No. 654,178. Patented July 24, 1900.

R. L. PATTERSON & G. ARENTS, JR.

CIGAR MACHINE.

(Application filed Feb. 5, 1900.)

(No Model.) 3 Sheets—Sheet 1.

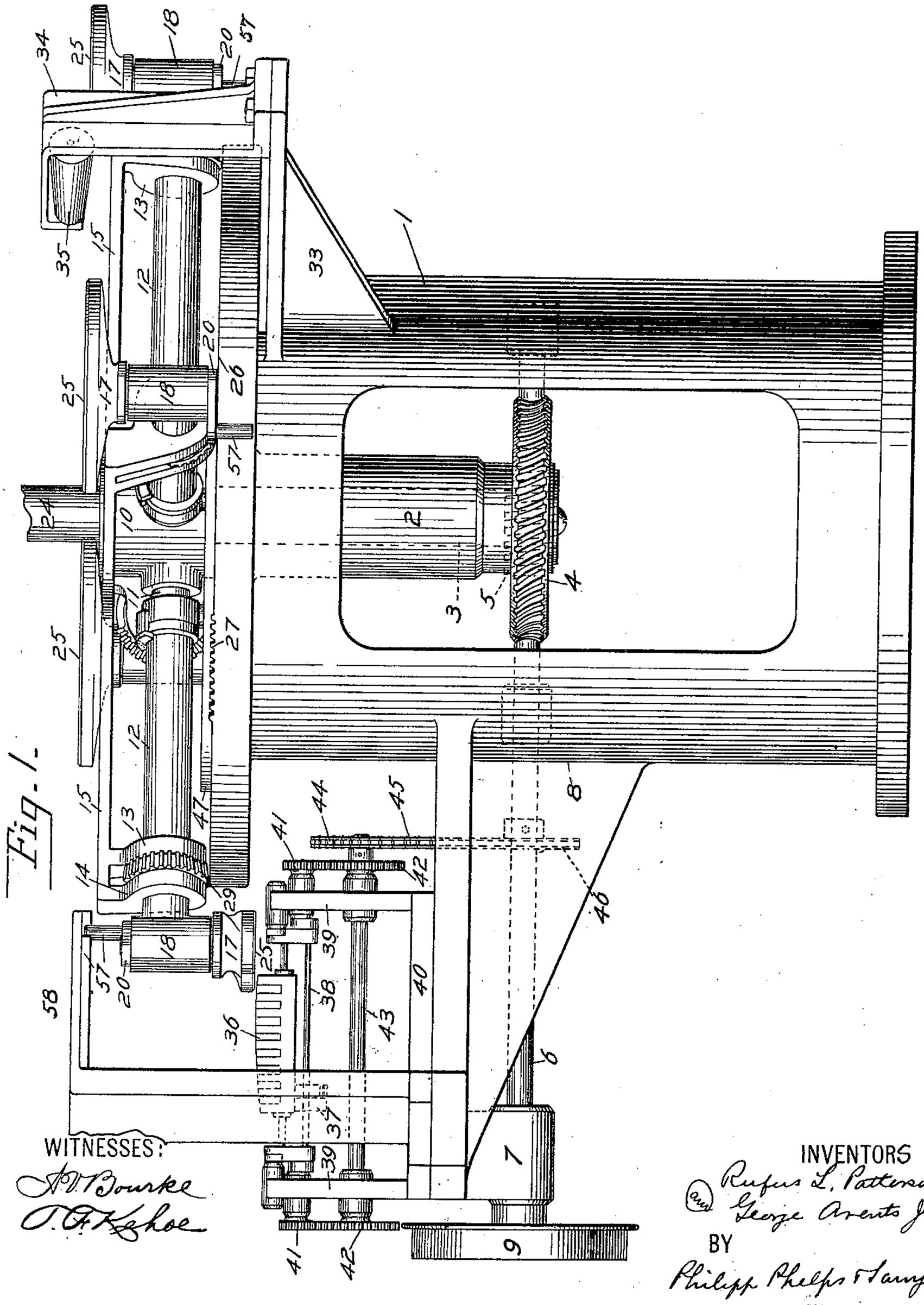

Fig. 1.

WITNESSES:
A. V. Bourke
C. F. Kehoe

INVENTORS
Rufus L. Patterson
and George Arents Jr
BY
Philipp Phelps & Sawyer
ATTORNEYS.

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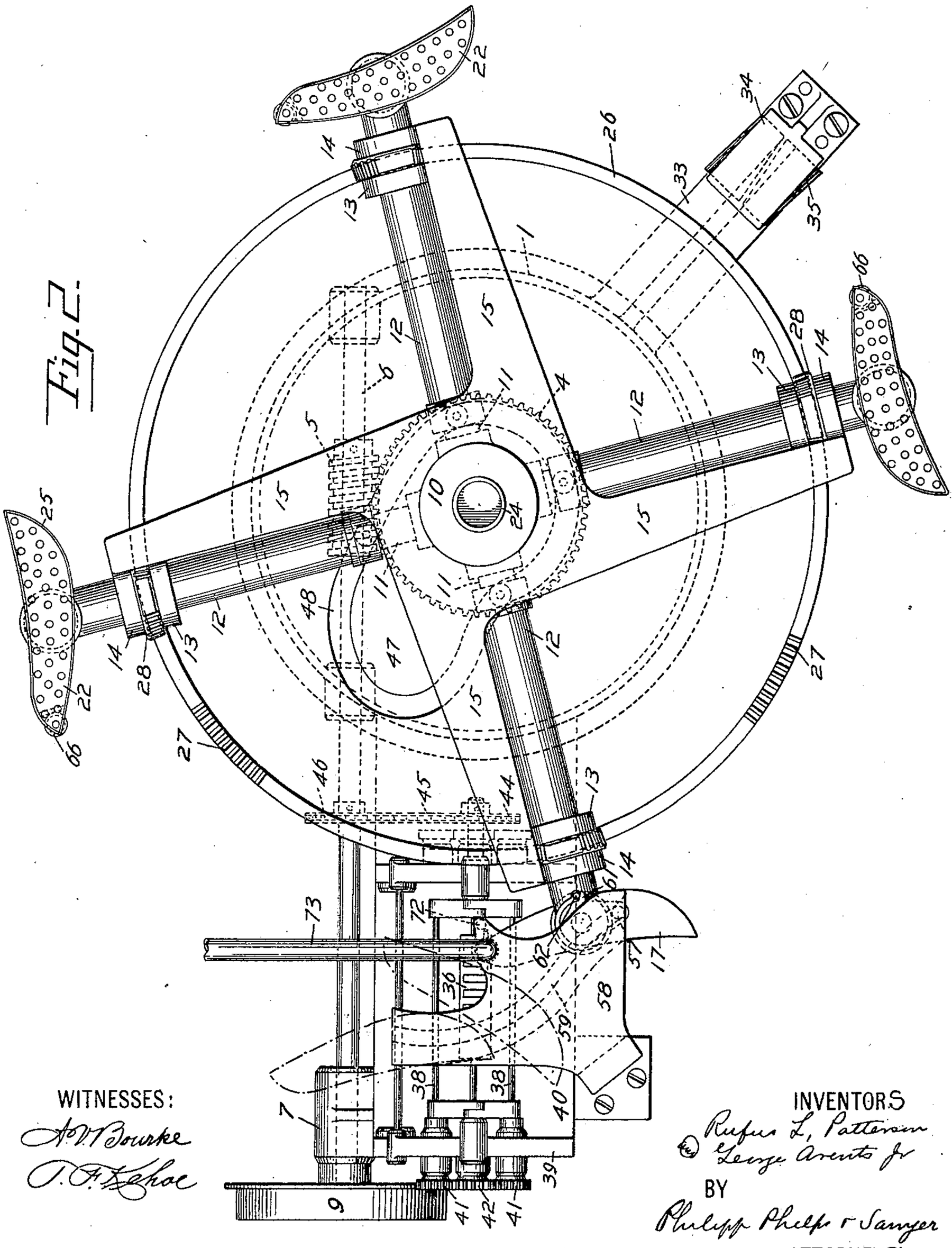
(No Model.) 3 Sheets—Sheet 2.

Fig. 2.



WITNESSES:
A. V. Bourke
T. F. Kehoe

INVENTORS
Rufus L. Patterson
& George Arents Jr
BY
Philipp Phelps & Sawyer
ATTORNEYS.

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(No Model.) 3 Sheets—Sheet 3.

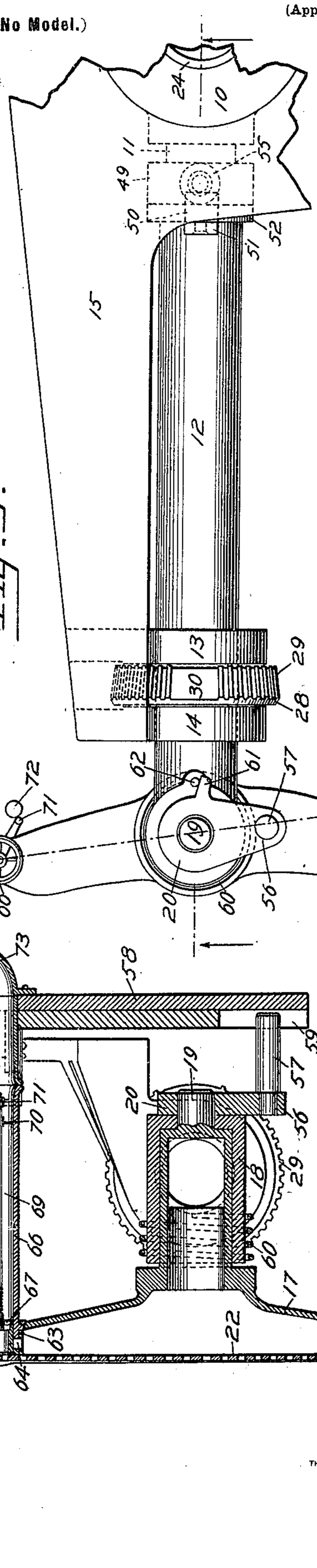

Fig. 3.

