

(No Model.)

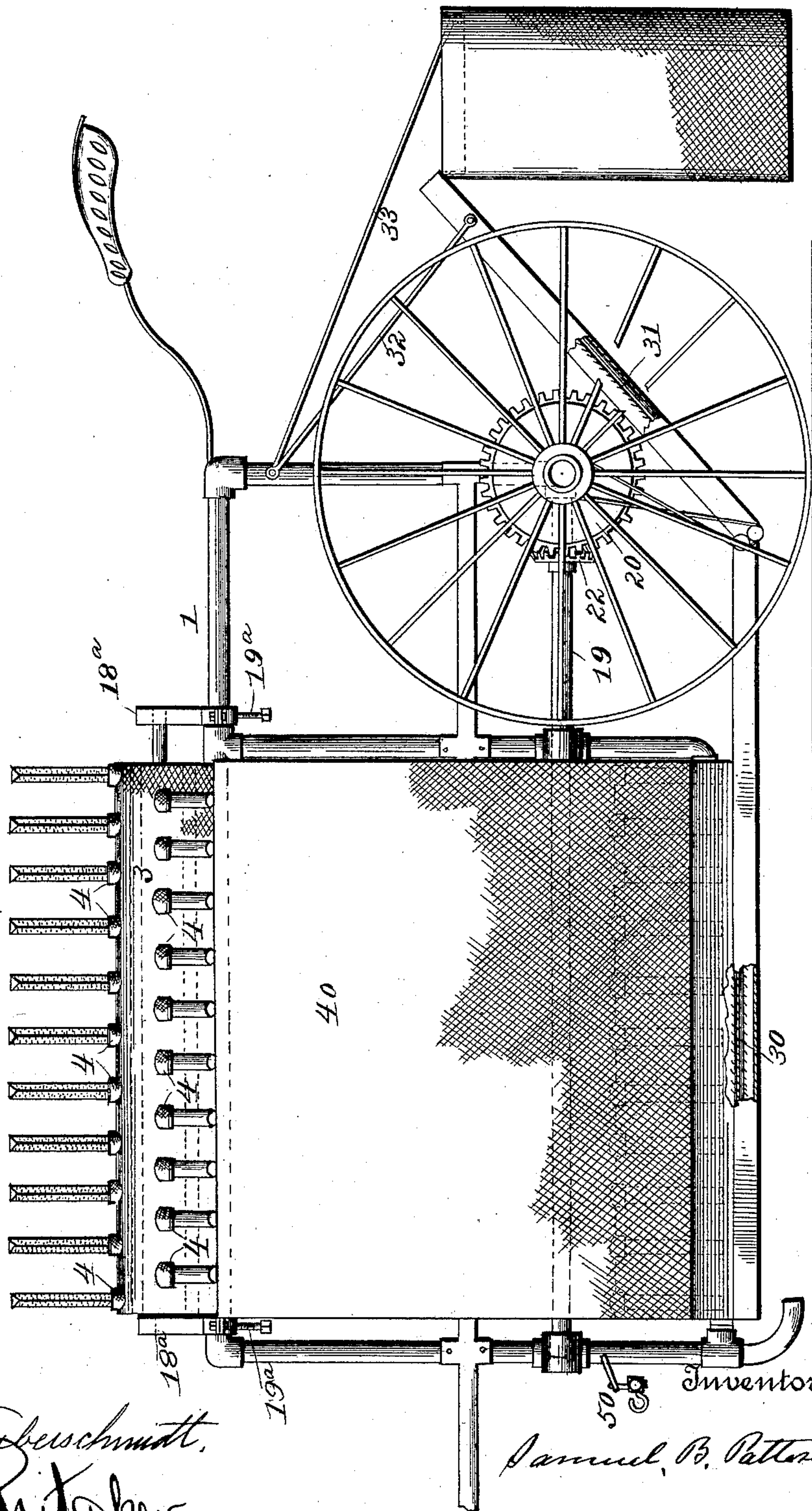
3 Sheets—Sheet 1.

S. B. PATTESON.
COTTON HARVESTING MACHINERY.

No. 465,879.

Patented Dec. 29, 1891.

Fig. 1.



