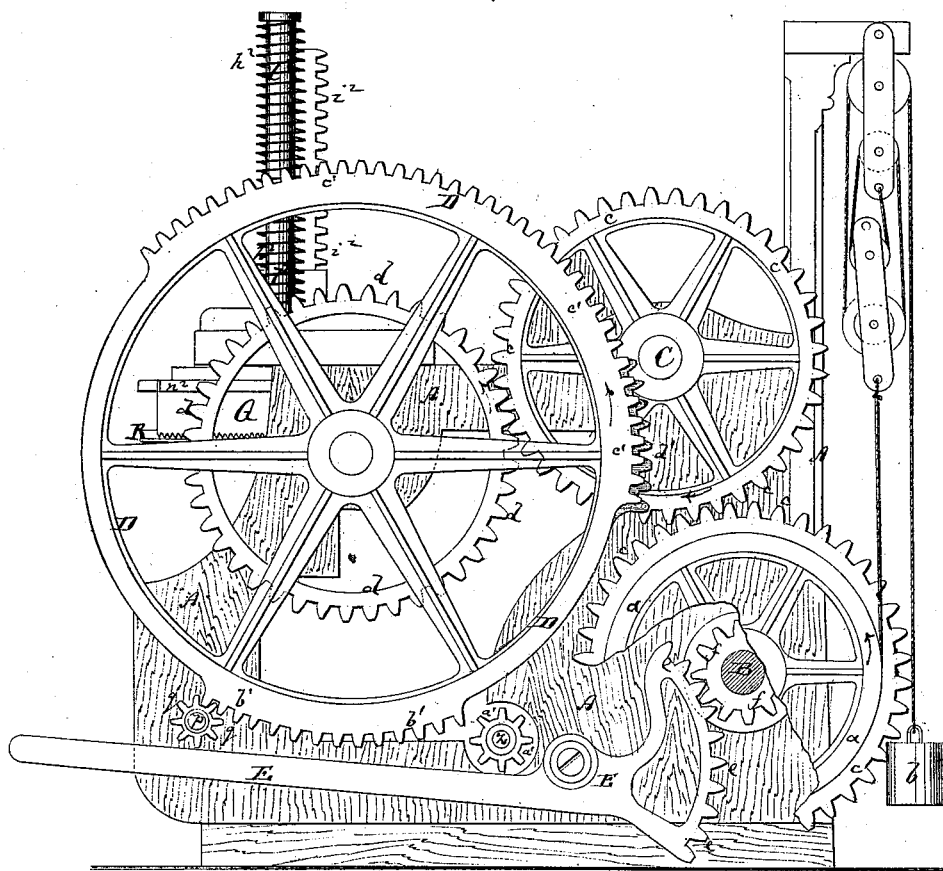


R. NEISCH.
MACHINE FOR MAKING CIGARS.

No. 110,270.

Patented Dec. 20, 1870.

Fig. 1



Witnesses:

