

No. 722,961.

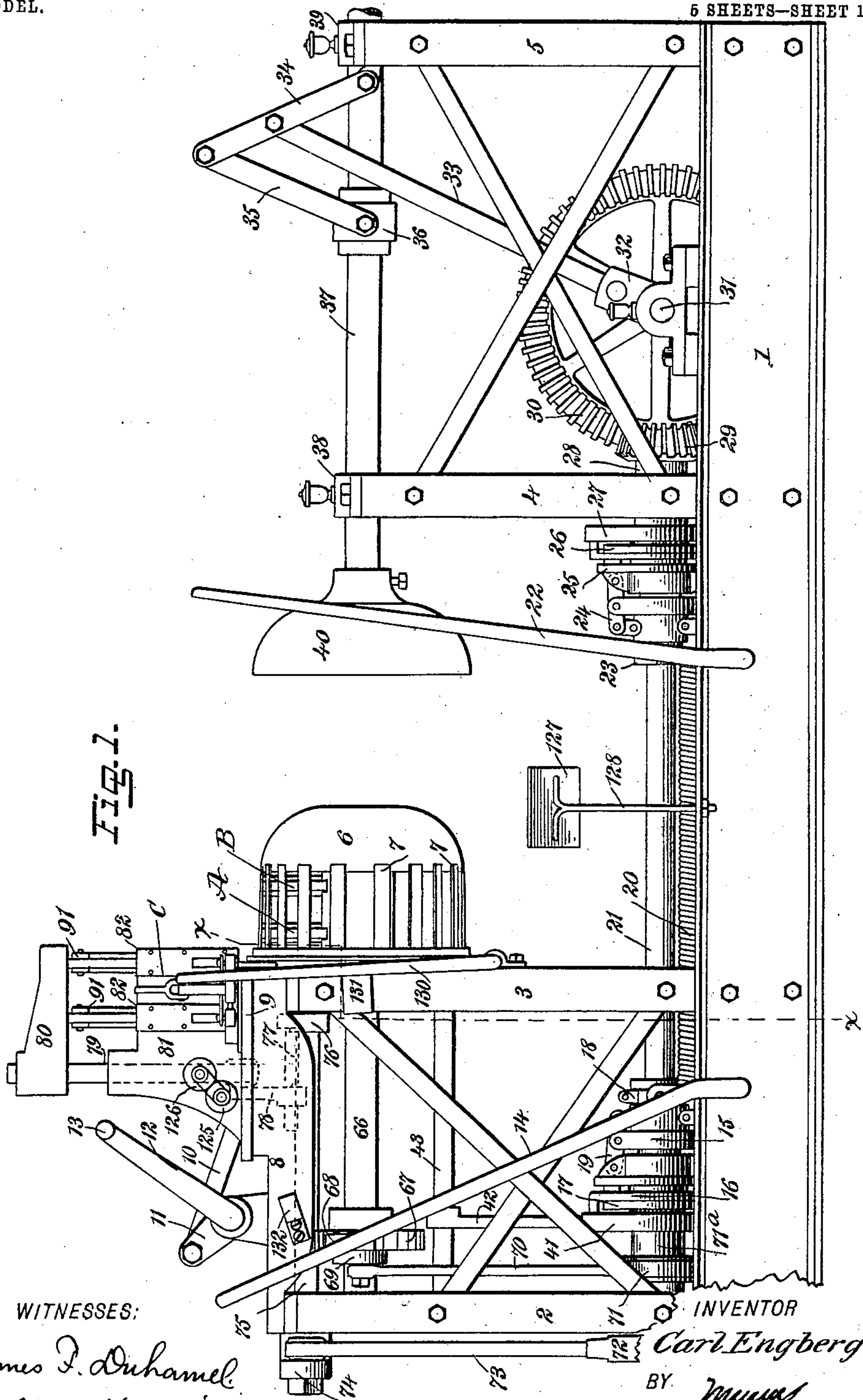
PATENTED MAR. 17, 1903.

C. ENGBERG.
BASKET MACHINE.

APPLICATION FILED MAY 21, 1902.

NO MODEL.

5 SHEETS—SHEET 1.



WITNESSES:

