

No. 724,348.

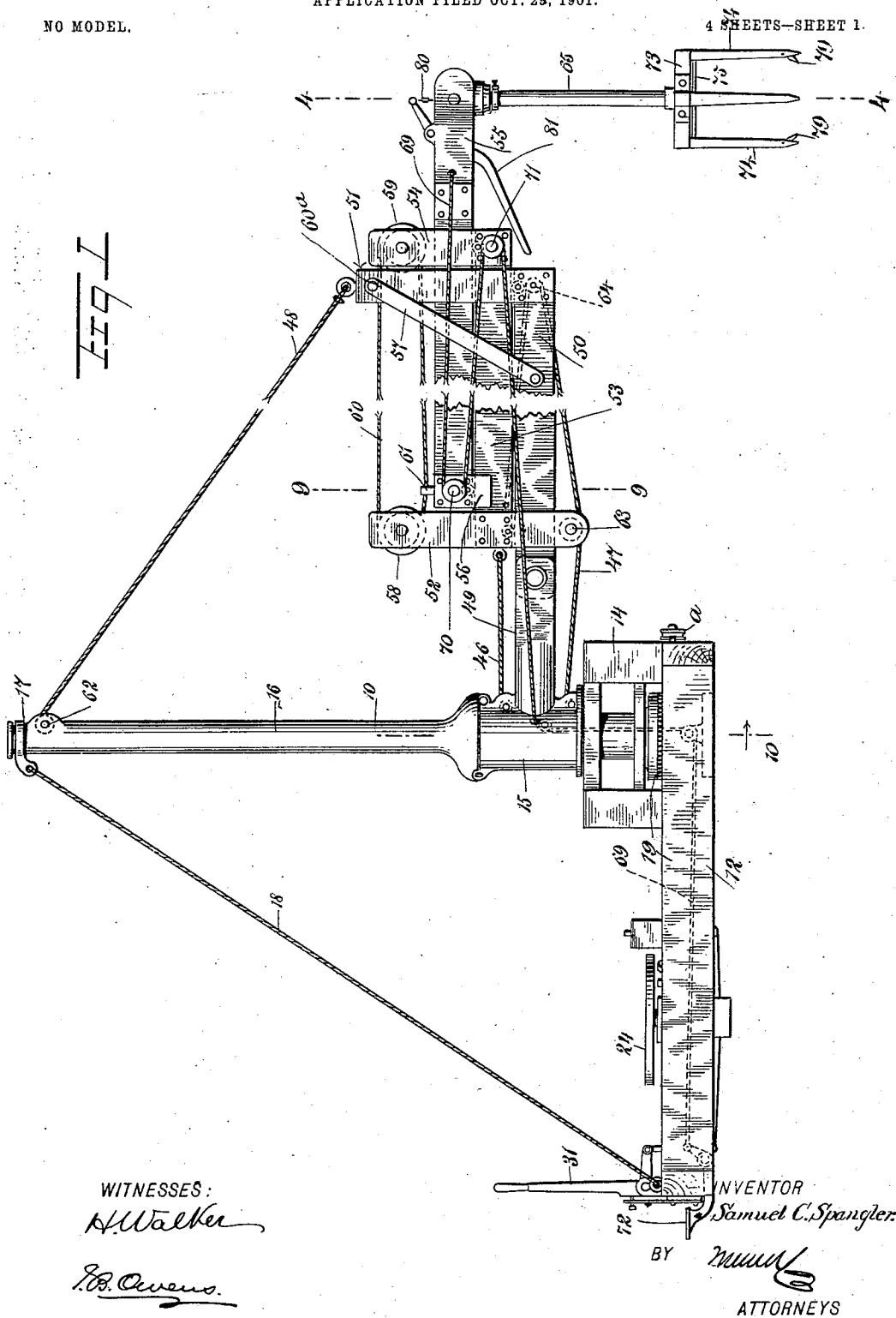
PATENTED MAR. 31, 1903.

S. C. SPANGLER.
PITCHING APPARATUS.

APPLICATION FILED OCT. 29, 1901.

NO MODEL.