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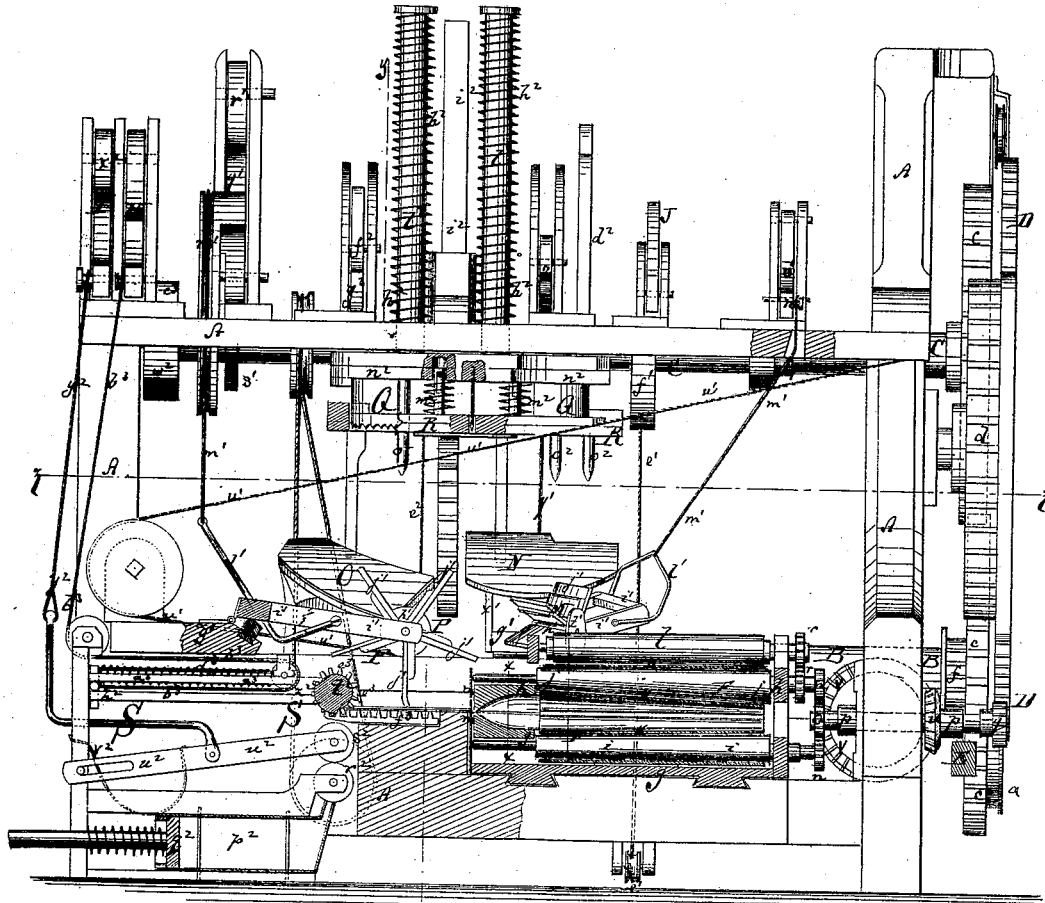
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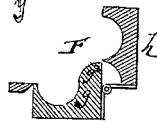
Fig. 2



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Fig. 3



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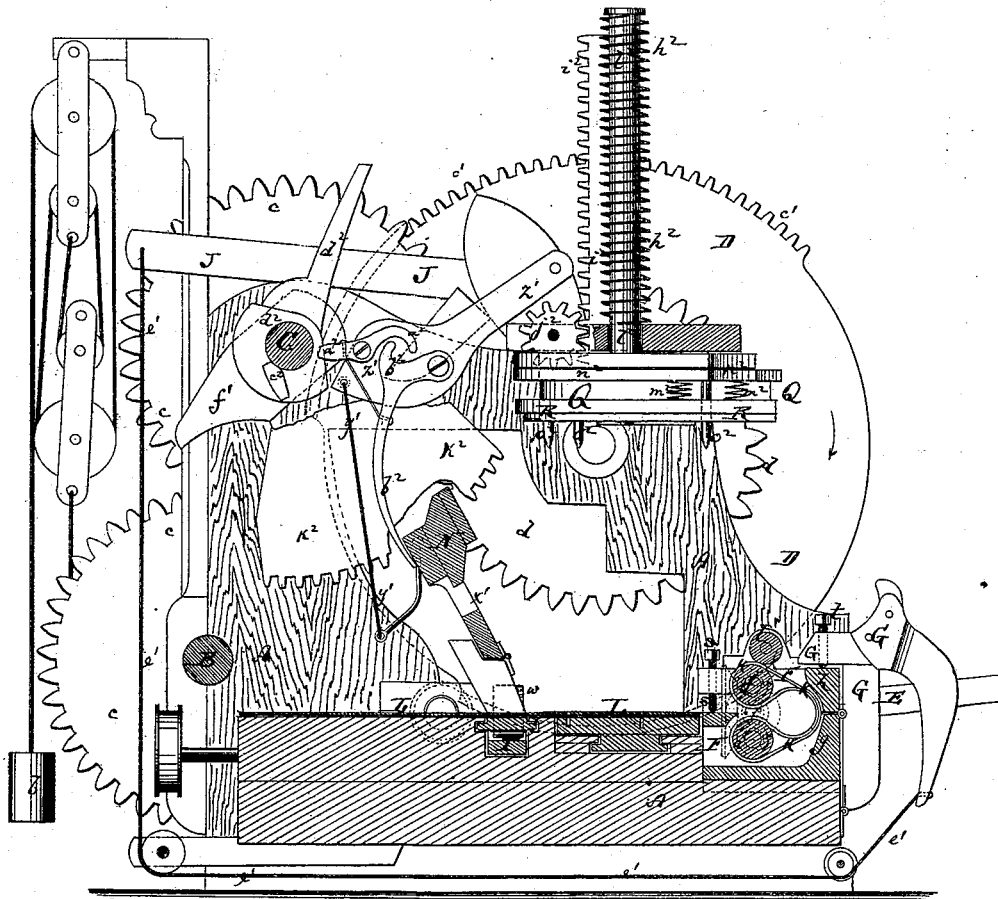
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Fig: 4



