

No. 654,199.

Patented July 24, 1900.

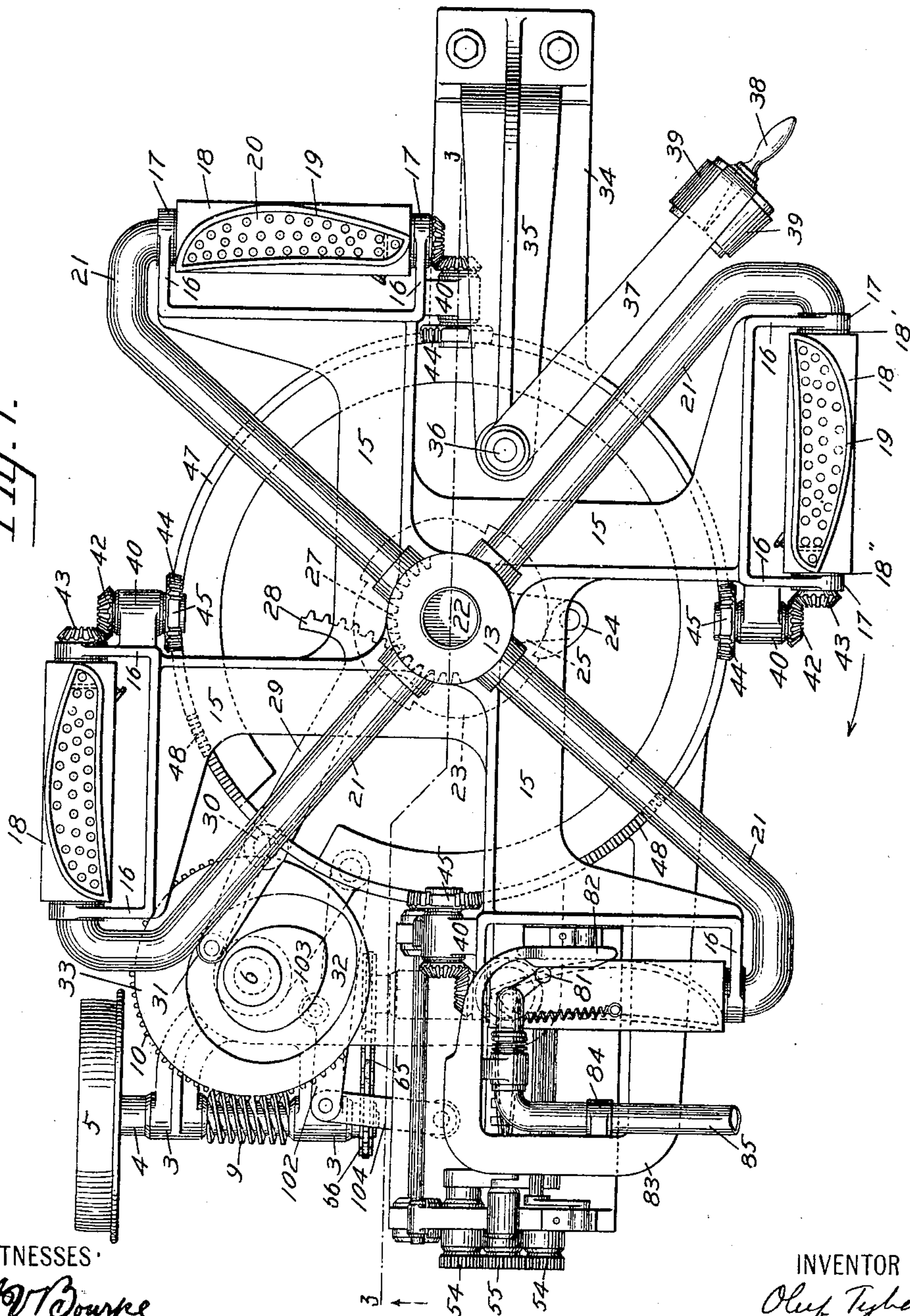
O. TYBERG.
CIGAR MACHINE.

(Application filed Feb. 5, 1900.)

(No Model.)

5 Sheets—Sheet 1.

Fig. 1.