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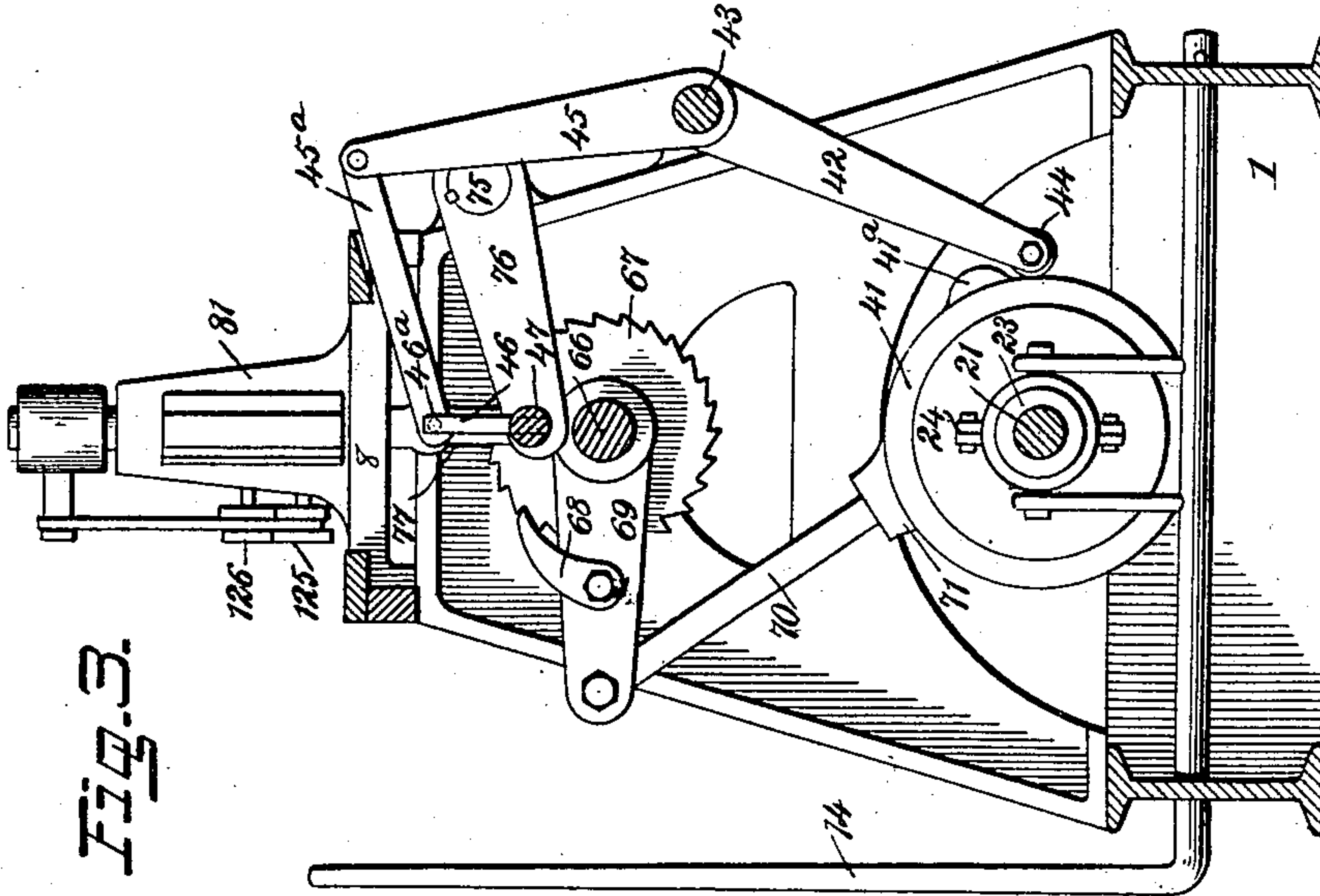


Fig. 3.