Witnesses

D. A. Farnsworth
S. Whitaker

Inventor

Samuel B. Patteson

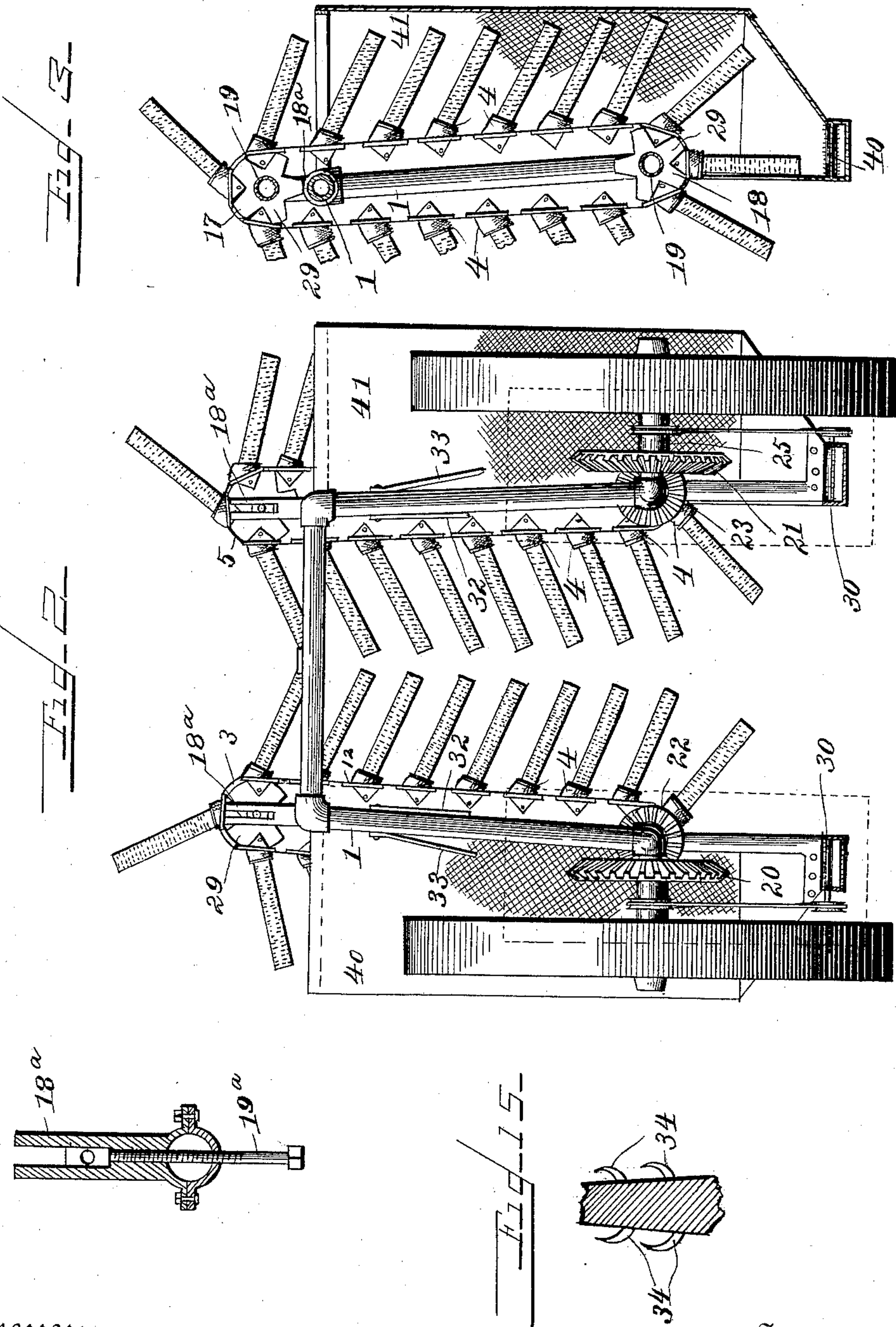
(No Model.)

3 Sheets—Sheet 2.

S. B. PATTESON.
COTTON HARVESTING MACHINERY.

No. 465,879.

Patented Dec. 29, 1891.



