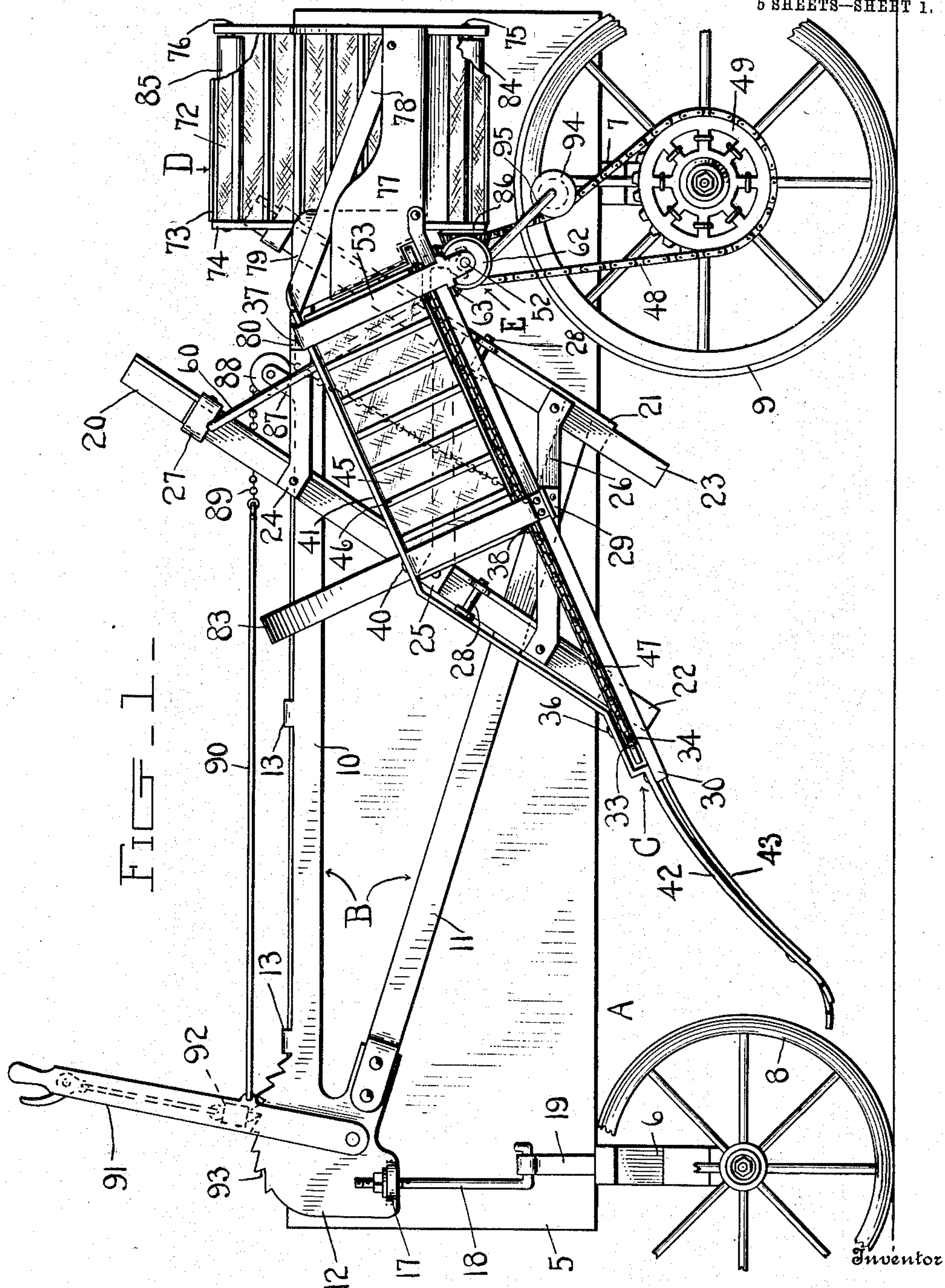


947,292.

F. I. BONHAM.
CORN TOPPING MACHINE.
APPLICATION FILED MAY 20, 1908.

Patented Jan. 25, 1910.