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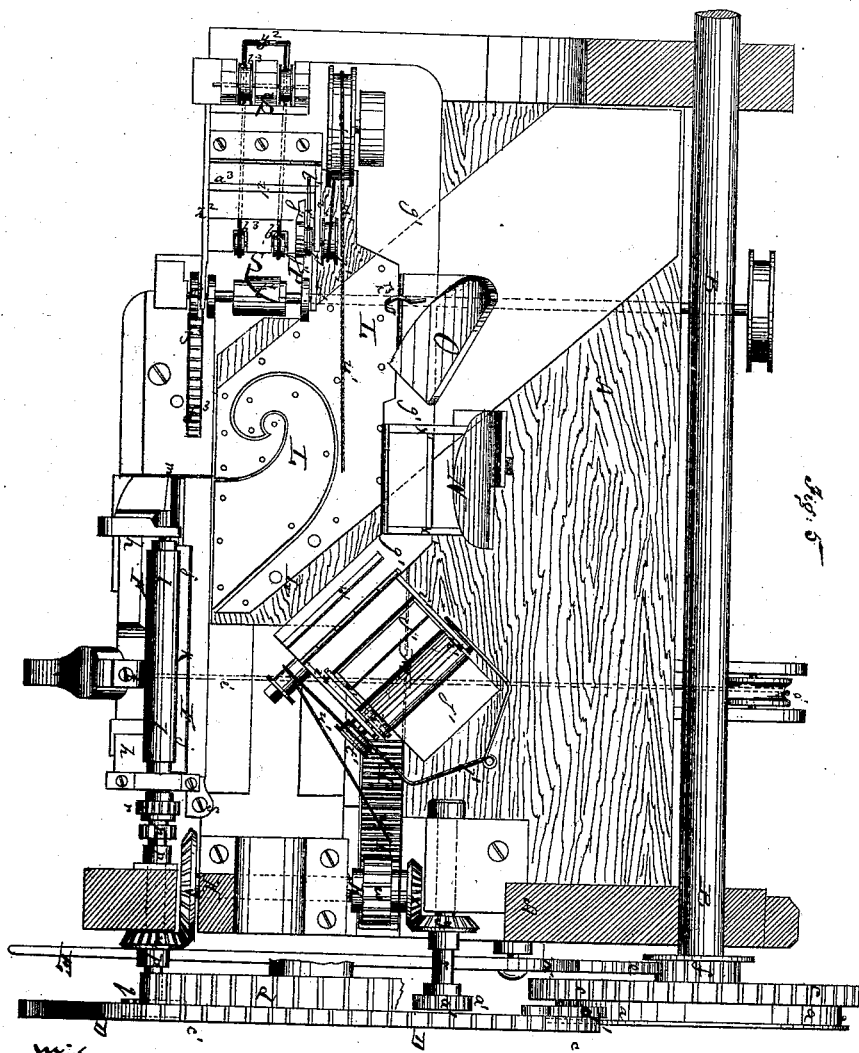
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ROBERT NEISCH, OF ALLENTOWN, PENNSYLVANIA.

Letters Patent No. 110,270, dated December 20, 1870.

IMPROVEMENT IN MACHINES FOR MAKING CIGARS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, ROBERT NEISCH, of Allentown, in the county of Lehigh and State of Pennsylvania, have invented a new and improved Cigar-Machine; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification, in which—

Figure 1 represents an end elevation of my improved cigar-machine.

Figure 2 is a front elevation, partly in section, of the same.

Figure 3 is a detail transverse section of the head or end mold of the cigar, the plane of section being indicated by the line *x x*, fig. 2.

