(No Model.)

4 Sheets—Sheet 1.

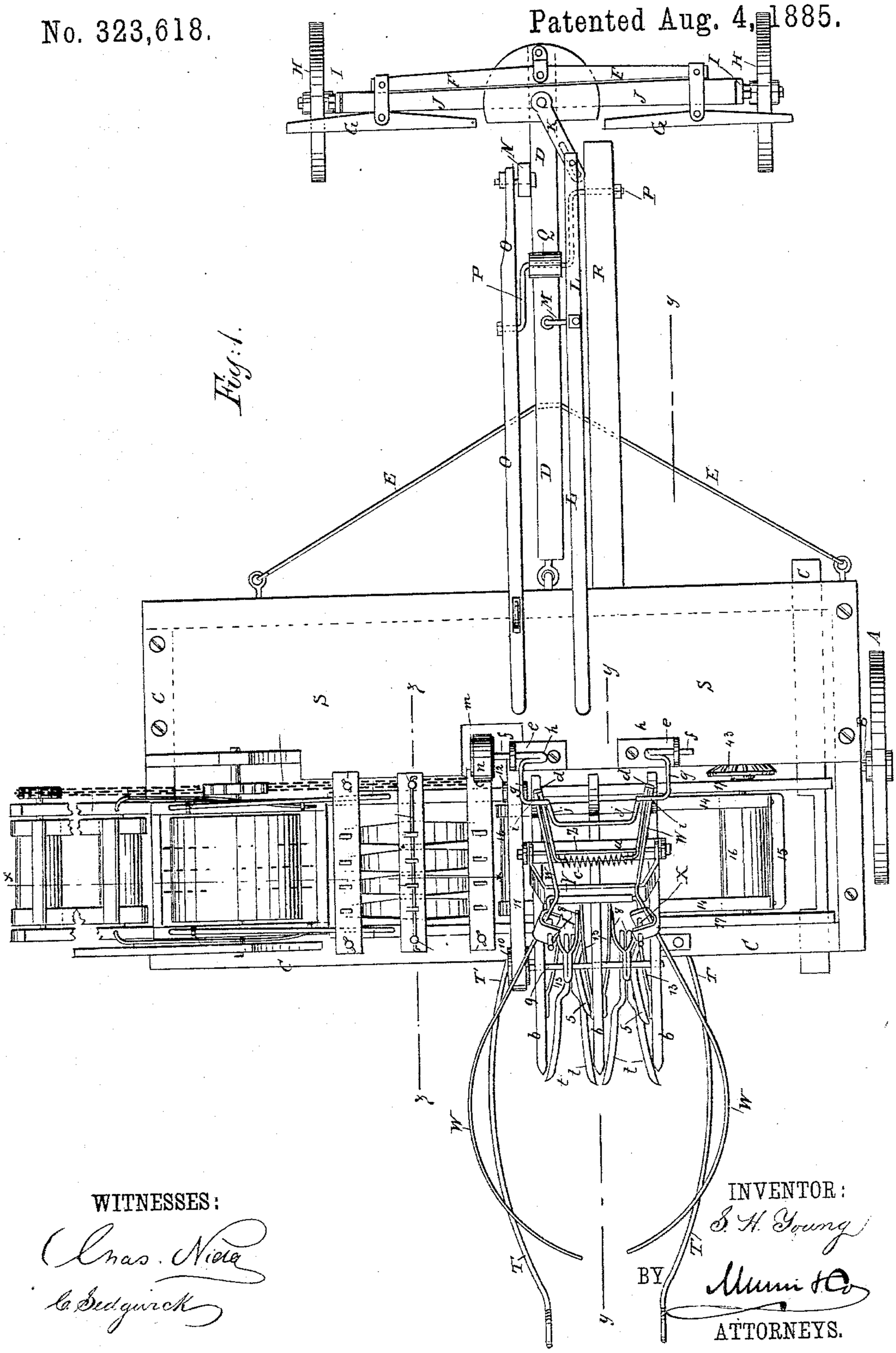
S. H. YOUNG.

