

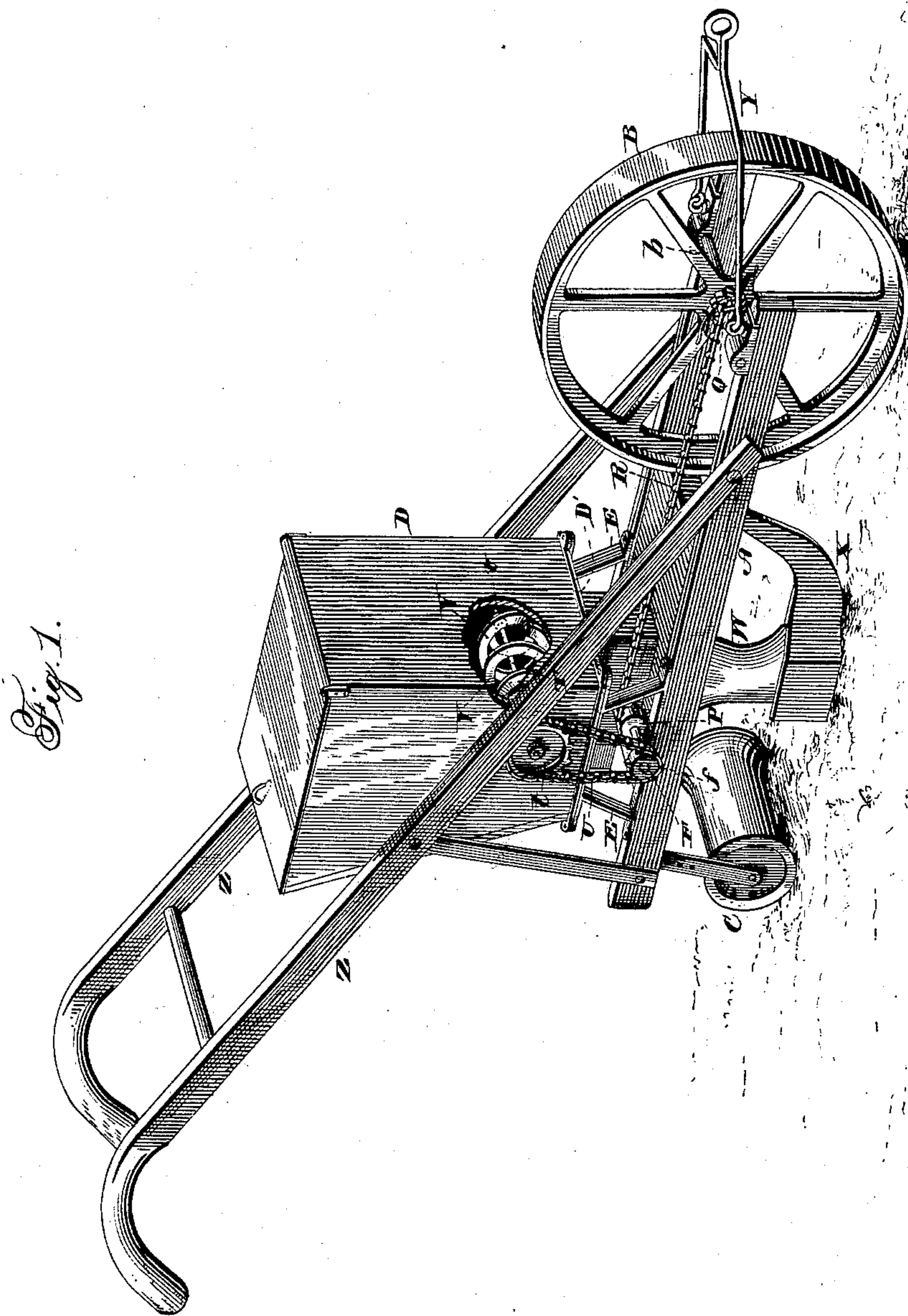
(No Model.)

5 Sheets—Sheet 1.

S. L. HOUSTON.  
COTTON SEED PLANTER.

No. 331,198.

Patented Nov. 24, 1885.



Witnesses  
Chas. J. Williamson.  
Henry C. Hazard.

Inventor  
S. L. Houston, by  
Grindle & Russell, his Attys

(No Model.)