5 SHEETS—SHEET 1.



Witnesses

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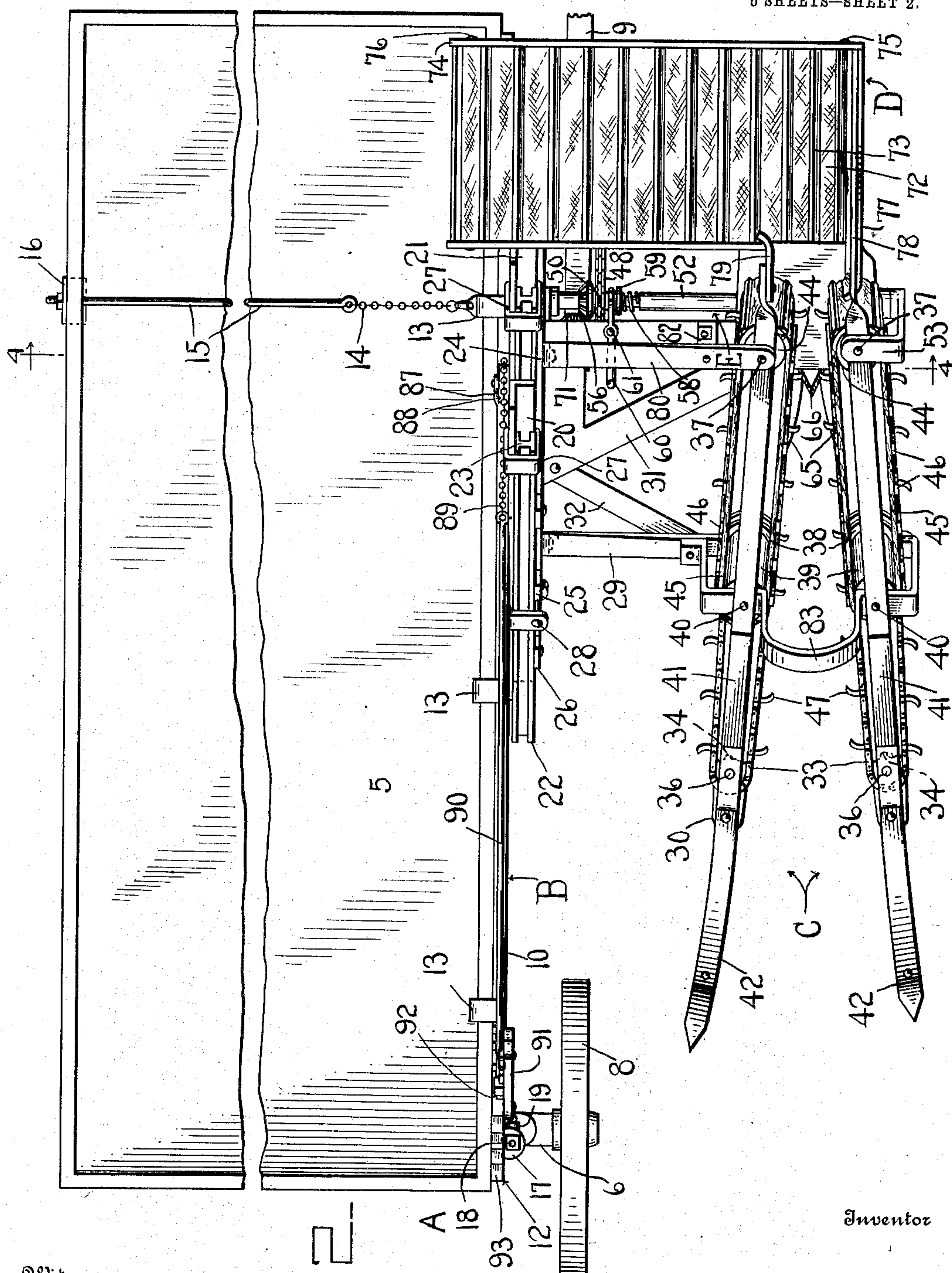
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5 SHEETS—SHEET 2.



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5 SHEETS—SHEET 3.