CORN HARVESTER.

No. 323,618.

Patented Aug. 4, 1885.

Fig. 1.



WITNESSES:

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(No Model.)

4 Sheets—Sheet 2.

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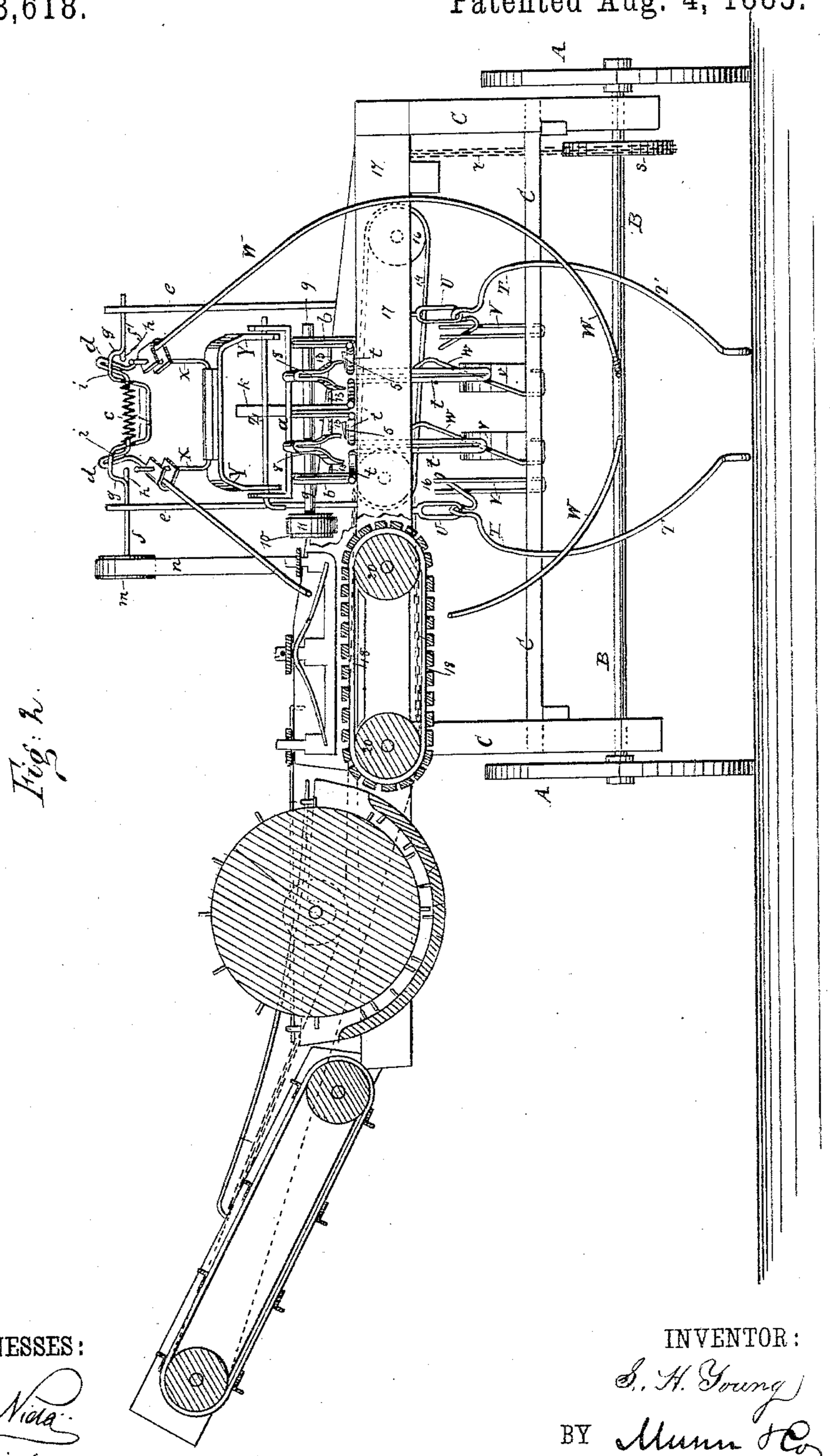

Fig: 1.

