

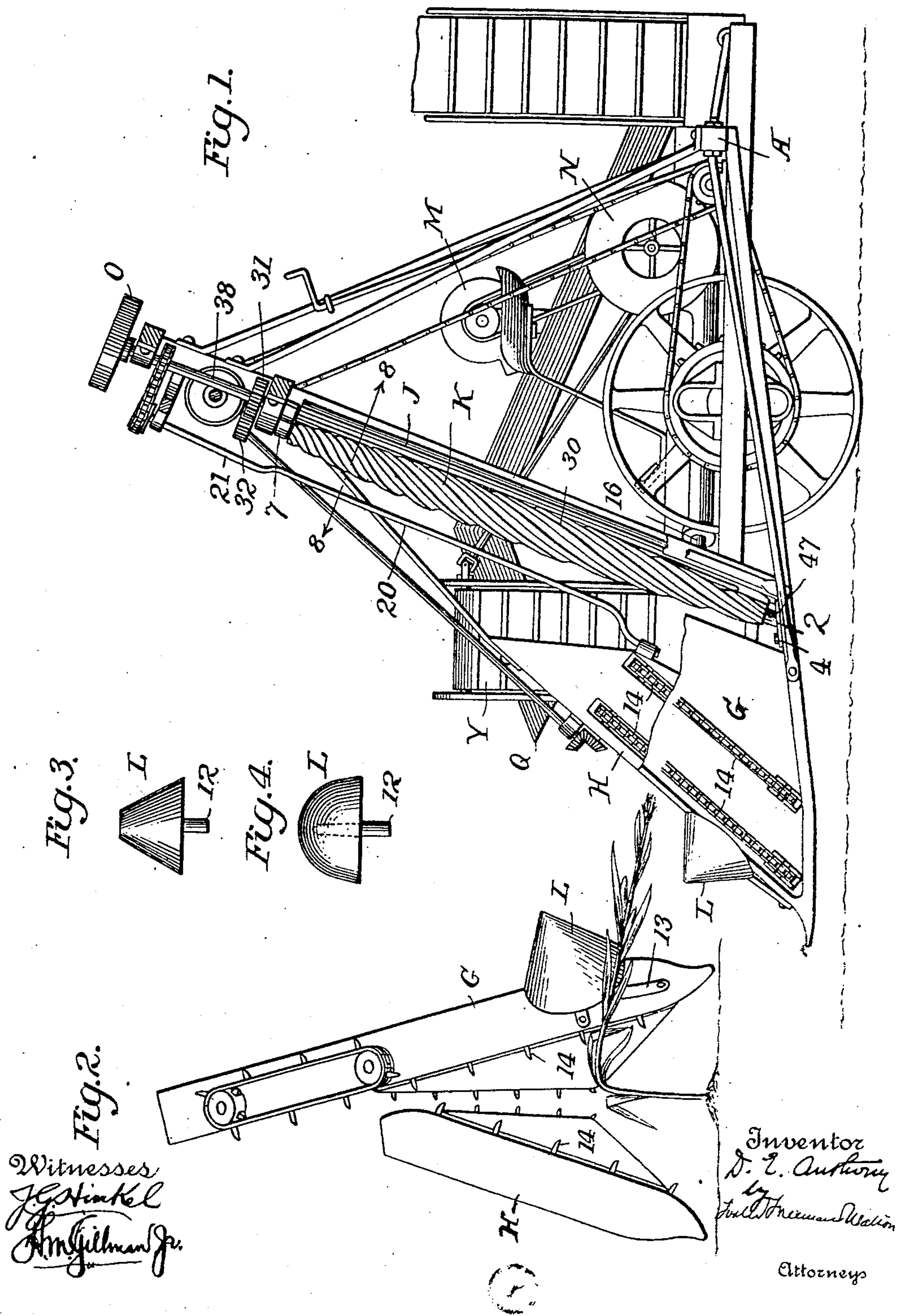
No. 810,693.

PATENTED JAN. 23, 1906.

D. E. ANTHONY.
CORN HARVESTER.

APPLICATION FILED JAN. 10, 1905.

4 SHEETS—SHEET 1.



Witnesses
J. H. Winkel
H. M. Gillman Jr.

Inventor
D. E. Anthony
by
H. M. Freeman & Watson
Attorneys

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4 SHEETS—SHEET 2.

