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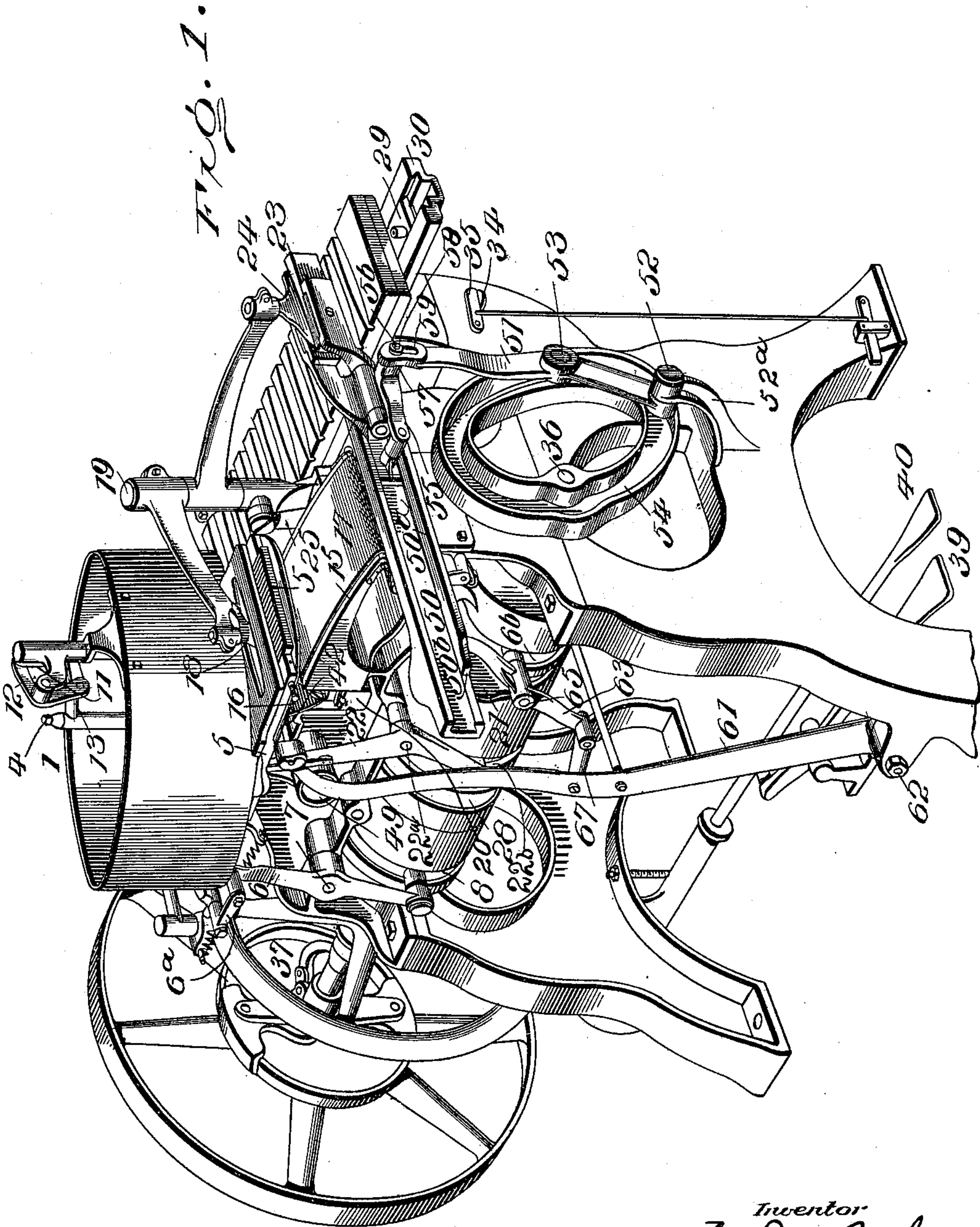
Patented Apr. 16, 1901.

N. DU BRUL.
CIGAR BUNCHING MACHINE.

(Application filed Mar. 28, 1900.)

(No Model.)

