

HENRY J. HALL. Improvement in Machines for making Cigars.

No. 123,014.

Patented Jan. 23, 1872.

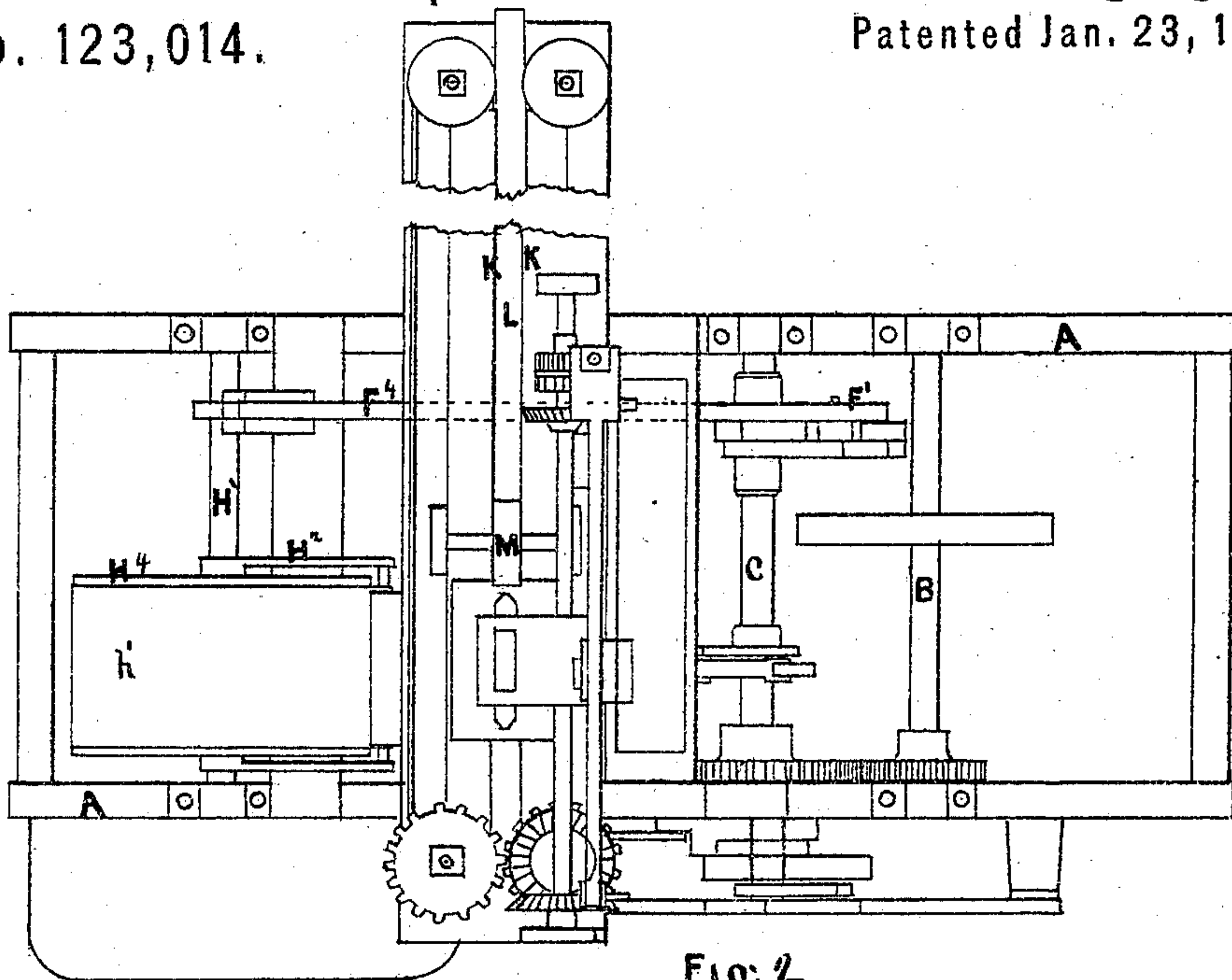


Fig. 2

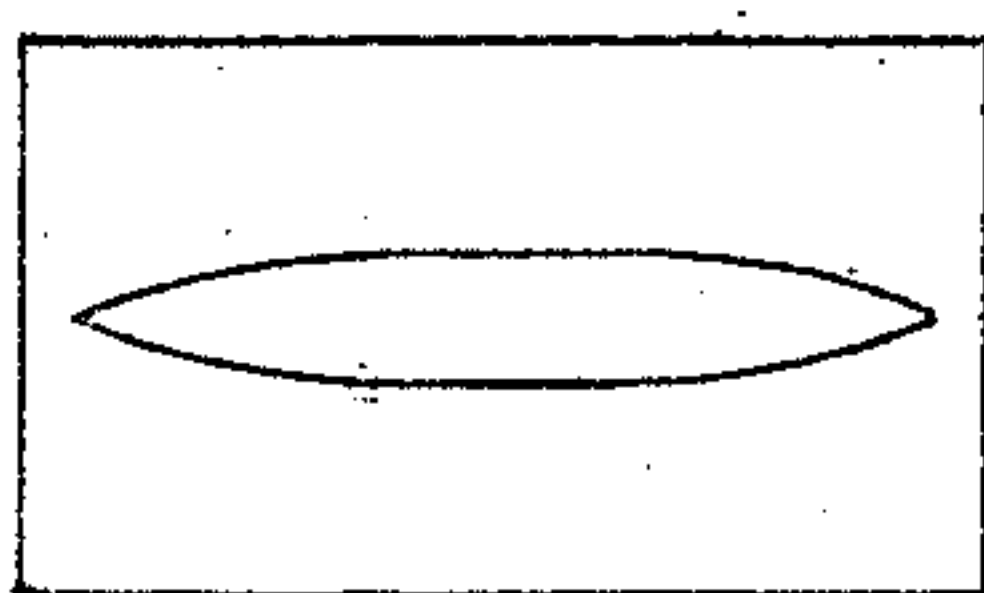


Fig. 4

