

Jan. 6, 1953

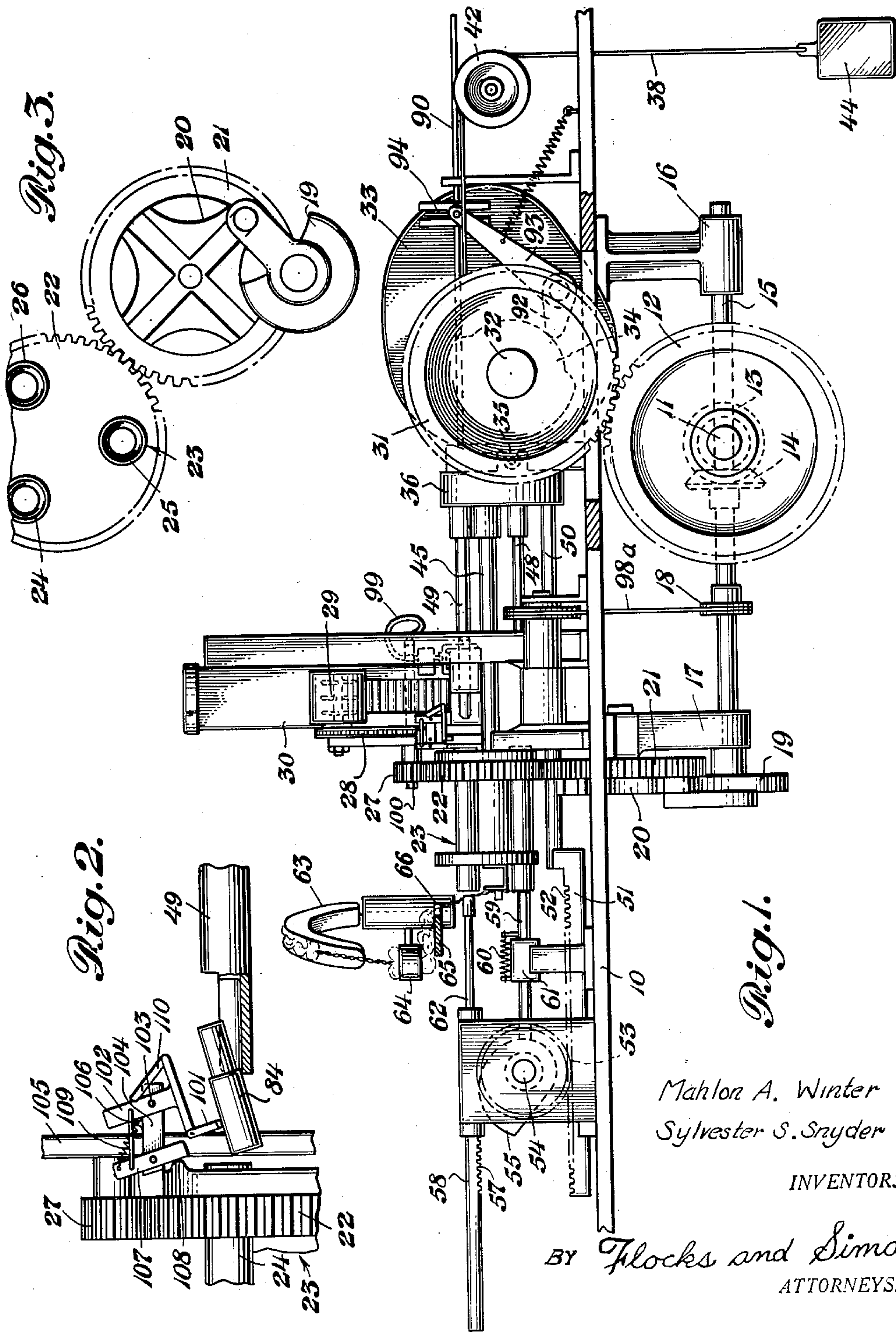
M. A. WINTER ET AL

2,624,078

MACHINE FOR COMPRESSING AND ASSEMBLING TAMPONS

Filed Aug. 8, 1947

6 Sheets-Sheet 1



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Fig. 4.

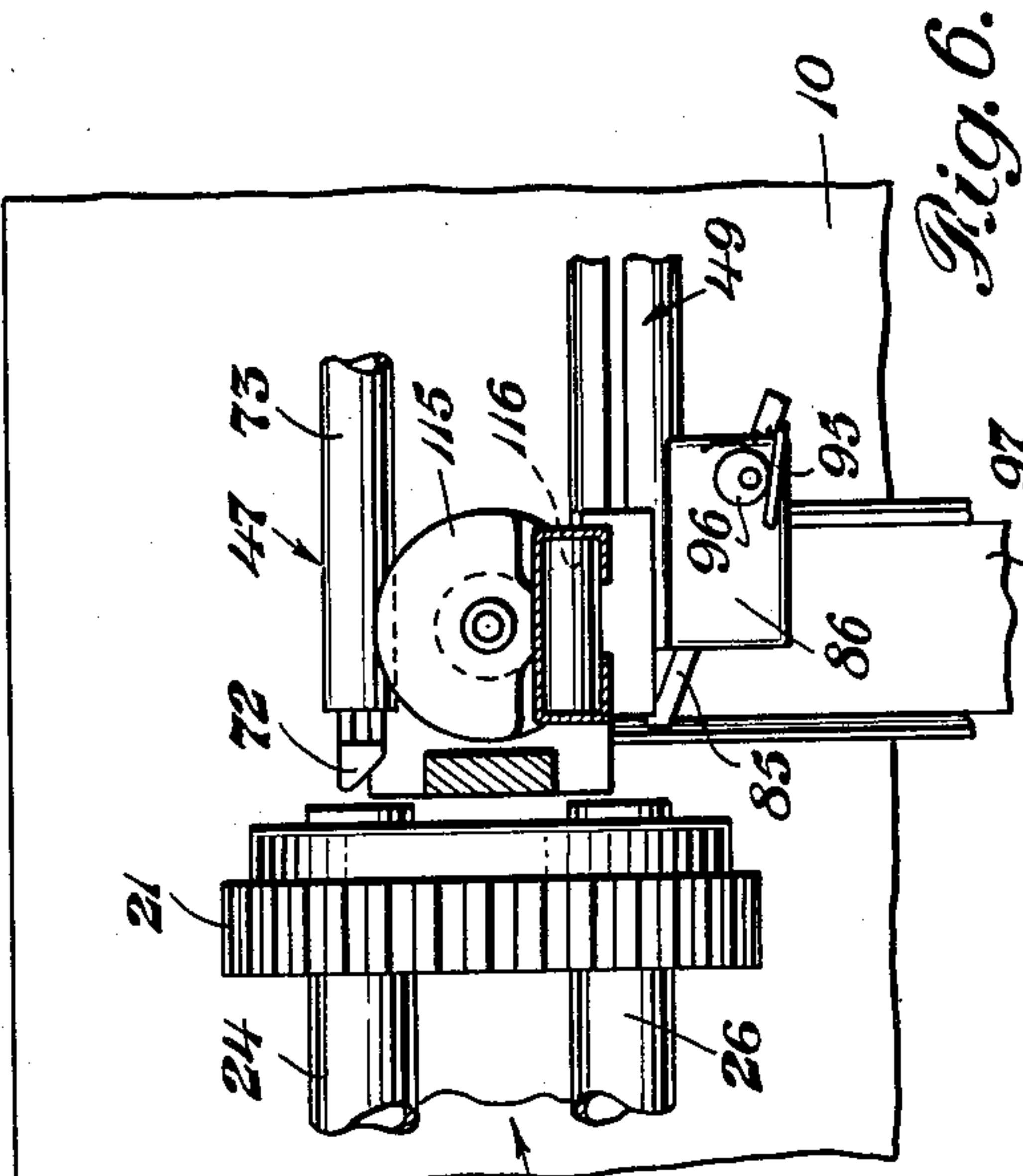
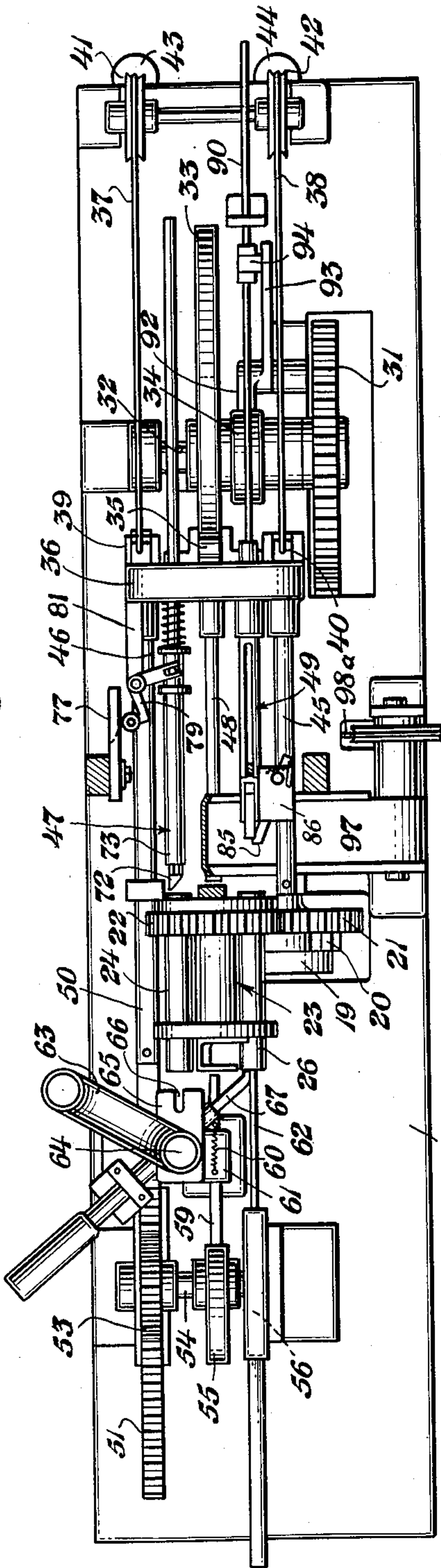


Fig. 6.

