No. 881,598. PATENTED MAR. 10, 1908.

S. E. LOXLEY.

TOBACCO HARVESTER.

APPLICATION FILED JULY 26, 1906.

2 SHEETS—SHEET 1.

Fig. 1.

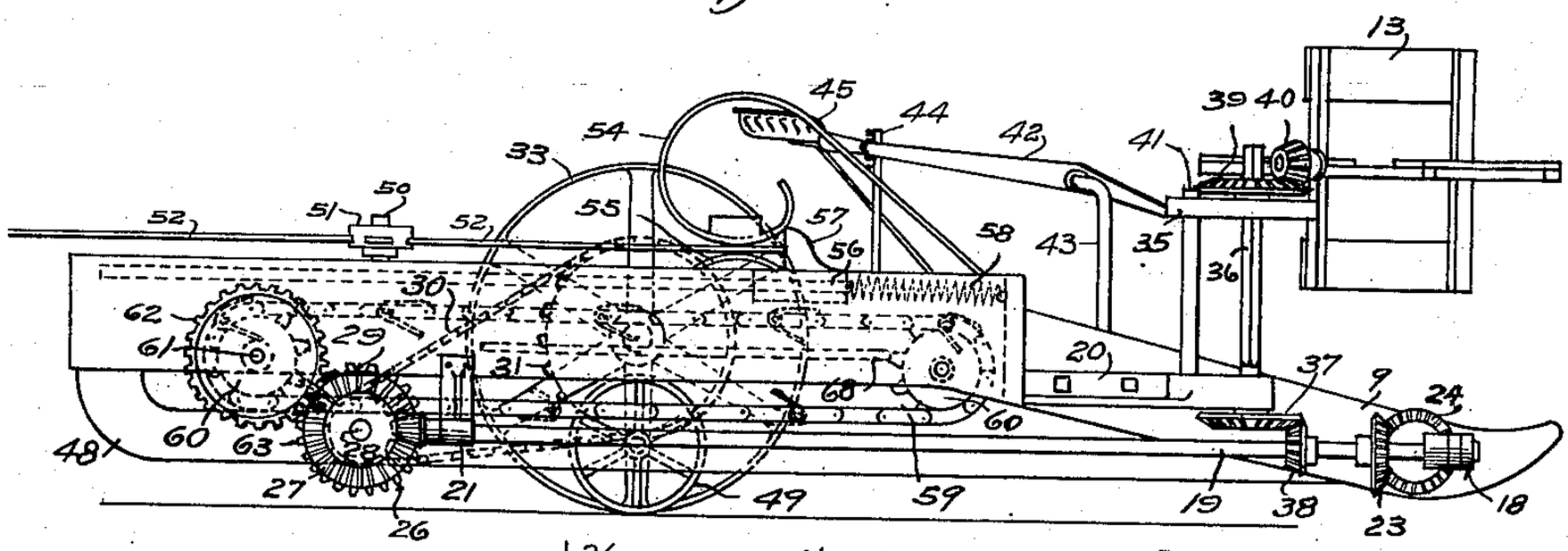

Fig. 2.