Witnesses

D. A. Tauberschmidt.
S. Whitaker.

Inventor

S. B. Patteson

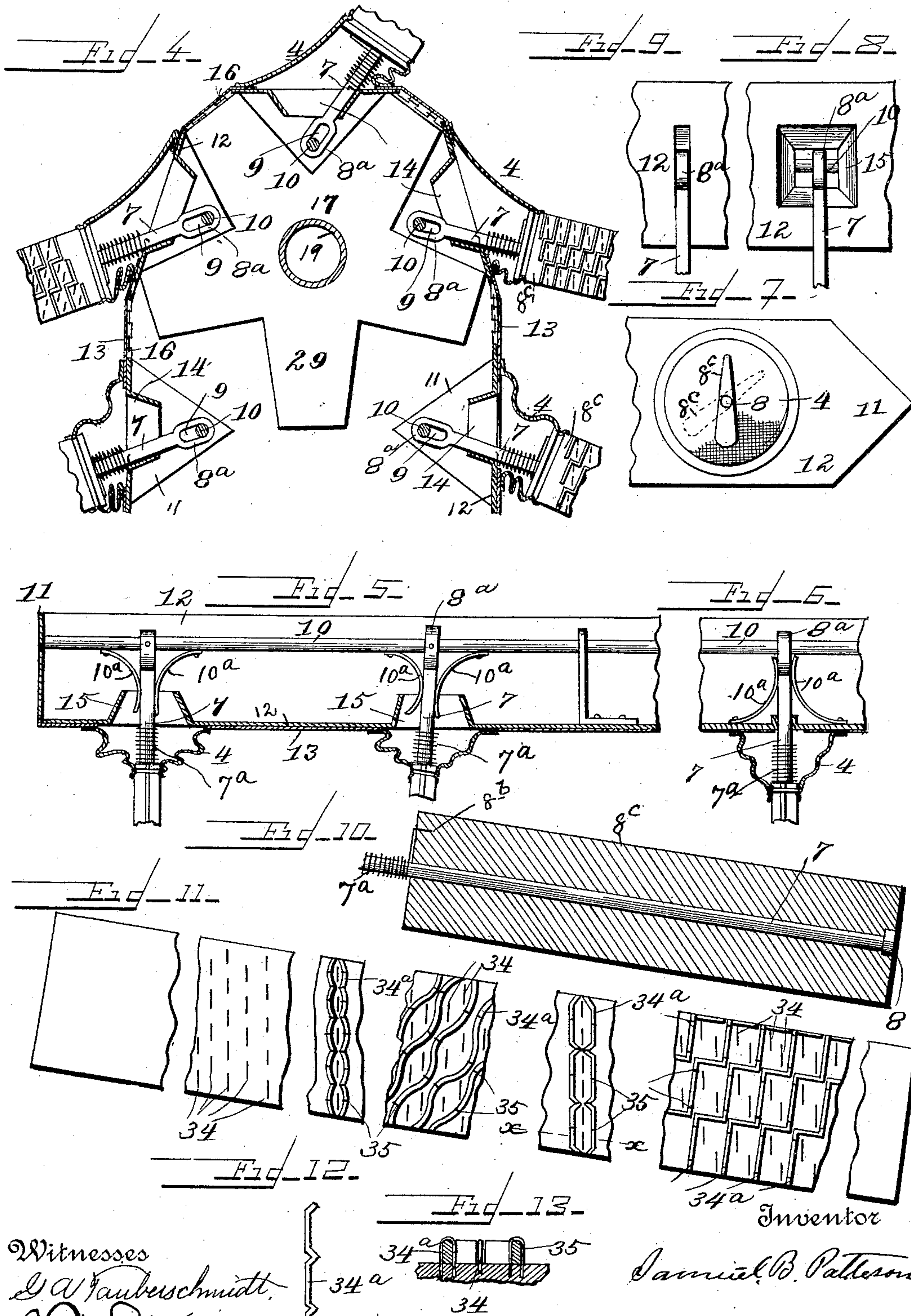
(No Model.)

3 Sheets—Sheet 3.

S. B. PATTESON.
COTTON HARVESTING MACHINERY.

No. 465,879.

Patented Dec. 29, 1891.



Witnesses
L. A. Fauberschmidt
S. B. Whitaker

Inventor
Samuel B. Patterson

UNITED STATES PATENT OFFICE.

SAMUEL B. PATTESON, OF ST. JOSEPH, LOUISIANA.

COTTON-HARVESTING MACHINERY.

SPECIFICATION forming part of Letters Patent No. 465,879, dated December 29, 1891.

