(No Model.)

L. R. TURNER.

COTTON HARVESTER.

No. 517,596. Patented Apr. 3, 1894.

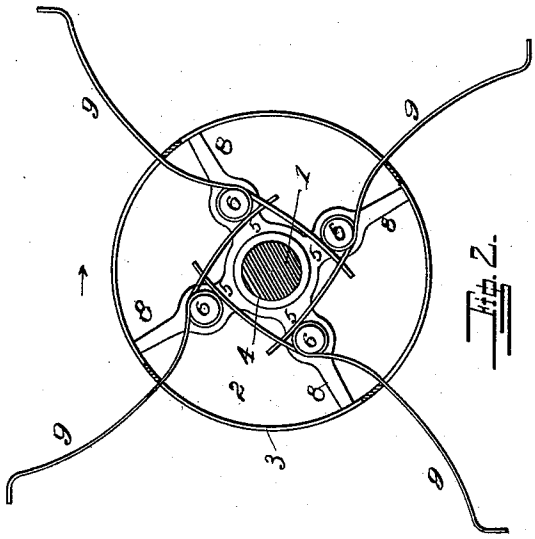

Fig. 2.

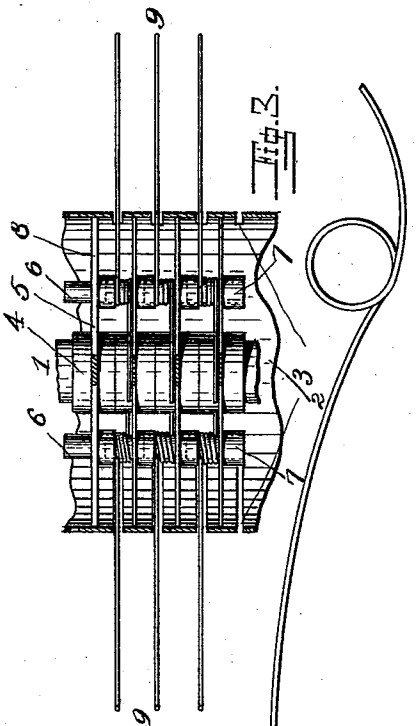

Fig. 3.

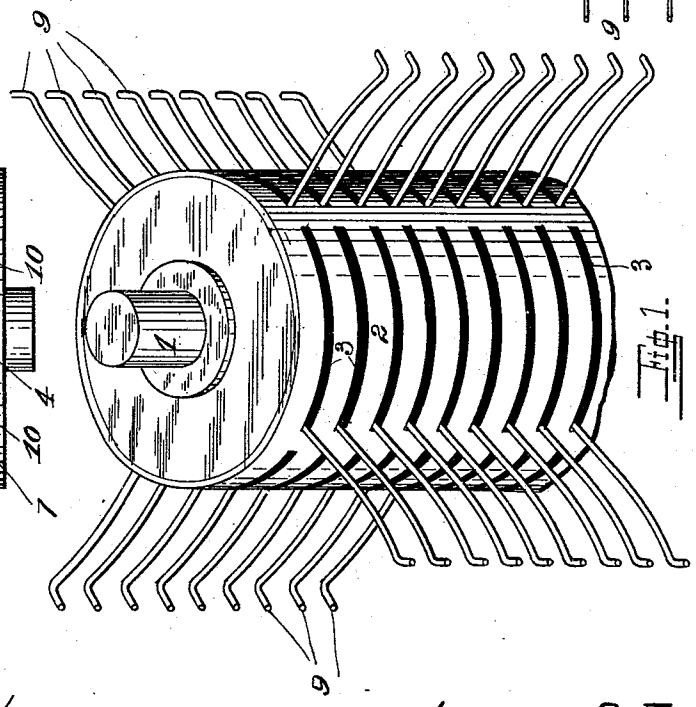

Fig. 1.

Fig. 4.