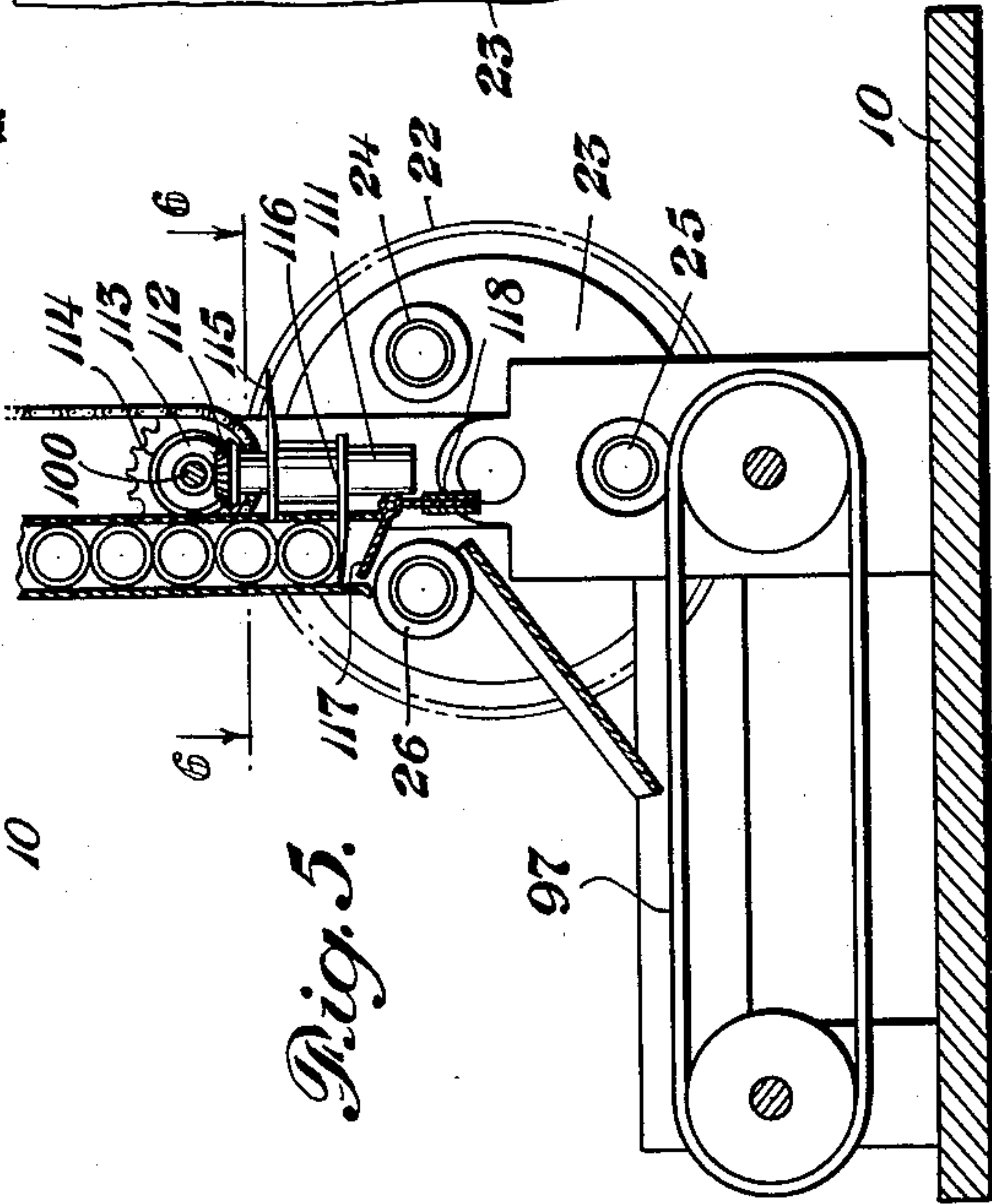


Fig. 5.

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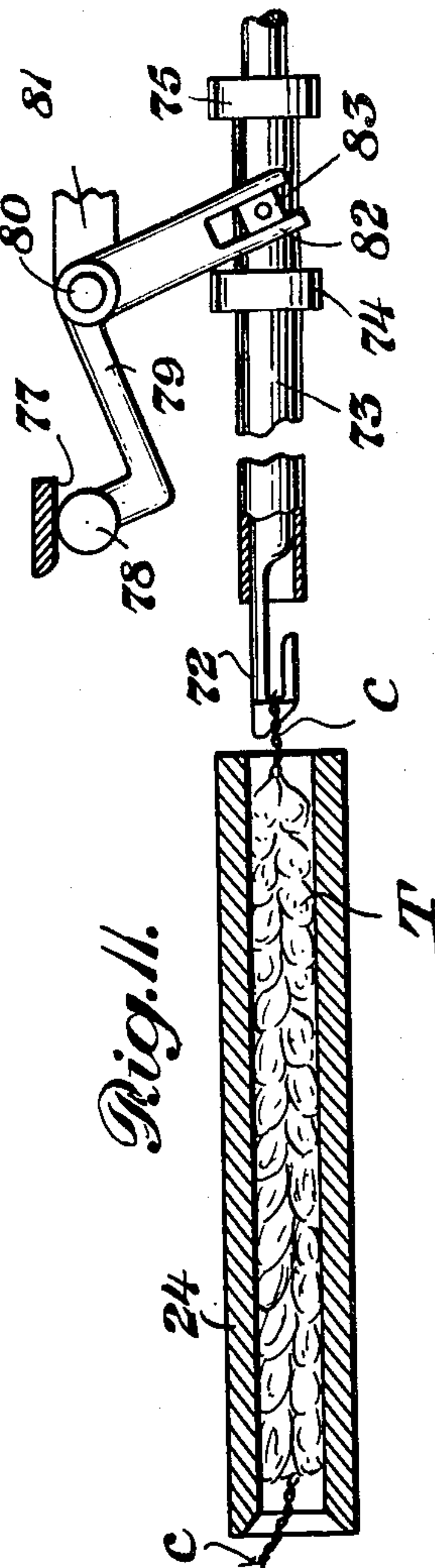
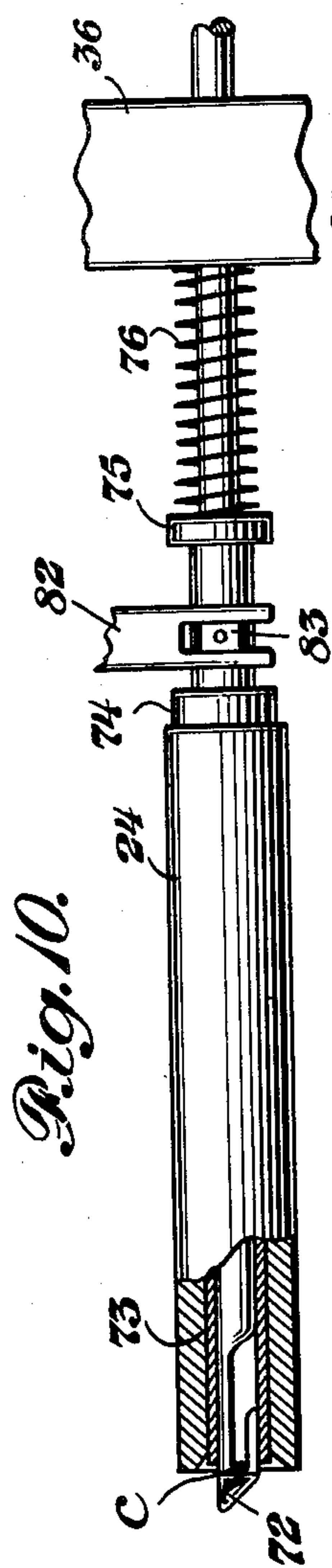
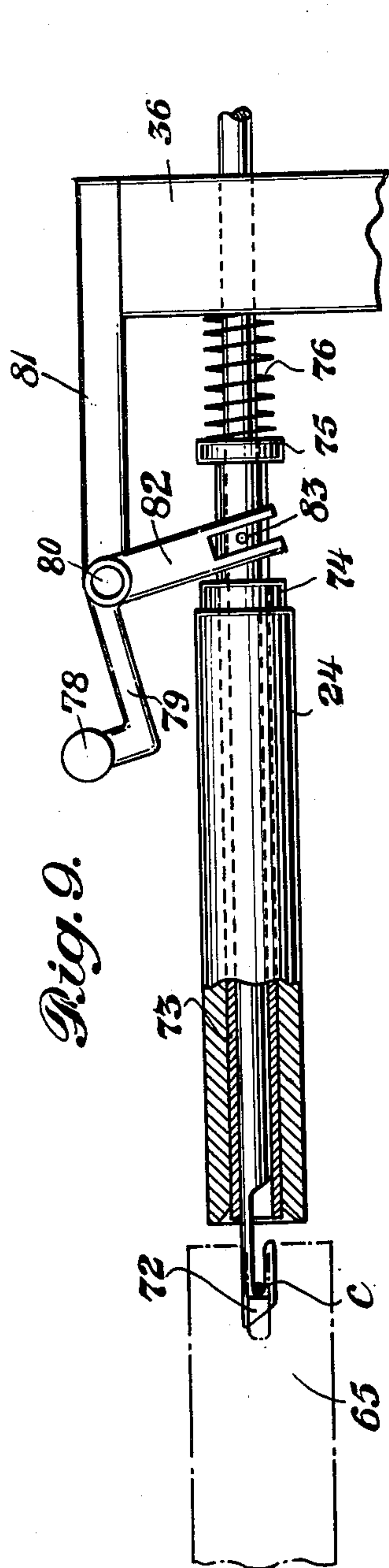
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6 Sheets-Sheet 4