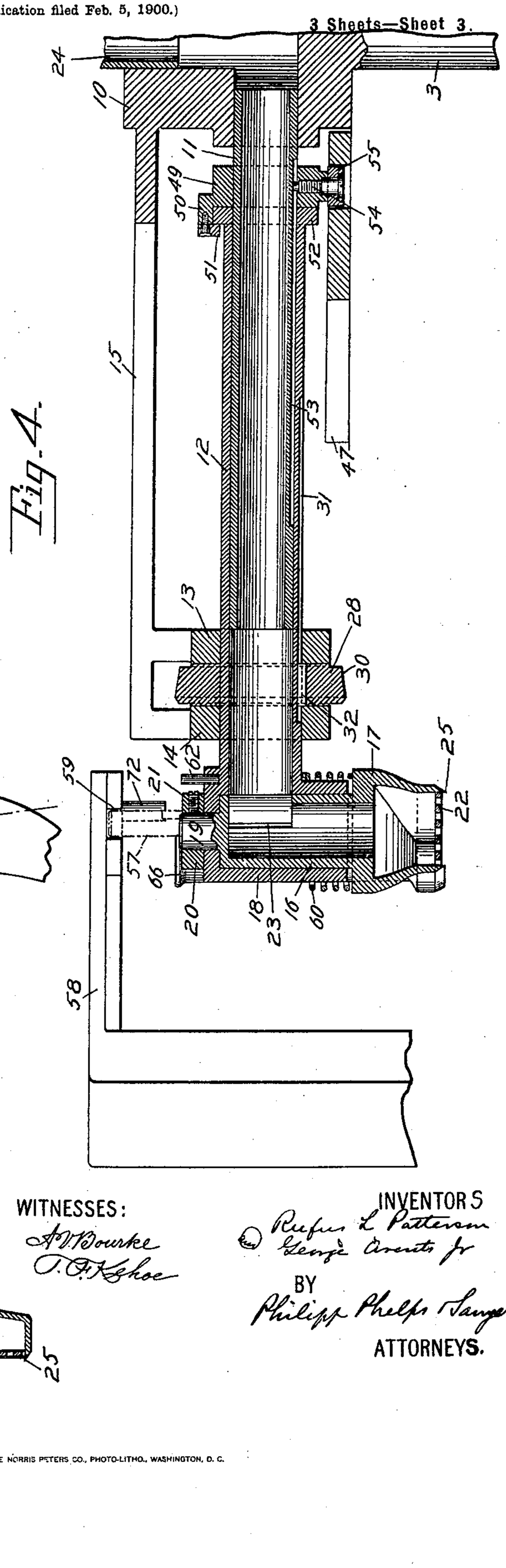

Fig. 4.

Fig. 5.

WITNESSES:
A. V. Bourke
T. F. Kehoe

INVENTORS
Rufus L. Patterson
George Arents Jr

BY
Philipp Phelps Sawyer
ATTORNEYS.

UNITED STATES PATENT OFFICE.

RUFUS L. PATTERSON AND GEORGE ARENTS, JR., OF NEW YORK, N. Y.

CIGAR-MACHINE.

SPECIFICATION forming part of Letters Patent No. 654,178, dated July 24, 1900.

Application filed February 5, 1900. Serial No. 4,030. (No model.)

To all whom it may concern:

Be it known that we, RUFUS L. PATTERSON and GEORGE ARENTS, Jr., citizens of the United States, and residents of New York, county of New York, and State of New York, have invented certain new and useful Improvements in Cigar-Machines, fully described in the following specification and illustrated in the accompanying drawings, forming a part of the same.

This invention relates to certain improvements in cigar-machines.

In cigar-machines in which wrappers are to be automatically fed to the wrapping mechanism by devices which support them while they are being delivered it is desirable to produce a relative movement between the wrapping mechanism and the devices by which the wrapper is held and delivered to the wrapping mechanism—namely, the wrapper-support—which movement not only effects the delivery of the wrapper to the wrapping mechanism, but also causes it to be smoothly and evenly wound upon the cigar-bunch. This movement will vary according to the shape of cigar to be wrapped. It will usually, however, be the resultant of two movements—namely, a movement by which the wrapper is caused to approach the cigar-bunch and a movement by which it is traversed along the bunch—and in case the cigar to be wrapped is of the shape known in the trade as the "perfecto" shape—that is, a cigar having its largest diameter near the middle and tapering toward both ends—the movement will preferably consist of the resultant of the two movements just referred to and an angular movement, or a movement by which the angle of presentation of the wrapper to the cigar-bunch is varied according to the part of the bunch which is being wrapped. The resultant movement between the wrapping mechanism and the wrapper-support may be produced by moving either the wrapper-support or the wrapping mechanism, or both. Furthermore, in cutting wrappers for cigars it is desirable, in order to obtain the largest possible yield from the leaf of wrapper material, to stretch the leaf and cut it while in a stretched condition. If, however, after being cut the wrapper is allowed to contract, a part at least of the advantage gained by cutting it while stretched is lost, so that it is desirable to feed it to the wrapping mechanism before there is any opportunity for contraction.

It is one of the objects of this invention to produce an improved automatically-operated cigar-machine in which the wrapping mechanism and the wrapper-support will be so located with respect to each other that it will be possible to establish a relative movement between them which will result in the delivery of the wrapper to the wrapping mechanism.

A further object of the invention is to produce a cigar-machine in which the wrapper material may be maintained on the wrapper-support and the wrapper cut therefrom, the wrapper being thereafter fed to the wrapping mechanism without being removed from the support.

A further object of the invention is to produce a cigar-machine in which the wrapper is automatically fed to the wrapping mechanism by the wrapper-support and in which means are employed for positively inserting the end of the wrapper into the wrappping mechanism.

A further object of the invention is to produce a cigar-machine in which the wrapper is delivered to the wrapping mechanism by a support and is drawn from the support by the wrapping mechanism against the tension produced by the retaining means by which the wrapper is held on the support.

With these and other objects in view the invention consists in certain constructions and in certain parts, improvements, and combinations, as will be hereinafter fully described, and then specifically pointed out in the claims hereunto appended.

In the accompanying drawings, which form a part of this specification and in which like characters of reference indicate the same parts, Figure 1 is a side elevation of a wrapping mechanism constructed in accordance with the invention. Fig. 2 is a plan view of the machine shown in Fig. 1. Figs. 3, 4, and 5 are detail views.

Referring to the drawings, 1 indicates a frame or base, which may be of any suitable form or configuration. As shown this base is in the form of a cylindrical standard or pillar, which is provided at its top with a bearing 2, in which is mounted a vertical

shaft 3. Any suitable means may be employed for driving this shaft. In the machine shown the shaft has secured thereto, at its lower end, a worm-wheel 4, which is driven by a worm 5, mounted on a worm-shaft 6, said shaft being journaled in suitable bearings in the frame and also in a bearing 7, which depends from an arm 8, extending from the side of the frame or base. In the machine shown the shaft 6 is provided with a belt-pulley 9, by which it is driven.

The shaft 3 serves as a carrier for the wrapper-supports. While the invention may be embodied in a machine employing a single wrapper-support, if desired, a plurality of supports will preferably be employed. In the machine shown the upper end of the shaft 3 is provided with a hub or enlargement 10, from which extend arms 11, these arms being made hollow for reasons to be hereinafter stated. In the machine shown the arms 11 are surrounded by sleeves 12, the said sleeves being further supported by bearings 13 and 14, which are secured to arms 15, preferably by being made integral therewith, the said arms being in turn supported by the hub 10, preferably by being cast thereon.

The wrapper-supports may be widely varied in form and construction. As shown, however, these supports include hubs 16, which terminate in castings 17, said castings forming chambers. The sleeves 12 terminate in hubs 18, within which the hubs 16 are located. The hubs 16 are provided with bosses 19, which extend through perforations in the tops of the hubs 18 and are secured in place therein in any suitable manner, as by collars 20 and set-screws 21. By this construction the hubs 16 are revolubly mounted in the hubs 18, the purpose of this construction being hereinafter stated. The chambers 17 have open sides, said sides being closed by plates 22, said plates forming the operating-faces of the wrapper-supports.

Any suitable means may be employed for retaining the wrappers on the wrapper-supports. Preferably, however, the wrappers will be retained in position on the supports by suction. The devices used through which the suction is caused to retain the wrappers in position on the supports may be widely varied. In the machine shown the plates 22 are perforated plates and each of the hubs 16 is provided with a perforation 23, which registers with the opening in each of the sleeves 12. The openings in the sleeves 12 communicate with the openings in the hollow arms, and these in turn communicate with a chamber in the hub 10. Communicating with the opening in the hub 10 is a pipe 24, the said pipe leading to any suitable suction-producing means—as, for instance, a fan. (Not shown.)

