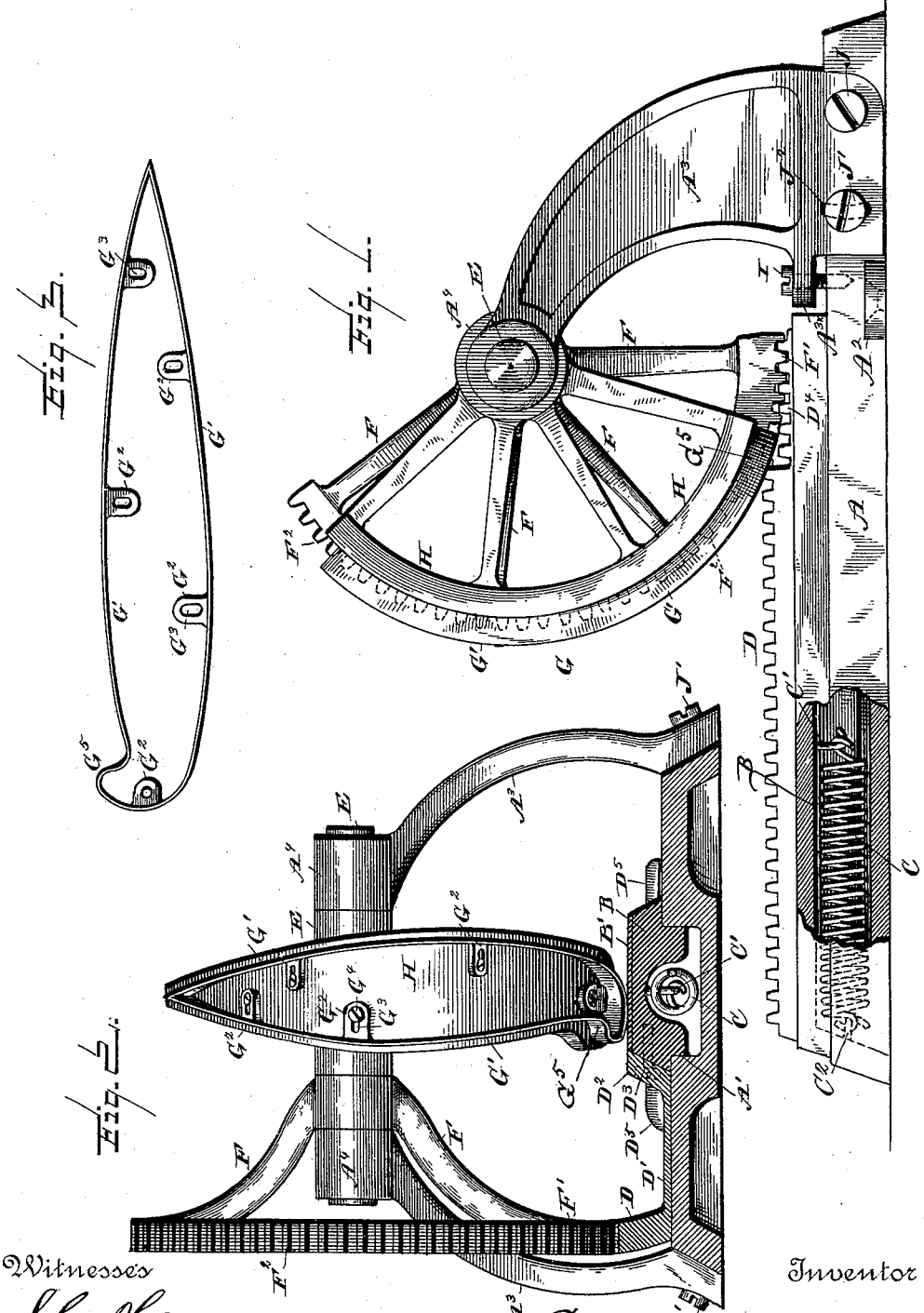
(No Model.)

G. M. HATHAWAY.

MACHINE FOR CUTTING CIGAR WRAPPERS.

No. 420,452. Patented Feb. 4, 1890.