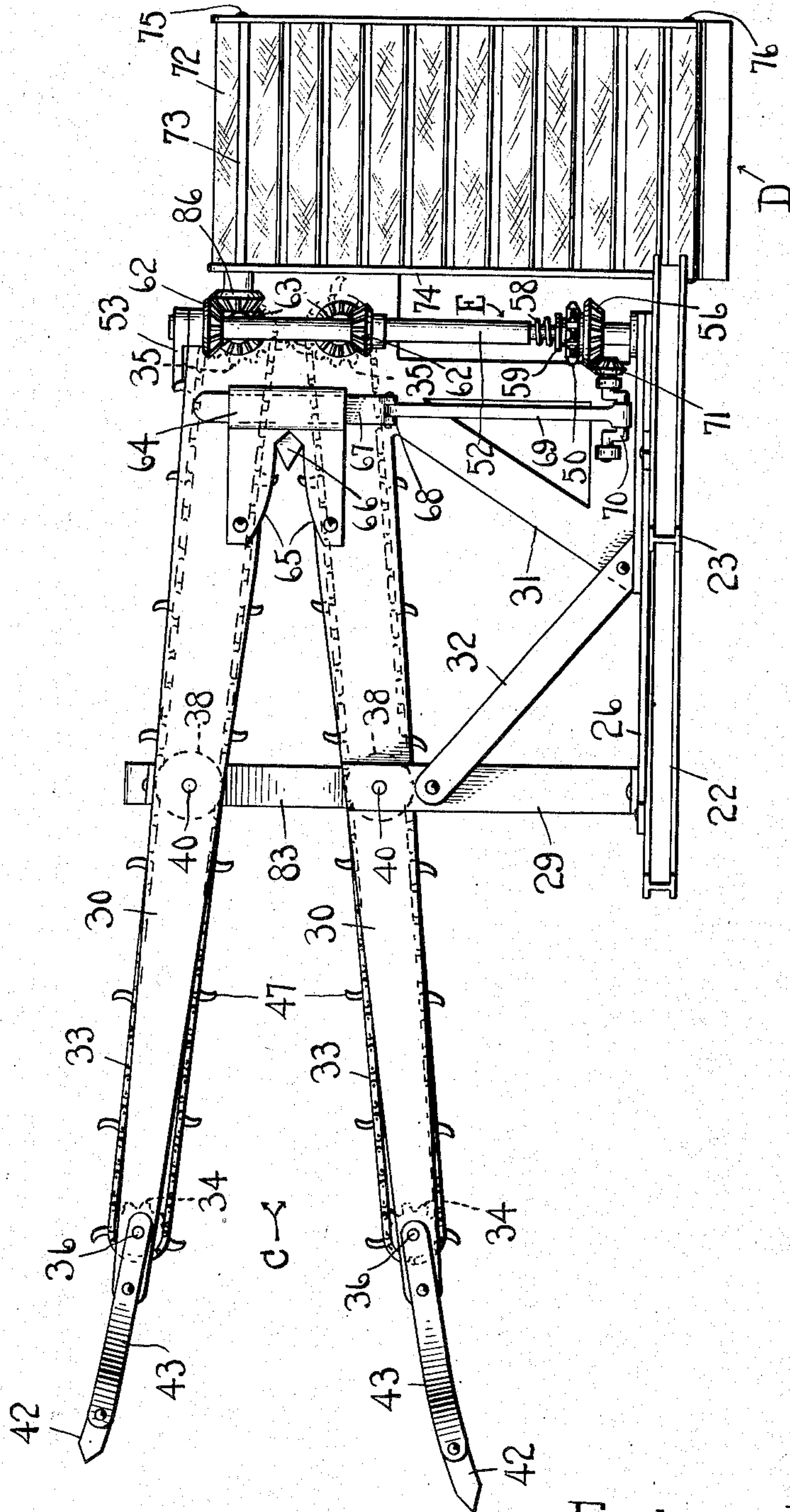


FIG. 3

Witnesses

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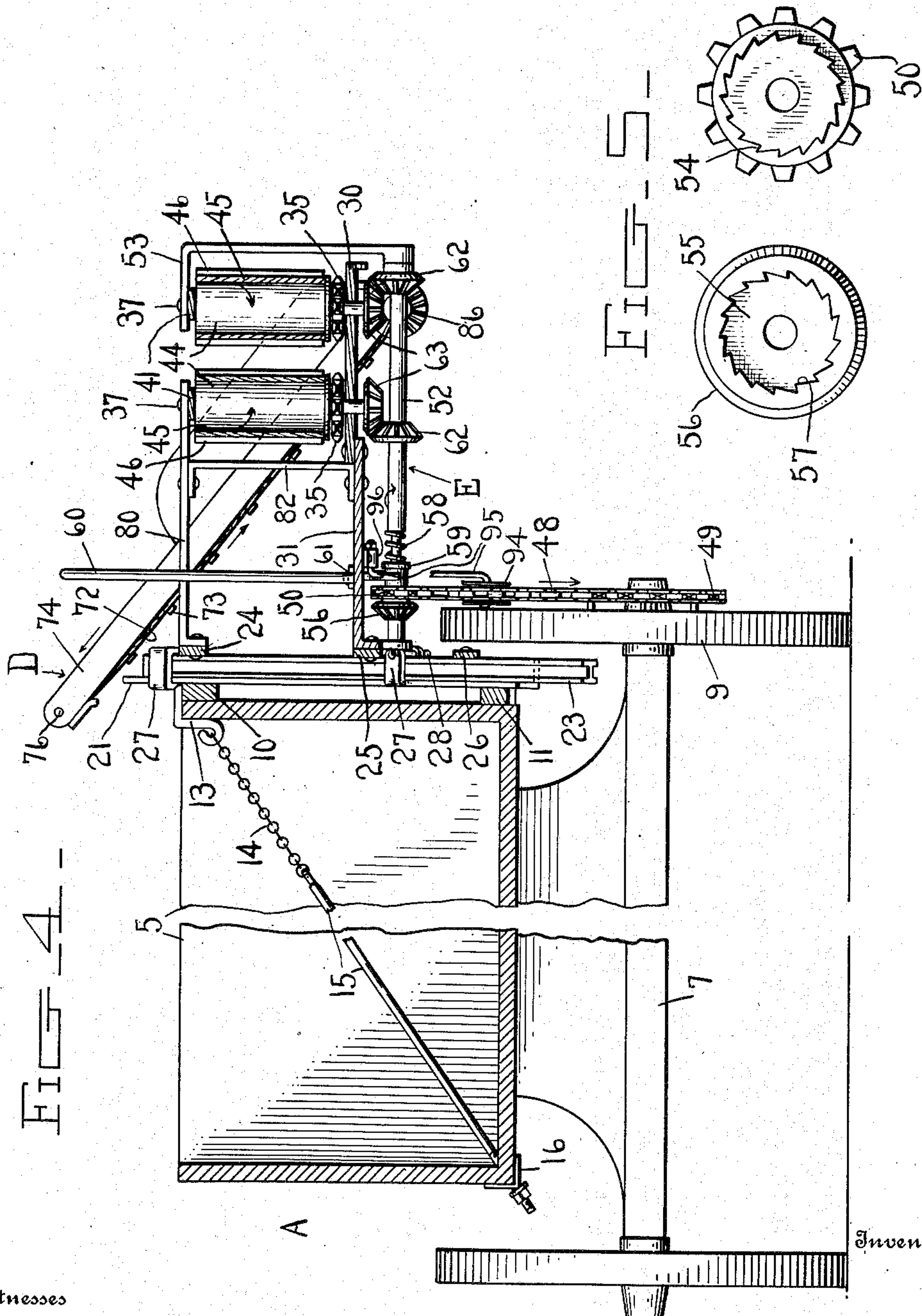
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5 SHEETS—SHEET 4.



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5 SHEETS—SHEET 5.

