

W. W. HUSE.

Cigar Machine.

No. 31,390.

Patented Feb. 12, 1861.

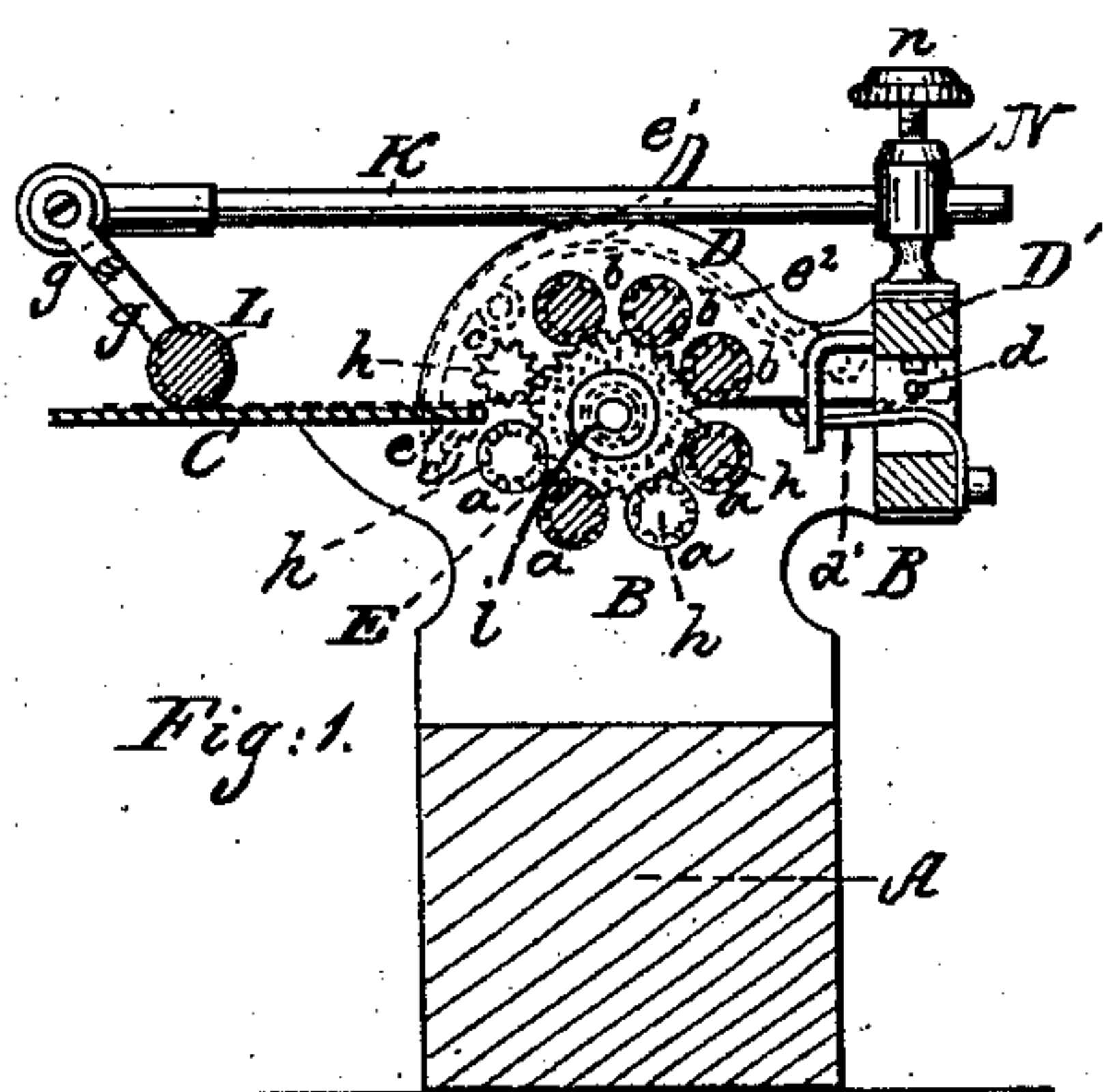


Fig. 1.

