

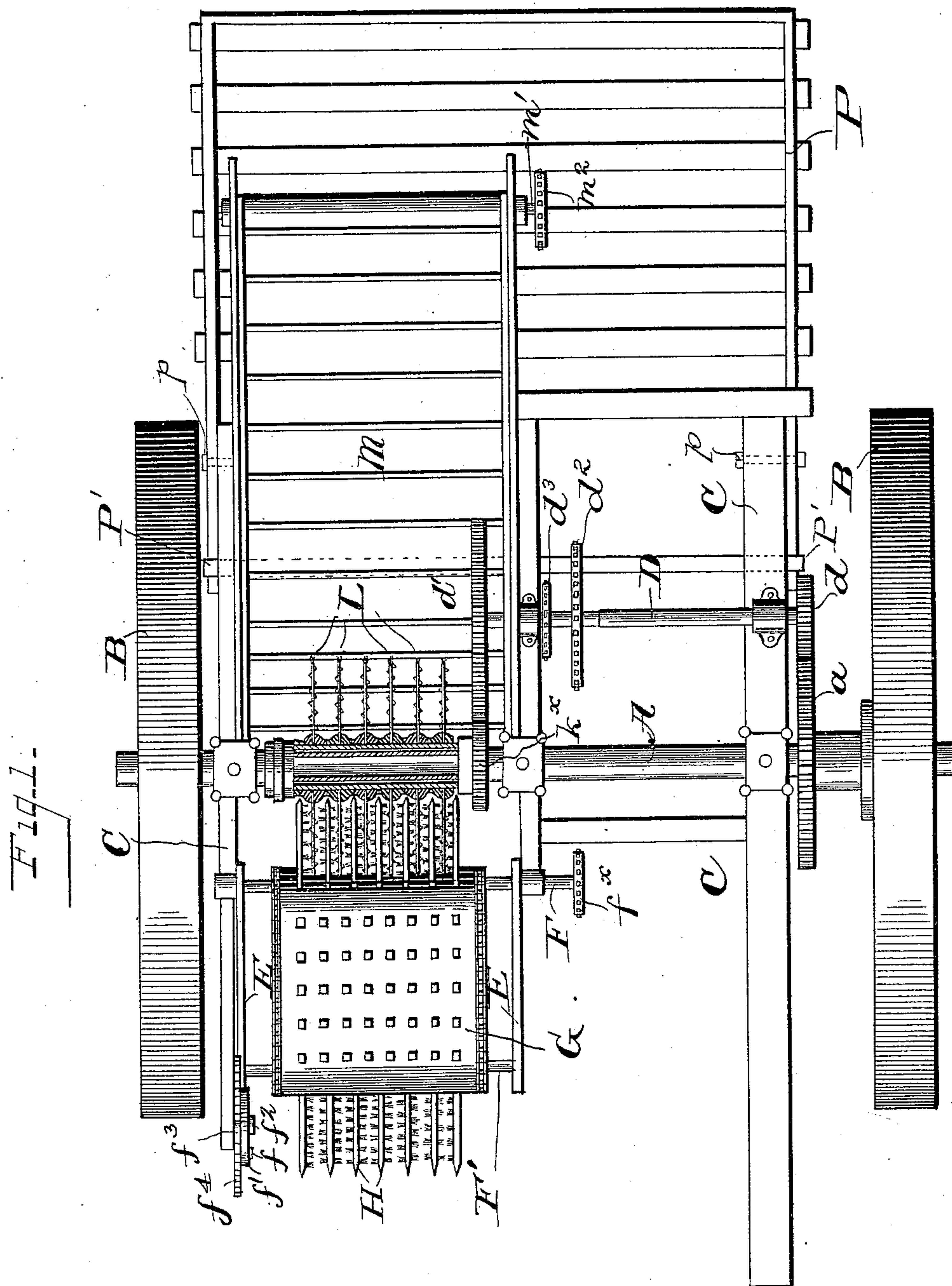
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3 Sheets—Sheet 1.

J. F. CUNNINGHAM, Sr. & W. W. DINGEE.
COTTON HARVESTER.

No. 471,074.

Patented Mar. 15, 1892.