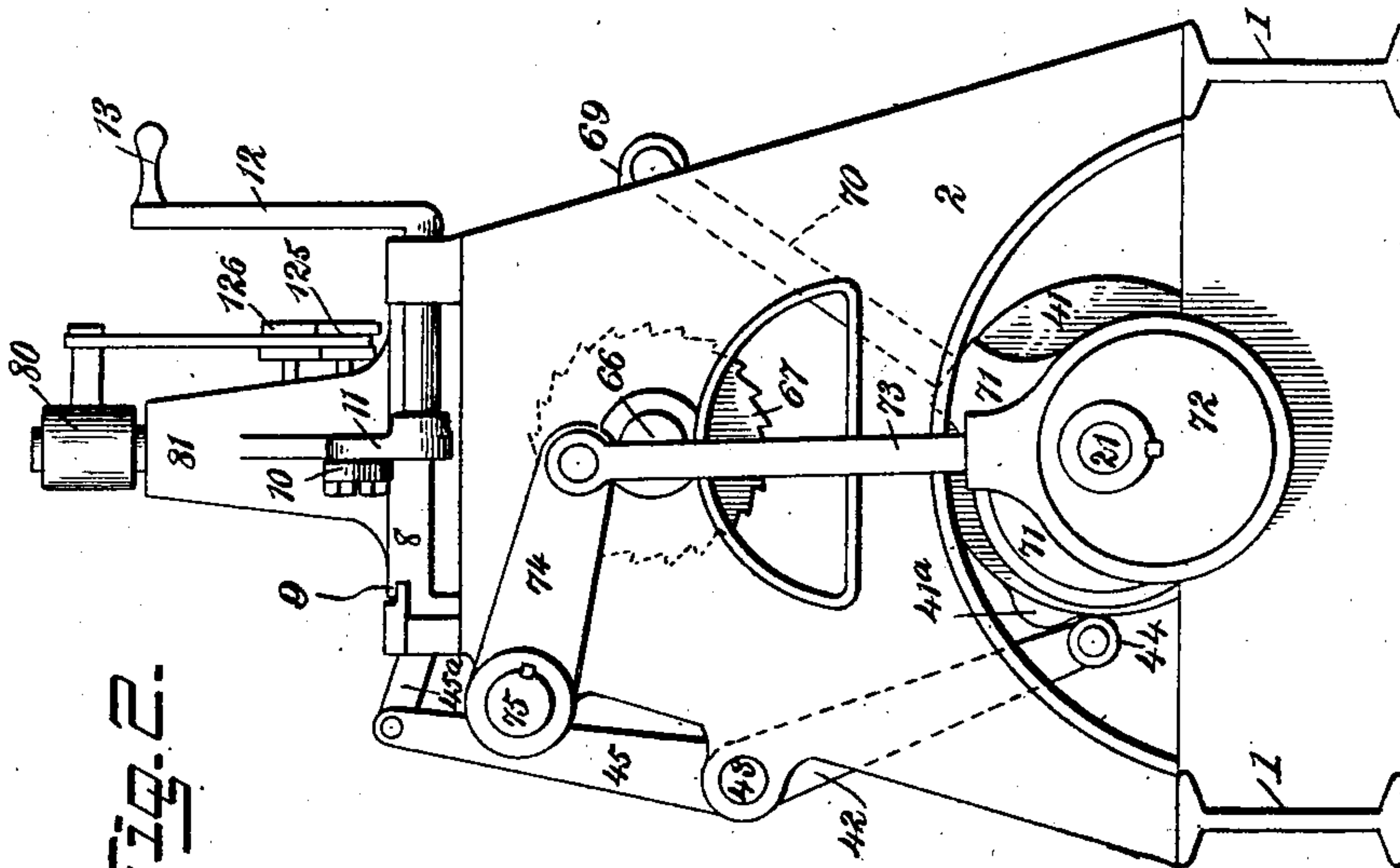


Fig. 2.

