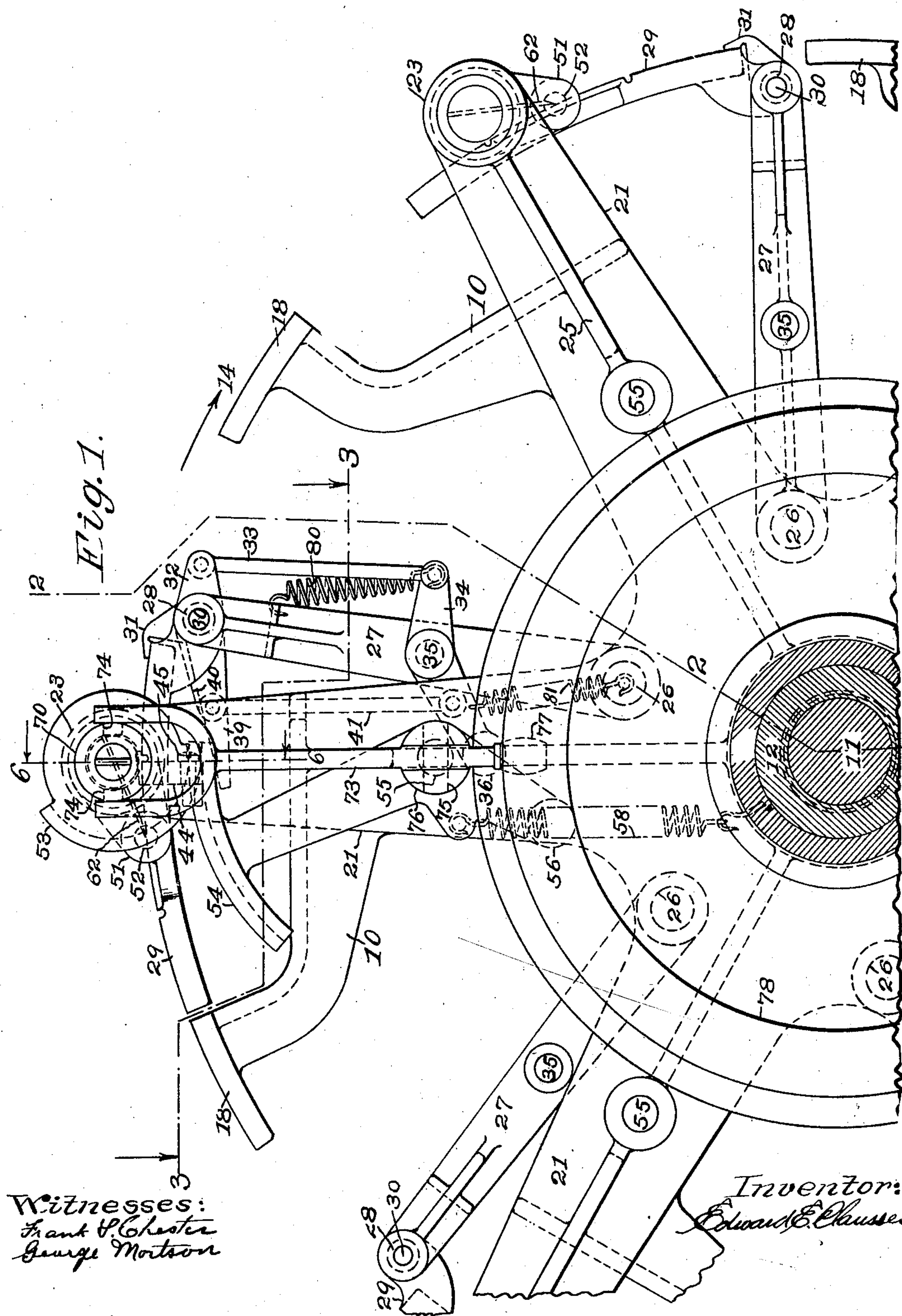


No. 844,329

PATENTED FEB. 19, 1907.

E. E. CLAUSSEN.  
PAPER BAG MACHINE.  
APPLICATION FILED JUNE 21, 1906.

7 SHEETS—SHEET 1.



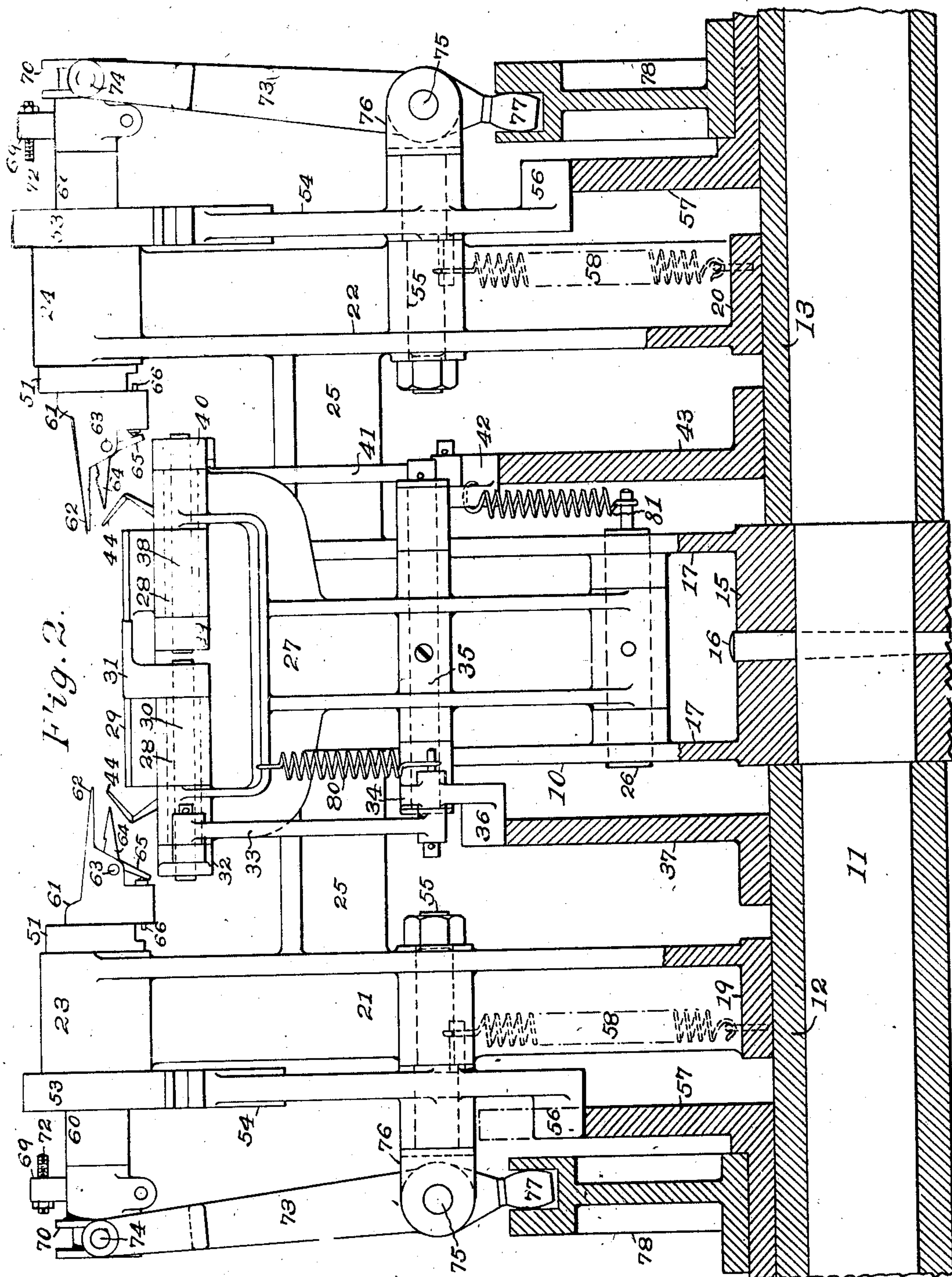
No. 814,329.

