

C. LARSEN & R. OLSEN.
STRAW-CUTTER.

No. 188,520.

Patented March 20, 1877.

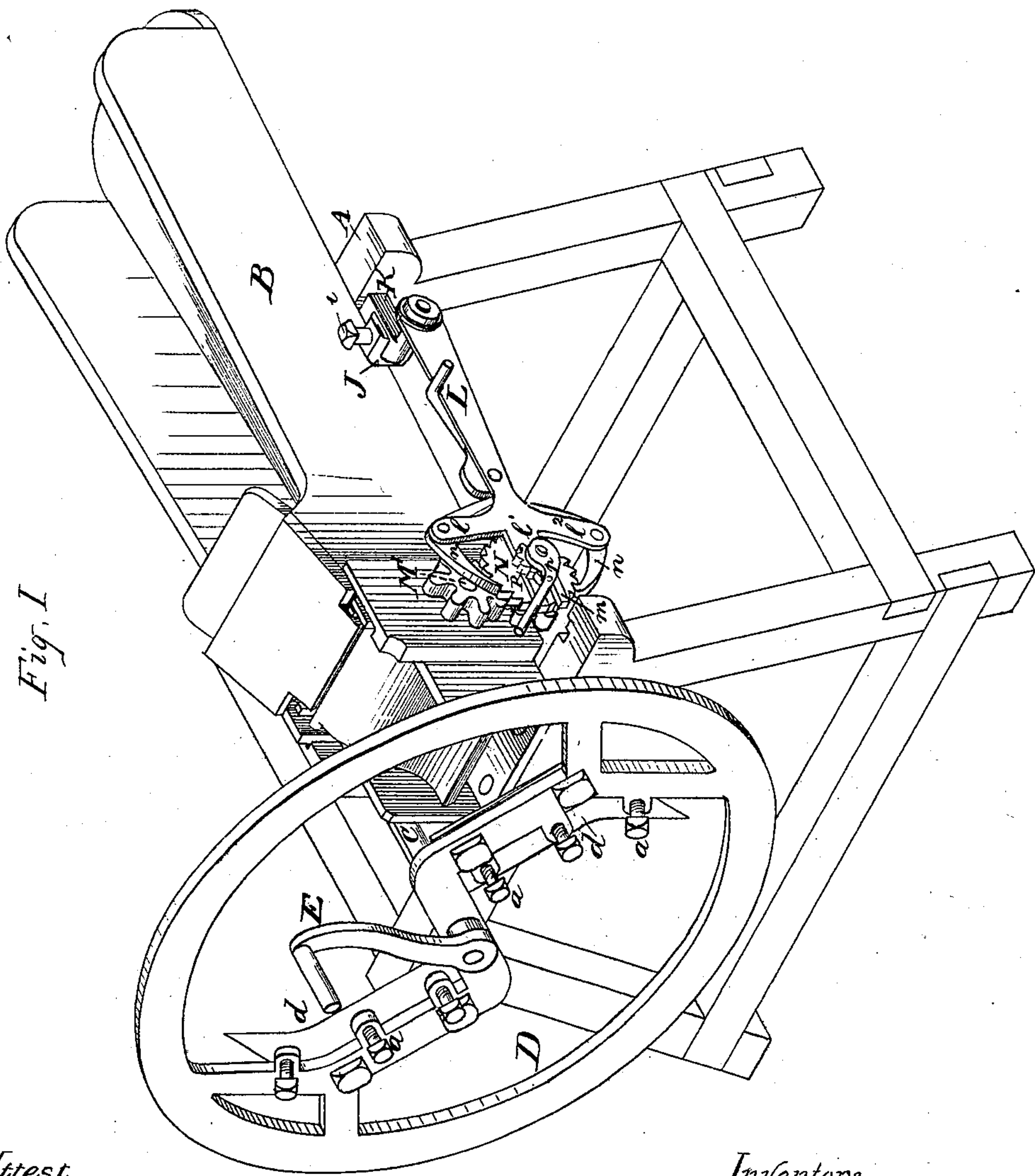


Fig. 1

Attest

C. H. Snow.

John P. Brooks