It is desirable that the wrapper be kept under tension while it is being delivered to the wrapping mechanism to be hereinafter described. While this may be effected in various ways, it will preferably be effected, as in the machine shown, by causing the suction to remain in operation during the wrapping operation. To this end, therefore, the connections are so arranged that the suction is not cut off from the wrapper-support during the wrapping operation.

While the wrappers might, if desired, be first cut and then placed on the wrapper-supports, the machine will preferably be so constructed that a leaf of wrapper material is first placed upon the wrapper-support and the wrapper cut therefrom while the leaf is in position on the support. To this end, therefore, that portion of the casting 17 which immediately surrounds the plate 22, before described, will be sharpened to provide a knife-edge 25, the said edge being given the shape of the wrapper to be cut. While this construction is the preferred one, it will be understood that a knife might be secured to the support instead of forming the knife by sharpening the edges thereof.

While the wrapper material might be placed on the support and the wrapper cut therefrom and delivered without changing the position of the support, the construction is preferably such that the wrapper-support will stand in one plane during the time when the wrapper material is placed thereon and the wrapper cut from said material, the support being then moved into another plane in order that it may deliver the wrapper to the wrapping mechanism. In the machine shown the base or standard 1 is provided with a circular rim 26, the said rim being provided with plain portions and with toothed portions 27, said toothed portions in the machine shown being two in number. The sleeves 12 have mounted upon them gears 28, said gears being provided with toothed portions 29 and plain portions 30. The gears 28 are located between the bearings 13 and 14, before described, and are preferably secured to the sleeves in such a manner as to allow a movement of the sleeves with respect to the gears, for a purpose to be hereinafter described. While any suitable means may be employed for securing the gears in position, in the machine shown the sleeves 12 are provided with slots 31 and the gears are secured to the sleeves by means of keys 32, which engage the slots. By this construction the gears, when rotated, will operate to rotate the sleeves, and yet the sleeves will be allowed to move through the gears.

With the construction as described it is obvious that when the untoothed portions 30 of the gears are opposite the plain portions of the rim 26 the sleeves and wrapper-supports carried by them will be held from movement; but when the toothed portions 29 come in contact with the toothed portions 27 of the rim 26 the sleeves and their wrapper-supports will be given a rotative movement, the length of which depends upon the length of the toothed portions 27 of the rim 26. In the ma-

chine shown these toothed portions are of a length to give the sleeves and wrapper-supports a half-revolution.

Any suitable means may be employed to cooperate with the knives on the wrapper-supports to cut wrappers from the wrapper material held thereon. In the machine shown the base 1 is provided with an arm 33, to which is secured an overhanging bracket 34. This bracket 34 serves to support two rollers 35, the said rollers being journaled in the bracket. The wrapper material is placed on each of the supports when the support is in position with its operative face uppermost.

After the material has been placed on the support it runs under the rollers 35 and the wrapper is cut from the wrapper material. At this time the plain portion 30 of the gear 29 is opposite a plain portion of the rim 26, so that the wrapper-support is securely held from turning.

Any suitable form of wrapping mechanism may be employed. Preferably, however, the wrapping mechanism will be of the type disclosed in the United States Patent to J. Reuse, No. 552,447, dated December 31, 1895, reference being made to said patent for a full disclosure of the construction of said mechanism. For the purpose of this application it is sufficient to say that the wrapping mechanism consists of two pairs of opening and closing jaws 36, said jaws being provided with projections 37, in which work operating-rods 38. These operating-rods are driven from short shafts located in the end frame-pieces 39, these end frame-pieces rising from a base-plate 40, which rests on the arm 8, before described. Said short shafts are provided with gears 41, which are driven from larger gears 42, located at each end of the machine, said gears being mounted on a shaft 43. The shaft 43 may be driven in any suitable manner. In the machine shown it carries a sprocket-wheel 44, around which passes a sprocket-chain 45, said chain also passing around a sprocket-wheel 46, mounted on the shaft 6.

Suitable clutch mechanism will be provided for disconnecting the wrapping-jaws from the driving mechanism; but as such clutch mechanism forms no part of this invention it is omitted from the description and illustration.

It is of course necessary, in order that the supports may deliver their wrappers to the wrapping mechanism, that a relative movement be produced between the wrapping mechanism and the supports. In the present machine this relative movement is produced by rotating the wrapper-supports through the mechanism which has been hereinbefore described, although it is to be understood that mechanisms in which the movement referred to is effected by moving the wrapping mechanism are within the invention. While, furthermore, the wrapper-supports in the present machine are arranged to move over the wrapping mechanism, it is to be understood that this particular arrangement is not necessary. It is only necessary that the supports and the wrapping mechanism be so arranged that the part which moves moves in a plane which does not intersect the other part—that is to say, when the support is the moving part it moves in a plane which does not intersect the wrapping mechanism. While, furthermore, the support and the wrapping mechanism might be so arranged that the relative movement between them is simply an approaching movement in the machine shown, the construction is such that the movement is the resultant of an approaching movement, a traversing movement, and an angular movement. As has been before indicated, the approaching movement is effected by the rotation of the supports about the axis of the shaft 3.

While any suitable means may be employed for effecting the traversing movement, and this movement may be accomplished either by moving the wrapping mechanism or the supports in the machine shown, the traversing movement is given to the supports. Any suitable means may be employed for giving the supports the traversing movement. As herein shown, the standard or base has arranged upon its top a disk 47, said disk being provided with a cam-groove 48. Each of the arms 11 is surrounded by a collar 49, each of said collars having a projecting portion 50, to which is secured by a screw or in any other suitable manner a lug 51, said lugs taking over flanges 52, formed on the sleeves 12. The arms 11 are provided with slots 53, these slots being engaged by the ends of screws 54, which extend through the collars 49, said screws also serving to support rollers 55, which engage the cam-groove 48, before referred to. With this construction it will be seen that as the arms rotate the sleeves 12 will be given a reciprocating movement along the arms by means of the cam-groove 48.

The angular movement referred to may be effected in any suitable manner and by moving either the wrapping mechanism or the supports. In the machine shown, however, the angular movement is given to the supports and by a mechanism which will now be described. Each of the collars 20 is provided with a projection 56, in which is located a stud 57, said studs extending upwardly from the projections. The arm 8 serves to support an overhanging bracket 58, the under side of the overhanging part of said bracket being provided with a cam-groove 59. As the supports pass under the bracket the cam-groove 59 is engaged by the studs 57, and the supports will be given a movement corresponding to the configuration of the cam-groove 59. In order that the supports may always be held in such a position that the studs 57 will engage the cam-groove, each of the hubs 18 is surrounded by a torsion-spring 60, said springs being connected at one end to the hubs and at the other end to the castings 17, which form a part of

the supports. Each of the collars 20 is further provided with a projection 61, which engages a pin 62, mounted on the sleeve 12, and the torsion-springs operate to normally hold the supports in such a position that the projections 61 rest against the pins 62.

In the operation of the machine as each support delivers its wrapper to the wrapping mechanism it is given a movement which is the resultant of the approaching movement caused by the rotation of the support about the axis of the shaft 3, a trasversing movement by the movement of the sleeve with respect to the arm 11, and an angular movement caused by the engagement of the stud 57 with the cam-groove 59. The wrapper will therefore be evenly and smoothly wound upon the bunch in the wrapping mechanism.

It may be here remarked that the term "approaching" as applied to the support does not mean that all parts of the support are at all times approaching the wrapping mechanism, since it is obvious that that part of the support which has delivered its portion of the wrapper to the wrapping mechanism is moving away from said mechanism. Inasmuch, however, as that part of the support which is still to deliver its portion of the wrapper to the wrapping mechanism is always approaching said mechanism it is believed that the term "approaching" accurately defines this movement.

It is desirable that some means be employed for positively inserting the end of the wrapper into the wrapping-jaws or other wrapping mechanism. While these means may be of various kinds, in the preferred construction a blast device will be employed. Any suitable means may be employed to secure the action of the blast upon the end of the wrapper. In the machine shown the chamber formed by the casting 17 is provided with a partition 63, so that the wrapper-support in reality includes two chambers. The partition 63 is provided with a port or opening 64, this opening being arranged to be controlled by means of a valve 65, which is located in the end of a pipe 66, rising from the end of the wrapper-support. The pipe 66 contains a perforated valve-seat 67, against which the top of the valve rests, said top being provided with openings 68. Extending through the valve-seat 67 is a valve-operating rod 69, said rod being supported by a small bracket 70, located in the interior of the pipe 66. The upper end of the valve-rod 69 is provided with an arm 71, which is arranged to contact with a stationary pin 72. The overhanging bracket 58 has located in it a pipe 73, which communicates with any suitable blast mechanism. The construction is such that the valve 65 normally stands in such a position that the port 64 is open and the openings 68 are out of register with the openings in the valve-seat 67. The suction, therefore, normally acts in both chambers of the casting. When, however, the leading end of the wrapper-support comes into position over the wrapping mechanism, the arm 71 strikes the pin 72 and rotates the valve into the position illustrated in Fig. 5. In this position the port 64 is closed and the openings 68 are in register with the perforations in the valve-seat 67. The blast therefore acts through the pipes 73 and 66 to blow the end of the wrapper down into the wrapping-jaws, thus positively inserting it into the jaws.