4 SHEETS—SHEET 1.



WITNESSES:

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INVENTOR

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BY

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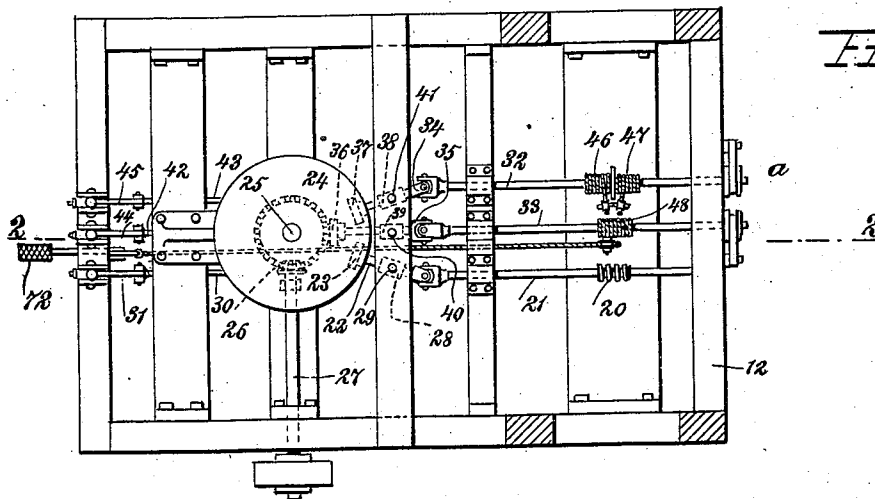
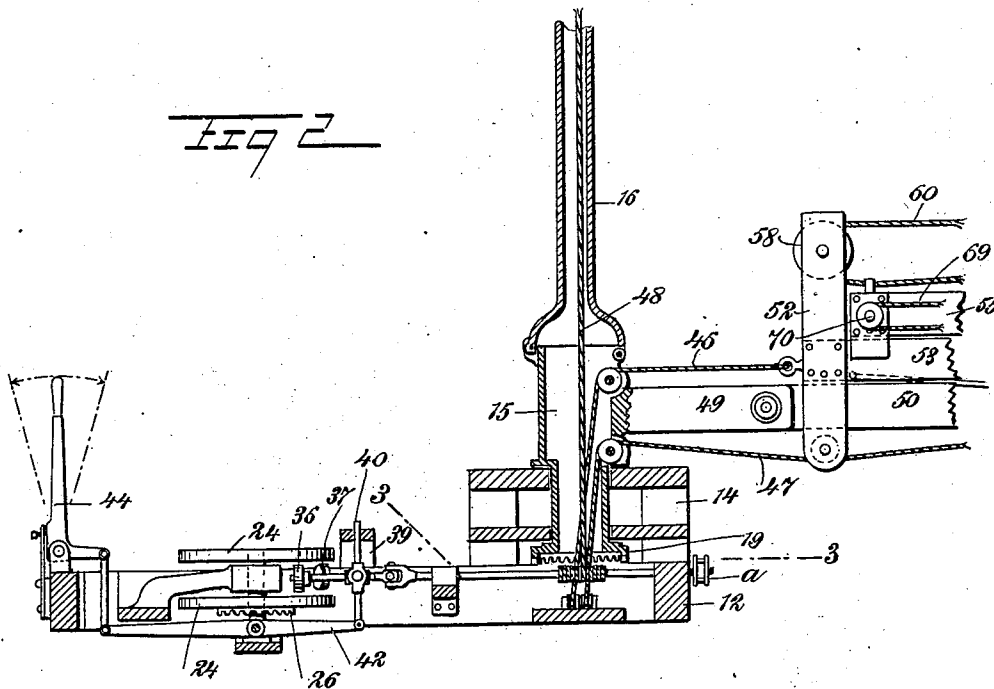
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4 SHEETS—SHEET 2.



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4 SHEETS—SHEET 3.