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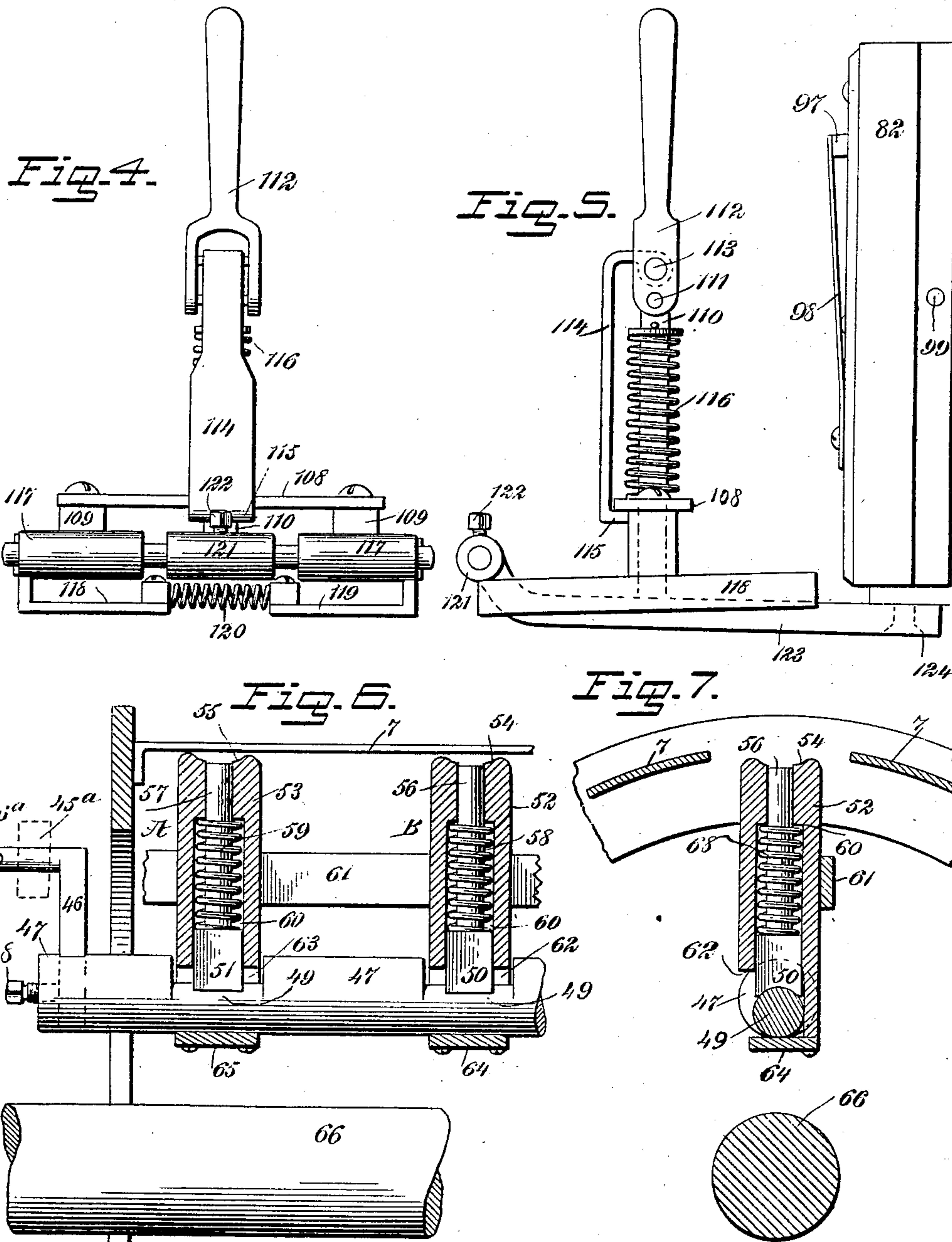
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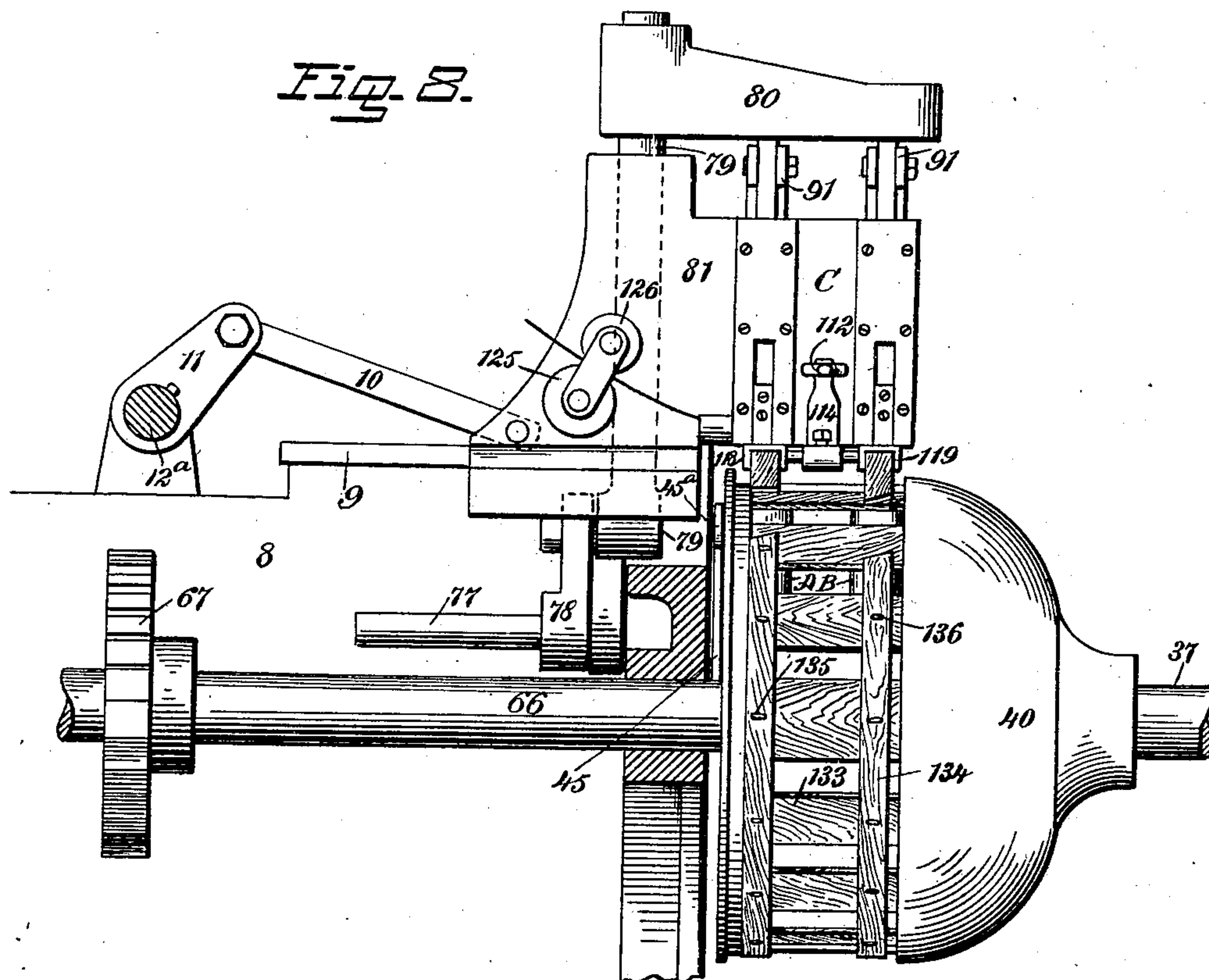
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5 SHEETS—SHEET 4.



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6 SHEETS—SHEET 5.

Fig. 9.

Fig. 10.

Fig-11.