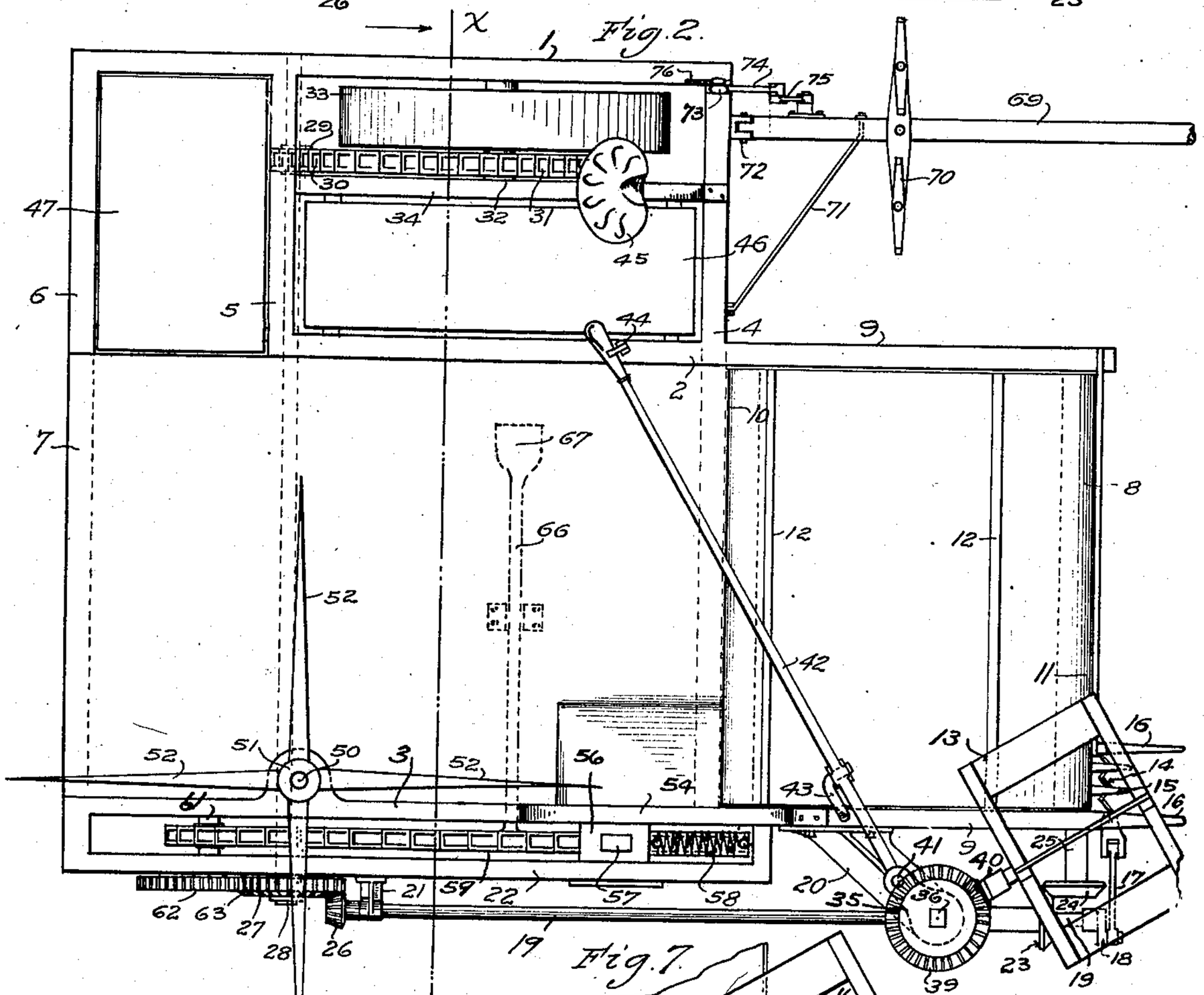

Fig. 7.

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2 SHEETS—SHEET 2.

Fig. 3.