6 Sheets—Sheet 1.



Witnesses

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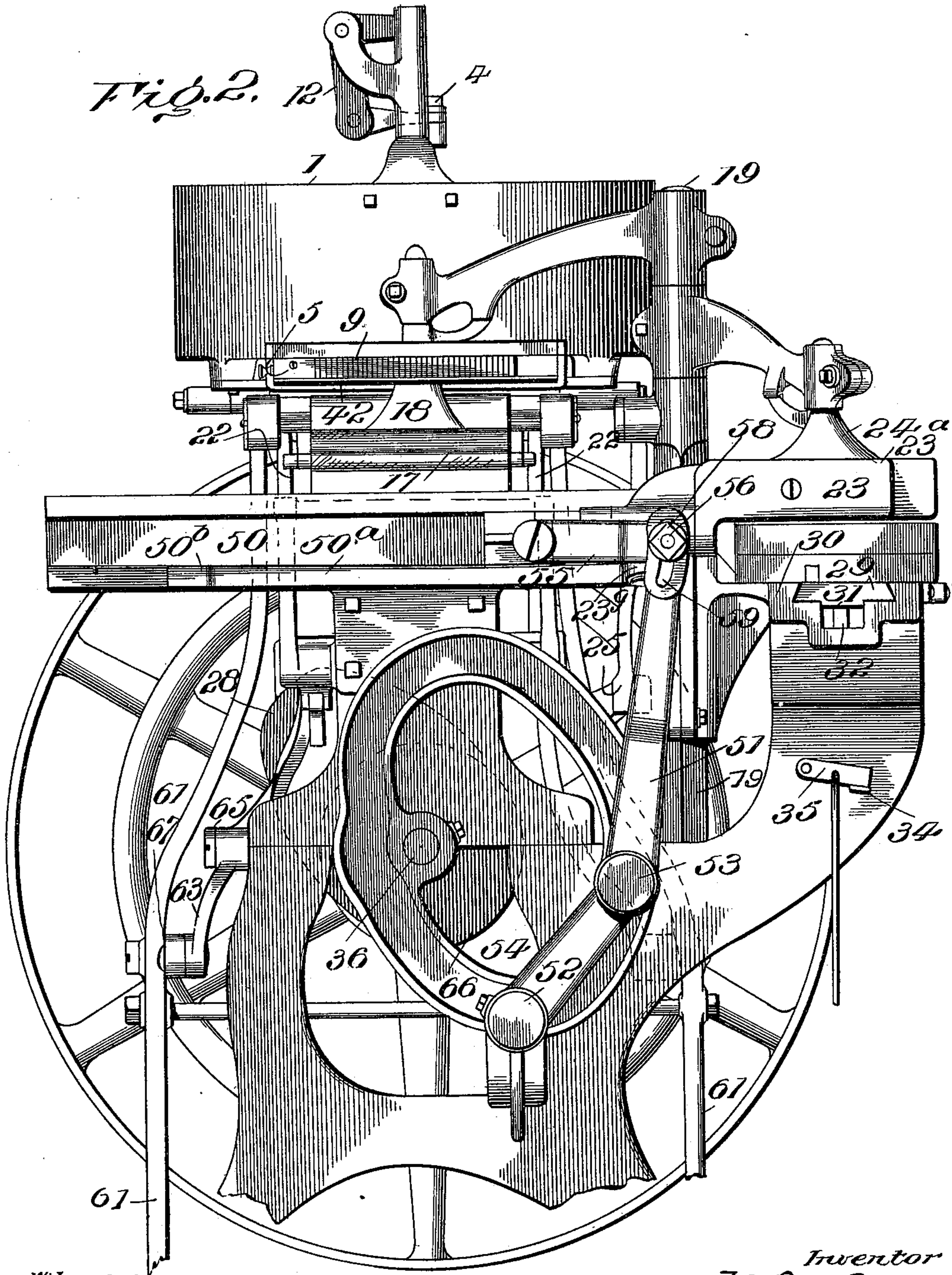
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Witnesses

