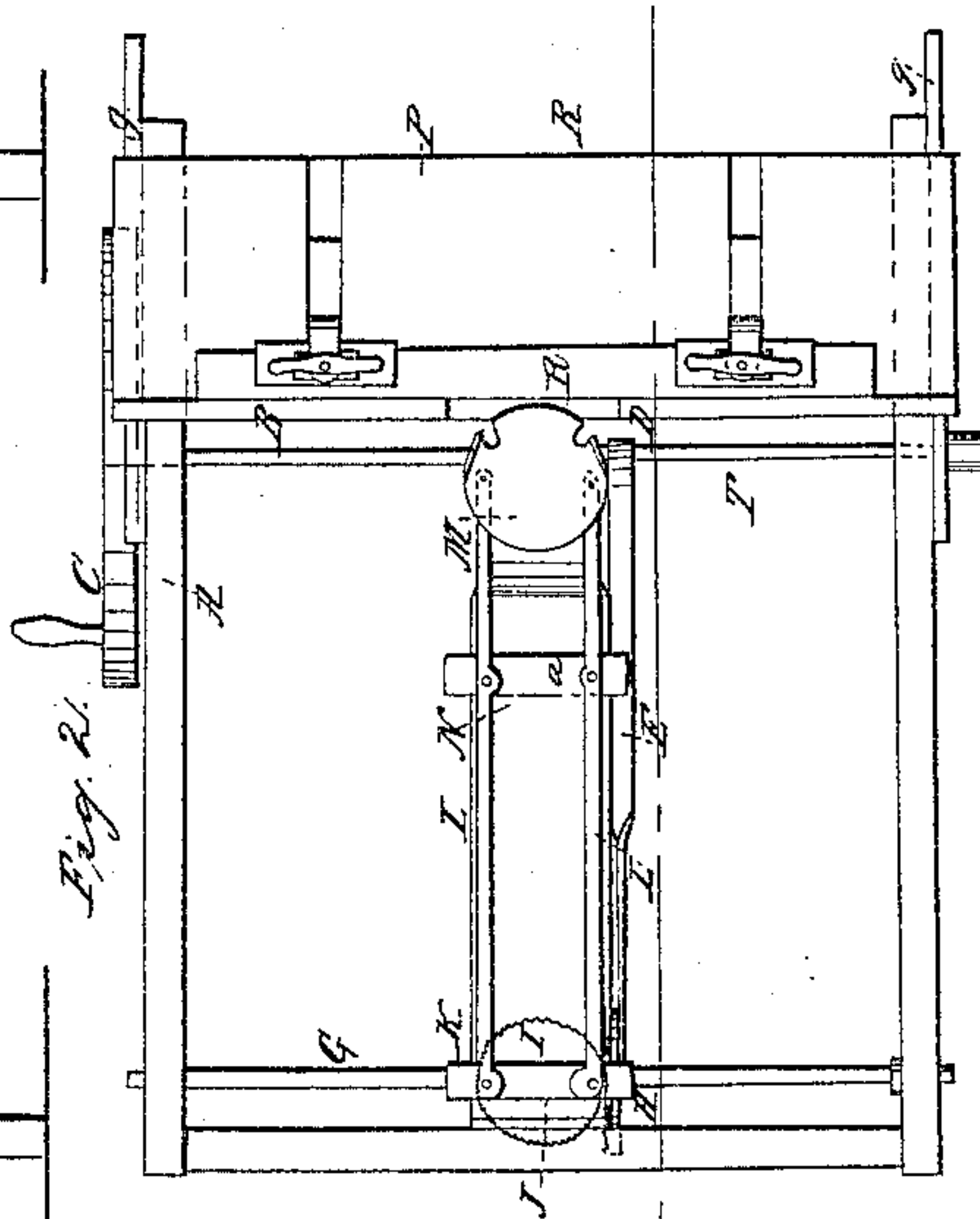