PATENTED FEB. 19, 1907.

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PAPER BAG MACHINE.

APPLICATION FILED JUNE 21, 1906.

7 SHEETS—SHEET 2.



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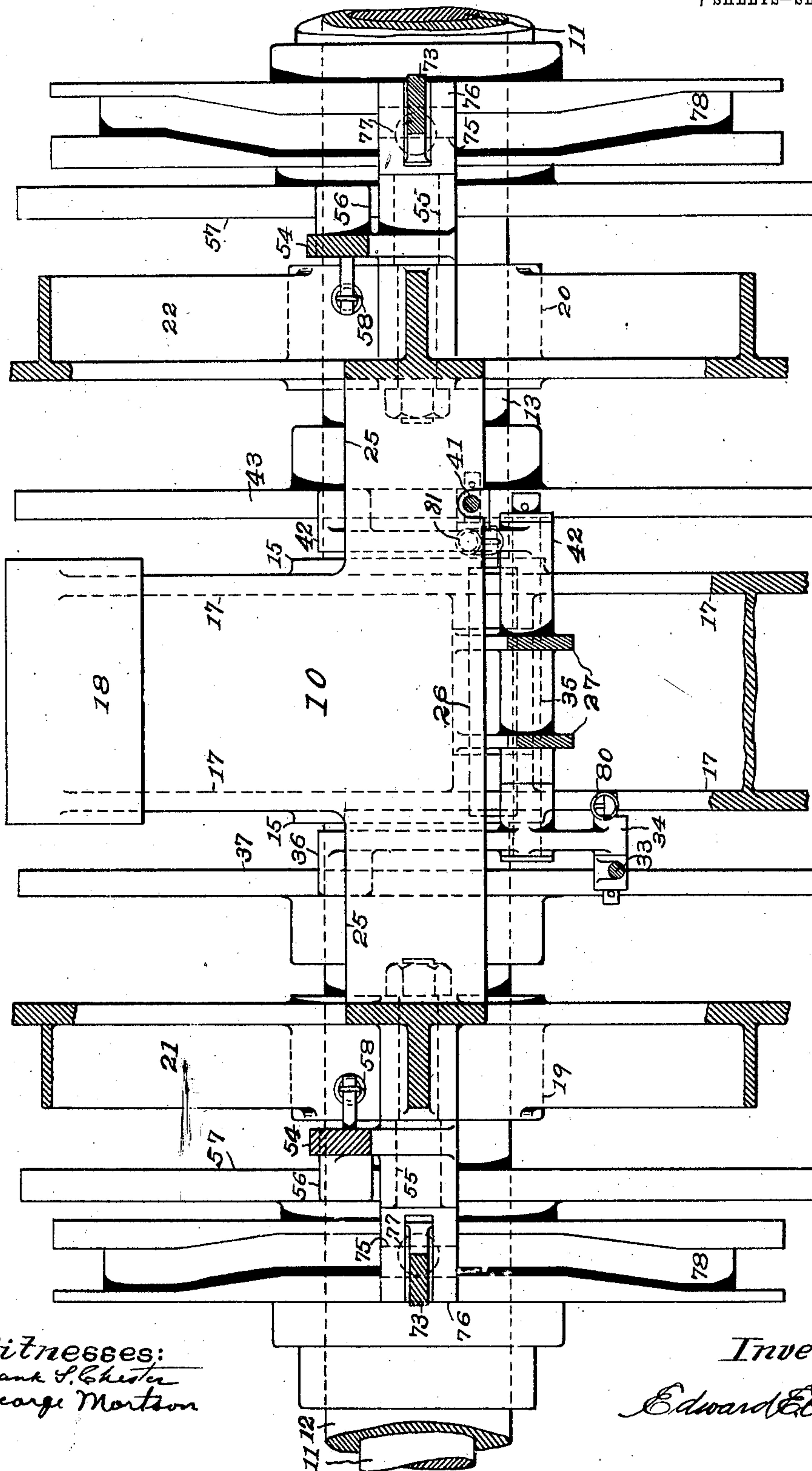
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7 SHEETS—SHEET 3.

Fig. 3.