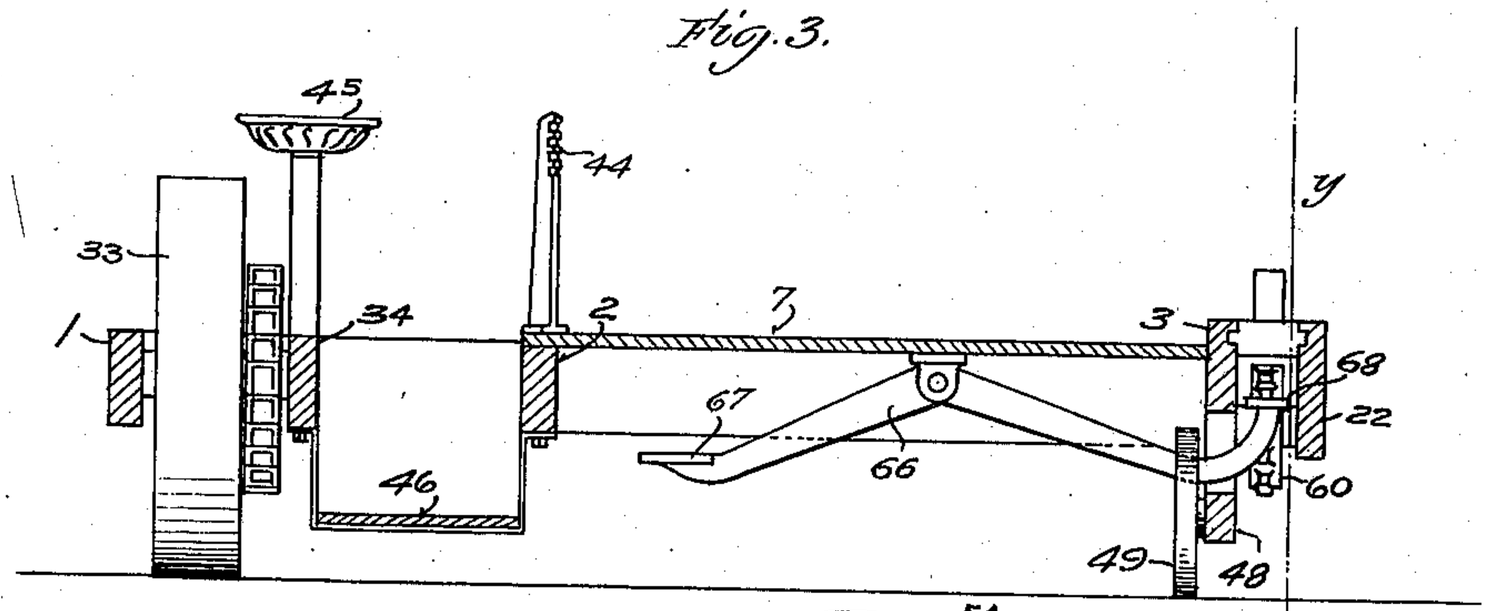


Fig. 4.

