

(No Model.)

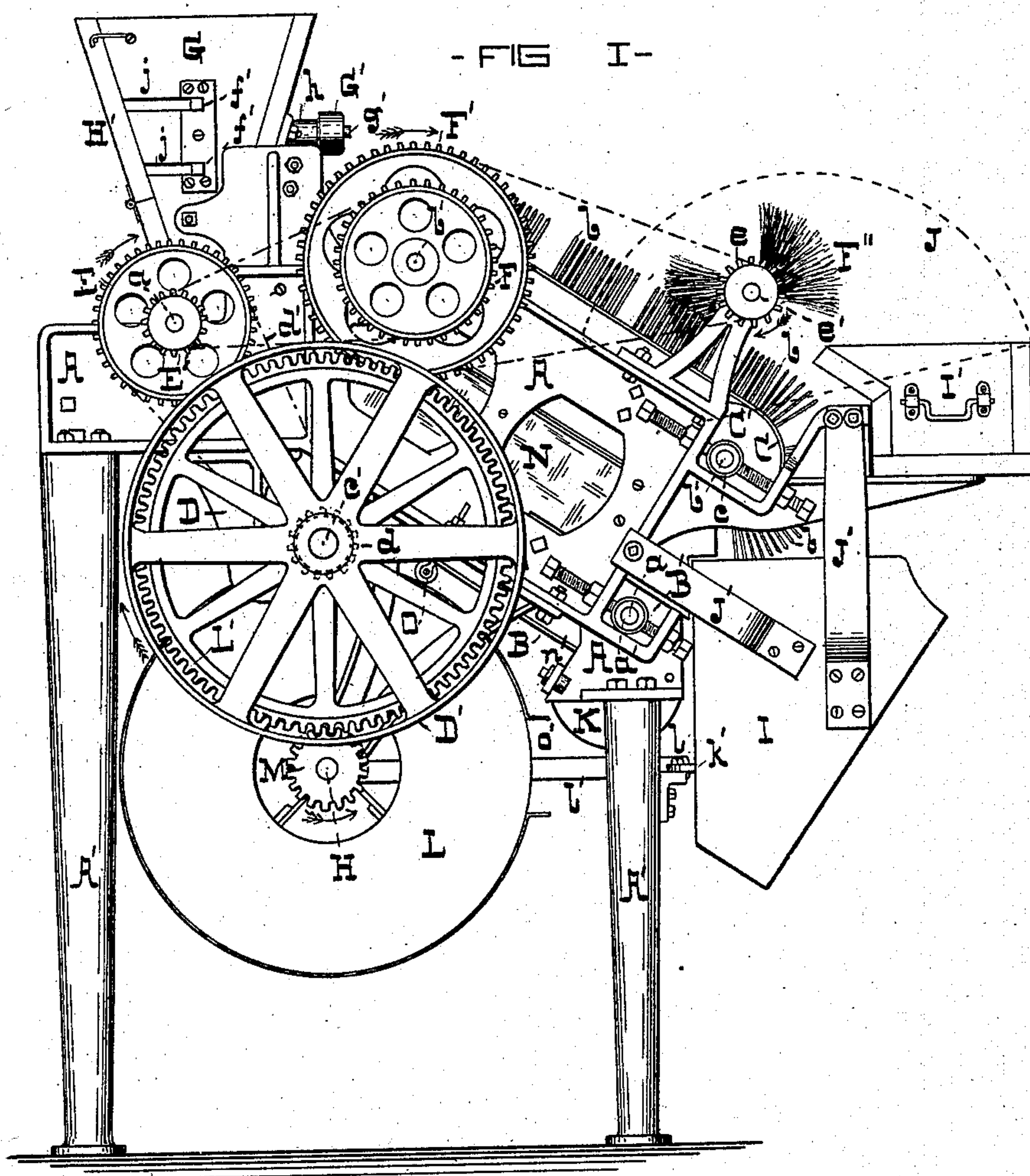
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S. D. WARFIELD.

CORN SILKER.

No. 322,220.

Patented July 14, 1885.