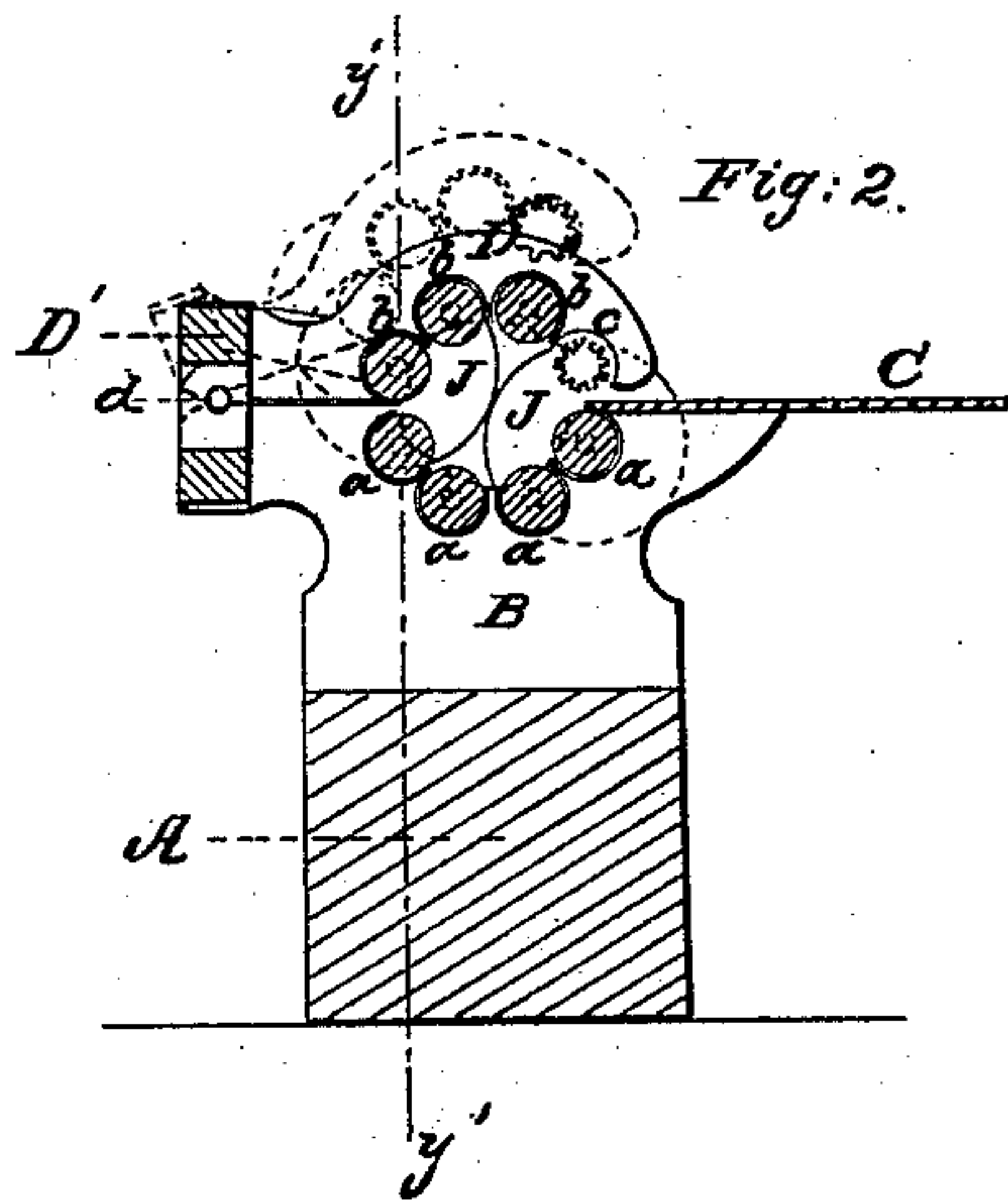


Fig. 2.

