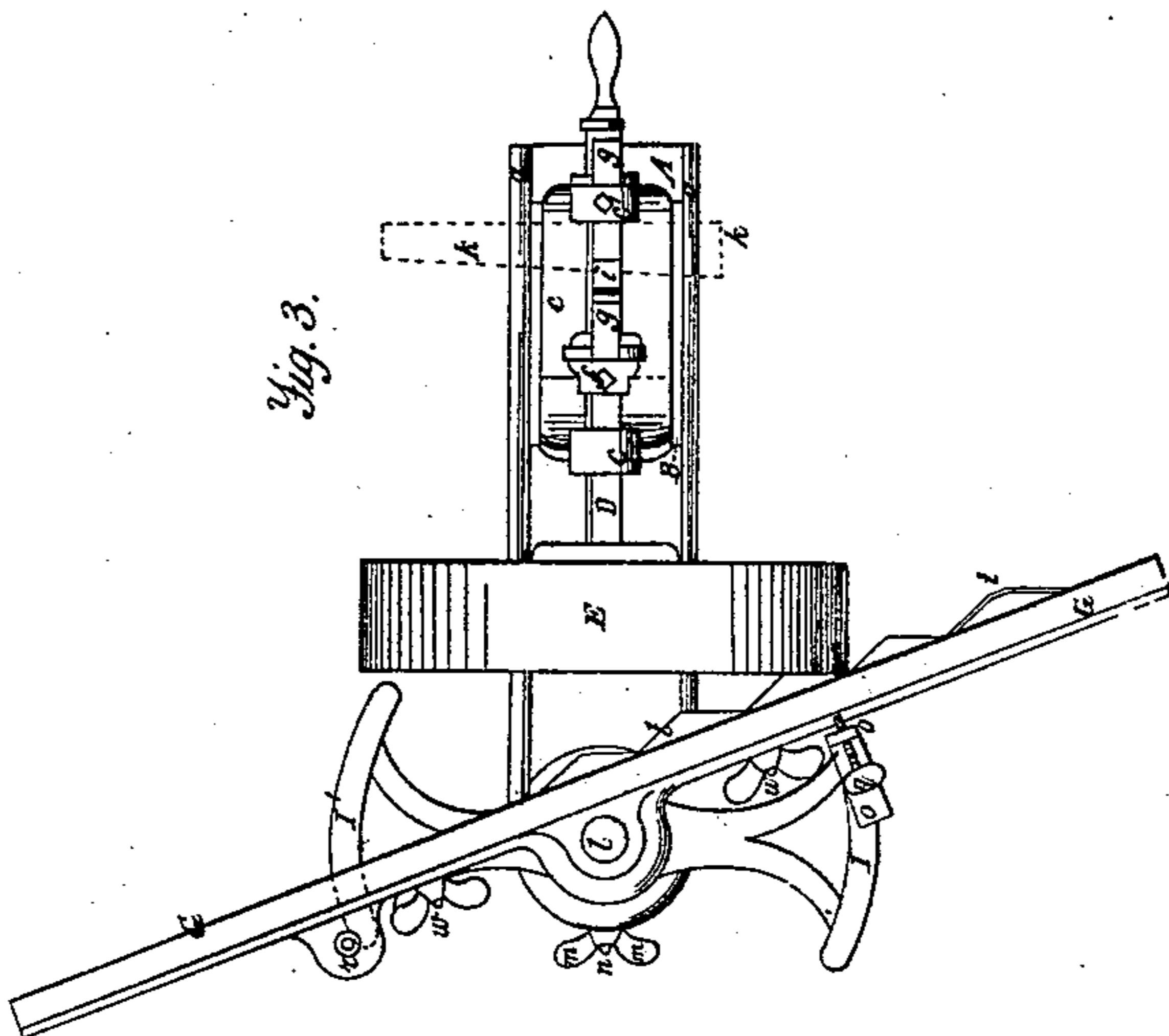