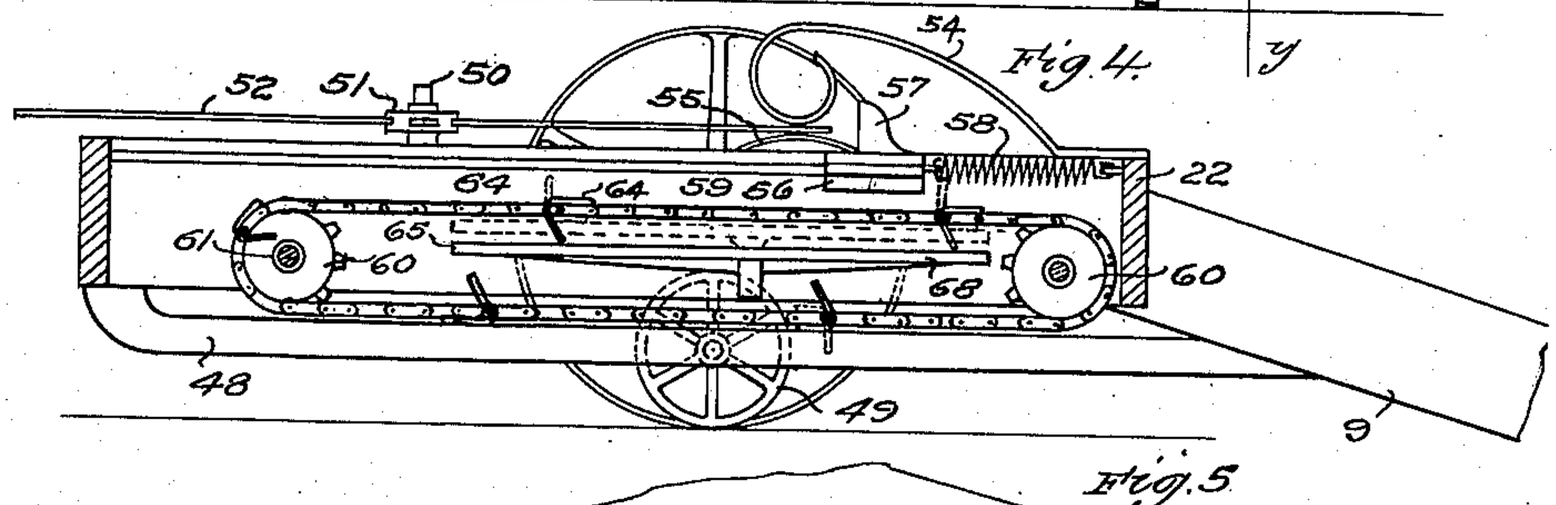


Fig. 5

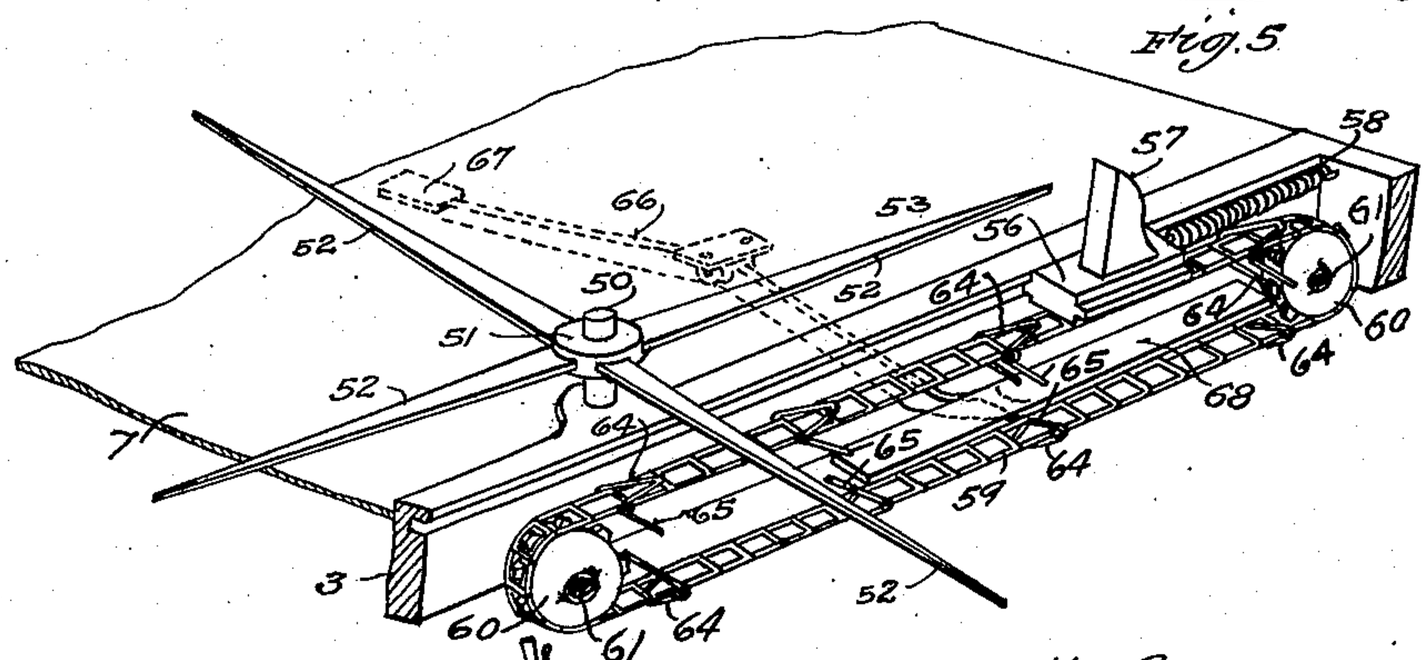
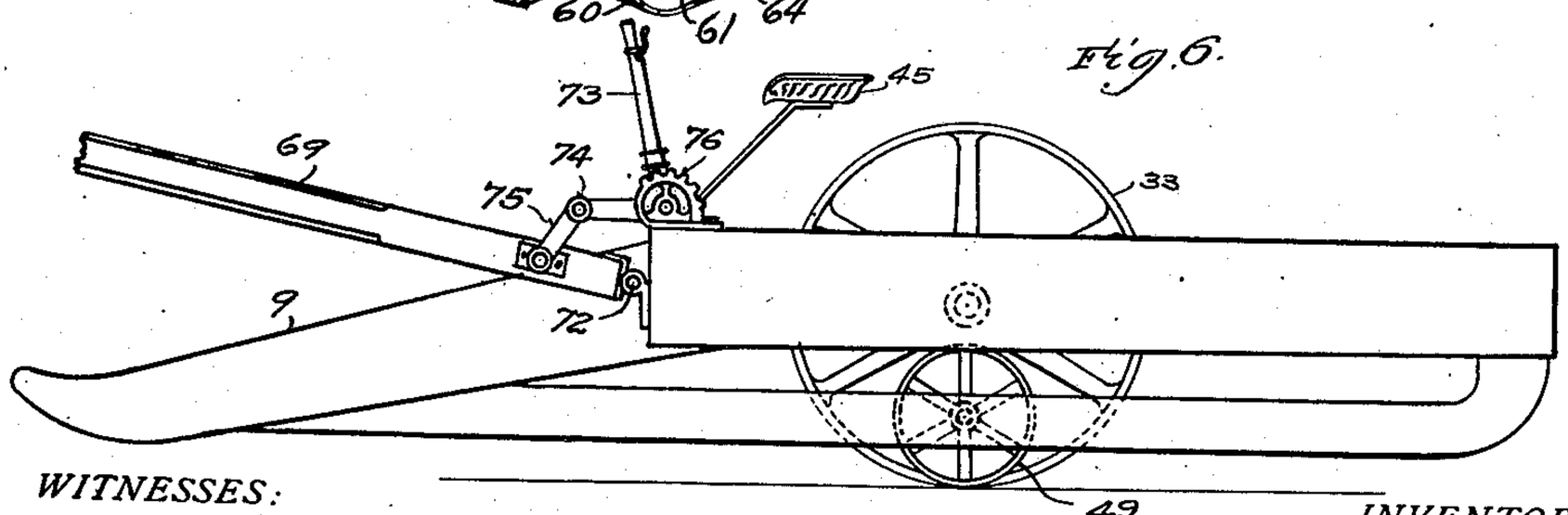


Fig. 6.



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UNITED STATES PATENT OFFICE.

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TOBACCO-HARVESTER.

No. 881,598. Specification of Letters Patent. Patented March 10, 1908.

Application filed July 26, 1906. Serial No. 327,819.

To all whom it may concern:

Be it known that I, SAMUEL E. LOXLEY, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Tobacco-Harvesters, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to machines for harvesting tobacco, and the object is to provide a tobacco harvester which may be drawn over the tobacco fields to cut the plant, deliver the same to an operator, who in turn will deliver it to needles upon which, by the mechanism of the machine, it will be impaled, until each needle has gathered upon it a quantity of the tobacco stalks with their attached leaves, the arrangement permitting the needles so loaded to be detached and laid aside ready to be hung up in the curing house, without removing the stalks from the needles.