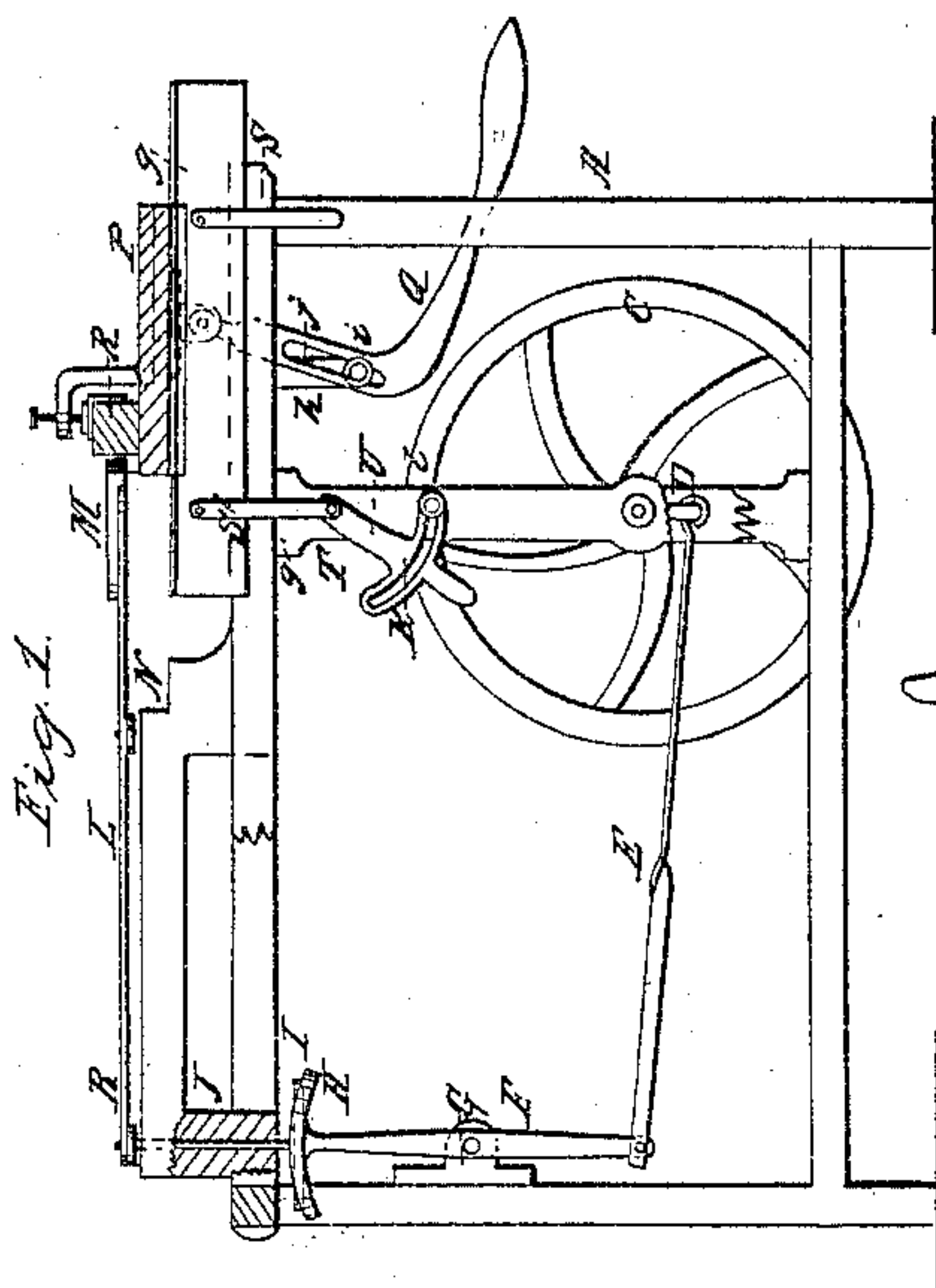