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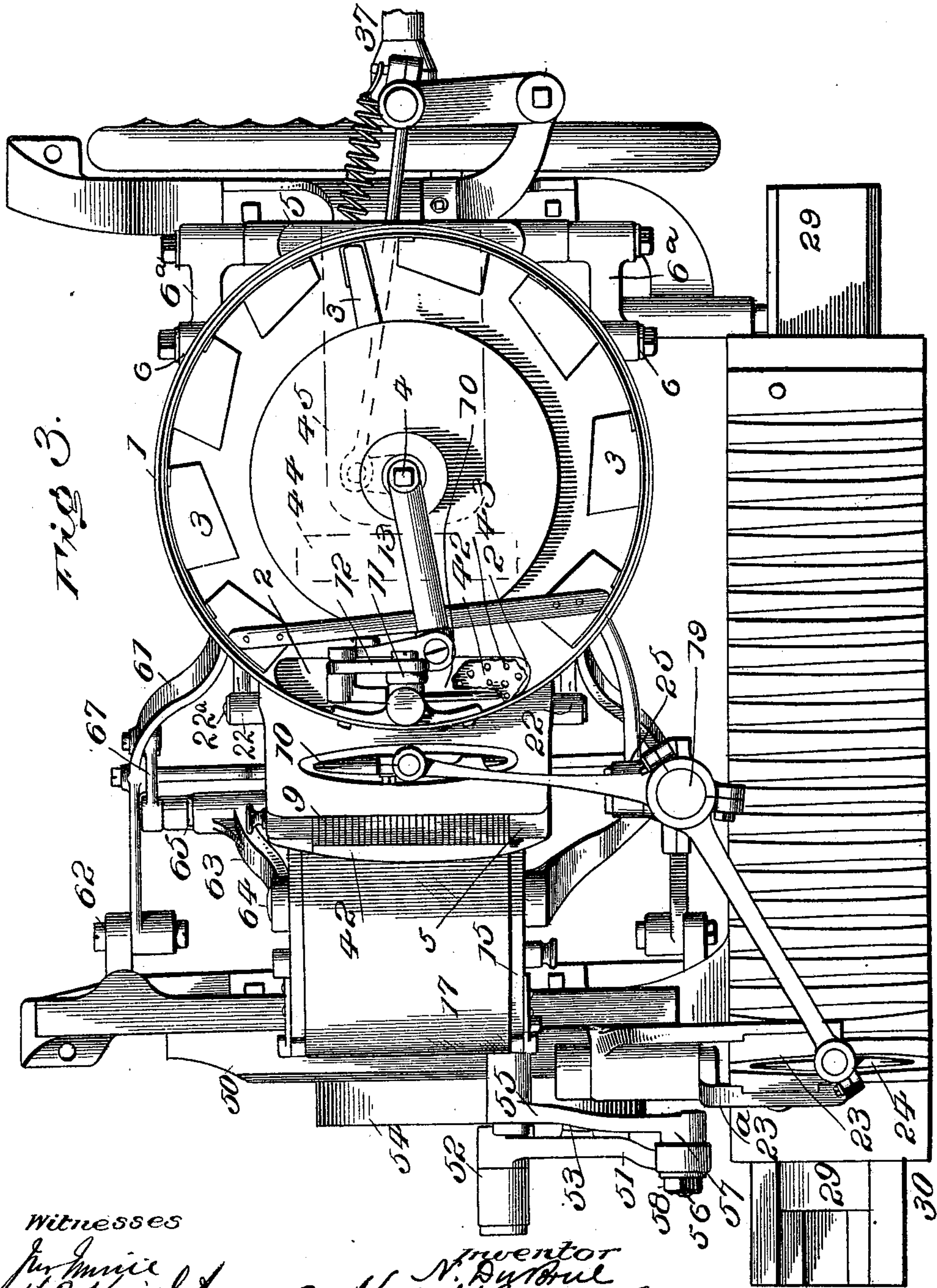
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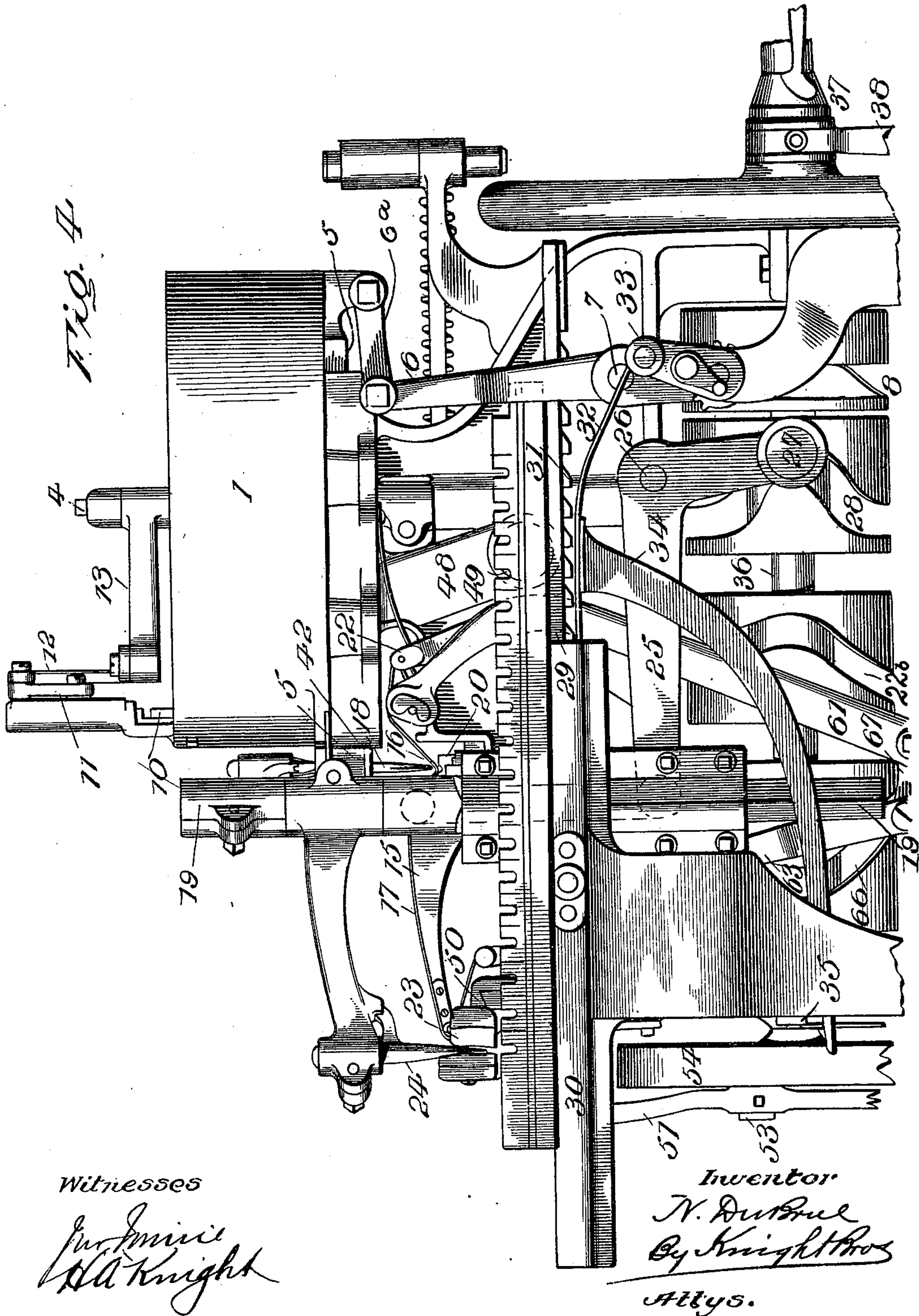