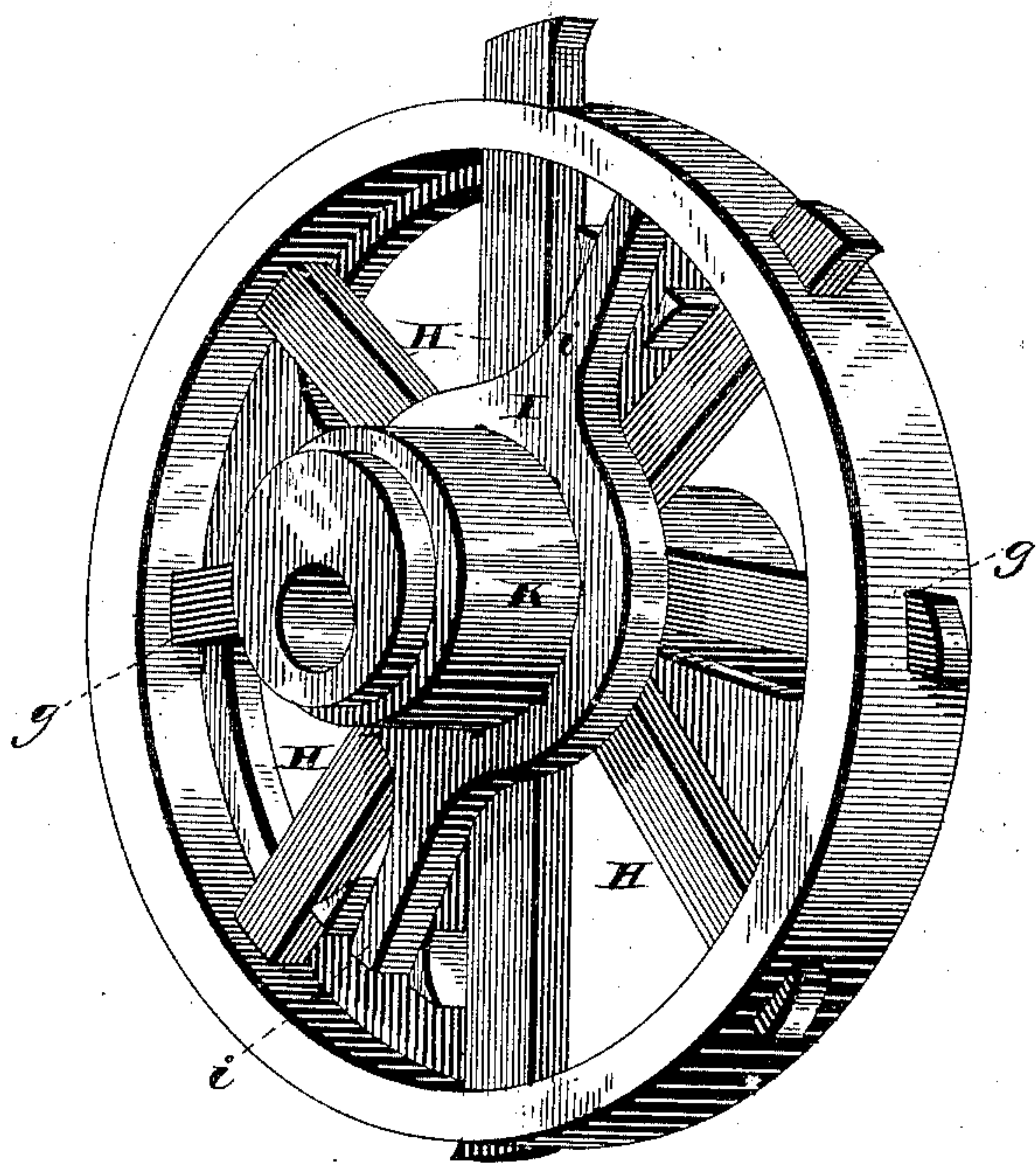
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*Fig. 2.*



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*Grindle and Russell, his Attys.*