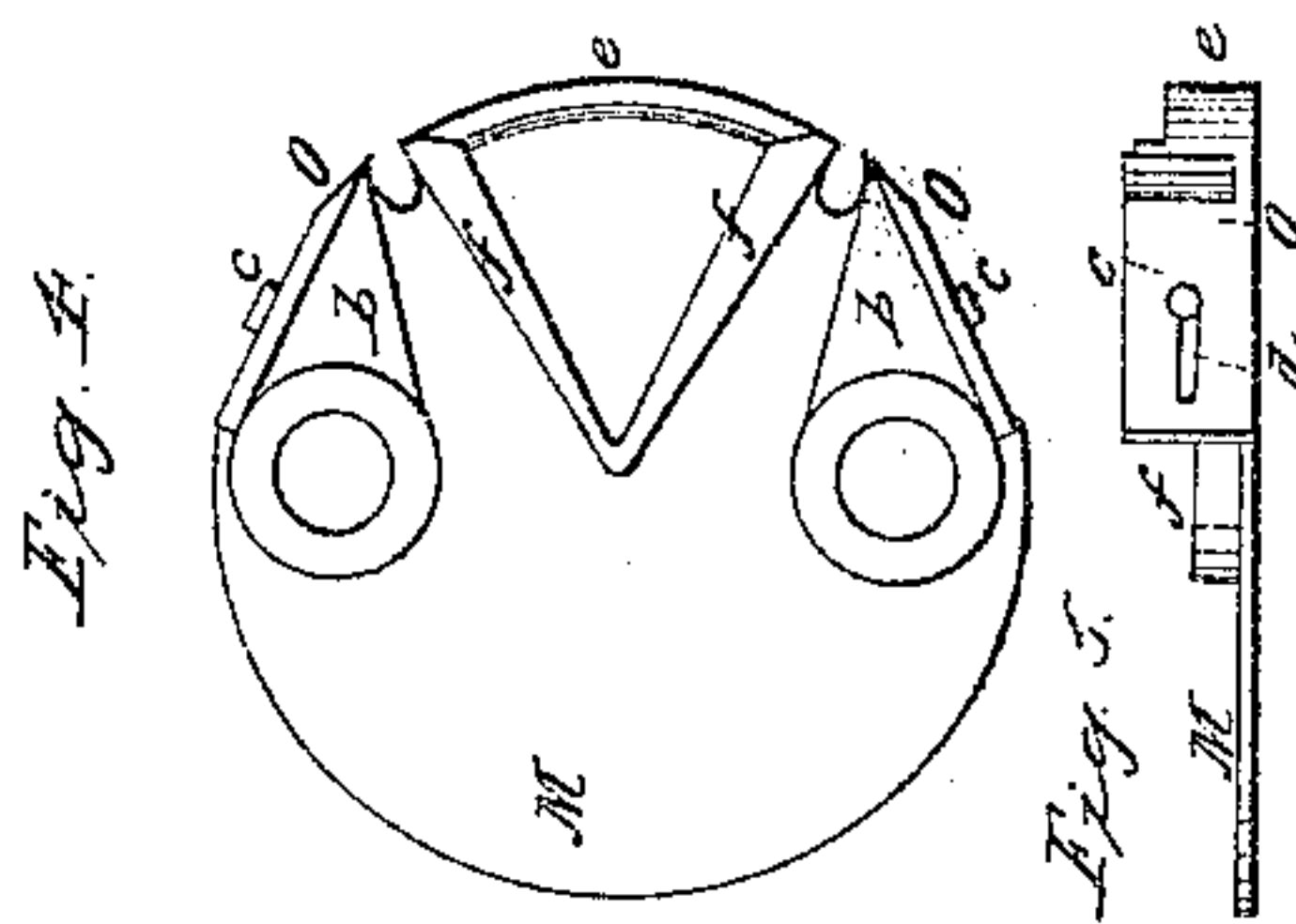