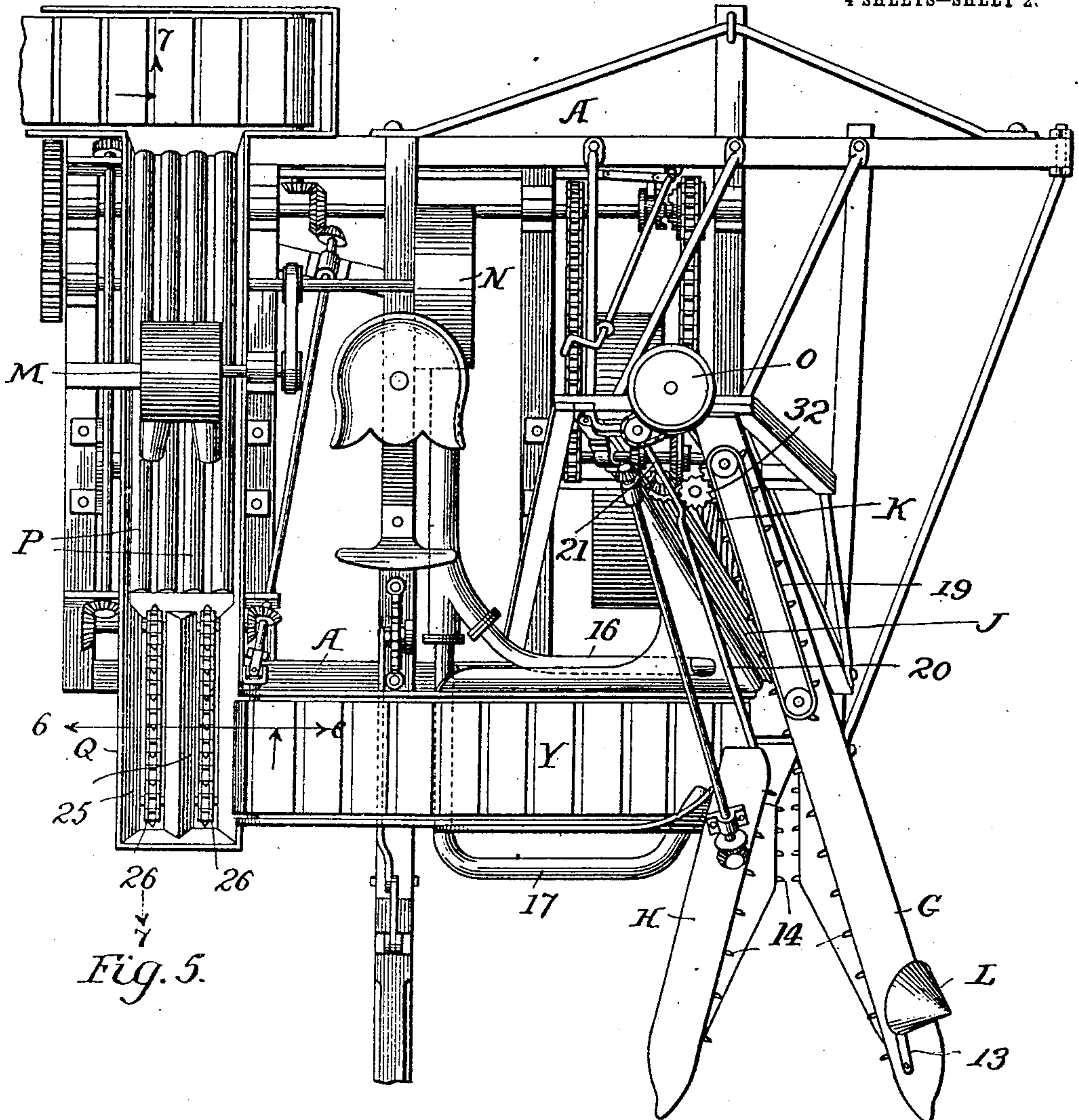
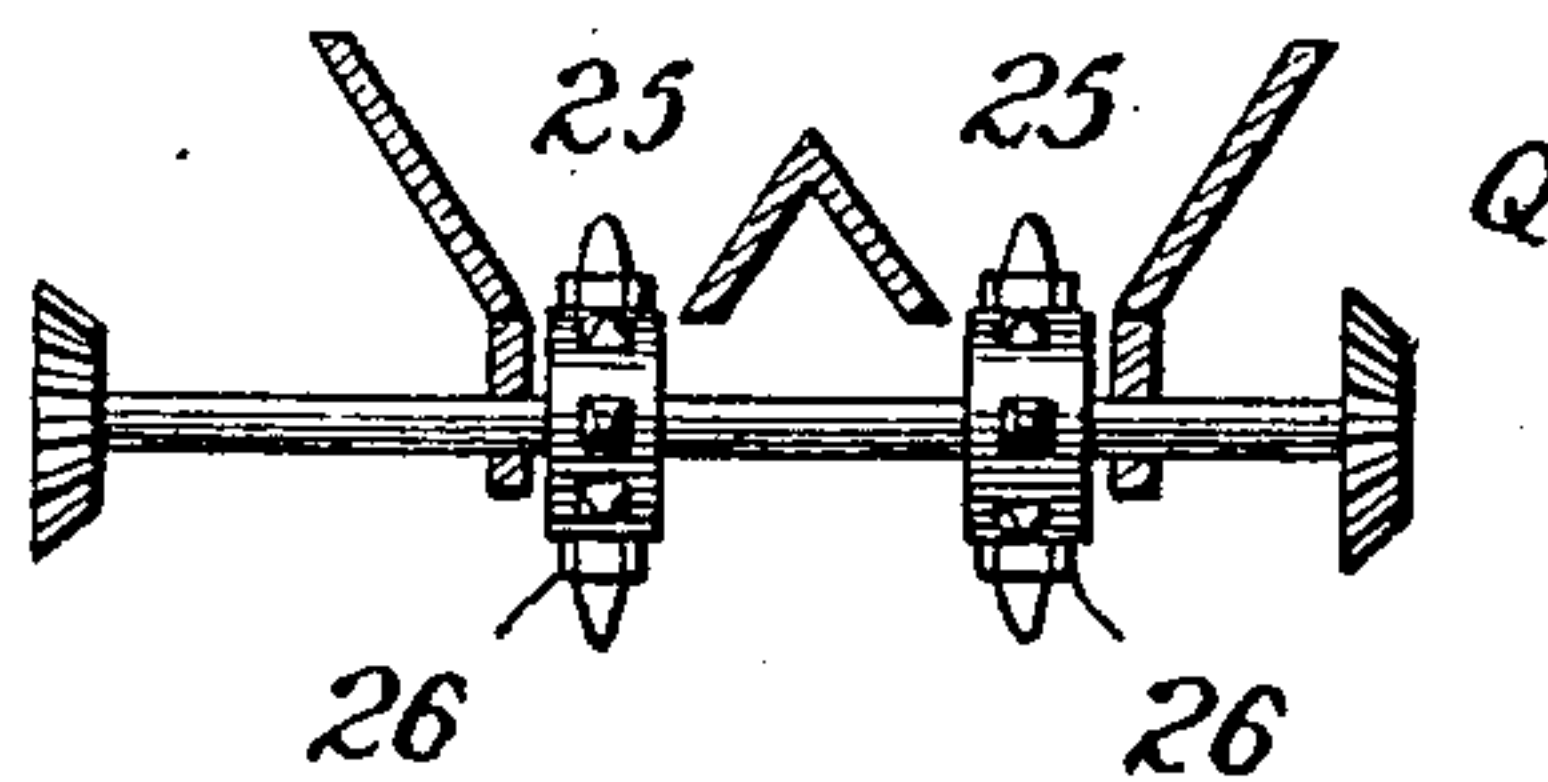


Fig. 5.