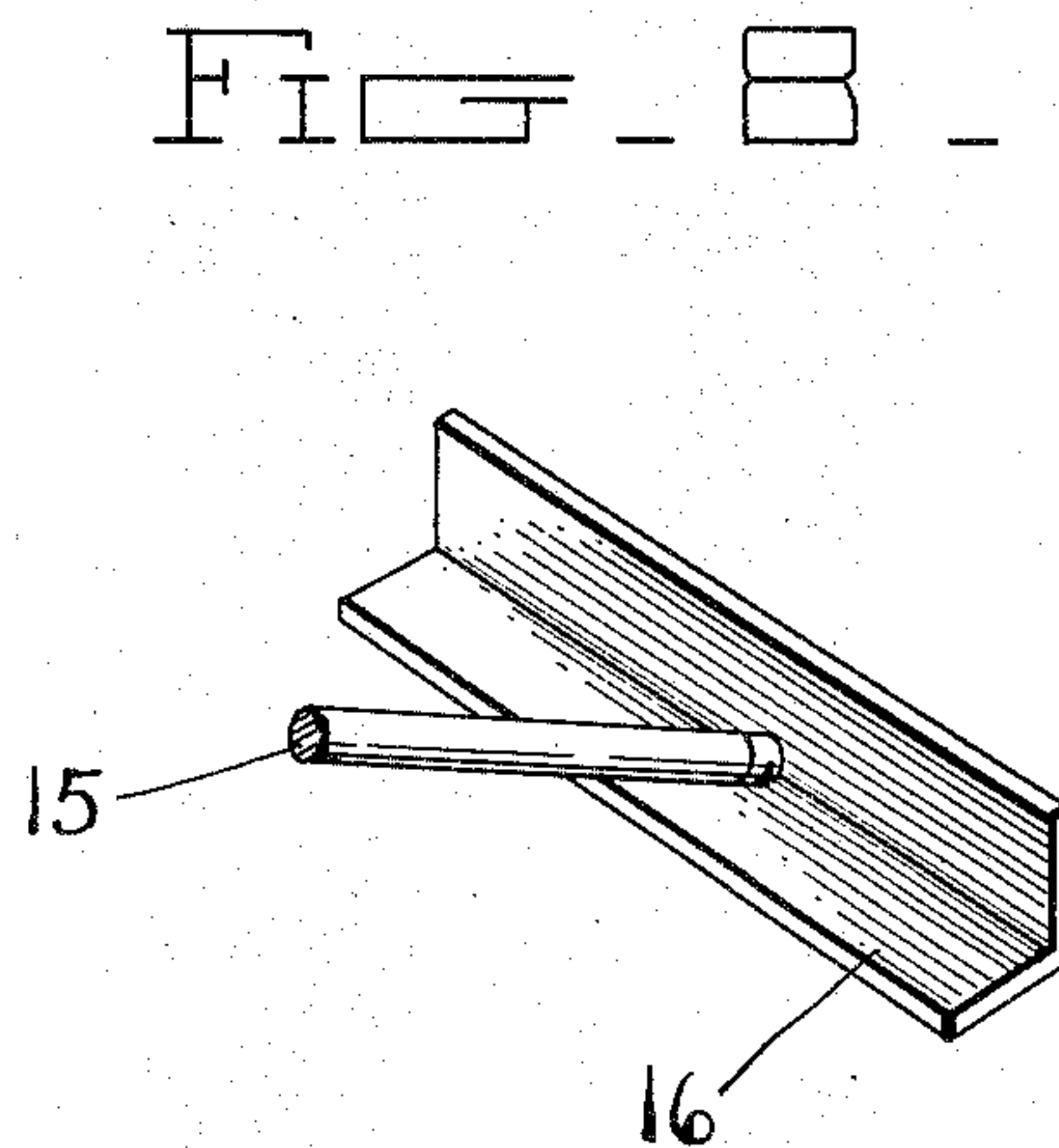
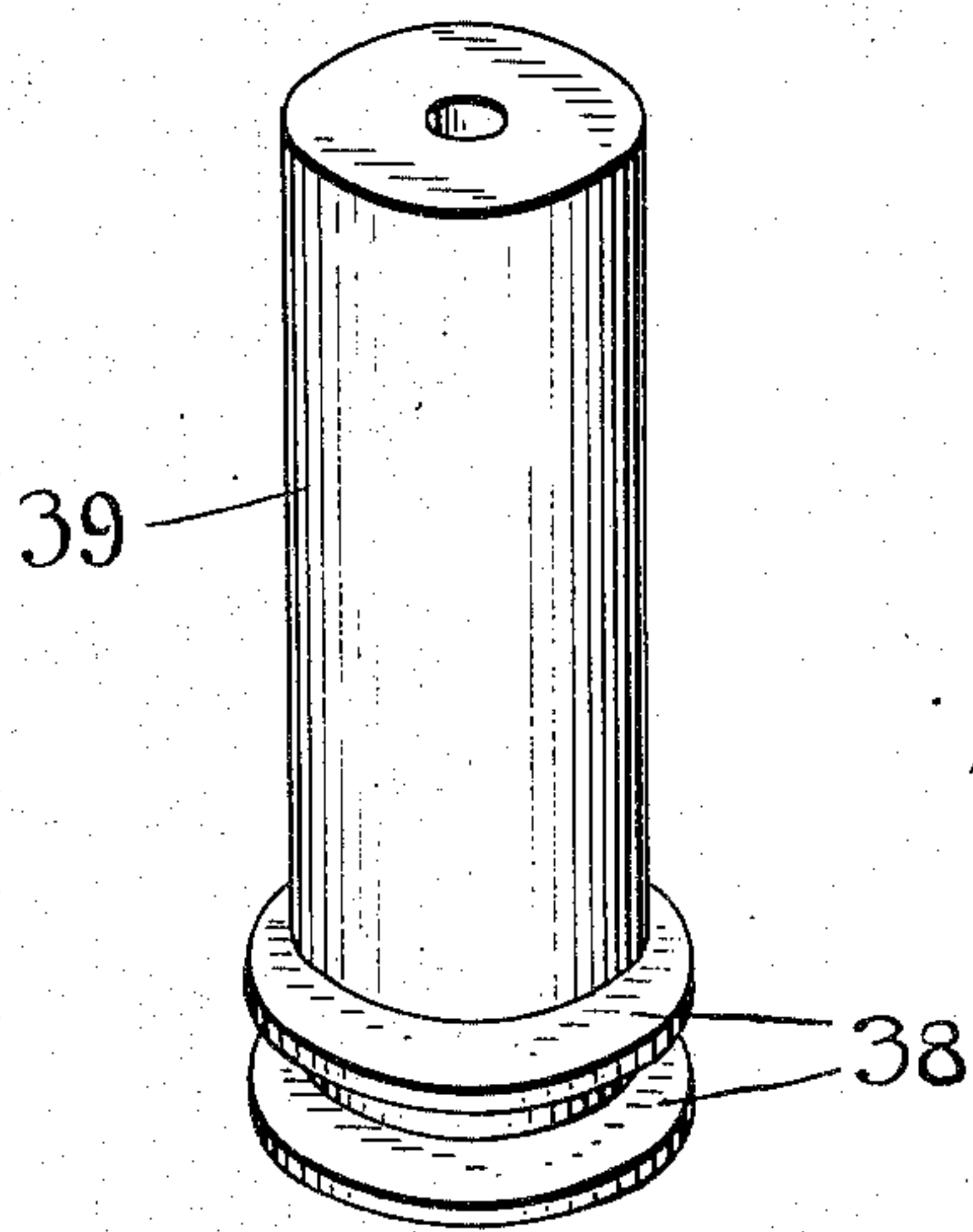