Application filed June 24, 1891. Serial No. 397,289. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL B. PATTESON, a citizen of the United States, residing at St. Joseph, in Tensas parish, and State of Louisiana, have invented certain new and useful Improvements in Cotton-Harvesting Machinery; and I do 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, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention has relation to cotton-harvesting machines; and it consists in the construction and novel combination of parts, as hereinafter described, and particularly pointed out in the claims hereto appended.

Figure 1 of the drawings is a side elevation of a cotton-harvesting machine embodying the improvements of my invention. Fig. 2 is a rear elevation of the machine, the cotton-receptacles in the rear of the machine being shown in dotted lines. Fig. 3 is a detail view showing the picker-stems and the canvas guards at the front, rear, and sides of the frame which supports the picker-stems, &c. Fig. 4 is an enlarged detail view of a portion of one set of the picker-stems, the upper ribbed roller, and the endless belt to which the picker-stems are attached. Fig. 5 is a horizontal section showing one of the rods on which the inner end of the picker-stems are pivoted so as to oscillate, showing also the curved lateral springs which allow the oscillating motion, and the coiled springs which permit the picker-stems to have a torsional motion when in operation. Fig. 6 is a sectional detail view of this same part of the machine, wherein a slight modification of the manner of applying the returning-springs for returning the picker-stems to their normal condition is shown. Fig. 7 is a detail end view of one of the picker-stems, its normal position being shown in full lines and its deflected position being shown in dotted lines. Fig. 8 is a detail view showing the preferred method of connecting the inner end of the picker-stem rod to the shaft or rod on which it oscillates. Fig. 9 is a detail view of a modi-

fication of the same parts. Fig. 10 is a longitudinal sectional view of one of the picker rods and stems, showing the returning-spring at the inner end of the same. Fig. 11 is a series of detail views of portions of the picker-stems, showing various ways of guarding the picker-teeth on the same. Fig. 12 is a plan view of one of the guards of the picker-teeth. Fig. 13 is a sectional detail view showing the manner of securing the guards for the picker-teeth in place by means of staples driven over them into the body of the picker-stem, as seen on line *xx* in Fig. 11. Fig. 14 is a sectional detail of the device for regulating the tension of the belts on which the picker-stems are mounted by raising or lowering the shafts over which the endless belts that carry the picker-stems run. Fig. 15 is an enlarged detailed sectional view of the picker-stem.

Referring now to the accompanying drawings by reference-numerals, the numeral 1 designates the frame of the machine, said frame being made of gas-pipe of sufficient strength to serve the purpose for which the cotton-harvester was designed. The frame 1 is of the straddle-row or arched pattern in cross-section, in order that the machine may ride over the cotton-stalks as it is drawn through the cotton-field and present the picker-stems to the cotton-bolls by introducing the picker-stems to the lower limbs of the cotton-stalk and moving them upwardly through the same by means of endless carrying-belts 3 and 5, to which the picker-stems are attached or secured by means of flexible housings 4, which latter are secured to the endless belts 3 and 5 by rivets or other suitable method, and is secured, also, to the inner end of the picker-stem by a band of wire, which presses the material of the housing 4 into an annularly-disposed groove near the inner end of the picker-stem. A rod 7 is passed through the longitudinal middle line of the body of the picker-stem, is provided at its outer end with a head 8, which is seated in a recess in the outer end of the picker-stem, the inner end of the rod 7 projecting from the body of the picker-stem and being provided with a flattened elliptical-shaped inner end 8^a, having an elongated slot 9 made therein, through which the rod 10 passes, and is seated

in the inwardly-bent ends 11 of the metal slats 12, which slats are joined together by the links or chains 16 of the carrying-belts 3 and 5.

The carrying-belts 13 are formed of canvas 5 and have openings or holes made in them at the points in front of the pockets 14, which pockets are protected by the housings 4, in order to prevent limbs or twigs of the stalks from entering them. The metal pockets are 10 flanged at their edges, as at 15. The belts, chains, and slats run over upper and lower ribbed rollers 17 and 18, mounted on shafts 19, the upper ones of which are supported in vertically-adjustable boxes or bearings 18^a, 15 mounted in brackets secured to the gas-pipe main frame near the front and forward of the rear end of the main frame. The boxes 18^a are adjusted up and down by means of adjusting-screws 19^a to move the supporting- 20 shafts either up or down, as may be necessary to tighten or loosen the endless belts.