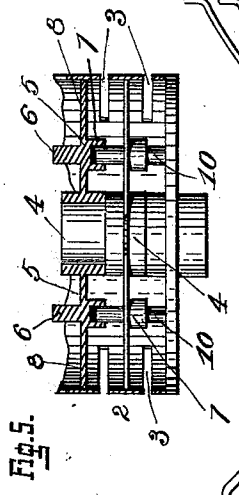

Fig. 5.

Witnesses
L. F. Haydon.
E. R. Moore

Inventor
LEONARD R. TURNER.
By his Attorneys
A. A. Wood & Son

THE NATIONAL LITHOGRAPHING COMPANY,
WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

LEONARD R. TURNER, OF SING SING, ASSIGNOR TO THE SOUTHERN COTTON HARVESTER COMPANY, OF NEW YORK, N. Y.

COTTON-HARVESTER.

SPECIFICATION forming part of Letters Patent No. 517,596, dated April 3, 1894.

Application filed October 17, 1892. Renewed August 29, 1893. Serial No. 484,336. (No model.)

To all whom it may concern:

Be it known that I, LEONARD R. TURNER, a citizen of the United States of America, and a resident of Sing Sing, in the county of Westchester and State of New York, have made a certain new and useful Cotton-Harvester; and I do hereby 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 figures of reference marked thereon, which form a part of this specification.

This invention relates, as before stated, to devices for use in harvesting cotton, and more particularly to the part of such devices commonly known in the art as stems or harvester-cylinders, the object of the improvement being to produce a device of this class which shall be fully equal to the properly guarded removal of the seed-cotton from the bolls wherein it matures, the invention consisting of certain novel elements and combinations thereof hereinafter fully specified and claimed.

In the accompanying drawings: Figure 1 is a perspective view of the exterior of a cylinder, the portion shown being the upper end thereof. Fig. 2 is a cross-section through the cylinder-casing at one of the spiders of which latter a plan is shown. Fig. 3 is an axial section of said casing, showing a side elevation of a number of spiders, and illustrating their interlocking elements and further showing the attachment of the spring fingers. Fig. 4 is a detail enlarged view of one of the said fingers. Fig. 5 is similar to Fig. 3, with the exception that one of the spiders is in central section axially thereof, for the purpose of more clearly showing the interlocking elements of the same, and the end of the casing is shown.

In the figures, like reference characters are uniformly employed in the designation of corresponding elements of construction.

1 is the shaft and 2 indicates the cylinder-casing so arranged concentrically on the shaft as to revolve with it and practically form a part thereof as regards its revolution. The casing 2 is provided with one or more (preferably about four) circumferentially extending narrow slots 3, spaced at the desired intervals longitudinally of the casing, and is as long, preferably, as will reach over the vertical extent of the cotton bearing portion of a plant. Lugs 10 project upwardly from the inner side of the bottom of the casing for a purpose hereinafter set forth. The spider which fits inside of the casing 2, is composed of a hub 4 as long as the slots 3 are apart, and bored to fit the shaft 1, radially extending arms 5 providing carriers for the lugs 6 and 7, the latter of which lugs are larger in diameter than the former and are recessed in their ends to fit over and receive the lugs 6 of the adjacent spider in the set thereof. Extensions 8 of these arms 5 may be provided if desired whereby said arms are continued beyond said lugs to contact with the inner side of the casing 2 and steady same on the shaft. The spring teeth 9 have coils of one or more convolutions bent therein near their middle portions of such a diameter that they will fit over the lugs 6, one arm being extended backwardly so as to engage the back side of the succeeding lug 6, as best shown in Fig. 2, and the other arm being bent outwardly at the proper angle and the conformation required to engage the cotton and not engage limbs, leaves, trash or other foreign substances likely to be struck thereby in operation. In assembling these parts as described, the casing 2 is first secured to the shaft 1 in any manner which will cause their simultaneous revolution, the shaft extending preferably the entire length of the casing and sufficiently beyond same to provide for journal bearings, gearing, &c., thereon. The first spring-fingers 9 are placed on the lugs 10 as will be presently described in connection with one of the spiders and project in the same manner through the slots 3 as those on the said spider. A spider is then inserted inside the casing and pressed downwardly therein until the lugs 7 by means of their recessed ends fit over and engage the said lugs 10 the contact of the hubs 4 being preferably employed to guide the spider in its proper placement, the arms 5 by means of their extensions 8 contacting with the inner side of the casing and insuring stability. It is not absolutely necessary that the extensions 8 of these arms be employed, but only