Inventors

C. Larsen and R. Olsen
by Louis Bagger & Co.
their Att'ys.

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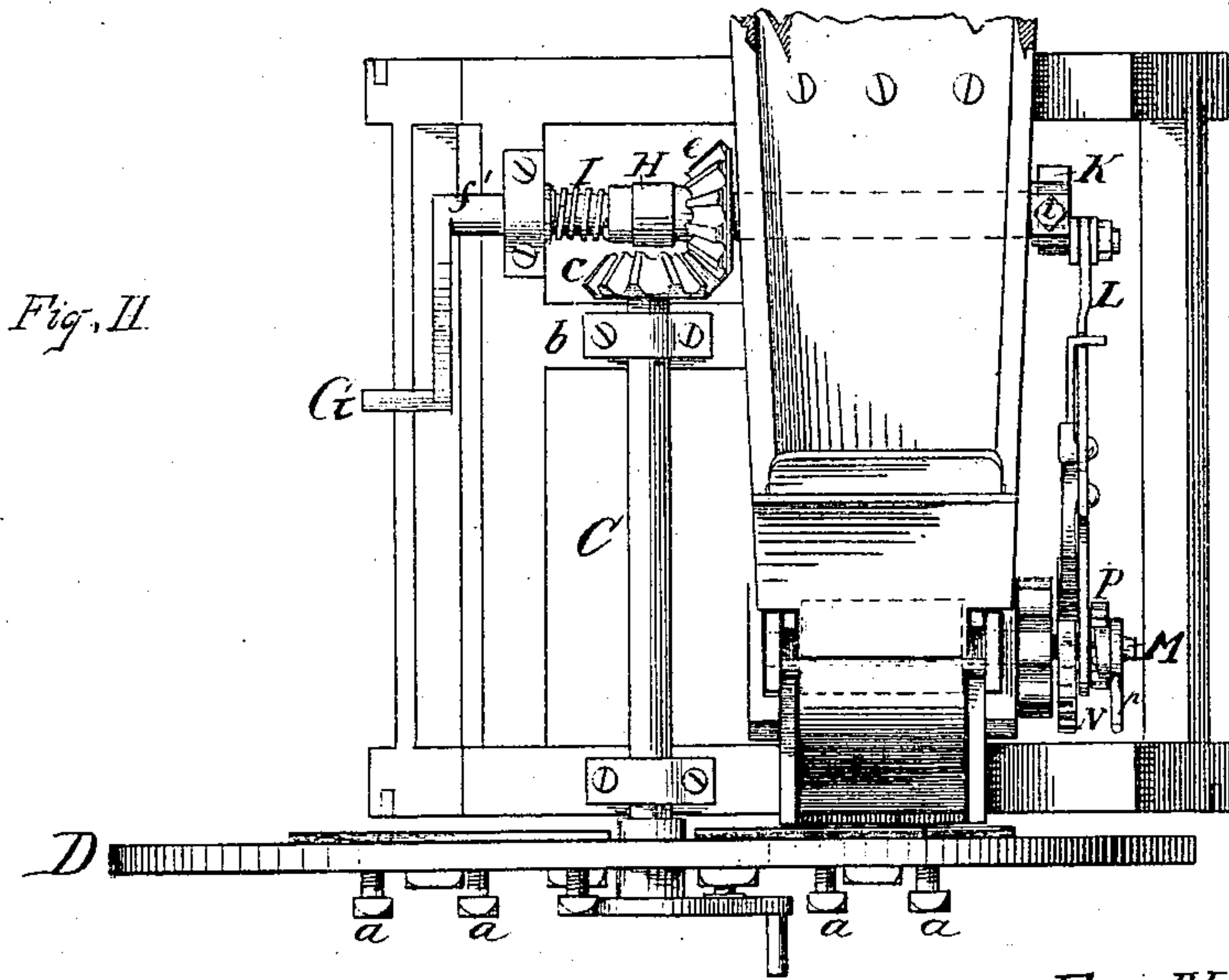