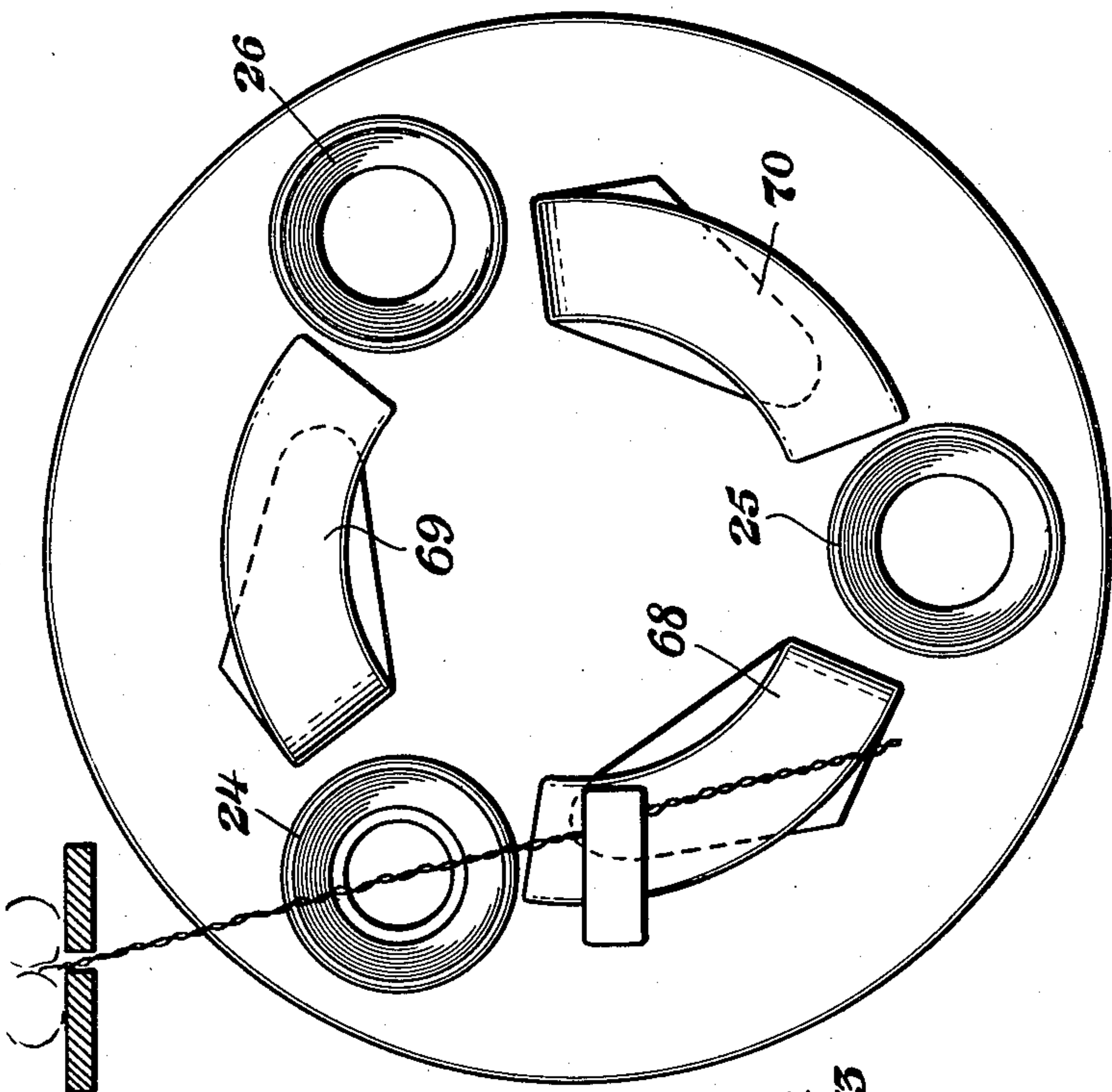


Fig. 8.

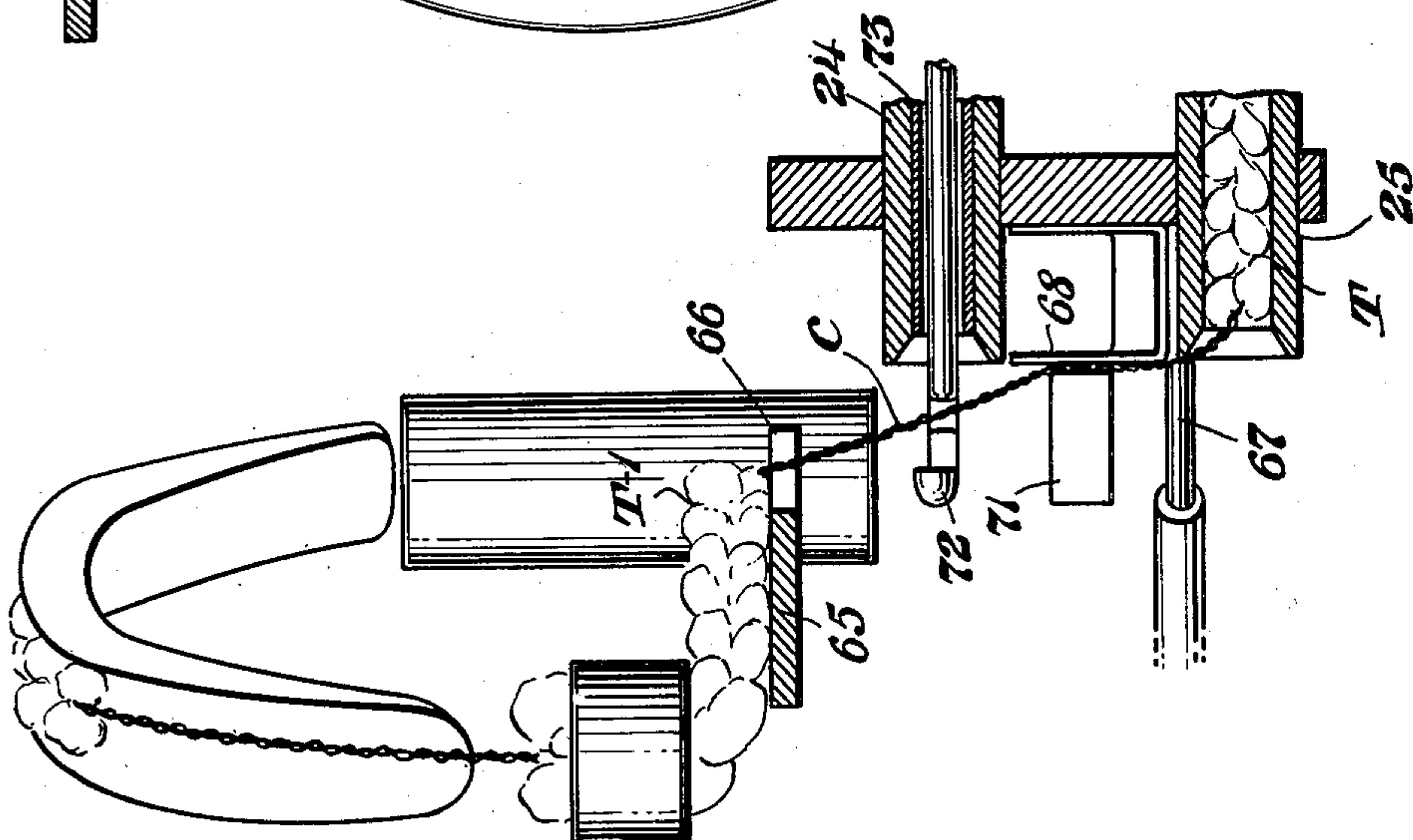


Fig. 7.