The operation of the machine as a whole is as follows: It being remembered that the shaft 3 is rotated from the shaft 6 through the worm-gearing described, as each wrapper-support approaches the bracket 34, the support being at that time in position with its operating-face uppermost, the operator places on it a leaf of tobacco or other wrapper material, smoothing out the leaf, so as to stretch the material over the perforated plate. The leaf is immediately clamped to the plate by the operation of the suction, which, as has been said, in this machine is constantly acting. The further rotation of the shaft 3 causes the wrapper-support to pass under the rollers 35, and a wrapper is thus cut from the wrapper material by the joint action of the rollers and the knife 25. At this time one of the untoothed portions 30 of the gear 28 is opposite a plain portion of the rim 26, so that the support is held from turning. As the rotation of the shaft continues the wrapper-support comes into such position that a toothed portion 29 of the gear 28 comes in contact with a toothed portion 27 of the rim 26, and by the engagement of these parts the wrapper-support is given a half-rotation, so that its operating-face is turned downward. This brings the other untoothed portion 30 of the gear 28 opposite the plain portion of the rim and holds the support steadily in position. The further rotation of the shaft 3 brings the end of the support which carries the leading end of the wrapper over the wrapping-jaws. As this occurs the arm 71 of the valve-rod 69 strikes the pin 72 and changes the position of the valve 65, so that the blast which operates through the pipe 73 and the pipe 66 blows the leading end of the wrapper down into the jaws, which close upon it. At this time the clutch mechanism of the wrapping mechanism is operated to throw the jaws into action and the wrapping begins. As the rotation of the shaft proceeds the wrapper-support executes a movement which is the resultant of the approaching movement caused by the rotation of the shaft 3, the traversing movement caused by the action of the cam-groove 48 on the sleeve 12, and the angular movement caused by the engagement of the stud 57 with the cam-groove 59, this movement operating to deliver the wrapper so that it is wound evenly and smoothly upon the bunch in the wrapping-jaws. After the support has delivered its wrapper to the wrapping mechanism the further rotation of the shaft 3 again brings a toothed portion 29 of the gear 28 into contact with the other toothed

portion 27 of the rim 26, so that the wrapper-support is again reversed and is thus brought into position to receive another leaf of tobacco or other wrapper material.

The specific mechanisms by which the various operations hereinbefore described are carried into effect may be varied within wide limits. The invention is not therefore to be confined to the details of constructions which have been hereinabove described.

What we claim is—

1. In a cigar-machine, the combination with a wrapping mechanism, of a wrapper-support, means operating substantially throughout the length of the support for holding the wrapper thereon, and means for producing a relative approaching movement between the wrapping mechanism and the wrapper-support, said movement continuing during the wrapping operation, substantially as described.

2. In a cigar-machine, the combination with a wrapping mechanism, of a wrapper-support lying in a plane which does not intersect the wrapping mechanism, and means for producing a relative approaching movement between the wrapping mechanism and the wrapper-support, said movement continuing during the wrapping operation, substantially as described.

3. In a cigar-machine, the combination with a wrapping mechanism, of a wrapper-support, means operating substantially throughout the length of the support for holding the wrapper thereon, and means for giving the wrapper-support an approaching movement with respect to the wrapping mechanism, said movement continuing during the wrapping operation, substantially as described.

4. In a cigar-machine, the combination with a wrapping mechanism, of a wrapper-support lying in a plane which does not intersect the wrapping mechanism, and means for giving the wrapper-support an approaching movement with respect to the wrapping mechanism, said movement continuing during the wrapping operation, substantially as described.

5. In a cigar-machine, the combination with a wrapping mechanism, of a wrapper-support, means for cutting a wrapper from a leaf of tobacco while on the support, and means for producing a relative movement between the support and the wrapping mechanism which is the resultant of an approaching movement and a traversing movement, substantially as described.

6. In a cigar-machine, the combination with a wrapping mechanism, of a suction-support for the wrapper, means for cutting a wrapper from a leaf of tobacco while on the support and means for producing a relative movement between the support and the wrapping mechanism which is the resultant of an approaching movement and a traversing movement, substantially as described.

7. In a cigar-machine, the combination with a wrapping mechanism, of a wrapper-support, means for cutting a wrapper from a leaf of tobacco while on the support, and means for producing a relative movement between the support and the wrapping mechanism which is the resultant of an approaching movement, a traversing movement and an angular movement, substantially as described.

8. In a cigar-machine, the combination with a wrapping mechanism, of a suction-support for the wrapper, means for cutting a wrapper from a leaf of tobacco while on the support, and means for producing a relative movement between the support and the wrapping mechanism, which is the resultant of an approaching movement, a traversing movement and an angular movement, substantially as described.

9. In a cigar-machine, the combination with a wrapping mechanism, of a wrapper-support, means for cutting a wrapper from a leaf of tobacco while on the support, and means for giving the support an approaching movement and a traversing movement with respect to the wrapping mechanism, substantially as described.

10. In a cigar-machine, the combination with a wrapping mechanism, of a suction-support for the wrapper, means for cutting a wrapper from a leaf of tobacco while on the support, and means for giving the support an approaching movement and a traversing movement with respect to the wrapping mechanism, substantially as described.

11. In a cigar-machine, the combination with a wrapping mechanism, of a wrapper-support, means for cutting a wrapper from a leaf of tobacco while on the support, and means for giving the support a movement which is the resultant of an approaching movement, a traversing movement, and an angular movement, substantially as described.

12. In a cigar-machine, the combination with a wrapping mechanism, of a suction-support for the wrapper, means for cutting a wrapper from a leaf of tobacco while on the support, and means for giving the support a movement which is the resultant of an approaching movement, a traversing movement, and an angular movement, substantially as described.

13. The combination with a wrapping mechanism, of a plurality of wrapper-supports operating to successively deliver wrappers to the wrapping mechanism, and means for giving the supports a continuous movement whereby they successively deliver their wrappers to the wrapping mechanism, substantially as described.

14. The combination with a wrapping mechanism, of a plurality of suction wrapper-supports, and means for giving the supports a continuous movement whereby they successively deliver their wrappers to the wrapping mechanism, substantially as described.

15. The combination with a rotating shaft, of a plurality of wrapper-supports, a wrap-

ping mechanism, and means for continuously rotating the shaft to cause the supports to successively deliver their wrappers to the wrapping mechanism, substantially as described.

16. The combination with a wrapping mechanism, of a plurality of wrapper-supports, means whereby a sheet of material is held on each support, cutting devices operating to cut a wrapper from the sheet of material while on the support, and means for giving the supports a rotating movement to successively deliver the wrappers to the wrapping mechanism, substantially as described.

17. The combination with a wrapping mechanism, of a plurality of wrapper-supports, suction mechanism for holding a sheet of material on each support, cutting devices operating to cut a wrapper from the sheet of material while on the support, and means for giving the supports a rotating movement to successively deliver the wrappers to the wrapping mechanism, substantially as described.

18. The combination with a wrapping mechanism, of a plurality of wrapper-supports, means whereby a sheet of material is held on each support, cutting devices operating to cut a wrapper from the sheet of material while on the support, means for reversing the position of the supports after the cutting operation, and means for causing the supports to successively deliver the wrappers to the wrapping mechanism, substantially as described.

19. The combination with a wrapping mechanism, of a plurality of wrapper-supports, suction mechanism for holding a sheet of material on each support, cutting devices operating to cut a wrapper from the sheet of material while on the support, means for reversing the position of the supports after the cutting operation, and means for causing the supports to successively deliver the wrappers to the wrapping mechanism, substantially as described.

20. The combination with a wrapping mechanism, of a plurality of wrapper-supports, means for causing said supports to rotate in a substantially-horizontal plane, means whereby a sheet of material is held on each support, cutting devices operating to cut a wrapper from the sheet of material while on the support, and means for causing the supports to successively deliver the wrappers to the wrapping mechanism, substantially as described.

21. The combination with a wrapping mechanism, of a plurality of wrapper-supports, means for causing said supports to rotate in a substantially-horizontal plane, suction mechanism for holding a sheet of material on each support, cutting devices operating to cut a wrapper from the sheet of material while on the support, and means for causing the supports to successively deliver the wrappers to the wrapping mechanism, substantially as described.

22. The combination with a plurality of wrapper-supports, of means for causing said supports to rotate in a substantially-horizontal plane, means for maintaining each support for a part of its period of rotation with its operative face uppermost, means whereby a sheet of material is held on each support, cutting devices operating to cut a wrapper from the sheet of material while on the support, and means for reversing the position of each support in order to enable it to deliver its wrapper, substantially as described.

23. The combination with a plurality of wrapper-supports, of means for causing said supports to rotate in a substantially-horizontal plane, means for maintaining each support for a part of its period of rotation with its operative face uppermost, suction mechanism for holding a sheet of material on each support, cutting devices operating to cut a wrapper from the sheet of material while on the support, and means for reversing the position of each support in order to enable it to deliver its wrapper, substantially as described.

24. The combination with a wrapping mechanism, of a plurality of wrapper-supports, means for causing said supports to rotate in a substantially-horizontal plane, means for maintaining each support for a part of its period of rotation with its operative face uppermost, means whereby a sheet of material is held on each support, cutting devices operating to cut a wrapper from the sheet of material while on the support, and means for reversing the position of each support in order to enable it to deliver its wrapper to the wrapping mechanism, substantially as described.

25. The combination with a wrapping mechanism, of a plurality of wrapper-supports, means for causing said supports to rotate in a substantially-horizontal plane, means for maintaining each support for a part of its period of rotation with its operative face uppermost, suction mechanism for holding a sheet of material on each support, cutting devices operating to cut a wrapper from the sheet of material while on the support, and means for reversing the position of each support in order to enable it to deliver its wrapper to the wrapping mechanism, substantially as described.