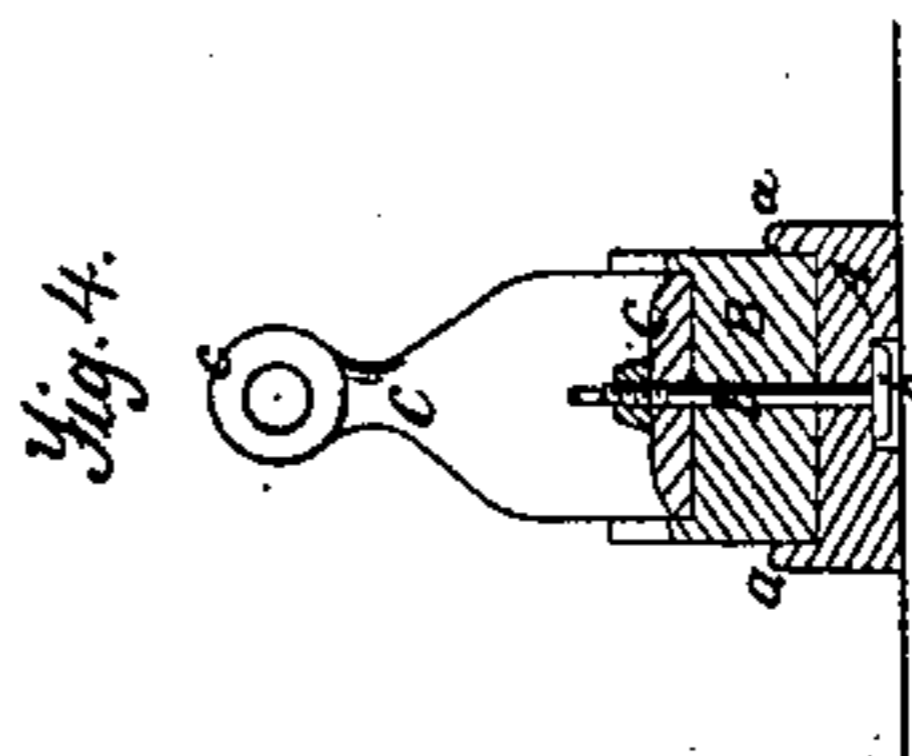
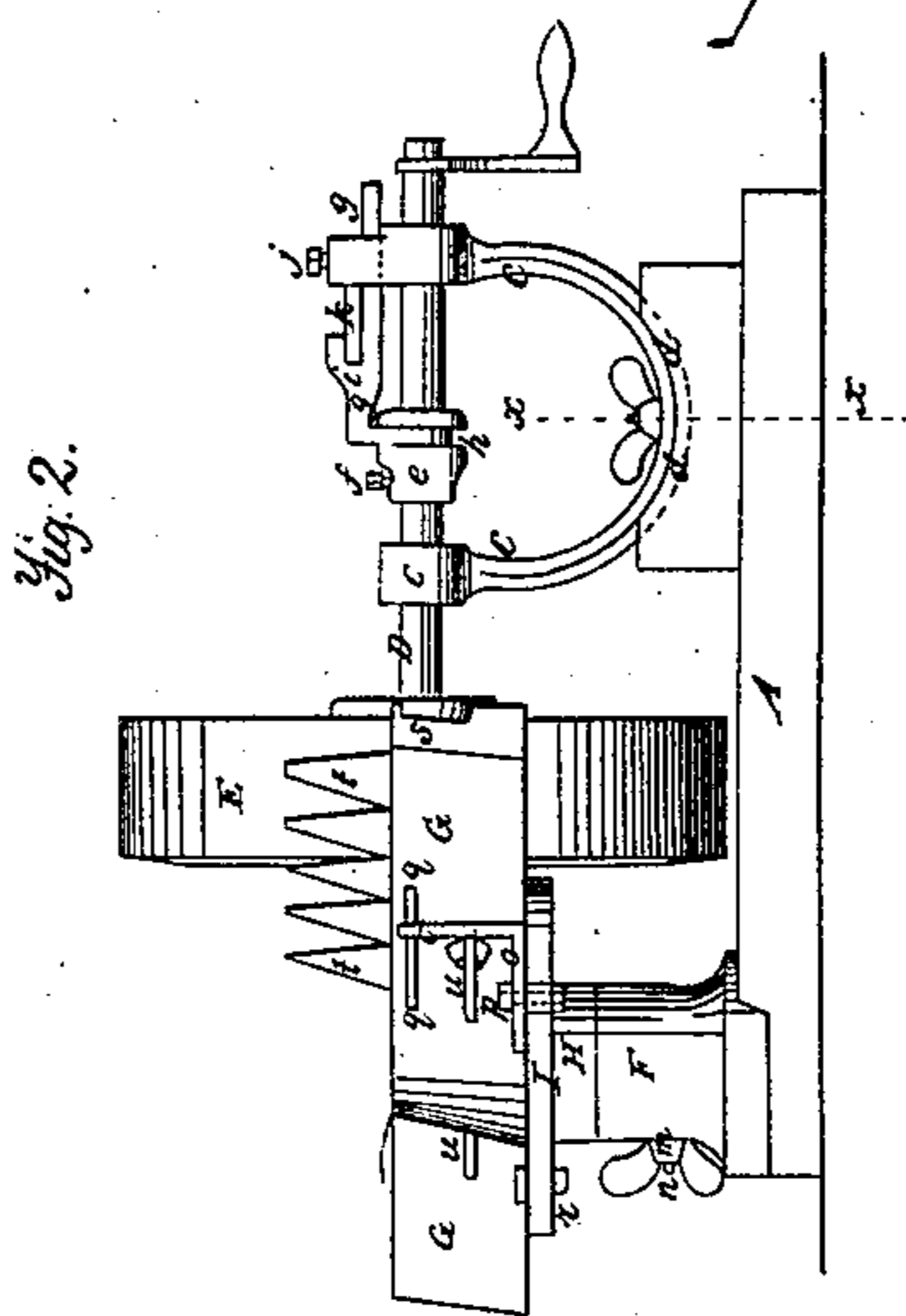