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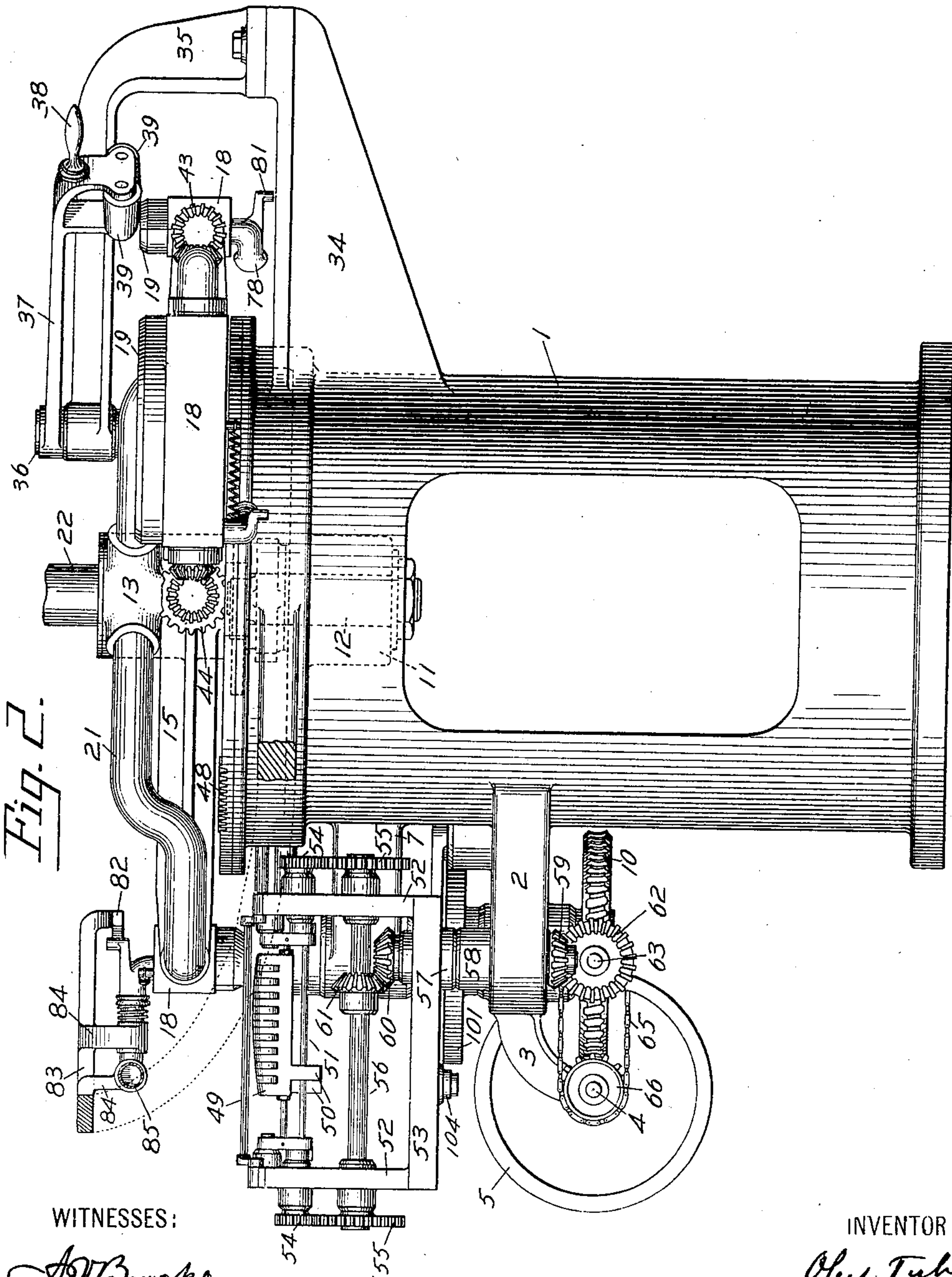
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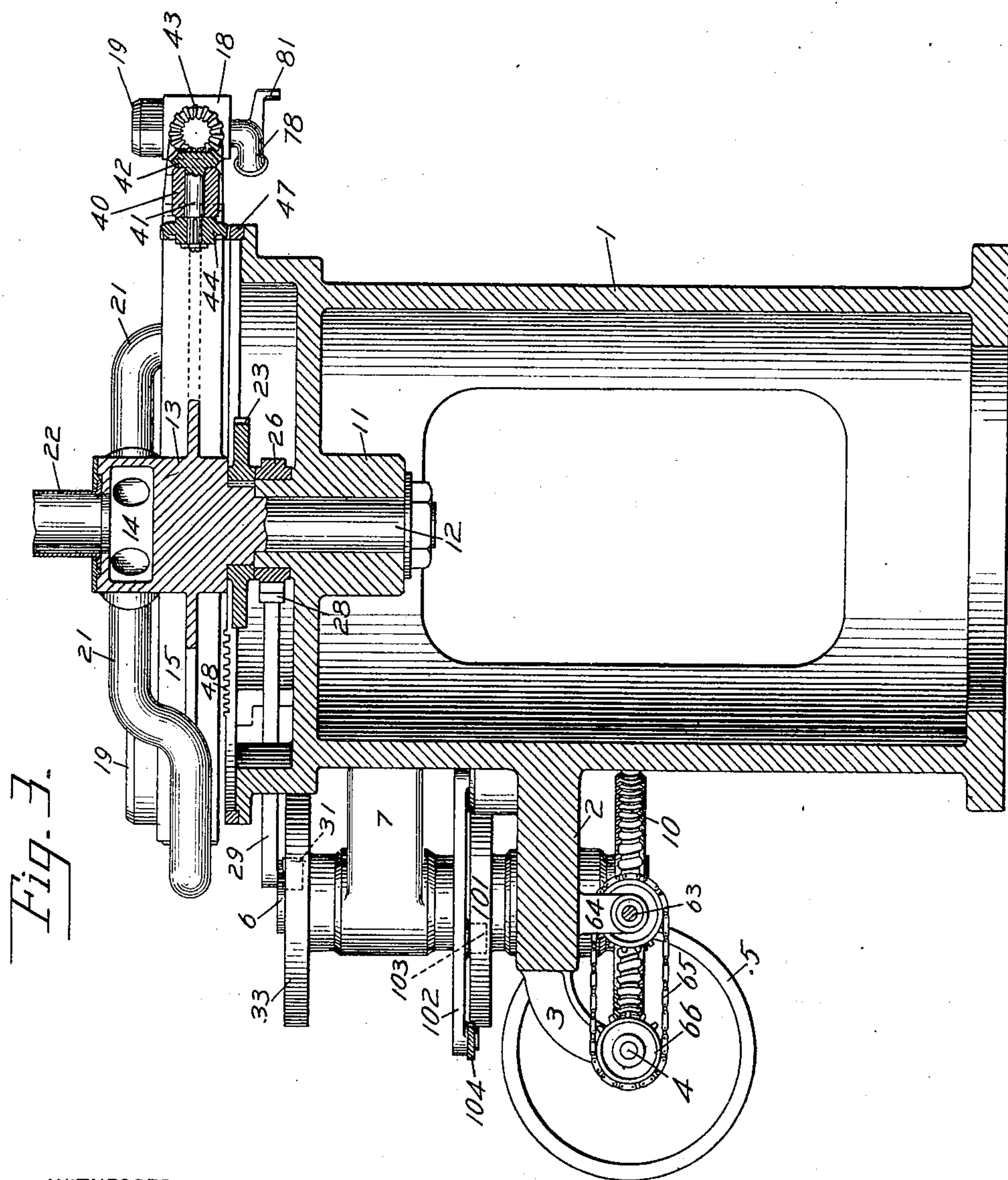
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5 Sheets—Sheet 3.