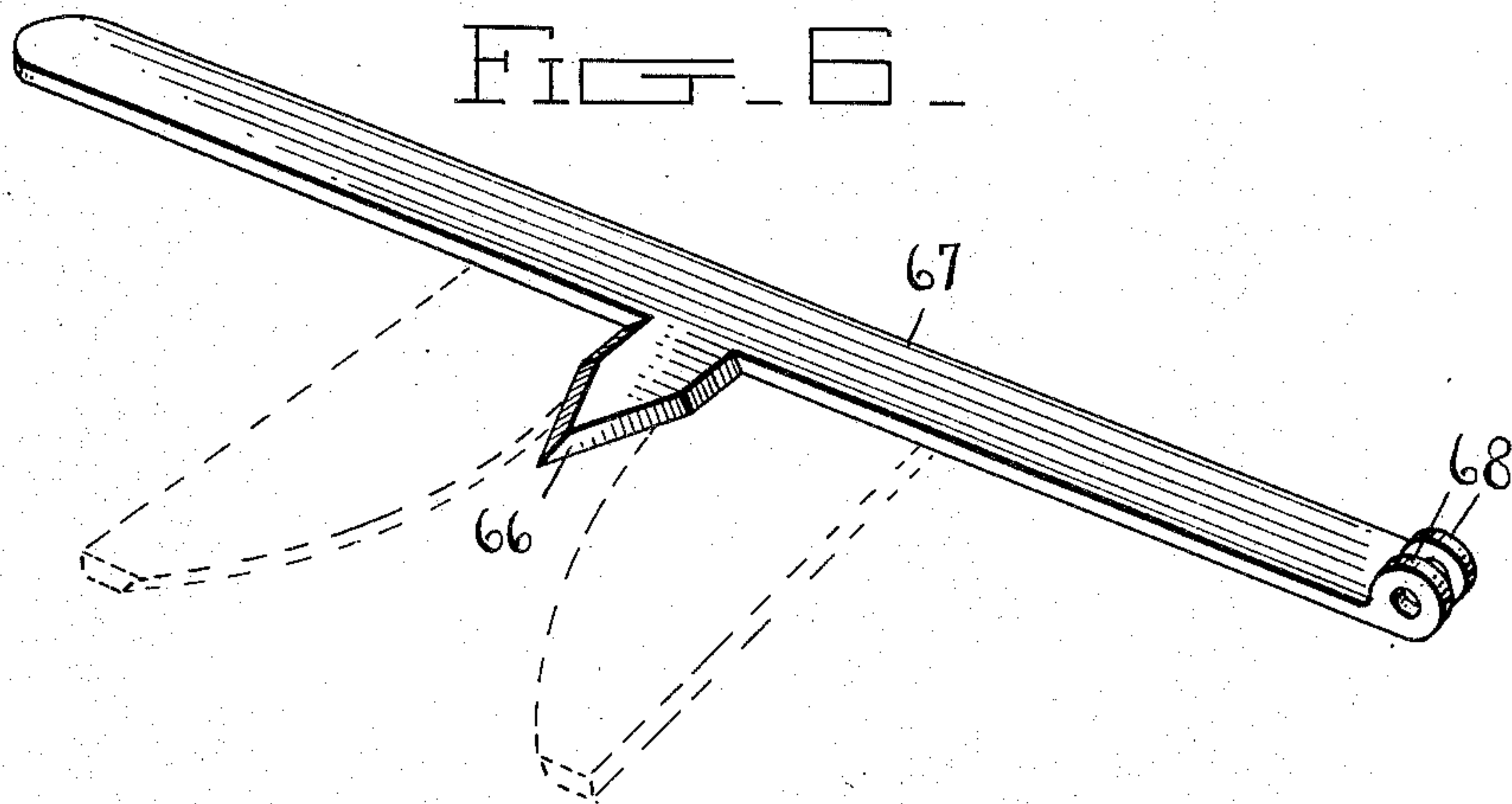


