(No Model.)

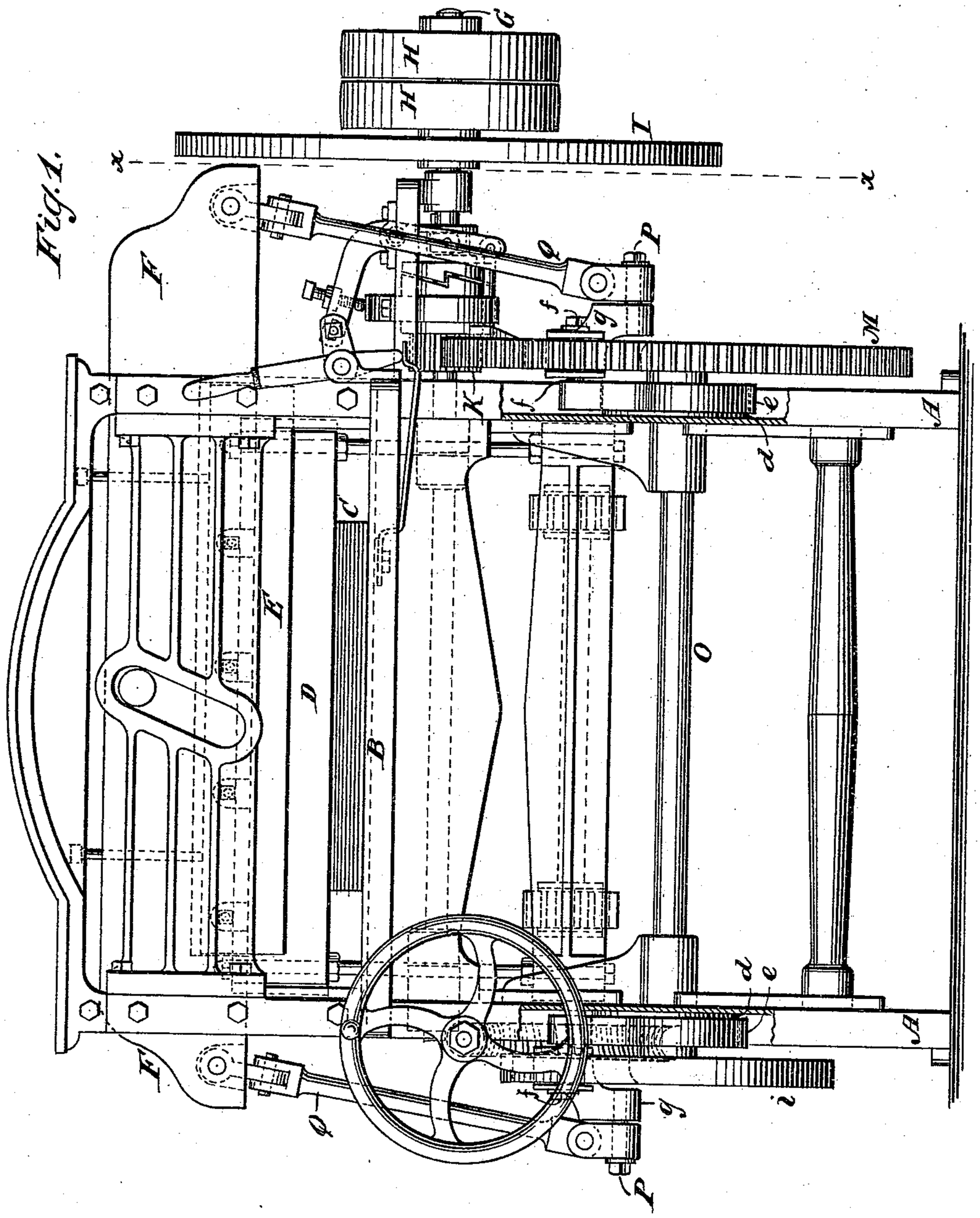
3 Sheets—Sheet 1.

A. MALM.

PAPER CUTTER.

No. 446,359. Patented Feb. 10, 1891.

Fig. 1.



WITNESSES:

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William Miller

INVENTOR:
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(No Model.) 3 Sheets—Sheet 2.