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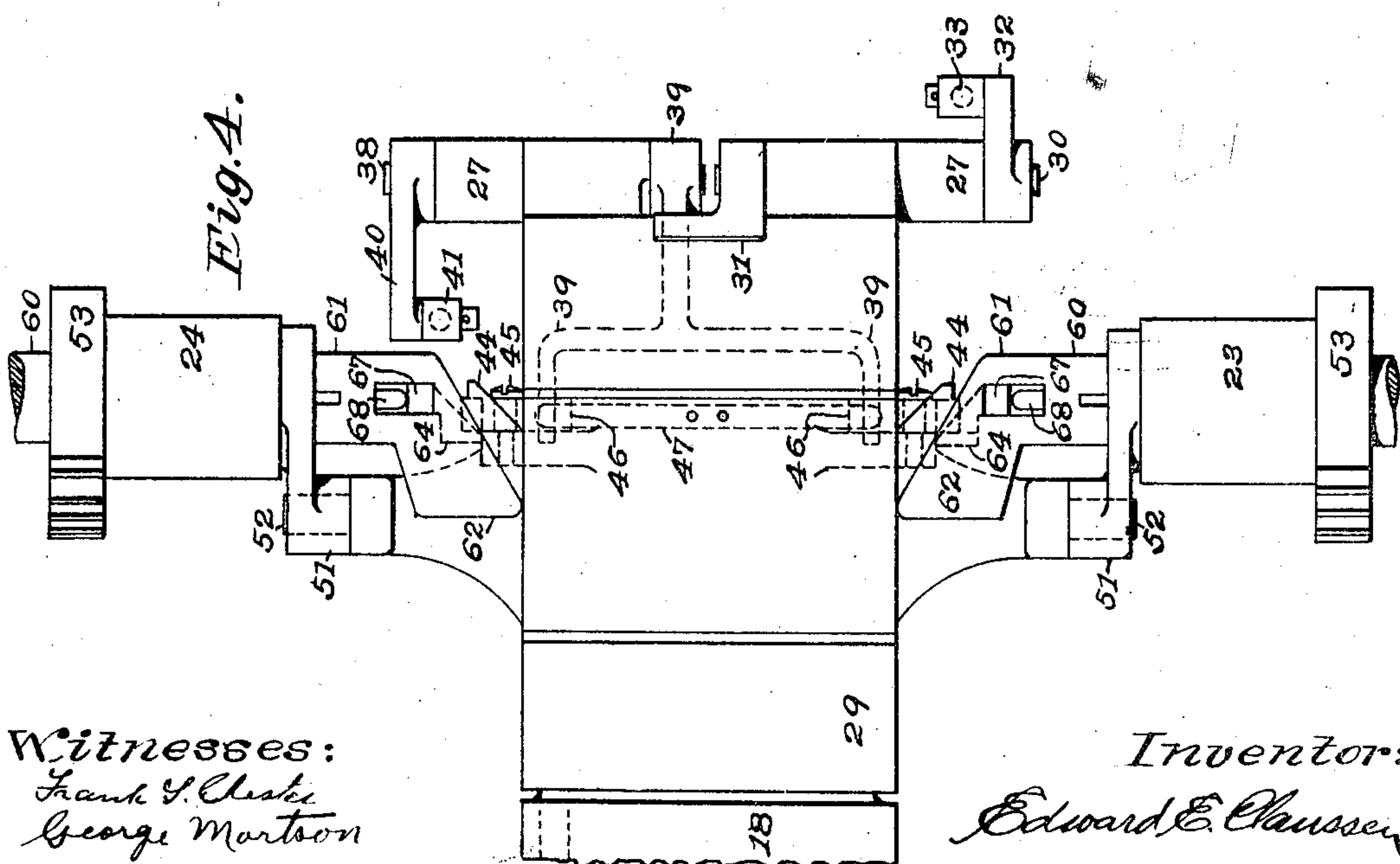
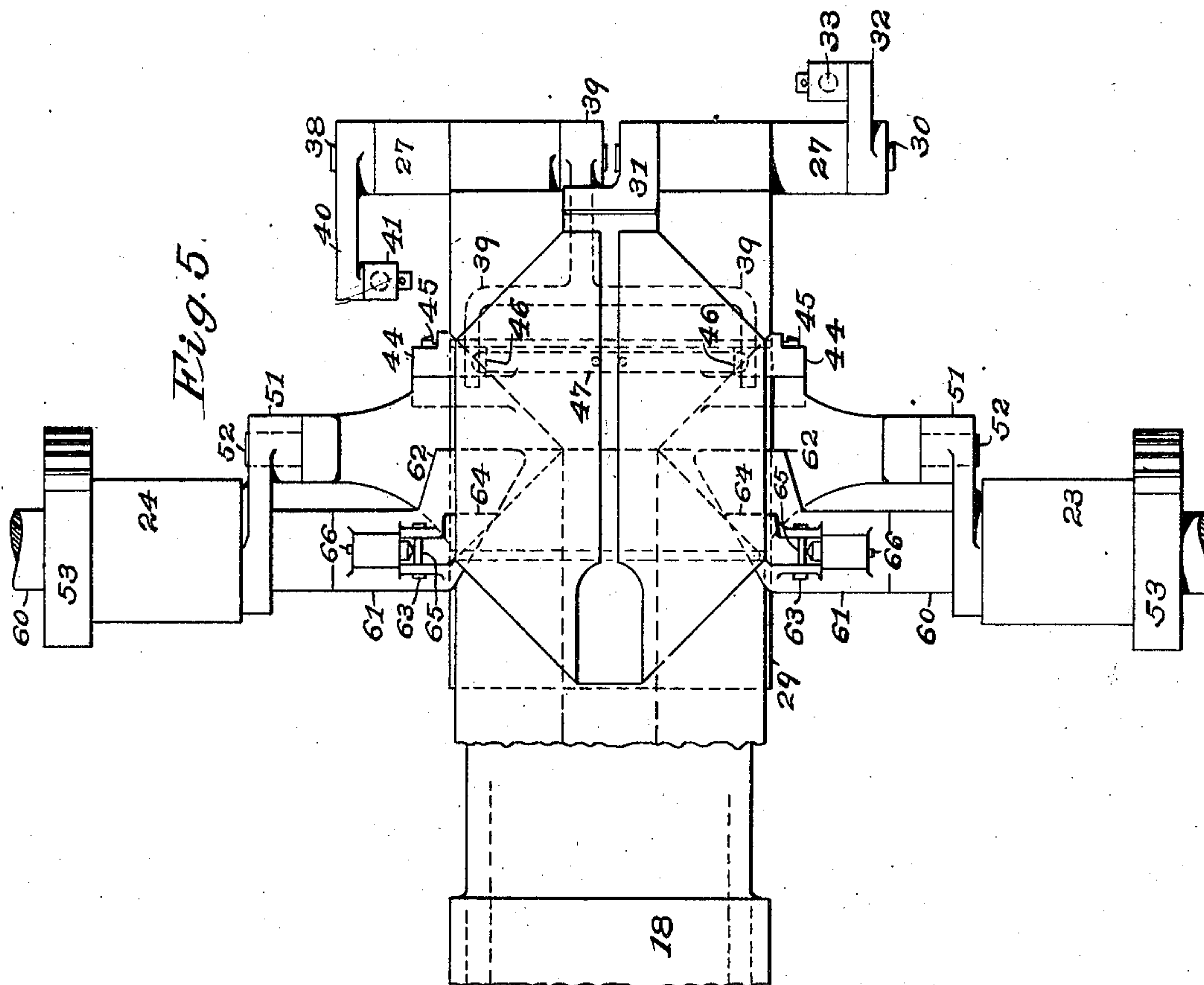
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7 SHEETS—SHEET 4