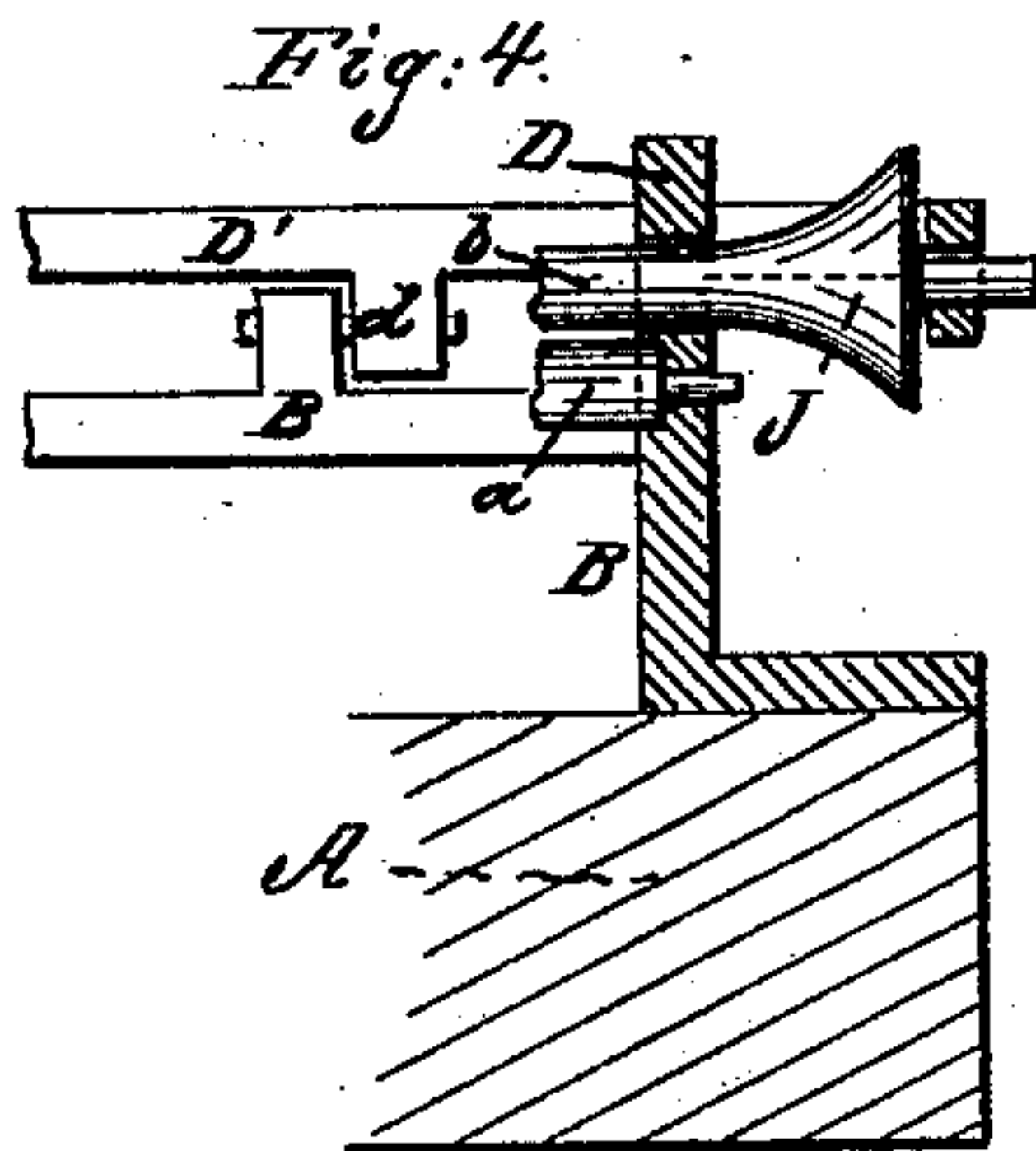


Fig. 4.