Fig. 6.



Witnesses
J. G. Stinkel
H. M. Gellman, Jr.

Inventor
Daniel E. Anthony
By John Freeman Watson
Attorneys

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4 SHEETS—SHEET 3.

Fig. 7.

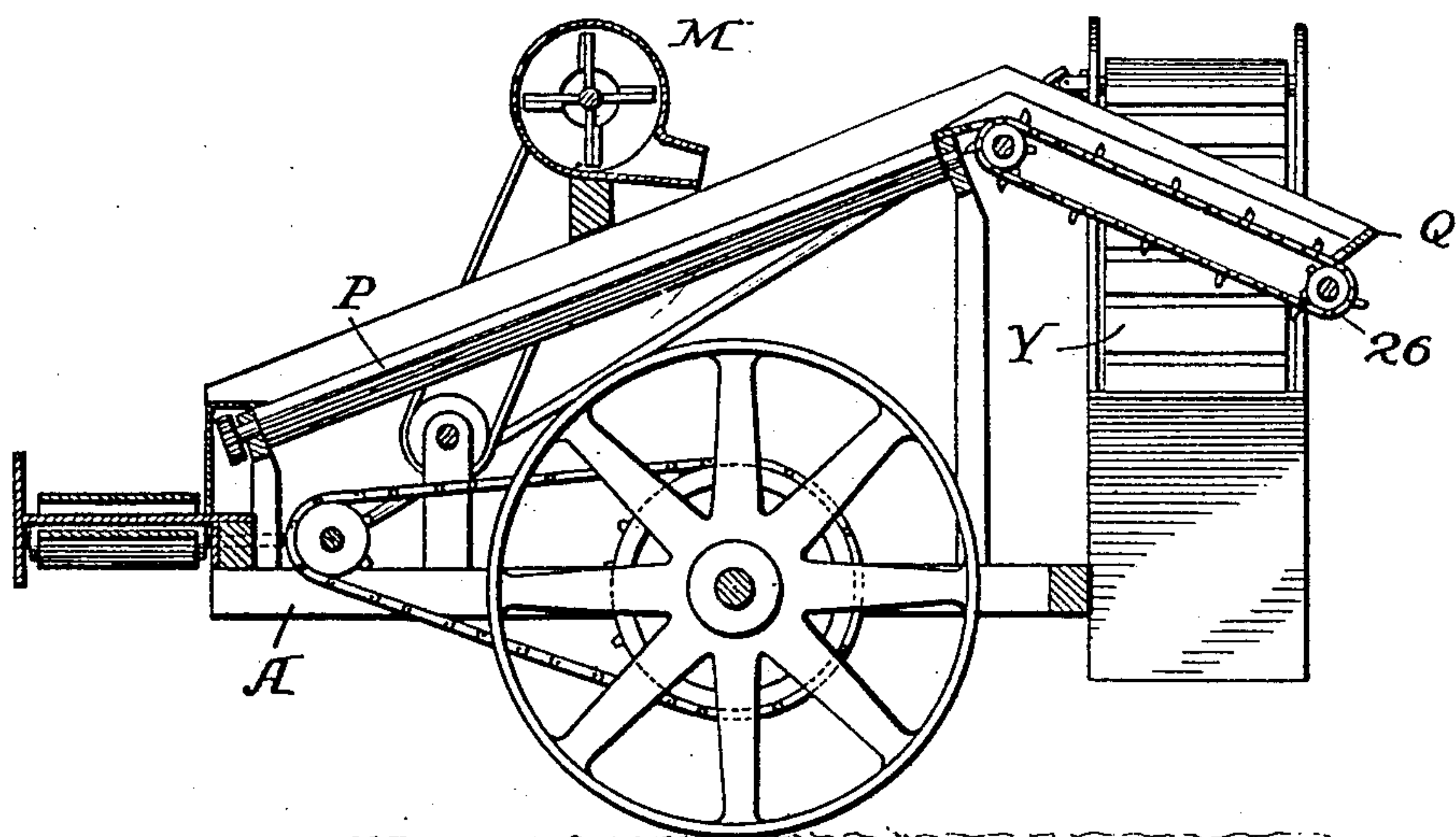


Fig. 8.