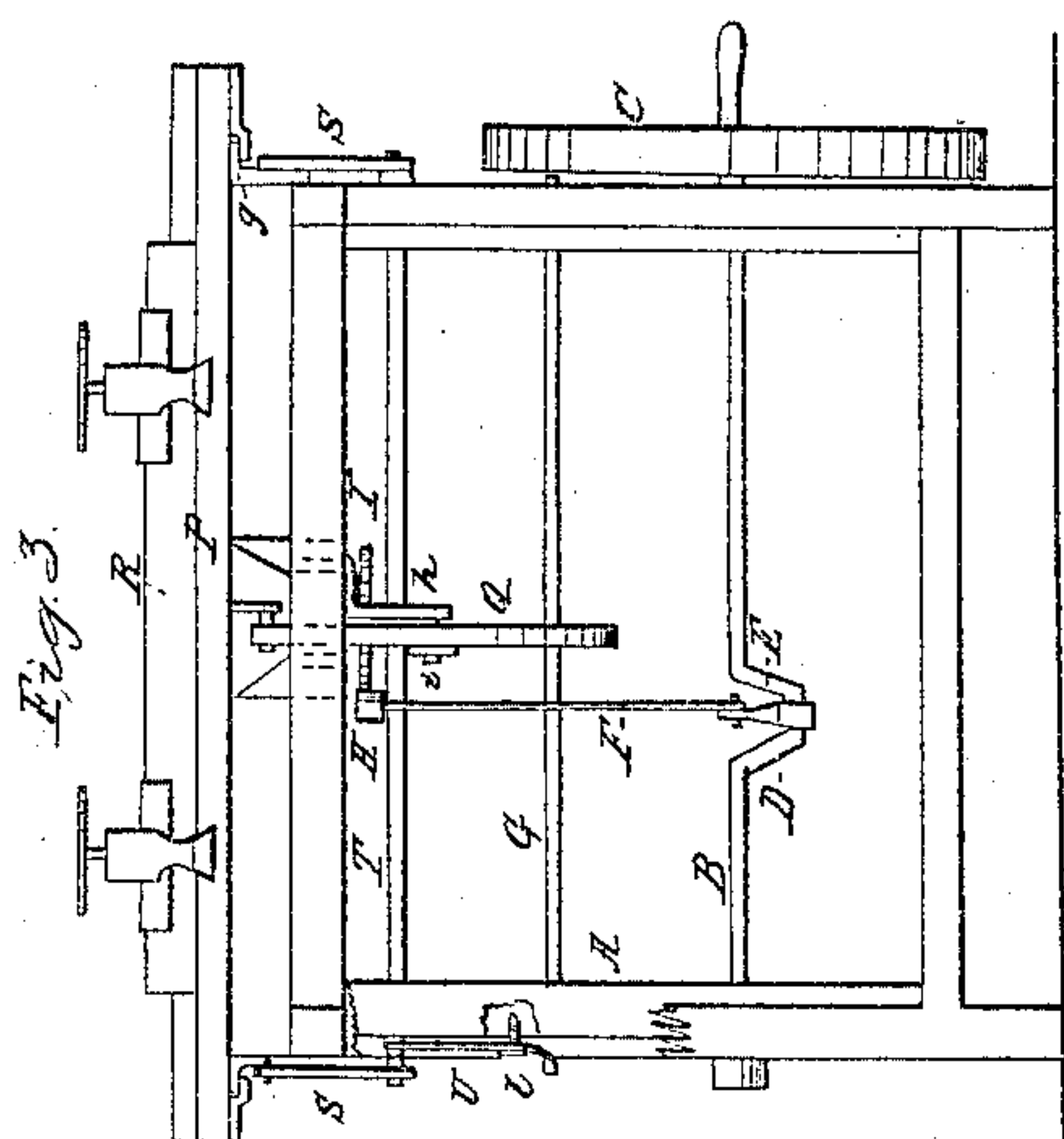