Fig 4

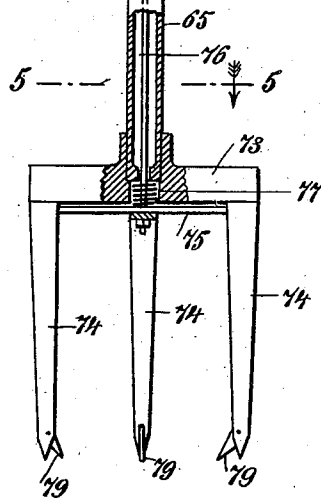
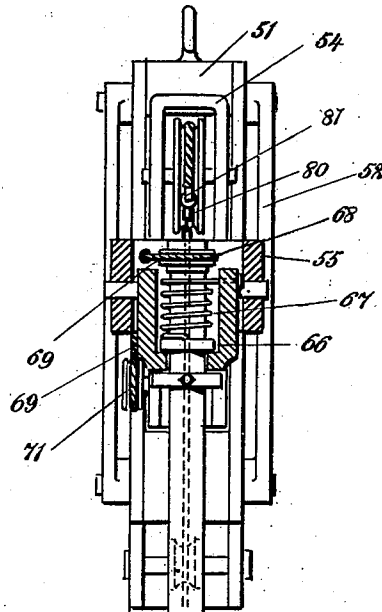


Fig 6

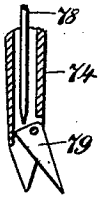


Fig 7

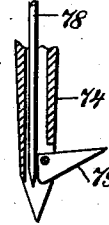
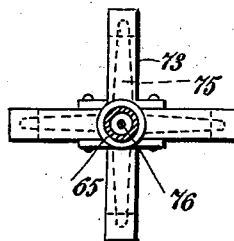


Fig 5



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4 SHEETS—SHEET 4.

Fig 8

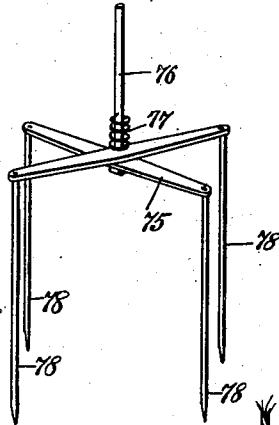


Fig 9

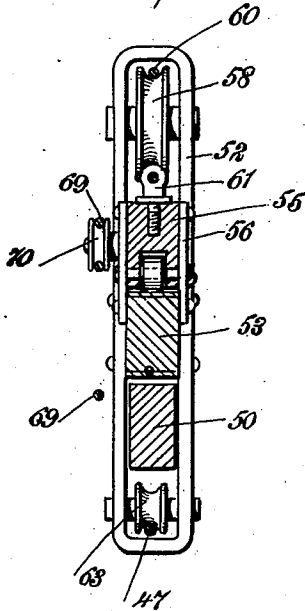
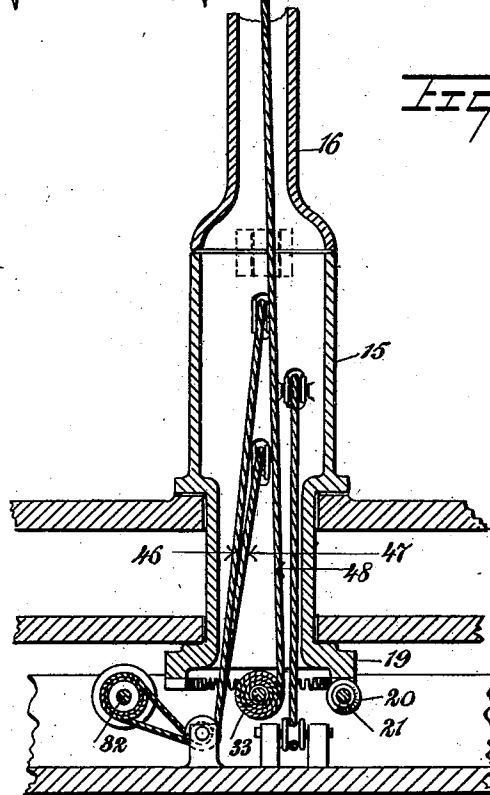


Fig 10



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UNITED STATES PATENT OFFICE.

SAMUEL CURTIS SPANGLER, OF CLYDE, OKLAHOMA TERRITORY, ASSIGNOR
OF ONE-HALF TO OLOFF P. SIVENSON AND JOHN A. SIVENSON, OF MED-
FORD, OKLAHOMA TERRITORY.

PITCHING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 724,348, dated March 31, 1903.

Application filed October 29, 1901. Serial No. 80,410. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL CURTIS SPANGLER, a citizen of the United States, and a resident of Clyde, in the county of Grant and Territory of Oklahoma, have invented a new and Improved Pitching Apparatus, of which the following is a full, clear, and exact description.

