

(No Model.)

2 Sheets—Sheet 2.

W. E. LINDSAY.
COTTON CHOPPER.

No. 398,416.

Patented Feb. 26, 1889.

Fig 3.

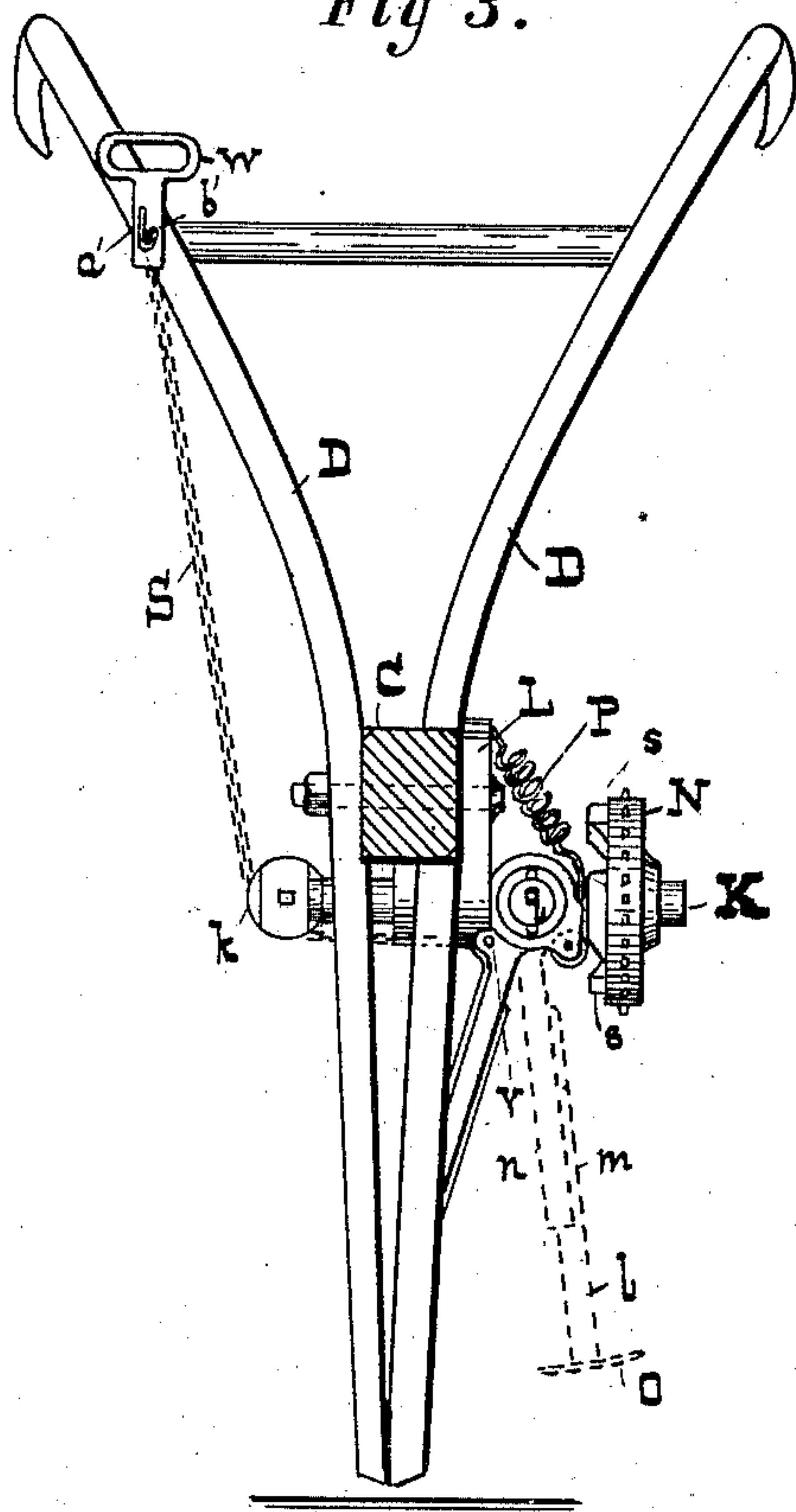


Fig 4.