FIG. 7.

Witnesses
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UNITED STATES PATENT OFFICE.

FREDERICK I. BONHAM, OF HELENA, OKLAHOMA.

CORN-TOPPING MACHINE.

947,292.

Specification of Letters Patent.

Patented Jan. 25, 1910.

Application filed May 20, 1908. Serial No. 433,952.

To all whom it may concern:

Be it known that I, FREDERICK I. BONHAM, a citizen of the United States, residing at Helena, in the county of Alfalfa, State of Oklahoma, have invented certain new and useful Improvements in Corn-Topping Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention has reference to improvements in corn-topping machines, and it aims generally, to provide a topping mechanism which is adapted for attachment to a wagon body and is designed primarily for cutting off the heads of Kafir corn, broom corn, and sorghum, and for delivering the heads to the wagon.

More especially, the invention contemplates the provision of a topping mechanism which may be readily attached to and detached from a wagon body and which includes a pair of elevators set at an angle to each other and capable of adjustment bodily toward and from the ground without changing such angle, to which end the frame which supports the front elevator and is connected to that of the rear elevator is provided at one side with a pair of parallel brace bars slidable in guides carried by and forming a portion of the main supporting frame which is attached directly to the wagon body.

The invention therefore, resides chiefly in the particular construction of the main supporting frame, and of the frames which support the two elevators, and in the particular devices employed for effecting the bodily movement above referred to of the last-mentioned frames.

The invention further resides in the particular construction of the front elevator, said elevator comprising two endless belts whose upper portions gradually approach each other so as to exercise sufficient clamping pressure upon the severed heads of the stalks to carry the same beyond the knife and deposit them upon the rear elevator.

The preferred embodiment of the invention is illustrated in the accompanying drawings, in which corresponding parts or fea-

tures are designated by the same reference numerals throughout the several views.

Of the said drawings, Figure 1 is a side elevation of the complete invention. Fig. 2 is a top plan view thereof. Fig. 3 is a bottom plan view of the attachment removed from the wagon. Fig. 4 is a transverse vertical section taken on the line 4-4 of Fig. 2. Fig. 5 is a collective elevational view of the members of the clutch. Fig. 6 is an enlarged detail view of the reciprocating knife. Fig. 7 is a similar view of one of the front rollers around which the belts of the front elevator pass. Fig. 8 is a fragmental detail view illustrating one of the washer-plates and the tightening rod connected therewith.

Referring more particularly to the drawings, A designates generally, the wagon; B the supporting frame which carries the topping mechanism as a whole; C and D the front and rear elevators; and E the mechanism for driving said elevators.

The wagon A includes the box or body 5, and the front and rear axle bolsters 6 and 7 to which the wheels 8 and 9 are rotatably fastened.

The supporting frame B includes upper and lower bars 10 and 11 which are disposed against the left hand side board of the wagon body, the first mentioned bar terminating at its forward end in an enlargement or head 12 to which the upper end of the bar 11 is bolted, as shown in Fig. 1, said bar extending downwardly toward the rear end of the wagon body and being disposed at an angle of about 35° to the bar 10. Said bar 10 is provided with a series of integral clips 13 which project laterally therefrom and extend across the upper edge of the above mentioned side board, terminating at their free ends in depending hooks, the rearmost hook having connected thereto the upper end of a chain 14, whose lower end is attached to the adjacent end of a diagonally-disposed rod 15. The threaded lower end of this rod extends through an opening formed in the lower left hand edge (with respect to Fig. 4) of the wagon body, and through a registering opening formed in a metal washer-plate 16 L-shaped in cross-section, the projecting end of the rod having a tightening

nut screwed thereon. The head 12 of the beam 10 is provided with a laterally-projecting perforated ear 17 through which extends the threaded end of a rod 18 whose hooked lower end is engaged in an eye formed in the upper end of a strap 19 bolted to the bottom of the wagon body, by reason of which construction, it will be apparent that the supporting frame as a whole is held tightly in place against the side board of the wagon body.

The beams 10 and 11 of the frame B have secured thereto toward their rear ends a pair of upwardly and rearwardly extending guides 20 and 21 disposed in spaced relation to and parallel with each other, said guides being constructed of angle iron and carrying respectively the slidable metal I-beams 22 and 23, which are connected with each other by a series of three transversely-disposed cross-beams 24, 25 and 26. The beams 22 and 23 are held against lateral displacement in one direction during their sliding movements by the vertical sides of the guides, and in the other direction by means of collars 27 secured to the upper ends of the guides and by bolts 28 which pass through pairs of perforated lateral ears formed upon the upper and lower edges of the guides. The lowermost cross brace 26 has secured thereto a laterally-projecting brace 29 which extends beneath and is bolted to the inner leg of the platform 30 which supports the front elevator C, the upper end of which latter is supported by a triangular brace 31 which is in turn connected by a brace 32 with the above mentioned brace 29 and is bolted to the central cross brace 25.

The supporting platform 30 is inclined forwardly and downwardly with respect to the wagon body, and comprises a pair of legs which gradually increase in width from their lower to their upper ends and are joined together at the latter point as shown in Fig. 3. Upon each leg of said platform travels a sprocket chain 33 which passes around sprocket wheels 34 and 35 carried by vertical shafts 36 and 37 located respectively at the lower ends of said legs and at the upper or rear end of the platform. Intermediate their ends, the sprocket chains pass around grooved collars 38 formed upon the lower ends of rollers 39 secured to vertical shafts 40 whose lower ends are journaled in openings formed in the platform legs, the upper end of each shaft extending through an opening formed in the upper portion of an angular strap 41 whose lower portion is provided with an opening through which the upper end of the shaft 36 extends, while its upper end in like manner is provided with a similar opening which receives the upper end of the corresponding shaft 37. The

lower portion of each strap extends beyond the lower end of the corresponding platform leg and is curved downwardly to form a gathering arm 42 which is reinforced by a strap 43 bolted at opposite ends thereto and to the platform leg.