This invention relates to an apparatus for handling grain, hay, and the like, and is particularly adapted for use in feeding sheaves of grain to a threshers.

This specification is a specific description of one form of the invention, while the claims are definitions of the actual scope thereof.

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

Figure 1 is a side view of the invention with parts broken away. Fig. 2 is a section on the line 2 2 of Fig. 3. Fig. 3 is a plan view of the invention with parts in section on the line 3 3 of Fig. 2. Fig. 4 is a section on the line 4 4 of Fig. 1. Fig. 5 is a section on the line 5 5 of Fig. 4. Figs. 6 and 7 are views of spurs on the fork. Fig. 8 is a view of the rods for operating the spurs. Fig. 9 is a section on the line 9 9 of Fig. 1, and Fig. 10 is a section on the line 10 10 of Fig. 1.

12 indicates the base of the machine, which is preferably rectangular. (See Fig. 3.) On this base is mounted a platform 14, on which is arranged to turn the vertically-disposed drum 15, having a hollow mast 16 hingedly mounted thereon, so that the mast may be thrown down into horizontal position when not in operation. The mast has a collar 17 fastened loosely to its upper end and guy-ropes 18 passing from the collar down to the base 12. The drum 15 has an inverted-crown worm-gear 19 at its bottom, and in mesh with this gear 19 is a worm 20 on a shaft 21, mounted horizontally in the base 12. Universally connected to the shaft 21 is a shaft 22, which has a friction-disk 23 thereon. This disk 23 bears between two driving friction-disks 24, which are mounted in parallel planes on a vertical axis 25 and driven by gearing 26, connecting it with a transversely-disposed primary-movement or drive shaft

27. The shaft 22 is mounted loosely in a box 28, carried on a vertically-disposed rod 29, mounted to slide in a part of the base 12 and connected with a lever 30, passing under the friction-disk 24. This lever is in turn connected to a hand-lever 31, arranged at the rear end of the base 12. By throwing the hand-lever 31 the lever 30 will be thrown and the rod 29 raised or lowered, thus engaging the friction-wheel 23 with either of the disks 24, so as to drive the shafts 22 and 21 in either direction desired, and thus revolve the drum 15 to the right or to the left. Removably mounted in the base under the drum 15 and parallel with the shaft 21 are two shafts 32 and 33. These shafts are respectively in universal connection with shafts 34 and 35, similar to the shaft 22, said shafts 34 and 35 respectively carrying friction-disks 36 and 37. The disks 36 and 37 lie between the disks 24, the same as the disk 23. The shafts 34 and 35 are mounted, respectively, in boxes 38 and 39, which are carried by shafts 40 and 41, similar to the shaft 29. These shafts 40 and 41 are moved up and down by levers 42 and 43, connected with hand-levers 44 and 45, similar and adjacent to the hand-lever 31. By these means the shafts 32 and 33 may be turned in either direction.

On the shaft 32 are oppositely wound two cables 46 and 47, and on the shaft 33 is wound a cable 48. These cables are actuated by the rotating shafts to wind or unwind, according to the direction in which the shafts turn.

Projecting forwardly from the drum 15 is an arm 49, to which is pivotally connected a beam 50. This beam has upwardly-projecting guides 51 and 52 fastened thereon, the guide 51 being fastened rigidly to the outer end of the beam 50 and the guide 52 being slidable on the beam. Fastened to the guide 52 is a beam 53, which slides over the top of the beam 50 and through the guide 51, the beam 53 carrying at its outer end a guide 54, extending vertically. Slidable in the guide 54 is a beam 55, which has a guide 56 at its rear end, which runs on the beam 53.

57 indicates a brace for the guide 51.

The guide 52 carries at its top a sheave 58, and the guide 54 carries in the same position a sheave 59. Over these sheaves runs an

endless cable 60, which is fastened at the point 61 to the beam 55 and at the point 60^a to the guide 51, whereby to cause the beam 55 to move outward on the beam 53 as said beam and its guide 54 move. The return movement of the beam 53 will by a reversal of the above operation cause the beam 55 to return.