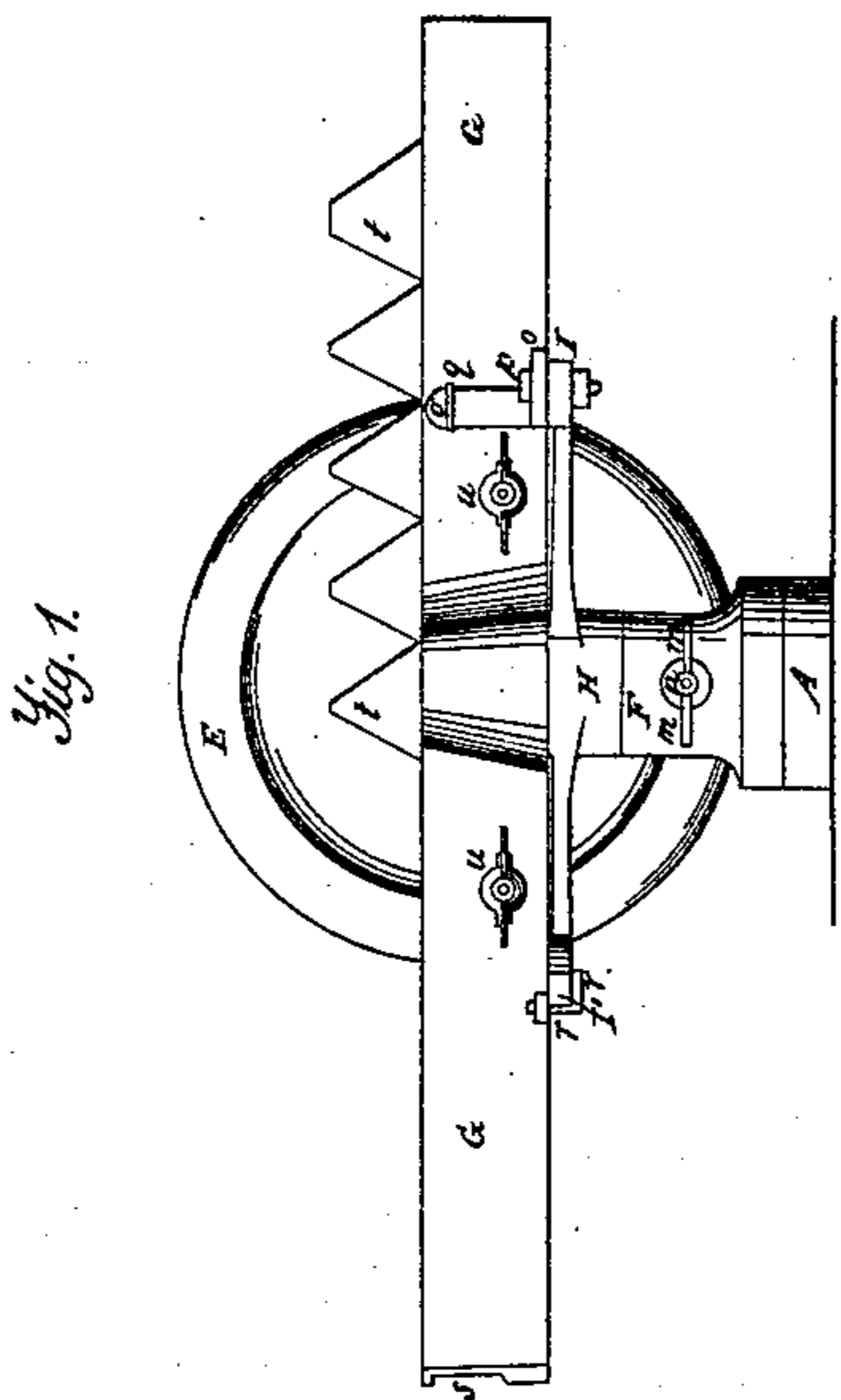