Fig. IV

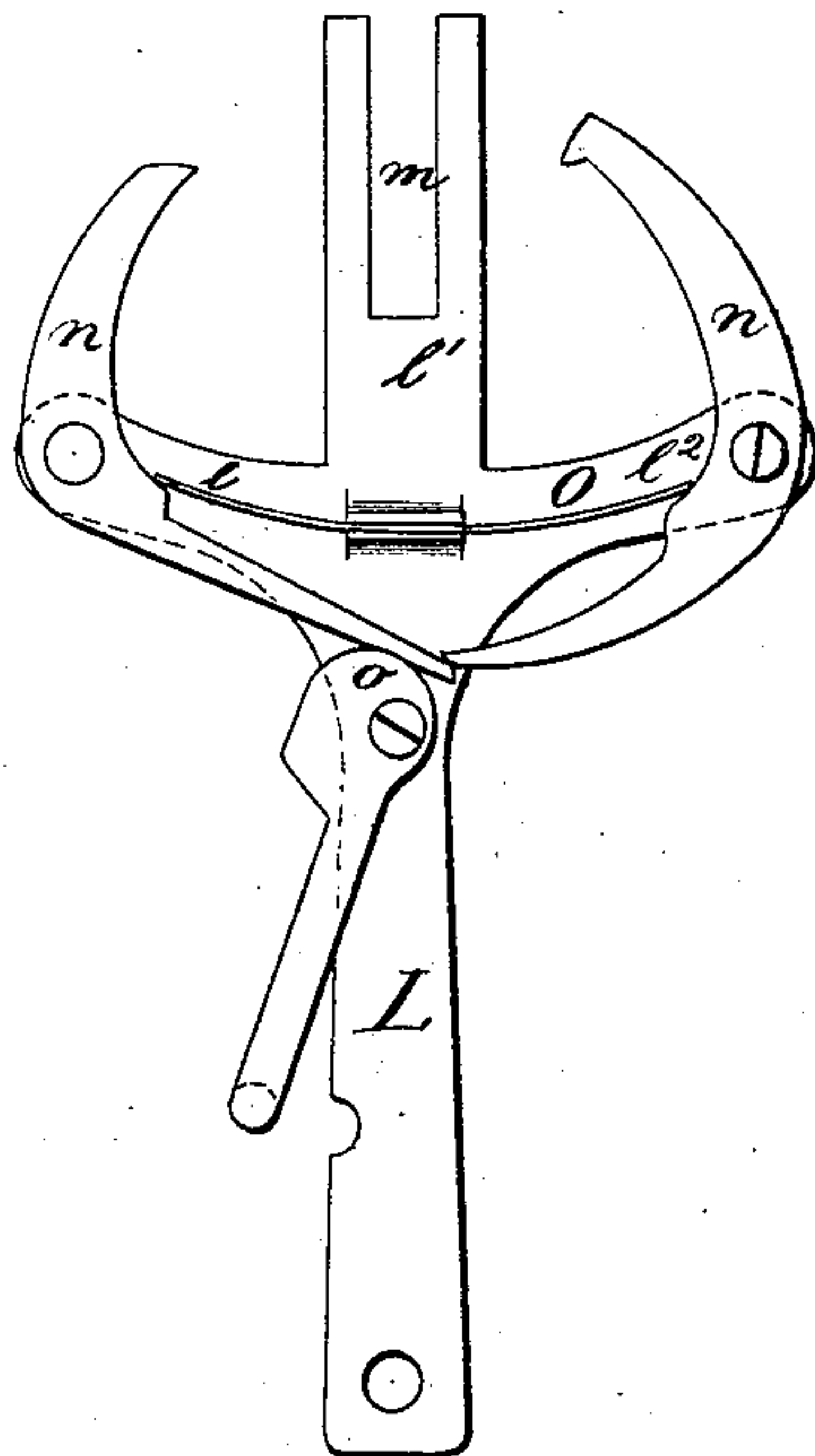