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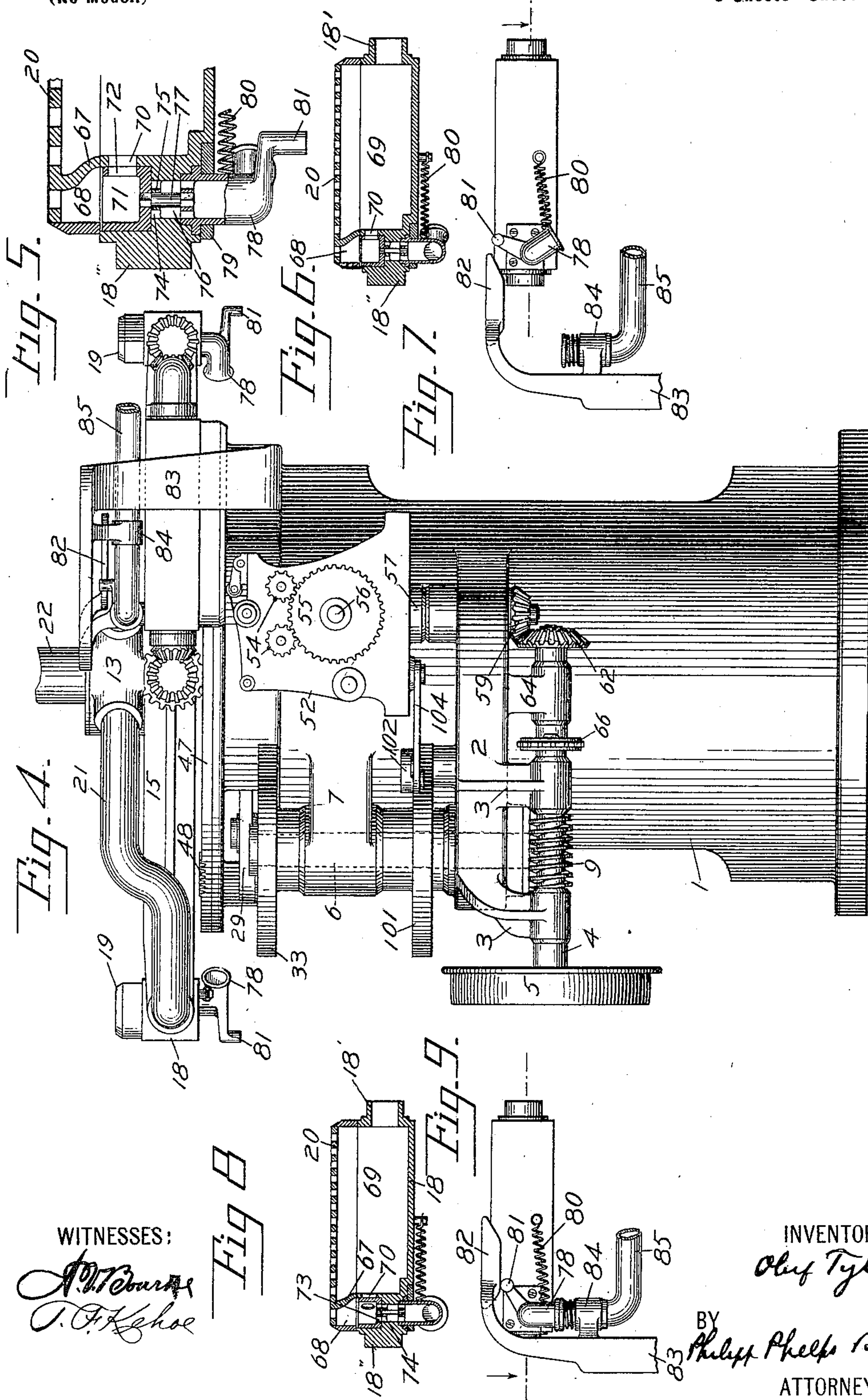
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5 Sheets—Sheet 4.

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CIGAR MACHINE.

(Application filed Feb. 5, 1900.)

(No Model.)

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Fig. 10.

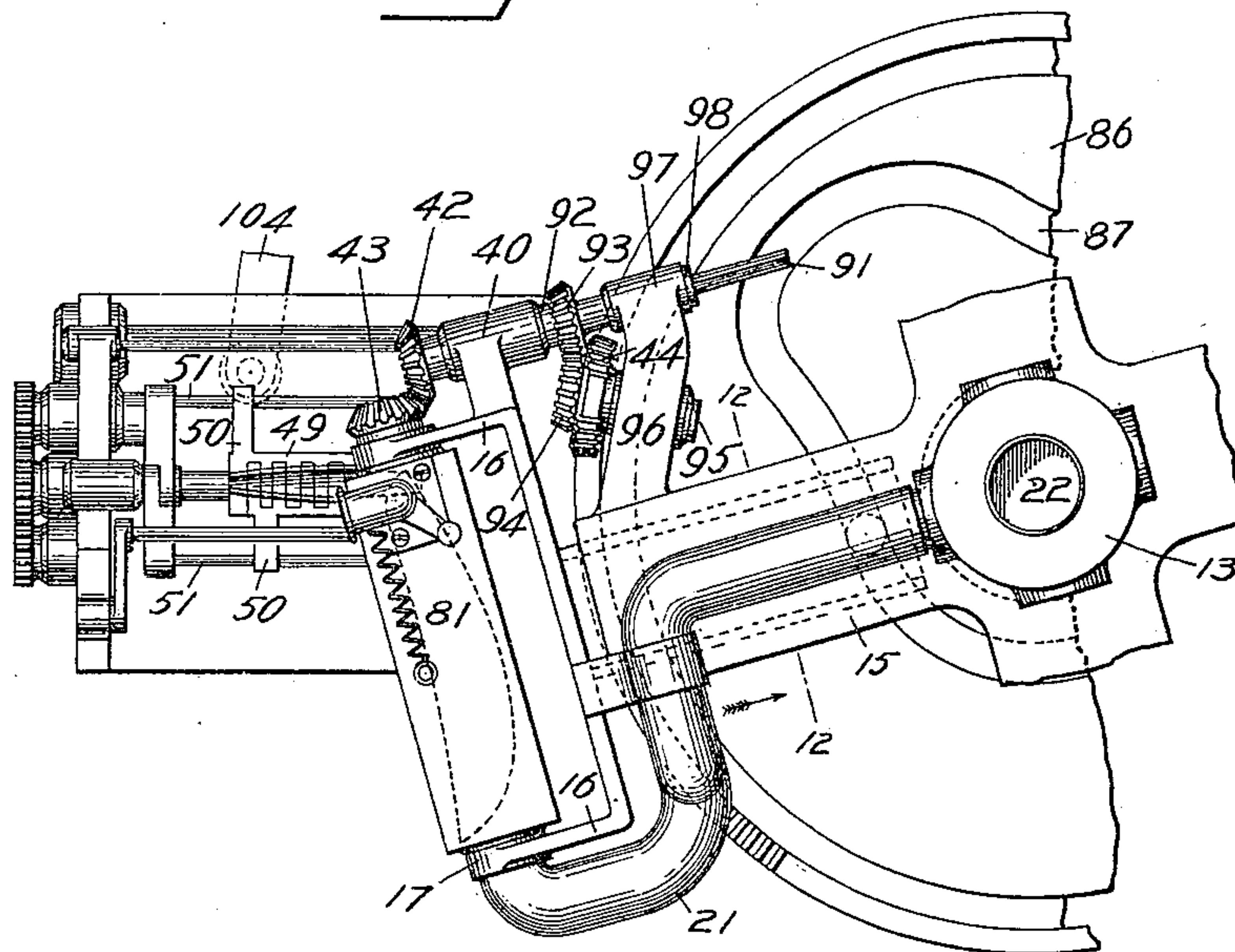


Fig. 11.