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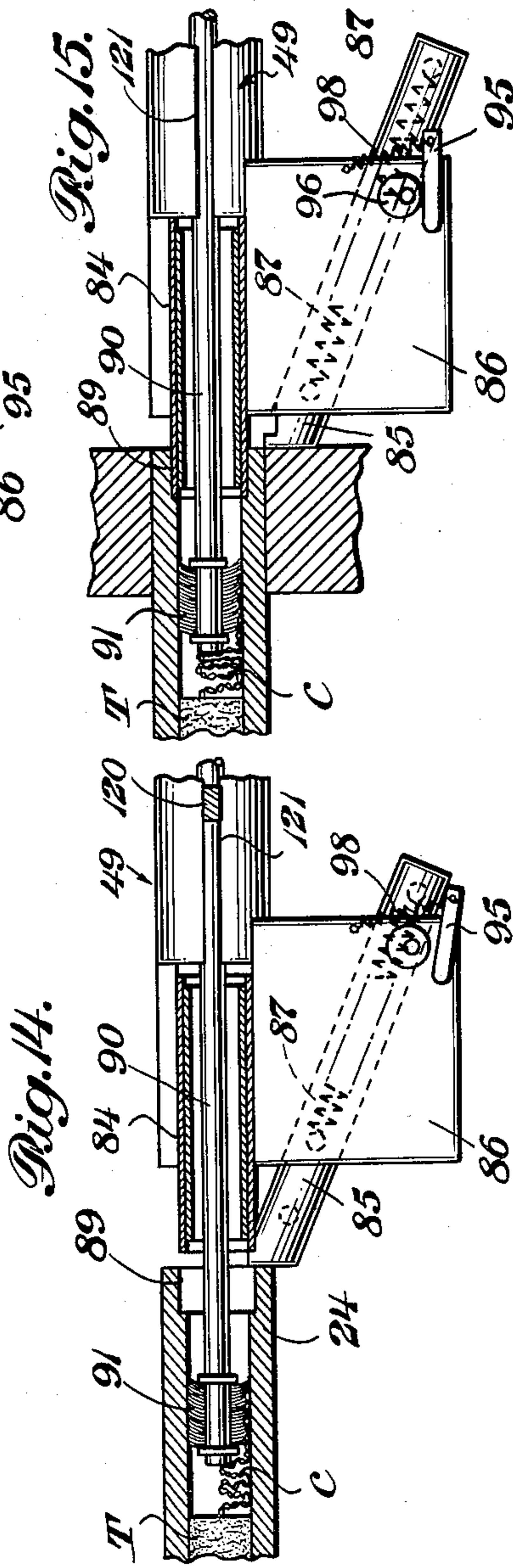
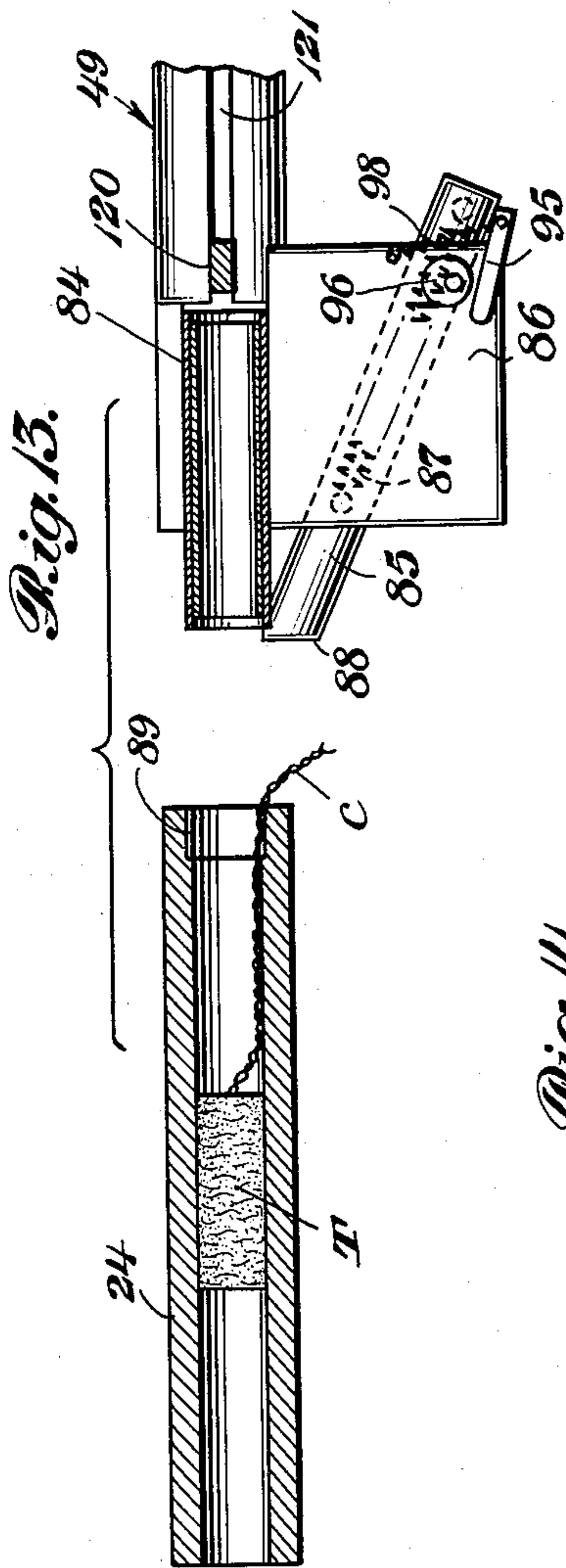
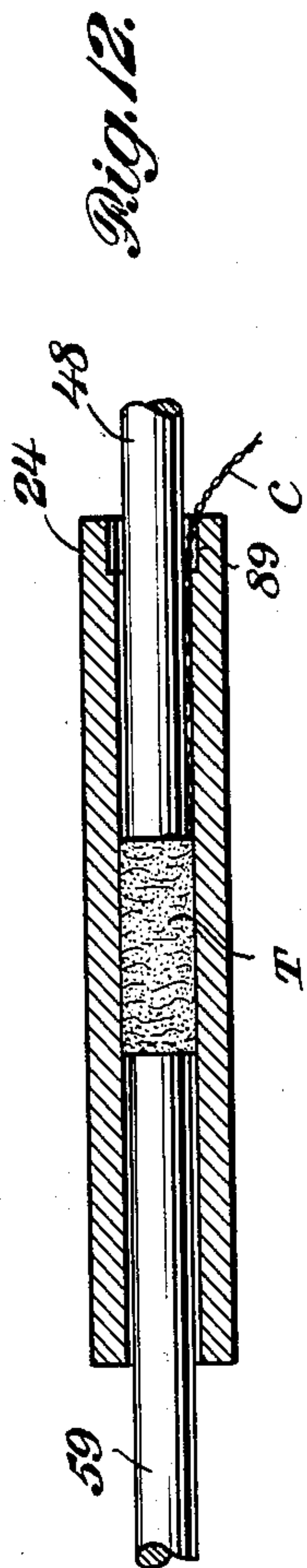
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6 Sheets-Sheet 5



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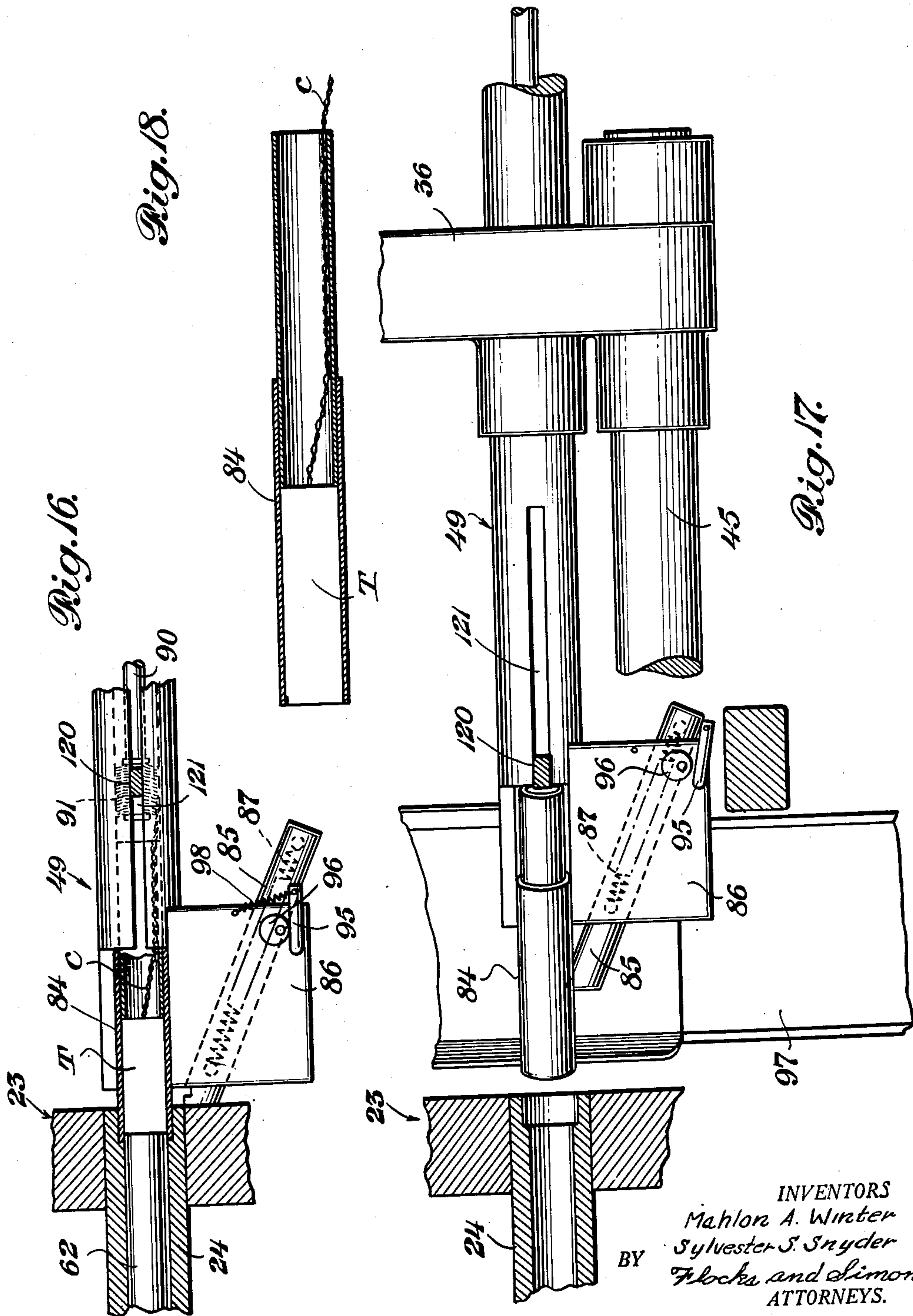
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MACHINE FOR COMPRESSING AND ASSEMBLING TAMPONS

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6 Sheets-Sheet 6



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UNITED STATES PATENT OFFICE

2,624,078

MACHINE FOR COMPRESSING AND ASSEMBLING TAMPONS

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Application August 8, 1947, Serial No. 767,410

27 Claims. (Cl. 19—144.5)

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The present invention relates to a machine for compressing tampons and assembling the same with a suitable applicator. More particularly the present invention relates to a machine which is capable of continuously severing a single tampon and withdrawal string from a connected series of such tampons, compressing the same and inserting the tampon in a suitable applicator of stiff cardboard or the like.