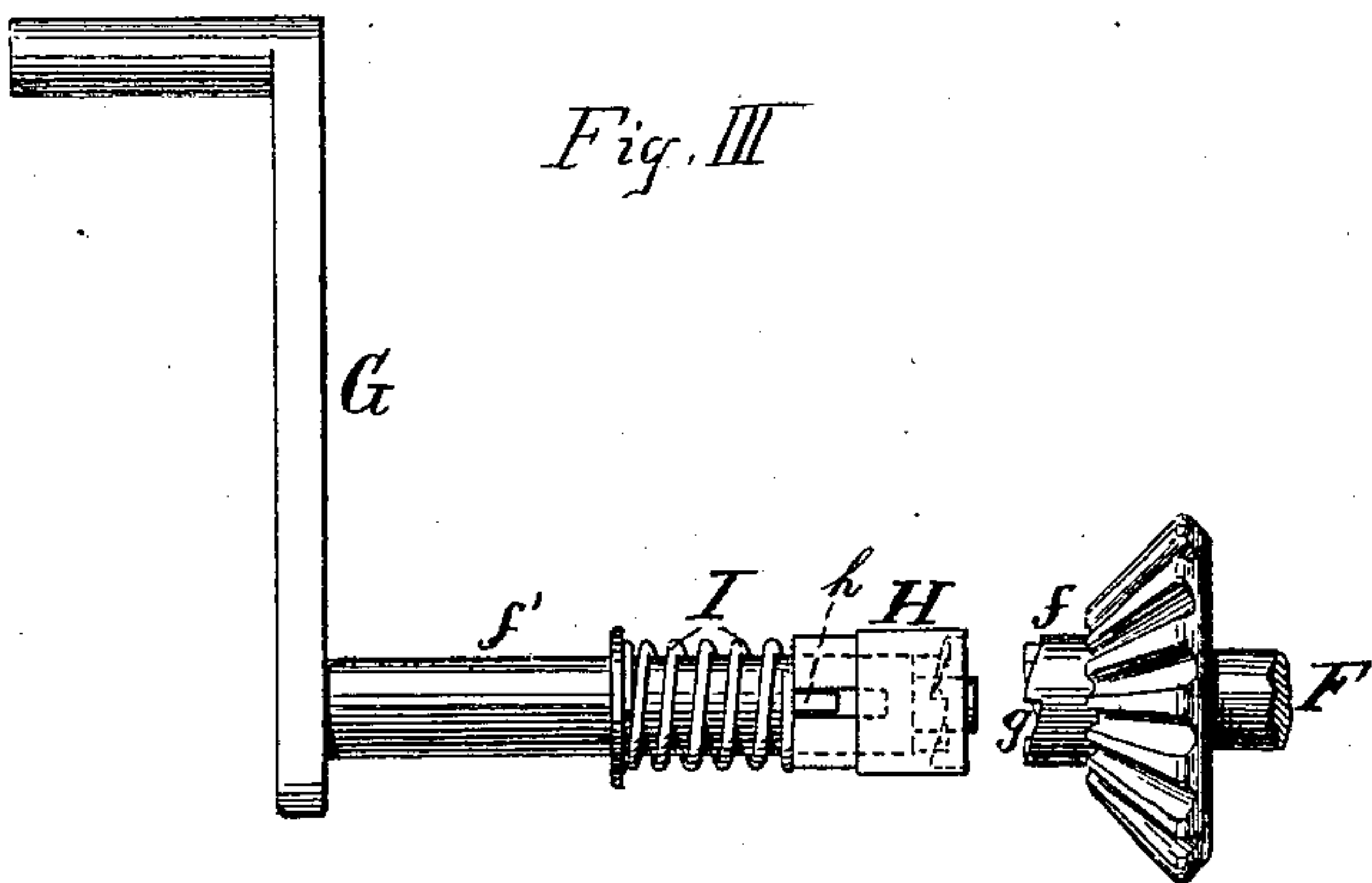