The mechanism by which this object is carried out in practice is illustrated, as to one preferred form, in the accompanying drawings, and will be more fully hereinafter described and particularly pointed out in the claims.

In these drawings Figure 1 is a side elevation of my improved tobacco harvester; Fig. 2, a plan view thereof; Fig. 3, a transverse vertical section, on the line *x x* of Fig. 2; Fig. 4, a side elevation, with a part of the frame in section; Fig. 5, a perspective view of a portion of the frame and deck and the needles and feeding mechanism; Fig. 6, a side elevation looking from the opposite side of the machine to that viewed in Fig. 4, namely, on the master wheel side; and Fig. 7, a detail plan view showing the reel and a part of the carrier belt.

The general frame is shown composed of side-bars 1, 2 and 3, and cross-bars 4, 5 and 6. The deck 7 covers a part of this frame, and forward of the deck is a carrier belt 8, supported between extensions 9 of the side bars 2 and 3 and carried by rollers 10 and 11, shown by dotted lines in Fig. 2. This belt is driven as hereinafter described and has cleats or slats 12 to cause it the more readily to take hold of the tobacco stalks and their leaves as the same are delivered thereon by a reel 13, after being cut by a cutter-bar 14, operating within fingers 15 and between guides 16, the latter being far enough apart to readily take in a row of growing tobacco plants. This cutter-bar is of the ordinary type and is operated by a pitman 17, itself actuated by a crank 18, on a motion transmitting shaft 19 mounted in suitable bearings carried by a bracket 20, extending from the extension 9, and a bracket 21, carried by a frame 22 extending from the side-bar 3. This shaft 19 has a miter pinion 23 meshing with a like pinion 24 on an extension 25 from the roller 11, whereby this roller is rotated to give motion to the carrier belt 8. This shaft 19 receives motion through a bevel pinion 26 mounted thereon and meshing with a bevel gear 27, secured to a driving shaft 28 mounted in suitable bearings and extending crosswise under the machine and carrying a sprocket pulley 29, driven by a sprocket-chain 30 operated by a sprocket-wheel 31, carried by the axle 32 of the master wheel 33, this axle being suitably mounted in the side bar 1 and a supplemental beam 34. Thus when the machine is advanced over the ground the rotary motion of the master wheel is transmitted to the carrier belt, the cutter-bar and the reel. The latter is supported by a frame 35, slidably mounted on a rotating shaft 36, itself mounted in the bracket 20 and driven by a bevel gear 37, rotated by a bevel pinion 38 on the shaft 19. A bevel gear 39 on the reel shaft 36 meshes with a bevel pinion 40 on the axle of the reel 13. Thus the reel is given rotary motion. The frame 35, which carries the reel axle, is further mounted on a post 41 extending upward from the bracket 20, and by means of a lever 42, fulcrumed on a standard 43, the reel frame may be raised and lowered to bring it to the right position relatively to the carrier, to cause it to properly sweep or direct the plants on the carrier after they are severed by the cutter-bar, to cause them to be delivered to the operator to be hereinafter referred to. The lever 42 is held in adjusted position by any suitable means, say a toothed bar 44 mounted on the side or frame bar 2.

An elevated seat 45 is provided for the driver, a depressed seat 46 for the operator and a depressed platform 47 for the temporary depositing of the needles with their impaled tobacco stalks, and in speaking of stalks, I include the leaves carried thereby.

Referring again to the general frame, it will be seen more clearly from Figs. 4 and 6 that it carries an under brace 48, extending from the rear of the machine to the extension

9, and provides a bearing for the ground wheel 49.