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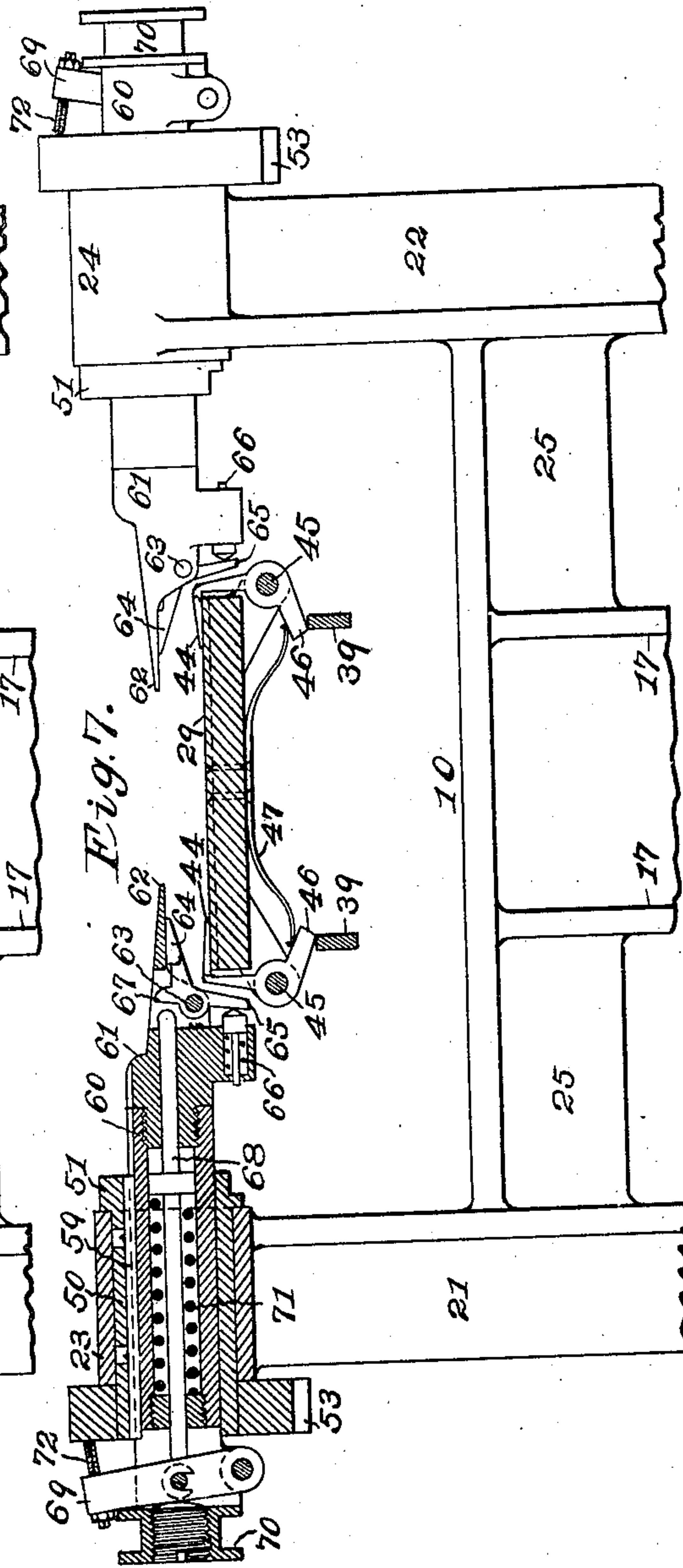
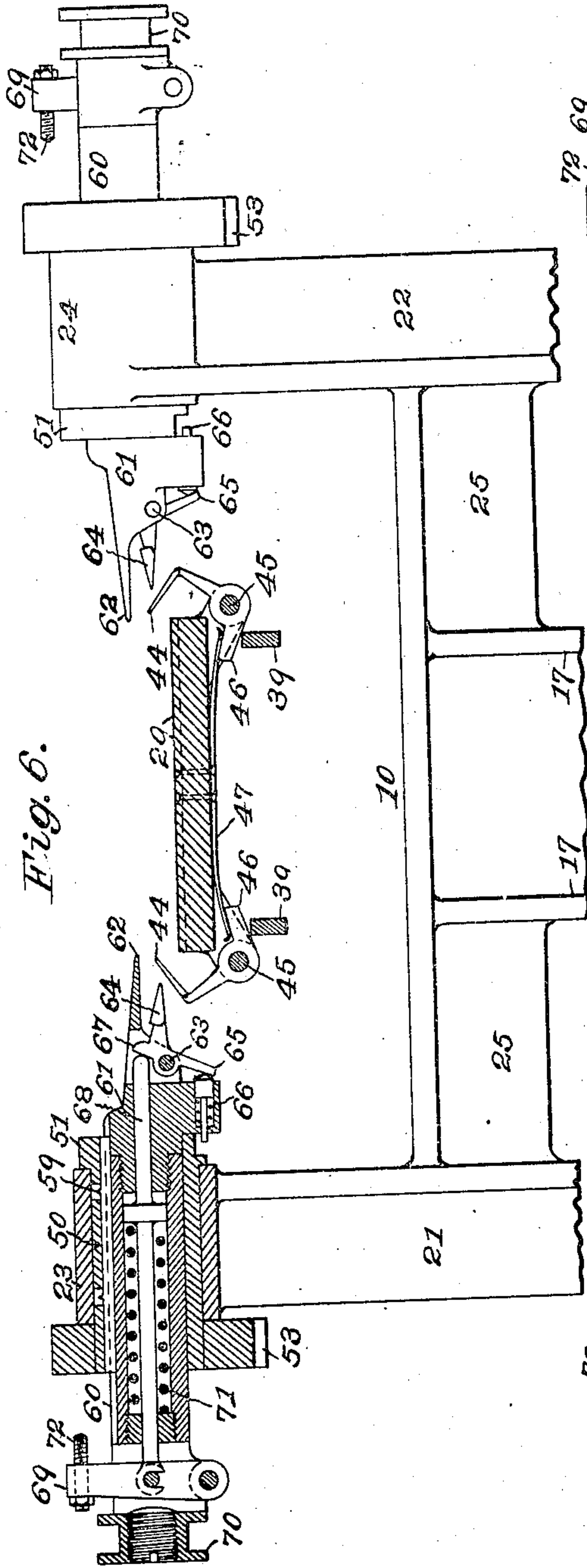
Inventor:  
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No. 844,329.

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APPLICATION FILED JUNE 21, 1906.