The sprockets 35 which are carried by the shafts 37 are rigidly secured to vertical rollers 44 each of which is connected with the corresponding roller 39 by an endless belt 45 provided with a series of vertical slats 46 arranged in spaced relation to each other, each belt having a width of about ten inches. The sprocket chains 33 are each provided with a series of curved fingers 47 arranged at regular intervals.

The rotation of the belts and sprocket chains above referred to is effected by means of a sprocket chain 48 which passes around a large sprocket 49 rotatably mounted upon the left hand end of the rear axle, and secured by clips to the spokes of the adjacent wheel 9, and around a smaller sprocket 50 loosely mounted upon a transversely-disposed horizontal shaft 52 journaled at one end in an opening formed in the down-bent inner end of the triangular brace 31, and at the other end in a bearing sleeve formed upon the lower end of a vertical brace 53 whose laterally-bent upper end extends across the outer strap 41 and is provided with an opening through which the upper end of the corresponding shaft 37 extends. The last-mentioned sprocket forms one member of a clutch and to this end, its inner face has compounded therewith a ratchet wheel 54 adapted to be received in an annular seat 55 formed in the inner face of a pinion 56 which is rigidly secured to the shaft 52 and serves as the other member of the clutch, the periphery of said seat being notched to provide ratchet teeth 57 with which the teeth of the ratchet wheel 54 engage. The clutch members are normally held in engagement with each other by means of an expansible coil spring 58 which embraces the shaft 52 and fits in a circum-scribing groove formed therein, said spring bearing at one end against the outer wall of said groove and at the other end against the adjacent face of a collar 59 which is formed integral with the sprocket 50 and is embraced by the yoked lower end of a lever 60 pivoted to the brace 31 as indicated by the numeral 61. Movement of this lever in one direction will therefore unship the sprocket member of the clutch from engagement with the pinion member thereof.

The shaft 52 is further provided with a pair of oppositely facing pinions 62, each of which meshes with a similar pinion 63 secured to the adjacent shaft 37. It will thus be apparent that during the progress of the wagon, the rotation of the sprocket 49 will

effect the rotation of the shaft 52 when the clutch members are in engagement with each other in consequence, of the sprocket chains 33 and belts 45.

5 The rear or upper end of the platform 30 has bolted thereto a plate 64 provided with a pair of forwardly-extending guard fingers 65 across which moves a forwardly-projecting lateral blade 66, formed centrally upon a reciprocatory knife bar 67, said blade being pointed and beveled at opposite edges as shown in Fig. 6. The inner end of the knife bar is provided with a pair of perforated upstanding ears 68 which are arranged in spaced relation to each other for the reception therebetween of the outer end of a rod 69 whose inner end is connected to the crank portion of a shaft 70 journaled in depending brackets formed upon the under face of the brace 31, the rear end of said shaft having secured thereto a pinion 71 which meshes with the pinion 56 above referred to, this construction being illustrated in Fig. 3. During the rotation of the shaft 25 52, the knife bar 67 will thus have an endwise reciprocating movement imparted thereto, carrying the blade 66 backward and forward across the guard fingers 65.

The extreme rear end of the platform 30 opens upon the rear elevator D which is arranged at right angles to the elevator C, and has its upper or discharge end overhanging the wagon body as shown in Fig. 2. The last-mentioned elevator comprises an endless belt 72 provided with a series of transversely-disposed slats 73 secured thereto at regular intervals and a supporting frame 74 consisting of parallel vertical side boards provided at their opposite ends with alining openings through which the ends of the upper and lower conveyer shafts 75 and 40 76 project, a portion of the front side board being cut away toward its lower end to permit the extension thereacross of a transversely-disposed shield 77 whose free or front end is curved inwardly as shown in Fig. 2. Said frame is further connected with the platform of the elevator C by means of a strap 78 and a plate 79, said strap 50 being formed integral with the outer strap 41 and being bolted at its rear end to the rear side board of the frame of said elevator D. The rear end of the plate 79 extends beyond the rear edge of the platform 55 30 and is curved outwardly at such point. The inner strap 41 is further braced by means of a strap 80 which is bolted at its inner end to the cross brace 24 and is provided at its outer end with an opening 60 through which the upper end of the adjacent shaft 37 extends, said strap being connected with the brace 31 by a vertical brace 82. The straps 41 are likewise further braced by a vertical yoke 83 whose bight portion

extends upwardly between said straps, while 65 its angular legs are bolted at their lower ends to the outer leg of the platform 30 and to the brace 29, the horizontal portions of said legs being provided with openings through which project the upper ends of the 70 shafts 40 which carry the rollers 39.

The belt 72 passes around rollers 84 and 85 secured to the shafts 75 and 76, the first-mentioned shaft having secured to its forward end a pinion 86 which meshes with the 75 outer pinion 62 carried by the shaft 52.