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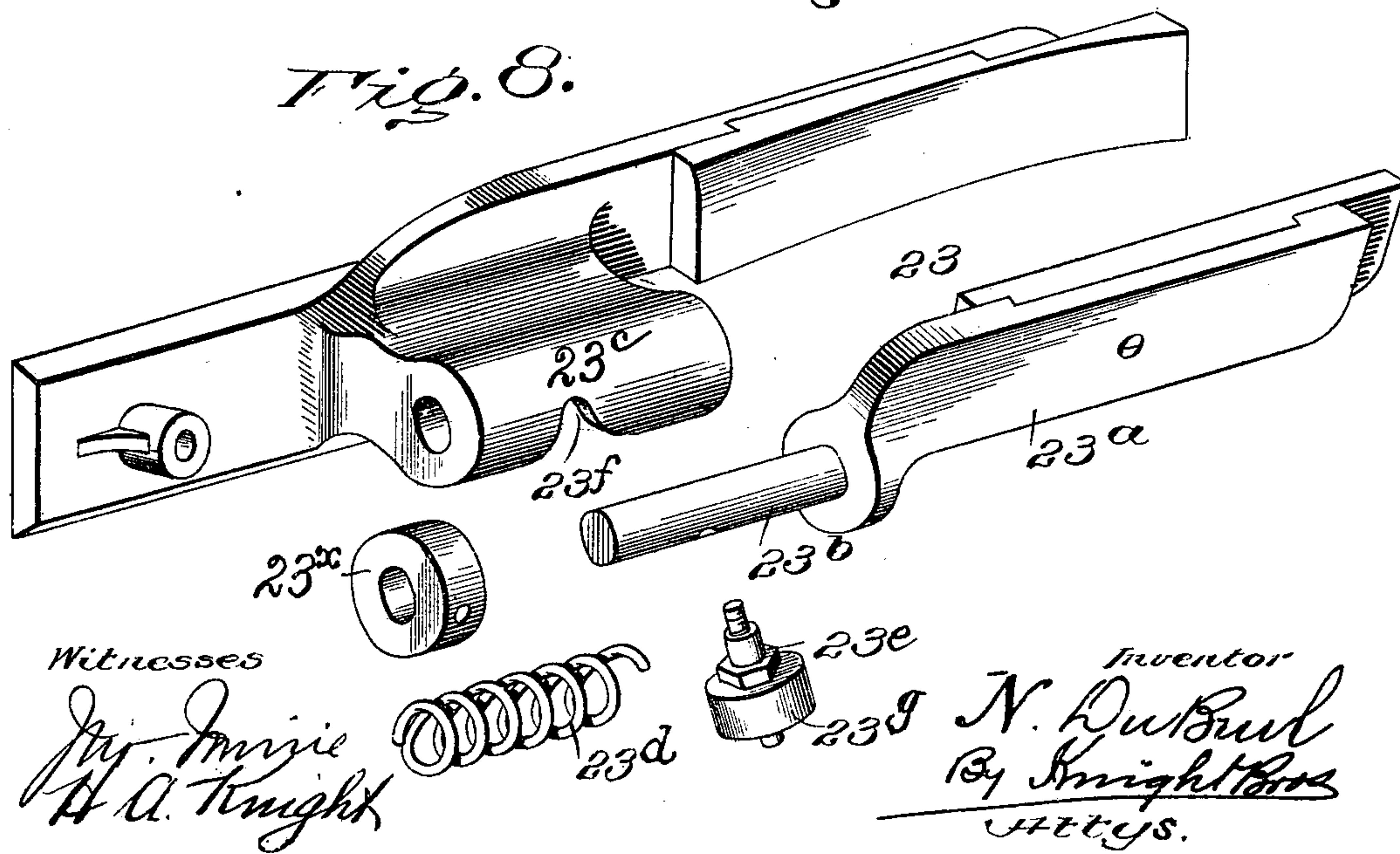
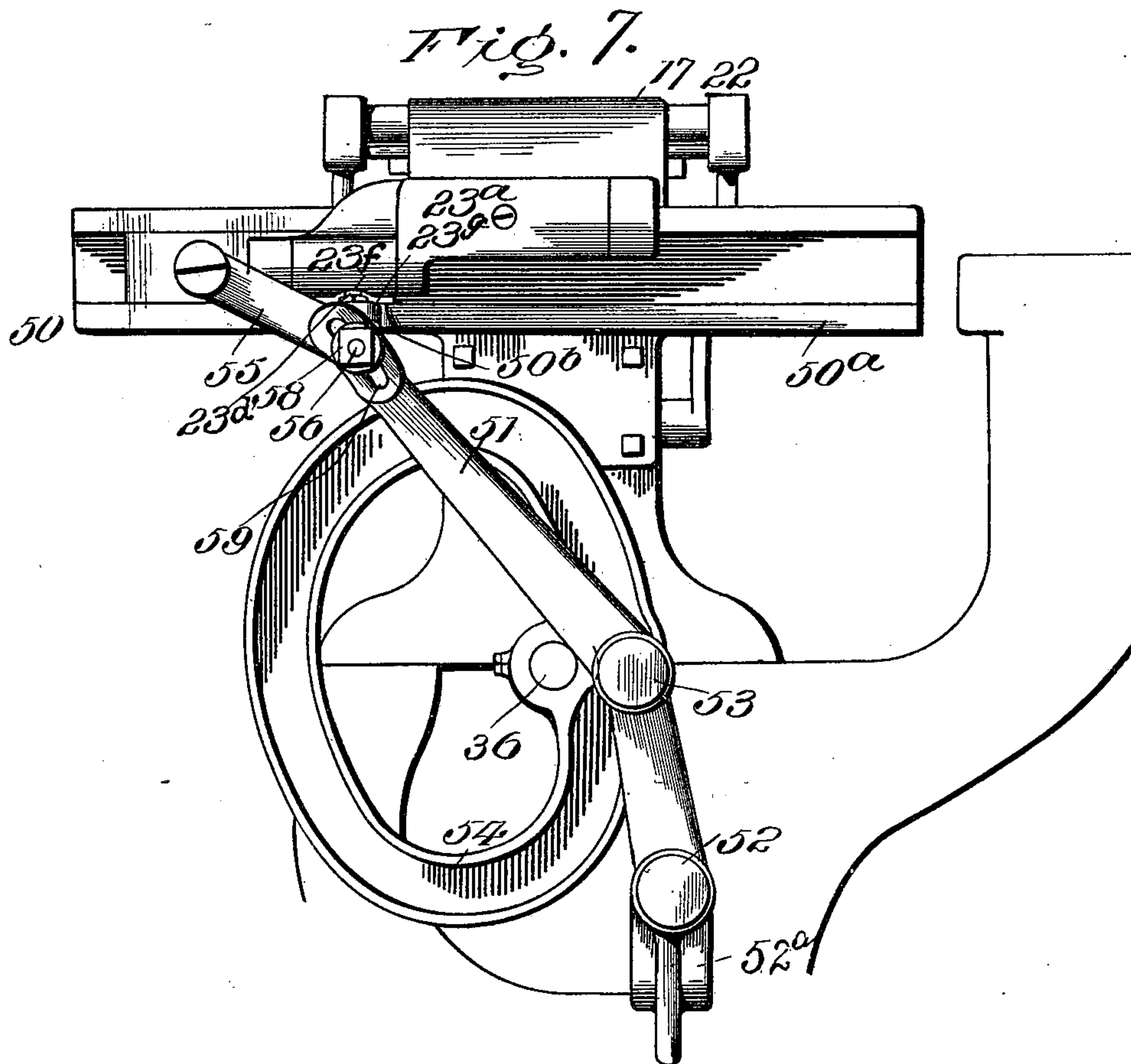
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