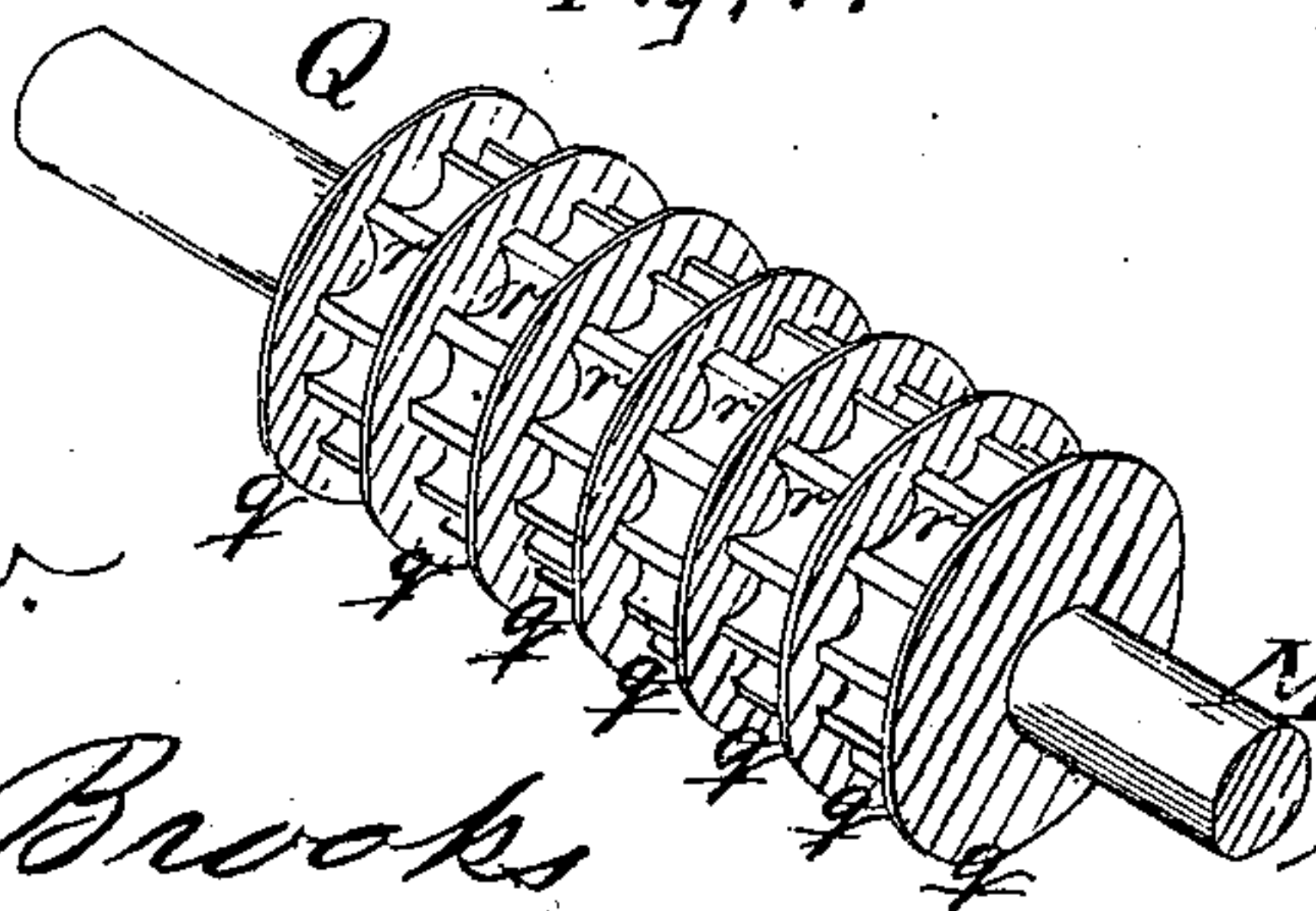