W. Vangel, Mortising Machine.

No 58,878.

Patented Oct. 16, 1866.



Witnesses:

J. A. Jackson
W. E. Spurn

Inventor:
Walter Vangel
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UNITED STATES PATENT OFFICE.

WALTER NANGEL, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN MORTISING-MACHINES.

Specification forming part of Letters Patent No. 58,878, dated October 16, 1866.

To all whom it may concern:

Be it known that I, WALTER NANGEL, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and Improved Mortising-Machine; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side view of my invention, partly in section; Fig. 2, a plan or top view of the same; Fig. 3, a front view of the same; Fig. 4, an enlarged and detached inverted plan of the cutting device; Fig. 5, a side view of the same.

Similar letters of reference indicate corresponding parts.

This invention relates to certain new and useful improvements on a mortising-machine for which Letters Patent were granted to me bearing date February 14, 1860.

The invention consists in an improved means for operating the rotary reciprocating cutter, and also for operating and adjusting the bed to which the stuff to be mortised is attached, as hereinafter fully shown and described, whereby it is believed that several advantages are obtained over the original machine.

A represents a frame, which may be constructed in any proper manner to support the working parts; and B is a driving-shaft, placed horizontally in the lower part of the frame A, having a fly-wheel, C, at one end of it, and a crank, D, at or near its center.

The crank D has one end of a pitman, E, connected to it, the opposite end of which is attached to the lower end of a lever, F, on a horizontal shaft, G, in the frame A, the upper end of said lever having a segment-rack, H, upon it, which gears into a pinion, I, at the lower end of a vertical shaft, J, in the frame A, the upper end of said shaft having a cross-head or cross-arm, K, attached to it.

L L are two parallel bars, which are pivoted at one end to the ends of the cross-head K, the opposite ends of said bars being pivoted to the cutter-head M. These bars are connected by pivots to the ends of a bar, N, which

is attached by a central pivot, *a*, to the frame A. (See Fig. 2.)

The cutter-head M is composed of a circular disk having ledges or cleats *b* at its under side, to which the cutters O O are attached by set-screws *c* passing through oblong slots *d* in the cutters into the ledges or cleats, in order to admit of the cutters being adjusted to compensate for wear. The space between the cutters is occupied by a pendent lip or flange, *e*, nearly equal in depth to the cutters, the ends of said lip or flange being in contact with the outer ends of two ribs, *f f*, arranged in V form at the under side of the cutter-head, the spaces between *f f* and *b b* serving as throats for the escape of the clips or shavings. (See Fig. 4.)

P represents a sliding bed, on which the stuff to be mortised is firmly clamped and secured. This bed is fitted on ways or guides *g g*, and it is moved toward and from the cutter-head by means of a bent lever, Q, which is attached to a pendant, *h*, by a screw, *i*, the latter passing through an oblong slot, *j*, in the lever, and the upper end of the latter being pivoted to the under side of the bed P. By actuating this lever Q the stuff R to be mortised, which is clamped to bed P, is fed to the cutter-head M, which has a rotary reciprocating motion imparted to it from the driving-shaft B by means of the mechanism previously described.

The ways or guides *g g*, on which the bed P is fitted and works, are pivoted to the upper ends of parallel bars S S'. The lower ends of the bars S are pivoted directly to the sides of the frame A, and the lower ends of the bars S' are fitted on the ends of a shaft, T, placed transversely in the frame A. To one end of this shaft T an arm, U, is attached, provided with a segmental slotted plate, *k*, through which a set-screw, *l*, passes into the frame A. By adjusting this arm U the bars S S' are moved or adjusted, and the ways or guides *g g* and the bed P adjusted in a higher or lower plane, as occasion may require, or to suit the place where the mortise is to be cut into the stuff R. By this arrangement of the bed P the stuff to be mortised may be very readily adjusted in a proper relative position with the cutter-head, and by the arrangement of the

bars L L, as shown, the cutter-head is operated with as little friction as possible, and with a good length of stroke or vibration.

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

1. Operating the rotary reciprocating cutter-head M through the medium of the bars L L, connected to the cutter-head and cross-head K, as shown, and actuated by the segment-rack H and the pinion I on the shaft J, or their equivalents, substantially as and for the purpose set forth.

2. The attaching of the guides or ways *g g* of the bed P to adjustable parallel bars S S', arranged substantially as shown and described, for the purpose of adjusting the stuff R to be mortised in a proper relative position with the cutter-head.

WALTER NANGEL.

Witnesses:

JOHN ELLIOTT,
JOSEPH ORR.