7 SHEETS—SHEET 5.



Witnesses:  
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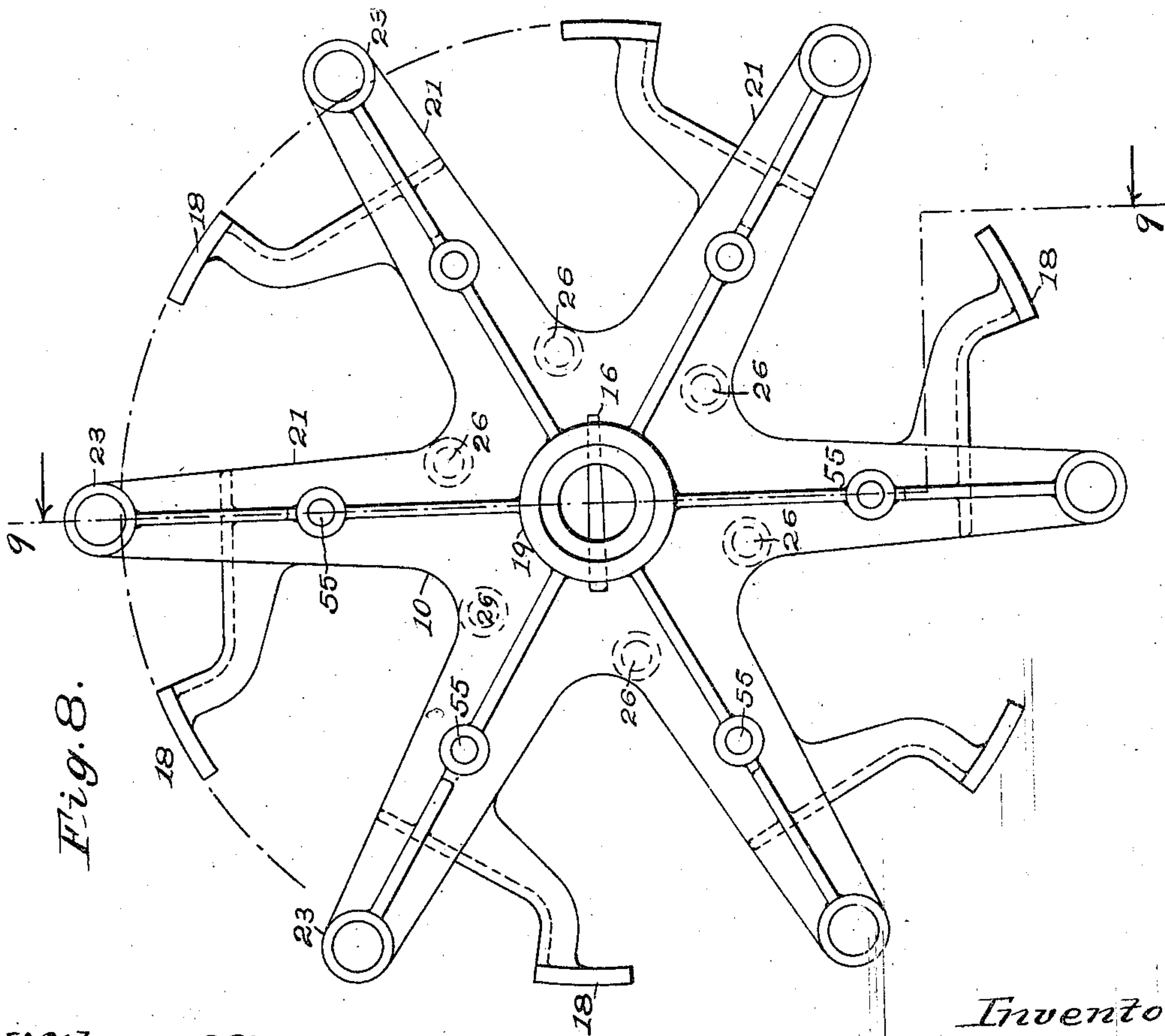
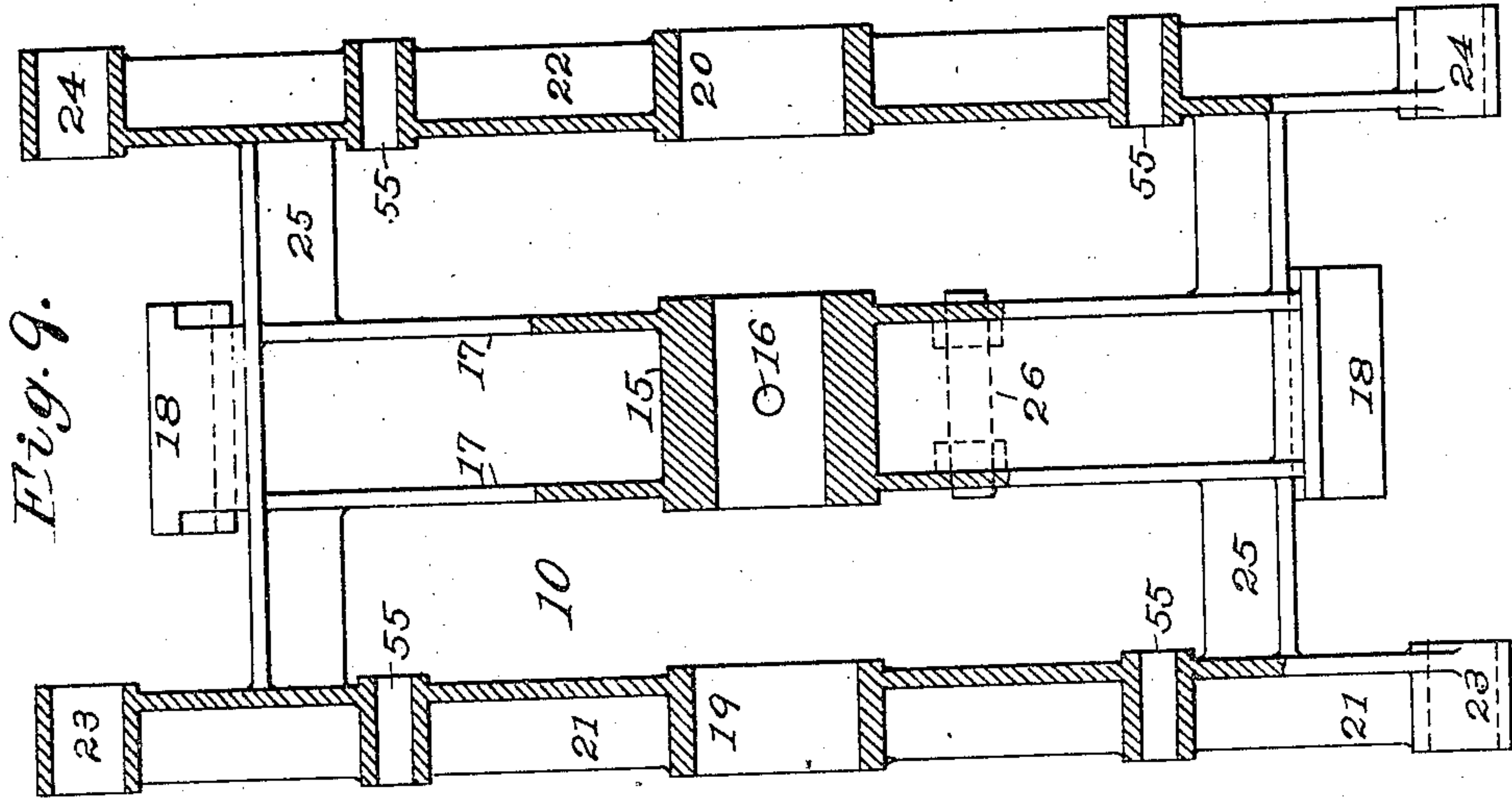


No. 344,329.