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4 Sheets—Sheet 3.

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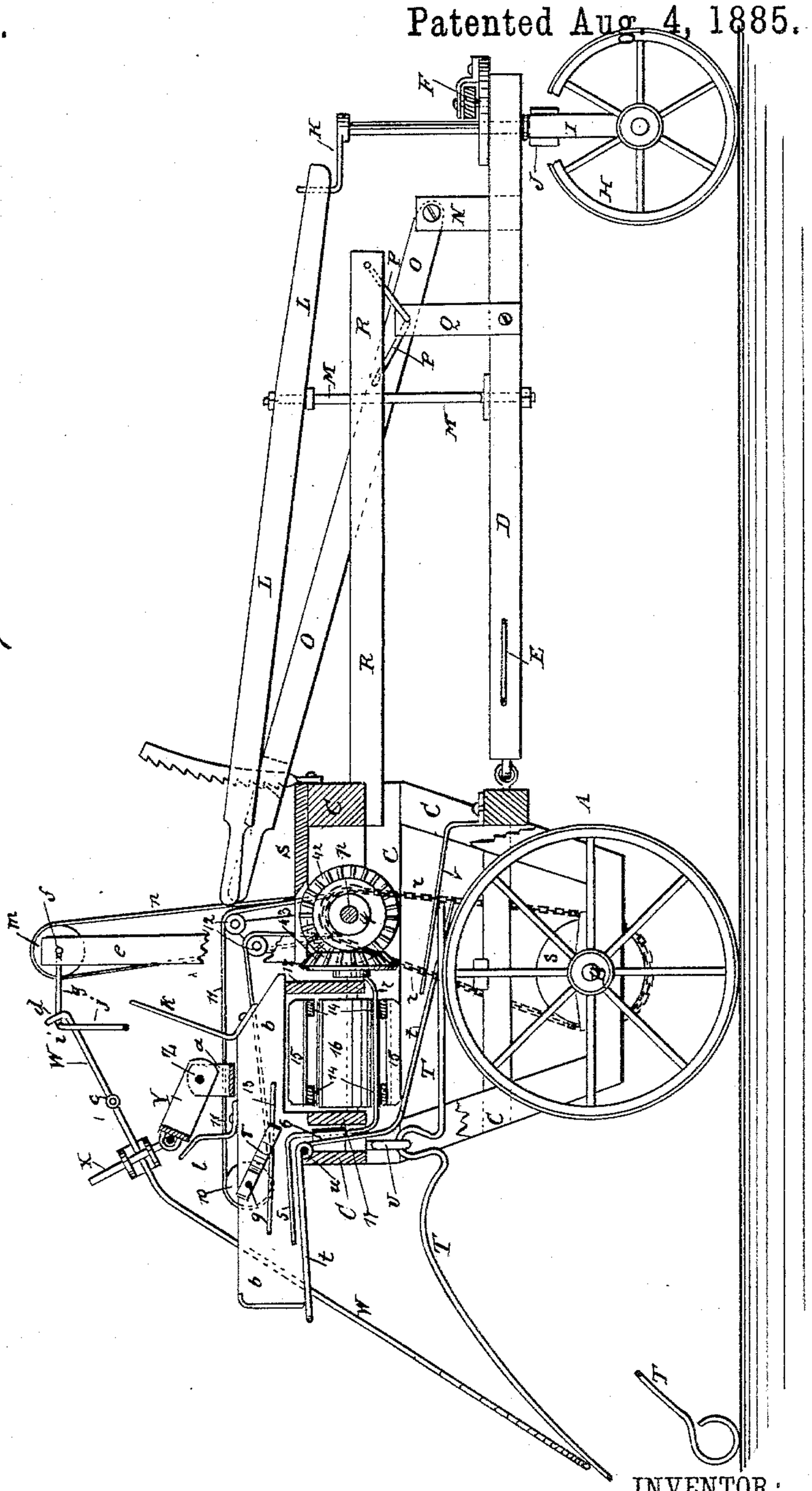
Fig: 3.