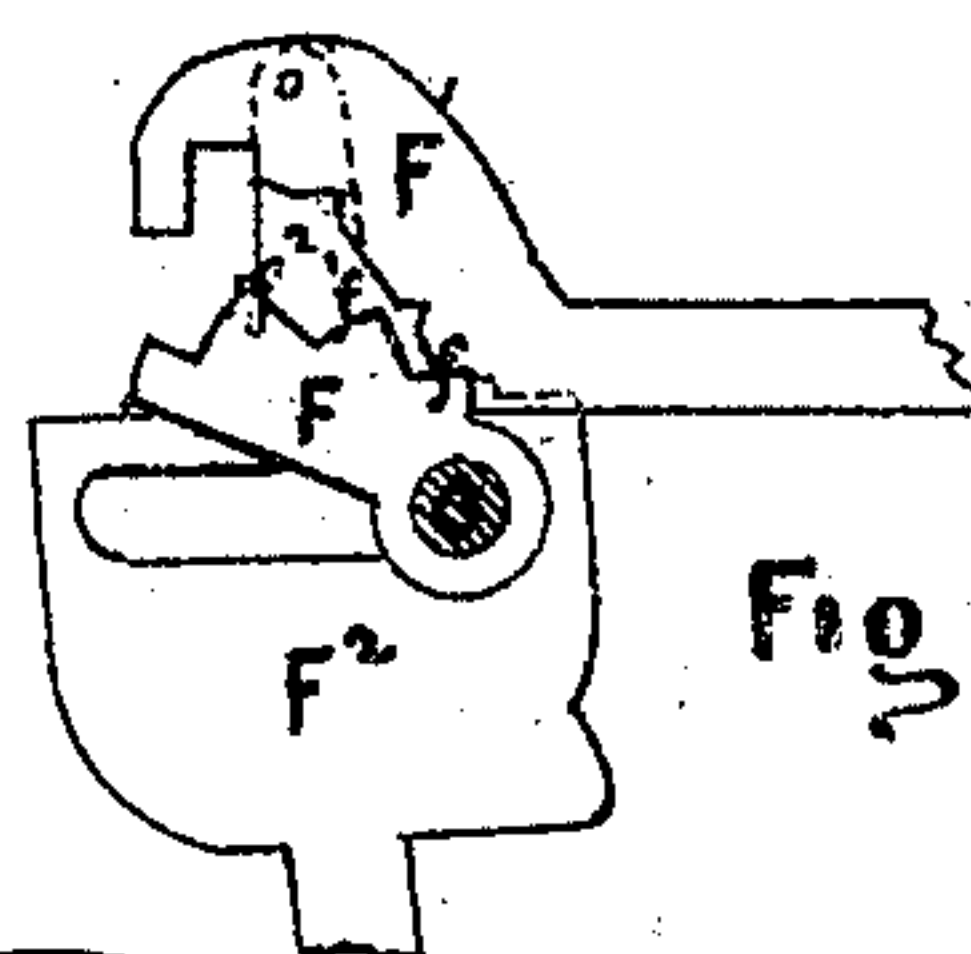


Fig. 5

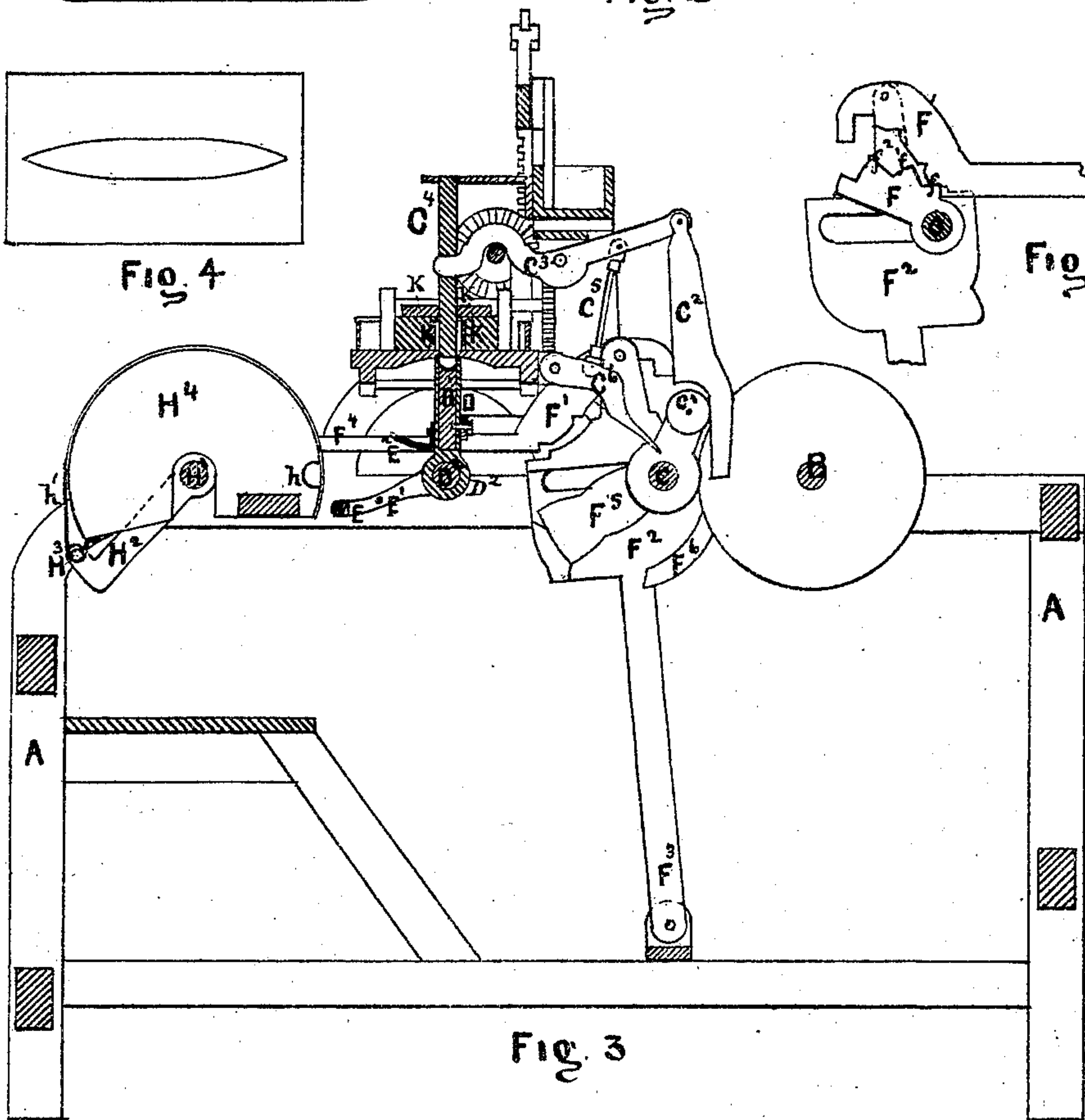


Fig. 3