Phillips & Leonard,
Grinding Mowing-Machine Knives.
N^o 81,105. *Patented Aug. 18, 1868.*



Witnesses.
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By their attorney A. B. Stoughton

United States Patent Office.

HENRY F. PHILLIPS AND HENRY W. LEONARD, OF AUBURN, NEW YORK.

Letters Patent No. 81,105, dated August 18, 1868.

IMPROVEMENT IN MACHINE FOR GRINDING THE CUTTERS OF MOWING-MACHINES.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that we, HENRY F. PHILLIPS and HENRY W. LEONARD, of Auburn, in the county of Cayuga, and State of New York, have invented certain new and useful Improvements in Machines for Grinding Mowing and Reaping-Machine Sections; and we do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 represents an end elevation of the machine.

Figure 2 represents a side view of the same.

Figure 3 represents a top plan, and

Figure 4 represents a vertical section, taken at the red line $x x$ of fig. 2.

Similar letters of reference, where they occur in the separate figures, denote like parts of the machine in all of the drawings.

Our invention relates to a machine for grinding harvesting-machine sections, wherein the stone is fed up to the sections whilst the latter is rigidly held, or in feeding up the sections whilst the stone is rigidly held; and it further relates to a rocking or rolling motion given to the frame, for adjusting the dip or inclination of the stone, as well as its sliding motion, to fix the position of the stone; and it further relates to the arrangement for holding and controlling the knives or sickles and their bar whilst being ground.

To enable others skilled in the art to make and use our invention, we will proceed to describe the same with reference to the drawings.