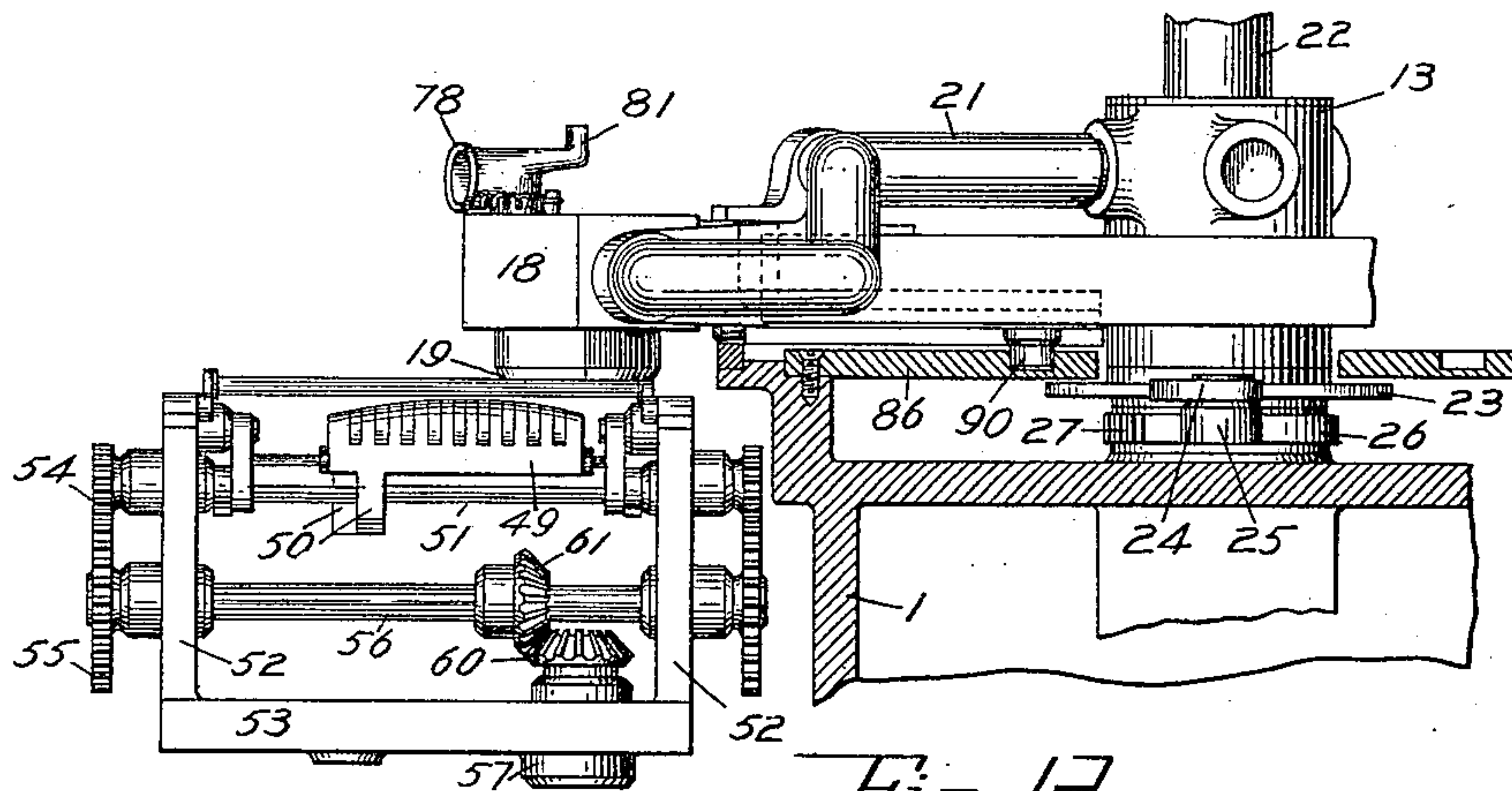
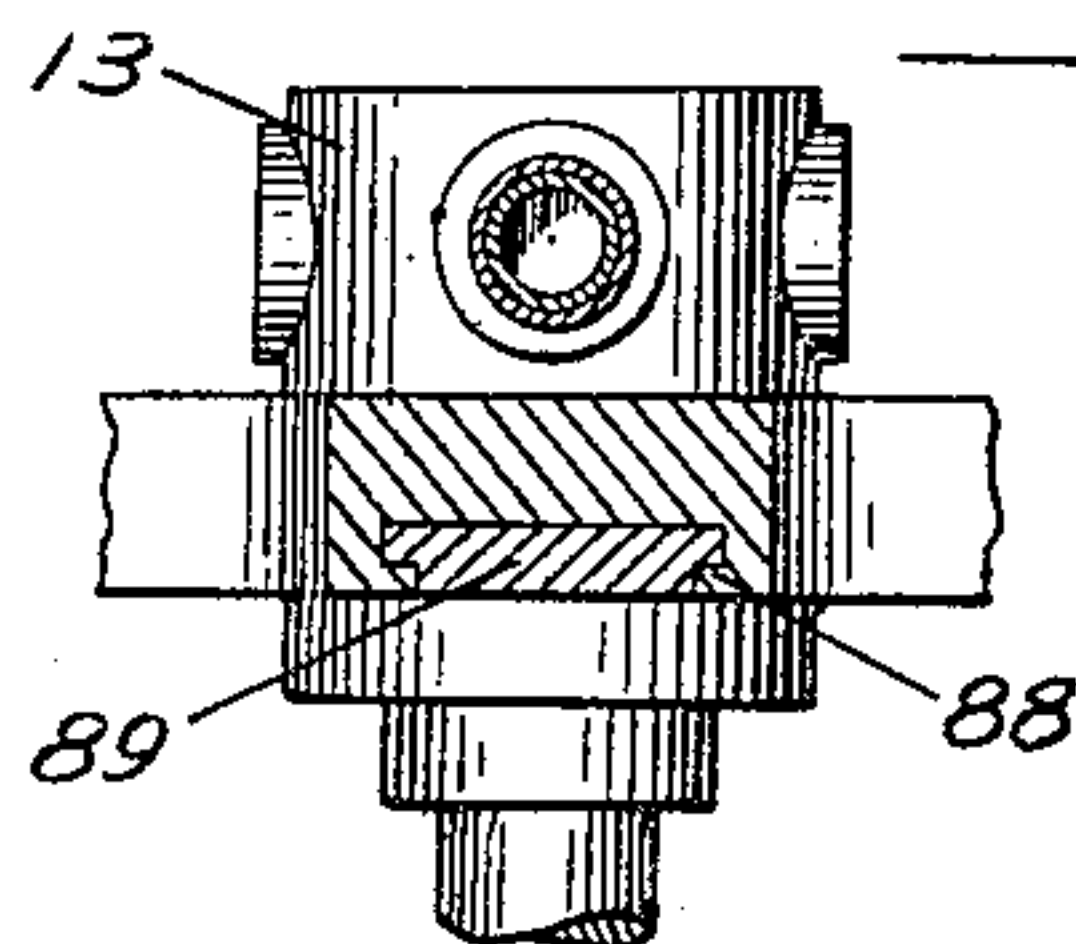


Fig. 12.