Witnesses
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Inventors:
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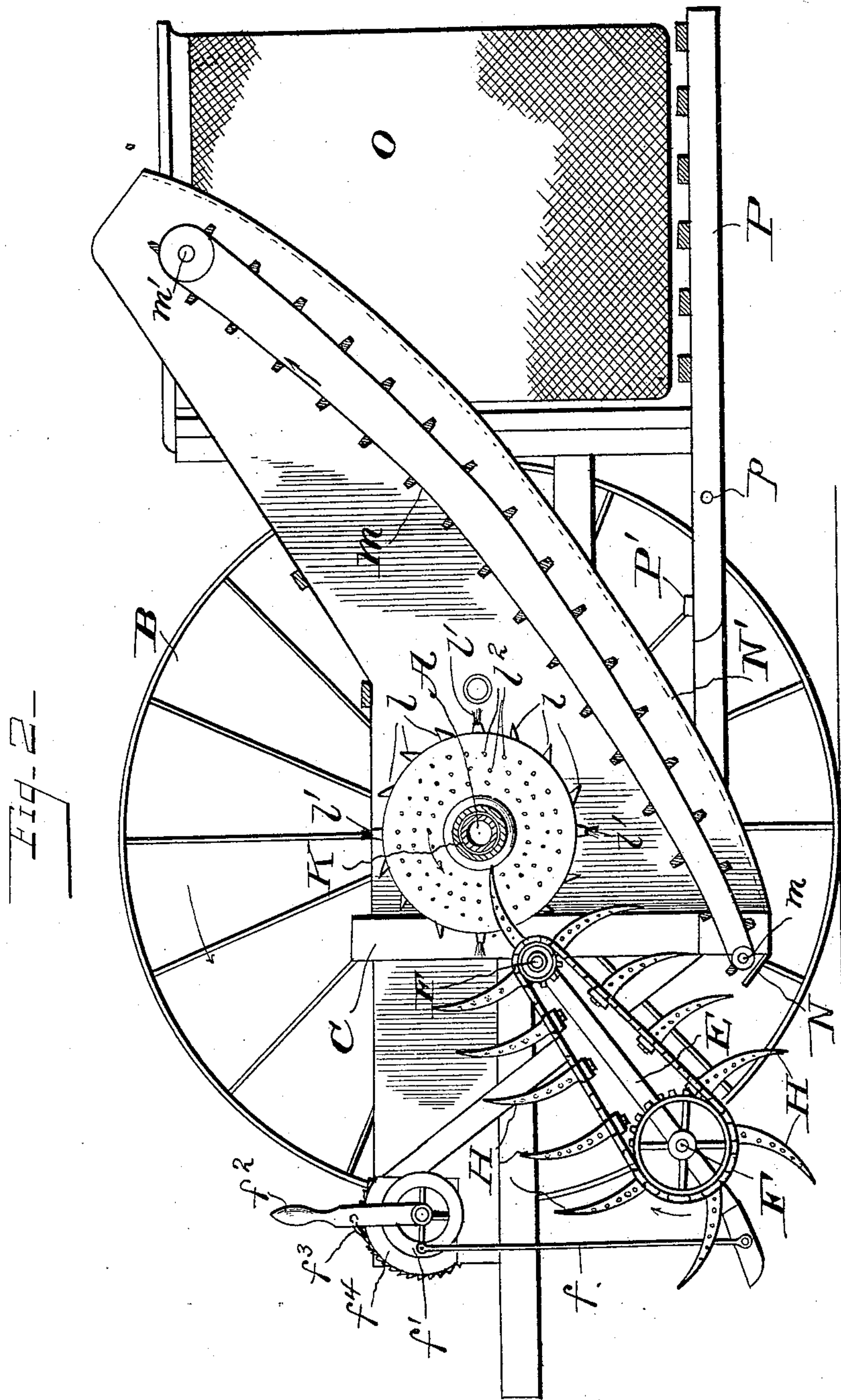
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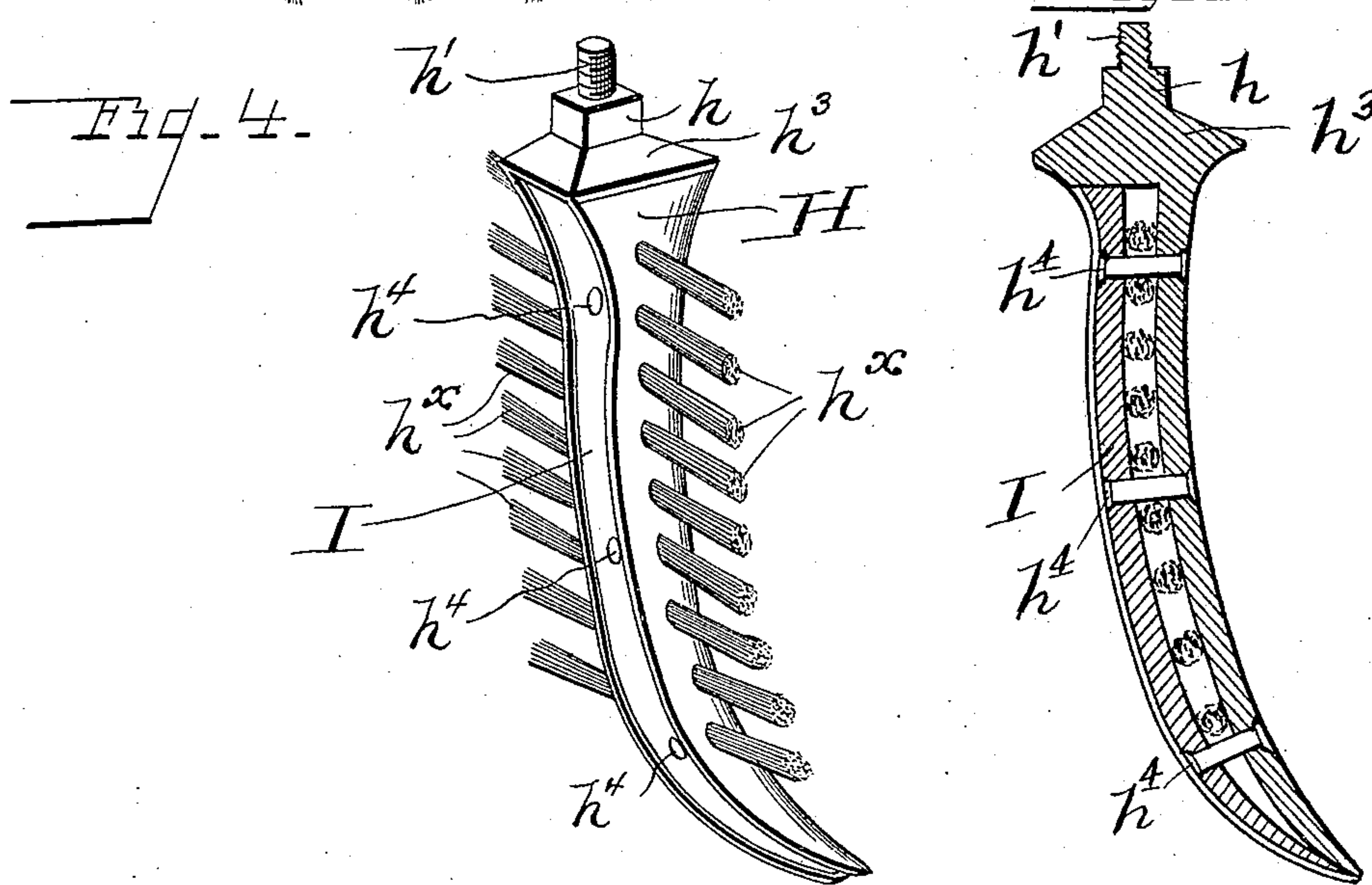