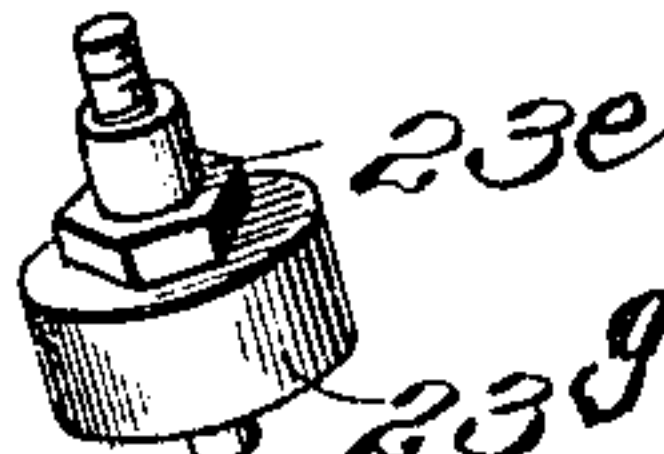
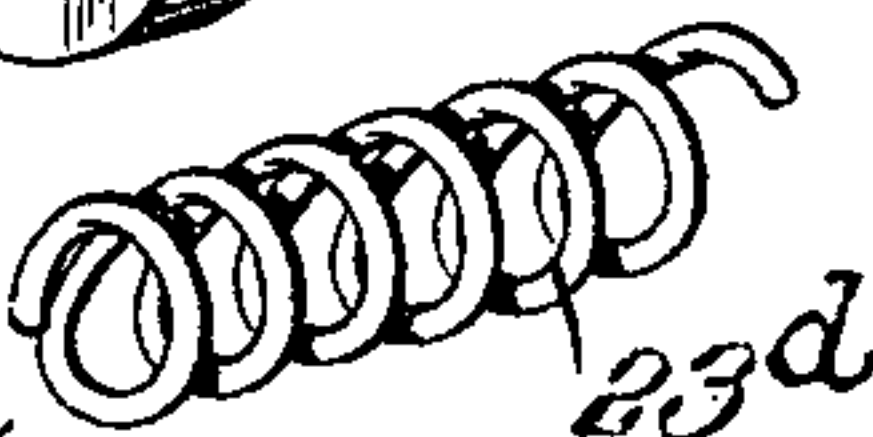
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6 Sheets—Sheet 6.