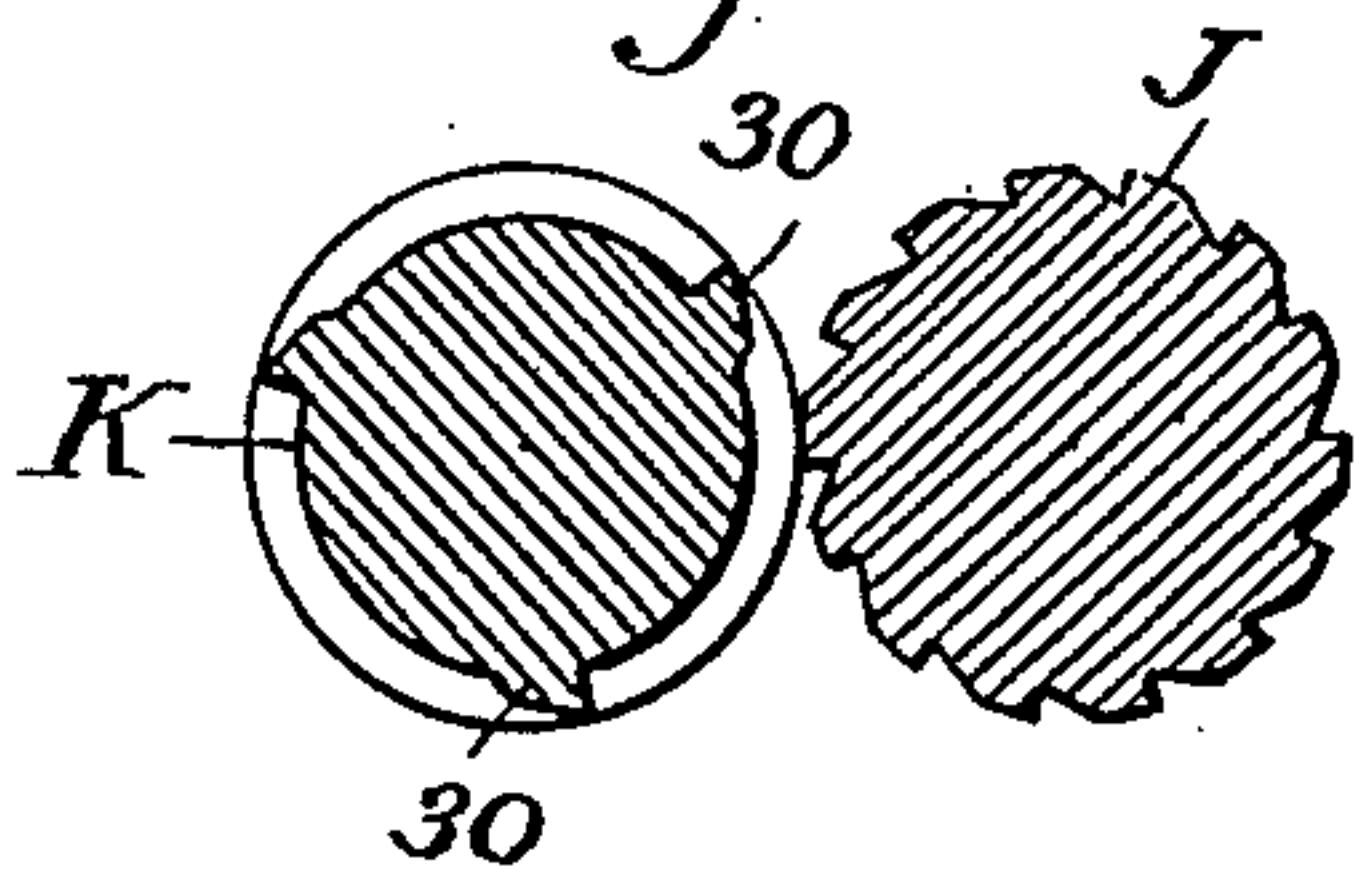


Fig. 10.