In U. S. Patent No. 2,401,284, granted May 28, 1946, to Courtney P. Winter and Dunbar A. Rosenthal, there is described a novel tampon comprising a braided withdrawal string and core and a plurality of depending loops of cotton or the like. As shown in the aforementioned patent, the tampons as manufactured are each connected by a suitable length of braided cord which, when severed, forms a withdrawal string for the respective tampon.

The machine of the present invention is particularly adapted for the accurate severance of each tampon and its attached string from every other tampon in a connected series of the same and for continuously compressing the thus severed tampon and thereafter for automatically assembling the compressed and severed tampon with a cardboard telescoping tube or the like adapted to function as an applicator.

It is one of the general objects of the present invention therefore to provide a novel machine for accurately severing a single tampon from a connected string of tampons, for compacting the so severed tampon and for feeding said tampon to a suitable applicator tube.

A second general object of the present invention is to provide a machine for the purpose set forth which will be capable of continuously and automatically severing a tampon from a connected series of the same, compacting said tampon and feeding an applicator tube into position to be assembled with said tampon in a continuous manner.

A third object of the present invention is to provide in a device of the character set forth a single simple turret which is capable of simultaneously receiving at one station a tampon for compacting, of compacting said tampon at a second station, and of assembling said compacted tampon with an applicator tube at a third station.

A fourth general object of the present invention is to provide in a device of the character set forth, a simplified drive mechanism which will positively insure the simultaneous and properly coordinated insertion of tampons within a cylinder of a turret, the compacting of said tampons,

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and the removal of said compacted tampons into assembly with an applicator tube or the like.

Other objects and the nature and advantages of the instant invention will be apparent from the following description taken in conjunction with the accompanying drawings, wherein:

Figure 1 is a side elevation of the machine in accordance with the present invention.

Figure 2 is a detail illustrating the loaded tampon ejector.

Figure 3 is a detail of the drive for the turret of the present invention.

Figure 4 is a horizontal section of the machine of the present invention.

Figure 5 is a vertical section of the applicator feeding mechanism.

Figure 6 is a horizontal section taken on the line 6—6 of Figure 5.

Figure 7 is a partly diagrammatic detail of a portion of the turret showing the feeding of tampons into the turret and the severance of the tampon string.

Figure 8 is a partly diagrammatic end elevation of the turret and a tampon.

Figure 9 is a partly diagrammatic view illustrating one of the stages in the loading of the tampon into the turret cylinder.

Figure 10 is a view similar to Figure 9 of the apparatus in a second position.

Figure 11 is a view similar to Figure 10 of the mechanism in a third position.

Figure 12 is a diagrammatic illustration of the cylinder with the tampon undergoing compression.

Figure 13 is a diagrammatic illustration similar to Figure 12, showing the tampon in position and an applicator tube being advanced to assembly position.

Figure 14 is a diagrammatic illustration of the cylinder and applicator showing still another stage in the operation of the device.

Figure 15 is a diagrammatic illustration of the turret cylinder just prior to the ejection of the tampon from the cylinder into the applicator.

Figure 16 is a diagrammatic illustration, similar to Figure 15, but illustrating the tampon in position in the applicator.

Figure 17 is a plan view illustrating the ejection of the loaded applicator from its seat.

Figure 18 is a section of the loaded tampon and applicator.

Referring to the figures of the drawing and particularly Figure 1, the machine of the present invention is supported on and from a base plate 10 provided with suitable legs (not shown).

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Suitably journaled and supported from the base plate 10 is a motor driven main drive shaft 11 having mounted thereon for rotation therewith a driving gear 12 and a driving pinion 13. The pinion 13 drives through a bevel gear 14 a second drive shaft 15 which is supported for rotation at one of its ends in the journal 16 and at its other end in the journal 17.

The drive shaft 15 is provided with a drive pulley 18 rotatable therewith and at one of its ends with a driver 19 which is best shown in Figure 3. The driver 19 in turn drives a Geneva gear 20 which is carried by and rotatable with a gear 21 which meshes with a gear ring 22 mounted on and rotatable with a turret indicated in general at 23. The turret 23, as best shown in Figures 3 and 8, is provided with a plurality of tampon receiving cylinders 24, 25 and 26. The gear ring 22 also meshes with a small pinion 27 which drives a suitable sprocket chain 28 through a sprocket (not shown). The chain 28 in turn drives an agitator 29 which is shown in dotted lines in Figure 1, said agitator being positioned at the lower end of a feed hopper or magazine 30 for tampon applicators.

As may be understood, the Geneva driver 19 and Geneva gear 20 drive the gear 21 intermittently so that for each rotation of the shaft 15 the gear 21 is given a quarter-turn and is then maintained stationary for the balance of the period. The gear ratios of the gears 21 and 22 are such that for each rotation of the drive shaft 15, the turret 23 is given a one-third turn, thus bringing one of the cylinders 24, 25 and 26 into the position vacated by the preceding cylinder.

Referring once again to the main drive shaft 11, the gear 12 rotatable therewith meshes with another gear 31 rotatable with the shaft 32. The shaft 32 carries for rotation therewith a pair of cams, namely a main cam 33 and a smaller brush actuating cam 34. The main cam 33 has cooperating therewith a roller 35, best shown in Figure 4, which is journaled for rotation on a cross-head 36, the cross-head being slidably mounted above the bed plate 10 of the machine. The cross-head 36 is urged against the cam 33 by a pair of cables 37 and 38, respectively, having their ends connected to the cross-head 36 at 39 and 40, respectively, and trained over the pulleys 41 and 42 at their intermediate portions. The ends of the cables 37 and 38 remote from the cross-head 36 are provided with the weights 43 and 44 which urge the cross-head and the roller 35 against the cam 33 or to the right, as shown in Figures 1 and 4. Rotation, therefore, of the shaft 32 will rotate the cam 33 and reciprocate the cross-head 36. During this movement the cross-head is guided upon the guide rails 45 and 46 which are suitably supported upon the bed plate 10.

Movable with the cross-head 36, as shown in Figure 4, is a tampon loading mechanism indicated in general at 47, a tampon compressing plunger 48 and a tampon assembly unit indicated in general at 49. Each of these elements reciprocates with the cross-head 36 and is positioned to enter at this time one of the cylinders 24, 25 and 26 to perform its related function as will be hereinafter described.

As best shown in Figure 1, the cross-head 36 also carries a reciprocating actuating rod 50. The rod 50 is connected at its end remote from the cross-head 36 to a rack 51. The rack 51 is provided with teeth 52 which mesh with a gear 53 rotatable with a shaft 54. Also rotatable with

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the shaft 54 is a cam 55 and a gear 56. The gear 56 meshes with the teeth 57 on a rack 58. The cam 55 serves to reciprocate a rod 59 which is spring pressed against the cam by a spring 60 having one of its ends joined to the rod journal 61 and the other of its ends to the rod 59. The rod 59 is in alignment with the six o'clock position of the cylinders 24, 25 and 26 and, as will be hereinafter pointed out, serves upon actuation by the cam 55 to aid in the compression of the tampon material by the plunger 48. The rack 58 is connected to and reciprocates with an ejector rod 62 which is positioned in alignment with the two o'clock position of the cylinders 24, 25 and 26, and serves to eject the compressed tampon out of the cylinder and into the tampon applicator. Positioned adjacent the upper left-hand end of the turret 23, as shown in Figure 1, is a tampon guide trough 63 which is suitably supported on the bed plate 10 and which receives the tampons as they are being fed from a suitable machine or mechanism in connected relation. At the lower forward end of the trough 63, the tampons will pass through a guide ring 64 and then over a guide plate 65 provided with a notch 66 which will normally allow the tampon cord to pass through but will stop the tampon body.

As best shown in Figure 7, the tampon cord C is still attached to a tampon T at either end. The lower tampon T is positioned within a cylinder having been drawn into the cylinder in a manner to be hereinafter described, and the cord is in position for severance by the heated iron indicated at 67. Preferably the tampon proper is of cotton but the cord C is braided from threads of a heat fusible thread-forming plastic material such as nylon or the like. Contact with the heated iron 67 will sever the cord C adjacent to the tampon T. Prior to severance, however, the tampon T has been accurately positioned within the cylinder 25 by the length of the string C and the position of the tampon body T-1 which has been stopped by the notch 66 in the plate 65. In other words, after the tampon T has been drawn into the cylinder 25 at the ten o'clock position, the tensioning of the cord C upon rotation of the cylinder to the six o'clock position will tend to pull the tampon T outwardly in the cylinder to a proper position for compressing, just prior to the severance of the cord C by contact with the hot iron 67. Although it is preferred to thus sever each tampon from the other, it is within the broad scope of the present invention to provide any suitable severing means in place of the hot iron, such as a revolving knife or the like.