Figure 4 is a vertical transverse section of the machine, taken on the plane of the line *y y*, fig. 2.

Figure 5 is a horizontal section of the same, taken on the plane of the line *z z*, fig. 2.

Similar letters of reference indicate corresponding parts.

This invention relates to a new machine for rolling cigars into the proper shape, applying the binders and wrappers, or the latter only, thereto, forming the points or heads, and cutting the wrappers.

The invention consists chiefly in cutting the wrappers for the points or ends of the cigars while the same are being rolled.

Heretofore cigar-machines were so constructed as to require the wrappers ready cut for application.

As the material from which wrappers are made is the most valuable portion of the cigar, and consequently cut as economically as possible, it will frequently happen that when the same is not applied with great exactness, the cut wrapper will fail to cover the entire cigar, and another piece will have to be used, thus converting intended economy into absolute waste.

By cutting the wrapper by automatic machinery, after the same has already been partly applied to the cigar, the greatest exactness and most perfect fit will be obtained.

My invention consists also in several improvements in and novel points of construction and arrangement of machinery, as will be hereinafter more fully described.

The drawing represents a single machine, that is to say, a machine on which but one cigar can be made at once, and on which the wrapper can only be applied by being wound from right to left.

The machine may, however, be duplicated at will, so as to make two or more cigars at a time, and apply the wrappers in suitable direction.

A in the drawing represents the frame, on which my improved cigar-machine is supported.

This frame is made of wood, metal, or other suitable material, and of such suitable size and shape as to properly sustain and hold the parts which constitute the machine.

B is the driving-shaft, carrying a wheel, *a*, to which the requisite power is applied either by a weight, *b*, or by a spring, belt, or other suitable mechanism.

The shaft B transmits its motion, by means of toothed wheels *c c*, to another horizontal shaft, C, which carries the several cams and levers for operating the spreading-pads, wrapper-cutters, and pasting mechanism.

The gear-wheel *c* on the shaft C imparts rotary motion to another toothed wheel, *d*, on a short arbor that carries a large disk, D, whose edge is partly toothed, partly smooth, and partly double-toothed, as shown in fig. 1.

The disk D serves to impart rotary motion to the wrapper-winding mechanism, and reciprocating motion to the carriage, which supports the wrapper, as hereinafter more fully described.

If a weight, *b*, or a spring is used for imparting motion to the shaft B, I prefer to use a lever, E, carrying a toothed segment, *e*, which meshes into a pinion, *f*, on the shaft B.

By one motion of said lever the shaft B can be so turned as to wind up the weight or spring for operation.

Where steam or other power is employed, the lever E is dispensed with, at least for the purpose indicated. It may however, without the segment, be retained for shipping the gears, that is to say, for transferring, on double machines, power from one to the other, so that either the right or left-winding machine can be used.

The arrows shown in fig. 1, indicate the direction in which the several shafts are revolved.

F represents the mold in which the cigar is to be rolled and shaped.

This mold consists of a lower fixed frame, *g*, and upper frame *h*, the latter being hinged to the outer edge of the former, as shown in fig. 4.

In the lower frame *g* is hung a longitudinal roller, *i*, and in the upper a similar longitudinal roller, *j*, both said rollers being somewhat conical, to correspond with the shape of the cigar.

Around both these rollers is wound an endless apron, *k*, in which the cigar is rolled.

In the upper part of the hinged frame *h* is hung an elastic roller, *l*, which is in constant contact with the apron on the roller *j*, keeping it tight thereon, and preventing it from slipping.

One end of the mold F contains a form for the ends, points, or heads of the cigars. The blocks constituting the ends of the mold are, for this purpose, hollowed to form conical depressions, as shown in figs.

2 and 3, but the lower mold *g* has a conical projection, *g*³, fig. 3, on which the upper mold *h* rolls down, so as to force the entire bunch into the form for heading.

An end plate, *m*, on the frame *g* keeps the point end of the mold closed, and serves consequently to produce a perfect point on the cigar.

When the bunch is placed into the apron *k*, the mold is closed, and the pinions *n n*, on the ends of the rollers *i* and *j*, are thereby both brought in gear with a pinion, *o*, on an arbor, *p*, which receives by a pinion, *q*, intermediate motion from the disk *D*.