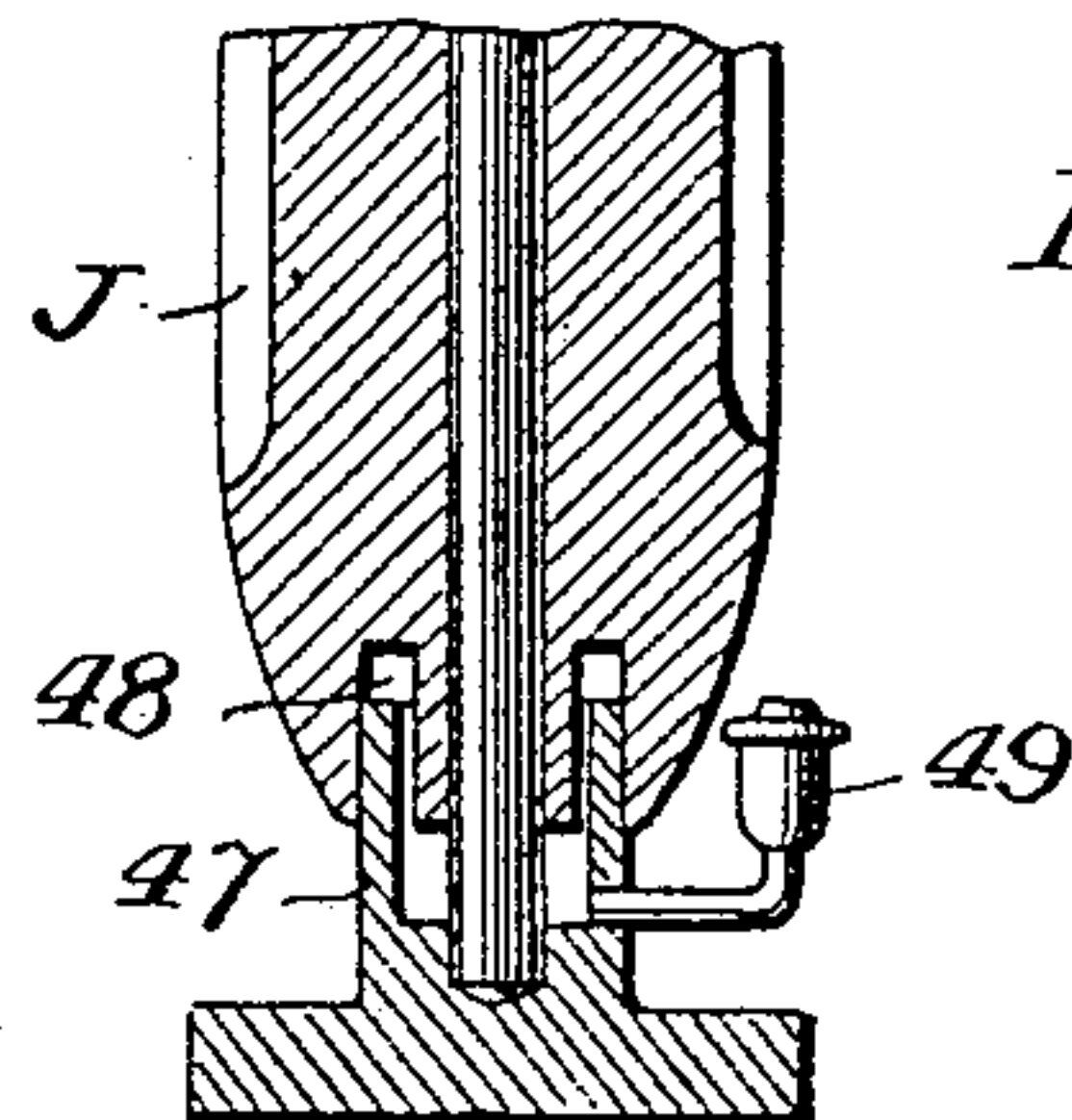
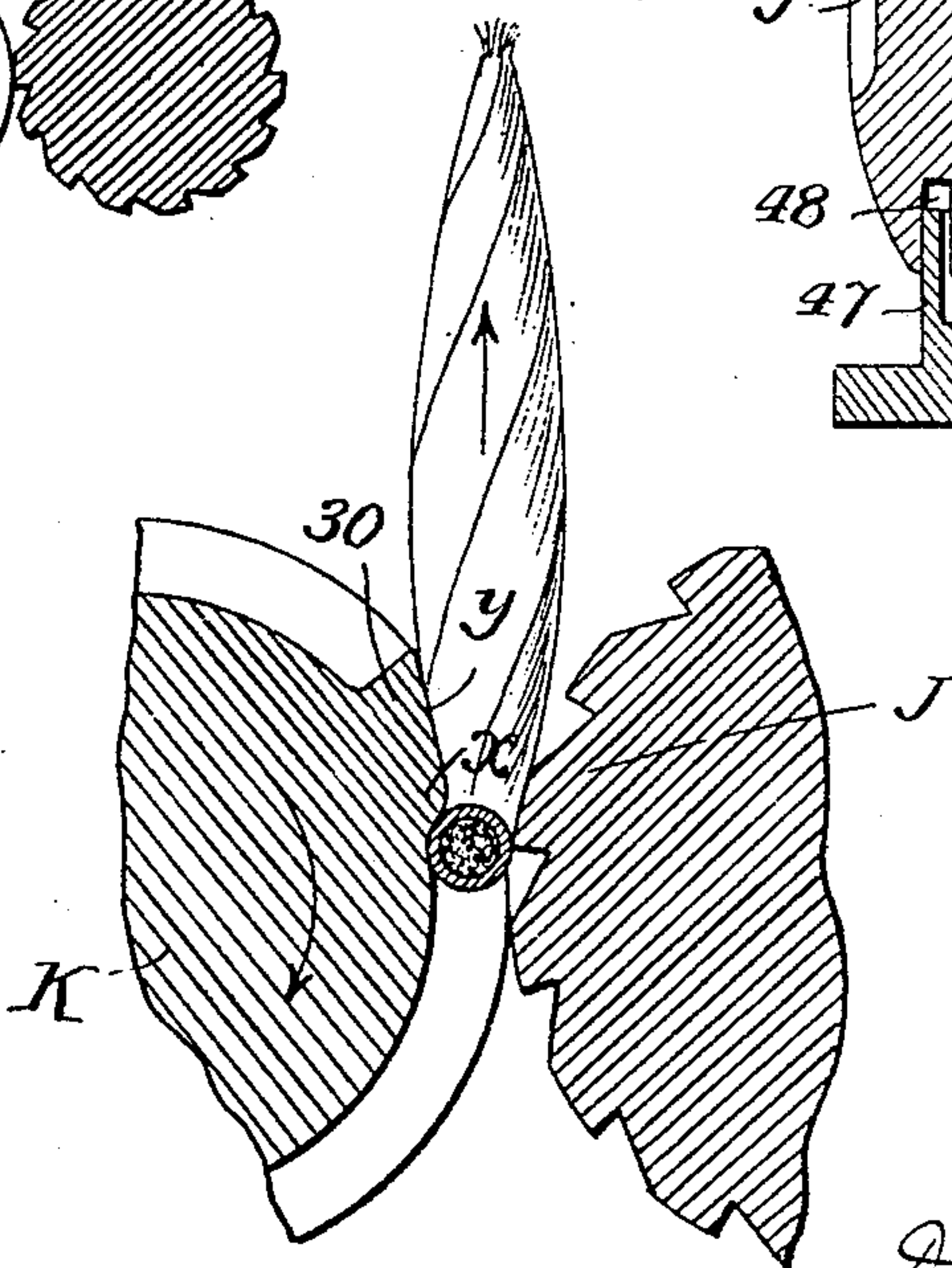


Fig. 9.



Witnesses
J. G. Stink
Am. Gillman Jr.

Inventor
Daniel E. Anthony
by *Howe Freeman Watson*
Attorneys

No. 810,693.

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4 SHEETS—SHEET 4.