WITNESSES

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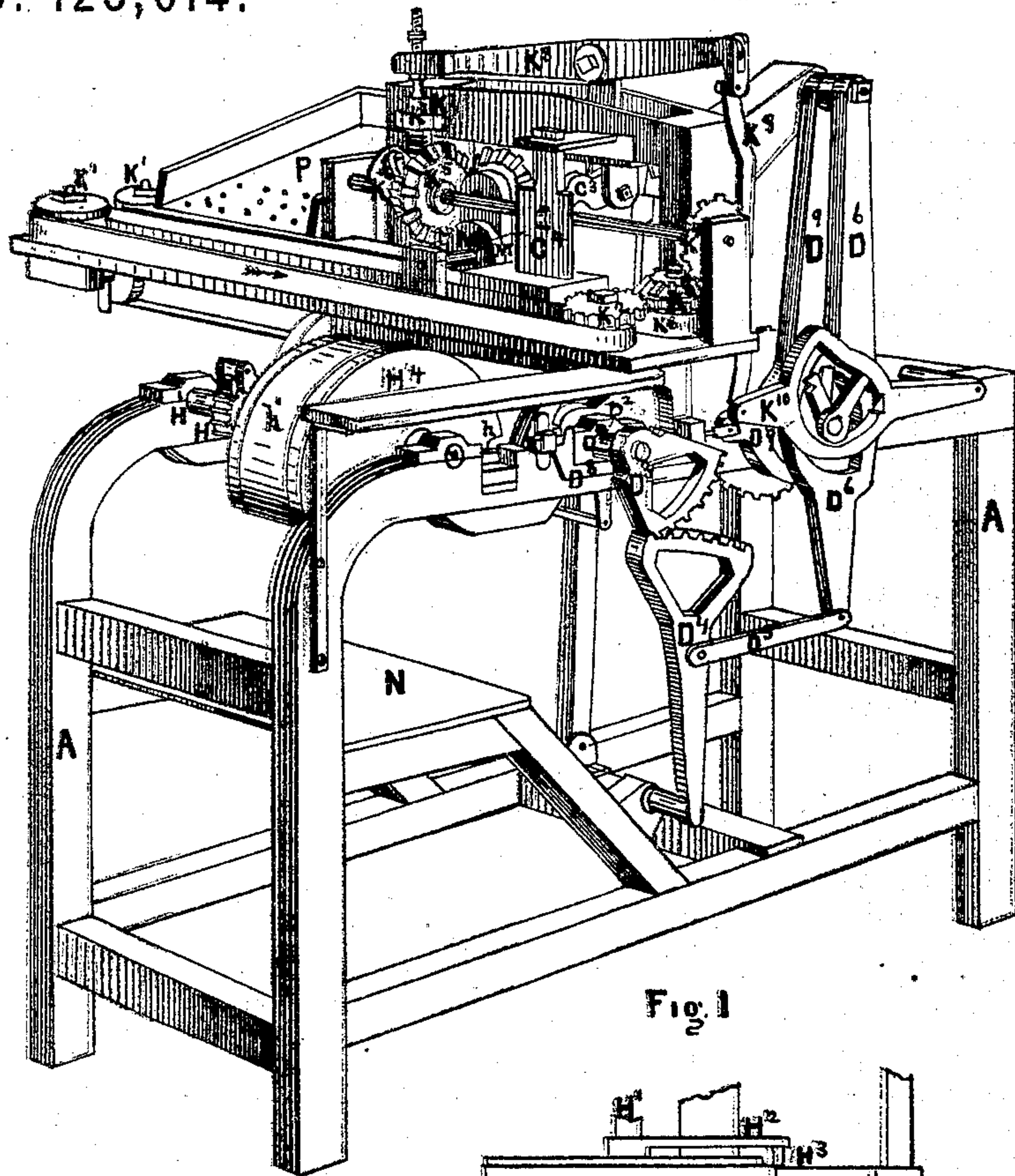