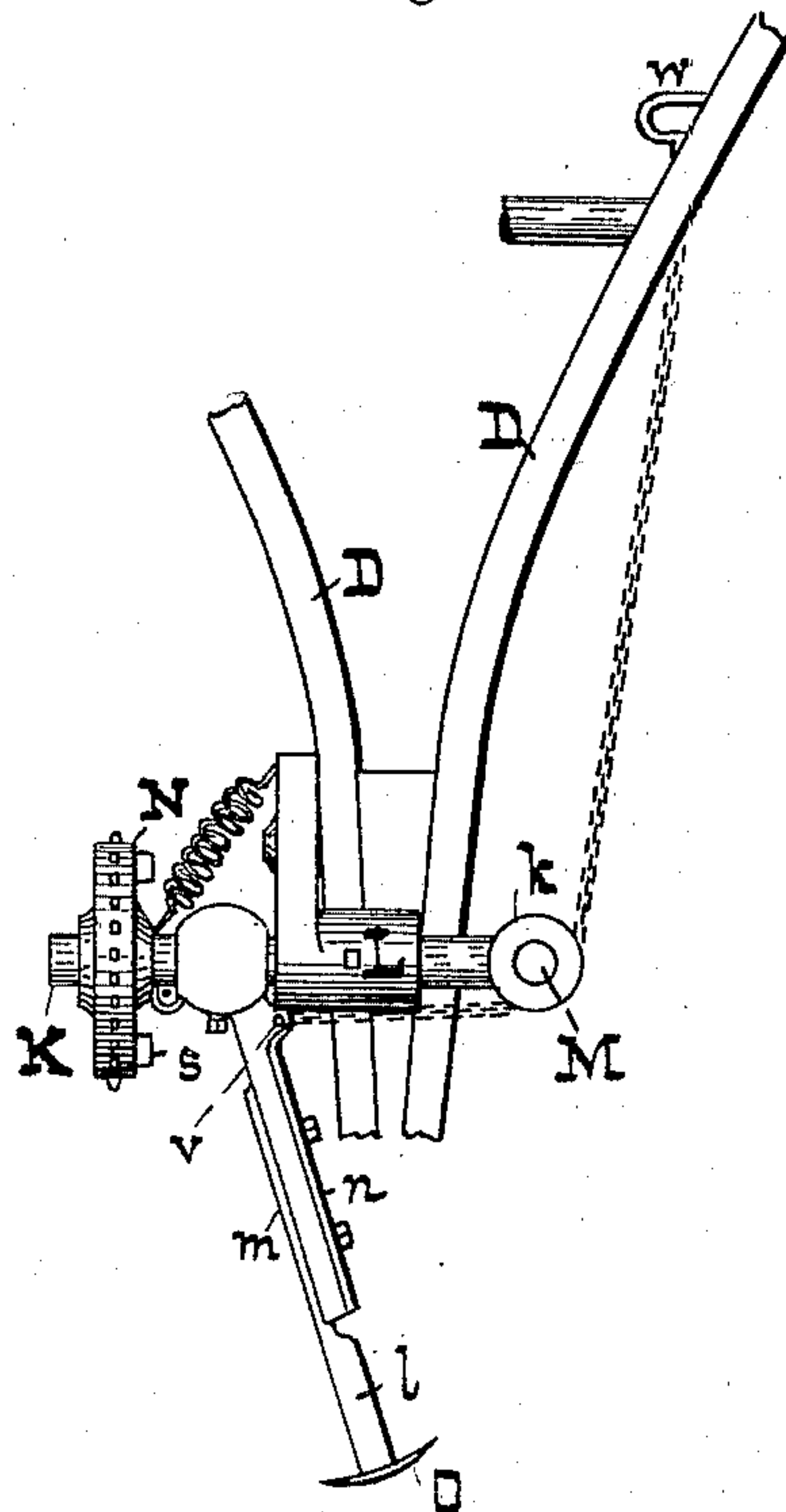


Fig 9.