Both rollers, *i j*, are thus revolved in the same direction, moving thereby the apron in the proper manner, all as indicated in fig. 4 of the drawing.

The tension-roller *l* may, by gear-wheels *r r*, be connected with the roller *j*, to rotate together with the same.

The mold is held closed by an L-shaped lever, *G*, hinged to the frame *A*, and catching over the frame *h*, as shown in fig. 4.

The mold can be more or less closed for thinner or thicker cigars by setting the screws *s* and *t* on the frame *h* and lever *G*, respectively.

The screw *s* holds the frames *g h* more or less far apart.

The screw *t* holds the lever *G* more or less far down upon the frame *h*.

The arbor *p* carries a bevel-gear wheel, *u*, which meshes into a similar wheel, *v*, on a transverse shaft, *H*.

The wheel *v* has its face toothed nearly but not quite along its entire circumference, so as not to be fully revolved by the wheel *u*.

The shaft *H* carries a pinion, *w*, which meshes into the teeth of a horizontal movable rack, *I*, as in fig. 5.

The rotation of the shaft *H* will thereby produce longitudinal motion of the rack *I*.

Another bevel-wheel, *x*, on the shaft *H*, gears into a wheel, *y*, on a short horizontal arbor, *z*, which carries a pinion, *a*¹.

The toothed sections *b¹ c¹* of the disk *D* mesh into the pinion *q* of the arbor to rotate the rollers *i j*, as well as the pinion *w*, in a desired direction for action.

A short section, *d¹*, of teeth, set against the inner face of the disk *D*, although it may also be set against the outer face of the same, will, at certain intervals, gear into the pinion *a¹*, thereby reversing the motion imparted by the sections *b¹ c¹*.

The lever *G* is, by a cord, *e¹*, connected with a lever, *J*, which, when raised by a cam, *f¹*, of the shaft *C*, will carry the lever *G* clear of the mold *h*, permitting the opening of the same.

The rack *I* is connected with a horizontal platform or wrapper-carrier, *L*.

This platform is of such suitable size that it will conveniently support and hold the wrapper of the cigar to be rolled.

From the carrier *L* project blocks or frames, *g¹ g¹*, for holding and sustaining a series of wipers or spreaders, *M, N, O*, and *P*.

The spreaders *M P*, at the two ends of the carrier, are made in shape of rotary winged fans, while the middle spreaders *N* and *O* are attached to hinged flat blocks with segmental edges.

Each of the rotary spreaders consists of a roller, *h¹*, hung in a hinged frame, *i¹*, and provided with soft wings, *j¹*, of felt or other fabric.

The frame *i¹* of the spreader *M* is provided with a yoke, *l¹*, which is, by a cord, *m¹*, connected with a lever, *n¹*, which can, by a pivoted cam, *o¹*, and by a lever, *p¹*, on the shaft *C*, be swung to carry said frame *i¹* up off the carrier.

In the same manner is the frame *i¹* of the spreader *P*, provided with a yoke, *l¹*, and connected, by a cord, *m¹*, with a lever, *q¹*, which can, by a pivoted cam, *r¹*, and lever *s¹* on *C*, be swung up.

The mechanism for setting the frames of the spreaders may, however, be varied at will.

Each of the aforesaid rotary spreaders is furthermore provided with a pulley, *t¹*, on its roller *h¹*, the said pulley being, by a cord, *u¹*, connected with the frame *A*.

A rubber-strap or spring, *v¹*, is furthermore applied to each roller *h¹*, and connected with the frame *i¹*.

As the carrier moves forward under the action of the pinion *w* upon the rack *I*, the rollers *M P*, which rest with their wings upon said carrier, are revolved by unwinding the cords *u¹* from their pulleys *t¹*, and spread the wrapper on said carrier.

At the same time they wind up their springs *y¹*, so that when afterward the carrier is moved back these springs will unwind them and rewind the cords *u¹*, to enable further action during subsequent operations.

A projecting block or bar, *w¹*, is dovetailed or otherwise fitted into the support *g¹*, under each rotary spreader, to regulate the depth to which said spreader is permitted to drop upon the carrier.