- WITNESSES -

Danl. Fisher  
Chas. W. Arnold

- INVENTOR -

Sol. Lewis Hatfield,  
by G. H. H. Howard,  
Atty -

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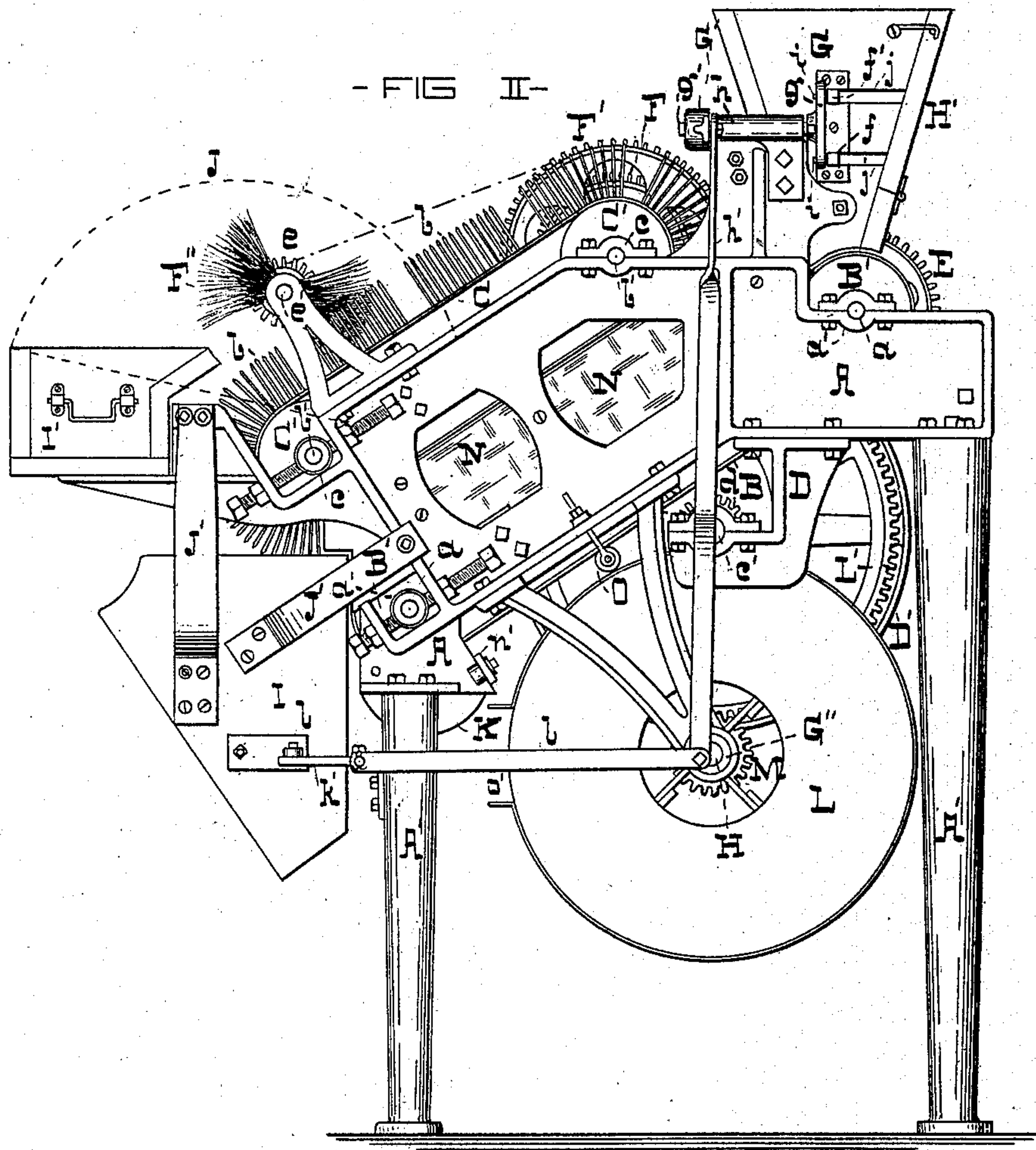
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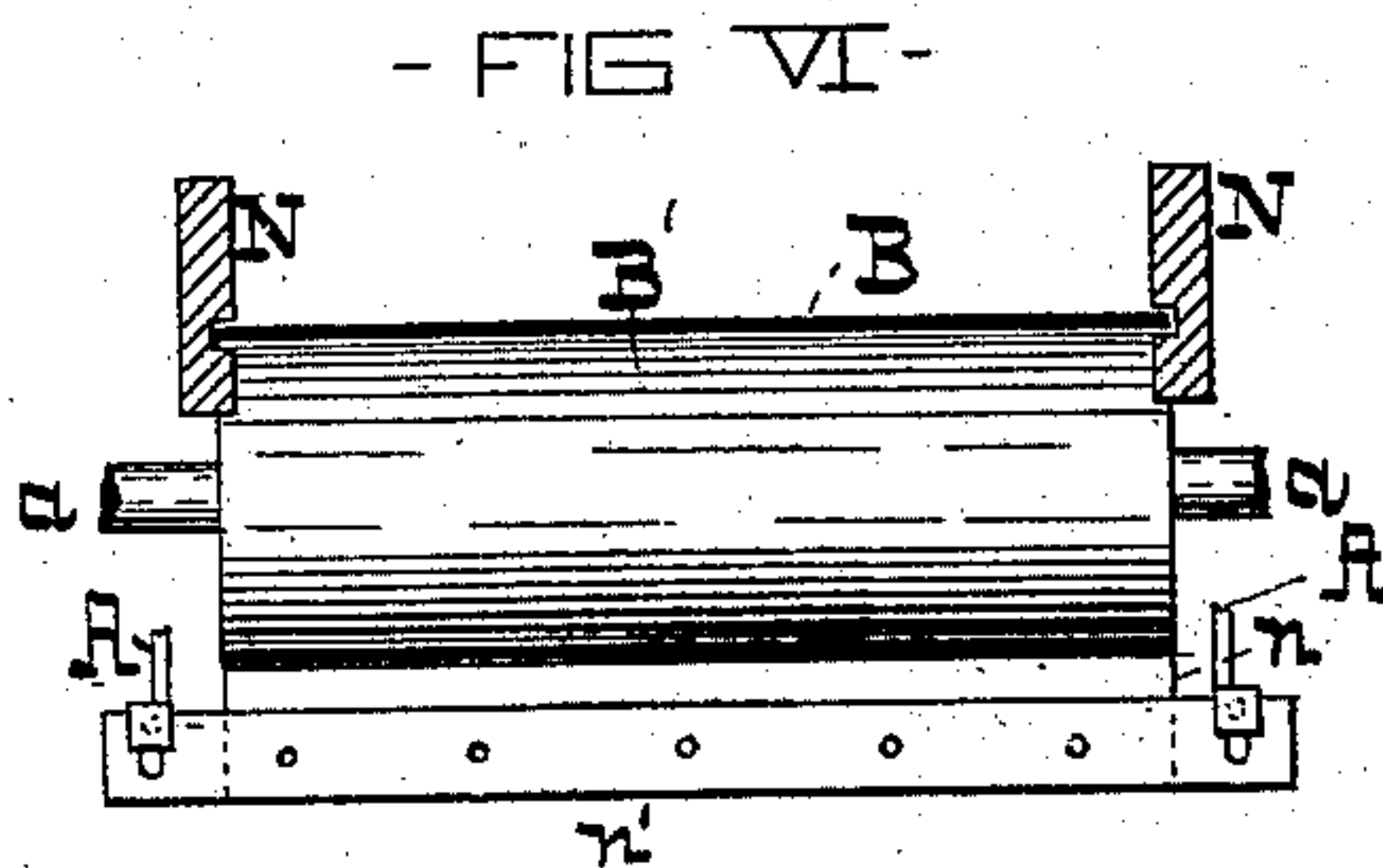