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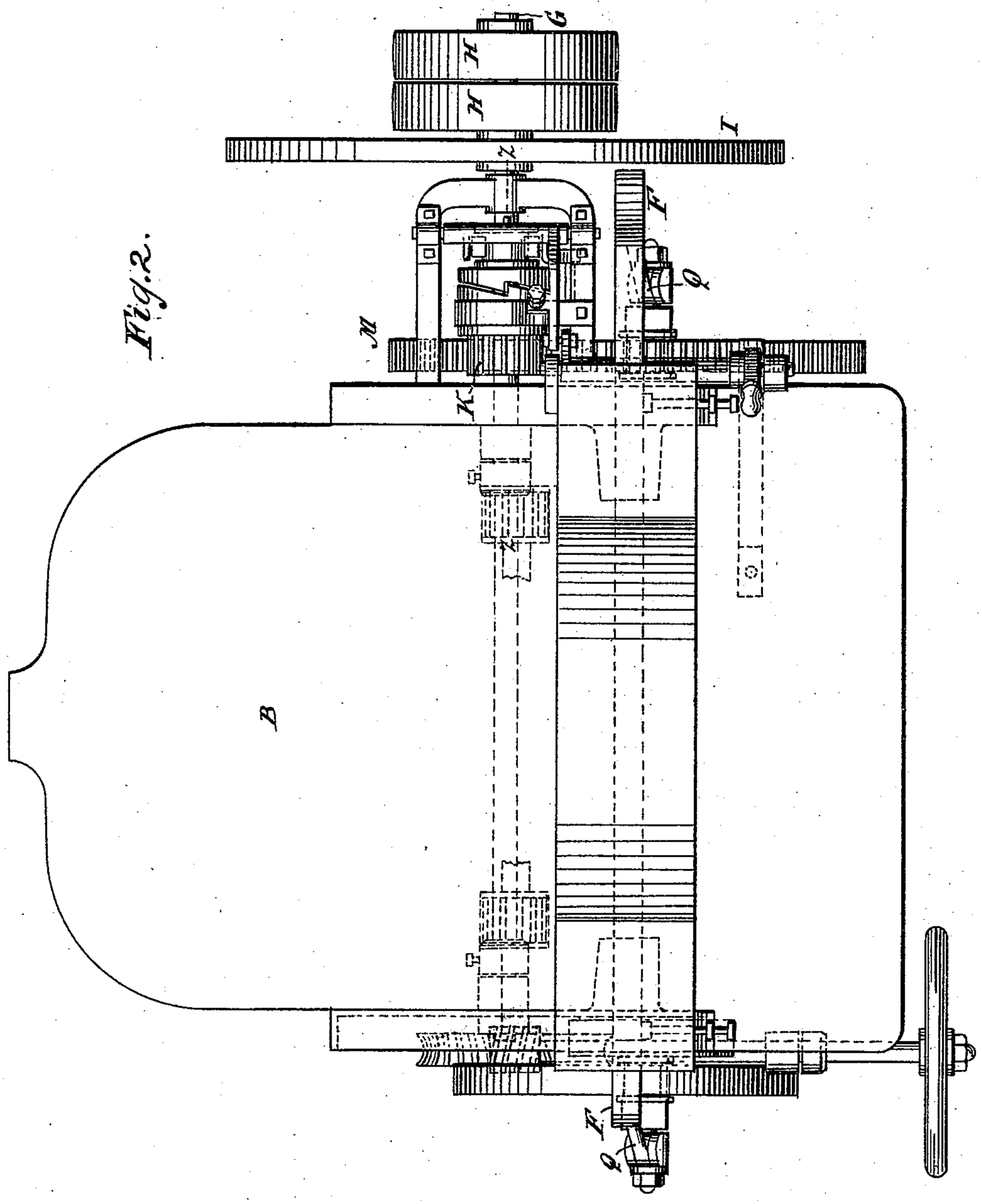
Fig. 2.



WITNESSES:

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(No Model.)

3 Sheets—Sheet 3.

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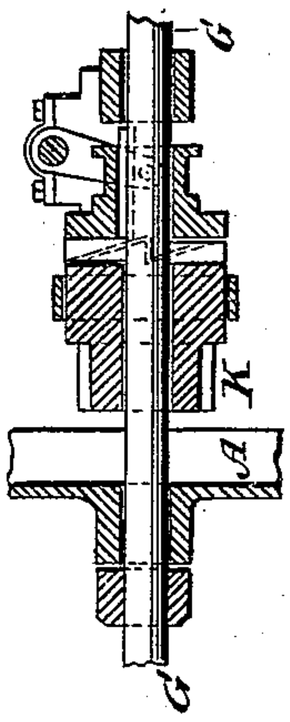
Fig. 5.