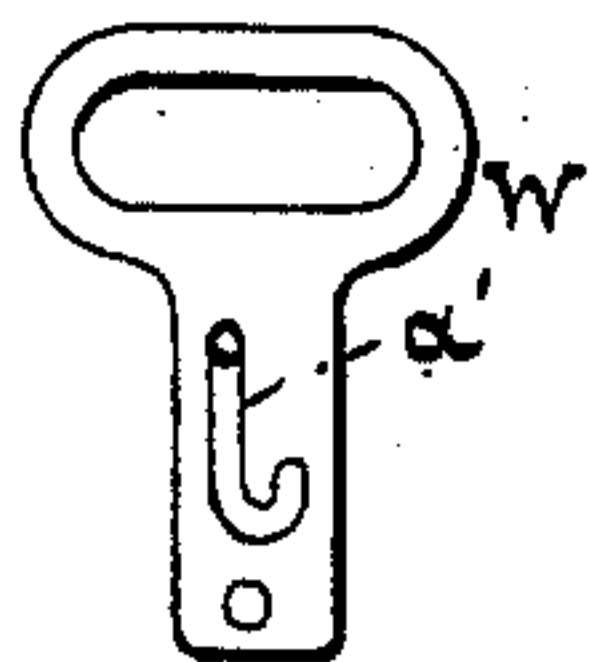


Fig 5.

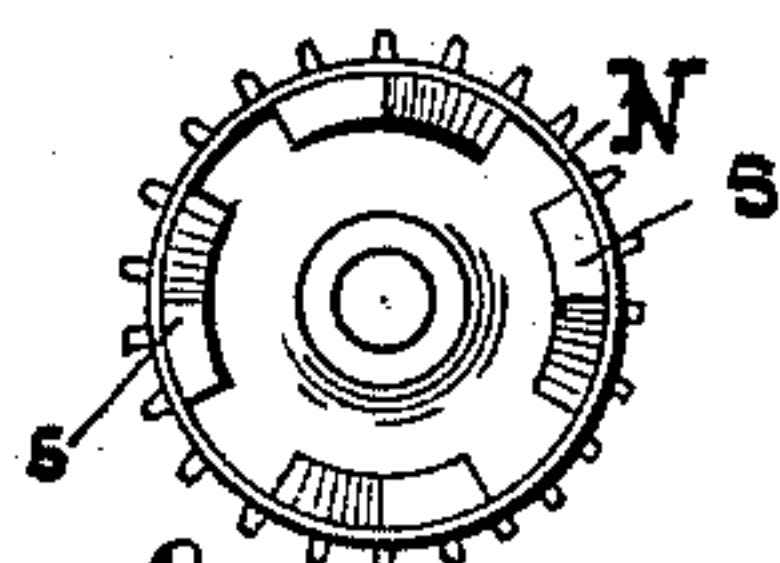


Fig 6.

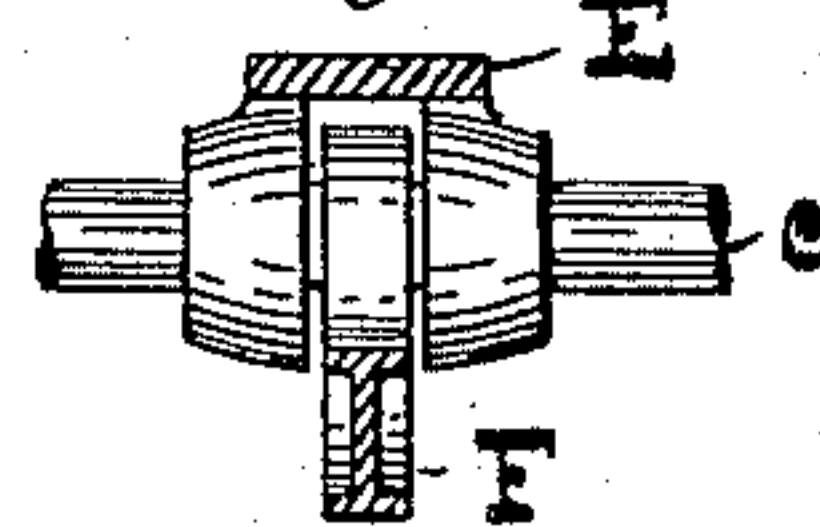


Fig 7.