As originally stated, the invention contemplates the provision of devices for raising and lowering the two elevators and their attendant parts bodily without changing the 80 angle of said elevators to each other or to the wagon body. To this end, the upper bar 10 carries a pair of spaced ears 87 located adjacent the upper cross beam 24, between which is revolubly mounted a grooved pulley 88 around which passes a chain 89 whose 85 lower end is connected to the lower cross brace 26, the upper end of said chain being connected to a link 90 disposed above the bar 10 of the supporting frame B and connected at its forward end to a lever 91 pivoted at its lower end to the head 12 of said bar, said lever carrying a spring-pressed dog 92 which is adapted for engagement with the rack teeth 93 formed upon the upper edge of 95 said head. By reason of this construction, it will be apparent that when the above-mentioned lever is swung forwardly or to the left with reference to Fig. 1, the bars 22 and 23 will be raised bodily, carrying with them 100 the elevators C and D, said bars sliding in the guides 20 and 21. In order to prevent the upward movement of said elevators from interfering with the operation of their driving mechanism E, the chain 48 is made sufficiently long to permit it to pass around the sprockets 50 and 49 without exercising any binding action thereon. In connection with said chain there is employed a tightening device consisting as shown in Fig. 1 of a 110 grooved wheel 94 arranged to bear against the chain and rotatably mounted upon the laterally-bent rear end of a link 95 pivoted at its upper end to a bracket 96 secured to the under face of the triangular brace 31, the 115 weight of the wheel being sufficiently great to automatically take up the slack in the chain, as will be apparent.

From the foregoing description, it will be understood that during the progress of the 120 machine through a cornfield, the stalks will pass between the gathering arms (which latter will also raise the down stalks), until they reach the fingers 47 carried by the sprocket chains of the elevator C, said fingers engaging the stalks and carrying them 125 rearwardly toward the knife 66. As the stalks approach said knife, they are grad-

ually forced together by the convergence of the belts 45, until they reach said knife, whereupon the stalks are topped, the severed heads being prevented from falling to the ground by the pressure of said belts which latter carry them across the upper end of the platform 30 from which they fall onto the belt 72 of the elevator D, whence they are discharged into the wagon. It will also be apparent that owing to the provision of the devices for lowering the elevators, the curved ends of the shoes may be moved to within a slight distance of the ground, thus permitting practically all of the down stalks to be raised into engagement with the conveyer fingers.

Further description of the machine and its operation is deemed unnecessary in view of the foregoing, it being understood that modifications and changes may be made within the scope of the appended claims, inasmuch as it is not intended that the invention be limited to the specific details of construction shown and described.

What is claimed is:

1. The combination, with a supporting frame, and a pair of guides carried thereby, of a pair of beams slidable in said guides; cross-beams connecting the first-mentioned beams together; an upwardly and rearwardly-inclined bifurcated platform rigidly connected to the cross-beams; a gathering arm secured to the lower end of each leg of the platform; an elevator carried by said platform; means for driving the elevator; and means connected with one of said cross-beams, for bodily raising and lowering the platform, to adjust the position of the gathering arms with reference to the ground.

2. The combination, with a supporting frame, and a pair of guides carried thereby, of a pair of beams slidable in said guides; cross-beams connecting the first mentioned beams together; an upwardly and rearwardly-inclined bifurcated platform rigidly connected to the cross-beams; a gathering arm secured to the lower end of each leg of the platform; an elevator carried by said platform; means for driving the elevator; and means carried by said frame and connected with one of said cross-beams, for bodily raising and lowering the platform, to adjust the position of the gathering arms with reference to the ground.

3. The combination, with a supporting frame provided at its forward end with a rack, of a pair of guides carried by said frame; a pair of beams slidable in said guides; cross-beams connecting the first-mentioned beams together; an upwardly and rearwardly inclined bifurcated platform rigidly connected to the cross-beams; a gathering arm secured to the lower end of each leg of the platform; an elevator carried by

said platform; means for driving the elevator; a lever pivoted to the supporting frame and provided with a dog arranged for engagement with the rack; and connecting devices between the lever and one of said cross-beams, for bodily raising or lowering the platform when said lever is moved in one direction or the other, to adjust the position of the gathering arms with reference to the ground.

4. The combination with a supporting frame, of a frame slidably connected therewith; a platform rigidly connected to the sliding frame; an elevator carried by the platform; a supporting frame joined to said platform; an elevator carried by the last named supporting frame and arranged at right angles to the first named elevator; means for driving the elevators; and means for bodily raising and lowering the sliding frame.

5. The combination with a supporting frame, and a pair of guides secured thereto, of a sliding frame including a pair of beams fitting in said guides; an upwardly and rearwardly extending platform rigidly connected to the sliding frame; a supporting frame rigidly connected to said platform; an elevator carried by said platform; an elevator carried by the last named supporting frame; means for driving the elevators; and means for bodily raising and lowering the sliding frame.

6. The combination with a bifurcated platform and a cutting member located adjacent the rear end of the bifurcation, of a shaft mounted upon the front end of each leg of the platform, said legs being formed by said bifurcation; a sprocket secured to each shaft; a pair of shafts mounted upon the rear end of the platform; a sprocket secured to each rear shaft; chains connecting the front and rear sprockets; a shaft mounted upon each leg intermediate the ends thereof; a roller secured to each intermediate and rear shafts; belts connecting the rollers on the intermediate and rear shafts, said belts converging adjacent the cutting member, to support the severed portions of the material fed therebetween to said member; and means for driving said chains and belts.

7. The combination with a bifurcated platform and a cutting member located adjacent the rear end of the bifurcation, of a shaft mounted upon the front end of each leg of the platform, said legs being formed by said bifurcation; a sprocket secured to each shaft; a pair of shafts mounted upon the rear end of the platform; a sprocket secured to each rear shaft; chains connecting the front and rear sprockets; a shaft mounted upon each leg intermediate the ends thereof; a roller secured to each intermediate and rear shaft; belts connecting the rollers

on the intermediate and rear shafts; said
belts converging adjacent the cutting mem-
ber, to support the severed portions of the
material fed therebetween to said member;
5 means for driving said chains and belts; and
means for bodily raising and lowering the
platform.

In testimony whereof, I affix my signa-
ture, in presence of two witnesses.

FREDERICK I. BONHAM.

Witnesses:

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