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(No Model.) 4 Sheets—Sheet 4.

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CORN HARVESTER.

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Fig: 4.

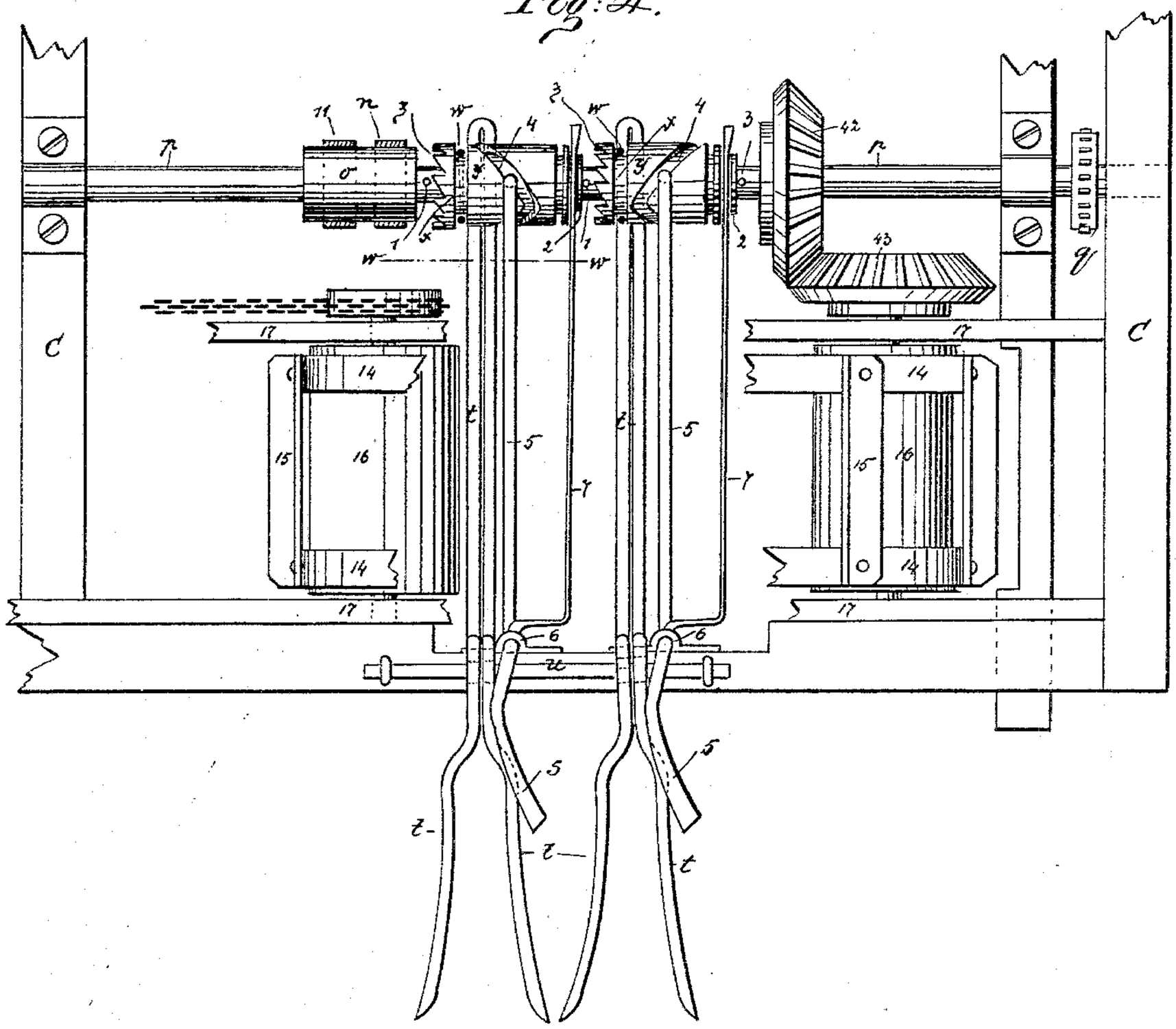
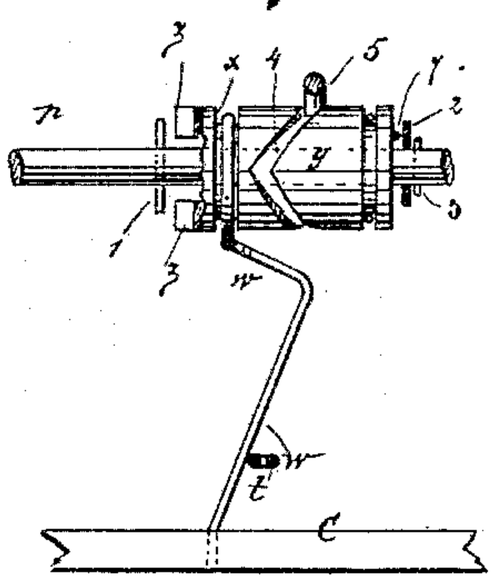