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GEORGE M. HATHAWAY, OF NEW YORK, N. Y.

MACHINE FOR CUTTING CIGAR-WRAPPERS.

SPECIFICATION forming part of Letters Patent No. 420,452, dated February 4, 1890.

Application filed May 7, 1887. Renewed May 25, 1889. Serial No. 312,067. (No model.)

To all whom it may concern:

Be it known that I, GEORGE M. HATHAWAY, a citizen of the United States, residing at New York, in the county of New York, State of New York, have invented certain new and useful Improvements in Machines for Cutting Cigar-Wrappers and other Articles, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention has relation to a machine for cutting various materials into shapes—such as glove-blanks, cigar wrappers and binders, and other articles; and the object of the invention is to produce a machine which involves a like mode of operation to that practiced when cutting such articles by hand. In other words, the object of the invention is to produce a machine which will cut blanks, wrappers, and similar articles with a shearing cut, in contradistinction to that action which a cutter has when reciprocated or depressed against the material, whereby such cutter partakes of the nature of a punch.

A machine embodying my invention also differs in its mode of operation from any in which a rocking motion is given to the cutter while upon the material, which is stationary.

The operation of my machine involves a movement of both the cutter and the material being cut, the former, however, having during the operation a slightly greater speed in its movement than the material, whereby a shearing effect is given in the operation of the cutter. However, in producing the tip end of a wrapper for a cigar, it is preferable that the material be subjected to as slight (if any) longitudinal strain as possible. I therefore provide a subordinate but novel feature of construction wherein this requirement is satisfied.

Other objects and advantages of my invention will appear in the following description, and the novel features thereof will be particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a side elevation, with parts broken away, of a machine embodying my invention. Fig. 2 is an end elevation, with parts in section. Fig. 3 is an outline of the knife or cutter laid flat.

Like letters indicate like parts in all the figures.

A represents any suitable base, upon which is mounted in any suitable manner for reciprocation a bed B. The bed in this instance is formed to embrace the edges of an opening A′, running lengthwise of the bed and substantially centrally therealong. A coiled spring C is arranged under the bed, and one of the ends of the spring is secured to the bed or to a lug C′, projecting therefrom, while the other end of the spring is secured to the base or to a lug projecting therefrom, as at C^2. Suitable bosses A^2 are provided at the base and perforated for the passage of securing-bolts, by which the machine may be firmly fixed upon a bench or table.

Formed as a part of or secured to the bed B is a rack-bar D, which extends along one side of the bed, for the purpose of moving the bed in one direction, in a manner hereinafter described. A facing or cushion B′ is arranged upon the bed, and it may be of any suitable material which will permit of the contact of the cutter without injury to said cutter. Leather, wood, or rubber may be mentioned as examples of a material suited to the purpose in view. The rack-bar is arranged at a distance from the bed and connected thereto by a web or rib D′, having a flange D^2, which abuts against the bed, and through which screws or bolts D^3 may be passed into the bed for securing the rack thereto. If desired, however, the rack may be made, as before stated, as a part of the bed.

At or near one end of the base standards A^3 are arranged and provided with bearings A^4 for the cutter-shaft E. Upon the cutter-shaft is mounted a geared sector F, which meshes with the rack-bar D. As shown at D^4, the teeth of the rack-bar are at one end of the bed depressed below the plane of the remaining teeth thereof, and the teeth F′ of the geared sector F are at one end thereof projected beyond the remaining teeth F^2 thereof. Upon the face of a quadrant H, mounted on the shaft E, the cutter G is secured in any suitable manner. The depressed teeth D^4 of the rack-bar and the cutting-edge of the cutter are nearly or substantially in the same horizontal plane when side by side—that is to say, the distance from the center of the cutter-shaft to the extreme edge of the cutter is substantially the same,

though slightly greater than the distance from the center of said shaft to the depressed teeth of the rack-bar, while the remaining teeth F^2 of the sector and the remaining teeth of the rack-bar D are nearer the center of said shaft than the extreme edge of the cutter. It therefore follows that there is a greater surface speed at the edge of the cutter than at a point on the face of the bed opposite any of the more elevated teeth of the rack-bar, while the surface speeds of the cutter and the top of the bed are more nearly equal along that portion of the bed where the depressed teeth D^4 of the rack-bar and the projected teeth F′ of the sector occur.