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UNITED STATES PATENT OFFICE.

OLUF TYBERG, OF NEW YORK, N. Y., ASSIGNOR TO RUFUS L. PATTERSON
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CIGAR-MACHINE.

SPECIFICATION forming part of Letters Patent No. 654,199, dated July 24, 1900.

Application filed February 5, 1900. Serial No. 4,077. (No model.)

To all whom it may concern:

Be it known that I, OLUF TYBERG, a citizen of the United States, residing at New York, county of New York, and State of New York, have invented certain new and useful Improvements in Cigar-Machines, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

10 This invention relates to certain improvements in cigar-machines.

In cigar-machines in which the wrappers are automatically fed to the wrapping mechanism the feeding devices and wrapping mechanism should be so arranged and moved with relation to each other that the wrapper will be smoothly and evenly wound upon the cigar-bunch, and in machines employing a plurality of supports for the wrappers and in which the wrapper-supports move over the wrapping mechanism it is desirable that the wrapper-supports shall be arranged to travel a part of the time with their operative faces in one plane or uppermost in order that wrappers may be conveniently placed thereon and then reversed in position in order that they may deliver the wrappers to the wrapping mechanism. Such a construction of the wrapper-supports not only facilitates the placing of wrappers on the supports, but also thin sheets of material, from which wrappers may be cut while the material is on the supports.

It is one of the objects of this invention to produce an improved cigar-machine in which wrappers shall be automatically fed to the wrapping mechanism by a plurality of supports which are arranged at times to have their operative faces in one position, so as to render them easy of access, and at times in another position to enable them to deliver the wrappers to the wrapping mechanism, the delivery of the wrappers being effected by a combination of relative movements between the wrapper-supports and the wrapping mechanism which results in a smooth and even winding of the wrapper upon the cigar-bunch.

A further object of the invention is to produce a cigar-machine of the class described in which a cutting mechanism coöperates with the wrapper-supports, so as to cut wrappers from sheets of thin material held thereon, the

wrappers being thereafter delivered to the wrapping mechanism by a combination of relative movements which results in the smooth and even winding of the wrapper upon the cigar-bunch.

A further object of the invention is to produce an improved cigar-machine in which a wrapper shall be automatically fed to the wrapping mechanism by a support which is given an approaching and a traversing movement with respect to the wrapping mechanism, the wrapping mechanism being given an angular movement.

A further object of the invention is to produce improved devices by which the reversal of the position of the wrapper-supports is effected.

A further object of the invention is to produce improved mechanical devices by which the various operations to be performed by the machine may be effected.

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

Referring to 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 plan view of the machine. Fig. 2 is a front view. Fig. 3 is a vertical central section on the line 3 3 of Fig. 1. Fig. 4 is a side view of the machine looking at it from the gear side. Figs. 5, 6, 7, 8, and 9 are detail views illustrating the construction of the wrapper-support and the devices for operating the blast mechanism which assists in delivering the wrapper. Fig. 10 is a plan view, and Fig. 11 is a side view, partially in section, of a modified construction. Fig. 12 is a section on the line 12 12 of Fig. 10.

Referring to the drawings, 1 indicates the main frame of the machine, which may consist, as shown, of a hollow cylindrical standard. The standard is provided on one of its sides with a web or projection 2, from which depend hangers 3, these hangers being formed to provide bearings for the main shaft 4. Said shaft is provided with any suitable driv-

ing means—as, for instance, a belt-pulley 5—
and also with any suitable means for driving
the main cam-shaft 6, which in the present
instance is shown as a vertical shaft sup-
ported in an arm 7, which extends from the
side of the main frame, the arm 7 being pro-
vided with a suitable bearing for said shaft.
The cam-shaft 6 may be driven in any suit-
able way from the main shaft. In the present
machine the main shaft has secured thereto
a worm 9, said worm meshing with a worm-
gear 10 on the cam-shaft 6.

In the form of the invention shown the
plurality of wrapper-supports, to be herein-
after described, are mounted to revolve about
a common center. While the means by which
the wrapper-supports are carried may be
widely varied, in the present machine the
frame 1 is provided with a bearing 11, in
which is supported a short vertical shaft 12,
said shaft being provided with shoulders
which rest on the top of the bearing. The
upper portion of the shaft is enlarged to form
a hub 13, the upper portion of the said hub
being hollowed out to form a chamber 14, the
purpose of which will be hereinafter stated.
Extending from the hub 13 are arms 15, the
ends of which terminate in extensions 16,
said extensions being arranged to form bear-
ings 17.

The wrapper-supports may be varied widely
in form and construction. In the machine
shown these wrapper-supports consist of hol-
low castings 18, said castings having at one
end a hollow gudgeon or journal 18' and at the
other end a solid journal 18'', these journals
being mounted in the bearings 17. When, as
is preferably the case, the wrapper is cut from
a sheet of material held on the support, each
of the supports will be provided with a knife
19, corresponding in form with the wrapper
to be cut. When, as is also preferably the
case, the wrapper-supports retain thereon by
suction the material to be cut, the space
within the knife of each support will be oc-
cupied by a perforated plate 20.

Any suitable means may be used to estab-
lish suction in the supports. Preferably,
however, bent pipes 21 will be arranged to
connect with each of the hollow journals 18'
of each casting 18, the other ends of the pipes
being connected in any suitable manner with
the chamber 14. A suction-pipe 22 is ar-
ranged to connect with the chamber 14, said
pipe leading to a fan or any other suitable
suction mechanism. (Not shown.) It is to
be understood, however, that while the use of
suction devices for holding the wrappers on
the supports is preferred, other forms of re-
taining devices may be employed.

The carrying-arms for the supports and the
supports themselves may be caused to rotate
in order to present the wrappers to the wrap-
ping mechanism, to be hereinafter described,
by any suitable mechanism. Preferably,
however, the hub 13 will have secured thereto
a ratchet-wheel 23, said wheel being operated

by a pawl 24, which is carried on an arm 25,
extending from a collar 26, embracing the up-
per reduced portion of the bearing 11. The
collar 26 may be given a rotary reciprocating
movement, so as to cause the pawl to take into
the notches in the wheel 23 and turn it and
the shaft in any suitable manner. In the
machine shown the collar is provided with
teeth 27, said teeth being engaged by a seg-
ment-rack 28, which is formed on a pivoted
lever 29, pivoted on a stud 30, suitably se-
cured to the frame of the machine. The other
end of the lever 29 carries a cam-roll 31,
which engages with a cam-groove 32 in a cam
33, mounted on the vertical cam-shaft 6, be-
fore referred to.