Fig: 5.



WITNESSES:

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UNITED STATES PATENT OFFICE.

SAMUEL HENRY YOUNG, OF BANKSTON, IOWA, ASSIGNOR TO HIMSELF AND THOMAS FRANCIS KANE, OF SAME PLACE.

CORN-HARVESTER.

SPECIFICATION forming part of Letters Patent No. 323,618, dated August 4, 1885.

Application filed March 22, 1884. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL HENRY YOUNG, of Bankston, in the county of Dubuque and State of Iowa, have invented certain new and useful Improvements in Corn Harvesters and Huskers, of which the following is a full, clear, and exact description.

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

Figure 1, Sheet 1, is a plan view of my improvement. Fig. 2, Sheet 2, is a front elevation of the same, partly in section through the line *x x*, Fig. 1, and part being broken away. Fig. 3, Sheet 3, is a side elevation of the same, partly in section through the line *y y y*, Fig. 1, and parts being broken away. Fig. 4, Sheet 4, is a plan view of a portion of the forward part of the same, parts being removed and parts being broken away. Fig. 5, Sheet 4, is a sectional front elevation of a part of the same, taken through the line *w w*, Fig. 4.

My invention will first be described, and then specifically set forth in the claims.

The invention consists in the construction and combinations of parts, as will be hereinafter fully described and claimed.

A are the drive-wheels, the axle B of which revolves in bearings attached to the lower side bars of the frame C.

To the center of the lower rear cross-bar of the frame C is hinged the forward end of the tongue D, which is strengthened in position by the braces E, hinged at their forward ends to the end parts of the said cross-bar, and attached at their rear ends to the opposite sides of the said tongue.

To the rear end of the tongue D is pivoted the double-tree F, which is provided with whiffletrees G, in the ordinary manner.

H are two caster-wheels, which are placed in and journaled to the slotted lower ends of the standards I. The upper ends of the standards I are bolted to the ends of a cross-bar, J, which is pivoted at its center to the rear end of the tongue D.

To the center of the cross-bar J is rigidly attached a crank, K, which may be the upward extension of the pivot of the said cross-bar, and to which is pivoted the rear end of the lever L. The lever L is pivoted to the upper end of a standard, M, the lower end of which is attached to the tongue D. By this construction the machine can be readily guided and can pass along a row of hills, the caster-wheels running upon the opposite sides of the said row.

To a standard, N, attached to the rear part of the tongue D, is pivoted the rear end of the lever O, which at a little distance from its rear end is pivoted to an arm of the double crank P. The shaft of the double crank P is pivoted to a standard, Q, attached to the tongue D, and the other arm of the said double crank P is pivoted to the rear end of a bar, R, the forward end of which is rigidly attached to the upper rear part of the frame C. The forward ends of the levers L O extend forward into such positions that they can be readily reached and operated by a person sitting or standing upon a platform, S, attached to the rear part of the top of the frame C. With this construction, by operating the lever O, the front of the machine can be readily raised and lowered, as may be required.