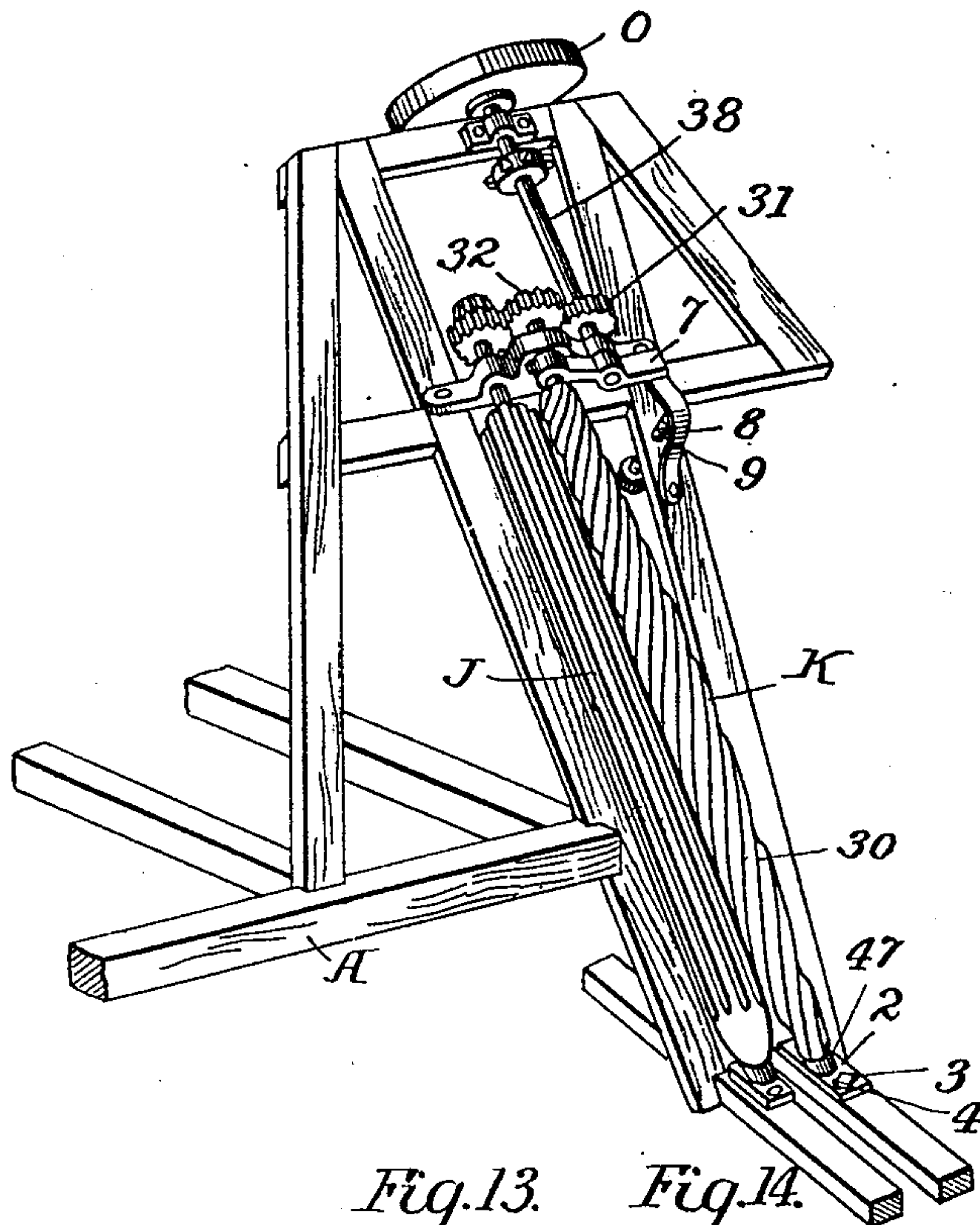


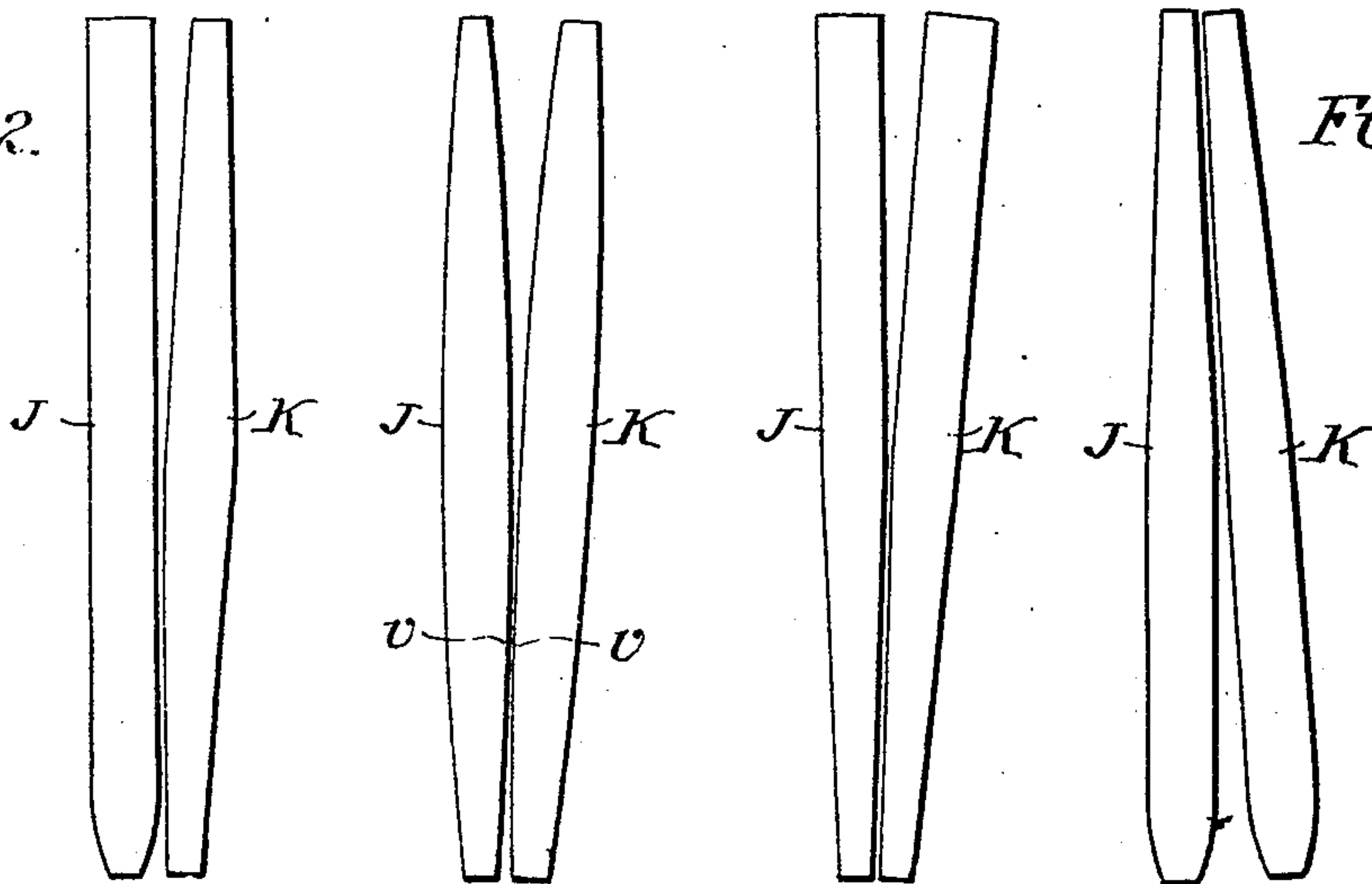
Fig. 11

Fig. 13.