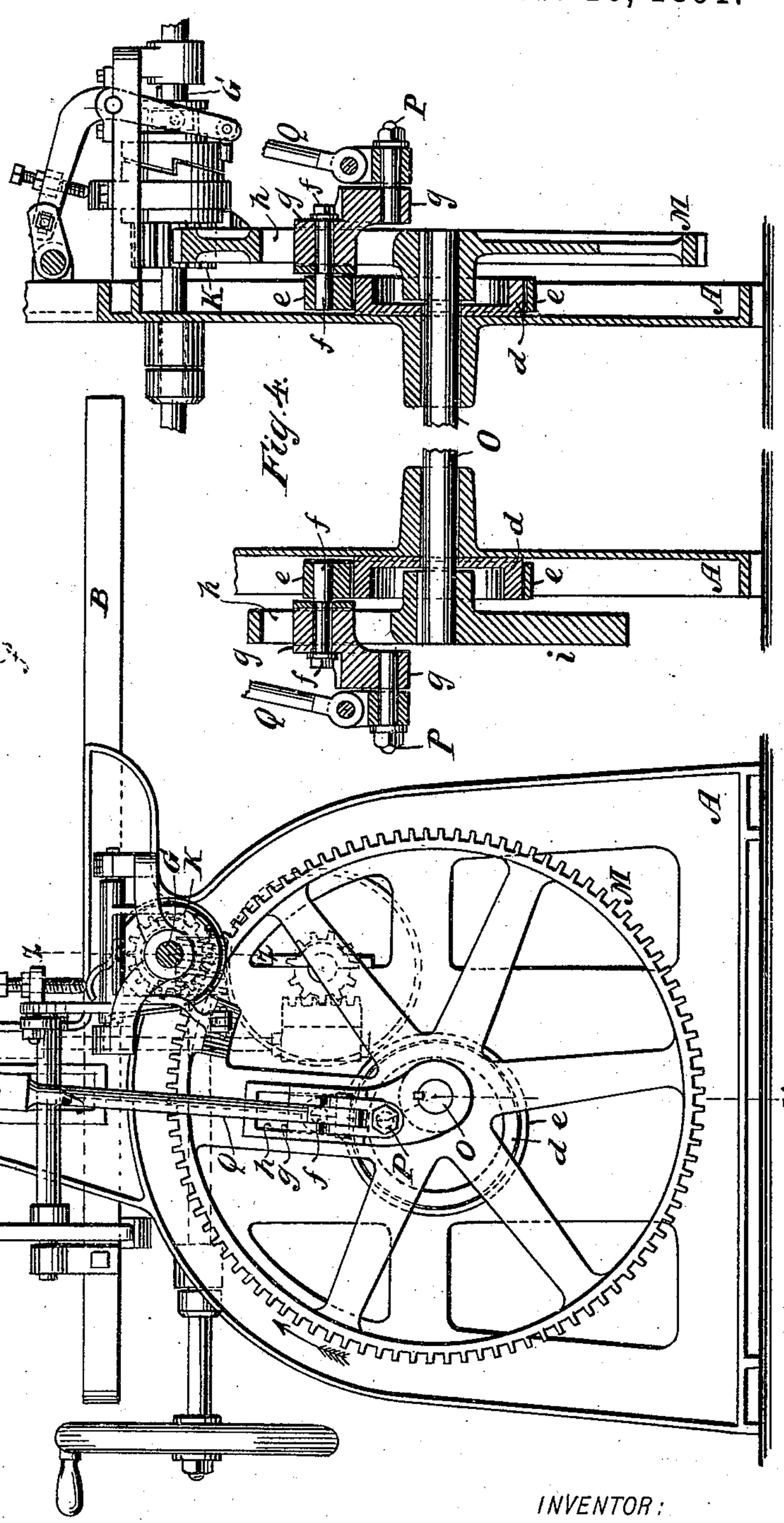


Fig. 4.

Fig. 6.

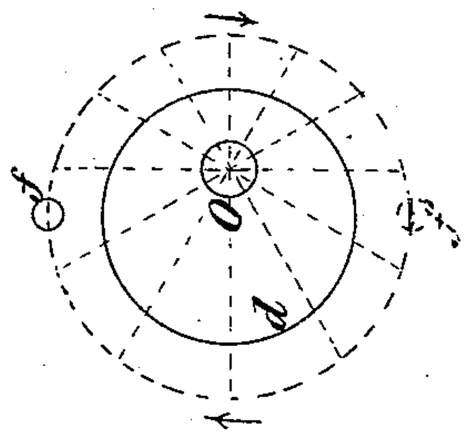


Fig. 3.