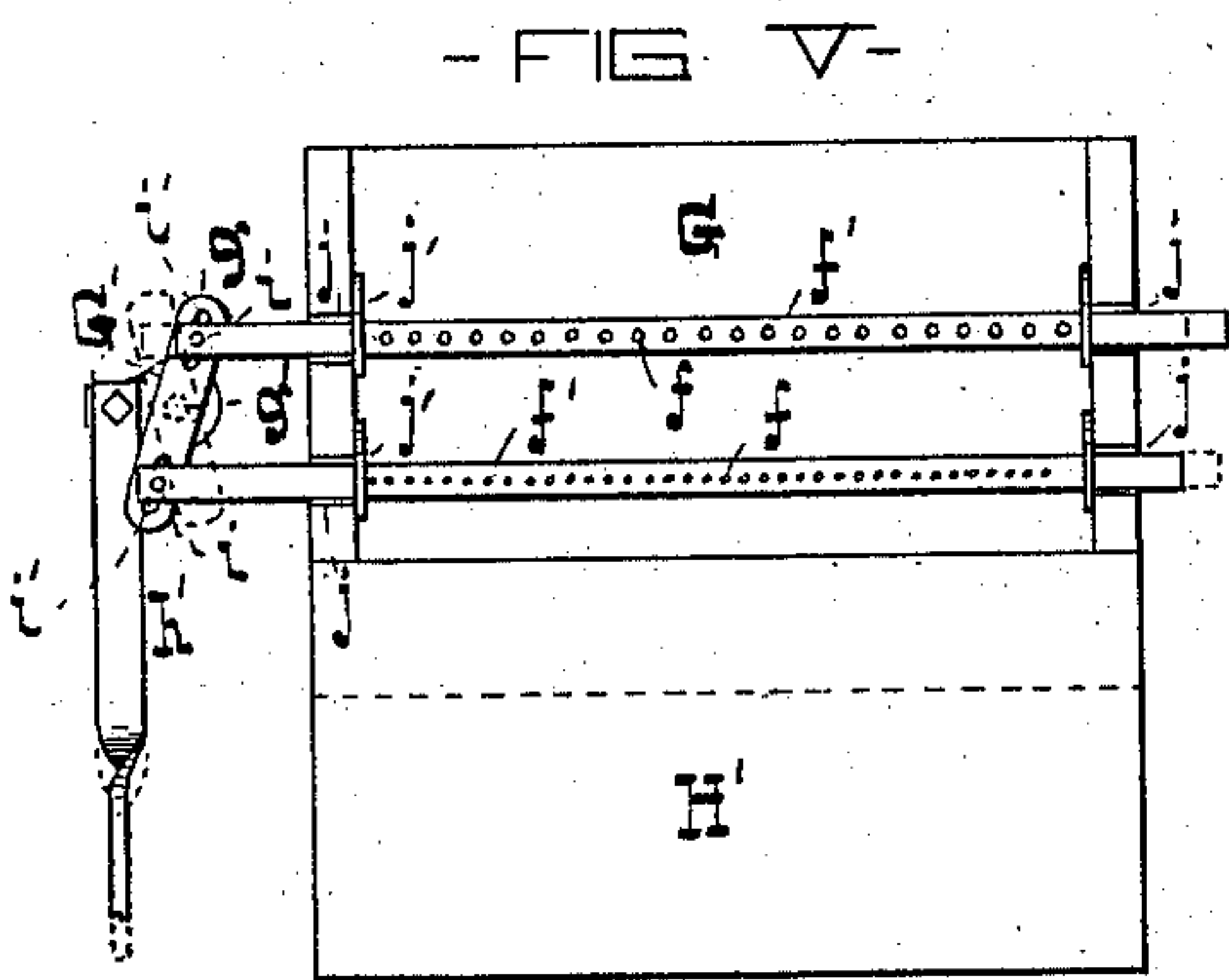
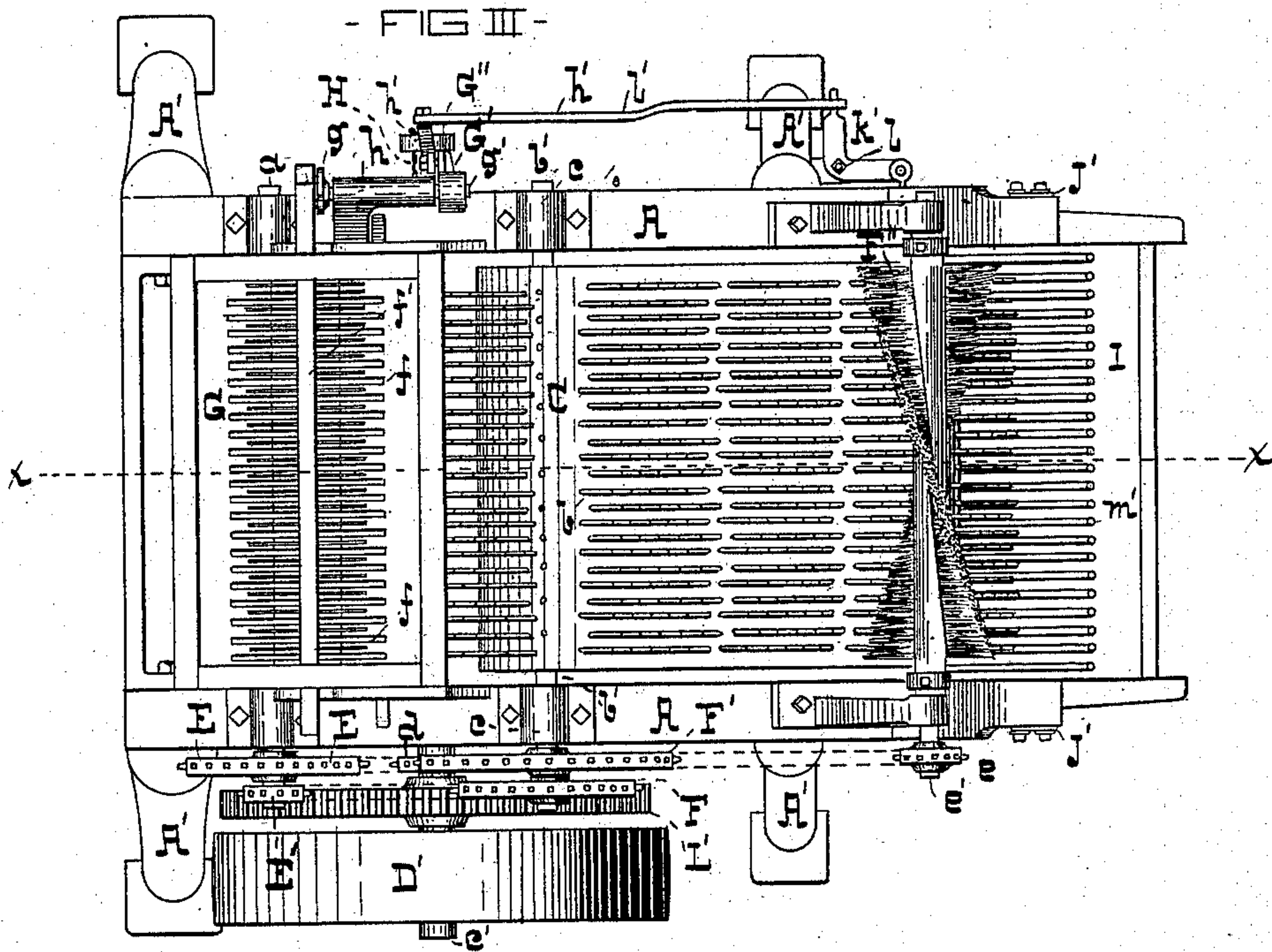
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