The face of the turret 23 is provided with spring fingers, best shown in Figure 8, and indicated at 68, 69, and 70, which are positioned between each of the cylinders 24, 25 and 26. As best shown in Figure 8, the cord C has just been severed and upon severance the cord is held between the finger 68 and a stationary member 71 so that it is in position to be grasped by the hook 72 which serves to draw the cord C and tampon T-1 connected thereto into the cylinder 24. The hook 72 forms a part of the loading mechanism 47 which also includes a sleeve 73 which travels with the mechanism 47 but is capable of reciprocation relative to the hook 72. In other words, in the position shown in Figure 7, the hook 72 has moved beyond the sleeve 73 and starts to draw the string C into the cylinder 24. This position is also shown in Figure 9.

As best shown in Figure 10, the hook 72 has telescoped within the sleeve 73 so as to firmly grasp

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the cord C and the entire tampon is drawn into the cylinder 24, as shown in Figure 11, whereupon another relative motion occurs between the hook 72 and sleeve 73 so that the hook is moved outwardly of the sleeve to release the cord C and leave the tampon in the position shown in Figure 11. As best shown in these figures, the sleeve 73 is provided at its rearward end with a pair of shoulders 74 and 75. The shoulder 74, as best shown in Figure 9, contacts the cylinder 24 so as to permit the hook member to slide to open position. The shoulder 75 acts as an abutment for a spring 76 which normally tends to draw the hook 72 into the sleeve 73, as shown in Figure 10. In order to open the hook, however, there is provided a stationary cam 77 (Figures 4 and 11) which contacts a roller 78 on a lever 79 which is pivoted at 80 to a member 81 movable with the cross-head 36. The lower end of the lever 79 is provided with a yoke 82 which receives a pivoted lug 83, carried by the sleeve 73. As shown in Figure 11, therefore, upon rearward movement of the cross-head and loading mechanism, the roller 78 will contact the cam 77 to move the sleeve 73 rearwardly against the action of the spring 76 to cause the hook 72 to project from the sleeve 73 and release the string C of the tampon. The hook 72 which travels with the cross head 36 and cooperating sleeve member 73 which is telescopically mounted thereon would normally assume the position shown in Fig. 10 due to the action of the spring 76 upon the shoulder 75. In this position the sleeve 73 would prevent movement of the cord C within the hook 72. In actual operation, however, when the hook 72 is moved forwardly or to the left, as in Figures 9, 10 and 11, the shoulder 74 comes in contact with the cylinder 24 as shown in Figure 9, and further movement of the hook 72 to the left moves the end of the hook away from the sleeve 73. In this position the hook can grasp the cord C. As the hook 72 moves from the position of Figure 9 rearwardly or to the right, the sleeve and hook will assume the position of Figure 10 so as to prevent movement of the cord out of the hook 72. Further movement of the hook 72 rearwardly or to the right will draw the tampon cord C and the tampon T into the cylinder 23, as shown in Figure 11, and after the tampon T is in the cylinder 24, the contact of the roller 78 with the cam 77 will then move the sleeve 73 against the action of the spring 76 into the position shown in Figure 11 so that the cord C is released from the hook 72 and may be withdrawn therefrom.

Referring now to Figure 12, the cylinder 24 into which the tampon has been loaded, as previously described, has moved to the six o'clock position of the turret, or in other words, to the position corresponding to that of the cylinder 25 in Figure 8. In this position, movement of the cross-head moves the plunger 48 into the cylinder at the same time as the plunger 59 is moving into the cylinder from the other side of the turret. The tampon is thus compressed and assumes the shape and position shown in Figure 13.

During the indexing movement of the turret, a tampon applicator is discharged into the tampon assembly unit 49, the applicator being indicated by the reference numeral 84. The tampon assembly unit 49 is provided with a seat to receive the telescoped applicator and also with a dog 85 which holds the applicator in position, as shown in Figure 13. The dog 85 slidably fitted within a block 86 is normally spring pressed into the position of Figure 13 by a spring 87. As the

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tampon assembly unit moves forward into the position of Figure 14, the face 88 of the dog 85 contacts the edge of the cylinder 24 so that the dog will be slid downwardly and rearwardly to permit the applicator to be shoved into the position of Figure 15 within a large bore 89 of the cylinder 24, as shown in Figure 15. Prior to this movement, however, a reciprocating brush 90 is moved into the cylinder in advance of the applicator so as to gather up the string C which becomes closely interwoven with the bristles 91 of the brush. This brush is moved by cam 34 on the drive shaft 32, the cam 34 operating upon the short arm 92 of the lever 93 which is provided with a pin and slot connection indicated at 94, with the rear end of the brush rod 90 (see Figure 1). The action of the cam 34 is therefore to move the brush 90 into the cylinder in advance of the positioning of the applicator 84 therein.

Referring now to Figure 16, it will be noted that the brush is also withdrawn from the cylinder, carrying the string with it, through the applicator simultaneously with the action of the ejector 62. The movement of the ejector against the tampons forces the tampon into the larger portion of the applicator 84, extending the applicator. It will be noted that in the position of Figures 15 and 16, the dog 85 is locked away from the applicator or into its withdrawn position by a lever 95. This serves to prevent the dog 85 from interfering with the subsequent ejection of the loaded tampon and applicator from the tampon assembly unit.

A cam 96 is provided to move the lever 95 out of a notch in the dog, as shown in Figures 16 and 17. It will be noted that in Figure 16, the cam 96 is just beginning to move the lever 95 and in Figure 17 it has already moved the lever 95 out of the notch in the dog 85 and rotated beyond lever moving position. However, in Figure 17 the loaded applicator has begun to drop onto the conveyor 97 which is driven by the belt 98a from the pulley 18 and serves to discharge loaded applicators. The cam 96 rotates the lever 95 against the action of a spring 98 which normally tends to retain the lever in locking position. The cam 96 is driven by a flexible shaft 99 as shown in Figure 1, from the shaft 100 which is rotated by the gear 27 which meshes with the ring gear 22 on the turret 23. In order to prevent the loaded applicators from remaining on the tampon assembly unit, a positive ejector is provided for the loaded tampon, this ejector being shown in detail in Figure 2. As shown, it consists of an ejector nose 101 forming a part of a lever 102 which is pivoted at 103 to a projection 104 from the standard 105 which is supported by the bed plate 10. The lever 102 is connected by a link 106 to a cam actuated lever 107 so that tilting movement of the lever 107 will move the ejector nose 101 downwardly to positively eject the loaded applicator, as shown in Figure 2. The lever 107 periodically contacts a series of projections 108 which are formed on the face of the turret 23 adjacent to each of the cylinders as, for example, the cylinder 24 shown in Figure 2.

The spring 109 tends to urge the lever 107 in a clockwise direction and this is aided by a counter-weight 110 so that the nose 101 normally remains in an upward position. This positive ejector action supplements the action of the stationary ejector member 120 which extends through the slot 121 of the tampon assembly unit 49. As best shown in Figures 16 and 17, as the tampon assembly unit 49 is withdrawn from

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adjacent the turret, the member 120 will reach the edge of the slot 121 and will push the assembled tampon off the assembly unit 49.

The feeding device for applicators is best shown in Figures 5 and 6. It consists of a rotatable shaft 111 driven by a bevel gear 112 meshing with a second bevel gear 113 rotatable with the sprocket 114 on the shaft 100. The shaft 111 carries a pair of cams, upon rotation serving to release a single applicator while at the same time preventing the movement of a second applicator onto the pivoted gate 117, said gate normally assuming the position shown in Figure 5. When, however, an applicator is deposited upon the gate, the action of the counterweight 118 is overcome and the applicator is deposited on the tampon assembly unit 49 for assembly with the tampon, as previously set forth.

It will be obvious to those skilled in the art that various changes may be made without departing from the spirit of the invention and therefore the invention is not limited to what is shown in the drawings and described in the specification but only as indicated in the appended claims.

What is claimed is:

1. In an apparatus for compressing tampons or the like and assembling the same with applicators therefor, a plurality of spaced tampon receiving means, a movable supporting means for said tampon receiving means, means for intermittently moving said supporting means to successively advance each of said tampon receiving means to a plurality of selected stations, tampon loading means including a hook member movable into and through said receiving means in a first direction and thereafter movable in a second direction to pull a tampon into one of said tampon receiving means adjacent one of said stations, tampon compressing means movable to compress a tampon within a second of said tampon receiving means adjacent a second of said stations, tampon ejecting means movable to eject a tampon from a third of said tampon receiving means and adjacent a third of said stations, and means movable after each intermittent movement of said supporting means to simultaneously move said tampon loading means in said first direction, and to move said tampon compressing means and said tampon ejecting means.