26. The combination with a plurality of wrapper-supports, of means whereby a wrapper is held on each support, means for maintaining the supports in one position in order that the wrappers may be placed thereon, and means for reversing the position of the supports in order that the wrappers may be delivered, substantially as described.

27. The combination with a wrapping mechanism, of a plurality of wrapper-supports, means whereby a wrapper is held on each support, means for maintaining the supports in one position in order that the wrappers may be placed thereon, and means for reversing

the position of the supports in order that the wrappers may be delivered to the wrapping mechanism, substantially as described.

28. The combination with a plurality of wrapper-supports, of suction mechanism for holding a wrapper on each support, means for maintaining the supports in one position in order that the wrappers may be placed thereon, and means for reversing the position of the supports in order that the wrappers may be delivered, substantially as described.

29. The combination with a wrapping mechanism, of a plurality of wrapper-supports, suction mechanism for holding a wrapper on each support, means for maintaining the supports in one position in order that the wrappers may be placed thereon, and means for reversing the position of the supports in order that the wrappers may be delivered to the wrapping mechanism, substantially as described.

30. The combination with a wrapping mechanism, of a plurality of wrapper-supports, means whereby a wrapper is held on each of the supports, means for reversing the position of the supports, and means for producing a relative approaching movement between the supports and the wrapping mechanism, substantially as described.

31. The combination with a wrapping mechanism, of a plurality of wrapper-supports, means whereby a wrapper is held on each of the supports, means for reversing the position of the supports, and means for producing a relative angular movement between the supports and the wrapping mechanism, substantially as described.

32. The combination with a wrapping mechanism, of a plurality of wrapper-supports, suction mechanism for holding a wrapper on each of the supports, means for reversing the position of the supports, and means for producing a relative approaching movement between the supports and the wrapping mechanism, substantially as described.

33. The combination with a wrapping mechanism, of a plurality of wrapper-supports, suction mechanism for holding a wrapper on each of the supports, means for reversing the position of the supports, and means for producing a relative angular movement between the supports and the wrapping mechanism, substantially as described.

34. The combination with a wrapping mechanism, of a plurality of wrapper-supports, means whereby a wrapper is held on each support, means for reversing the position of the supports, and means whereby a movement is effected between the supports and the wrapping mechanism which is the resultant of an approaching movement, a traversing movement, and an angular movement, substantially as described.

35. The combination with a wrapping mechanism, of a plurality of suction wrapper-supports, means for reversing the position of the supports, and means whereby a movement is effected between the supports and the wrapping mechanism which is the resultant of an approaching movement, a traversing movement and an angular movement, substantially as described.

36. The combination with a wrapping mechanism, of a plurality of wrapper-supports, means whereby a wrapper is held on each support, means for reversing the position of the supports, and means for giving a movement to the supports with respect to the wrapping mechanism which is the resultant of an approaching movement, a traversing movement and an angular movement of the supports, substantially as described.

37. The combination with a wrapping mechanism, of a plurality of suction wrapper-supports, means for reversing the position of the supports, and means for giving a movement to the supports with respect to the wrapping mechanism which is the resultant of an approaching movement, a traversing movement and an angular movement of the supports, substantially as described.

38. The combination with a wrapping mechanism, of a plurality of wrapper-supports operating to deliver wrappers to the wrapping mechanism, means whereby a wrapper is held on each support, means for giving the supports an approaching movement with respect to the wrapping mechanism, and means for producing a relative angular movement between the supports and the wrapping mechanism, substantially as described.

39. The combination with a wrapping mechanism, of a plurality of suction wrapper-supports operating to deliver wrappers to the wrapping mechanism, means for giving the supports an approaching movement with respect to the wrapping mechanism, and means for producing a relative angular movement between the supports and the wrapping mechanism, substantially as described.

40. The combination with a wrapping mechanism, of a plurality of wrapper-supports operating to deliver wrappers to the wrapping mechanism, means whereby a wrapper is held on each support, means for giving the supports an approaching movement with respect to the wrapping mechanism, and means for producing a relative traversing movement between the wrapping mechanism and the supports, substantially as described.

41. The combination with a wrapping mechanism, of a plurality of suction wrapper-supports operating to deliver wrappers to the wrapping mechanism, means for giving the supports an approaching movement with respect to the wrapping mechanism, and means for producing a relative traversing movement between the wrapping mechanism and the supports, substantially as described.

42. The combination with a wrapping mechanism, of a plurality of wrapper-supports, means whereby a wrapper is held on each of the supports, and means for producing a relative movement between the supports and the

wrapping mechanism which movement is the resultant of an approaching movement, a traversing movement, and an angular movement, substantially as described.

43. The combination with a wrapping mechanism, of a plurality of wrapper-supports, suction mechanism for holding a wrapper on each of the supports, and means for producing a relative movement between the supports and the wrapping mechanism, which movement is the resultant of an approaching movement, a traversing movement, and an angular movement, substantially as described.

44. The combination with a wrapping mechanism, of a plurality of wrapper-supports operating to successively deliver wrappers to the wrapping mechanism, means whereby a wrapper is held on each of the supports, and means for giving the wrapper-supports an approaching movement with respect to the wrapping mechanism during the wrapping operation, substantially as described.

45. The combination with a wrapping mechanism, of a plurality of wrapper-supports operating to successively deliver wrappers to the wrapping mechanism, suction mechanism for holding a wrapper on each of the supports, and means for giving the wrapper-supports an approaching movement with respect to the wrapping mechanism during the wrapping operation, substantially as described.

46. The combination with a wrapping mechanism, of a plurality of wrapper-supports operating to successively deliver wrappers to the wrapping mechanism, means whereby a wrapper is held on each of the supports, and means for giving the wrapper-supports a traversing movement with respect to the wrapping mechanism, substantially as described.

47. The combination with a wrapping mechanism, of a plurality of wrapper-supports operating to successively deliver wrappers to the wrapping mechanism, suction mechanism for holding a wrapper on each of the supports, and means for giving the wrapper-supports a traversing movement with respect to the wrapping mechanism, substantially as described.

48. The combination with a wrapping mechanism, of a plurality of wrapper-supports operating to successively deliver wrappers to the wrapping mechanism, means whereby a wrapper is held on each of the supports, and means for giving the wrapper-supports an angular movement with respect to the wrapping mechanism, substantially as described.

49. The combination with a wrapping mechanism, of a plurality of wrapper-supports operating to successively deliver wrappers to the wrapping mechanism, suction mechanism for holding a wrapper on each of the supports, and means for giving the wrapper-supports an angular movement with respect to the wrapping mechanism, substantially as described.

50. The combination with a wrapping mechanism, of a plurality of wrapper-supports, means whereby a wrapper is held on each of the supports, and means for giving the wrapper-supports an approaching movement and an angular movement with respect to the wrapping mechanism, substantially as described.

51. The combination with a wrapping mechanism, of a plurality of wrapper-supports, suction mechanism for holding a wrapper on each of the supports, and means for giving the wrapper-supports an approaching movement and an angular movement with respect to the wrapping mechanism, substantially as described.

52. The combination with a wrapping mechanism, of a plurality of wrapper-supports, means whereby a wrapper is held on each of the supports, and means for giving the wrapper-supports a movement with respect to the wrapping mechanism which is the resultant of an approaching movement, an angular movement and a traversing movement, substantially as described.

53. The combination with a wrapping mechanism, of a plurality of wrapper-supports, suction mechanism for holding a wrapper on each of the supports, and means for giving the wrapper-supports a movement with respect to the wrapping mechanism which is the resultant of an approaching movement, an angular movement and a traversing movement, substantially as described.

54. The combination with a wrapping mechanism, of a plurality of rotating wrapper-supports operating to successively deliver wrappers to the wrapping mechanism, means whereby a sheet of material is held on each of the supports, cutting devices operating to cut a wrapper from the sheet of material while it is held on the support, and means for producing a relative approaching movement during the wrapping operation between the supports and the wrapping mechanism, substantially as described.

55. The combination with a wrapping mechanism, of a plurality of rotating wrapper-supports operating to successively deliver wrappers to the wrapping mechanism, suction mechanism for holding a sheet of material on each of the supports, cutting devices operating to cut a wrapper from the sheet of material while it is held on the support, and means for producing a relative approaching movement during the wrapping operation between the supports and the wrapping mechanism, substantially as described.

56. The combination with a wrapping mechanism, of a plurality of wrapper-supports operating to successively deliver wrappers to the wrapping mechanism, means whereby a sheet of material is held on each of the supports, cutting devices operating to cut a wrapper from the sheet of material while it is held on the support, and means for producing a relative angular movement between the supports and the wrapping mechanism, substantially as described.

57. The combination with a wrapping mech-

anism, of a plurality of wrapper-supports operating to successively deliver wrappers to the wrapping mechanism, suction mechanism for holding a sheet of material on each of the supports, cutting devices operating to cut a wrapper from the sheet of material while it is held on the support, and means for producing a relative angular movement between the supports and the wrapping mechanism, substantially as described.

58. The combination with a wrapping mechanism, of a plurality of wrapper-supports, means whereby a sheet of material is held on each of the supports, cutting devices operating to cut a wrapper from the sheet of material while it is held on the support, and means for producing a relative movement between the supports and the wrapping mechanism which movement is the resultant of an approaching movement, a traversing movement and an angular movement, substantially as described.