Fig. V



Attest
C. A. Snow
John P. Brooks

Inventors

C. Larsen and R. Olsen,
by Louis Baggett Co.,
their Att'ys.

UNITED STATES PATENT OFFICE.

CHRISTEN LARSEN AND RASMUS OLSEN, OF RACINE, WISCONSIN.

IMPROVEMENT IN STRAW-CUTTERS.

Specification forming part of Letters Patent No. **188,520**, dated March 20, 1877; application filed October 23, 1876.

To all whom it may concern:

Be it known that we, CHRISTEN LARSEN and RASMUS OLSEN, both of Racine, in the county of Racine and State of Wisconsin, have invented certain new and useful Improvements in Feed-Cutters; and we do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a perspective view. Fig. 2 is a top plan. Fig. 3 is a detail view of the crank. Fig. 4 is a detail view of the feeding mechanism, and Fig. 5 is a perspective view of one of the feed-rolls detached.

Similar letters of reference indicate corresponding parts in all the figures.

This invention relates to that class of machines which are used for cutting straw, corn-stalks, &c., into feed for horses and cattle; and it consists in the construction and arrangement of parts, hereinafter more fully shown and specified.

In the drawings, A is the bed or table of the machine. Upon this is placed the cutter-box B. C is a shaft placed parallel to box B, and having its bearings in the front plank of table A and in a cross-piece, b. Shaft C has at one end the fly-wheel D, provided with the knives or cutters d, adjustable by set-screws a a, and with a handle or crank, E, by which it may be turned and the machine operated, while at the other end it has a pinion, c, engaging with another pinion, e, upon a shaft, F, having its bearings in the two sides of table A. Shaft F (shown in detail in Fig. 3) consists of two pieces, f f', the latter of which has the crank G, by which the machine is usually operated. The shaft f' terminates in a pivot, which fits in a corresponding recess in the shaft f, which latter terminates in a clutch, g. H is a clutch-collar engaging with the clutch g, and sliding upon shafts f f', which at the same time it serves to couple. It is prevented from coming out of position by a projection, h, upon shaft f', and a spring, I, coiled around shaft f', forces it against shaft f, thus causing its clutch to engage with that upon shaft f. Now, when the crank G is

turned in the right direction, the entire shaft F is rotated, thus operating shaft C and the fly-wheel; but as soon as the crank G is let go of its own weight will prevent it and the shaft f' from rotating, while shafts f C, the fly-wheel, and the rest of the machinery will continue in operation until stopped by friction.

The shaft F passes under the cutter-box, and terminates in a fork, J, one of the prongs of which has a set-screw, i. Between the prongs slides a bar, K, which, when the machine is in operation, is secured in position by the set-screw i. To the bar K is pivoted a plate or casting, L, terminating in three prongs, l l' l'', the middle one of which, l', is split, as shown at m, so as to slide upon the shaft M of the lower feed-roll. N is a ratchet-wheel, secured upon shaft M. This is operated by two pawls, n n, which are pivoted upon plate L, and operated by a spring, O, secured on the under side of plate L. The pawls n n may be thrown out of operation by an eccentric lever, o, pivoted on the under side of plate L, as shown.

The operation of this part of our invention is as follows: When the machine is operated a reciprocating motion is given to the plate L, the length of the stroke being regulated by the adjustable sliding plate or bar K. At each forward or backward movement of plate L the ratchet-wheel N is operated by pawls n n, thus causing the lower feed-roll to rotate and feed the straw a certain space forward, the length of which is regulated, as before stated, by the adjustable bar K. This, of course, may be graded, in order to save time in adjusting the machine to cut certain lengths of feed. If, at any time during the operation of the machine, it becomes necessary or desirable to throw the feed-rolls out of gear, this can be done in a moment by simply raising the lever o, thus throwing the pawls n n out of operation, and preventing the ratchet-wheel N, and consequently also the feed-rolls, from operating, although the rest of the machinery may continue in operation until stopped by friction.

P is a small ratchet-wheel, secured upon shaft M on top of plate L. p is a lever, having a pawl, p', for operating wheel P. The

object of this is, in case the feed-rolls should become choked and refuse to rotate or to feed the straw, &c., to enable them to be turned in the reverse direction, so as to release the material caught between them, when the machine may again be started.

The feed-rolls *Q Q* are of the construction clearly illustrated in Fig. 6 of the drawings. They consist of the shafts *M M'*, upon which are secured alternately flat smooth and toothed disks *q r*, the smooth disks *q* being of a larger diameter than the toothed ones. By practical experience we have found that this form of feed-rolls is preferable to most others, feeding the material with more certainty, and less danger of becoming clogged up. The bearings of the upper feed-roll are made elastic by the use of springs placed upon rods that project downwardly under the bed of the machine, in order to compensate for the varying bulk of the material fed into the machine.

The operation of our improved feed-cutter will be clearly understood from the foregoing description, and needs no repetition. Its advantages are also obvious, being the facility with which the feeding mechanism may be adjusted by bar *K* to cut straw, &c., of any length; the ease with which the feed-rolls may

be thrown out of gear while the machine is in operation, and the construction of the crank *G*, which causes it to stop rotating as soon as let go of, thus doing away with the danger of being bruised by the crank, which constantly threatens the operators of machines as now usually constructed.

Having thus described our invention, we claim and desire to secure by Letters Patent of the United States—

1. In a feed-cutting machine, the combination of the feed-rolls *Q*, ratchet-wheel *N*, plate *L*, having spring-pawls *n n* and cam-lever *o*, substantially as and for the purpose herein shown and specified.

2. The feed-rolls herein described, consisting of shafts *M*, having alternate flat smooth and toothed disks *q r*, substantially as and for the purpose hereinbefore set forth.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in presence of two witnesses.

CHRISTEN LARSEN.
RASMUS OLSEN.

Witnesses:

JOHN W. KNIGHT,
SIMEON WHITELEY.