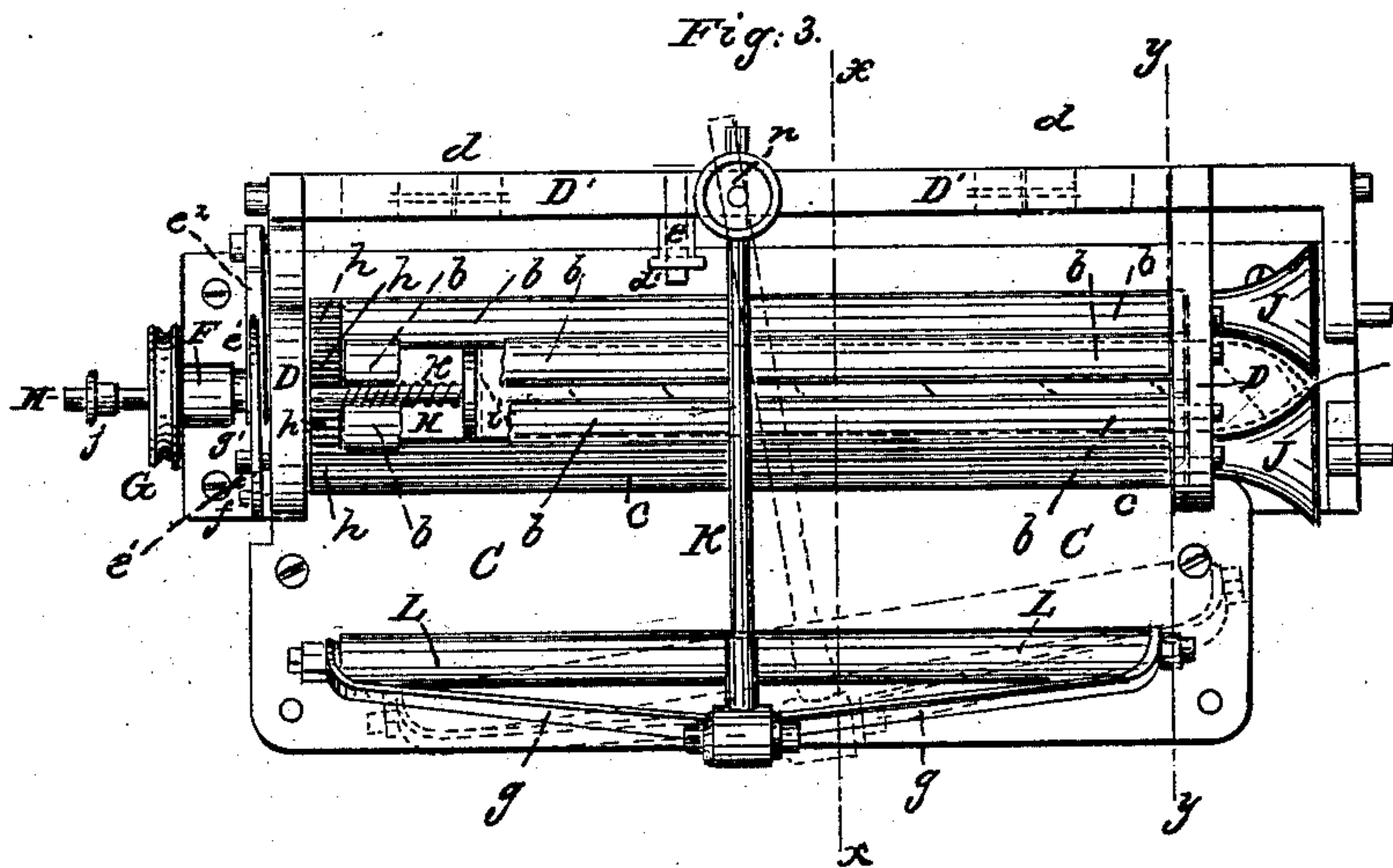


Fig. 3.

Fig. 5.

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IMPROVEMENT IN CIGAR-MACHINES.

Specification forming part of Letters Patent No. 31,390, dated February 12, 1861.

To all whom it may concern:

Be it known that I, W. W. HUSE, of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Machine for Making Cigars; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a transverse section through the improved cigar-making machine, taken in the vertical plane indicated by the red line *xx* in Fig. 3. Fig. 2 is a transverse section through the machine, taken in the vertical plane indicated by the red line *yy* in Fig. 3. Fig. 3 is a top view of the improved machine, in which portions of two of the upper rollers are broken away to exhibit the spring pressing-head. Fig. 4 is a detailed view of one of the rollers which carries one of the conical cap-formers. Fig. 5 represents a roller with a curved surface, which may be used in the place of straight rollers.