2. In an apparatus for compressing tampons or the like and assembling the same with applicators therefor, a plurality of spaced tampon receiving means, a rotatable turret for supporting said tampon receiving means, means for intermittently rotating said turret in step-wise fashion to successively advance each of said tampon receiving means to a plurality of selected stations about the periphery of said turret, tampon loading means including a hook member movable into and through said receiving means in a first direction and thereafter movable in a second direction to pull a tampon into one of said tampon receiving means adjacent one of said stations, tampon compressing means movable to compress a tampon within a second of said tampon receiving means adjacent a second of said stations, tampon ejecting means movable to eject a tampon from a third of said tampon receiving means and adjacent a third of said stations, and means movable after each intermittent movement of said turret to simultaneously move said tampon loading means in said first direction, and to move said tampon compressing means and said tampon ejecting means.

3. In an apparatus for compressing tampons

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or the like and assembling the same with applicators therefor, a rotatable turret, a plurality of tampon receiving means peripherally spaced about the circumference of said turret, means for intermittently rotating said turret to successively advance each of said tampon receiving means to a plurality of selected stations, tampon loading means including a hook member axially aligned with one of said stations and movable into and through said receiving means in a first direction and thereafter movable in a second direction to pull a tampon into one of said tampon receiving means, tampon compressing means axially aligned with a second of said stations and movable to compress a tampon within a second of said tampon receiving means, tampon ejecting means axially aligned with a third of said stations and movable to eject a tampon from a third of said tampon receiving means, and means movable after each intermittent movement of said turret to simultaneously move said tampon loading means in said first direction, and to move said tampon compressing means and said tampon ejecting means.

4. In an apparatus for compressing tampons or the like and assembling the same with applicators therefor, a rotatable turret, a plurality of tampon receiving means peripherally spaced about the circumference of said turret, means for intermittently rotating said turret to successively advance each of said tampon receiving means to a plurality of selected stations, tampon loading means including a hook member axially aligned with one of said stations and movable into and through said receiving means in a first direction and thereafter movable in a second direction to pull a tampon into one of said tampon receiving means, tampon compressing means axially aligned with a second of said stations and movable to compress a tampon within a second of said tampon receiving means, tampon ejecting means axially aligned with a third of said stations and movable to eject a tampon from a third of said tampon receiving means, and means movable along an axis substantially perpendicular to the plane of rotation of said turret for axially moving said loading means in said first direction, and to move said compressing means and said ejecting means.

5. In an apparatus for compressing tampons or the like and assembling the same with applicators therefor, a supporting table, a turret rotatable about an axis substantially parallel to said table and supported for rotation thereon, a plurality of spaced tampon receiving means supported by said turret and movable therewith, means for intermittently rotating said turret to successively advance each of said tampon receiving means to a plurality of selected stations, tampon loading means including a hook member movable into and through said receiving means in a first direction and thereafter movable in a second direction in substantial parallelism to said table to pull a tampon into one of said tampon receiving means at one of said stations, tampon compressing means movable in substantial parallelism with said table to compress a tampon within a second of said tampon receiving means at a second of said stations, tampon ejecting means movable in substantial parallelism with said table to eject a tampon from a third of said tampon receiving means at a third of said stations, a cross-head for simultaneously moving said tampon loading means, said tampon compressing means and said tampon ejecting means,

and means for slidably supporting said cross-head for movement in substantial parallelism with said table.

6. In an apparatus for compressing tampons or the like and assembling the same with applicators therefor, a supporting table, a turret rotatable about an axis substantially parallel to said table and supported for rotation thereon, a plurality of spaced tampon receiving means supported by said turret and movable therewith, drive means for intermittently rotating said turret to successively advance each of said tampon receiving means to a plurality of selected stations, tampon loading means including a hook member movable into and through said receiving means in a first direction and thereafter movable in a second direction in substantial parallelism with said table to pull a tampon into one of said tampon receiving means at one of said stations, tampon compressing means movable in substantial parallelism with said table to compress a tampon within a second of said tampon receiving means at a second of said stations, tampon ejecting means movable in substantial parallelism with said table to eject a tampon from a third of said tampon receiving means at a third of said stations, a cross-head for simultaneously moving said tampon loading means, said tampon compressing means and said tampon ejecting means, means for slidably supporting said cross-head for movement in substantial parallelism with said table, and means rotatable with said turret drive means for moving said cross-head after each intermittent movement of said turret.

7. In an apparatus for compressing tampons or the like and assembling the same with applicators therefor, a plurality of spaced tampon receiving means, a movable supporting means for said tampon receiving means, means for intermittently moving said supporting means to successively advance each of said tampon receiving means to a plurality of selected stations, tampon loading means including a hook member movable into and through said receiving means in a first direction and thereafter movable in a second direction to pull a tampon into one of said tampon receiving means adjacent one of said stations, tampon compressing means movable to compress a tampon within a second of said tampon receiving means adjacent a second of said stations, tampon ejecting means movable to eject a tampon from a third of said tampon receiving means and adjacent a third of said stations, means movable after each intermittent movement of said supporting means to simultaneously move said tampon loading means in said first direction, and to move said tampon compressing means and said tampon ejecting means, and driving means for driving said last mentioned movable means and said means for intermittently moving said supporting means.

8. In an apparatus for compressing tampons or the like and assembling the same with applicators therefor, a supporting table, a turret rotatable about an axis substantially parallel to said table and supported for rotation thereon, a plurality of spaced tampon receiving means supported by said turret and movable therewith to a plurality of selected stations, tampon loading means including a hook member movable into and through said receiving means in a first direction and thereafter movable in a second direction in substantial parallelism with said table to pull a tampon into one of said tampon receiving means at one of said stations, tampon compress-

ing means movable in substantial parallelism with said table to compress the tampon within a second of said tampon receiving means at a second of said stations, tampon ejecting means movable in substantial parallelism with said table to eject a tampon from a third of said tampon receiving means at a third of said stations, a cross-head for simultaneously moving said tampon loading means, said tampon compressing means and said tampon ejecting means, means for slidably supporting said cross-head for movement in substantial parallelism with said table, rotatable means for moving said cross-head, and a rotatable power shaft for rotating said rotatable means and intermittently rotating said turret.

9. In an apparatus for compressing tampons or the like and assembling the same with applicators therefor, a plurality of spaced tampon receiving means, a movable supporting means for said tampon receiving means, means for intermittently moving said supporting means to successively advance each of said tampon receiving means to a plurality of selected stations, tampon loading means movable to load a tampon into one of said tampon receiving means adjacent one of said stations, tampon compressing means movable to compress a tampon within a second of said tampon receiving means adjacent a second of said stations, tampon ejecting means movable to eject a tampon from a third of said tampon receiving means and adjacent a third of said stations, applicator feed means cooperating with said ejecting means for assembling said ejected tampon with an applicator adjacent said third station, and means movable after each intermittent movement of said supporting means to simultaneously move said tampon loading means, said tampon compressing means, said tampon ejecting means and said applicator feed means.

10. In an apparatus for compressing tampons or the like and assembling the same with applicators therefor, a plurality of spaced tampon receiving means, a movable supporting means for said tampon receiving means, means for intermittently moving said supporting means to successively advance each of said tampon receiving means to a plurality of selected stations, tampon loading means movable to load a tampon into one of said tampon receiving means adjacent one of said stations, tampon compressing means movable to compress a tampon within a second of said tampon receiving means adjacent a second of said stations, tampon ejecting means movable to eject a tampon from a third of said tampon receiving means and adjacent a third of said stations, applicator feed means cooperating with said ejecting means for assembling said ejected tampon with an applicator adjacent said third station, means movable after each intermittent movement of said supporting means to simultaneously move said tampon loading means, said tampon compressing means, said tampon ejecting means and said applicator feed means, and a second feed means operative in synchronism with said first applicator feed means to feed applicators to said first applicator feed means.

11. In an apparatus for compressing tampons or the like and assembling the same with applicators therefor, means for feeding a plurality of connected tampons, including a plurality of spaced tampon receiving means, a movable supporting means for said tampon receiving means, means for intermittently moving said supporting means to successively advance each of said tampon receiving means to a plurality of se-

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lected stations, and tampon loading means movable to load one of said connected tampons into one of said tampon receiving means adjacent one of said stations, tampon compressing means movable to compress a second tampon within a second of said tampon receiving means adjacent a second of said stations, and means to sever said loaded tampon from the remainder of said connected tampons positioned between said first and second stations.

12. In an apparatus for compressing tampons or the like and assembling the same with applicators therefor, means for feeding a plurality of cord connected tampons, including a plurality of spaced tampon receiving means, a movable supporting means for said tampon receiving means, means for intermittently moving said supplying means to successively advance each of said tampon receiving means to a plurality of selected stations, and tampon loading means movable to load one of said cord connected tampons into one of said tampon receiving means adjacent one of said stations, tampon compressing means movable to compress a second tampon within a second of said tampon receiving means adjacent a second of said stations, means to sever said loaded tampon from the remainder of said connected tampons positioned between said first and second stations, and stop means for tensioning the cord between said connected tampons and positioning the tampon within said tampon receiving means prior to the operation of said severing means.

13. In an apparatus for compressing tampons or the like and assembling the same with applicators therefor, means for feeding a plurality of cord connected tampons, including a plurality of spaced tampon receiving means, a movable supporting means for said tampon receiving means, means for intermittently moving said supporting means to successively advance each of said tampon receiving means to a plurality of selected stations, and tampon loading means movable to load one of said cord connected tampons into one of said tampon receiving means adjacent one of said stations, tampon compressing means movable to compress a tampon within a second of said tampon receiving means adjacent a second of said stations, means to sever said loaded tampon from the remainder of said connected tampons positioned between said first and second stations, stop means for tensioning the cord between said connected tampons and positioning the tampon within said tampon receiving means prior to the operation of said severing means, and means movable in part with said supporting means to retain the severed cord in position adjacent said first station.