The picker-stems are arranged upon the endless belts in alternating rows, as may be plainly seen in Fig. 1 of the drawings.

25 The hubs of the supporting-wheels are provided immediately outside of the lower bends of the gas-pipe supporting-frame with miter gear-wheels 20 and 21, the teeth of which are on the opposing faces of said miter gear- 30 wheels, and these miter gear-wheels 20 and 21 mesh with the teeth of miter-pinions 22 and 23 on the rear ends of the lower longitudinal shafts 19. In front of the miter-pinions 22 and 23 and upon the same shaft 19 there- 35 with, are fixed or secured the ribbed rollers 18, around which the lowermost portions of the endless carrying-belts provided with picker-stems move. The ribs 29 of the ribbed rollers 17 and 18 extend the full width of the belts 40 on which the picker-stems are secured, so that there is continuous frictional contact of the belts and ribbed rollers through the entire width of the belts.

Beneath each side or gang of picker-stems 45 is arranged a horizontal conveyer or endless belt 30, the rear ends of which abut against or meet an upwardly-inclined conveyer-section 31, which latter is secured to the rear portion of the frame of the harvester by inclined braces 32, which serve to hold the ele- 50 vator or inclined section in position and in place. The inclined brace 33 connects the bag-holding ring with the rear portion of the frame of the machine. To the upper ends of 55 the upwardly-inclined portions of the elevator or conveyer are removably secured cotton receptacles or bags, which are designed to receive the picked cotton as it leaves the conveyer.

60 The curved picker-teeth 34 project from the metal or wood covering or surface of the picker-stem and are separated, preferably in pairs, from each other by rubber guards 34^a, either tubular or cylindrical in cross-section, 65 which guards 34^a are secured in place by staples 35, driven over them into the body of the picker-stem. The picker-teeth are

curved, as shown in Fig. 15, so that when the harvester is in operation these teeth will curve upwardly while passing up through 70 the cotton-stalk, outwardly when leaving it, and then downwardly to discharge the cotton, a jarring movement being imparted to it after it leaves the vertical position and passes down. 75

The arrangement of the rubber guards 34^a may vary, as clearly shown in Fig. 11 of the drawings, by being oppositely convexed transversely to the picker-stem, spirally convexed, elliptically disposed transversely there- 80 of, or angularly bent and spirally disposed therein, as clearly shown in Fig. 11.

The guards 34^a are designed to protect the teeth of the picker-stem from limbs and twigs, and the housing hereinbefore described is in- 85 tended to and does prevent the stems, twigs, and limbs from entering the pockets in the carrying-belts, which, if not prevented, would interfere with the proper picking of the cotton from the bolls and would result in a mix- 90 ture of cotton and parts of the stalk.

The arrangement of the picker-stems upon the endless carrying-belts is such that as the picker-stems move upwardly through the cotton-stalk they catch the cotton that projects 95 from the open bolls and carry it upwardly without interfering in any way with the unopen bolls.

In moving upwardly through the cotton-stalks the picker-stems, by reason of the construction and arrangement, have not only a swinging motion, as shown in Fig. 5, but also a twisting and deflecting motion, as shown by dotted lines in Fig. 7, so as to yield readily in any direction to any obstruction 105 they may encounter in their passage through the bush, and will at once, by the springs hereinbefore described, resume their normal position after having passed the limbs, unopen bolls, or other obstruction, and will 110 in no way damage the cotton-stalk in passing through the same. This form of picker-stem will pick the cotton from the open bolls in a most thorough and efficient manner and carry it to a position whereby the 115 automatic action of the picker-stem in falling from a vertical position around the upper ribbed roller imparts to it a jarring motion, which results in discharging the picked cotton from the downwardly-curved picker-teeth 120 onto the longitudinal portions of the conveyers at the bottom of the harvesting-machine. After the picker-stems have passed the vertical center line of the shafts upon which the ribbed rollers are mounted the picker-stems, 125 by reason of the construction hereinbefore described, swing over, and falling with a jar the cotton caught by the picker-stems in their upward movement through the cotton-stalk will be discharged into the carrying-belts at 130 the bottom of the harvesting-machine, and will be conveyed thence to the elevating-belt at the rear of the machine to the cotton bag or receptacle, into which it will be deposited.