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

My invention and improvements in machines for making cigars consist, first, in combining in a suitable manner with a cylinder of rollers two or more rotary conical "cap-formers," which may have sharp cutting-edges at the circumference of their bases, the nearest point of contact of which edges with each other being in or nearly in a line with the axis of the cylinder of rollers, as will be hereinafter described, whereby the "cap" of the cigar will be formed and the point cut off before the cigar is removed from the machine; secondly, in arranging in one end of the cylinder of rollers a pressing-head which is so acted upon by a spring as to keep the cigar up to the cap-formers during the operation of forming the cap on the cigar, as will be hereinafter described; thirdly, in the use of an adjustable pressure-roller, in combination with a feed-table, for guiding the wrappers to the work, and also keeping them smooth and under the proper degree of tension, as will be hereinafter described.

To enable those skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A is a bed or table on which the mechanism is mounted and suitably secured.

B B are two bearing-blocks, which, with the

longitudinal bar B' and table or shelf C', constitute the lower part of the frame for carrying the lower series of rollers, *aaaa*. The upper frame consists, also, of two bearing-blocks, D D, and a longitudinal bar, D', which connects these blocks together at their rear ends, and this latter frame carries the upper series of rollers, *b b b*, and the feed-roller *c*. These two roller-carrying frames are hinged together by suitable hinges at *d d*, which allow the front part of the upper frame to be raised up and thrown back for placing the "fillers" in the machine and for removing the cigar when finished. A spring, *a'*, is secured to the lower bar, B', which projects upward and inward, and operates upon a forked arm portion, *e*, which is secured to and projects inward from the bar D' of the upper frame, and throws the upper frame back when it is released from the lower frame by the spring thumb-catch *e'*. This catch *e'* is a curved piece with a hook on its lower end, which piece is pivoted to one end of the bearing-block D of the upper frame, and the piece being acted upon by a spring, *e''*, it is caused to catch under a pin, *f*, which projects from one end of the lower frame, as represented in Fig. 3. It is only necessary, therefore, to press on the upper projecting end of catch-piece *e'* when it is desired to open the machine, and the spring *a'* will raise the upper frame of rollers and hold it up. The catch *e'* will hook over pin *f* by simply shutting the upper frame quickly. The rollers *aaaa* have their end bearings in the lower bearing-blocks, B B, and they are arranged in a semicircle with their surfaces nearly touching each other. The rollers *b b b c* have their end bearings in the upper bearing-blocks, D D, and the axis of these rollers are also arranged in a semicircle described from a common center with the lower rollers, and the surfaces of these upper rollers nearly touch each other. It will thus be seen that when the upper and lower bearing-blocks are brought together, as represented in Figs. 1 and 2 of the drawings, I have formed a cylinder of small rollers or round bars, whose axes are arranged in a circle parallel to a common central axis. All of these rollers or bars *aaaa* and *b b b c* are rotated by the sheer-wheel E, (represented in Figs. 1 and 3,) the teeth of which engage with small pinion spur-wheels *h*, which are on one end of each bar or roller *aaaa* and *b b b c*. The spur-

wheel E is keyed to the inner end of a hollow driving-shaft, g' , which has its bearings in one of the lower blocks B, and in an auxiliary bearing-block, F, which is on the outside of the block B. The axis of this shaft g' is in a line with the axis of the cylinder of rollers.

G is a grooved pulley-wheel which is keyed to the outer end of shaft g' , over which a driving-cord may pass for communicating motion from any convenient prime mover to the spur-wheel E. Spur-wheel E with its pinions are represented in Fig. 3 of the drawings within the cylinder of rollers; but it will be seen that this wheel E and its pinions may be placed outside of the block B and work equally as well.

H is a rod of a suitable length, having a male screw-thread cut on one end and a circular head, i , secured to the opposite end, which is in diameter slightly less than the diameter of a circle described within the cylinder of rollers and touching each roller. This circular head i is put within the cylinder of rollers, and its rod H is passed through the axis of shaft g' , so as to project more or less from the outer end of this shaft g' , and on this outer end of the rod H an adjusting-nut, j , is screwed, its end abutting against the end of shaft g' . With this nut j the rod H can be adjusted endwise. A spring, k , is coiled around the rod H, one end of which acts against the head i , and the other end bears against the inside surface of the bearing-block B, so as to force the head out toward the opposite end of the machine in a direction with the length of its rod H.