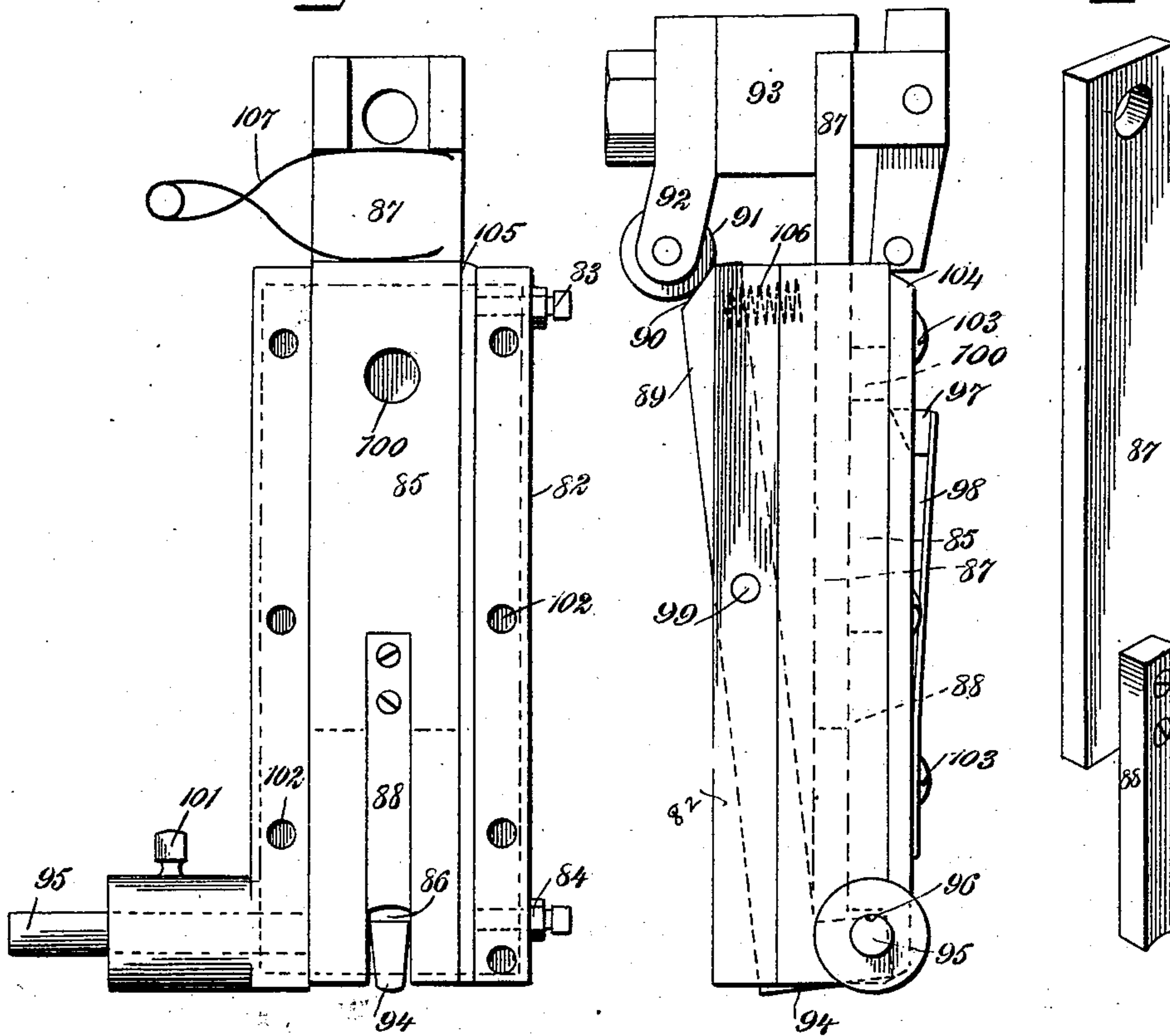
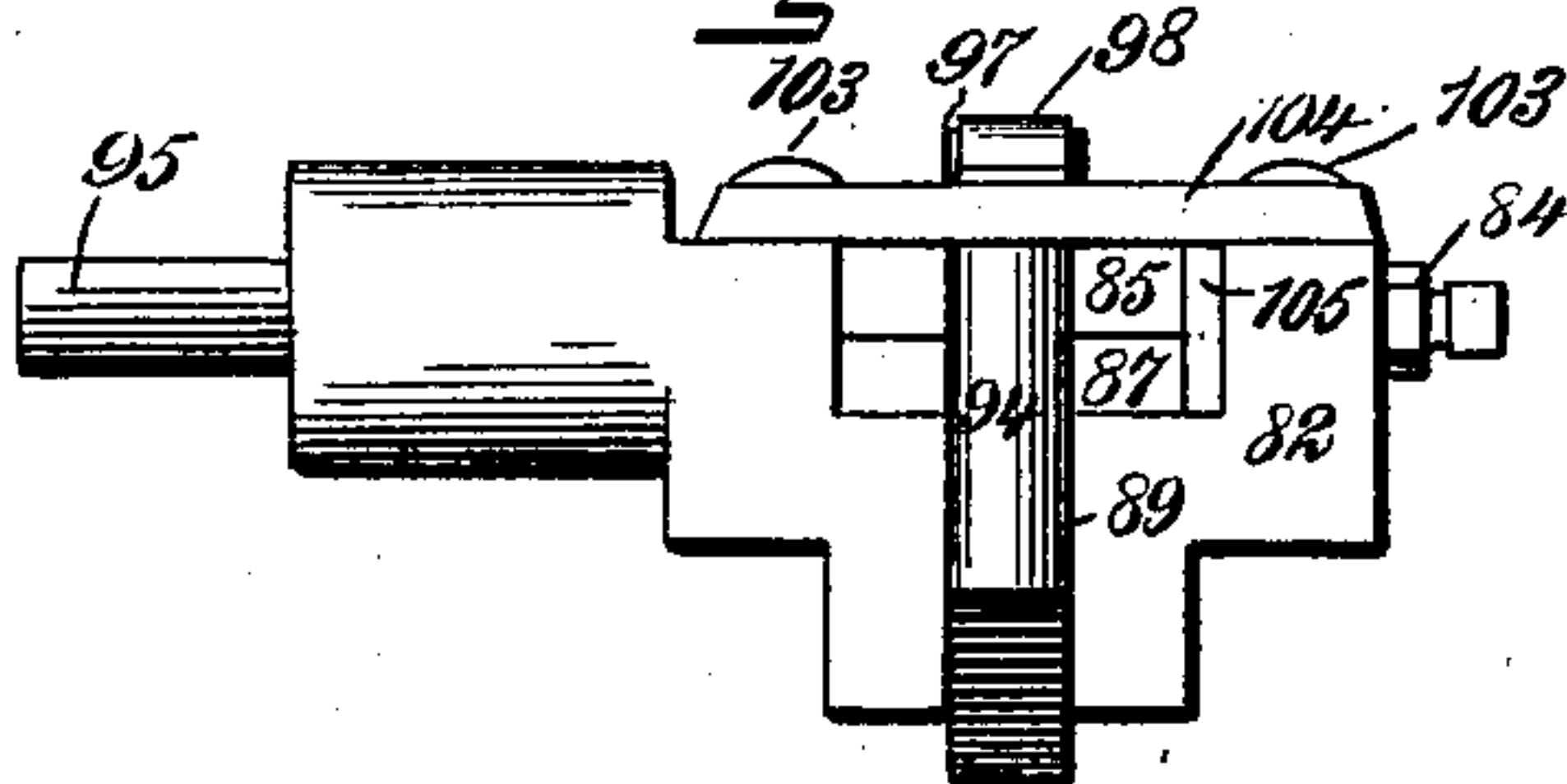