The cable 48 from the shaft 33 passes up through the mast 16 and over a sheave 62 at the top thereof, thence downward to the upper end of the guide 51. This cable 48 supports the parts 50, 51, and 55, which constitute the arm of the machine. By drawing the cable 48 in or out the arm may be raised or lowered, as desired. The cable 46 passes through a sheave in the wall of the drum 15 and thence outward to a connection with the guide 52, and the cable 47 passes in the same manner below the arm 49, past the sheave 63 at the lower end of the guide 52, around a sheave 64 at the lower end of the beam 50, and thence back to the inner end of the beam 53, to which the cable 47 is fastened. Now it is clear that by hauling in one of the cables 46 or 47 and slacking off the other the beam 53 and the attached parts may be moved inward or outward on the beam 50, thus extending or contracting the arm. In recapitulation, therefore, the lever 31 regulates the turning movement of the drum 15 and its attached parts, the lever 44 regulates the raising and lowering of the arm of the machine, and the lever 45 regulates the extension or contraction of the length of the arm.

The fork of the machine is carried at the outer end of the beam 55, and it comprises a vertically-disposed tubular shaft 65, connected at its upper end to turn in a box 66, fastened in a seat formed in the outer end of the beam 55. (See Fig. 4.) This shaft 65 has a spring 67 connected therewith and with the box 66, and a pulley 68 is fastened to the upper end of the hollow shaft 65. Over this pulley passes a cable 69, which extends through an opening in the beam 55 to the outside thereof and thence inward alongside the beam to a sheave 70 at the inner end of the beam 55. From the sheave 70 the cable passes around a sheave 71 at the lower end of the guide 54, and from this latter sheave the cable passes into the drum 15 and downward through the base of the machine to a treadle 72. By operating this treadle the tubular shaft 65 may be turned in the box 66 against the tension of the spring 67. By passing the cable 69 over sheaves 70 and 71 in the manner explained the movements of the beams 53 and 55 will not affect the tension of the cable. The purpose of turning the shaft 65, and consequently the parts attached thereto, is to present the bundle of grain head first to the machine.

The lower end of the tubular shaft 65 carries a cross-head 73 of cruciform shape, and this is provided with forks or prongs 74, projecting downward to engage the ground.

Lying under the cross-head 73 is a cross-head 75 of essentially the same shape, and this cross-head is connected to a rod 76, which extends upward through the tubular shaft 65. A spring 77 presses downward the cross-head 75, and this cross-head carries rods 78, which respectively run through the forks 74, so as to actuate barbs 79. When the rods 78 are pushed downward, which occurs under the action of the spring 77, the barbs 79 are thrown outward into active position, and when the rods 78 are raised the barbs 79, being tapered, as shown in Figs. 6 and 7, return to inactive position. (See Fig. 6.) The upper end of the rod 76 is connected by a chain 80 with a lever 81. This lever is fulcrumed on the outer end of the beam 55 and extends downward below it in position to engage the lower end of the guide 54. As the beam 55 moves inward the lever strikes the guide 54, and this throws the lever so as to move the rod 76 and its attached parts. Therefore the instant the lever 81 leaves the guide 54 the spring 77 asserts itself and throws out the barbs 79. Then as the fork is plunged into the grain the barbs hold the grain on the fork. The grain is subsequently released by the return of the lever 81 into engagement with the guide 54.

In the operation of the apparatus the operator stands at the base of the machine and manipulates the various parts to move the grain or other material worked from its resting-place and "pitch" it, so to speak, into the thresher. It will be observed that the apparatus is under the complete control of the operator owing to the various cables and other gear provided.

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

1. In a pitching apparatus, the combination of a base, a mast arranged to turn thereon, an arm carried by the mast and made up of extensible sections, a fork carried by the arm, cables connected with the sections to move them in or out, a winding device around which the cables are passed oppositely, and means for actuating the winding device.

2. The combination of a base, a mast mounted to turn thereon, a fork supported from the mast, a gear in connection with the mast, a second gear meshing with the first-named gear, a shaft on which the second gear is mounted, a friction disk or pulley connected with the shaft, two additional friction-disks between which the first-named friction-disk is sandwiched, and means for moving the first-named friction-disk to engage either of the other disks.

3. The combination of a base, a hollow drum mounted to turn thereon, a mast carried by the drum, an arm carried by the drum, a fork carried by the arm, cables for operating the arm and fork, said cables being passed through the drum to the base, and means on the base for actuating the cables.