On a bed, A, is arranged a block, B, so that it may be moved, guided, and held on said bed, it being moved between guides $a a$, and firmly held, when properly adjusted, by the screw-bolt b . On top of the block B, and in a rounded bed or bearing prepared thereon, is placed the yoke or bracket C, for forming bearings $c c'$ for the shaft D of the grindstone E to turn in. This bracket or bearer C is held to the block B by the screw-bolt b , which passes through a slot, d , in the bracket, so that the bracket may be inclined to give an inclination or pitch to the grindstone, when necessary to do so, and when adjusted, it is firmly held by the screw-bolt b . On the shaft D there is a collar, e , which, when adjusted, is held to the shaft by a set or clamp-screw, f , and in the rear bearer c' there is a mortise, through which an arm, g , moves, the forward end of said arm being forked and straddling the collar e in a groove, h , therein. There is also on the arm g a mortise, opening, or shoulder, i , in or against which, and against the rear bearer c' , a wedge, k , (shown in dotted lines in fig. 3,) is slipped, to force, and at the same time rigidly hold, the grindstone against the sections. This feeding up and holding of the stone against the sections, or *vice versa*, prevents any vibrations which tend to wear the stone out of round, or from causing it to jump, when a hard spot in the stone strikes the metal. On top of the rear bearer c' (and there, by preference, simply for convenience,) there is a set-screw, j , which can be run down against the arm g , so as to hold said arm from moving, and in thus holding said arm the stone or its shaft, having no end motion allowed to it, will revolve in a fixed position. This arrangement is necessary when the grindstone is used (which it can be) for any of the ordinary purposes of grinding.

In front of the grindstone, and upon the bed A, there is a hollow hub or column, F, in which a spindle, l , on the holder G, fits and may turn, and in this hub or socket F there is a ring-clamp, through which the spindle passes, and by which it may be restrained in turning by a nut, m , run up on the threaded portion n of said ring-clamp.

Upon the top of the hub or column F, and underneath the bearer or holder G, there is a plate, H, the outer ends of which, I I', are formed into arcs, making a support or table for the holder to rest upon. On one of the arcs, I, there is an upright arm, o , adjustable thereon by a set-screw, p , which passes through a slot in the arc or table I, so as to be set up more towards or from the stone, as the case may be. In the top of this upright arm o there is a set-screw, q , which bears against the back of the holder G, and keeps it in its properly-inclined position. In the holder, at or near the rim of the other arc or table, I', there is a hook-headed bolt, r , which takes under the edge of the arc or table, and whilst it allows the holder to turn on its spindle, it prevents it from rising from the table.

In a recess, *s*, in the face of the holder *G*, the bar on which the knife-sections *t* to be ground are fastened, is placed, and clamped by hook-headed clamps, which are drawn up by thumb-nuts *u u*, on the rear of the holder, and so that the sections *t* shall project above the holder, and allow the corner and face of the stone to come clear down into the corners or angles formed by the sections. The holder *G* having been gauged to the required obliquity, or the stone having been set, inclined, or dipped, by the rocking bearer *C*, and then clamped, or by both of these adjustments in part, the necessary position of holder and stone having been attained, so as to get the proper grinding angle and bevel, the cutter-bar and cutters are slid along in the recess *s*, and clamped by the clamps *u u*, and then brought to the action of the stone and ground.

When the stone is adjusted, and its shaft retained so that it revolves in a permanent position, that is, without being fed up to the sections, then, by means of the set-screw *q*, the sections may be fed up with a positive unyielding motion to the stone, to prevent jumping, and consequent uneven wearing of the stone. This is simply reversing the feed-motion, and feeding up the sections to the stone, instead of the stone to the sections, but in both cases the feed is rigid, for one and the same purpose, viz, to cause the stone to wear true, and not out of round, as is the case when not rigidly fed up and controlled.

Having thus fully described our invention, what we claim therein as new, and desire to secure by Letters Patent, is—

1. In combination with the curved or hollowed-out block *B*, the rocking and adjustable bearer *c*, for adjusting the shaft of the grindstone, substantially as and for the purpose set forth.
2. We also claim, in combination with the shaft *D* and its stone *E*, the collar *e* and arm *g*, so that the stone may be fed and held up to the sections by a positive and unyielding feed, or be held rigid by said arm, substantially as and for the purpose described.
3. We also claim the combination of the table or arcs *I I'* with the holder *G*, for guiding, holding, and gauging the inclination of said holder, by devices connected therewith, substantially as described.
4. We also claim, in combination with a fixed position of rotation of the stone, the screw *q*, as a feeding-screw, to feed the section to the stone and rigidly hold it against jar or motion, and thus prevent the stone from wearing out of round, substantially as described.

HENRY F. PHILLIPS,
HENRY W. LEONARD.

Witnesses:

S. HANNUM,
R. P. STOW.