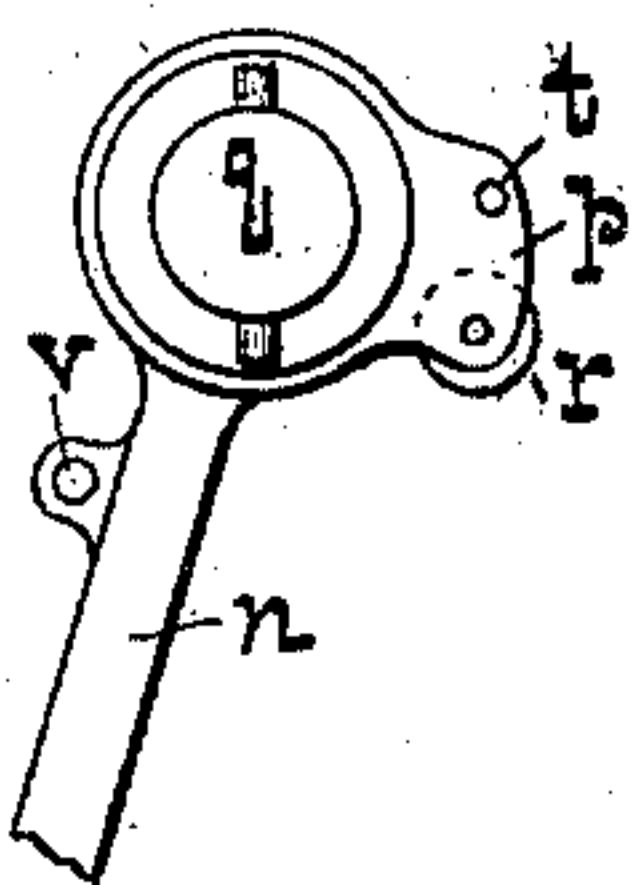
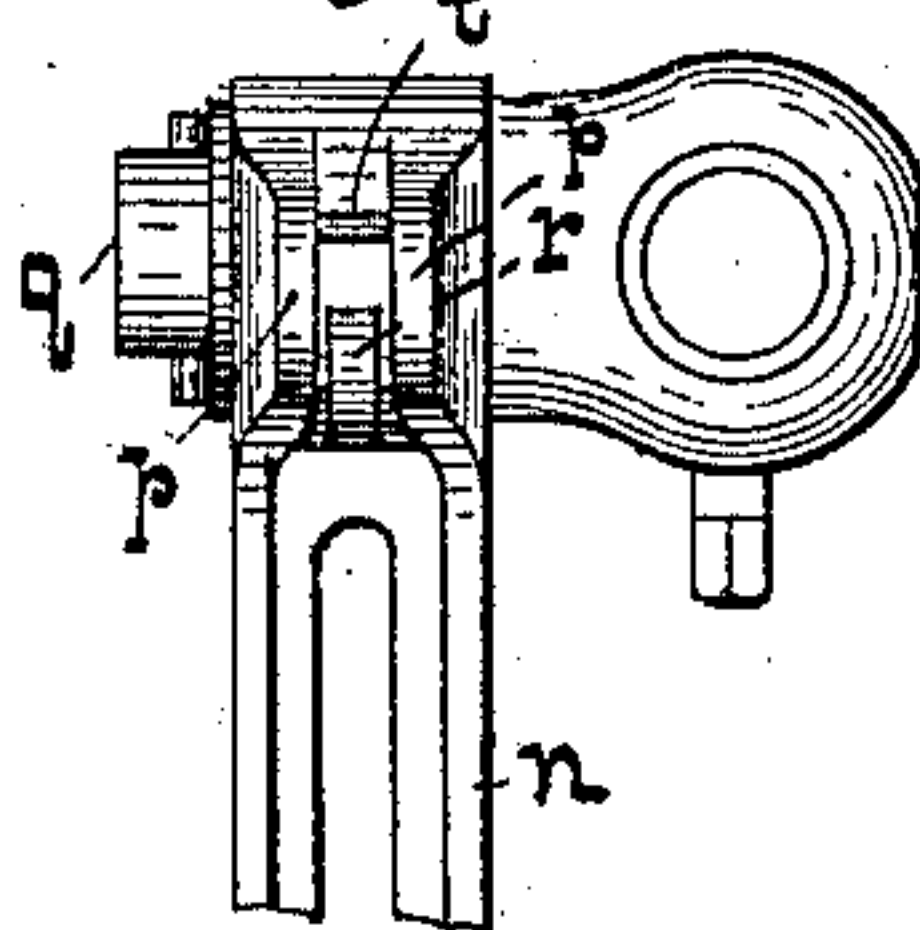


Fig 8.