T are two rods, which are pivoted to slotted stirrups U, attached to the lower side of the front cross-bar of the frame C, so that the said rods can have a free vertical oscillation, but no lateral movement. The rear ends of the rods T pass through vertical guide-slots in standards V, attached to the lower central cross-bar of the frame C, to further secure the said rods against lateral movement. The rods T are curved outward, downward, and inward from the stirrups U, and have their forward ends bent into circular form, as shown in Fig. 3, so that the said ends will readily pass over the small inequalities of the soil left by the cultivators. The forward ends of the rods T always rest upon the ground, except when raised by the tilting of the frame C when turning, and when passing from place to place. The rods T are designed to raise or straighten fallen and inclined stalks, so that they will be operated upon by the machine.

W are two rods, which are curved outward and then inward from their forward ends for about three-fourths of their length, and at the rear ends of the said curved parts are hinged to the upright arms of a U-shaped rod, X, so

that the said rods W will have a lateral vibration. The bend of the U-rod X is hinged to the bend of the U-shaped bar Y, the downwardly-projecting arms of which are hinged by a pin, Z, to the upwardly-projecting ends of a U-shaped bar, *a*, or other suitable support attached to upper edges of the dividers *b*. With this construction, the rods W, in addition to their lateral vibration, have also a vertical vibration and an up-and-down movement. The rear parts of the rods W are nearly parallel when left free, and are held in such a position by a spiral spring, *c*, that the forward ends of the said rods will rest upon the straighteners T, so as not to interfere with the passage of the said straighteners along the opposite sides of a row of stalks. The rear ends of the rods W are bent upward to form projections or shoulders *d*, as shown in Fig. 3.

To the forward part of the platform S, upon the opposite sides of the rear ends of the rods W, are attached two standards, *e*, to the upper ends of which is journaled a crank-shaft, *f*. The crank-shaft *f* at a little distance from the standards *e* is bent to one side to form crank-arms *g*, the said bends being made in such a manner as to leave projections *h* in the line of the shaft *f*. At the outer ends of the crank-arms *g* the shaft *f* is bent inward, forming shoulders *i*, and is then bent at right angles with the plane of the shaft *f* and crank-arms *g*, to form a tapered or wedge-shaped projection, *j*, as shown in Figs. 1, 2, and 3. With this construction, as the shaft *f* is revolved, the tapered projection *j* enters between and separates the rear ends of the rods W, drawing the forward ends of the said rods together around a bunch of stalks. As the shaft *f* continues its revolution the shoulders *i* engage with the projections or shoulders *d* of the rods W, and draw the rear ends of the said rods W to the rearward and then downward, raising the forward ends of the said rods W, and drawing the bunch of stalks grasped by the said ends into the spaces between the projecting forward ends of the dividers *b*, separating the said bunch into clumps. As the crank-shaft continues its revolution, the projections *h* come in contact with the rods W, and push the shoulders or projections *d* off the shoulders *i*, which allows the forward ends of the said rods W to drop into place upon the straighteners T, when they are instantly spread apart by the action of the spiral spring *c*.

The rearward movement of the double hinged bar Y is limited by one or more upwardly-projecting springs, *k*, attached at their lower ends to the beveled rear ends of one or more of the dividers *b*; and the forward movement of the said bar Y is limited by one or more stop-bars, *l*, attached to the upper edges of one or more of the dividers *b*.

To one end of the crank-shaft *f* is attached a pulley, *m*, to receive a belt, *n*, which also passes around a pulley, *o*, Fig. 4, fixed to the counter-shaft *p*. The shaft *p* is placed parallel with the axle B, and revolves in bearings attached to the frame C.

To the counter-shaft *p* is attached a small chain-wheel, *q*, around which passes an endless chain, *r*. The chain *r* also passes around a larger chain-wheel, *s*, attached to the axle B, so that a slow revolution of the said axle B will give a faster revolution to the shaft *p*.