On the opposite end of the machine to the pressing-head i , two funnel or conical shaped portions, J J, are placed, the smaller ends of which are secured to the ends of two of the rollers $a b$, which are diametrically opposite each other. The axis of each of these portions J J is in a line with the roller to which it is secured, and the smaller ends of these portions J J are equal in diameter to the ends of their respective rollers. The radii of the bases of these portions J J are equal to the radius of a circle described within the cylinder of rollers touching the axis of each roller. Thus it will be seen that the edges of the bases of these portions J J will touch each other at a point which is in a line with the axis of the cylinder of rollers. These edges are sharpened and kept sharp for cutting off the point and for finishing the cap of the cigar, as represented in Figs. 2 and 3. The shape of the cap-forming portions J J is represented in Figs. 3 and 4. They are continuations of their respective rollers, forming truncated cones with concave sides, so that when the point of the cigar is forced up between these rotating portions J J, by the pressure of spring K at the opposite end of the cigar, they will give the desired tapering-pointed shape to the cigar and wind the wrapper around the point of the cigar, so as to form in a neat and perfect manner what is technically called the "cap,"

after which the circular cutting-edges of these formers J J will cut off the extreme point of the cap. These cap-forming portions J J may be attached to the ends of any two of the rollers which are diametrically opposite each other in the circle, and these portions J J should be attached to the ends of their respective rollers, as represented in Fig. 4, so as not to leave broken or uneven surfaces. The center portions of the bearing-blocks B and D at the end of the machine carrying the formers J J are cut away, as represented in Fig. 2, so that the surfaces of the rollers $a a a a$ and $b b b c$, which have one of their end bearings in the blocks B D, will project beyond the inside edges of these bearing-blocks, thus leaving a circular opening in this end of the machine equal in diameter to a circle described within the cylinder of rollers touching the surface of each roller. This opening through the bearing-blocks B D in the cap-forming end of the machine allows the end of the cigar to be pressed up against the concave surfaces of cap-formers J J by spring k . The front end of the upper segmental bearing-block D does not touch the surface of the lower bearing-block D, but a space is left under this front end of block D sufficient to allow the wrapper to pass under it and be received by the cap-formers J J, as represented in Fig. 2. The inner edge of the table C projects slightly under and is brought nearly in contact with the surface of the roller c , as represented in Figs. 1 and 2 of the drawings. This roller c has a grooved or serrated surface, which causes it to operate as a feed-roller for drawing under it the wrapper and for keeping the wrapper under a proper degree of tension, so that it will be wound tightly around the filling by the rollers $a a a a$ and $b b b c$, assisted by the feed-roller c .

L is a roller which has its end bearings in the ends of the arms $g g$, which arms are rigidly secured to one end of a rod, K. The opposite end of rod K passes through an eye in a standard, N, Fig. 1, which is pivoted to the top of bar D' of the upper roller-carrying frame, and at a point which is about the middle of the length of this bar D'. The pivoted standard N allows the rod K, with its rollers L, to be vibrated horizontally, and the set-screw n allows the rod K to be adjusted in a direction with its length, and serves to fix the rod K to standard N at any desired point. The roller L is allowed to turn freely in its bearings in arms $g g$, and the standard N keeps the roller down with the desired pressure on the surface of table C, and allows the roller to be adjusted to any desired angle with the axis of the feed-roller c .

The rollers $a a a a$ and $b b b c$ may be made cylindrical, tapering, or their surfaces may be shaped so as to conform to the shape of the cigar, as represented in Fig. 5, which it may be desired to make in the machine. These rollers may all be set in adjustable bearing-blocks, which will allow them to be adjusted radially with the axis of the cylinder of roll-

ers, for adapting the machine to cigars of different diameters; or, if more desirable, the rollers may be so set in their bearings that they can be removed to have their places supplied with rollers of a larger or smaller diameter.