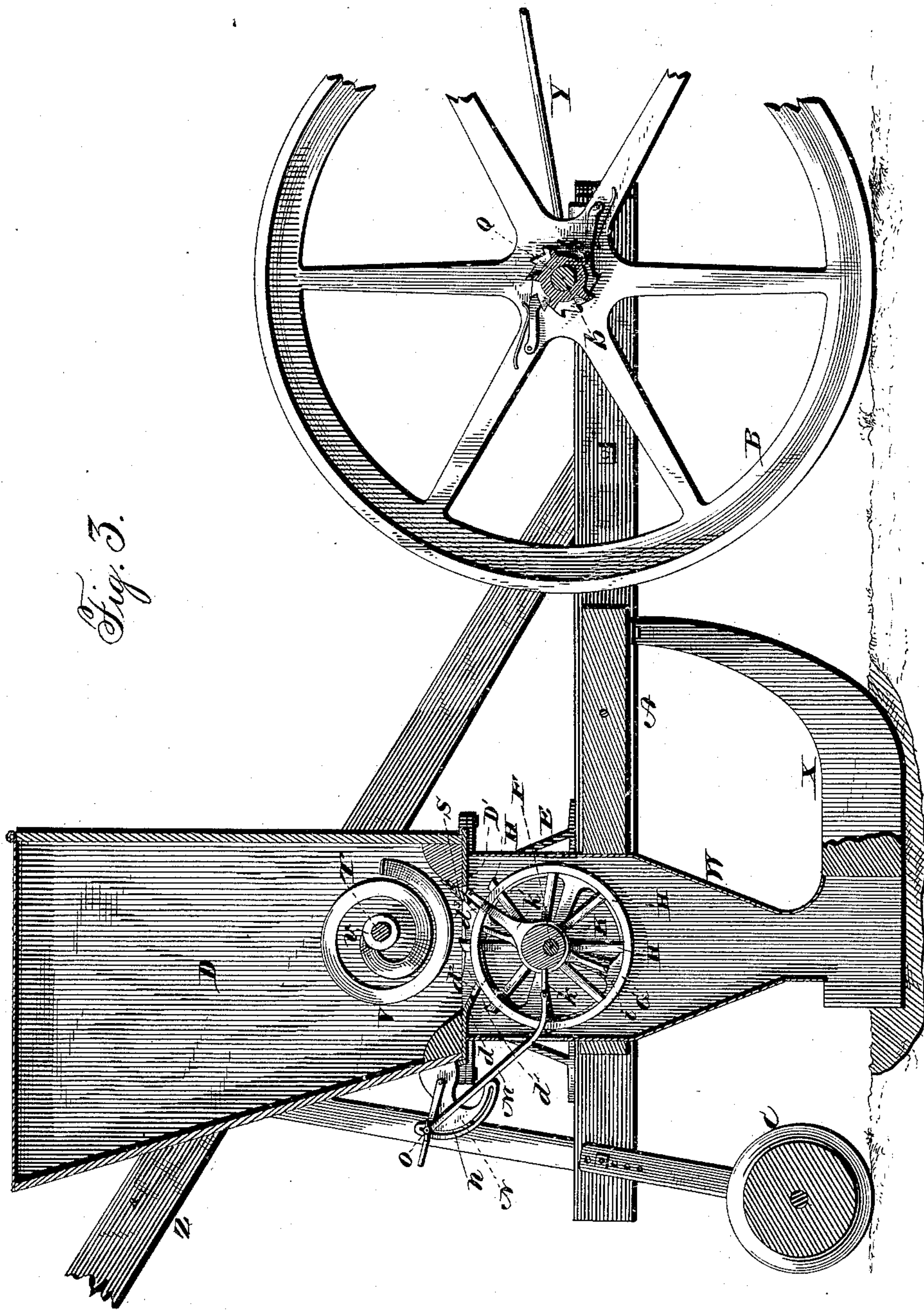
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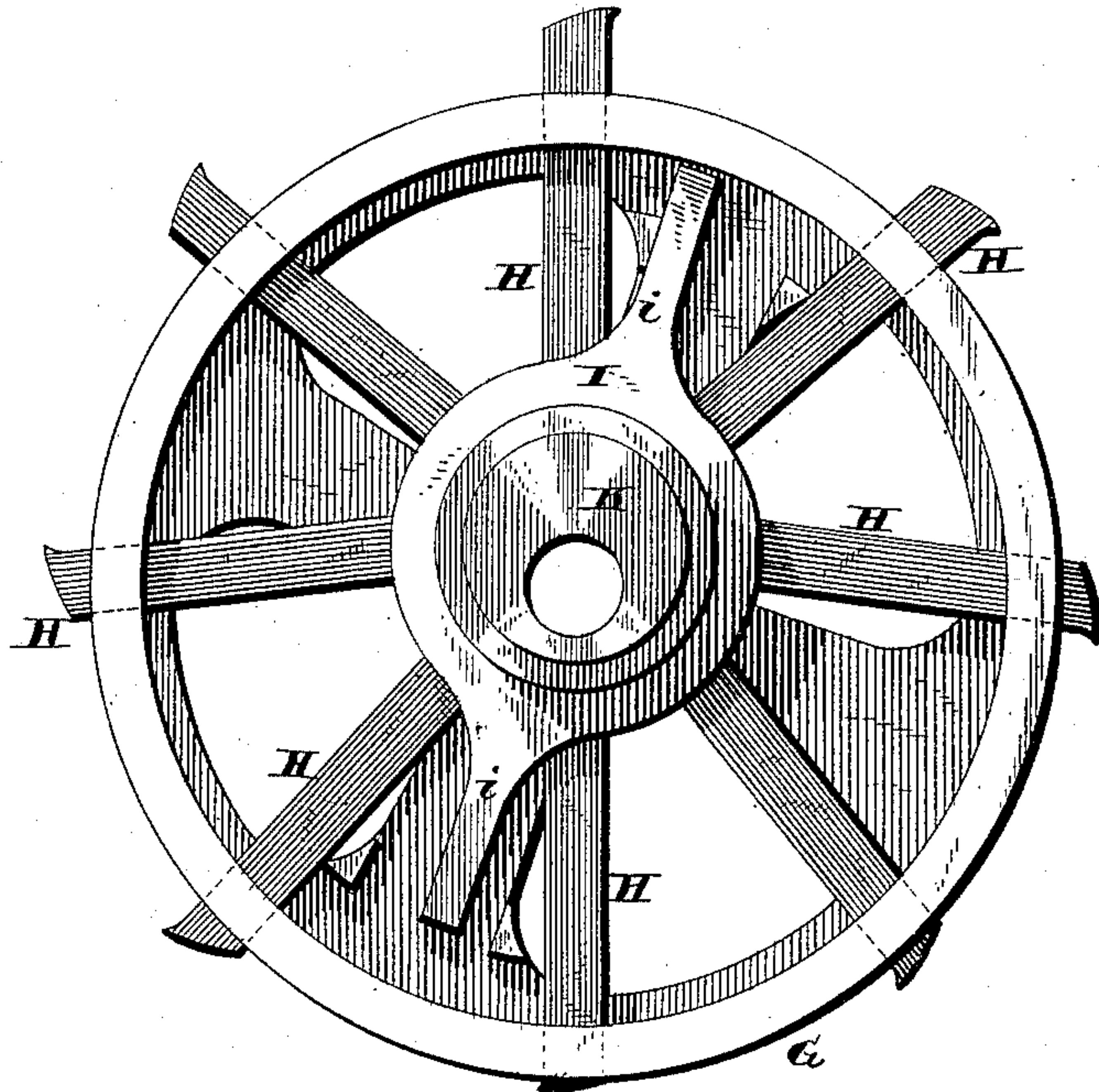