Fig. 14.

Fig. 12.

Fig. 15.



Witnesses
J. G. Stinzel
H. M. Gillman Jr.

Inventor
Daniel E. Anthony
By *John Freeman Wilson*
Attorneys

UNITED STATES PATENT OFFICE.

DANIEL E. ANTHONY, OF AKRON, IOWA, ASSIGNOR OF ONE-HALF TO
EMERY E. MELLEN, OF AKRON, IOWA.

CORN-HARVESTER.

No. 810,693.

Specification of Letters Patent.

Patented Jan. 23, 1906.

Application filed January 10, 1905. Serial No. 240,423.

To all whom it may concern:

Be it known that I, DANIEL E. ANTHONY, a citizen of the United States, residing at Akron, in the county of Plymouth and State of Iowa, have invented certain new and useful Improvements in Corn-Harvesters, of which the following is a specification.

My invention relates to corn-harvesters, and more especially to that class of corn-harvesters illustrated in Letters Patent No. 665,301, granted to me January 1, 1901; and my invention consists in certain details of improvement adapted for use either singly or collectively in a husker of the construction of said Letters Patent or otherwise, as fully set forth hereinafter and as illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of a corn-harvester embodying my improvement; Fig. 2, a view looking from the front, showing the gatherers and adjuncts. Figs. 3 and 4 are views illustrating modified forms of the rotary lifter. Fig. 5 is a plan view of the machine; Fig. 6, a section on the line 6 6, Fig. 5; Fig. 7, an elevation on the line 7 7, Fig. 5; Fig. 8, an enlarged section on the line 8 8, Fig. 1; Fig. 9, a still larger section illustrating the action of the snapping-rolls. Fig. 10 is an enlarged section showing the lower bearing of one of the rolls. Fig. 11 is a perspective view of the rolls and supports and driving devices. Figs. 12 to 15 are diagrammatic views illustrating the different forms of rolls constructed to permit a change of angle of the axis of one roll in respect to that of the other.

The main supporting-frame A, the gatherers G H, elevating-belt Y, and the general arrangement of the parts and the driving means for the snapping-rolls J K may be of any suitable construction and will be so well understood from the illustration in my aforesaid Letters Patent that I will not describe the same here in detail, but will confine my description to the features of improvement.

As in my aforesaid Letters Patent, the snapping-rolls J K are inclined backward and upward, and the roll K is a shaft having ribs 30 extending spirally around the same, but having a more rapid twist toward the top, so that the groove or channel into which the stalk passes is vertical or nearly vertical at the lower ends of the rolls and gradually inclines forward toward the upper ends. The ribs of the roll J are reversely inclined to

those of the roll K without any intervening cylindrical surface. Each rib 30 is wedge-like in cross-section—that is, the outer face *y* of the rib is inclined inward toward the direction in which the roll rotates, which is toward the rear of the machine, as illustrated in Figs. 8 and 9—and as a result there is a tendency to force the ear forward in the direction of the arrow, Fig. 9, by the pressure of the said face *y* and the face of the opposite roll against the butt of the ear. This result is further increased by forming a shoulder *x* at the heel or inner edge of the rib or at any point on the face of the rib, which shoulder will engage the stalk and tend to carry it backward while the ear is squeezed forward, thus facilitating the separation of the ear from the stalk.

In order to act effectively to separate the ears according to the position which they occupy upon the stalks, which in some growths is much nearer to the ground than in others, I construct one or both snapping-rolls so that it may be brought parallel to or at an angle to the other in such manner that the proximate parts may be at any desired position between the ends of the rolls. Thus, as shown in Fig. 13, the general outline of both rolls tapers from the center toward each end upon curved lines, and the rolls may be so set that, as shown, the proximate parts at *v v*, where the snapping is to be effected, are about one-third the distance from the lower end, and this distance may be increased so as to bring the rolls closer together at any desired point between their ends corresponding to the average height of the majority of ears from the ground.

In Fig. 12 but one of the rolls is shown as reduced in diameter toward its end. In Fig. 11 the taper from each end of one of the rolls is conical. In Fig. 14 both rolls have a conical taper toward the lower ends, while in Fig. 15 both rolls have a conical taper toward the upper end. It will be seen that in each construction the axis of one roll when shifted in respect to that of the other will shift the point or operating-section of the roll to different degrees from the bottom ends.

The roll or rolls may be supported so as to be axially shifted in any desired manner. As shown in Fig. 11, the roll J is supported in fixed bearings, while the shaft of the roll K turns in a step 2, having a slot 3 to receive a securing-bolt 4, that permits the step to be

swung or set to different positions laterally and then secured, and the upper end of the shaft 6 extends through a bracket 7, swinging on the shaft of the fly-wheel O, a spring 8, the pressure of which may be regulated by a set-screw 9, bearing on an arm of the bracket and tending to carry the roll K with a spring-pressure toward the roll J.

It is found in many instances extremely difficult to bring in a proper position between the gatherers those stalks which are bent laterally and abruptly at points near the ground, and in order to secure this result I combine with one or both the gatherers a rotary lifter L, which may be conical, as shown in Fig. 2, or a truncated cone, as shown in Fig. 3, or hemispherical, as shown in Fig. 4, or of any other suitable form which will present a face having a greater inclination forward than that of the face of the gatherers. This lifter rotates freely about a shaft 12, extending outward from the gatherer and supported by a bracket 13, so that the lifter can rotate freely by frictional contact with the bent stalk, and, passing with a wedge-like action underneath the latter, will tend to throw it upward and inward so as to be brought effectively under the action of the lifting or elevating chains 14.

In order to insure that the leaves and broken portions of the stalk shall be engaged by the rolls, I combine with the apparatus a blower N of any suitable character, and from this blower I extend conduits 16 17, the ends of which are so arranged as to project one or more blasts of air against the standing corn and toward the rolls. This air blast or blasts will blow the loose leaves and stalks against the rolls, so as to insure the latter biting the same. To prevent the obstruction of the lower bearings of the roll-shafts by earth, &c., I prefer to make each step with an annular collar or flange 47, adapted to enter an annular groove 48 at the lower end of the rolls and surrounding the shaft thereof, and an oil-cup 49 may communicate with the oil-space inside the projection or collar 47, so as to thoroughly lubricate the step-bearing, from which the earth, &c., is thus excluded.