preferable, inasmuch as they add stiffness and strength to the structure, which might be sufficiently strong and stiff without them. A spring-finger is then passed into the casing its end inserted in the slot 3 corresponding to the one of the lugs 6 on which its coil is to be set, said coil is then placed on the lug, and the inner or short arm seated back of the next succeeding lug 6, the outwardly projecting arm of the finger resting against the forward end of the slot through which it projects and is thereby prevented from springing forward beyond the desired point. The next spider of the series is then inserted and the spring fingers placed thereon in the same way as just described. As many spiders as the casing will hold are inserted and inter-connected, springs being placed on as many thereof as are necessary to cover the cylinder for the height required to pick each successive "picking" as the bolls mature and ripen, those ripening first being at the bottom of the plant and being necessarily picked at once; those in another zone around the plant opening later, which continues until those at the top have matured and ripened.

It is obviously of great advantage that the picking fingers only contact with the plant among the ripened bolls, the other parts below and above being untouched, and hence there is no consequent scratching and bleeding of the plant. The whole stem as thus formed is then mounted, preferably for obvious reasons, vertically, and driving and carrying mechanism of approved form supplied.

The operation of this device is as follows: The cylinder revolving in the direction of the arrow in Fig. 2, the spring teeth will be moved in a circle around the shaft 1, and it is found by experience that they will remove cotton from the bolls, in the form shown, which is their sole function in proper operation. In order that the limbs of the plant may not be abraded or cut which will bleed them and stop the development of any immature bolls thereon, this spring-finger is made to have movement backwardly to a position where it will release itself from contact or engagement with a limb, the inherent resilience of the finger bringing it to its normal position, or resilience may be added by a coil as shown and described herein. In the construction shown the finger bends backwardly utilizing its natural and the added resilience, traversing the slot 3 in so doing, avoiding the limb, and as soon as released therefrom returning to its normal position against the forward end of the slot. The casing in this construction produces a very necessary and advantageous result, which is that of preventing a limb or stalk from contacting with the spring finger too close to its center of semi-rotation and thus bending it short near said center, which would otherwise be the case were a stalk to catch near said center owing to the fact that the length of wire wherein the movement took place would be so small.

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

1. The combination of a shaft, a spider carried thereon consisting of outwardly projecting arms, lugs on said arms and spring fingers, each secured to one lug and passing behind the succeeding lug, substantially as and for the purpose specified.

2. The combination of the shaft, the spider carried thereon consisting of outwardly projecting arms, lugs on said arms, and spring fingers, each secured to one lug and passing behind the succeeding one, and means for limiting its forward flexure, substantially as and for the purpose specified.

3. The combination of a shaft, a spider carried thereon consisting of outwardly projecting arms, lugs on said arms, and spring fingers each secured to one lug and passing behind the succeeding one and means for limiting its forward flexure and guiding its movements consisting of a slotted cylindrical casing, substantially as and for the purpose specified.

4. The combination of the cylinder having apertures, spiders set within said cylinder and carrying small lugs on their upper sides and larger recessed lugs on the under sides, and spring fingers secured to said lugs and projecting through said apertures, substantially as and for the purpose specified.

5. The combination of the cylinder having apertures, the spiders set within said cylinder and having arms extending to contact with the inner sides thereof, said arms carrying small lugs on their upper sides and larger recessed lugs on the under sides and spring fingers secured to said lugs and projecting through said apertures, substantially as and for the purpose specified.

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

LEONARD R. TURNER.

Witnesses:
SAMUEL J. SAMPSON,
H. C. MOSES.