Fig. 1

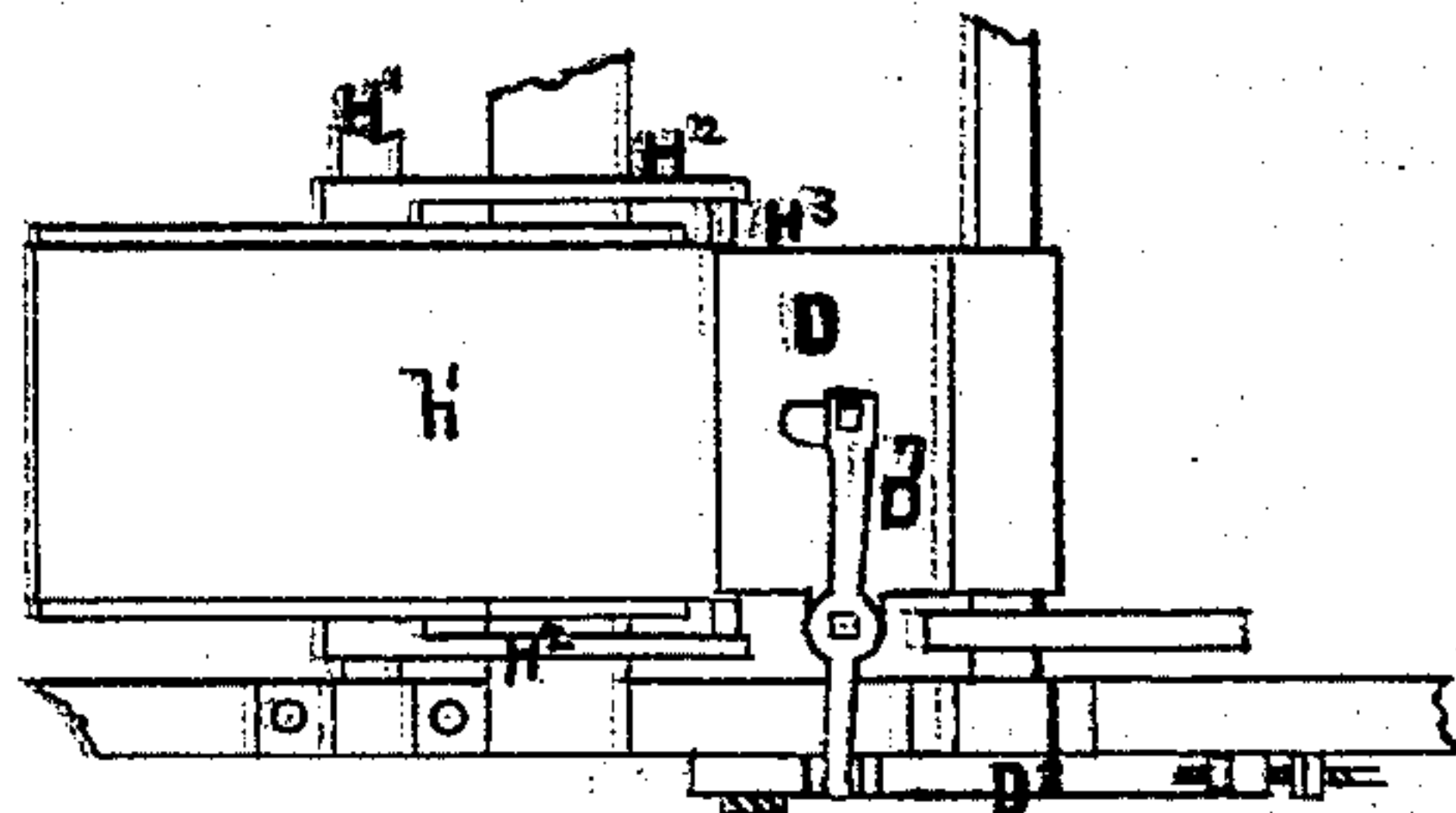


Fig. 8

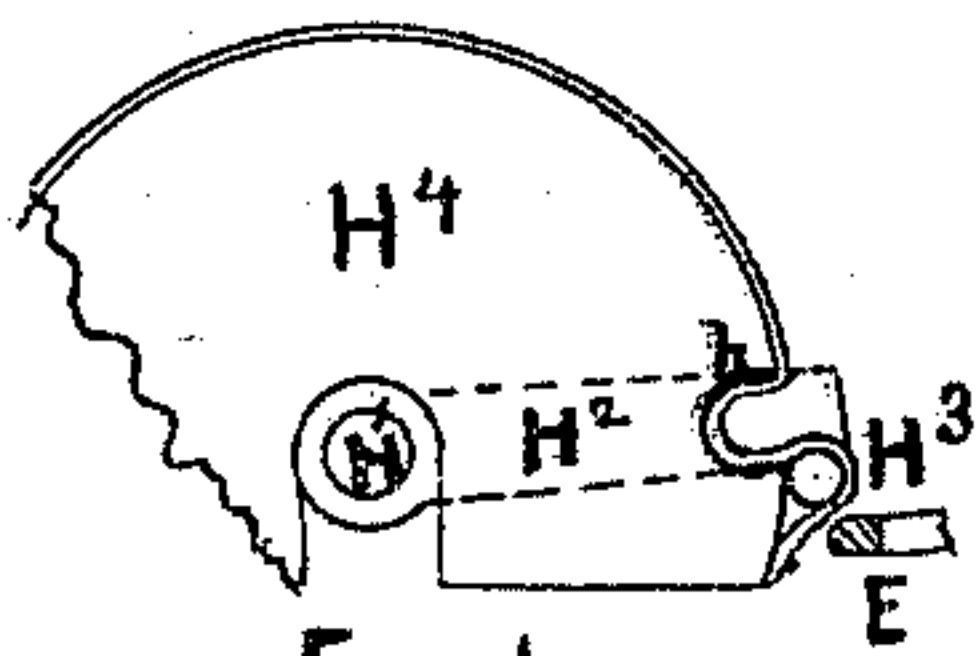


Fig. 6

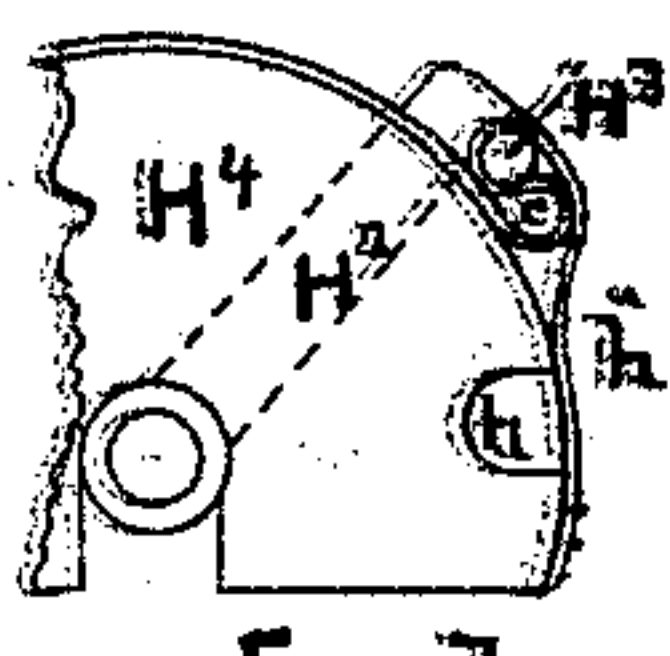


Fig. 7

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# UNITED STATES PATENT OFFICE.

HENRY J. HALL, OF BROOKLINE, MASSACHUSETTS.

## IMPROVEMENT IN MACHINES FOR MAKING CIGARS.

Specification forming part of Letters Patent No. 123,014, dated January 23, 1872.

*To all whom it may concern:*

I, HENRY J. HALL, of Brookline, in the county of Norfolk and State of Massachusetts, have invented certain new and useful Improvements in Machines for Making Cigars, of which the following is a specification:

### *The Nature of the Invention.*

The nature of my invention consists, first, in cutting the loose tobacco into the form of a cigar before the binder is put on, and, by the same