Fig. 12.



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UNITED STATES PATENT OFFICE.

CARL ENGBERG, OF ST. JOSEPH, MICHIGAN, ASSIGNOR TO ENGBERG ELECTRIC AND MECHANICAL WORKS, OF ST. JOSEPH, MICHIGAN.

BASKET-MACHINE.

SPECIFICATION forming part of Letters Patent No. 722,961, dated March 17, 1903.

Application filed May 21, 1902. Serial No. 108,365. (No model.)

To all whom it may concern:

Be it known that I, CARL ENGBERG, a citizen of the United States, and a resident of St. Joseph, in the county of Berrien and State of Michigan, have invented new and useful Improvements in Basket-Machines, of which the following is a full, clear, and exact description.

My invention relates to basket-machines, more particularly of the type used in making the so-called "bushel-baskets."

My object more particularly relates to mechanism for providing the basket with staples and for clenching the staples from the inside of the basket.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation showing one of my basket-machines complete. Fig. 2 is an end elevation, somewhat enlarged, showing the basket-machine as viewed from the left. Fig. 3 is a vertical cross-section upon the line $x-x$ of Fig. 1. Fig. 4 is an enlarged detail front elevation of the hoop-guides and their supports. Fig. 5 is a side elevation of the structure shown in Fig. 4 and showing in addition part of the stapling mechanism. Fig. 6 is an enlarged section of the mechanism for clenching the inner ends of the staples. Fig. 7 is a section of the same, taken at right angles to Fig. 6. Fig. 8 is a fragmentary elevation showing a half-formed basket upon which the machine is at work. Fig. 9 is a front elevation of the stapling mechanism, the front plate being removed. Fig. 10 is a side elevation of the same. Fig. 11 is a perspective view of the staple-driver, and Fig. 12 is an inverted plan or bottom view of the structure shown in Fig. 9.

The bed-frame 1 is provided with standards 2, 3, 4, and 5 for the purpose of supporting the several movable parts. The male former 6 is revolubly mounted and is provided with ribs 7, spaced asunder, so as to form apertures of considerable width between the same. The devices A B, located within the male former, constitute the mechanism for clenching the ends of the staples from the inside of the

former and from the inside of the basket. The stapling mechanism C is mounted upon a sliding head, as hereinafter described.

The plate 8 rests upon the standards 2 3 and is provided with a slideway 9. The sliding head 81 is connected by the link 10 with the crank 11, this crank being rigidly connected with the hand-crank 12, provided with the handle 13, the arrangement being such that the sliding head may be moved to the right or to the left at will by means of the handle 13 and left in the position thus assumed while the machine is at work. The hand-lever 14, mounted upon the frame 1, is connected with a clutch formed of the ring 15, casing 16, rotary disk 17, collar 18, and links 19 in the usual manner. The spiral spring 20 normally presses the movable clutch member to the left. This clutch is of the usual kind employed.

The main drive-shaft is shown at 21. Another hand-lever 22 is pivoted upon the main frame 1 and connected with the clutch-collar 23, this collar being connected by links 24 with a movable ring 25, supporting a friction-disk 26, which is free to engage the casing 27, these parts constituting another complete clutch of the ordinary type. Upon the drive-shaft 21 is rigidly secured a sleeve 28, provided with a pinion 29, which engages the large gear-wheel 30, keyed upon the counter-shaft 31. This shaft is provided with a crank 32, from which a pitman 33 extends to the lever 34. This lever is pivoted to another lever 35, these two levers constituting a toggle-joint. The lever 35 is connected with the collar 36 in such manner that when the toggle-joint is flattened the shaft 37 is moved toward the left. This shaft 37 is both slidably and revolubly mounted upon the bearings 38 39 and is provided with the female form 40. The arrangement is such that when the lever 22 is pressed by hand to the right, so that the friction-disk 26 engages the casing 27 with more or less pressure, the female form 40 is forced to the left and may be held in its position at the left until the completion of the basket.