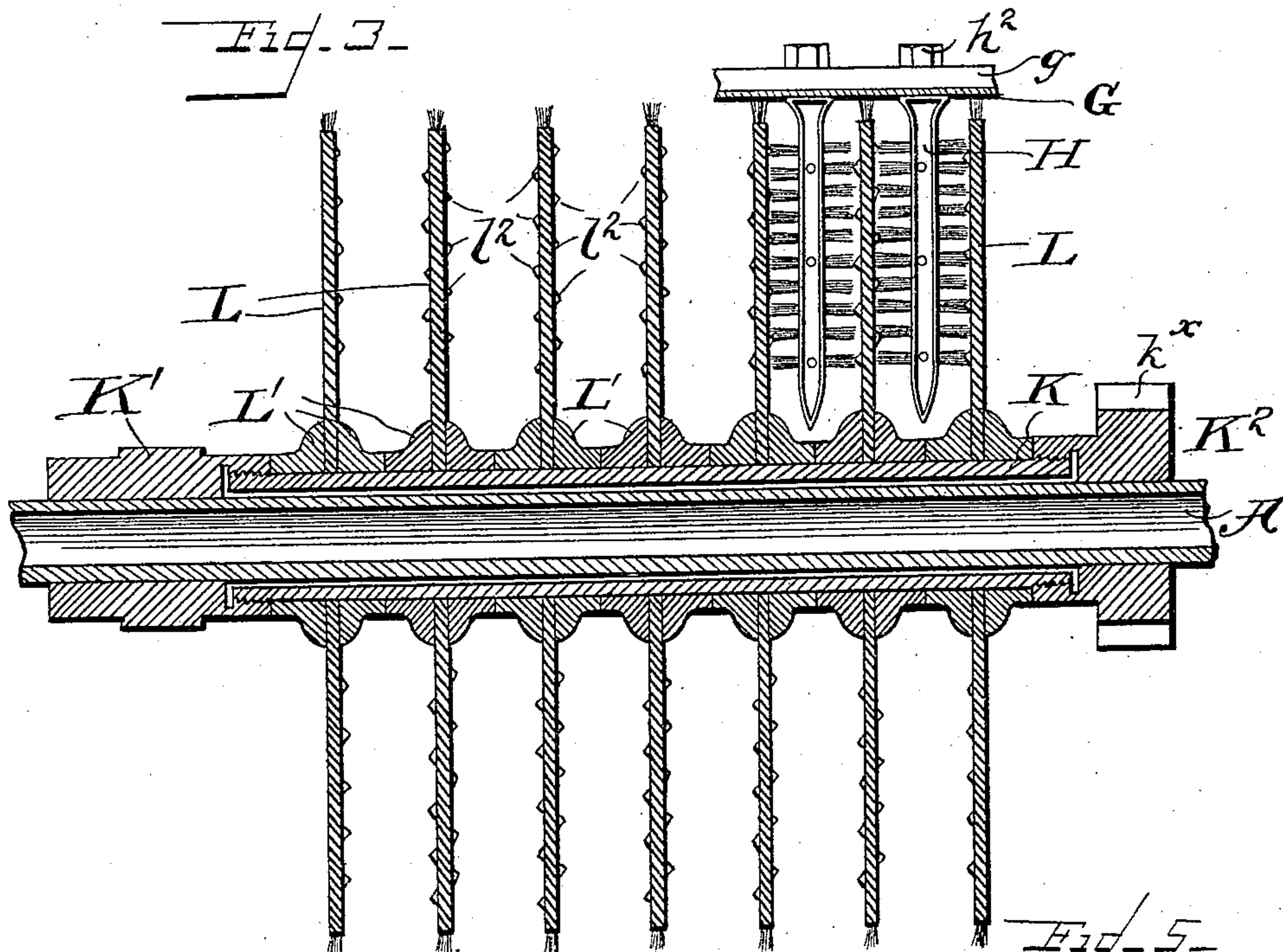
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UNITED STATES PATENT OFFICE.