Referring now to the needles upon which the stalks or plants are to be impaled, a stud-shaft 50, mounted on the side-bar 3, carries a hub 51, socketed to receive the needles 52, which are readily insertible in and removable from the hub, so that as each needle is filled with stalks or plants, it is readily withdrawable and another needle inserted in its place. These needles are pointed bars adapted to readily penetrate the stalks, as the same are presented in succession thereto by an operator, sitting on the seat 46 and receiving with his hands the stalks or plants as they are delivered upon the deck 7 from the carrier belt. It will be understood that the hub 51 is rotatable on the shaft 50, and it will also be understood that the operator swings the needles into the position shown more particularly in Figs. 2 and 5, the forward needle as suggested at 53 being in position to receive the stalks or plants. He presents the stalks opposite the point of this needle by pushing them between the guiding springs 54 and 55, between which it will be seen the needle stands when in position to receive the stalks. When it has been loaded with as many stalks as it will readily carry, in a manner and by the means presently to be stated, then the operator swings the loaded needle toward himself, thereby presenting the next succeeding outer needle in position to receive other stalks, and at the same time withdrawing from the hub the loaded needle and dropping it upon the platform 47 or upon the ground, with its impaled plants. As he withdraws, say with one hand, a loaded needle, he quickly inserts in its place an unloaded needle, of which he has a supply at a convenient point nearby on the machine. This takes but a moment, so that he has time enough to also take care of the oncoming plants from the carrier belt.

Referring now to the means for impaling the stalks on the needles, it will be seen from Figs. 2 and 5 that there is slidably mounted a block 56 in the side-bar 3 and the frame 22, the block having a projection 57 which, when the block is advanced toward the needle, by the means presently to appear, engages the stalk which has been held across its path and that of the needle, so that it forces the stalk against and along the needle, impaling it thereon. The action of this impaler, constituted of the block 56 and its projection 57, is quite quick, while its return movement, effected by the retractile spring 58 is almost instant, the spring being connected to the block at one end and to the frame 22 at the other.

To actuate the impaler toward and along the side of the needle, I provide an endless chain 59, mounted on sprocket-wheels 60 carried by shafts 61 having bearings in the side-bar 3 and the frame 22, and one of them driven by a spur-gear 62, mounted on its shaft and meshing with spur-teeth 63 on the face of the bevel-gear 27. Thus this chain 59 is kept in constant rotary motion. At suitable intervals it is provided with pivoted detents, having each arms 64 and 65, the former when in normal position lying upon the chain and the latter depending below the chain. To advance the impaler along the needle, these detents are operated to cause the arm 64 to engage the end of the impaler and to continue in this engagement until the impaler has traveled the desired distance. To lift the detents into operating position, I provide a treadle mechanism consisting of a lever 66, mounted on the under side of the deck 7, and having a foot-board 67 at one end and carrying at its other a lifting bar 68, which stands under the detents and which, when elevated, lifts their lower arms and causes their upper arms to rise in the path of the impaler, so as to engage it. A number of detents is provided so that there will always be one about in position to engage with the impaler, should it be operated by the treadle devices. Thus it will be understood that when the operator has a stalk ready to be impaled, he operates the treadle devices and thus quickly actuates the impaler as far along the needle as desired, which will be governed by the number of stalks that have been impaled thereon. On releasing the treadle mechanism the lifting bar 68 drops down permitting the detents to swing out of operating position, when the retractile spring 58 quickly returns the impaler to starting position.

The machine is provided with suitable draft devices, composed of a pole 69 having double and single trees 70, a brace 71 and a pivotal connection 72 with the machine just forward of the master wheel. To adjust the pole to different heights I provide a lever 73, mounted on the frame of the machine and having an arm 74 connected to the pole by a link 75. The lever may be locked in different positions through a detent and toothed segment 76.

It will now be understood that I have provided a tobacco harvester by which the growing tobacco plants are cut, are delivered to an operator, who in turn delivers them to an impaling-position, and are then impaled upon needles or rods quickly and conveniently, the needles or rods being capable of removal and renewal, so that as they are successively loaded with the plants, they may be set aside ready to be gathered up and carried to the curing house, the plants being still impaled on the needles or rods, which latter are hung up. Thus the plants need not be separately handled after they have been harvested and impaled by my machine, but are presented and held in groups or ex-

tended bunches, after the manner of a wheat sheaf, so that labor is saved in handling them and means are also provided for hanging them up in the curing house a whole bunch at a time.