Any suitable means may be used to coop-
erate in the cutting operation with the knives
19 on the wrapper-supports. In the machine
shown an arm 34 is shown as extending from
the side of the cylindrical standard 1, said
arm serving to support a bent arm or bracket
35. To this arm or bracket 35 is pivoted at
36 a hand-lever 37, said lever being provided
with a handle 38. The lever 37 is provided
with rollers 39. When a wrapper-support
comes into position to have the wrapper cut,
the lever 37 is swung over by the operator,
causing the rollers to run over the knife 19 of
the support then in position and to cut a
wrapper from a leaf of tobacco or other ma-
terial held on the support.

In the form of machine shown the wrapper-
supports are arranged to move over the wrap-
ping mechanism, and in order that the leaf
of tobacco or sheet of other material may be
conveniently and readily placed on the sup-
ports the supports are arranged to travel dur-
ing a part of their period of rotation with
their faces uppermost and have their position
reversed in order to deliver the wrappers to
the wrapping mechanism. Various devices
may be arranged to reverse the position of
the supports and to hold them locked in
either one position or the other. In the ma-
chine shown one of the extensions 16 of each
of the arms 15 is provided with a bearing 40,
and in these bearings 40 are journaled short
shafts 41. These short shafts 41 are provided
on one of their ends with bevel-gears 42, said
gears meshing with bevel-gears 43, which are
secured to the journals 18'' of each of the sup-
ports. The other ends of the shafts 41 are
provided with mutilated gears 44, the un-
toothed portions of these gears being marked
45. A ring 47, having toothed portions 48, is
arranged on the upper end of the frame 1.
As the arms 15 are rotated by the mechanism
hereinbefore referred to the untoothed por-
tions 45 of the mutilated gears 44 run on the
untoothed part of the ring 47 and prevent the
gears 44 from turning. When, however, the
toothed portions of the gears 44 strike the
toothed portions 48 of the ring 47, the gears
will be revolved and the position of the wrap-
per-supports will be reversed. The toothed
portions 48 are long enough to give the gears

44 a half-revolution, so that the wrapper-supports are given a half-turn, thus moving them from one horizontal plane into another.

The wrapping mechanism used in this machine may be of any suitable description. 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 purposes of this application it is sufficient to say that the wrapping mechanism consists of two pairs of opening and closing jaws 49, said jaws being provided with projections 50, in which work operating-rods 51. These operating-rods are driven from short shafts located in the end frame-pieces 52 of the wrapping mechanism, these end frame-pieces being connected in the machine shown to a base-plate 53. The short shafts referred to are provided with gears 54 at each end of the machine. These gears 54 mesh with larger gears 55, one of which is located at each end of the machine. The gears 55 are mounted on a shaft 56, which is also journaled in the end frame-pieces 52.

In this machine the wrapping mechanism is to be given an angular movement during the wrapping operation with respect to the wrapper supports or carriers. The wrapping mechanism must as a whole, therefore, be so mounted as to permit this angular movement, and at the same time the shaft 56 must be so connected to its driving means as to permit the movement to take place without disconnecting it therefrom. The wrapping mechanism may be mounted in various ways, so as to permit the angular movement referred to to be given to it. Preferably, however, it will be pivotally mounted, and to this end the base-plate 53 is provided with a downwardly-projecting hollow boss 57, which is journaled in a bearing 58, formed on the web or projection 2, before referred to. Extending through the boss 57, the bearing 58, and the web 2 is a shaft which has on its lower end a bevel-gear 59 and on its upper end a bevel-gear 60. The bevel-gear 60 meshes with another bevel-gear 61, mounted on the shaft 56. The bevel-gear 59 meshes with a bevel-gear 62, mounted on a short counter-shaft 63, which is journaled in a bearing 64, extending downwardly from the web 2. The other end of the shaft 63 is provided with a sprocket-wheel (not shown) which is located back of the gear 62, said sprocket-wheel being engaged by a sprocket-chain 65, which passes over a sprocket-wheel 66, mounted on the main shaft 4. The cam-shaft 6 carries a cam 101, which acts upon a lever 102, said lever having a roll 103, which engages with a groove in the cam. The other end of the lever is connected by a link 104 to the base-plate 53 of the wrapping mechanism. It is obvious that as the cam rotates a swinging movement will be given to the wrapping mechanism about the shaft carrying the gears 59 and 60 as a center.

anism about the shaft carrying the gears 59 and 60 as a center.

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

Each of the castings 18, which form the wrapper-supports, is preferably divided by a web 67, (see Figs. 5 to 9, inclusive,) which separates the support into two chambers 68 and 69. The perforated plate 20, before referred to, covers both these chambers, and the chambers are normally connected by means of an opening 70 in the web. Each casting 18 is formed with a valve-chamber, in which is located a rotating valve 71, said valve having a port 72 in its side which normally registers with the opening 70. The valve 71 has other openings 73 in its top, (see Fig. 8,) which openings are arranged to register with openings 74 in a web 75, said web being located in a passage 76 in the casting. A valve-stem 77 is connected with the valve 71, and at its other end is connected to a rotating funnel 78, which is secured to the casting in any suitable manner, as by a collar 79. The valve is held, therefore, so that its port 71 is normally in communication with the opening 70 by means of a suitably-arranged spring 80. Normally, therefore, the chambers 68 69 are connected and the suction mechanism is operating in both chambers. When, however, a suction-support comes into position over the wrapping mechanism, an arm 81, which is connected to or formed in one piece with the funnel 78, strikes a cam-surface 82, formed on or secured to a bracket 83, extending from the side of the frame 1. The bracket 83 also supports, by means of a suitable hanger 84, a blast-pipe 85, which is connected to any suitable blast device—such, for instance, as a fan. When the arm 81 strikes the cam 82, the valve 71 is turned so that its port 72 moves out of register with the opening 70 and at the same time the openings 73 come into register with the openings 74 in the web 75. At about the time when the valve is thus turned the funnel comes into register with the blast-pipe 85. The blast now acts in the chamber 68 and, operating through the perforations in the plate 20, blows the end of the wrapper down into the jaws of the wrapping mechanism.

The construction just described, which positively inserts the end of the wrapper into the wrapping mechanism, is a convenient and effective one. It is to be understood, however, that any other suitable form of mechanism may be used for this purpose.