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UNITED STATES PATENT OFFICE.

ALEXANDER MALM, OF NEW YORK, ASSIGNOR TO THEODORE W. SHERIDAN, OF BROOKLYN, NEW YORK, AND CHARLES B. SHERIDAN, OF ORANGE, NEW JERSEY.

PAPER-CUTTER.

SPECIFICATION forming part of Letters Patent No. 446,359, dated February 10, 1891.

Application filed October 23, 1890. Serial No. 369,099. (No model.)

To all whom it may concern:

Be it known that I, ALEXANDER MALM, a citizen of the United States, residing at New York, in the county and State of New York, have invented new and useful Improvements in Paper-Cutters, of which the following is a specification.

This invention relates to improvements in paper-cutters; and the invention consists in the details of construction set forth in the following specification and claims, and illustrated in the annexed drawings, in which—

Figure 1 is a face elevation of a paper-cutter containing my invention. Fig. 2 is a plan view of Fig. 1. Fig. 3 is a section along *x x*, Fig. 1. Fig. 4 is a detail view sectioned along *y y*, Fig. 3. Fig. 5 is a section along *z z*, Fig. 2. Fig. 6 is a diagram hereinafter explained.

In the drawings, the letter A indicates a support or frame having a table B for the paper C, as also a clamping-bar D and a cutter or blade E to clamp and cut the paper. F is the cutter-head. The construction and operation of these parts are well known and need no detailed description.

The driving-shaft G has the usual fast and loose pulleys H H and a fly-wheel I. Said shaft G gives motion to the driving-pinion K, gearing into the gear-wheel M on shaft O. At either end of shaft O an eccentric *d*, Figs. 3 and 4, is fixed to frame A. About each eccentric sits a strap *e*, from which extends a wrist pin or connection *f*. A connecting piece or slide *g* joins each of the pins or connections *f* to the wrist-pins P, from which extend links Q to the cutter-head F. The gear M is located at one end of the shaft O, and one of the spokes of the gear M has a slot or guideway *h* for one of the slides *g*, so as to form a carrier for the said slide. The other connecting piece or slide is guided in a similar guideway *h*, formed in a carrier or disk *i*, secured to the other end of shaft O.

When the shaft O revolves in the direction of the arrow, Fig. 3, the pins or connections *f* are carried about the eccentrics *d*, and in its descent each connection *f* is made to pass close to the shaft O. As the circumferential speed diminishes the more closely the shaft O is approached, and as such close approach to the shaft furnishes great lever power, the descent of the connection *f* and of the cutter-head F is slow, and said cutter-head is enabled to exert considerable force so as to carry its knife D through the material. In its ascent each of the pins *f* travels along that part of its eccentric *d* which lies farther from the shaft O, and the consequent increase in circumferential speed causes the connections *f* and cutter-head F to rise or return rapidly to the starting-point. The guides *h* allow the connections *f* sufficient play to approach and recede from shaft O.

The movement of one of the pins *f* is illustrated by the diagram, Fig. 6, in which O indicates the driving-shaft, *d* the stationary eccentric, and *f* the pin which imparts motion to the cutter-head F. As the pin *f* moves from the highest position (shown in full lines) to the lowest position (shown in dotted lines) the shaft O turns seven-twelfths ($\frac{7}{12}$) of one revolution, and the return-movement of the pin *f* from its lowest to its highest position is completed while the shaft O turns five-twelfths ($\frac{5}{12}$) of one revolution; or, in other words, the downward stroke of the cutter-head will be completed in seven seconds and the upward stroke in five seconds if the shaft O makes one revolution in twelve seconds.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a paper-cutter, the combination, with a cutter or blade and a shaft O, of an eccentric, a pin or connection *f*, carried by the shaft about the eccentric, and a pitman connecting the pin and cutter, substantially as described.

2. In a paper-cutter, the combination, with a cutter, a shaft, an eccentric, and a pin or connection *f*, carried by the shaft about the eccentric, of a pitman for connecting the pin and cutter, and a carrier or disk for connecting the pin and the shaft O, said carrier having a suitable guideway *h* for the pin or connection, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

ALEXANDER MALM.

Witnesses:
WM. C. HAUFF,
E. F. KASTENHUBER.