WITNESSES—

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UNITED STATES PATENT OFFICE.

WILLIAM E. LINDSAY, OF BALTIMORE, MARYLAND, ASSIGNOR TO JOHN M. McCLINTOCK AND WILLIAM H. RICHARDSON, BOTH OF SAME PLACE.

COTTON-CHOPPER.

SPECIFICATION forming part of Letters Patent No. 398,416, dated February 26, 1889.

Application filed September 10, 1888. Serial No. 284,990. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM E. LINDSAY, of the city of Baltimore, and State of Maryland, have invented certain Improvements in Cotton-Choppers, of which the following is a specification.

In the description of the invention which follows reference is made to the accompanying drawings, forming a part hereof, and in which—

Figure 1 is a side elevation of the invention, and Fig. 2 a plan of the same. Fig. 3 is a cross-section of Fig. 1, taken on the dotted line *xx* and looking in the direction indicated by the arrow. Fig. 4 is a rear view of Fig. 1 with a portion of the handles of the plow removed. Figs. 5 to 9, inclusive, are details of the invention, Figs. 7, 8, and 9 being enlarged.

Similar letters of reference indicate similar parts in all the figures.

In the said drawings, A represents the standard, to the lower end of which the plow B is secured. The plow-beam is denoted by C, and the handles are represented by D.

E is a hanger, (see Fig. 6,) held to the under side of the beam C by means of the clips *a*.

F is an arm, the upper end of which is confined sidewise between the two side pieces, *b*, of the hanger, and held so as to be susceptible of a vibratory movement through the medium of the shaft *c*, which passes loosely through the whole. At one end of this shaft is a collar, *d*, and at the other are secured in any suitable manner the sprocket-wheels G and H. The lower end of the arm F is increased in thickness, so as to form a hub, *e*, and this hub is bored so that the shaft *f* may turn loosely therein.

I is a driving-wheel, having spuds *g* on its periphery, fastened to one end of the shaft *f*, and at the other end of the said shaft is secured the sprocket-wheel J.

K is a shaft which passes through a bracket, L, fastened to the side of the beam C and in the rear of the plow. The fastening for the bracket preferably consists of the bolt which holds the handles of the plow to the beam, as shown in Fig. 1. The shaft K does not turn in the bracket L, but is secured therein by means of a set-screw, *h*.

M is a stud held stationary on the shaft K

by means of a set-screw, *i*. This stud carries a revoluble sheave, *k*, for a purpose hereinafter specified.

N is a sprocket-wheel arranged to turn loosely on the shaft K and on the landside of the plow.

O is the hoe which consists, preferably, of a curved plate of steel of elliptic form sharpened at its edge. This hoe is riveted to a stirrup, *l*, which terminates in a shank, *m*, arranged for longitudinal adjustment in a channeled arm, *n*. The hub of the arm *n* is on a stud, *q*, the end of which is spherical and placed over and fastened to the shaft K.

On one side of the hub of the arm *n* is a projection, *p*, which carries a roller, *r*. This roller is arranged to come in contact with lugs *s* on the inner face of the sprocket-wheel N when the same is in revolution. A spring, P, unites the upper end of the bracket L with a pin, *t*, on the hub of the arm *n*, and serves to influence the said arm to assume the position shown by its dotted delineation in Fig. 3. The rotation of the sprocket-wheel N is derived from the one J through the medium of the chain belts Q and R, (shown only in dotted lines,) and the sprocket-wheels G and H.

I have shown the sprocket-wheel N as provided with four lugs, (see Fig. 5,) and the hoe will therefore make four vibrations to every revolution of the driving-wheel I; but I do not restrict myself to that number of strokes, as the number will have to be governed by circumstances not necessary here to mention. With a view to a change in number of strokes or vibrations of the hoe, I propose to furnish each machine with an assortment of sprocket-wheels N, having different numbers of lugs, any one of which wheels may be placed on the shaft K and used.