The picker-stems are protected from interfering with plants or stalks on the opposite side of the row that is being harvested by the canvas guards 40 and 41, which extend from the bottom to arms projecting laterally from the upper portion of the frame of the machine, and these guards at the same time direct the picked cotton to the conveyer at the bottom at each side of the machine, so that substantially no part of the picked cotton is lost in the harvesting operation. Singletrees 50 are provided at the front of the frame, to which the team is hitched, so that the horses will be on each side of the cotton-row to be harvested. The legs at the front portion of the frame are bent rearwardly to form feet upon which it may rest when not in operation.

To the rod 10 is secured the upper ends of curved lateral springs 10^a, which operate upon the stems 7 so as to always return them to their normal positions when they have been displaced or deflected by coming in contact with unopen bolls, limbs, or twigs. The spiral springs 7^a are designed to exert a torsional force on the picker-stem 8^c and are connected at one end at 8^b to the stem 8^c and at their other ends to the rod 7, as plainly shown in Fig. 10.

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

1. The combination, with the straddle-row or arched frame mounted on two rearly-disposed riding wheels and provided with horizontal conveyers near its bottom and elevators at the rear ends of said conveyers, of the hinged picker-stems, secured at their inner ends to endless belts and provided with projecting teeth separated by flexible tooth-guards secured in place by staples, substantially as specified.

2. The combination, with the supporting-frame having upper and lower horizontally-disposed shafts on opposite sides of its arched portion provided with ribbed rollers, of the endless belt having open pockets therein, said pockets opening outwardly, the horizontal longitudinal rods or shafts seated in the angularly-bent ends of the metal strip, the picker-stems having their slotted shafts pivoted to said horizontal rods, lateral curved springs secured to said rods and bearing against the shanks of said picker-stems, spiral springs encircling the projecting inner ends of the centrally-disposed rod of the picker-stem and connected to the rod 7 at one end and to the stem 8^c at the other end, and flexible housings connected to the endless belts and connected, also, to the inner ends of the picker-stems by binding-wire, substantially as specified.

3. In a cotton-harvester, a picker-stem tapered in cross-section and mounted on a cen-

trally-disposed headed rod, and a spiral spring wound upon and secured to the projecting inner end of said headed rod and terminating in a radially-projecting arm having its end secured to the body of the picker-stem, substantially as specified.

4. The combination, with the supporting-shaft seated in the angularly-bent ends, of a metal strip having pockets in its face, the picker-stems having slotted inner ends secured to a rod passing through the slots in the shafts of the stems, curved lateral springs secured to the supporting-shaft, spiral springs surrounding the shafts of the picker-stems, and flexible housing secured to the metal casing and to the inner grooved end of the picker-stem, substantially as specified.

5. The combination, with the body of a picker-stem which is tapered in cross-section and is mounted on a centrally-disposed rod, of a covering provided with picker-teeth arranged in transverse broken lines thereon, and flexible guards intersecting said rows of teeth, and staples for securing said guards in place, substantially as specified.

6. The combination, with the supporting and driving mechanism of a cotton-harvesting machine, of the picker-stems hinged to endless belts driven in a vertical direction by gearing substantially as described, horizontally-disposed conveyer-sections placed beneath the descending picker-stems, an upwardly-inclined conveyer-section connected to the horizontal conveyer-section, and a braced ring at the rear of the inclined section for supporting a cotton-receptacle, substantially as specified.

7. In a cotton-harvesting machine, the combination, with an endless carrying-belt, of a picker-stem hinged thereto and controlled by springs substantially as described, curved pointed teeth seated in the periphery of said picker-stem, and rubber guards interposed between said teeth and secured in place by staples driven over them, substantially as specified.

8. The combination, in a cotton-harvesting machine, with an endless carrying-belt and a longitudinal rod connected to the endless belt, of a picker-stem connected at its inner slotted end to said supporting-rod and arranged thereon to have a swaying, twisting, and deflecting movement when struck by the limbs, unopen bolls, or other obstruction while passing through the cotton-stalk, substantially as specified.

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

SAMUEL B. PATTESON.

Witnesses:

L. P. WHITAKER,
G. A. TAUBERSCHMIDT.