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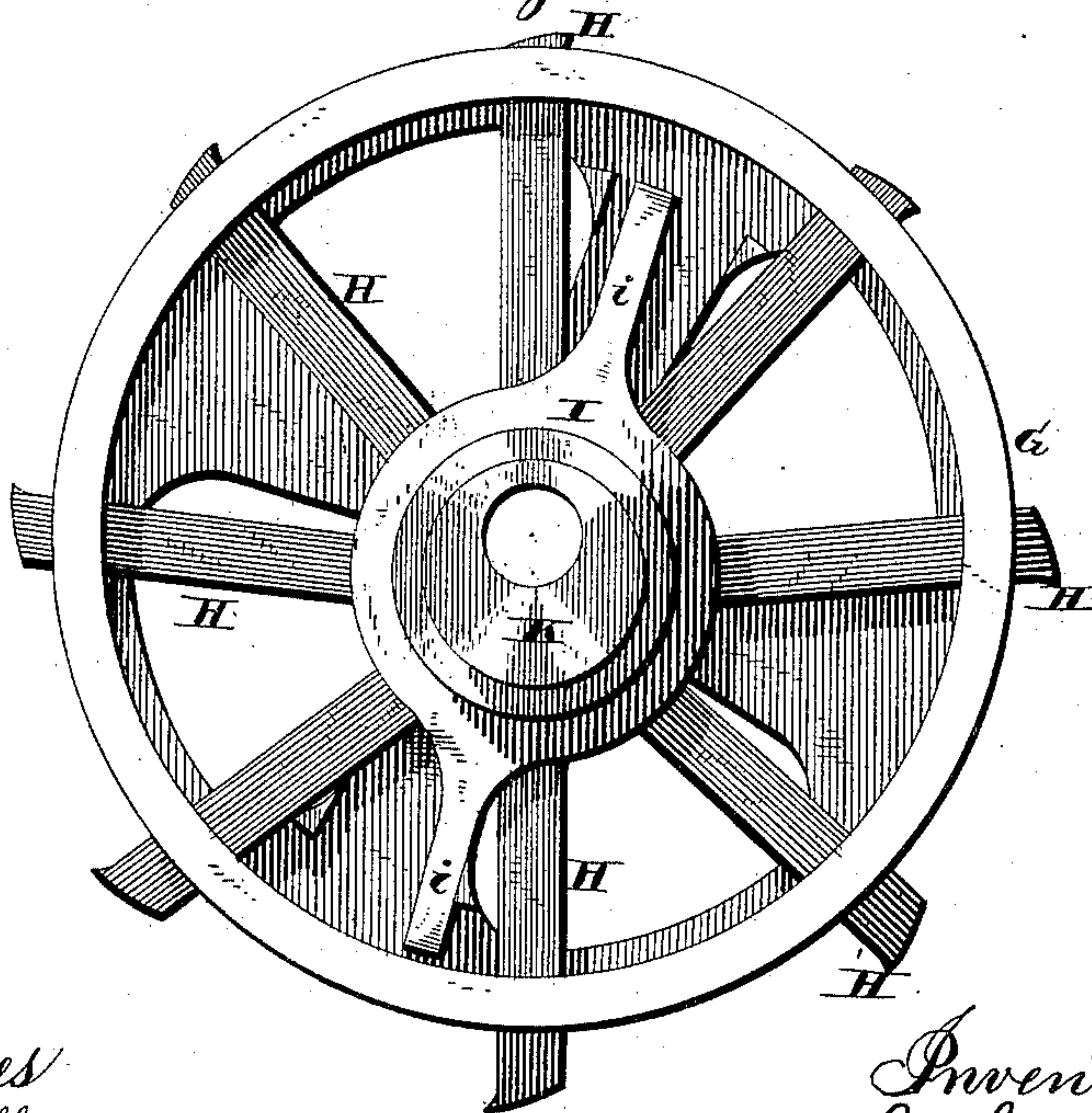
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*Fig. 4.*