59. The combination with a wrapping mechanism, of a plurality of wrapper-supports, suction mechanism for holding a sheet of material on each of the supports, cutting devices operating to cut a wrapper from the sheet of material while on the support, and means for producing a relative movement between the supports and the wrapping mechanism which movement is the resultant of an approaching movement, a traversing movement and an angular movement, substantially as described.

60. The combination with a wrapping mechanism, of a plurality of wrapper-supports operating to successively deliver wrappers to the wrapping mechanism, means whereby a sheet of material is held on each of the supports, cutting devices operating to cut a wrapper from the sheet of material while on the support, and means for giving the wrapper-supports an approaching movement with respect to the wrapping mechanism during the wrapping operation, substantially as described.

61. The combination with a wrapping mechanism, of a plurality of wrapper-supports operating to successively deliver wrappers to the wrapping mechanism, suction mechanism for holding a sheet of material on each of the supports, cutting devices operating to cut a wrapper from the sheet of material while on the support, and means for giving the wrapper-supports an approaching movement during the wrapping operation with respect to the wrapping mechanism, substantially as described.

62. The combination with a wrapping mechanism, of a plurality of wrapper-supports operating to successively deliver wrappers to the wrapping mechanism, means whereby a sheet of material is held on each of the supports, cutting devices operating to cut a wrapper from the sheet of material while on the support, and means for giving the wrapper-supports an angular movement with respect to the wrapping mechanism, substantially as described.

63. The combination with a wrapping mechanism, of a plurality of wrapper-supports operating to successively deliver wrappers to the wrapping mechanism, suction mechanism for holding a sheet of material on each of the supports, cutting devices operating to cut a wrapper from the sheet of material while on the support, and means for giving the wrapper-supports an angular movement with respect to the wrapping mechanism, substantially as described.

64. The combination with a wrapping mechanism, of a plurality of wrapper-supports, means whereby a sheet of material is held on each of the supports, cutting devices operating to cut a wrapper from the sheet of material while on the support, and means for giving the wrapper-supports an approaching movement and an angular movement with respect to the wrapping mechanism, substantially as described.

65. The combination with a wrapping mechanism, of a plurality of wrapper-supports, suction mechanism for holding a sheet of material on each of the supports, cutting devices operating to cut a wrapper from the sheet of material while on the support, and means for giving the wrapper-supports an approaching movement and an angular movement with respect to the wrapping mechanism, substantially as described.

66. The combination with a wrapping mechanism, of a plurality of wrapper-supports, means whereby a sheet of material is held on each of the supports, cutting devices operating to cut a wrapper from the sheet of material while on the support, and means for giving the wrapper-supports a movement with respect to the wrapping mechanism which is the resultant of an approaching movement, a traversing movement and an angular movement of the supports, substantially as described.

67. The combination with a wrapping mechanism, of a plurality of wrapper-supports, suction mechanism for holding a sheet of material on each of the supports, cutting devices operating to cut a wrapper from the sheet of material while on the support, and means for giving the wrapper-supports a movement with respect to the wrapping mechanism which is the resultant of an approaching movement, a traversing movement and an angular movement of the supports, substantially as described.

68. The combination with a plurality of wrapper-supports, of means whereby a wrapper is held on each of the supports, and means for reversing the position of each of the supports after a wrapper has been placed thereon, substantially as described.

69. The combination with a plurality of wrapper-supports, of suction mechanism for holding a wrapper on each of the supports, and means for reversing the position of each

of the supports after a wrapper has been placed thereon, substantially as described.

70. The combination with a plurality of rotating wrapper-supports, of means whereby a wrapper is held on each of the supports, and means for reversing the position of each of the supports after a wrapper has been placed thereon, substantially as described.

71. The combination with a plurality of rotating wrapper-supports, of suction mechanism for holding a wrapper on each of the supports, and means for reversing the position of each of the supports after a wrapper has been placed thereon, substantially as described.

72. The combination with a wrapping mechanism, of a shaft, a plurality of wrapper-supports operated by the shaft, means for rotating the shaft to cause the supports to approach the wrapping mechanism, and means for producing between the wrapping mechanism and the supports a movement which is the resultant of the approaching movement produced by rotating the shaft, a traversing movement and an angular movement, substantially as described.

73. The combination with a wrapping mechanism, of a shaft, a plurality of wrapper-supports operated by the shaft, means for rotating the shaft to cause the supports to approach the wrapping mechanism, and means for giving the supports a movement with respect to the wrapping mechanism as they successively deliver the wrappers thereto which is the resultant of the approaching movement produced by rotating the shaft, a traversing movement and an angular movement, substantially as described.

74. The combination with a rotating shaft, of a plurality of suction wrapper-supports carried by the shaft, a wrapping mechanism, and means for rotating the shaft to cause the supports to successively deliver their wrappers to the wrapping mechanism, substantially as described.

75. The combination with a wrapping mechanism, of a shaft, a plurality of suction wrapper-supports operated by the shaft, means for rotating the shaft to cause the supports to approach the wrapping mechanism, and means for producing between the wrapping mechanism and the supports a movement which is the resultant of the approaching movement produced by rotating the shaft, a traversing movement and an angular movement, substantially as described.

76. The combination with a wrapping mechanism, of a shaft, a plurality of suction wrapper-supports operated by the shaft, means for rotating the shaft to cause the supports to approach the wrapping mechanism, and means for giving the supports a movement with respect to the wrapping mechanism as they successively deliver the wrappers thereto which is the resultant of the approaching movement produced by rotating the shaft, a traversing movement and an angular movement, substantially as described.

77. In a wrapper-support embodying two chambers, a perforated plate inclosing the chambers and an exhaust mechanism; substantially as described.

78. In a suction-support, the combination with a suction-pipe, of two chambers, and means for connecting one of the chambers to and disconnecting it from the suction-pipe, substantially as described.

79. In a suction-support, the combination with a suction-pipe and a blast-pipe, of two chambers, means whereby both chambers may be placed in connection with the suction-pipe, and means whereby one of the chambers may be placed in connection with the blast-pipe, substantially as described.

80. In a suction-support, the combination with a suction-pipe and a blast-pipe, of two chambers, means whereby both chambers may be placed in connection with the suction-pipe, and means whereby one of the chambers may be simultaneously disconnected from the suction-pipe and connected to the blast-pipe, substantially as described.

81. In a suction-support, the combination with a suction-pipe and a blast-pipe, of a suitable base, two chambers, an opening through the base which connects both chambers to the suction-pipe, an opening through which one of the chambers may be connected with the blast-pipe, and a two-way valve operating to open one of the openings and close the other, substantially as described.

82. The combination with a moving support including two chambers, of a suction-pipe, connections between said pipe and both the chambers, a blast-pipe, means whereby said blast-pipe may be connected to one of the chambers, a controlling device for the blast and suction pipe connections to said chamber, and means lying in the path of movement of the support for operating said controlling device, substantially as described.

83. The combination with a wrapping mechanism, of a carrier, a plurality of pivoted suction-supports, a blast-pipe connected with each of the supports and moving therewith, means for rotating the carrier, a projection in the path of rotation of the support, a valve for controlling the blast-pipe of each of the supports, and means whereby said projection is caused to rotate the valve to open the connection with the blast-pipe, substantially as described.

84. The combination with a wrapping mechanism, of a suction-support for the wrapper including two chambers, a suction-pipe, connections between said pipe and both the chambers, a blast-pipe, means whereby said pipe may be connected to one of the chambers, a controlling device for the blast and suction connections to said chambers, and means located in position to operate the controlling device as the support comes into po-

sition to deliver its wrapper to the wrapping mechanism to close the connections to the suction-pipe and open the connections to the blast-pipe, whereby a portion of the wrapper is forced down into the wrapping mechanism by the action of the blast, substantially as described.

85. The combination with a plurality of hollow arms, of a suction-pipe communicating with each of the arms, a suction wrapper-support carried on each of the arms, and means for changing the position of the wrapper-supports on the arms, substantially as described.

86. The combination with a plurality of hollow arms, of a suction-pipe communicating with each of the arms, a suction wrapper-support carried on each of the arms, and means for giving each of the wrapper-supports a rotating movement about its arm, substantially as described.

87. The combination with a plurality of hollow arms, of means whereby said arms are caused to rotate about a common center, a suction-pipe communicating with each of the arms, a suction wrapper-support carried by each of the arms, and means for giving each of the wrapper-supports a rotating movement about its arm, substantially as described.

88. The combination with a plurality of hollow arms, of means for causing the arms to rotate about a common center, a suction-pipe communicating with each of the arms, a wrapper-support carried by each of the arms, and a wrapping mechanism to which the supports deliver the wrappers, substantially as described.

89. The combination with a plurality of arms, a wrapper-support carried by each arm, means whereby a wrapper is held on each support, and means for moving each support about its arm from one plane into another, substantially as described.

90. The combination with a plurality of hollow arms, of a suction-pipe connecting with each of the arms, a suction wrapper-support carried by each arm, and means for moving each support about its arm from one plane into another, substantially as described.

91. The combination with a wrapping mechanism, of a plurality of arms, a wrapper-support carried by each of the arms, means whereby a wrapper is held on each of the supports, means for moving the arms to cause each support to deliver its wrapper to the wrapping mechanism, and means for causing each support to move about its arm from one plane into another, substantially as described.