JAMES F. CUNNINGHAM, SR., OF ANSON, TEXAS, AND WILLIAM W. DINGEE, OF RACINE, WISCONSIN, ASSIGNORS TO THE J. I. CASE THRESHING MACHINE COMPANY, OF RACINE, WISCONSIN, AND JAMES F. CUNNINGHAM, SR., OF ANSON, TEXAS.

COTTON-HARVESTER.

SPECIFICATION forming part of Letters Patent No. 471,074, dated March 15, 1892.

Application filed September 1, 1891. Serial No. 404,475. (No model.)

To all whom it may concern:

Be it known that we, JAMES F. CUNNINGHAM, Sr., residing at Anson, in the county of Jones and State of Texas, and WILLIAM W. DINGEE, residing at Racine, in the county of Racine and State of Wisconsin, citizens of the United States, have invented certain new and useful Improvements in Cotton-Harvesters; and we 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.

Our invention is an improvement in cotton-harvesters; and it consists in the novel features of construction and combination of parts hereinafter fully described.

In the accompanying drawings we have illustrated one form in which we have contemplated embodying our invention, and the same is fully disclosed in the following description and claims.

Referring to the said drawings, Figure 1 is a top plan view of a cotton-harvesting machine embodying our invention with cover removed. Fig. 2 is a central longitudinal section of the same, parts being shown in elevation. Fig. 3 is a detail sectional view of the revolving spool provided with the cleaning-saws. Fig. 4 is a detail perspective view of one of the gathering-fingers. Fig. 5 is a sectional view of the same.

The main frame of our improved cotton-harvester is supported from a shaft A, provided at either end with a supporting-wheel B, which is connected to the said shaft by the usual ratchet construction, by means of which said wheels cause the shaft to rotate when moved in one direction, but turn freely on said shaft when moved in a backward direction, thereby avoiding strain and injury to the parts connected with said shaft. This construction is so well known as to need no further description.

C C indicate the main frame of the machine, provided with suitable bearings for engaging the shaft A, so as to permit said shaft to turn freely. The shaft A gives motion to a counter-shaft D, mounted on the frame-work C in rear of shaft A, through the instru-

mentality of a gear *a* on shaft A, which meshes with a gear *d* on the shaft D. To the forward portion of the frame C is secured the gathering-frame of the machine, which consists of the side pieces E E, connected by horizontal shafts F F', the shaft F forming a pivotal connection between the gathering-frame and the main frame of the machine. In this instance we have shown two side pieces E E pivotally mounted on and supported by the shaft F, which is mounted in suitable bearings secured to the main frame. The outer end of the gathering-frame may be raised and lowered by means of a connecting-rod *f*, connected to said frame and also to a disk *f'*, which is operated by a hand-lever *f*², said lever *f*² being provided with a pawl *f*³, in engagement with a ratchet-segment *f*⁴, secured to the frame-work of the machine.

The shafts F F' are provided with sprocket-wheels, which are engaged by endless chains, between which extends the endless apron G, carrying the gathering-fingers, arranged in rows transversely of said apron. The construction of the endless apron and method of attaching the gathering-fingers thereto form no part of our invention and will not be more specifically described.

The apron-supporting constructions on shaft F (in this instance the sprocket-wheels) are much smaller than the similar constructions on the shaft F', their peripheries not being greater than four times the distance between adjacent rows of gathering-fingers. By this construction the rows of gathering-fingers will be forced to separate widely while passing around the shaft F and will be acted on separately by the cleaning devices, thus facilitating the removal of cotton from said fingers.

The gathering-fingers, one of which is illustrated in detail, Fig. 4, consists of a channeled finger or bar H, provided at one end with a stem having a polygonal portion *h* and a screw-threaded portion *h'*. The apron G is provided with slats *g* for supporting the gathering-fingers, and said slats are provided with polygonal apertures to engage the polygonal portion *h* of the stem and prevent the finger

from twisting, said stem extending through the apron G and slat g and having a screw-threaded portion provided with a nut h^2 for securing the parts rigidly together. We prefer to provide the inner end of said gathering-finger with tapering or inclined faces h^3 adjacent to the polygonal portion h of the stem, and the aperture in the slat which receives the stem may be countersunk to engage the said inclined portion, so that the stem may be drawn in and firmly seated in the slat g by turning up the nut h^2 . The main body of the gathering-finger H is provided along its sides with a series of apertures for the insertion of small brushes h^x , the inner ends of said brushes being secured in the channeled portion of the finger. In order to protect the inner ends of said brushes, we cover the same with a strip I of leather or other flexible material, which is preferably first glued and then riveted in place by suitable rivets h^4 . By employing a flexible material—such as leather—we are enabled to pack the same securely in position to completely cover the ends of said brushes and prevent the same from being injured when the machine is in use.

Upon the shaft A is loosely mounted the sleeve or spool K, which carries the cleaning-saws for removing the cotton gathered by the gathering-fingers. We prefer to provide the ends of said sleeve K with screw-threads and secure thereto at one end a collar K' , which engages the shaft A, but is free to turn thereon, and at the other end a collar K^2 , which is provided with gear-teeth k^x , and we prefer to form the sleeve K of such diameter that it will not come in contact with shaft A, the friction caused by rotation being borne by the collars K' K^2 , as clearly shown in Fig. 3. The saws L are slipped onto said sleeve K and are separated by suitable collars L' , which have faces of considerable width adapted to engage the saws on either side of the same and support them in vertical positions. The saws and collars are clamped tightly together to rotate with the sleeve K by screwing up the collars K' K^2 , as will be readily understood. The saws L are provided on their peripheries with a series of teeth l , certain of said teeth being provided with brushes l' , as shown in Figs. 1, 2, and 3, to facilitate the removal of any cotton which may fall upon the gathering belt or apron G. The lateral faces of the saws L are provided with points or projections l^2 , preferably cone-shaped, which remove the cotton from the brushes h^x of the gathering-fingers without injuring the brushes or causing them to deteriorate, as would be the case if beaters were employed to strike said brushes transversely of their length.