The outline of the cutter agrees with that of the article to be produced. The cutter in this instance, being for a cigar-wrapper, agrees in outline with the wrapper. The cutter G consists of steel blades G′, provided with attaching-clips G^2, projecting inwardly therefrom, and having slots G^3, through which screws G^4 are passed into the face of the quadrant H, which may or may not with greater or less accuracy conform to the outline of the cutter. By means of the slots G^3 in the securing-clips the blades may be arranged nearer to or farther from each other to produce narrower or wider wrappers, as desired. At the head the blades are curved to constitute the tip-cutting portion G^5 thereof, and the sector, the cutter thereon, and the bed are so relatively arranged that the tip-cutting portion G^5 of the knife acts when the projected teeth of the sector and the depressed teeth of the bed are co-operating, whereby the surface speeds of the movement of the bed and of the cutter are practically equal while said tip portion is being cut, and therefore longitudinal or any other strain having a tendency to rupture or tear the wrapper is avoided during this portion of the operation of cutting the same. After the tip portion is cut and during the remaining movements of the cutter and bed the surface speed of the bed is a trifle less than the speed of the extreme edge of the cutter, so that a shearing nature is given to the cut.

The operation of the invention will be understood when it is stated that when cutting cigar-wrappers the attendant places upon the bed and upon the facing or cushion thereof one or more leaves from which wrappers are to be cut, and, while holding the margins of the leaves by the hands against the bed outside of the cutting lines thereof or against the web connecting the rack with the bed, pushes said bed against the tension of the spring C, being aided in this action by any suitable projection D^5, formed on the web, if desired, and thus giving motion by means of the rack-bar and segment to the cutter until the wrapper is severed by the cutter. The spring C then acts to return the bed, the sector, and the cutter for a repetition of the operation.

The standards A^3, together with the shaft, constitute an arch, whereby sufficient space is provided at each side of the bed to permit of the passage of the hands and forearms in the act of pushing the bed while holding the material for the purpose of cutting wrappers therefrom.

To enable an adjustment of the cutter to and from the bed, I may provide each of the standards A^3 with lugs $A^{3\times}$, in which adjusting-screws I are seated, to take bearing on the base A. The screws or bolts J J′ pass through the standards into the base. One screw or bolt J serves as a pivot, and the other screw or bolt passes through a slot J^2 in the standard, whereby the bearings A^4 may be adjusted at different heights above the bed, and thus the cutter be made to approach more or less nearly to or to come into contact with the bed.

What I claim is—

1. In a machine for cutting wrappers, a movable wrapper-supporting bed and cutter, in combination with changeable speed-gearing arranged and operating to give the cutter and bed a uniform speed during the first portion of their travel and to give the cutter a greater speed than the bed during the remainder of their travel, substantially as specified.

2. The combination, with a bed and a rack-bar connected therewith and having a portion of its teeth depressed, of a sector having a portion of its teeth projected, substantially as shown and described.

3. In combination with a bed provided with a rack-bar having a portion of its teeth depressed, a sector having a portion of its teeth projected, and a curved knife supported concentrically with the sector and having its tip-cutting portion arranged to operate with the projected and depressed teeth, substantially as specified.

4. The combination of a sector and a quadrant, both mounted on a shaft, a cutter mounted on the quadrant, a reciprocating bed having a rack-bar meshing with the sector, and a spring for giving the bed movement in one direction, substantially as specified.

5. The combination, with a movable wrapper-supporting bed provided with a rack-bar, and with a cutter and sector mounted upon a shaft arranged across the bed, of outwardly-curved standards for supporting the shaft and permitting the coaction of the sector and rack-bar inside of the standards, substantially as and for the purpose specified.

6. The combination of the movable bed with the rack-bar connected therewith and provided with a web D′ and base A, the sector, the quadrant, and the cutter, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE M. HATHAWAY.

Witnesses:

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