14. In an apparatus for compressing tampons or the like and assembling the same with applicators therefor, means for feeding a plurality of cord connected tampons, including a plurality of spaced tampon receiving means, a movable supporting means for said tampon receiving means, means for intermittently moving said supporting means to successively advance each of said tampon receiving means to a plurality of selected stations, and tampon loading means movable to grasp one of said cords to load one of said cord connected tampons into one of said tampon receiving means adjacent one of said stations, tampon compressing means movable to compress a tampon within a second of said tampon receiving means adjacent a second of said stations, means to sever said loaded tampon from

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the remainder of said connected tampons positioned between said first and second stations, stop means for tensioning the cord between said connected tampons and positioning the tampon within said second tampon receiving means prior to the operation of said severing means, and means movable in part with said supporting means to retain the severed cord in position to cooperate with said loading means adjacent said first station.

15. In an apparatus for compressing tampons or the like and assembling the same with applicators therefor, means for feeding a plurality of cord connected tampons, including a plurality of spaced tampon receiving means, a movable supporting means for said tampon receiving means, means for intermittently moving said supporting means to successively advance each of said tampon receiving means to a plurality of selected stations, and tampon loading means movable to grasp one of said cords to load one of said cord connected tampons into one of said tampon receiving means adjacent one of said stations, tampon compressing means movable to compress a tampon within a second of said tampon receiving means adjacent a second of said stations, means to sever said loaded tampon from the remainder of said connected tampons positioned between said first and second stations, stop means for tensioning the cord between said connected tampons and positioning the tampon within said second tampon receiving means prior to the operation of said severing means, and means movable in part with said supporting means to retain the severed cord in position to cooperate with said loading means adjacent said first station, said tampon loading means including a reciprocating hook member and means movable relative to said hook member to retain said cord in said hook member during movement thereof into said tampon receiving means and for permitting movement of said cord from said hook member after movement of said cord and tampon into said tampon receiving means.

16. In an apparatus for compressing tampons or the like, a plurality of spaced tampon receiving means, a movable supporting means for said tampon receiving means, means for intermittently moving said supporting means to successively advance each of said tampon receiving means to a plurality of selected stations, means for feeding a plurality of cord connected tampons to a position adjacent a first of said stations and tampon loading means movable to grasp one of said cords to load one of said cord connected tampons into one of said tampon receiving means adjacent the first of said stations, said tampon loading means including a reciprocating hook member and means movable relative to said hook member to retain said cord in said hook member during movement thereof into said tampon receiving means and for permitting movement of said cord from said hook member after movement of said cord and tampon into said tampon receiving means.

17. In an apparatus for compressing tampons or the like, a plurality of spaced tampon receiving means, a movable supporting means for said tampon receiving means, means for intermittently moving said supporting means to successively advance each of said tampon receiving means to a plurality of selected stations, means for feeding connected tampons to a position adjacent the first of said stations and tampon loading means movable to grasp one of said cords to

load one of said cord connected tampons into one of said tampon receiving means adjacent the first of said stations, said tampon loading means including a reciprocating hook member positioned to extend through said tampon receiving means at said first station and a reciprocating sleeve telescopically mounted about said hook member and movable in one position to retain said cord on said hook member and movable to a second position to permit movement of said cord from said hook member, and means to reciprocate said sleeve relative to said hook member.

18. In an apparatus for compressing tampons or the like and assembling the same with applicators therefor, a plurality of spaced tampon receiving means, a movable supporting means for said tampon receiving means, means for intermittently moving said supporting means to successively advance each of said tampon receiving means to a plurality of selected stations, means for loading a tampon into one of said receiving means, tampon compressing means including a pair of tampon compressing plungers movable in opposition, each from a respective end of said last mentioned tampon receiving means for compressing the tampon therewithin and adjacent one of said stations, tampon ejecting means movable in unison with one of said plungers and adjacent a second of said stations to eject a compressed tampon from a second of said tampon receiving means, and means movable after each intermittent movement of said supporting means to move said tampon ejecting means and to simultaneously move both of said tampon compressing plungers into contact with said tampon in said receiving means and thereafter simultaneously move said plungers inwardly from each end of said tampon to compress the same from each of its ends.

19. In combination, in an apparatus for compressing tampons or the like and assembling the same with applicators therefor, a plurality of spaced tampon receiving means, a movable turret for supporting said tampon receiving means, means for intermittently moving said turret to successively advance each of said tampon receiving means to a selected station, ejecting means for ejecting a tampon from said receiving means and said turret at said station and means cooperating with said ejecting means for assembling a tampon upon ejection from said turret and one of said receiving means with an applicator, said last mentioned means being positioned adjacent said station.

20. In combination, in an apparatus for compressing tampons or the like and assembling the same with applicators therefor, a plurality of spaced tampon receiving means, a movable turret for supporting said tampon receiving means, means for intermittently moving said turret to successively advance each of said tampon receiving means to a selected station, applicator feed means for feeding applicators to a point adjacent said station in synchronism with the advance of said turret, applicator supporting means positioned to receive said applicators fed by said feeding means, means for ejecting a tampon from said turret at said station and means cooperating with said supporting means and said ejecting means and operative after each intermittent movement of said turret for assembling said ejected tampon with said applicator.

21. In combination, in an apparatus for compressing tampons or the like and assembling the same with applicators therefor, a plurality of

spaced tampon receiving means, a movable turret for supporting said receiving means, means for intermittently moving said turret to successively advance each of said tampon receiving means to a selected station, means for feeding tampon applicators to said station, said last mentioned means being intermittently energized in synchronism with the movement of said turret, means for ejecting a tampon from one of said tampon receiving means after each intermittent movement of said turret to said station, and means for moving said applicators partially into said tampon receiving means to receive said ejected tampon and assemble the same with the applicator.

22. In combination, in an apparatus for compressing tampons or the like and assembling the same with applicators therefor, a plurality of spaced receiving means for receiving a tampon and a tampon withdrawal cord connected thereto, a movable turret for supporting said tampon receiving means, means for intermittently moving said turret to successively advance each of said tampon receiving means to a selected station, means for ejecting a tampon from one of said tampon receiving means at said station, means for assembling said ejected tampon with an applicator, said last mentioned means being positioned adjacent said station and means for assembling said tampon cord with the applicator simultaneously with the ejection of said tampon from said turret.

23. In combination, in an apparatus for compressing tampons or the like and assembling the same with applicators therefor, a plurality of spaced tampon receiving means, a movable turret for supporting said tampon receiving means, means for intermittently moving said turret to successively advance each of said tampon receiving means to a selected station, means for ejecting a tampon from said tampon receiving means, means for assembling said ejected tampon with an applicator, said last mentioned means being positioned adjacent said station, and means to prevent movement of said applicator into position to receive said tampon until just prior to the ejection thereof from said turret.

24. In combination, in an apparatus for compressing tampons or the like and assembling the same with applicators therefor, a plurality of spaced tampon receiving means, a movable turret for supporting said tampon receiving means, means for intermittently moving said turret to successively advance each of said tampon receiving means to a selected station, means for ejecting a tampon from said receiving means at said station, means cooperating with said ejecting means for assembling said ejected tampon with an applicator, said last mentioned means being positioned adjacent said selected station, and means for ejecting said assembled tampon and applicator from said last mentioned means.

25. In combination, an apparatus for compressing tampons or the like and assembling the same with applicators therefor, a plurality of means to receive a tampon and connected with withdrawal cord therefor, a movable turret for supporting said receiving means, means for intermittently moving said turret to successively advance each of said tampon receiving means to a selected station, means for feeding tampon applicators to said station, said last mentioned means being intermittently energized in synchronism with the movement of said turret, means for ejecting a tampon from one of said

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tampon receiving means after each intermittent movement of said turret to said station, means for moving said applicators partially into said tampon receiving means to receive said ejected tampon and assemble the same with the applicator, and means for assembling said tampon cord with the applicator simultaneously with the ejection of said tampon from said turret.

26. In combination, an apparatus for compressing tampons or the like and assembling the same with applicators therefor, a plurality of means to receive a tampon and connected with withdrawal cord therefor, a movable turret for supporting said receiving means, means for intermittently moving said turret to successively advance each of said tampon receiving means to a selected station, means for feeding tampon applicators to said station, said last mentioned means being intermittently energized in synchronism with the movement of said turret, means for ejecting a tampon from one of said tampon receiving means after each intermittent movement of said turret to said station, means for moving said applicators partially into said tampon receiving means to receive said ejected tampon and assemble the same with the applicator, and means for assembling said tampon cord with the applicator simultaneously with the ejection of said tampon from said turret, said last mentioned means including a cord adherent brush movable into said tampon receiving means in advance of said applicator movement.

27. In combination, in an apparatus for compressing tampons or the like and assembling the same with applicators therefor, a plurality of spaced receiving means for receiving a tampon and a tampon withdrawal cord connected thereto, a movable turret for supporting said

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tampon receiving means, means for intermittently moving said turret to successively advance each of said tampon receiving means to a selected station, means for ejecting a tampon from said tampon receiving means, means for assembling said ejected tampon with an applicator, said last mentioned means being positioned adjacent said station and including means to move said applicator toward said turret, cord moving means movable into said turret in advance of the movement of said applicator, and means to prevent movement of said applicator with said cord moving means and toward said turret until just prior to the ejection of a tampon from said turret.

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