The operation of the several parts constituting my improved cigar-machine and the operation of making a cigar with the machine are as follows: Motion is communicated to the pulley G through the medium of a belt receiving its motion from any convenient prime mover, and this belt should be so arranged that the motion of the wheel G may be reversed or stopped at pleasure. This pulley G being keyed fast to the shaft *g*, it rotates this shaft and also the spur-wheel E. Spur-wheel E engages with the pinions *h* of the rollers *a a* and *b b b c*, and rotates these rollers in the direction indicated by the arrows, Figs. 1 and 2. The pressure-roller L is now adjusted at the proper angle with the axis of feed-roller *c* and at the proper distance from this roller *c*. The cap-formers J J, being secured to rollers *a* and *b*, are rotated with their respective rollers, and when all these parts are properly adjusted and set in motion scraps of tobacco-leaf sufficient to form the filling of a cigar are put within the cylinder of rollers, either by feeding them under roller *c* or by detaching the catch-piece *e'* from pin *f*, so as to allow spring *d'* to force the upper frame of rollers back, as represented in red lines, Fig. 2, when the scraps can be all put into the machine at the same time, after which the frame D D' D is closed and latched down in its place. The next operation is to wrap the pieces of leaf, which have been put in the cylinder of rollers, with the first wrapping-leaf. This leaf, which is previously cut of the proper size and shape by suitable machinery adapted to the purpose, is placed on the table C, and its edge put under the feed-roller *c*, which conducts the leaf into the cylinder, and the rollers composing this cylinder carry the leaf around the pieces of tobacco and completely envelope these pieces.

The next operation is to put the final wrapper around the "filler" and to complete the cigar. The wrappers are all previously cut out of the proper shape and size by suitable machinery, and these wrappers are cut with reference to the operation of the winding-rollers and the cap-formers so that they will be wound around the body and point of the fillers in a neat and perfect manner. A wrapper of this description is placed on the table C, the rollers *a a a a* and *b b b c* all being in motion, and drawn under the pressure-roller L, which smoothes and straightens the wrapper. The proper end of this wrapper is then put under the feed-roller *c*, which instantly draws the end of this leaf into the cylinder of rollers and brings it into contact with the filler, which is kept in constant rotation by the rollers, which all press against it. The end of the wrapper

is now wound around the filling, and as the work of winding progresses the wrapper is guided up to the work by the rollers L, which, together with the feed-roller *c*, keeps the wrapper under constant and proper tension until the operation of forming the cap on the cigar commences, when the capping end of the wrapper leaves the pressure-roller L and is drawn under the front end of the bearing-block D (at this end of the machine) between the rotating cap-formers J J. At this point in the operation of the machine it will be seen by reference to Fig. 3 that the spring *k* will force the head *i* (it having been properly adjusted by set-screw *j*) against the end of the cigar, and this will force the cigar endwise and press the point of the cigar up closely against the concave sides of the portions J J. As the end of the wrapper is finally wound around the pointed end of the cigar by the formers J J, these formers give the swelled tapering shape to the point, and their knife-edges will cut off the sharp point of the tobacco, leaving the cap perfectly formed. The cap may be properly pasted by running one of the cap-formers in a thin solution of any suitable gum; or this pasting or gumming may be done with the fingers just before the extreme end of the wrapper is rolled down on the cigar.

For making cylindrical or tapering cigars which are not "capped," the portions J J may be removed from the machine. These cap-formers J J may be removed and larger or smaller ones used in their stead, according to the length and taper it is desired to give the caps of the cigars. The cigar having now been finished, the upper roller-carrying frame is raised, and this cigar is taken out of the machine to continue the operation, as above described. When the roller is once adjusted to the proper angle with the feed-roller *c*, there will be no further trouble in guiding the wrapper to the work in a proper manner.

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

1. The rotating cap-formers J J, constructed substantially as herein described, in combination with the head I, adjustable rod H, and spring *k*, or their equivalents, for keeping the cigar up to the work of forming the cap.
2. The adjustable pressure-roller L, arranged and operated as described, in combination with the table C, substantially as and for the purpose herein set forth.
3. The arrangement of the several parts or their equivalents, substantially as described, and operating as a whole in the manner and for the purposes stated.

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Witnesses:

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