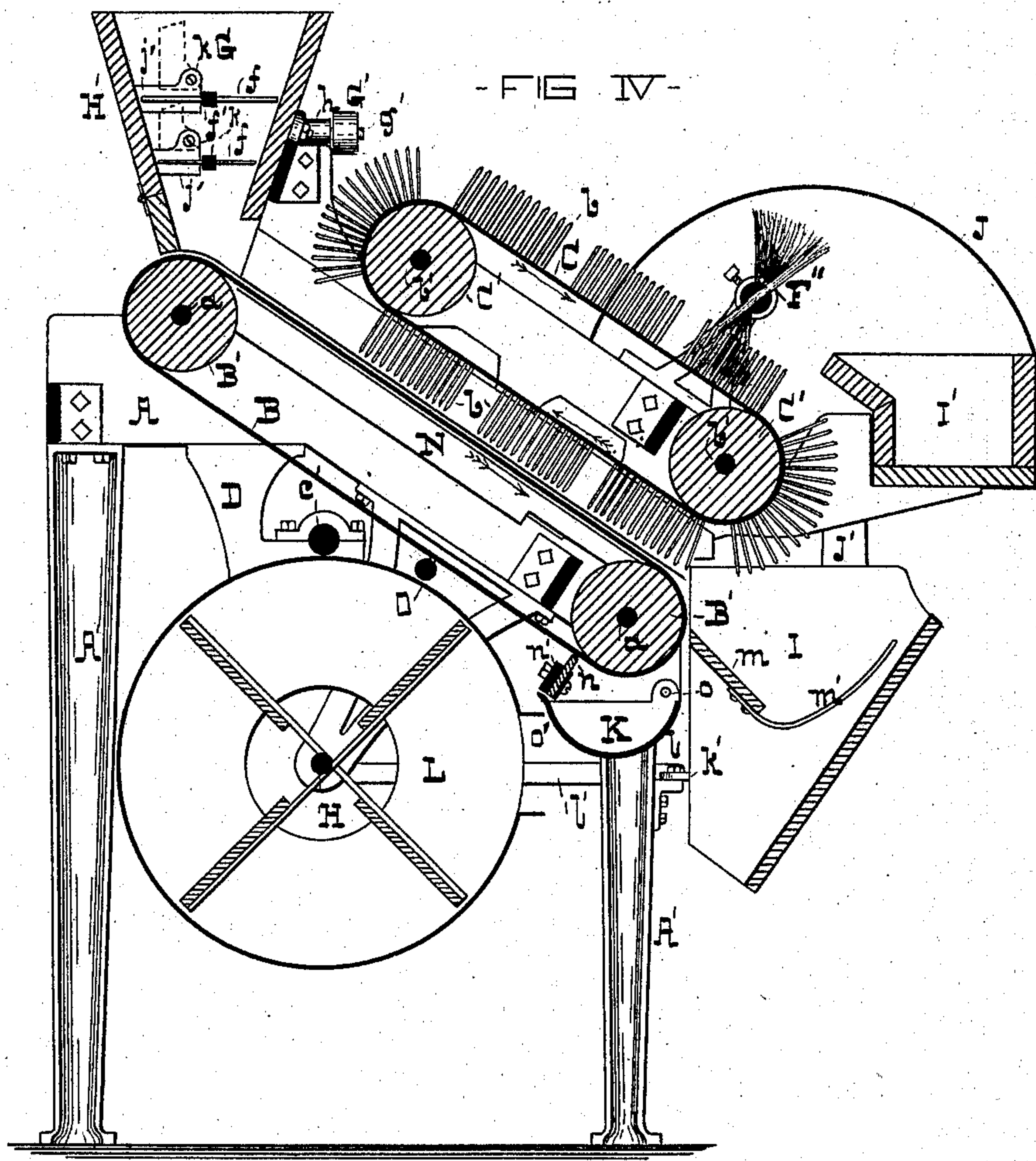
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# UNITED STATES PATENT OFFICE.