One of the gatherers G extends farther back than the other and is provided with an elevating-chain 19, and in order to support and push back the stalks at the opposite side I make use of a push-bar 20, which is eccentric to a shaft 21, turning in bearings of the frame and driven from the fly-wheel shaft 38, constituting, as shown, a long crank of said shaft, which, as it is carried around and against the stalk, secures the desired result.

At one side of the machine is shown a plurality of pairs of husking-rolls P, which may be of any suitable character, but which, as shown, are inclined downward toward the rear, and in order to open up the husks and loosen the same so that they will be grasped

by the rolls I project an air-blast against and toward the upper part of the rolls from a blower M of any suitable construction and in such manner as to meet the ears as they pass downward. The devices ordinarily employed act with a mechanical pressure to press the ears against the rolls, and this tends to hold the husks to the ears and prevent their separation; but the air-blast, as described, tends to open or loosen the husks and force them into engagement with the rolls, but without any mechanical pressure of the ears themselves against the rolls.

Ordinarily the ears are thrown indiscriminately onto the husking-rolls and are apt to pass toward one side or the other, so that they are not evenly distributed and in many cases fall crosswise, so that they are not operated upon. To prevent this result, I make use of a distributor Q, which, as shown, is provided with parallel troughs 25 25, having sides converging toward the open bottoms, in which are feeding-belts 26, provided with teeth. There is one of these troughs to each pair of husking-rolls, and the troughs are inclined upward toward the upper ends of these rolls, and as the result if one trough is filled the ears tend to fall into the other trough, and in any case tend to take a longitudinal position, and are therefore fed longitudinally to the upper ends of the husking-rolls. Where it is not desired to feed the ears toward the husking-rolls, the troughs may be so arranged as to distribute the ears and arrange them longitudinally.

It will be seen that the roll K, which is carried by the swinging bracket 7, has a pinion 32 upon its shaft, which gears with a pinion 31 upon the fly-wheel shaft 38. As a result after the apparatus starts in operation the rotation of the fly-wheel in the direction of its arrow, carrying the pinion 31 in the said direction, tends to exert a thrust to swing the pinion 32, with its shaft and the bracket and the roll K, forward in the direction that the fly-wheel rotates, and this tends to open or separate the rolls to a certain extent, so that it takes less power to carry the stalks between the rolls than would otherwise be required, especially when there is a large bunch passing through at one time. This tends to counteract the excessive pressure of the spring when there is such a large bunch operated upon.

While for the purpose of illustrating my invention I have shown certain features of construction, it will be evident that the construction may be varied without departing from my invention, and it will also be evident that while I have shown the various features above specified as assembled in a single apparatus the said features may be in many cases used separately and in different forms of apparatus.

I do not here claim the husking devices

shown and described, as they constitute the subject of a separate application for Letters Patent, Serial No. 273,206.

Without limiting myself to the precise construction and arrangement of parts shown, I claim—

1. In a corn-harvester, a rotating snapping-roll having rigid spiral ribs with faces inclined inward in the direction in which the roll revolves.

2. In a corn-harvester, a rotating snapping-roll having rigid spiral ribs, each with a shoulder x and faces each inclined inward in the direction in which the roll revolves and toward said shoulder x .

3. In a corn-harvester, a rotating snapping-roll having rigid spiral ribs with shoulders x the faces of said ribs inclined inward toward said shoulders x in the direction in which the roll revolves.

4. The combination in a corn-harvester, of gatherers a pair of rotating rolls inclined backward and upward and having on their surfaces rigid spiral wedge-like ribs, the faces of the ribs on the adjacent sides of the rolls inclined in reverse directions.

5. The combination in a corn-harvester, of gatherers, ribbed snapping-rolls, one of decreasing diameter toward the end, and bearings adjustable to permit the rolls to be set with their axes diverging, with the adjacent working parts at either end parallel.

6. The combination in a corn-harvester, of a pair of ribbed snapping-rolls one of increasing diameter toward the center, and movable bearings whereby the rolls are relatively adjustable to permit them to be set with their adjacent working parts parallel at either end.

7. The combination with the roll supported in fixed bearings, of a second roll, a movable bearing for the latter roll, a spring tending to carry the latter roll toward the first, and a fly-wheel geared with the movably-supported roll, to exert a lateral thrust upon the latter.

8. The combination with a gatherer of a rotary stalk-lifter, a support upon which the

lifter rotates freely under the friction of the stalks.

9. The combination with a gatherer, of a rotary conical lifter and a support upon which the lifter rotates freely under the friction of the stalks.

10. The combination with a gatherer of a rotary lifter contracted toward the outer part and mounted to turn freely under friction of the stalks on a shaft extending upward and outward from the gatherer.

11. The combination with a gatherer having gathering-chains of a rotary lifter supported to rotate freely under friction of the stalks.

12. The combination with the rolls of a corn-harvester, of means for producing an air-blast and for directing it against the stalks of corn adjacent to the point where it is engaged by the rolls.

13. The combination with the rolls of a corn-harvester of means for producing an air-blast and for directing the same at different points against the stalks of corn and toward the rolls.

14. The combination with a corn-harvester having a stripping device, of means for producing an air-blast and for directing it against the stalks of corn adjacent to the point where it is engaged by the stripping device.

15. The combination with the rolls of a corn-harvester of a shaft approximately parallel to the rolls and carrying an eccentric push-bar, and means for rotating said shaft.

16. The combination with the roll K, its shaft and movable supporting-bracket, and the fly-wheel and shaft, of intermeshing gears on the fly-wheel shaft and roll-shaft.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

DANIEL E. ANTHONY.

Witnesses:

H. M. GILLMAN, Jr.,
EDWIN S. CLARKSON.