PATENTED FEB. 19, 1907.

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PAPER BAG MACHINE.  
APPLICATION FILED JUNE 21, 1906.

7 SHEETS—SHEET 6



Witnesses:  
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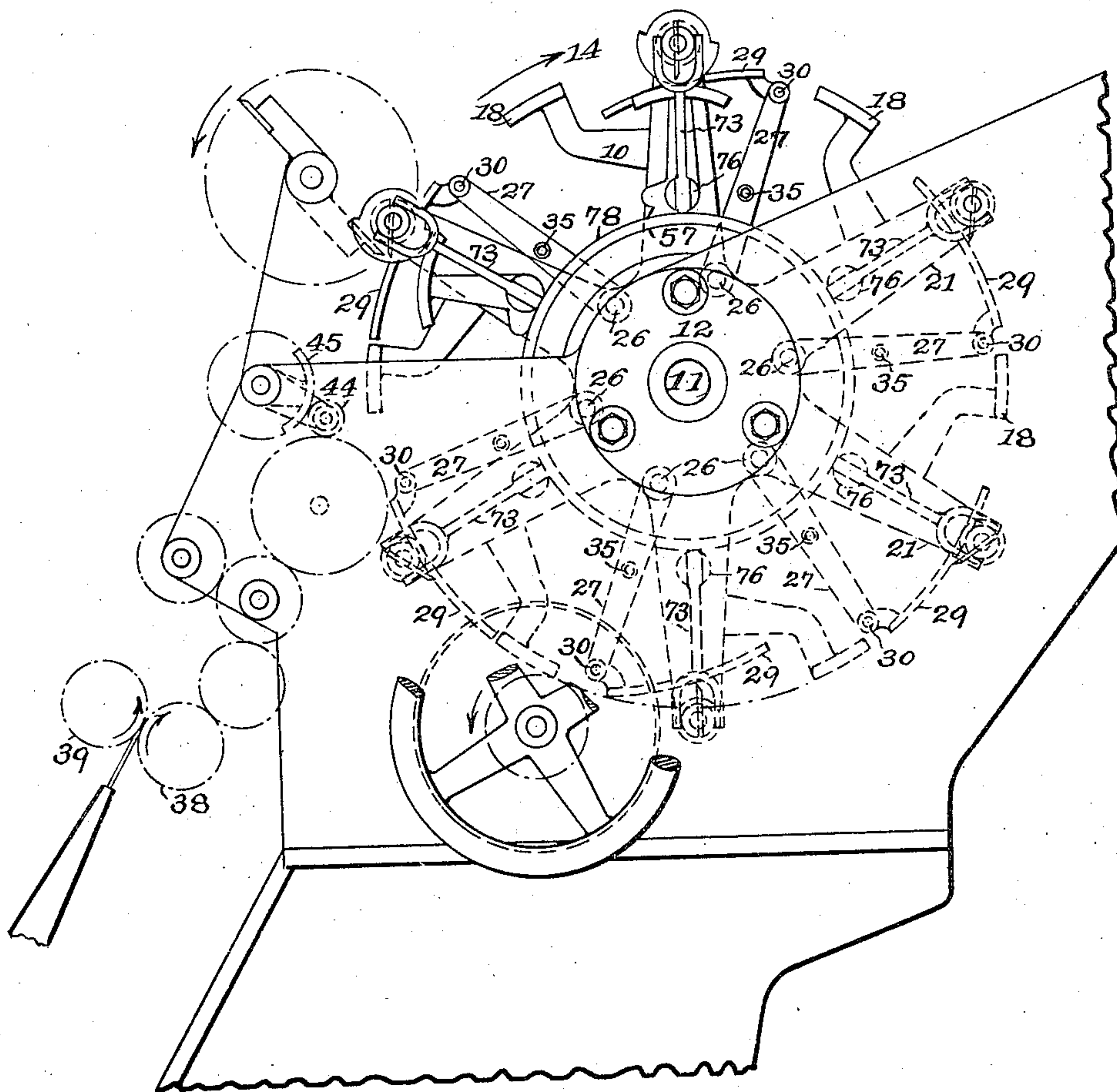
No. 844,329.

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PAPER BAG MACHINE.  
APPLICATION FILED JUNE 21, 1906.

7 SHEETS—SHEET 7.

*Fig. 10.*



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# UNITED STATES PATENT OFFICE.

EDWARD EMIL CLAUSSEN, OF HARTFORD, CONNECTICUT, ASSIGNOR TO  
UNION PAPER BAG MACHINE COMPANY, OF PHILADELPHIA, PENNSYLVANIA.

## PAPER-BAG MACHINE.

No. 844,329.

Specification of Letters Patent.

Patented Feb. 19, 1907.

Application filed June 21, 1906. Serial No. 322,747.

*To all whom it may concern:*

Be it known that I, EDWARD EMIL CLAUSSEN, a citizen of the United States of America, and a resident of Hartford, in the county of Hartford and State of Connecticut, with a post-office address in the above place, have invented certain new and useful Improvements in Paper-Bag Machines, of which the following is a specification.

10 This invention relates to machinery for automatically manufacturing square-bottom paper bags from tucked paper tubing.

The object of this invention is to provide a machine that forms the diamond of a square-bottom paper bag on a bellows-sided tubing, the mechanism for pasting and folding the end flaps being omitted, as the same are well known in the art.

20 In my Patent No. 813,280, of February 20, 1906, I have shown a machine embodying this general type in which a blank-support moves back and forth upon the surface of a cylinder, and in the machine forming the subject-matter of the present invention I have embodied some of the features of the invention disclosed in my patent above mentioned. The compression-plates 110 are, however, to be a little longer, so that they press the bag-blank to the cylinder and 30 crease the same at the primary transverse folding-line.

In order that those skilled in the art to which my invention relates may fully understand the nature and construction of the same and may obtain a better knowledge of the several operations required, I will first give a detailed description of each individual mechanism, reference being had to the accompanying drawings, which form a part of 40 this specification, and in which—

Figure 1 represents the right-hand side elevation of the frame and cooperating folding mechanism in its preferred construction. Fig. 2 is a front sectional elevation taken on the broken line 2 2 of Fig. 1. Fig. 3 is a sectional plan view on the broken line 3 3 and in the direction of the arrows of Fig. 1. Fig. 4 is a plan view of the top of the blank-support as represented in Fig. 1, the blank-support 50 being shown in the rearward position, or in the position where the tucked paper tube is delivered onto the same. Fig. 5 is a similar

plan view as Fig. 4, but having the blank-support thrown forward, or in a position where the diamond form is completed. Fig. 55 6 is a front sectional view on line 6 6 and in the direction of the arrows of Fig. 1, the left-hand side being shown in section, whereas the right-hand side shows an outside view, the folding instrumentalities being represented in the lateral outer position of adjustment. Fig. 7 is a similar view as shown in Fig. 6, having the folding instrumentalities shown in the laterally inner position of adjustment. Fig. 8 represents a side view of 65 the frame. Fig. 9 is a sectional front elevation on line 9 9 and in the direction of the arrows of Fig. 8. Fig. 10 is a right-hand side elevation of the machine, drawn in a reduced scale.