operation continued, pressing it into a mold; second, in so arranging the mold and its operating-gear in connection with the rolling-up belt that the tobacco in bunch may be forced from the mold directly into the fold of the rolling-up belt, so that the bunch is kept constantly under pressure; third, in hanging the mold upon pivots so that it may swing out from under the cutting-plunger and take position opposite the recess in the form upon which the rolling-up belt runs, in which position the action of the ejecting-plunger takes place, forcing the bunch into the rolling-up belt; fourth, in arranging with the swinging mold a follower which shall serve to keep the tobacco under pressure until the rolling-up belt has complete hold of it; fifth, in arranging the rolling-up belt upon a stationary drum about which the fold of the belt is made to pass; sixth, in the device of a step-cam for the purpose of giving a motion, with varying velocity, to the rolling-up device.

### *Description of the Accompanying Drawing.*

Figure 1 is a perspective view of my invention. Fig. 2 is a plan of the same. Fig. 3 is a section of the same. Fig. 4 is a plan, showing the cutting-die. Fig. 5 is an elevation, showing the device for giving a variable motion to the rolling-up device. Figs. 6 and 7 are elevations, showing the rolling-up device. Fig. 8 is a plan, showing the rolling-up device in connection with the mold and a part of the device for operating the follower within the mold.

### *General Description.*

A is the frame to which the principal parts of my machine are attached. K K, Figs. 1, 2, and 3 are feeding-in belts, and they serve to form the two vertical walls of the feeding-in