In the construction so far described it will be seen that as the arms 15 are rotated by means of the pawl and its operating mechanism the supports are caused to execute a movement with respect to the wrapping mechanism which may be termed an "approaching" movement. By this term it is not of course meant that all parts of each

support are at all times during the delivery of the wrapper approaching the wrapping mechanism, since that part of the support which has delivered its portion of the wrapper to the wrapping mechanism moves away from it after the delivery. That part of the support, however, which is still to deliver its portion of the wrapper to the wrapping mechanism moves toward it, and the support as a whole makes what may be termed an "approaching" movement.

In wrapping cigars of what is known as the "perfecto" shape—that is, a cigar which has its largest diameter near the middle of its length and tapers toward both ends—it is desirable to wind the wrapper on the cigar-bunch by a movement which may be considered the resultant of the approaching movement hereinbefore described, a traversing movement—that is to say, a movement by which the wrapper is caused to advance along the bunch—and an angular movement—that is, a movement by which the angle at which the wrapper is presented to the bunch is changed as different parts of the cigar-bunch varying in diameter are wrapped. It is possible, furthermore, to effect these movements by moving either the wrapper-support or the wrapping mechanism, or both. It is furthermore possible by properly arranging the wrapper-support and the wrapping mechanism in relation to each other to do away with one or more of these movements. In the construction shown in Figs. 1 to 4, for instance, in which the approaching movement is effected by a movement of the wrapper-support, the wrapper-supports are so arranged with respect to their carrier-arms that that end of each of the supports which carries the end of the wrapper which is to be applied to the tuck end of the cigar-bunch is at the beginning of the wrapping operation in alinement with that end of the wrapping mechanism which operates upon the tuck end of the bunch. As the wrapping operation proceeds and as the relative approaching movement takes place between the support and the wrapping mechanism successive parts of the support come into alinement with successive parts of the wrapping mechanism, and at the end of the wrapping operation the end of the support which carries the tip end of the wrapper is in alinement with the end of the wrapping mechanism which operates upon the tip end of the bunch. In the machine shown, therefore, the two ends of the wrapper-support travel in concentric arcs, that end of the support which carries the end of the wrapper which is applied to the tuck end of the cigar-bunch traveling in an arc which is nearer the center of rotation than the other arc. This arrangement of the path of travel of the wrapper-support with relation to the wrapping mechanism obviates the necessity of a distinct traversing movement of either the support or the wrapping mechanism and the wrapper is wound upon the cigar-bunch by

a movement which, strictly speaking, is the resultant of an angular movement which is given to the wrapping mechanism, and an approaching movement which is given to the support.

In the modification illustrated in Figs. 10, 11, and 12 the wrapper-support during the wrapping operation is given both an approaching movement and a traversing movement, the wrapping mechanism being given the angular movement. While various forms of construction may be arranged by which these movements of the supports are effected, in the construction shown the upper end of the frame 1 is provided with a disk 86, said disk being provided with a cam-groove 87. Each of the arms 15 is provided on its underside with ways 88 (see Fig. 12), and the extensions 16 and bearings 17 of each arm instead of being formed directly on the arm are formed on a slide 89, which moves in the ways 88, before referred to. The slide 89 is provided with a cam-roll 90, which engages the groove 87, before referred to, this groove being so shaped as to give the wrapper-support its traversing movement during the wrapping operation. In order that the gears 42 and 43 may not be thrown out of mesh during the traversing movement of the wrapper-support, the gear 42 instead of being mounted on the shaft 41 is mounted on a long shaft 91, which extends through a sleeve 92, which sleeve rotates in the bearing 40. The shaft 91 is a square shaft and passes through a squared opening in the sleeve. The sleeve 92, furthermore, carries a gear 93, which meshes with a bevel-gear 94, mounted on a short shaft 95. This shaft 95 is journaled in a bearing 96, extending from the arm 15, the said shaft 95 also carrying the mutilated gear 44. The arm 96 is further provided with a bearing 97, in which turns a sleeve 98, through which the shaft 91 runs and by which it is supported.

The operation of the machine as a whole is as follows: Referring to the construction shown in Figs. 1 to 4, inclusive, the operator, who sits in front of the machine, places a leaf of tobacco on the wrapper-support, which comes in position in front of her, and seizing the handle 38 throws the lever 37, thus causing the rollers 39 to run over the knife 19 and cut a wrapper from the leaf of tobacco. In this machine it will be noted that the suction is always acting so that the leaf of tobacco is held to the support as soon as it is placed thereon. The cam 33 now causes a movement of the lever 29 and through the connections rotates the shaft 12, thus advancing the arms. As the arm carrying the wrapper-support on which the leaf of tobacco has just been placed and from which a wrapper has just been cut advances the toothed portion of the gear 44 strikes the teeth 48 on the ring 47 and through the movement of the gear reverses the position of the support. As soon as the support is reversed the untoothed portion 45 of the gear 44 comes opposite the untoothed part of

the ring 47, and the gear 44 is locked from further movement. The stroke of the pawl 24 ceases at the time when the wrapper-support comes in position over the wrapping mechanism, at which time another support is in front of the operator. While the pawl is being retracted for a fresh stroke the operator places a leaf of tobacco on another support, and a wrapper is cut therefrom, and at the same time the blast mechanism, which has been before described, operates to insert the forward end of the wrapper into the wrapping-jaws. When these operations have been accomplished, the pawl again begins a forward stroke, thus causing the support which is over the wrapping mechanism to feed its wrapper to the wrapping mechanism and another support to be brought into position to accomplish this same result.

In the construction shown in Figs. 1 to 4, as has been before stated, the wrapper-support stands at such an angle to its path of movement as to render a separate traversing movement unnecessary. The wrapper is therefore fed to the wrapping mechanism and wrapped about the cigar-bunch by the approaching movement of the supports and the movement of the wrapping-jaws, these jaws being given during the wrapping operation an angular movement by means of the cam 101, the lever 102, and the link 104.

The operation of the construction shown in Figs. 10, 11, and 12 is substantially the same as that hereinbefore set forth except that during the wrapping operation the wrapper-support is not only given an approaching movement by the rotation of the carrying-arms 15, but is also given a traversing movement by means of the cam 86 and the slide 89. In the first construction, therefore, the wrapper is wrapped upon the cigar-bunch by a movement which may be said to be resultant of an approaching movement and an angular movement, while in the second modification the wrapping is effected by the resultant of an approaching, a traversing, and an angular movement.

It will be understood that the several mechanisms by which the various operations are performed may be widely varied. The invention is not, therefore, to be limited to the specific mechanisms which have been herein shown and described.

What is claimed is—

1. The combination with a wrapping mechanism and a wrapper-support of means whereby the wrapper is held thereon, means for giving the support an approaching and a traversing movement with respect to the wrapping mechanism, and means for giving the wrapping mechanism an angular movement, said movements occurring during the wrapping operation, substantially as described.