Motion is imparted to the spool K and the cleaning-saws from the counter-shaft D by means of a gear-wheel d' , which engages the gear k^x of the collar K^2 . The counter-shaft D is also provided with a sprocket d^2 , which is connected by means of a sprocket-chain

with a sprocket f^x on the shaft F of the gathering-apron for imparting motion thereto. An endless carrier M extends from the lower part of the machine, where it passes around a shaft m upward beneath the cleaning-saws to a shaft m' , the function of said apron being to raise the cotton deposited upon it by the cleaning-saws and carry it upward and deliver it to a suitable receptacle, as a bag O, at the rear of the machine. The shaft m' is provided with a sprocket m^2 , which receives motion from a sprocket d^3 on the counter-shaft D by means of a sprocket-chain, thereby operating the elevator M. The frame C of the machine is provided with an inclined guard N below and slightly in advance of the lower shaft m of the endless carrier M for the purpose of bending down the stalks of the cotton-plants so that they will pass beneath the machine, and we may provide the machine with a guard N' beneath the carrier M to protect said carrier from the bushes as the machine passes over them, if found desirable.

The rear end of the frame of the machine is provided with a supporting-rack P, pivotally connected to said frame at p and having its inner end engaging a cross-bar P' , secured to the frame. By this means said supporting-rack may yield upwardly if it should come in contact with some object extending above the surface of the ground, thus preventing the rack from being strained or broken.

The operation of our improved cotton-harvester is as follows: As the machine is drawn through the field the gathering-fingers H will be carried upward through the cotton-bushes and will strip the cotton therefrom. The gathering-fingers carry the cotton upwardly and rearwardly to the point where they pass around the upper shaft F of the gathering-frame. Here the gathering-fingers are widely separated, the apron-engaging portion of said shaft being made small for the purpose, and the cotton is cleaned from said fingers by the saws L, the laterally-extending projection l^2 engaging the brushes h^x and gently disengaging the cotton from the same, while the brushes l' at the extremities of their respective saw-teeth will brush off any cotton which may have fallen upon the gathering-apron G. The cotton then falls upon the elevator M, which carries it up and deposits it in the bag or other suitable receptacle O.

We do not desire to be limited to the exact details of construction herein described and shown, as slight variations could be made therein without departing from the spirit of our invention.

What we claim, and desire to secure by Letters Patent, is—

1. In a cotton-harvester, the combination, with the gathering-fingers having laterally-extending brushes, of the cleaning-saws provided with cone-shaped projections on their lateral faces for engaging the said brushes and removing cotton therefrom, substantially as described.

2. In a cotton-harvester, the combination, with the gathering-apron and the fingers secured thereto, of the cleaning-saws provided with laterally-extending projections to re-
5 move the cotton from said fingers and having their peripheries provided with brushes for engaging the gathering-apron, substantially as described.

3. In a cotton-harvester, the combination,
10 with the driving-shaft, of a sleeve surrounding said shaft, a series of alternating saws and washers, collars having bearing portions engaging said shaft adjacent to the end of
15 said sleeve and provided with screw-threaded portions for engaging the ends of said sleeve and clamping said saws and washers in position, and means for revolving said sleeve independently of said driving-shaft, substantially as described.

20 4. In a cotton-harvester, a gathering-finger consisting of a channeled finger-bar provided with laterally-extending brushes and a strip

of flexible material filling said channeled portion for protecting the inner ends of said brushes, substantially as described.

5. In a cotton-harvester, a channeled gathering-finger provided with apertures in its side walls, a series of brushes extending laterally therefrom, and a strip of flexible material filling said channeled portion of the
30 finger and secured therein for protecting the inner ends of said brushes, substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

JAMES F. CUNNINGHAM, SR.
WILLIAM W. DINGEE.

Signed by Cunningham in presence of—
C. C. FERRELL,
J. T. McCARTY.

Signed by Dingee in presence of—
CHARLES H. LEE,
OTTO DORNER.