A chain, S, attached to the arm *n* at *v*, is carried under the sheave *k* and up to some part of one of the handles of the plow. This chain at its end is provided with a handle, *w*, having a slot, *a'*. (See Fig. 9.) A screw, *b'*, is passed through the slot *a'* into the plow-handle, and when the said screw is in the upper end of the slot, as shown by its full delineation in Fig. 9, the chain is slack and the arm *n* with its hoe is free to vibrate when the

machine is in operation. When the screw is in the lower and curved part of the slot, the arm is drawn toward the plow-handles and held thereat, as shown in Figs. 1, 3, and 4, the roller *r* is clear of the lugs on the inner face of the sprocket-wheel N, and the hoe is inoperative.

To fully understand the operation of my invention, it must be known that cotton-seed is planted by drills in rows, which are, say, three feet apart. When the plants are of a proper size, the chopper is made to traverse the field longitudinally of the rows with the landside of the plow about two inches from one row of plants and with the hoe held up and rendered inoperative through the means before described. In this first movement of the machine the earth is cut by the plow about two inches from the stalks of the plants and thrown by the mold-board toward the adjoining row. When the row has been fully traversed, the chopper is turned and moved to the other side of the first-mentioned row of plants and carried back with the hoe arranged to be operative. In this return or second operation the earth is cut in a line about two inches from the other side of the stalks of the plants and thrown toward the adjoining row, thus leaving the plants in a ridge of about four inches wide; but as the hoe is operative in this return movement of the machine it cuts out the ridge and the plants therein at each stroke or vibration, and leaves the required plants in hills.

The length of the hills is dependent on the number of lugs on the inner face of the sprocket-wheel N, and, supposing the circumference of the driving-wheel to be thirty-six inches, the hills may vary in length from twenty-eight inches to nine inches, according to whether a sprocket-wheel having one or four lugs is used.

It will be understood that the cutting-stroke of the hoe, or that in which a part of the ridge is cut away, is effected by the resiliency of the spring P, the back or inoperative stroke of the hoe being caused by the lugs on the sprocket-wheel coming in contact with the roller on the arm *n*. By this arrangement if the hoe strikes a stone or some other unyielding substance it is merely stopped, and that without affecting the mechanism which operates the hoe in a backward direction, and no damage can therefore take place to the machine.

It will be seen that the stirrup *l* is made narrower than the hoe. My object in ar-

ranging these parts in this manner is to prevent the stirrup from injuring the tops of the plants left by the hoe in the hills.

When the chopping devices are to be rendered entirely inoperative, the arm F is elevated and an eye, S', thereon connected with the hook T on the under side of the beam C.

I claim as my invention—

1. In a cotton-chopper, a plow-beam, a hanger secured to the said beam, an arm connected to the said hanger by means of a shaft carrying sprocket-wheels, a shaft which passes through the lower end of the arm supporting a driving-wheel, and a sprocket-wheel, a vibratory hoe in the rear of the plow, a shaft carrying a sprocket-wheel having lugs on its face adapted to come in contact with a roller on the said vibratory hoe to move the same in one direction, a spring to move the said hoe in the other direction, and chain belts to connect the said sprocket-wheels together and effect the movement of the sprocket-wheel last named, all combined substantially as and for the purpose specified.

2. In a cotton-chopper, the combination of the beam having the hook T, with the hanger E, the pivoted arm F, having eye S', and the wheel I, whereby the said arm may be held in an elevated position and the driving-wheel made inoperative, substantially as and for the purpose specified.

3. In a cotton-chopper, the combination of a bracket attached to some part of the plow-frame, a shaft secured within the said bracket, to which is fastened a stud, a vibratory arm seated on the said stud having at its lower end a hoe and at its upper end a roller or projection, a sprocket-wheel with lugs on its face which are adapted to come in contact with the said roller or projection and thereby force the said arm in one direction, and a spring which connects the said arm with the bracket to move the said arm in a contrary direction, substantially as and for the purpose specified.

4. In a cotton-chopper, a vibratory hoe which is moved in one direction by means of a wheel carrying projections and in the other through the medium of a spring, combined with a chain attached to the said arm, whereby the same may be drawn from the said wheel and held thereat and inoperative, substantially as and for the purpose specified.

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Witnesses:

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