70 The directions of the movements of parts are shown by adjacent arrows, and the positions of the different folding instrumentalities are shown irrespective of the relations of the positions to the cams which move these instrumentalities, it being sufficient for the purpose of this description to say that the 75 cams are properly laid out and cut to produce the operations of the folding instrumentalities at the proper time and to the required extent. 80

Referring to my Patent No. 813,280, February 20, 1906, on a paper-bag machine, the tucked paper tube is taken from the former and guided into the bite of the drawing-rolls 85 38 and 39 and drawn into the machine, severed into bag-blank lengths, and conveyed by the conveyer-roll 44 and the conveyer-sector 45 to the blank-support, which is all identical in construction, except the blank- 90 support.

Referring to the accompanying drawings, the frame (designated in a general way by the numeral 10) is mounted on the shaft 11, which is mounted for rotation in the direction of the arrow 14 in the stationary bushings 12 and 13. The frame is of peculiar construction and best shown in the detailed drawings, Figs. 8 and 9, and is arranged to carry six folding mechanism all identical in 100 construction. The frame 10 consists of the central hub 15, which is pinned to the shaft 11 by the taper pin 16, and from which extend the central radial ribs and webs 17, termi-



nating in the cylindrical sectors 18, which form part of the folding-bed. Laterally situated on each side of the central radial ribs and webs are the hubs 19 and 20, from which the arms 21 and 22, respectively, branch forth and terminate in the hubs 23 and 24. The arms 21 and 22 are joined to the central ribs and web 17 by the cross-ties 25. The hubs 19 and 20 are journaled on the stationary bushings 12 and 13, respectively, and by this construction the frame is strong and firmly supported and well adapted to carry the various folding instrumentalities.

The folding instrumentalities are as follows: The frame is provided between the ribs 17 with pivots 26, upon which are mounted the arms 27, carrying on their outer bifurcated ends the sleeves 28, upon which the blank-supports 29 are pivoted. These blank-supports have their outer or working surfaces curved to correspond with the sectors 18 of the frame 10, and the pivots 26 are so disposed that the top surfaces of the blank-supports form a complete circle when in a forward or rearward position, as shown in Fig. 1.

The mechanism which hold the lower half of the tucked paper tube to the blank-support are as follows: Passing through the sleeve 28 on one side is the front-clip shaft 30, to which is fastened on the inner side the front clip 31 and on the outer side the arm 32, to which is jointed the connecting-rod 33, which is in engagement at its lower end with the lever 34, pivoted on the stud 35, which is rigidly supported in the arm 27 and has on its opposite side the cam-roll 36, which engages the stationary front-clip cam 37 on the stationary bushing 12. By the mechanism just described the front clip 31 is caused to be opened and closed at predetermined intervals onto the top surface of the blank-support as the frame is rotated, the spring 80 tending to keep the cam-roll always spring-pressed in engagement with the cam. Passing through the sleeve 28 on the right-hand side is the side-clip shaft 38, which has attached on the inner side the branched lever 39 and on the outer side the arm 40, which is connected to the connecting-rod 41, which is engaged at its lower end to the cam-arm 42, provided with a cam-roll which engages the stationary side-clip cam 43, held securely on the stationary bushing 13. The spring 81 has one end attached to the lever 42 and the other end hooked to a pin of the stud 26, and thereby keeps the cam-roll spring-pressed to the cam. The bevel-edged side clips 44 are pivoted to each side of the blank-support on pivots 45, and they are provided with inwardly-projecting arms 46, upon which the spring 47 acts, so as to close the side clips upon the blank-support, and are opened by the branched lever 39, engaging from the under side of the arms 46.

The mechanism for reciprocating and oscillating the blank-supports back and forth in the direction of the rotation of the frame and toward and away from the center of the frame, respectively, will now be described.

In the hubs 23 of the frame 10 are journaled the shells 50, having on their inner ends the arms 51, which engage the trunnions 52, forming a part and extending to each side of the blank-support, and the line passing through the centers of the trunnions coincides with the top surface of the blank-support. On the outer sides of the hubs 23 and fastened to the shells 50 are the sector-pinions 53, meshing into the sectors 54, pivoted on studs 55, held in the arms 21 of the frame, and those sectors are provided with the cam-rolls 56, engaging stationary cams 57, held on the stationary bushings 12 and 13. The springs 58 have one end attached to pins driven into the sectors 54, and the other ends are fastened to hooks in the hubs 19 and 20 of the frame, and as the same is rotated the cam-rolls 56 follow the cams and through the intermediate mechanism cause the blank-support to move forward and also to oscillate toward and away from the center of the frame from the position shown in Fig. 1 at the top of the drawing to the position shown at the right-hand side thereof, the front end of the blank-support having been guided by the arm 27, previously described. It will be observed that in this construction the defining edge of the tucker-plate (described in the following paragraph) follows the movements of the blank-support mathematically correct.

The mechanism that clip and operate above the paper-bag blank will now be described.

Held by a spline and feather 59 in the shell 50 is the hollow shaft 60, into which is screwed the head 61, which is flattened out on one side, forming a tucker-plate 62, having a defining edge which corresponds with the axial alinement of the trunnions 52 of the curved blank-support. In the head 61 is a small shaft 63, upon which is pivoted the bevel-edged nipper 64, provided with an extension 65, against which presses the spring-plug 66, held in a recess of the head 61, and is also provided with a nose 67, engaged by the rod 68, the outer end of which is connected to the lever 69, pivoted in the flanged member 70, securely screwed into the outer end of the hollow shaft 60. The spring 71 surrounds the rod 69 and is inclosed in the hollow shaft 60, presses upon a collar of the rod 68, and thereby keeps the nippers 64 in an open position while the head 61 is in the outward position, as shown in Fig. 6. When, however, the head is moved into the inward position, as shown in Fig. 7, the set-screw 72 strikes against the sector-pinion 53, and as that inward motion is continued the movement of rod 68 is arrested and disengages



the nose 67, and the spring 66 begins to press upon the extension 65, thereby closing the nipper 64 onto the tucker-plate 62.