4. The combination of a supporting-arm, a fork mounted to turn thereon, a spring extending between the fork and arm, and a cable wound on the fork to turn it against the spring.

5. The combination of a supporting-arm, a box mounted therein, a fork having a part arranged to turn in the box, means tending yieldingly to hold the fork in one position in said box, and a cable engaged with the fork for moving it out of such position.

6. A pitching apparatus having an extensible fork-carrying arm, comprising a pivotally-mounted beam, a guide attached rigidly thereto and projecting upward therefrom, a sliding beam mounted on the pivoted beam and running through the guide, a guide carried by each end of the sliding beam, a second sliding beam mounted on the first sliding beam and running through the outer guides of the first-named beams, an endless cable having movement on the guides of the first-named sliding beam and connected with the second-named sliding beam, and means for sliding the first-named sliding beam on the pivoted beam.

7. A pitching apparatus, having an extensible arm made up of a plurality of sliding sections, an endless cable having guided movement on one section and attached to the other section, and means for sliding the first-named section.

8. The combination of a base, a mast arranged to turn thereon, means for turning the mast, an arm carried by the mast and comprising sections arranged to slide longitudinally on each other, means for operating the said sections to lengthen or contract the arm, a fork carried by the arm, and means for operating the fork.

9. The combination of a base, a mast arranged to turn thereon, means for turning the mast, an arm carried by the mast and comprising sections arranged to slide longitudinally on each other, means for operating said sections to lengthen or contract the arm, a fork carried by the arm, and means for operating the fork, the means for turning the mast comprising an inverted-crown gear connected with the mast, a gear in mesh with the inverted-crown gear, and friction devices for starting and stopping the second-named gear.

10. The combination of a base, a mast arranged to turn thereon, means for turning the mast, an arm carried by the mast and comprising sections arranged to slide longitudinally on each other, means for operating said sections to lengthen or contract the arm, a fork carried by the arm, and means for operating the fork, the said means for operating the sections of the arm comprising cables in connection with one section to move it in and out, devices for hauling said cables, and a second and endless cable having guided connection with the said one section and fastened to a second section to move the second section from the first.

11. The combination of a base, a mast arranged to turn thereon, means for turning the mast, an arm carried by the mast and comprising sections arranged to slide longitudinally on each other, means for operating said sections to lengthen or contract the arm, a fork carried by the arm, and means for operating the fork, the said means for operating the sections of the arm comprising devices for moving one section and an endless cable having guided connection with the said one section and fastened to a second section to move the second section from the first.

12. The combination of a base, a mast arranged to turn thereon, means for turning the mast, an arm carried by the mast and comprising sections arranged to slide longitudinally on each other, means for operating said sections to lengthen or contract the arm, a fork carried by the arm, and means for operating the fork, the said means for operating the fork comprising a member carried on one section of the arm and arranged to be actuated by striking a second section when the arm is contracted.

13. The combination of a base, a mast arranged to turn thereon, means for turning the mast, an arm carried by the mast and comprising sections arranged to slide longitudinally on each other, means for operating said sections to lengthen or contract the arm, a fork carried by the arm, and means for operating the fork, the said means for operating the fork comprising a spring tending to turn the fork bodily into one position and a cable coiled around a part of the fork and adapted to be drawn to turn the fork against the tension of the spring.

14. In a pitching apparatus the combination of a mounted carrying-arm formed of extensible sections, a fork having operative barbs, said fork being mounted to turn in one section of the arm, a lever fulcrumed on said one section of the arm and in connection with the barbs, the said lever being adapted to strike a second section of the carrying-arm whereby to operate the lever for the purpose specified, a spring connected with the fork and serving to turn it bodily in one direction, and a cable wound over the fork to facilitate turning it in the opposite direction.

15. In a pitching apparatus, the combination of a base, a mast mounted to turn thereon, an extensible arm carried by the mast, a fork carried by the arm, a drive-shaft mounted in the base, friction-gears operated from the drive-shaft, and means connected with the friction-gears respectively for operating the mast, arm and fork.

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

SAMUEL CURTIS SPANGLER.

Witnesses:

F. G. WALLING,
S. A. SWENSON.