The flat spreader *N*, fig. 4, is arranged on a hinged frame, *x¹*, which is, by a cord, *y¹*, connected with a lever, *z¹*, which carries two pivoted catches, *a² b²*, of which the latter is acted upon by a small cam, *c²*, on the shaft *C*, while another cam, *d²*, acts directly against the lever *z¹*.

The latter cam serves to lift the spreader *N*, while the cam *c²* throws it down.

The third flat spreader *O* is, by a cord, *e²*, connected with a lever, *f²*, which is acted upon by a cam, *g²*, of the shaft *C*, for raising the spreader. Its own weight, with or without the aid of a spring, *h²*, fig. 5, keeps the same down when the cord *e²* is slackened.

Q is the wrapper-cutter. It is, by spiral or other springs, *k²*, held elevated out of the way, when not in use; and is connected with a vertical rack, *i²*, which meshes into the teeth of a pinion, *j²*, the said pinion receiving intermittent rotary motion by means of a toothed segment, *l²*, on the shaft *C*.

The action of the shaft *C* tends to carry the cutter down upon the carrier, while the springs *k²*, embracing vertical pillars *l²*, projecting from the cutter, elevate the same.

The knife or cutter *Q* is scroll-shaped in conformity with the end of the wrapper to be shaped, and has for better cutting a serrated cutting edge.

The carrier is grooved or slotted to receive the cutter.

A yielding platform, *R*, cushioned with rubber on its lower surface, and made in sections to clear the cutter, is, by springs *m²*, suspended from the head or plate *n²*, which holds the cutter, and is, by the springs, held deeper than the cutting edge, the said platform being both without and within the cutter. Thus, when the cutter is moved down, after the wrapper has been pasted, this cushioned platform *R* is placed upon the wrapper, holding it smoothly on the carrier while being cut, and preventing it from being torn by the cutter.

A portion, corresponding to and above the part of the wrapper that has been covered with paste, is cut out of the platform *R*, so as not to interfere with the paste.

Guide-pins for the platform and others, *o²*, for holding the cutter properly to the carrier may be provided.

The pasting apparatus *S* consists of a vat or paste-reservoir, *p²*, which has a spring plunger, *q²*, at one end, the said plunger serving to force the paste through a narrow slot in top of the reservoir against a taking-up roller, *r²*, which is revolved by a belt from the shaft *C*.

A distributing-roller, *S¹*, is employed to convey the paste from *r²* to the elevated parts of the pasting-roller *t²*.

The distributing-roller is hung in a pivoted frame, *u²*, which is held down or off the pasting-roller by its

own weight, if desired, also by the action of a spring, v^2 , while it can be elevated or held against the pasting-roller by a lever, T, which is acted upon by a cam, w^2 , of the shaft C and lever x^2 , the frame u^2 being connected with the lever T by a cord, y^2 .

The pivoted end of the frame u^2 is slotted so that the distributing-roller may move along the surface of the pasting-roller when being elevated or moved by the lever T.

The frame u^2 may be hung in such manner as to carry the roller s^2 in a horizontal direction.

The pasting-roller t^2 is hung in a sliding frame, z^2 , which is guided in a horizontal slotted guide-frame, a^2 , and connected by a cord, b^2 , with a lever, u , which is operated by a cam, c^2 , on the shaft C, for drawing the pasting-roller forward.

A spring, d^2 , tends to draw the pasting-roller and frame, z^2 , back as soon as the cord b^2 is slackened.

The roller t^2 is so shaped that the section which is to be used for pasting is higher than the other part, and exactly corresponding with the shape of the wrapper end.

A pinion, e^2 , on the pasting-roller, meshing into a fixed rack, f^2 , serves to rotate said roller during the reciprocating motion of the frame z^2 .

The operation of the machine is as follows:

The wrapper-leaf is spread over the platform or carrier L, and one end inserted in the opened box F. The tobacco used as a filler is, with or without a binder, put into the mold F, and the latter is then closed, the fastener G being properly secured. The spreaders M, O, and P are now thrown down.

The section b^1 of the disk D, meshing into the pinion y , rotates the rollers in the mold, and advances the carrier so that part of the wrapper is wound upon the filler.

As soon as the section b^1 has been absorbed, at which time the non-toothed portion of the wheel v is in line with the pinion u , to be no further affected by any further rotation of the arbor p , the carrier stops, the spreaders M P are elevated, the cutter is lowered, and the end of the wrapper nicely cut.