channel, of which the belt L forms the bottom. All these belts are driven in the direction indicated by the arrow, Fig. 1, with an intermittent motion, the effect being produced by the cam-lever K<sup>10</sup>, link K<sup>9</sup>, lever K<sup>8</sup>, rack K<sup>7</sup>, and pinion and ratchet K<sup>6</sup>, Fig. 1, the motion being transmitted through the gears K<sup>5</sup>, K<sup>4</sup>, K<sup>3</sup>, K<sup>2</sup>, &c., Fig. 1. The cutting-die C<sup>4</sup> is made to cut the tobacco—that is, form it into a bunch in the shape represented in Fig. 4—so that the bunch, as it comes from the machine, is in good form for a cigar, the ends being tapering. The cutting-die C<sup>4</sup> also serves as a plunger or punch to force the tobacco into the mold D. The mold swings on a shaft, D<sup>2</sup>, operated by the cam-gears D<sup>3</sup> D<sup>4</sup>, link D<sup>5</sup>, lever D<sup>6</sup>, and a cam on the shaft C, by which action the bunch is carried to the recess *h*, Figs. 1, 3, and 7, in the stationary drum H<sup>4</sup>. The bunch is forced out of the mold and into the recess *h* by means of an ejecting-plunger, D<sup>1</sup>, Fig. 3, which is operated by the lever D<sup>7</sup> and link D<sup>8</sup>, Fig. 8, the lever D<sup>9</sup>, and a cam on the shaft C, Fig. 1. As the rolling-up belt *h'* is within the recess *h* it receives the bunch of tobacco. This rolling-up belt or apron *h'* is made fast at its two ends to the fixed drum H<sup>4</sup>. This belt is made sufficiently long, so that a fold may be formed in it to take the bunch of tobacco, the fold being formed first in the recess *h*, at which place it takes the bunch of tobacco, as shown in Fig. 6. After removing the tobacco at *h* the fold is made to traverse the drum H<sup>4</sup>, carrying with it tobacco *c*, as shown in Fig. 7, rolling it and putting on the binders in its passage, and finally delivering it on the platform N. The shaft H<sup>1</sup>, Figs. 1, 2, 3, 6, and 7, carrying the arms H<sup>2</sup> and rolling up roller H<sup>3</sup>, is operated by the rack-rod F<sup>4</sup>, which meshes with the pinion H on said shaft H<sup>1</sup>. The rack-rod F<sup>4</sup> terminates in a peculiarly-formed head, F<sup>1</sup>, shown in Fig. 3, and in reverse in Fig. 5. F is a step-cam formed in a series of steps, *f f'* *f*<sup>2</sup>, which operate against a similar series of steps on the head F<sup>1</sup> of the rack-rod F<sup>4</sup>. From the form of the cam F and the tooth-like parts of the head F<sup>1</sup> it will be understood that, as the first step *f* begins to act, the motion of the rod F<sup>4</sup>, and consequently the rolling-up roll H<sup>3</sup>, will be slow. As this rolling-up roll H<sup>3</sup> is at this time in the position represented in Fig. 6—that is,



just beginning to take in, shape, and reduce the bunch, it is desirable that its motion should be slow. As the motion proceeds, so that the roll  $H^3$  may have fairly taken hold of the bunch, as shown in Fig. 7, then the second step  $f^1$  begins to act, so as to accelerate the motion of the roll  $H^3$ , at which time the "binders" are put on. After this the motion is still further accelerated by the contact of the third step  $f^2$ . By the above arrangement the whole motion of rolling up the cigar is made rapidly; yet the inception is so moderate as to admit of perfect results. E, Fig. 3, is a follower attached to the shaft  $D^2$  and so arranged that, as the mold D leaves the bunch in the recess  $h$ , it will take the place of the mold and thus keep the bunch constantly under pressure, until it is completely held by the apron  $h'$ . At the return of the mold this follower E is thrown back by the action of the arm  $E^2$ , which strikes the rod  $E^1$ .

The operation of my machine is automatic, except that the tobacco has to be fed from the table P and the binders have to be laid on the apron  $h'$ .

I claim as my invention—

1. In a cigar-machine, the cutting-die  $C^4$ , Fig. 3, in combination with the cutting-plate or female die, Fig. 4, said parts being arranged to cut the tobacco in lanceolar form, substantially as described.

2. The mold D swinging upon the shaft  $D^2$ , operating substantially as described, and for the purpose set forth.

3. In combination with the swinging mold D, the follower E, arranged to operate, substantially as described, and for the purpose set forth.

4. The combination and arrangement of the rolling-up belt  $h'$ , the roller  $H^3$ , swinging arms  $H^2$ , and stationary drum  $H^4$ , substantially as described, and for the purpose set forth.

5. The combination of the step-cam F with the rack-head  $F^1$ , when the same are made with a series of steps,  $f f^1$ , &c., substantially as described, and for the purpose set forth.

HENRY J. HALL.

Witnesses:

FRANK G. PARKER,  
FRANK H. NUTTER.