The dividers *b*, three or more of which are used, are placed parallel with each other and with the line of draft, and are secured edgewise to the forward part of the frame C. The forward ends of the dividers *b* project in front of the frame C, and between the adjacent dividers *b* are placed forks *t*, the prongs of which are made at such a distance apart that the stalks of corn can pass between them, but not the ears. The forks *t* are hinged to the top of the front cross-bar of the frame C by a rod, *u*, placed in a recess in the said top, or by other suitable means. The shanks of the forks *t* are bent at right angles to pass down through a recess in the rear side of the front cross-bar of the frame C, and are then bent to the rearward so as to have a downward inclination, as shown in Fig. 3. The rear ends of the shanks of the forks *t* rest beneath the upwardly-inclined forward parts of the springs *v*, the rear ends of which are bent downward and rearward, and are bolted or otherwise secured to the lower rear cross-bar of the frame C, as shown in Fig. 3.

At the side of the shank of each fork *t* is placed a laterally-inclined spring, *w*, the lower end of which is attached to the lower central cross-bar of the frame C. The upper ends of the springs *w* are connected by bands or other suitable means with annular grooves *x* in cylinders *y*, placed loose upon the counter-shaft *p*. Upon the forward ends of the cylinders *y* are formed clutch-teeth *z*, to engage with the catch-pins 1, passing through and secured to the counter-shaft *p*. The cylinders *y* are prevented from having any more longitudinal movement than enough to allow them when moved forward to engage with the clutch-pin 1, and when moved back to pass the said pins by collars or washers 2, placed upon the said shaft *p* and held in place by pins 3 or other suitable means.

In the faces of the cylinders *y* are formed zigzag grooves 4, with which engage the downwardly-projecting rear ends of the shanks of the knives 5, the forward parts of which are bent upward across the inner side of the front cross-bar of the frame C, and are pivoted to the said cross-bar by keepers 6 or other suitable means. The knife-blades project forward, so as to swing across the inner parts of the forks *t* when their shanks are operated by the cam-grooves 4 of the cylinders *y*. To the forward ends of the shanks of the knives 5 are rigidly attached the forward ends of springs 7, the rear ends of which are branched and rest in the spaces between the rear ends of the cam-cylinders *y* and the washers 2. The parts of the branches of the springs 7

that are between the cylinder ends and the washers are made thin, so that the clutch-teeth of the said cylinders will pass the catch-pins 1, when the cylinders *y* are held back by the springs *w* and the ends of the knife-shanks are in the forward angles of the grooves 4. The projecting ends of the branches of the springs 7 are thickened, so that when the knives are operated to make a cut the movement of the knife shanks will draw the springs 7 forward, drawing the thickened ends into the space between the cylinder ends and their washers, and locking the clutch-teeth in gear with the catch-pins until the ear has been removed and the forks *t* and the knives 5 return to their former positions, releasing the cylinders *y*, and allowing them to be pushed out of gear by the springs *w*. With this construction, as the machine moves forward, the straighteners T raise the stalks, the lifters W grasp the stalks in successive bunches, and, moving upward and rearward, they raise the hanging ears and draw the bunch of stalks against the dividers *b*, by which they are separated into small clumps, and the clumps are drawn into the forks *t*, and are drawn downward through the said forks. As the butts of the ears come in contact with the forks *t*, the said ears are either broken off or draw the forks *t* downward, raising the shanks of the said forks, and causing the springs *w* to throw the cylinders *y* into gear with the counter-shaft *p*, the revolution of which operates the knives 5 to cut off the ear, or cut it sufficiently to cause it to break loose from the stalk and fall inward upon the shanks of the forks, when the forks, shifting springs, cylinders, and knives return to their former positions, ready to be again operated.

S are forked springs attached to the shaft 9, which revolves in bearings in the upper middle parts of the dividers *b*.