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UNITED STATES PATENT OFFICE.

NAPOLEON DU BRUL, OF CINCINNATI, OHIO.

CIGAR-BUNCHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 672,096, dated April 16, 1901.

Application filed March 28, 1900. Serial No. 10,497. No model.

To all whom it may concern:

Be it known that I, NAPOLEON DU BRUL, a citizen of the United States, residing at Cincinnati, county of Hamilton, and State of Ohio, have invented certain new and useful Improvements in Cigar-Bunching Machines, of which the following is a specification.

My present invention relates to a cigar-bunch machine of the general type described in United States Letters Patent of Fredrick C. Miller, granted September 8, 1896, No. 567,350, and of Albert Du Brul, granted November 14, 1899, No. 636,961, and which, generally speaking, comprises a tobacco-hopper, a matrix-slide by which the filler is taken from the hopper in measured quantities and presented above the rolling-table, a plunger and coöperating follower by which the filler is discharged from the matrix into a pocket formed by the rolling-apron, levers to operate the rolling-apron to form the bunch, a bunch-carrier into which the apron discharges, a mold-carrier supporting a mold over which the bunch is presented by the bunch-carrier and moving said mold intermittently to bring its several matrices successively into position to receive a bunch from the bunch-carrier, and a plunger for discharging the bunches from the bunch-carrier into the mold.

My present invention has for its objects to improve the construction of some of the parts of the machine above outlined, as well as to add thereto features that will improve not only the operation of the machine, but also the finished article produced thereby.

In the manufacture of cigars from cut scrap more or less dust and small particles of tobacco are encountered in the material.

One feature of my improvement relates to means whereby each charge of tobacco as it is measured in the matrix of the sliding plate is subjected to a cleansing current of air through it to remove the dust and finer particles therefrom. I also prefer to continue this air-suction during the interim in which the matrix advances to discharge its tobacco to clean the parts beneath the hopper of the dust and particles accumulating there, and thereby improve the ease of operation of the parts and save wear and tear which have heretofore resulted from these gritty accumulations.

A further feature of my present invention relates to the construction of the bunch-carrier whereby the bunch, which has its form determined by the matrix and apron, may be deposited at different relative positions in the carrier, and consequently reach different relative positions in the mold. It frequently happens that, owing to the condition of the filler material, the formed bunch will have too much bulk at one point and not enough at another, so that the finished article will be too tight or too loose at some point in its length. This feature of my present invention affords a simple means for overcoming this difficulty, and consists in providing the carrier with an adjustable operating connection whereby it will be held at different positions beneath the discharge end of the rolling-table and receive the bunch in different relative positions of the carrier, and consequently change the point at which the thick part of the bunch occurs in the mold. This construction is preferably such that the position which the carrier assumes over the mold for discharging remains constant notwithstanding any adjustment at the other end of the carrier's throw.

My invention will be fully understood upon reference to the accompanying drawings, in which—

Figure 1 is a perspective view of my improved machine. Fig. 2 is a front view of the same. Fig. 3 is a plan. Fig. 4 is an elevation of the side opposite to that seen in Fig. 1. Fig. 5 is a vertical longitudinal section through the filler-feeding mechanism. Fig. 6 is a detail view of the matrix-charging plunger. Fig. 7 is a front view of the bunch-carrier in its opposite position to that shown in Figs. 1, 2, 3, and 4. Fig. 8 is a perspective view of the segregated parts of the bunch-carrier.

1 represents the hopper, formed with a bottom discharge-opening 2 and containing an agitator 3, oscillated by central shaft 4 to feed the filler material toward the opening 2.