2. The combination with a wrapping mechanism and a suction wrapper-support of means for giving the support an approaching and a traversing movement, and means for giving

the wrapping mechanism an angular movement, said movements occurring during the wrapping operation, substantially as described.

3. The combination with a wrapping mechanism, of a plurality of wrapper-supports, means whereby a wrapper is held on each support, means whereby each of the supports is given an approaching and a traversing movement during the wrapping operation, and means for giving the wrapping mechanism an angular movement, substantially as described.

4. The combination with a wrapping mechanism, of a plurality of suction wrapper-supports, means whereby each of the supports is given an approaching and a traversing movement during the wrapping operation, and means for giving the wrapping mechanism an angular movement, substantially as described.

5. 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 whereby each of the supports is given an approaching and a traversing movement during the wrapping operation, and means for giving the wrapping mechanism an angular movement, substantially as described.

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

7. The combination with a plurality of arms, of means whereby each arm is caused to carry a suction wrapper-support, a plurality of pipes independent of the arms, one connected with each support, and means for reversing the position of the supports, substantially as described.

8. The combination with an arm, of means for moving it, a wrapper-support revolvably mounted with respect thereto, the axis of rotation of the support lying in the general direction of the path of movement of the arm, substantially as described.

9. The combination with an arm, of means for moving it, a suction wrapper-support revolvably mounted with respect thereto, the axis of rotation of the support lying in the general direction of the path of movement of the arm, substantially as described.

10. The combination with an arm mounted to move about a center, of a wrapper-support revolvably mounted with respect thereto, the axis of rotation of the support lying in the general direction of the path of movement of the arm, substantially as described.

11. The combination with an arm mounted to move about a center, of a suction wrapper-support revolubly mounted with respect thereto, the axis of rotation of the support
5 lying in the general direction of the path of movement of the arm, substantially as described.

12. The combination with a wrapping mechanism, of an arm mounted to move in a plane
10 which does not intersect the wrapping mechanism, and a suction wrapper-support revolubly mounted with respect to the arm, the axis of rotation of the support lying in the general direction of the path of movement of
15 the arm, substantially as described.

13. The combination with a wrapping mechanism, of an arm mounted to move about a center in a plane which does not intersect the wrapping mechanism, and a suction wrapper-support revolubly mounted with respect to
20 the arm, the axis of rotation of the support lying in the general direction of the path of movement of the arm, substantially as described.

14. The combination with a wrapping mechanism, of a wrapper-support operating to deliver a wrapper thereto, said support at the time of delivering the wrapper lying in a plane which does not intersect the wrapping
30 mechanism, means for producing a relative approaching movement between the wrapping mechanism and the support, and means for giving the support a rotating movement about an axis which extends in the general
35 direction of the line of the approaching movement, substantially as described.

15. The combination with a wrapping mechanism, of a suction wrapper-support operating to deliver a wrapper thereto, said support
40 at the time of delivering the wrapper lying in a plane which does not intersect the wrapping mechanism, means for producing a relative approaching movement between the wrapping mechanism and the support, and
45 means for giving the support a rotating movement about an axis which extends in the general direction of the line of the approaching movement, substantially as described.

16. The combination with a wrapping mechanism, of a wrapper-support operating to deliver a wrapper thereto, said support at the time of delivering the wrapper lying in a plane which does not intersect the wrapping
50 mechanism, means for producing a relative approaching movement between the wrapping mechanism and the support, means for giving the support a rotating movement about an axis which extends in the general direction of the line of the approaching movement,
55 and means for giving the wrapping mechanism an angular movement, substantially as described.

17. The combination with a wrapping mechanism, of a suction wrapper-support operating to deliver a wrapper thereto, said support at the time of delivering the wrapper
65 lying in a plane which does not intersect the

wrapping mechanism, means for producing a relative approaching movement between the wrapping mechanism and the support,
70 means for giving the support a rotating movement about an axis which extends in the general direction of the line of the approaching movement, and means for giving the wrapping mechanism an angular movement, substantially as described. 75

18. The combination with a frame, of a shaft mounted therein, means for rotating the shaft, a plurality of arms carried by the shaft, a slide mounted in each of the arms,
80 means for moving the slides, a suction wrapper-support carried by each slide, and means for reversing the position of the supports, substantially as described.

19. The combination with a frame, of a
85 wrapping mechanism, a shaft supported in the frame, means for rotating the shaft, arms carried by the shaft, a slide mounted in each of the arms, means for moving the slides, a suction-support carried by each of the slides,
90 and means for reversing the position of the supports, substantially as described.

20. The combination with a frame, of a wrapping mechanism, a shaft mounted in the frame, means for rotating the shaft, a plurality of arms carried by the shaft, a slide
95 mounted in each of the arms, means for moving the slides, a suction wrapper-support carried by each of the slides, cutting devices co-operating with each of the supports to cut a wrapper from a sheet of material held on each
100 support, and means for reversing the position of the supports, substantially as described.

21. The combination with a frame, of a wrapping mechanism, a shaft supported in the
105 frame, means for rotating the shaft, arms carried by the shaft, a slide mounted in each of the arms, means for moving the slides, a suction-support carried by each of the slides, means for reversing the position of the supports,
110 and means for giving the wrapping mechanism an angular movement, substantially as described.

22. The combination with a frame, of a wrapping mechanism, a shaft mounted in the
115 frame, means for rotating the shaft, a plurality of arms carried by the shaft, a slide mounted in each of the arms, means for moving the slides, a suction wrapper-support carried by each of the slides, cutting devices co-operating with each of the supports to cut a wrapper from a sheet of material held on each
120 support, means for reversing the position of the supports, and means for giving the wrapping mechanism an angular movement, substantially as described. 125

23. The combination with a frame, of a shaft mounted therein, means for rotating the shaft, a plurality of arms connected to the shaft, a slide carried by each of the arms,
130 means for moving the slides, a suction wrapper-support carried by each of the slides, a mutilated gear carried by each of the arms, a toothed ring mounted in the frame, gearing

between the mutilated gear and the suction wrapper-supports, a wrapping mechanism, and means for giving the wrapping mechanism an angular movement, substantially as described.

24. The combination with a frame, of a shaft mounted therein, means for rotating the shaft, a plurality of arms connected to the shaft, a slide carried by each of the arms, means for moving the slides, a suction wrapper-support carried by each of the slides, cutting devices coöperating with each of the supports to cut a wrapper from a sheet of material held on each support, a mutilated gear

carried by each of the arms, a toothed ring mounted in the frame, gearing between the mutilated gear and each of the suction wrapper-supports, a wrapping mechanism, and means for giving the wrapping mechanism an angular movement, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

OLUF TYBERG.

Witnesses:

A. L. KENT,

A. A. V. BOURKE.