To one end of the shaft 9 is attached a pulley, 10, around which passes a belt, 11. The belt 11 also passes around the pulley *o*, attached to the counter shaft *p*. The pulley *o* can be made long, so as to receive both the belts *n* 11, as shown in Fig. 4, or a separate pulley can be used for each belt. The parts of the belt 11 pass over guide-pulleys 12, pivoted to supports attached to the frame C, to keep the said belt out of contact with the frame of the carrier hereinafter described.

To the adjacent sides of the forward parts of the dividers *b* are attached the forward ends of springs 13, which incline inward and rearward, as shown in Figs. 1 and 3. With this construction, as the ears fall upon the shanks of the forks *t*, the forked springs 8 pass down upon the opposite sides of the said ears, and are made to grasp the ears by the inclined guide-springs 13, so that as the said springs 8 move to the rearward in their revolution they will carry the said ears with them. As the forked springs 8 leave the guide-springs 13, they open and allow the ears to fall upon the endless apron 14 of the carrier. The endless apron 14 has flanged cross-strips 15 attached to it at suitable distances apart, so that the ears will be carried forward with certainty. The endless apron 14 passes around the rollers 16, pivoted to the frame 17, attached to the frame C, and is designed to receive the ears from the transfer-springs 8 and carry them to the endless apron 18 of the second carrier, whence they pass to the corn-husking mechanism.

The corn-husking mechanism forms no part of the subject-matter claimed in this application, and I reserve the right to claim the same in a separate application.

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

1. In a corn harvester and husker, the combination, with the tongue D, of the caster-wheels and standards H I, the cross-bar and crank J K, and the lever L, pivoted upon the standard M, substantially as herein shown and described, whereby the machine can be readily guided and drawn along a row of corn-hills, as set forth.

2. In a corn harvester and husker, the combination, with the tongue D and frame C, of the standards N Q, the lever O, the double crank P, and the rigid bar R, substantially as herein shown and described, whereby the front of the machine can be readily adjusted to the height of the corn, as set forth.

3. In a corn harvester and husker, the combination, with the frame C, of the curved rods T, the stirrups U, and the slotted guide-standards V, substantially as herein shown and described, whereby inclined and fallen stalks are raised or straightened, as set forth.

4. In a corn harvester and husker, the combination, with the frame C, the counter-shaft *p*, and the dividers *b*, of the laterally-pivoted bent rods W, having spring *c* and shoulders *d*, the double hinge-support X Y Z *a*, the crank-shaft *f g*, having projections *h*, shoulders *i*, and tapered projection *j*, and the driving-pulleys and belt *m o n*, substantially as herein shown and described, whereby the bunch of stalks is drawn together and against the said dividers, as set forth.

5. In a corn harvester and husker, the combination, with the dividers *b* and the double hinge-support X Y Z *a*, of the stop-spring *k* and the stop-bar *l*, substantially as herein shown and described, whereby the movement of the said double hinge-support is limited, as set forth.

6. In a corn harvester and husker, the combination, with the frame C and the counter-shaft *p*, of the hinged forks *t*, the holding-springs *v*, the inclined shifting-springs *w*, the cylinders *y*, having clutch-teeth *z*, and zigzag grooves 4, the catch-pins and washer 1 2, and pivoted knives 5, substantially as herein shown and described, whereby the movements of the forks will cause the knives to operate, as set forth.

7. In a corn harvester and husker, the combination, with the cam-cylinders *y*, the

washers 2, and the pivoted knives 5, of the spring-rods 7, having thickened ends, substantially as herein shown and described, whereby the movements of the said knives will lock the said cylinders in gear and release them, as set forth.

8. In a corn harvester and husker, the combination, with the dividers *b* and the counter-shaft *p*, of the shaft 9, the pulleys *o* 10, and belt 11, the guide-pulleys 12, the forked transfer-springs 8, and the inclined guide-springs 13, substantially as herein shown and described, whereby the ears will be transferred automatically from the forks to the carrier, as set forth.

SAMUEL HENRY YOUNG.

Witnesses:

JAMES KANE,

ALLAN KANE.