*Fig. 5.*



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(No Model.)

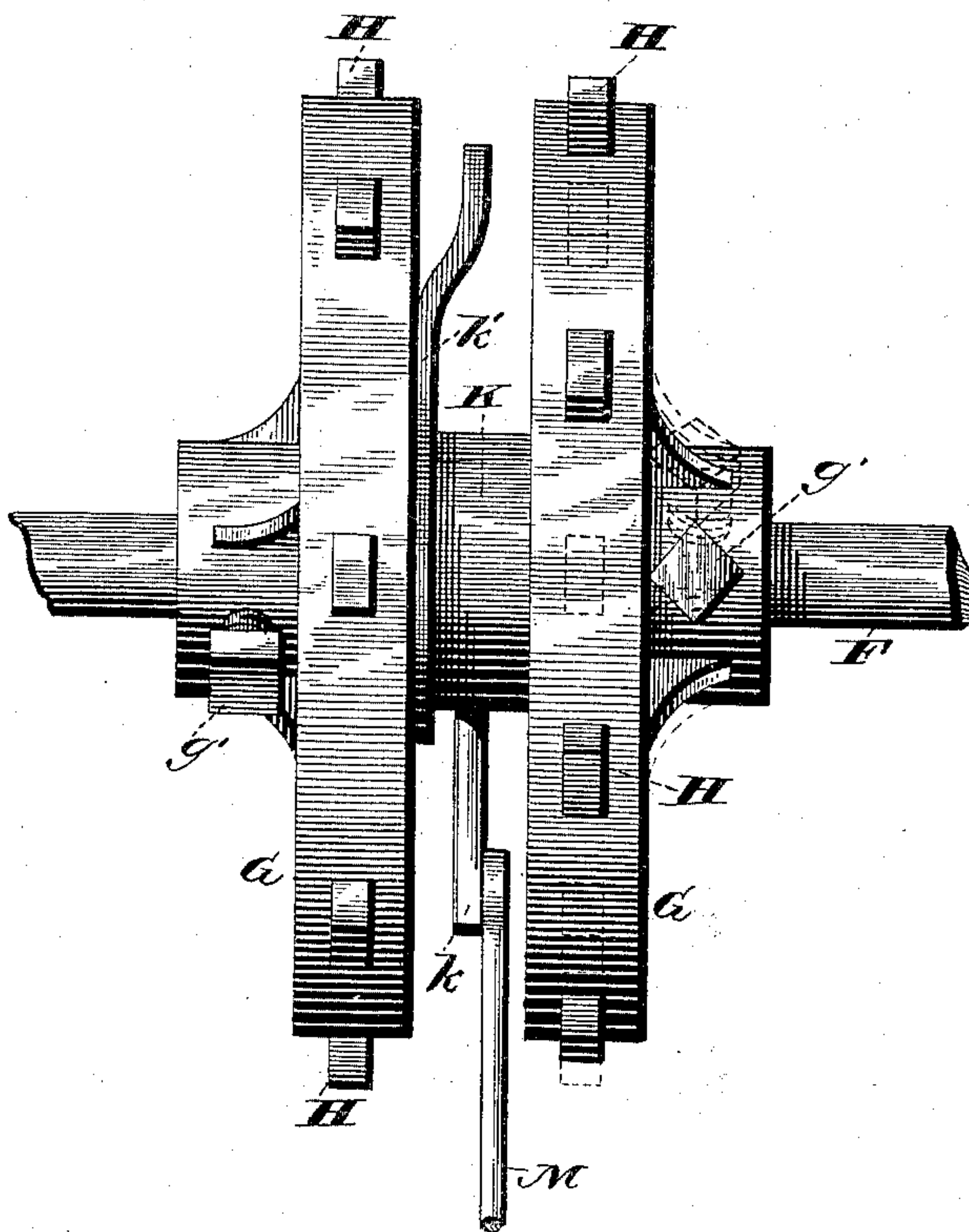
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*Fig. 6.*