I regard myself as the first to make a machine of this character for producing these results, and accordingly wish to be understood as laying broad claim thereto, and as having illustrated and described herein merely one mode or means of carrying this invention into effect, the illustrated means being capable of modification in respect to the construction and arrangement without departing from the spirit of my invention.

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

1. A tobacco harvester comprising a frame, a series of impaling needles movably supported on said frame and adapted to be successively loaded and removed, an impaler for impaling the plants on each successive needle, and means to actuate the impaler.

2. A tobacco harvester comprising a frame, a guide for the plants, a series of removable impaling needles adapted to be moved successively into alinement with said guide, an impaler to engage the plants and force them onto the needles, and means to actuate the impaler.

3. A tobacco harvester comprising a frame, impaling needles rotatively mounted and adapted to be successively loaded and removed by the operator, devices to guide the plants to the needles, an impaler to force the plants on the needles, the impaler being under the control of the operator, and devices to actuate the impaler.

4. A tobacco harvester comprising a frame, removable impaling needles under the control of the operator, one needle being removable while another is being loaded, devices to guide the plants to the needle to be loaded, a reciprocating impaler also under the control of the operator, and means to actuate the impaler.

5. A tobacco harvester comprising a frame, a series of rotatable removable needles under the control of the operator, devices to guide the plants to the needle to be loaded, an impaler to force the plants on such needle, a traveling chain having detents, treadle devices to throw the detents into position to engage the impaler, and means to actuate said chain.

6. A tobacco harvester comprising a mounted frame, a platform mounted on said frame, an operator's place at one side of the platform, rotatable removable needles and an impaler at the opposite side, the needles being under the control of the operator, treadle devices and detents also under the control of the operator, and a chain driven from the master wheel and carrying said detents.

7. A tobacco harvester comprising a mounted frame, a rotatable hub supported by said frame, removable impaling needles carried thereby, means to guide the plants to the needle to be loaded, a reciprocating impaler, a traveling chain having detents, a treadle mechanism to operate the detents, and means to actuate said chain.

8. In a tobacco harvester, the combination, with a main frame having ways at one side thereof, of an impaler in said ways, a traveling chain, means to operate it, detents carried by the chain to actuate the impaler, treadle devices to actuate the detents, and a series of rotatable and removable needles adapted to be successively placed in loading position and successively removed.

9. In a tobacco harvester, the combination, with an impaling needle and an impaler coöperating therewith, of a traveling chain, means for operating said chain, detents carried by said chain to actuate the impaler, and means controlled by the operator for actuating said detents.

10. In a tobacco harvester, the combination, with an impaling needle and an impaler coöperating therewith, of a traveling chain, means for operating said chain, detents carried by said chain to actuate the impaler, and treadle devices to actuate said detents.

11. In a tobacco harvester, the combination, with a series of removable impaling needles adapted to be successively placed in loading position and removed when loaded, of a movable impaler adapted to coöperate with the needle to be loaded to impale the plants thereon, and means to actuate said impaler.

12. In a tobacco harvester, the combination, with a rotatable hub carrying a series of removable impaling needles, each adapted to be placed in loading position and to be removed when loaded, of an impaler operating in conjunction with the needle to be loaded, and means to actuate said impaler.

13. In a tobacco harvester, the combination, with a rotatable hub, impaling needles removably carried thereby and adapted to be successively brought into position by the operator, of an impaler adapted to coöperate with each needle and under the control of the operator.

In testimony whereof I affix my signature in presence of two witnesses.

SAMUEL E. LOXLEY.

Witnesses:

CASSIUS C. CASAD,

JOHN E. BARNES.