92. The combination with a wrapping mechanism, of a plurality of hollow arms, a suction-pipe connecting with each of the arms, a suction-support mounted on each of the arms, means for causing the arms to rotate about a common center to deliver the wrappers to the wrapping mechanism, and means for causing each support to move about its arm from one plane into another, substantially as described.

93. The combination with a plurality of moving arms, of a wrapper-support carried by each arm, means whereby a wrapper is held on each support, means for maintaining each wrapper-support in either of two horizontal planes, and devices located in the path of travel of the arms for shifting the supports from one plane to the other, substantially as described.

94. The combination with a wrapping mechanism, of a plurality of moving arms, a wrapper-support carried by each arm, means whereby a wrapper is held on each support, means for maintaining each support in either of two horizontal planes, and means located in the path of travel of the arms for shifting the supports from one plane to the other, substantially as described.

95. The combination with a plurality of arms, of a suction wrapper-support carried by each arm, means for maintaining each wrapper-support in either of two horizontal planes, and means located in the path of travel of the arm for shifting the supports from one plane to the other, substantially as described.

96. The combination with a wrapping mechanism, of a plurality of arms, a suction wrapper-support carried by each arm, means for maintaining each wrapper-support in either of two horizontal planes, and means located in the path of travel of the arms for shifting the supports from one plane to the other, substantially as described.

97. The combination with a support, of suction mechanism for holding thin sheet material on the support, and a device independent of the support to which the material is delivered, said device operating to draw the material from the support against the force exerted by the suction mechanism, substantially as described.

98. The combination with a wrapping mechanism, of a support for a wrapper coöperating with said wrapping mechanism, and a suction mechanism operating to hold the wrapper on the support, said wrapping mechanism operating to draw the wrapper from the support against the force exerted by the suction mechanism, substantially as described.

99. In a cigar-machine, the combination with a wrapping mechanism, of a support for a wrapper operating to deliver it to the wrapping mechanism, means for retaining the wrapper on the support, means for producing a relative approaching movement between the support and the wrapping mechanism during the wrapping operation, whereby the support is enabled to deliver the wrapper to the wrapping mechanism, said wrapping mechanism operating to draw the wrapper from the support against the force of the retaining means, and means for varying the relative position of the support and the wrapping mechanism during the wrapping operation, whereby the angle at which the wrap-

per is delivered to the wrapping mechanism will be varied, substantially as described.

100. In a cigar-machine, the combination with a wrapping mechanism, of a support for the wrapper, said support operating to deliver the wrapper to the wrapping mechanism, means for retaining a wrapper in a stretched condition on the support, and means for giving the support an approaching movement with respect to the wrapping mechanism during the wrapping operation, substantially as described.

101. In a cigar-machine, the combination with a wrapping mechanism, of a support for the wrapper, said support operating to deliver the wrapper to the wrapping mechanism, means for retaining the wrapper in a stretched condition on the support, and means for giving the support a movement with respect to the wrapping mechanism which is the resultant of an approaching movement, a traversing movement and an angular movement, substantially as described.

102. The combination with a wrapping mechanism of a wrapper-support, means for giving it a combined approaching and traversing movement, and means for retaining the wrapper thereon in a stretched condition, substantially as described.

103. The combination with a wrapping mechanism, of a wrapper-support lying in a plane which does not intersect the wrapping mechanism, and means for producing a relative movement between the wrapping mechanism and the support during the wrapping operation, substantially as described.

104. The combination with a wrapping mechanism, of a wrapper-support lying in a plane which does not intersect the wrapping mechanism, means for retaining a wrapper on the support, said wrapping mechanism operating to draw the wrapper from the support against the force of the retaining means, and means for producing a relative movement between the wrapping mechanism and the support during the wrapping operation, substantially as described.

105. The combination with a wrapping mechanism, of a wrapper-support lying in a plane which does not intersect the wrapping mechanism, a suction mechanism operating to hold the wrapper on the support, and means for producing a relative movement between the wrapping mechanism and the support during the wrapping operation, substantially as described.

106. The combination with a wrapping mechanism, of a wrapper-support lying in a plane which does not intersect the wrapping mechanism, and means for producing a relative movement between the wrapping mechanism and the support, which movement is the resultant of an approaching movement and a traversing movement, substantially as described.

107. The combination with a wrapping mechanism, of a wrapper-support lying in a plane which does not intersect the wrapping mechanism, retaining devices for holding a wrapper on the support, the wrapping mechanism operating to draw the wrapper from the support against the force of the retaining devices, and means for producing a relative movement between the wrapping mechanism and the support, which movement is the resultant of a traversing movement and an approaching movement, substantially as described.

108. The combination with a wrapping mechanism, of a wrapper-support lying in a plane which does not intersect the wrapping mechanism, suction mechanism for holding a wrapper on the support, the wrapping mechanism operating to draw the wrapper from the support against the force of the suction mechanism, and means for producing a relative movement between the wrapping mechanism and the support, which movement is the resultant of a traversing movement and an approaching movement, substantially as described.

109. The combination with a wrapping mechanism, of a wrapper-support, means for producing a relative approaching movement between these parts to enable the wrapper to be delivered to the wrapping mechanism, and means for also producing a relative movement between these parts which is the resultant of a traversing movement and an angular movement, substantially as described.

110. The combination with a wrapping mechanism, of a wrapper-support lying in a plane which does not intersect the wrapping mechanism, means for producing a relative movement between these parts which is the resultant of an approaching movement, a traversing movement, and an angular movement, substantially as described.

111. The combination with a wrapping mechanism, of a wrapper-support, means for producing a relative approaching movement between these parts to enable the wrapper to be delivered to the wrapping mechanism, and means for also producing a relative movement between these parts which is the resultant of the approaching movement, a traversing movement and an angular movement, substantially as described.

112. The combination with a wrapping mechanism, of a wrapper-support lying in a plane which does not intersect the wrapping mechanism, means for producing a relative approaching movement between these parts to enable the wrapper to be delivered to the wrapping mechanism, and means for also producing a relative movement between these parts which is the resultant of the approaching movement, a traversing movement and an angular movement, substantially as described.

113. The combination with a wrapping mechanism, of a wrapper-support, retaining devices for holding the wrapper on the support, the wrapping mechanism operating to

draw the wrapper from the support against the force of the retaining devices, means for producing a relative approaching movement between these parts to enable the wrapper to be delivered to the wrapping mechanism, and means for also producing a relative movement between these parts which is the resultant of a traversing movement and an angular movement, substantially as described.

114. The combination with a wrapping mechanism, of a wrapper-support, a suction mechanism for holding the wrapper on the support, the wrapping mechanism operating to draw the wrapper from the support against the force of the suction mechanism, means for producing a relative approaching movement between these parts to enable the wrapper to be delivered to the wrapping mechanism, and means for also producing a relative movement between these parts which is the resultant of a traversing movement and an angular movement, substantially as described.

115. The combination with a wrapping mechanism, of a wrapper-support lying in a plane which does not intersect the wrapping mechanism, suction mechanism for holding the wrapper on the support, the wrapping mechanism operating to draw the wrapper from the support against the force of the suction mechanism, means for producing a relative approaching movement between these parts to enable the wrapper to be delivered to the wrapping mechanism, and means for also producing a relative movement between these parts which is the resultant of a traversing movement and an angular movement, substantially as described.

116. The combination with a wrapping mechanism, of a wrapper-support lying in a plane which does not intersect the wrapping mechanism, retaining devices for holding a wrapper on the support, the wrapping mechanism operating to draw the wrapper from the support against the force of the retaining devices, and means for giving these parts a movement which is the resultant of an approaching movement, a traversing movement, and an angular movement, substantially as described.

117. The combination with a wrapping mechanism, of a wrapper-support lying in a plane which does not intersect the wrapping mechanism, suction mechanism for holding a wrapper on the support, the wrapping mechanism operating to draw the wrapper from the support against the force of the suction mechanism, means for producing a relative approaching movement between these parts to enable the wrapper to be delivered to the wrapping mechanism, and means for also producing a movement which is the resultant of the approaching movement, a traversing movement, and an angular movement, substantially as described.

118. The combination with a wrapping mechanism, of a wrapper-support, and means for causing the support to move across the wrapping mechanism as it delivers a wrapper thereto, substantially as described.

119. The combination with a wrapping mechanism, of a wrapper-support, and means for causing said support to simultaneously move across and along the wrapping mechanism as it delivers a wrapper thereto, substantially as described.

120. The combination with a wrapping mechanism, of a wrapper-support, means for causing said support to simultaneously move across and along the wrapping mechanism and at the same time to change its angular position with respect thereto, substantially as described.

121. The combination with a wrapping mechanism, of a wrapper-support, said support and wrapping mechanism lying in different planes during the wrapping operation, and means for producing a relative movement between these parts which is the resultant of a traversing movement and an angular movement, substantially as described.

122. The combination with a wrapping mechanism, of a wrapper-support, said support and wrapping mechanism lying in different planes during the wrapping operation, a suction mechanism for holding the wrapper on the support, the wrapping mechanism operating to draw the wrapper from the support against the force of the suction mechanism, and means for producing a relative movement between these parts which is the resultant of a traversing movement and an angular movement, substantially as described.

123. The combination with a wrapping mechanism, of a wrapper-support, means for causing said support to move across and along the wrapping mechanism, and means for causing said support and the wrapping mechanism to change their angular position with respect to each other as the support moves, substantially as described.