5 is the matrix-slide, reciprocated in the base beneath the hopper through links 6^a, connecting the slide with the lever 6, fulcrumed at 7 and engaging cam 8, said slide having a matrix 9, which when the slide is moved by said lever and cam is moved from

a position beneath the opening 2, where it is charged by a plunger 10, controlled through a link 11 and bell-crank lever 12 from a crank-arm 13 on the shaft 4, to a projected position 5 at the rear of the table 15, where the charge of filler measured and shaped by said matrix is deposited into the pocket 16 of apron 17 by the plunger 18 on vertically-reciprocating post 19 and coöperating follower 20, which is 10 made to rise with the pocket to receive the filler by means of a suitable cam.

22 is a lever that holds the rear end of the rolling-apron.

61 represents the lever that carries the 15 bunch-roller that rolls the bunch through the medium of the apron and discharges it into the carrier 23, by which it is conveyed above the mold, there to be deposited into the mold-matrix by a plunger 24 on the post 19. Post 20 19 is moved vertically by bell-crank lever 25, fulcrumed at 26 and having its pin 27 engaging in cam 28.

29 is the mold-table, moved (see Fig. 4) in guide 30 step by step through the ratchet 31 25 and elongated spring-dog 32, which is moved by a short lever 33. The spring-dog 32 may be held out of engagement with its ratchet 31 by horn 34, carried by said spring-dog and projecting forward beneath the upper por- 30 tion of a treadle-stop 35. (See Figs. 1 and 4.)

All of the operating-cams mentioned, as well as some others to be referred to, are mounted upon a main shaft 36, which receives driving power from any suitable source 35 through clutch 37, whose controlling-lever 38 is moved in opposite directions through pedals 39 40.

As thus far described the machine is substantially similar to that described in United 40 States Letters Patent already recited, and a more detailed description of the parts above referred to is unnecessary to an understanding of my present invention.

Air-suction means.—As shown more clearly 45 in Fig. 5, the base is hollowed out to provide a suction-chamber 41, the top surface of the base upon which the matrix-slide works being formed by a thin plate 42. The plate 42, or the upper surface of the base, should it be 50 cast with such a surface above the chamber, is perforated, as shown at 43, Figs. 3 and 5, beneath the hopper-opening 2 and the matrix when the latter is at or near its inner limit, and through these perforations a current of air 55 is drawn so long as the matrix is in such position, air being prevented from entering the perforations from beneath the sides of the matrix by the contact of the latter with the plate. In order to induce an air-current be- 60 neath the other parts during the advance of the matrix-slide, the plate 42 has an opening 44 in rear of the perforations 43, and the rear portion of the matrix-slide is hollowed out at 45 to a point which comes just behind the 65 rear wall of the suction-chamber when the matrix-slide is drawn in, but which point passes well forward of and overlaps the suc-

tion-chamber when the matrix-slide is forward, so that at such time there is a suction 70 beneath and around the matrix-slide, the air entering at 46 at the rear end of the slide. (See Fig. 5.)

From the foregoing description it will be seen that the matrix-slide operates as a valve to determine the direction of the air-current; 75 also, that the perforations 43 in the plate 42 or upper surface of the base permit the escape of fine particles and dust from the charge in the matrix, but do not interfere with the filler material therein or with the operation 80 of the matrix-slide.

Air-suction may be induced in the chamber 41 in any suitable manner—as, for instance, by providing the base with a passage 48, that connects the chamber 41 with the 85 outlet 49, leading to any suitable source of air-suction.

The bunch-carrier 23 is mounted on a sliding track 50, extending beneath the discharge end of the table, and is reciprocated by means 90 of a lever 51, fulcrumed at 52 and having a stud 53 engaging in the groove of cam 54, which cam is on the extreme front end of the main shaft 36. Lever 51 works across the front of said cam, and its fulcrum 52 is in a 95 bracket 52^a, projecting up in front of the cam. Lever 51 is connected to the carrier 23 by a pitman 55, the pin 56 of which projects from a boss 57, which is secured by nut 58 in a slot 59 in the end of the lever 51. By com- 100 paring the relative positions of the lever and the pitman at opposite ends of their throw, Figs. 2 and 7, it will be seen that when the carrier is beneath the discharge end of the table, or in position to receive the bunch, the 105 lever and pitman are approximately in line and any adjustment of their connecting-pin will change the length of the connection with the carrier, and consequently the throw of the carrier in its return direction. By this means 110 the position of the carrier beneath the discharge-point, and consequently of the bunch in the carrier, may be regulated at will; but when the carrier is over the mold the lever and pitman are substantially at right angles, 115 or at least the pitman runs approximately transversely of the lever, in which position adjustment of the pitman effects no change, so that the outward throw of the carrier remains unchanged and the carrier always stops 120 at the same position relatively to the mold and discharging-plunger 24, whatever adjustment may be made in the pitman. In order that these relations of the parts may be strictly accurate, the slot 59 is concentric with the 125 pivotal connection of pitman 35 to the carrier when the parts are at their outer limit.

It will be seen from the foregoing description that the bunch may be accurately located 130 in the carrier at will and will be correspondingly placed in the mold, while the carrier always comes into proper discharging position above the mold to permit the discharge-plunger to descend through it.