*Witnesses:*  
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# UNITED STATES PATENT OFFICE.

SAMUEL L. HOUSTON, OF RICHMOND, INDIANA.

## COTTON-SEED PLANTER.

SPECIFICATION forming part of Letters Patent No. 331,198, dated November 24, 1885.

Application filed May 9, 1885. Serial No. 164,939. (No model.)

*To all whom it may concern:*

Be it known that I, SAMUEL L. HOUSTON, of Richmond, in the county of Wayne, and in the State of Indiana, have invented certain new and useful Improvements in Cotton-Seed Planters; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of my machine arranged for use. Fig. 2 is a like view, enlarged, of one of the seed-wheels separated from the connecting parts. Fig. 3 is a vertical central section of said machine upon a line with the draft. Figs. 4 and 5 are side elevations of said seed-wheel and its controlling-cam, and show, respectively, the relative positions of parts when the maximum and minimum quantities of seed are being forced from the hopper; and Fig. 6 is a detail plan view of the seed-wheels.

Letters of like name and kind refer to like parts in the several figures.

My invention belongs to a class of planters in which the seed is forced from the hopper or seed-box, instead of being permitted to drop therefrom; and it consists in the construction, arrangement, and combination of parts, as hereinafter specified, and more specifically pointed out in the claims.

In the annexed drawings, A represents the frame of my machine, which has in plan view a general oblong form, and at its front end has journaled centrally a ground-wheel, B. The rear end of said frame is supported upon or by a roller, C, that is vertically adjustable with relation thereto for reasons hereinafter stated.

Near the rear end of the frame A is a seed box or hopper, D, which has preferably an upward and outward flare to adapt it to receive and contain cotton-seed. Said hopper is supported upon and connected with said frame by means of an open skeleton framework, E, which gives to its lower end a sufficient elevation to enable feeding devices to be placed between the same and said frame. The bottom D' of the seed-hopper D is preferably constructed from metal, and at its transverse center is provided with a downward swell,  $d$ , that produces within its upper side a recess or cavity,  $d'$ , into which seed will naturally tend to pass while any remains in

said hopper. The lower side of said swell or boss, in a line with the draft, is formed upon a curved line, and within such curved surface are formed two similarly-curved parallel grooves,  $d^2$ , that are each about three-quarters of an inch wide and are about three-quarters of an inch apart. At the transverse center of each of said grooves is another groove,  $d^3$ , which has about one-third its width, is about three-quarters of an inch deep, and extends through said bottom D' into the recess  $d'$ .