124. The combination with a wrapping mechanism, of a wrapper-support, means for causing said support to move across the wrapping mechanism, means for producing a relative traversing movement of the two parts with relation to each other as the support moves across the wrapping mechanism, and means for at the same time causing the parts to change their angular relation with respect to each other, substantially as described.

125. The combination with a wrapping mechanism, of a wrapper-support, a suction mechanism for holding a wrapper on the support, means for causing the support to move across the wrapping mechanism as it delivers a wrapper thereto, means for producing a relative traversing movement of the two parts with relation to each other as the support moves across the wrapping mechanism, and means for at the same time causing the parts to change their angular relation with respect to each other, substantially as described.

126. The combination with a pivoted sup-

port, of a suction mechanism operating to hold material thereon in a stretched condition, and means for turning the support on its pivot from one plane to another, substantially as described.

127. In a cigar-machine, the combination with a wrapping mechanism, of a wrapper-support lying in a plane which does not intersect the wrapping mechanism, means for retaining a wrapper on the support, means whereby the wrapping mechanism and the support are so positioned that the support can deliver the wrapper to the wrapping mechanism, and means for varying the relative position of the support and the wrapping mechanism during the wrapping operation, substantially as described.

128. In a cigar-machine, the combination with a wrapping mechanism, of a wrapper-support located in a plane above the wrapping mechanism, means for retaining a wrapper on the support, means for moving the support into a position over the wrapping mechanism, and means for varying the relative position of the support and the wrapping mechanism during the wrapping operation, substantially as described.

129. In a cigar-machine, the combination with a wrapping mechanism, of a perforated support, suction mechanism coacting therewith and operating to hold a wrapper against the support, means for positioning the support and wrapping mechanism so that the support can deliver the wrapper to the wrapping mechanism, and means for maintaining the suction during the wrapping operation, substantially as described.

130. In a cigar-machine, the combination with a wrapping mechanism, of a perforated support, suction mechanism coacting therewith and operating to hold a wrapper against the support, means for moving the support into position to deliver a wrapper to the wrapping mechanism, and means for maintaining the suction during the wrapping operation, substantially as described.

131. The combination with a wrapping mechanism, of a support lying in a plane which does not intersect the wrapping mechanism, means for retaining a wrapper on the support, means for positioning the support and wrapping mechanism so that the support can deliver the wrapper to the wrapping mechanism, and means for positively inserting a part of the wrapper into the wrapping mechanism while the remainder of the wrapper is held on the support, substantially as described.

132. The combination with a wrapping mechanism, of a wrapper-support located in a plane which does not intersect the wrapping mechanism, a suction mechanism for holding a wrapper on the support, and means for positively inserting one end of the wrapper into the wrapping mechanism while the remainder of the wrapper is held on the support by the suction mechanism, substantially as described.

133. The combination with a wrapping mechanism, of a wrapper-support, a suction mechanism for holding a wrapper in position on the support, and a blast mechanism for positively inserting one end of the wrapper into the wrapping mechanism while the remainder of the wrapper is held on the support by the suction mechanism, substantially as described.

134. The combination with a wrapping mechanism, of a wrapper-support located in a plane which does not intersect the wrapping mechanism, a suction mechanism for holding a wrapper on the support, means for positively inserting one end of the wrapper into the wrapping mechanism while the remainder of the wrapper is held on the support by the suction mechanism, and means for producing a relative movement between the wrapping mechanism and the support as the wrapper is wrapped around the article to be wrapped, substantially as described.

135. The combination with a wrapping mechanism, of a wrapper-support, a suction mechanism for holding a wrapper in position on the support, a blast mechanism for positively inserting one end of the wrapper into the wrapping mechanism while the remainder of the wrapper is held on the support by the suction mechanism, and means for producing a relative movement between the wrapping mechanism and the support as the wrapper is wrapped around the article to be wrapped, substantially as described.

136. The combination with a wrapping mechanism, of a wrapper-support, a suction mechanism operating to hold a wrapper on the support, means for maintaining the suction during the wrapping operation, and means for positively inserting one end of the wrapper into the wrapping mechanism, substantially as described.

137. The combination with a wrapping mechanism, of a support, a suction mechanism operating to hold a wrapper on the support, means for maintaining the suction during the wrapping operation, and a blast device for positively inserting one end of the wrapper into the wrapping mechanism, substantially as described.

138. In a cigar-machine, the combination with a wrapping mechanism, of a wrapper-support, means for positioning the support above the wrapping mechanism, and means for sucessively varying the relative positions of the wrapping mechanism and the support so that the wrapper will be advanced along the bunch as it is wound thereon, substantially as described.

139. The combination with a wrapping mechanism, of a wrapper-support, means for positioning the wrapper-support above the wrapping mechanism, and means for moving the support over the wrapping mechanism

as the wrapping operation proceeds, substantially as described.

140. The combination with a wrapping mechanism, of a support, a suction mechanism operating to hold a wrapper on the support, and means for varying the relative position of the support and the wrapping mechanism so as to cause the wrapper to be advanced along the bunch as the wrapping operation proceeds, substantially as described.

141. The combination with a wrapping mechanism, of a wrapper-support, a suction mechanism coacting therewith and operating to hold a wrapper thereon, means for positioning the support over the wrapping mechanism, and means for varying the relative position of the support and the wrapping mechanism so as to cause the wrapper to be advanced along the bunch as the wrapping operation proceeds, substantially as described.

142. The combination with a wrapping mechanism, of a pivoted wrapper-support, a suction mechanism coacting therewith and operating to hold a wrapper thereon, means for maintaining the suction during the wrapping operation, and means for moving the support with respect to the wrapping mechanism so as to vary the angle at which the wrapper is presented to the wrapping mechanism, substantially as described.

143. The combination with a wrapping mechanism, of an arm, a support moved by the arm in a plane which does not intersect the wrapping mechanism, a suction mechanism coacting with the support and operating to hold the wrapper thereon, means for moving the arm, and means for moving the support with respect to the arm, whereby the wrapper is fed along the bunch during the wrapping operation, substantially as described.

144. The combination with a wrapping mechanism, of a movable arm, a support carried thereby, a suction mechanism coacting with the support, means for moving the arm toward the wrapping mechanism, and means for producing a relative movement between the support and the wrapping mechanism whereby the angle at which the wrapper is presented to the wrapping mechanism is varied during the wrapping operation, substantially as described.

145. The combination with a plurality of arms, of a plurality of wrapper-supports, one for each arm, means whereby a wrapper is held on each support, and gearing by which the supports are reversed in position, substantially as described.

146. The combination with a plurality of arms, of a plurality of suction wrapper-supports, one for each arm, and gearing by which the supports are reversed in position, substantially as described.

147. The combination with a wrapping mechanism, of a plurality of arms, a plurality of wrapper-supports, one for each arm, means whereby a wrapper is held on each support, and gearing by which the supports are reversed in position, substantially as described.

148. The combination with a wrapping mechanism, of a plurality of arms, a plurality of suction wrapper-supports, one for each arm, and gearing by which the supports are reversed in position, substantially as described.

149. The combination with a plurality of arms, of a plurality of wrapper-supports, one for each arm, means whereby a sheet of material is held on each of said supports, cutting devices operating to cut a wrapper from the sheet of material held on each support, and gearing by which the supports are reversed in position, substantially as described.

150. The combination with a plurality of arms, of a plurality of suction wrapper-supports, one for each arm, cutting devices operating to cut a wrapper from a sheet of material held on each support, and gearing by which the supports are reversed in position, substantially as described.

151. The combination with a wrapping mechanism, of a plurality of arms, a plurality of wrapper-supports, one for each arm, means whereby a sheet of material is held on each support, cutting devices operating to cut a wrapper from the sheet of material held on each support, and gearing by which the supports are reversed in position, substantially as described.

152. The combination with a wrapping mechanism, of a plurality of arms, a plurality of suction wrapper-supports, one for each arm, cutting devices operating to cut a wrapper from a sheet of material held on each support, and gearing by which the supports are reversed in position, substantially as described.

153. The combination with a frame, of a shaft mounted therein, means for rotating the shaft, a plurality of arms carried by the shaft, a plurality of suction-supports, one for each arm, a toothed rim mounted on the frame, a mutilated gear for each arm, and suitable connections whereby the rotation of said gear reverses the position of the suction-supports, substantially as described.

154. The combination with a frame, of a shaft mounted therein, means for rotating the shaft, a plurality of arms carried by the shaft, a suction-support carried by each of the arms, means whereby each of the supports is given a movement toward and away from the axis of the shaft, means for reversing the position of the supports and a device outside the normal path of movement of the supports to which they deliver, substantially as described.

155. The combination with a wrapping mechanism, of a carrier, a plurality of wrapper-supports mounted therein, means for rotating the carrier, and means for giving each of the wrapper-supports a movement toward and away from the axis of rotation of the carrier, substantially as described.

156. The combination with a wrapping

mechanism, of a carrier, a plurality of pivoted wrapper-supports, means for rotating the carrier, means for moving the supports toward and away from the axis of rotation of the carrier, and means for turning the supports on their pivots, substantially as described.

157. The combination with a wrapping mechanism, of a carrier, a plurality of pivoted suction wrapper-supports, means for rotating the carrier, means for moving the supports toward and away from the axis of rotation of the carrier, and means for turning the supports on their pivots, substantially as described.

In testimony whereof we have hereunto set our hands in the presence of two subscribing witnesses.

RUFUS L. PATTERSON.
GEORGE ARENTS, JR.

Witnesses:
JAMES Q. RICE,
OLUF SYBERG.