Upon the main drive-shaft 21 is mounted a disk 41, provided with a cam 41^a, which actuates a lever 42 by intermittingly striking a

roller 44, revolubly mounted upon the lower end of the lever. This lever 42 is keyed upon the rock-shaft 43, and upon this rock-shaft is also keyed a somewhat similar lever 45, to which lever is pivoted a lever 45^a. The inner end of the lever 45^a engages the upper end of the short crank-lever 46, which is provided with a pin 46^a for the purpose. This crank-lever is mounted upon a short rocker-shaft 47, as shown more particularly in Figs. 3 and 6. The rocker-shaft 47 is provided with a threaded bolt 48 for the purpose of securing the crank-lever 46 rigidly in position. The rocker-shaft 47 is further provided with eccentrics 49 49, which are preferably made smaller than the shaft, as indicated more particularly in Fig. 6. Mandrel-blocks 50 51 are fitted to the eccentrics and are free to reciprocate vertically in the hollow guides 52 53, the upper ends of which are formed into matrices 54 55 and are neatly fitted with the plungers 56 57, rigidly connected with the mandrel-blocks 50 51. Spiral springs 58 59 are loosely mounted in apertures 60 60 in the guides 52 53 and normally press the mandrel-blocks 50 51 downward and into engagement with the eccentrics.

A brace 61, which is secured upon any convenient part of the framework, extends otherwise unsupported into the male form, and to this brace the guides 52 53 are rigidly secured and thereby held in position.

Spaces 62 63 are formed in the guides 52 and 53 and are of sufficient size to allow the mandrel-blocks 50 51 to reciprocate vertically, but without allowing the guides 52 53 to move relatively to the shaft 47. This arrangement may perhaps be seen to better advantage by inspecting Fig. 7. Stirrups 64 65, which are rigidly secured upon the guides 52 53, serve as an additional support for holding the guides in position, while allowing freedom of movement of the eccentrics.

The relative position of the clenching devices, which, taken collectively, may be denominated as parts A B, the ribs 7 of the male former, and the shaft 66, upon which the male former is mounted, may be readily seen by Figs. 6 and 7.

Upon the shaft 66 is keyed a ratchet-wheel 67, which is operated intermittingly by a pawl 68, as shown more particularly in Fig. 3. The pawl 68 is mounted upon the crank 69, this crank being actuated by the pitman 70 of the eccentric 71, which is mounted upon the sleeve 71^a, this sleeve being rigidly connected with the clutch-casing and revoluble therewith. The arrangement is such that when the shaft 21 rotates and the lever 14, operating the clutch, is pressed to the left the eccentric 71 causes the pawl 68 to intermittingly actuate the ratchet-wheel 67. This gives the male former 6 a step-by-step movement. An eccentric 72 is mounted upon the main drive-shaft 21 and is connected by a pitman 73 with a crank 74, this crank being

connected with the shaft 75, whereby the same is caused to rock. The shaft 75 also carries a crank 76, having a long pin 77, and upon this crank-pin is slidably mounted a connecting-rod 78. The object of the long crank-pin 77 is to enable the sliding head 81 to be moved to the right or to the left without disengaging the connecting-rod 78 from the long crank-pin. The connecting-rod 78 is connected with the vertically-reciprocating rod 79, which extends entirely through the sliding head 81 and supports the hammer-head 80.

The stapling mechanism *per se* is old and well known. However, for convenience in illustrating the application of my invention to this stapling mechanism it will be briefly described, as follows, reference being had more particularly to Figs. 9 to 12, inclusive: The hollow frame 82 is provided with adjusting-nuts 83 84 in the usual manner. A vertically-reciprocating member 85, provided with a slot 86, serves to cut and to assist in forming the staples. Another vertically-reciprocating member 87 is provided with a mandrel 88, which projects through and is flush with the edges of the bifurcated member 85. A lever 89, pivoted at 99, is provided with a bevel 90, which bevel is struck by the roller 91, mounted upon the bracket 92 and secured at 93. The lower end 94 of this lever is of substantially L shape, as indicated by dotted lines in Fig. 10. The steel mandrel 95 is provided with a groove 96, through which the wire is fed into the frame. An angular head 97, mounted upon a spring 98, serves as a limiting-stop for the reciprocating member 85, the aperture 100 in said member being engaged by the head 97. Screw-holes 102 are provided in the frame 82 to receive screws 103, whereby the plate 104 may be secured in position in the usual manner. The adjustment 101 (see Fig. 9) is used for gently tensioning the wire where it passes through the groove 96. A guide-plate 105 is engaged by the members 85 and 87 and serves to keep the reciprocating parts in proper position and also to take up wear. The lever 89 is normally pressed into the position indicated in Fig. 10 by the spiral spring 106. A leaf-spring 107 serves to force the reciprocating member 85 down in advance of the member 87, so that one stroke of the stapling mechanism is all that is necessary to cut and form the staple by means of the member 85 and to drive the staple by means of the member 87. As the wire is fed through the groove 96 of the mandrel 95 it passes across the form until it engages the guide-plate 105, where it stops. The reciprocating member 85, under tension of the spring 107, cuts a proper length from the wire, and it bends over the end 94 of the lever 89. The cutting and forming member 85 upon assuming the position indicated in Fig. 9 comes to a full stop, whereupon the member 87 pushes the mandrel 88

against the staple and drives it into the basket. It should be noted that the mandrel 94 is withdrawn from the staple the instant the roller 91 strikes the bevel 90, thereby tilting the lever, as indicated more particularly in Fig. 10.