As shown in Fig. 8, the bunch-carrier 23 is preferably made with a jaw 23^a, movable on a longitudinal spindle 23^b, that works in a socket 23^c on the fixed portion of said carrier, in which it is held by a removable head 23^x, said jaw being rotated in a position to be held normally open by means of a spring 23^d. A stud 23^e projects from the spindle 23^b through an opening 23^f and carries a roller 23^g, that runs upon a cam 50^a along one edge of the guide 50. (See Figs. 1, 2, and 7.) Said cam 50^a is provided with a depression 50^b at one end, so that the roller 23^g drops into said depression at the end of the stroke of the bunch-carrier and permits the opening of the movable jaw 23^a to receive the bunch, while during the travel of the bunch-carrier the jaw is closed to hold the bunch securely in position and does not open again until returned to receive a new bunch.

Rear apron-holding lever.—As shown in Fig. 1, lever 22 is fulcrumed at 22^a, supports the rear end of apron 17, and is moved forward and backward by double cam 22^b. The cam 22^b is so timed that the forward movement takes place to slacken the apron before the filler is deposited in the pocket and the rearward movement is made thereafter and before the bight has been formed by the rolling-lever to close the apron around the bunch. I thus provide positive means for slackening and tightening the apron.

Rolling-lever.—Owing to the desirability of having as long a rolling-table as practicable, I employ a long rolling-lever 61, having any suitable form of bunching-roller and fulcrumed at 62, near the bottom of the machine, and oscillated through the medium of a shorter lever 63, fulcrumed at 64, Fig. 3, having an intermediate pin 65, that engages in the cam 66, and connected by a link 67 with the rolling-lever. The shaft of the lever 61 extends through the machine, and lever 61 is duplicated on the opposite side of the machine. By the described arrangement of rolling-lever the table may be made much longer and flatter than heretofore and a better rolling effect produced. The binder is laid upon the apron previous to the rolling action, as is well understood in machines of this type.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. In combination with a cigar-bunch machine, having a slide formed with a matrix and means for discharging the matrix, an air-suction means communicating with and causing an air-current through the matrix when the slide is out of its discharging position, whereby dust is removed from the filler before being rolled; substantially as described.

2. In a cigar-bunch machine the combination of the base formed with an air-chamber having communication with a source of air-suction, a matrix-slide moving over said base,

and a perforate plate beneath said matrix, and dividing its matrix from the air-chamber; substantially as set forth.

3. In combination with a cigar-bunch machine having an air-chamber provided in its base, and with air-passages leading beneath the matrix-slide, of a valve-like matrix-slide having means to control the direction of the air-current and cause it to pass through the matrix while the latter is receiving its charge, and over and around the working parts while the matrix is in its forward position; substantially as and for the purpose set forth.

4. In a cigar-bunch machine, the combination of the base for the feeding mechanism, formed with a suction-chamber, a plate covering said suction-chamber, and a matrix-slide working over said covering-plate; said covering-plate being formed with perforations beneath the inner position of the matrix and with an opening in rear thereof, and said matrix-slide being recessed in its rear part and operating to cut off the perforations and rear opening alternately to direct the air through the matrix and around the working parts successively, as explained.

5. In a cigar-bunch machine, a bunch-carrier, and means for operating said bunch-carrier, adjustable to change the throw of the bunch-carrier relatively to the part from which it receives the bunch; substantially as and for the purpose set forth.

6. In combination with a cigar-bunch machine, a bunch-carrier reciprocating thereon to carry the bunch from the rolling mechanism to the point of depositing the bunch and means for adjusting the rearward throw of said carrier; substantially as and for the purpose set forth.

7. In combination with a cigar-bunch machine, a bunch-carrier reciprocating thereon, a lever connected to said carrier through the medium of a pitman, which is adjustably connected to the lever; and oscillating from a position approximately in line with the pitman when at one limit of its throw to a position approximately at right angles to said pitman when at the other limit of the lever's throw, for the purpose explained.

8. In a cigar-bunch machine, the combination of a suitable frame having a rolling-table, a reciprocating bunch-carrier beneath the front end of the table, an operating-shaft extending longitudinally of the machine, a cam 54 located on the end of said operating-shaft at the front of the machine and provided with a groove in its outer face, a bracket projecting up in front of the lower portion of said cam, and an operating-lever fulcrumed on said bracket and working across the face of said cam, having actuating connection with the bunch-carrier and provided with a roller or stud at an intermediate point which enters the groove of said cam; substantially as and for the purpose set forth.

9. In a cigar-bunch machine, the combina-

tion of a rolling table and apron, a rolling-
lever, having means for actuating it, an apron-
holding lever 22 to which the rear end of the
apron is attached, and a double cam 22^a posi-
5 tively engaging said apron-holding lever in
both directions moving it forward and rear-
ward, and timed to draw the apron rearward

after the tobacco has been deposited in the
pocket of the apron and the bight of the apron
closed by the rolling-lever, to roll the bunch.

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Witnesses:

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