The mechanism for moving the head 61 laterally in and outward are as follows: The bifurcated lever 73 is provided with pins 74, engaging between the collars of the flanged member 70, is pivoted on the pin 75 in the forked head 76 of the stud 55, and carries at its lower end the cam-roll engaging a groove in the stationary cam 78, held on the hub of the cam 57, which is supported on the stationary bushings.

The operation of the machine is as follows:

The tucked paper tubing having been properly formed and severed into bag-blank lengths of proper widths and lengths is delivered onto the blank-support 29, the frame having been set in motion in the same manner as described in my Patent No. 813,280, of February 20, 1906, previously mentioned, and the lower ply of the tube is clipped by the front clip 31, and the lower tuck is held by the bevel-edged side clips 44, which are actuated by the cams 37 and 43, respectively, at regular predetermined intervals. The bifurcated levers 73 are then caused to be oscillated by the cams 78, moving the oppositely-disposed heads 61 laterally toward each other, thereby bringing the set-screws 72 up and against the sector-pinions 53, and as the inward motion continues causes the rod 68 to disengage the noses 67 and permit the springs 66 to close the bevel-edged nippers to grip the upper tuck of the tube and hold the same to the tucker-plates 61. The sectors 54 then begin to oscillate through the action of the cams 57 and oscillate the tucker-plate downward, forward, and upward from the position as shown in Fig. 1 on the upper left-hand side of the drawing to the position as shown in the lower right-hand side and convert and unfold the tucked paper blank and refold the same into the diamond form, the defining edges of the tucker-plates following the exact movement of the blank-support at the point of contact, which is the creased primary transverse folding-line in the bag-blank.

I claim as my invention—

1. In a paper-bag machine the combination of a rotating frame, a blank-support mounted for oscillation toward and away from the center of the frame and also for reciprocation in and in a reverse direction of the rotation of the frame substantially as described.

2. In combination with a rotating frame, a blank-support mounted for reciprocation and oscillation in the frame, means for reciprocating the blank-support in the direction and in the reverse direction of the rotation of the frame and also for oscillating the same toward and away from the center of the frame substantially as described.

3. In combination with a rotating frame, the arm pivotally connected to the frame, the blank-support pivotally connected to said arm, means for reciprocating the blank-support in and in a reverse direction of the rotation of the frame and also for oscillating the same toward and away from the center of the frame substantially as described.

4. In a paper-bag machine the combination of a frame, an arm carried by the frame, a blank-support pivotally connected to the arm, the arms 51, trunnions on the blank-support and carried by the arms, means for oscillating the arms all combined and operating to carry the blank-support from its rearward position concentric with the frame to its forward position concentric with the frame.

5. The combination of the rotating frame, the arm 27 pivoted thereon, the blank-support pivoted to said arm, the arms 51, the blank-support trunnioned in said arms and means for oscillating the arms substantially as described.

6. The combination of the frame, the arm 27 pivoted to said frame, the blank-support pivoted to said arm, the arms 51, said blank-support trunnioned in said arms, the axial line of the blank-supporting trunnions coinciding with the cylindrical surface of the blank-support, substantially as described.

7. In a paper-bag machine the combination of the rotating frame, the arm 27 pivoted thereon, the blank-support pivoted to said arm, means for clamping the lower ply of the paper tube to the blank-support, trunnions extending laterally from the blank-support, the tucker-plates, means for clamping the upper ply of the tube to the tucker-plates and means for oscillating and reciprocating the blank-support, all combined and operating to unfold the tubular paper blank and refold the same into the diamond form substantially as described.

8. In a paper-bag machine the combination of a continuous rotating frame, the arm 27 pivoted to said frame, the blank-support pivoted to said arm, trunnions extending laterally from the blank-support, the arms 51, said arms journaled in the frame and carrying the trunnions of the blank-support, the tucker-plates, defining edges on said tucker-plates which correspond with the axial line of the trunnions substantially as described.

9. In a paper-bag machine the combination of the frame, the arm 27 pivoted to the frame, the blank-support pivoted to said arm, the arms 51, trunnions extending laterally from the blank-support and journaled in said arms, the tucker-plates, defining edges on the tucker-plates, which correspond with the axial alignment of the trunnions and the top surface of the blank-support substantially as described.

10. In a paper-bag machine the combina-



tion of the frame, an arm 27 pivoted to said frame, the arms 51, a blank-support connected to said arm 27 and supported in the arms 51, the tucker-plates, means for oscillating said tucker-plates and said blank-support downwardly, forwardly and upwardly, substantially as described.

11. In a paper-bag machine the combination of the frame, the arm 27 pivoted to said frame, the arms 51, the blank-support connected to said arm 27 and supported in said arms 51, means for clamping the lower ply of the tube to the blank-support, the tucker-plates, means for clamping the upper ply of the tube to said tucker-plates, means for laterally reciprocating the tucker-plates, means for oscillating the tucker-plates and the blank-support downwardly, forwardly and upwardly to unfold the tubular blank and refold the same into the diamond form, substantially as described.

12. The combination with a tucker-plate, a nipper cooperating therewith, a rod engaging said nipper, a spring engaging the rod, an arm connected to the rod, a spring engaging the nipper, means for laterally sliding the tucker-plates and means for arresting the movement of said rod on the inward motion.

13. The combination with a tucker-plate, a nipper cooperating therewith, a rod engaging the nipper, a spring engaging said rod, an arm connected to the rod, a spring engaging the nipper, means for laterally sliding the tucker-plate, means for arresting the movement of said rod, a shell 50, an arm connected to the shell and means for oscillating the arm, substantially as described.

14. In a paper-bag machine the combination of the continuous rotating frame, the arm 27 pivoted to the frame, the blank-sup-

port pivotally connected to the arm and trunnioned in arms carried by the rotating frame, the front clip and two oppositely-disposed bevel-edged side clips, cams for operating the front clip and the side clips, the tucker-plates provided with defining edges, side nippers cooperating with the tucker-plates, means for simultaneously swinging the blank-support and the tucker-plates downwardly, forwardly and upwardly to unfold a paper tube and refold the same into the diamond form, substantially as described.

15. The combination of oppositely-disposed bushings, a shaft journaled in said bushings, a frame consisting of a central portion and two side portions, the central portion mounted upon the shaft and the side portions mounted for rotation on the bushings and means for rotating the shaft.

16. The combination of a frame consisting of a central portion and two side portions, cross-ties for joining the central section to the side sections, the shaft supporting the central section of the frame, stationary bushings supporting the side sections and the shaft substantially as described.

17. The combination of the frame having a central section terminating in the sectors 18, laterally-disposed side sections, cross-ties connecting the central sections to the side sections, the shaft, the stationary bushings, the shaft supporting the central section of the frame and the bushings supporting the side sections substantially as described.

Signed at Hartford this 16th day of June, 1906.

EDWARD EMIL CLAUSSEN.

Witnesses:

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