Journaled transversely upon or within the frame E is a shaft, F, upon which are secured two wheels, G, that have such size and shape as to cause their upper peripheries to loosely fill the grooves  $d^2$ . Each of said wheels is provided within its periphery with a number of equidistant radial openings,  $g$ , which have each a width of about one-quarter of an inch and a length of about three-eighths of an inch. The wheels are secured to the shaft so as to be capable of adjustment around it, for a purpose to be hereinafter set forth. As a means of so securing them, I prefer a set-screw,  $g'$ , tapped through the hub of the wheel and adapted to engage the shaft in the well-known manner when screwed in, fixing the wheels at any desired rotary adjustment upon the shaft.

To serve my purpose it is not necessary that both wheels should be made so adjustable. It is sufficient if one be adjustable and the other fixed.

Within each opening  $g$  of each wheel G is loosely fitted a correspondingly-shaped bar, H, that is arranged radially and has its inner end loosely pivoted upon an annular plate, I, that encircles the shaft F, and by means of two radial arms,  $i$ , is loosely connected with the wheel G and is caused to rotate with the same. Said plate is journaled upon an eccentric, K, that is in turn journaled upon said shaft and is held in circumferential position thereon, and is partially rotated, when desired, by means of a radial arm,  $k$ , a lever, L, pivoted upon the seed-hopper D, and a connecting-rod, M, which is pivoted to and extends between said radial arm and said lever at a point below the pivotal bearing of the latter. A slotted quadrant, N, and a bolt, O, passing through the slot of said quadrant and through the adjacent portion of said lever, enables the latter to be locked in position when adjusted



thereto. The eccentric K has such length as to enable it to furnish bearings for the plates I of both wheels G, by which means said plates are caused to occupy the same position with relation to the axis of the shaft F. The bars H have such length as to cause the outer end of each to be slightly within the peripheral line of its wheel G, when, by the rotation of said wheel with the pivotal plate I, the inner end of said bar is opposite to the point of the eccentric K which has the least radial height above the shaft F. The further rotation of said wheel will cause said bar to be moved radially outward until when opposite to the highest portion of said eccentric it will project from its opening *g* a distance equal to the throw of said eccentric.

The shaft F is provided with a sprocket-wheel, P, around which and around a similar ratchet-connected wheel, Q, upon the shaft *b* of the wheel B extends a chain, R, the arrangement being such that the rotation of said wheel B by a forward movement of the machine will cause said shaft F and the wheels G to revolve and the bars H to be successively moved through the lower end of the seed-hopper D, into which they are permitted to extend by the grooves *d*<sup>3</sup>.

The adjustment of the eccentric K as described enables the point of the maximum projection of the bars H to be located within or outside of the hopper D, or at any point between the same, and as the projecting ends of said bars are adapted to engage with seed within said hopper, and to move the same outward through the front ends of the grooves *d*<sup>3</sup>, it will be seen that the degree of projection of said bars or teeth within said hopper will determine the amount of seed each will move out of the same, so that by varying the position of said eccentric the quantity of seed to be discharged from said hopper may be gaged. Each of said teeth has its end cut away upon a rearward and inward inclined line, while its front edge is slightly hooked to enable it to more readily engage with the seed.

In order that the size of the ends of the grooves *d*<sup>3</sup> may be raised to correspond to the projection of the teeth H when passing through the same, a gate, S, is fitted within or over said openings, and is adapted to slide therein or thereon in a line with the axis of the eccentric K. Said gate is connected by means of an arm, *k*', with the said eccentric, and by the movements of the latter is drawn downward and inward or pushed upward and outward as said plate varies the radial positions of said teeth H at such point, so as to cause them to project a less or greater distance beyond the periphery of the wheels G, by which means the relation between the size of the discharge-openings of the hopper D and the operative length of said feed-teeth within said hopper is automatically maintained. The seed within the hopper is stirred up and fed toward the discharge-openings by the following means, viz:

Journalled within the hopper D, in a line with the shaft F, is a shaft, T, which is connected with and rotated by the former by means of a chain, U, that passes around two sprocket-wheels, *f* and *t*, respectively, which are secured upon the projecting ends of said shafts. Upon said shaft T, within said hopper, are secured two spirally-formed bars, each of which extends from a head, *v*, inward to or near the transverse center of said hopper, and is coiled in a relatively opposite direction from that in which the other bar is coiled. Said bars are flat and thin, and are arranged with their longest transverse dimensions in or near a line having a right angle to the axis of said shaft F.