The hoop-guides and supports for the same will now be described. A plate 108 is provided with a pair of bearing-legs 109, to which the hoop-guides 118 119 are secured. A central post 110 is rigidly mounted upon the framework and is provided with a pivot 111. A hand-lever 112 is connected by a pivot 113 with a link 114. The bottom 115 of this link slidably engages the post 110 and is pressed upon by the spiral spring 116. The hoop-guides 118 119 are integrally mounted upon the hubs or bearing-sleeves 117, so as to swing radially. A spiral spring 120 gently presses the hoop-guides asunder, thereby tending to retain them in positive position. The support for the hoop-guides consists of a sleeve 121, provided with a bolt 122 and integrally connected with the bracket 123, which is secured at 124 beneath the stapling-head upon any convenient part of the framework. The feed-wheels for the wire are shown at 125 126 in Fig. 8. A support 127 is mounted upon a bracket 128, and upon this support the webs of the basket are rested by the operative in the usual manner. A hand-lever 130 is provided with a bearing-surface 131, rigidly connected therewith, for the purpose of engaging the edge of the basket when complete and forcing the same off the male form 6. A latch 132, rigidly secured upon the framework, (see Fig. 1,) engages the lever 14 when the operative desires the lever to be held in its position to the right.

In Fig. 8 may be seen a partially-finished basket consisting of the radial ribs 133 and the hoops 134, connected together by the staples 135 136.

The general operation of my invention is as follows: The operative rests a web upon the support 127 and moves the lever 22 to the left. This causes the female form to engage the web, bending the same over the male form in the usual manner. The operative next grasps the handle 13 and moves the sliding head to the right, so that the stapling mechanism C is brought adjacent to the ribs 7 of the male form. The two stapling devices are thus brought opposite the clenching devices A B. The operative next actuates the lever 14, thereby moving the clutch-collar 18 and throwing the clutch into action. The result is that the shafts 43 and 47 are caused to rock in the manner above described, and the shaft 66 is rotated intermittingly by the pawl 68, as already explained. The stapling mechanism makes, cuts, and forms the staples and forces them into the ribs and hoops of the basket at points intermediate of the metallic ribs 7 of the male form 6. The clenching mechanism inside of the male form bends the

points of the staples slightly inward as soon as the staples are driven into the matrices 54 55, and the rise of the plungers 56 57 bends the ends completely inward, so that the clenching is complete, and the interior of the basket is thus rendered free from metallic spurs and projecting points. By means of the handle 112 the hoop-guides may be actuated in the usual manner. These guides should be raised when the sliding head is to be turned to the left by means of the handle 13.

I find that the machine is very rapid in action and that the clenching of the staples is perfect. The sliding head need not be moved very often, and for this reason is preferably actuated by hand.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A basket-machine, comprising a frame, male and female forms, means for actuating the same, hoop-guides, means for adjusting the same by hand, a sliding head upon which said hoop-guides are mounted, and manually-operated mechanism for actuating said sliding head, the arrangement being such that said hoop-guides may be moved into and out of a definite position relative to the position of said forms.

2. A basket-machine, comprising a frame, male and female forms, means for actuating the same, a sliding head free to move into and out of a position adjacent to one of said forms, stapling mechanism mounted upon said sliding head, hoop-guides likewise mounted upon said sliding head, handles for adjusting said hoop-guides relatively to said sliding head, manually-operated mechanism for changing the position of said sliding head relative to said forms, and means for actuating said stapling mechanism.

3. A basket-machine, comprising a frame, a hollow form revolvably mounted thereon, a sliding head, means for changing the position of said sliding head relatively to said form, manually-operated hoop-guides mounted upon said sliding head, means for adjusting said hoop-guides, stapling mechanism mounted upon said sliding head and disposed in alignment with said hoop-guides, clenching mechanism disposed within said hollow form and free to coact with said stapling mechanism and said hoop-guides, and means for actuating said stapling mechanism and said clenching mechanism.

4. A basket-machine, comprising a frame, forming mechanism mounted thereon, hoop-guides for fitting hoops upon the unfinished basket, and means controllable at will for continuously adjusting said hoop-guides.

5. A basket-machine, comprising a frame, forming mechanism mounted thereon, movable hoop-guides for fitting hoops upon a basket in the process of construction, and handles for adjusting said hoop-guides.

6. A basket-machine, comprising a frame,

forming mechanism mounted thereon, hoop-
guides provided with apertures and pivotally
mounted for the purpose of fitting hoops upon
baskets in the process of construction, and
5 handles connected with said hoop-guides for
directing the same by hand.

In testimony whereof I have signed my

name to this specification in the presence of
two subscribing witnesses.

CARL ENGBERG.

Witnesses:

LAWRENCE C. FYFE,
G. M. THUSHER.