The paster is, previous to the cutting, moved ahead to paste the end of the wrapper, and is then immediately withdrawn by the spring d^3 . As soon as the cutter has been elevated the spreader N falls down.

The section c^1 now arrives in gear with the pinion q , and keeps revolving the rollers i and j for completing the cigar, but does not change the position of the platform L.

When the wrapper has been wound upon the cigar to finish the head, the spreaders are all lifted, the lock G withdrawn, and the mold opened.

The section d^1 of the disk D has now arrived in gear with the pinion a^1 , and rotates the same so as to draw the carrier back again.

By adding toothed sections to the parts b^1 and c^1 the length of the cigar may be increased beyond that for which the machine was originally gotten up.

Having thus described my invention,

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

1. The wheel D $b^1 c^1$, pinion q , arbor p , pinion O, rolls $i j$, and pinions $n n$, combined as described with the apron K, for the purpose specified.

2. The disk D $b^1 c^1$, combined, as described, with pinion q , shaft p , pinion u , wheel V, shaft H, and spur-wheel w , for the purpose of moving the rack I forward in one direction, as set forth.

3. The disk D d^1 , combined, as described, with pinion a^1 , shaft z , pinions $y z$, shaft H, and pinion w , for

the purpose of moving rack I in a backward direction.

4. The disk D $b^1 c^1 d^1$, combined with the forwardly-moving train of mechanism, having the partially-toothed wheel V and the backwardly-moving train of mechanism, all as specified, for the purpose of reciprocating the rack I, in the manner described.

5. A cigar-mold formed of a fixed lower frame, g , and hinged upper frame h , combined, as described, with the conical rolls $i j$, endless apron K, and spring-roll L, to form a cigar shaping device, operating as described.

6. The combination, with the hinged two-part mold $g h$, of lever G, operated by a cord, e^1 , a lever, J, and a cam, f^1 , as described, for the purpose of clamping and allowing the mold to open at the times and in the manner described.

7. The end plate m , applied to the cigar-pointing molds, for the purpose of finishing the point of the cigar, substantially as herein shown and described.

8. The segmental, partly-conical block g^2 , applied to the lower part of the mold, for forcing the entire bunch into the heading cavity, as set forth.

9. The carrier L, combined, as described, with a pair of rotary-fan spreaders, M P, placed in frames $g^1 g^1$ at the ends thereof, and middle spreaders N O, as and for the purpose described.

10. A rotary spreader for cigar-making machines, formed of roller h^1 , with soft-felt wings j^1 , and hung in a hinged frame, i^1 , to be operated in the manner described.

11. The combination, with frame i^1 , of yoke l^1 , cord m^1 , lever n^1 , cam O¹, and lever p^1 , on shaft C, for the purpose of raising the spreader M, at the time and in the manner described.

12. The roller h^1 and frame i^1 , combined, as described, with pulley t^1 , cord u^1 , attached to frame A, and spring V¹, for the purpose of causing the wings of fan to spread the wrapper on the carrier, and to be automatically prepared for a succeeding operation, as set forth.

13. The combination, with a rotary spreader, of the projecting blocks w^1 , fitted into the supports $g^1 g^1$, for the purpose of graduating the distance to which the said spreader may be dropped.

14. The spreaders N and O, combined with the reciprocating carrier L, substantially as herein shown and described.

15. The cushioned spring platform R, applied to the cutter Q, for holding the wrapper smooth upon the carrier, substantially as and for the purpose herein shown and described.

16. The flat spreader N, combined, as described, with hinged frame x^1 , cord y^1 , lever z^1 , pivoted catches $a^2 b^2$, and cams $c^2 d^2$, for the purpose of raising and lowering the said spreader.

17. The paste-roller t^2 , provided with projections where it is to receive and apply paste, substantially as herein shown and described.

18. The intermittently-reciprocating cutter Q, combined, as described, with the sectional elastic platform R and grooved carrier L, for the purpose of cutting the wrapper on the end of cigar after the said wrapper has been pasted.

19. The sliding frame z^2 , holding the paste-roller t^2 , and operated by the cord b^2 and spring d^2 , substantially as herein shown and described.

ROBERT NEISCH.

Witnesses:

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