When, now, the machine is moved so as to cause the feeding mechanism to operate, the agitators V and V will simultaneously move the seed within the hopper D from each side inward toward and downward into the center, when a portion of said seed will be engaged by the feed-wheel teeth H and carried outward through the discharge-openings *d*<sup>3</sup>, while the remainder will be permitted to pass outward again through the open centers of said agitators, such movement effectually preventing any lodgment of the seed, and causing the feeding mechanism to be constantly supplied while any remains in the hopper. The seed-wheels are inclosed by a sheet-metal casing, *w*, immediately above the upper end of a hollow seed-spout, W, which from thence extends downward to the ground, and at its lower end is connected with a runner or hoe, X, all of usual form.

A forked bar, Y, for attaching a draft-animal to the front end of the frame, and a pair of handles, Z, extending rearward and upward for use in guiding the movements of the apparatus, complete the machine, which operates as follows, viz: Seed being supplied to the hopper, and the feed-wheel teeth adjusted to cause the desired quantity of seed to be discharged from said hopper, the machine is drawn forward, when the runner or hoe will open a furrow, into which the seed will be dropped, after which the roller in rear will turn inward and pack down the soil, so as to cover said seed, all in the usual manner.

In consequence of the entire withdrawal of the feed-teeth within the periphery of the feed wheel or disk after leaving the hopper, nothing is left to which the cotton-seed can adhere, and said seed is free to drop through the spout to the ground.

Ordinarily in planting cotton-seed the wheels will be so set relatively on the shaft that their teeth are not in line, as shown in full lines in Fig. 6. The teeth on the wheels will then take seed alternately from the hopper, and a substantially continuous flow of seed will be obtained. If it be desired to plant seed in hills instead, all that is necessary is to loosen the set-screw of one of the wheels, turn such wheel on its shaft so that its teeth will stand parallel or in line with those of the other



wheel, as shown in dotted lines in Fig. 6, and then tighten up the screw again to fix the wheel as adjusted. When the wheels are put in operation again, the teeth on both wheels 5 will take the seed from the hopper at the same time and deliver it together, so that the seed will be planted in bunches or hills.

Any other of the well-known means for fixing wheels adjustably on shafts can obviously be used, if desired, instead of the set-screw, without departure from the spirit of my invention.

I do not claim herein, broadly, a feed-wheel having radially-extensible teeth and means for projecting and withdrawing such teeth as the wheel revolves, as such a wheel is broadly not new.

Having thus fully described the nature and merits of my invention, what I claim is—

20 1. A cotton-seed planter in which the feed-roller is provided with radial teeth that are automatically and eccentrically projected from and withdrawn into its periphery at each revolution of said wheel, in combination with 25 means whereby the point of maximum projection with relation to the seed-hopper may be varied at will, substantially as and for the purpose set forth.

30 2. A cotton-seed planter in which the feed-roller is provided with radially-adjustable eccentrically-moving teeth, in combination with means, substantially as shown, whereby as said teeth are adjusted outward or inward the opening through which they pass from 35 within the seed-hopper will be simultaneously and correspondingly enlarged or contracted, substantially as and for the purpose described.

3. The rotary seed-wheel provided with radial openings, the tooth-bars fitted loosely within such openings, the plate I, to which the inner ends of the bars are pivoted, the shaft 40 F, and the eccentric K, fitting within and forming the bearing for plate I and capable of adjustment around shaft F, all combined substantially as and for the purpose described. 45

4. In combination with the discharge-openings  $d^3$  of the hopper D, and with the seed-wheel teeth H, the pivotal plate I, the regulating-eccentric K, provided with the radial arm  $k'$ , and the gate S, connected to said arm 50 and adapted to close said discharge-openings, substantially as and for the purpose shown and described.

5. In a seed-planter, in combination with the rotary shaft, a toothed feed-wheel secured on the shaft, and a second similar wheel secured on the shaft so as to be adjustable around the same, substantially as and for the purpose 55 described.

6. In combination with a suitable hopper 60 or seed-receptacle, the two wheels provided with teeth adapted to take seed from the hopper, the rotary shaft, and means, substantially as described, for securing the wheels on the shaft so that one or both of them may be adjusted around it, substantially as and for the 65 purpose described.

In testimony that I claim the foregoing I have hereunto set my hand this 26th day of March, 1885.

SAMUEL L. HOUSTON.

Witnesses:

JOHN C. WHITRIDGE,  
DANIEL G. REID.