SOLOMON DAVIES WARFIELD, OF BALTIMORE, MARYLAND.

## CORN-SILKER.

SPECIFICATION forming part of Letters Patent No. 322,220, dated July 14, 1885.

Application filed March 28, 1885. (No model.)

*To all whom it may concern:*

Be it known that I, SOLOMON DAVIES WARFIELD, of the city of Baltimore and State of Maryland, have invented certain Improvements in Corn-Silkers, of which the following is a specification.

This invention relates to certain improvements in that class of corn-silkers in which the silk is removed from the cut corn.

In the drawings, forming a part hereof, Figures I and II are exterior views of the machine as seen from different sides. Fig. III is a plan of the machine with some minor parts thereof removed. Fig. IV is a vertical section taken on the dotted line *x x*, Fig. III. Figs. V and VI are details of the machine.

A is a frame supported by legs A'.

B is an inclined endless conveyer belt or apron, carried by rollers B'. These rollers have gudgeons *a*, adapted to turn freely in boxes *a'* in the frame A.

C is a second endless belt or apron, carrying silking-fingers *b*, and arranged so as to bring the fingers on its under side nearly in contact with the upper side of the conveyer-belt B, as shown particularly in Fig. IV. The belt C is also mounted on rollers, which are denoted by C', and have gudgeons *b'*, adapted to rest in bearing-boxes *c* in the frame A.

The belts B and C are driven as follows, the direction of their movement being indicated by arrows in Fig. IV: A main driving-shaft, *c'*, supported by hangers D, is provided with a driving-pulley, D'. On this shaft *c'* is a sprocket-wheel, *d*, connected by a chain-belt, *d'*, to a second sprocket-wheel, E, on the gudgeon *a* of the upper and driving roller, B', of the endless conveyer-belt B.

E' is a smaller sprocket-wheel on the same gudgeon *a*, and connected by a chain-belt to a larger sprocket-wheel, F, on the gudgeon *b'* of the upper and driving roller, C', of the endless belt C. On the gudgeon *b'* is also a still larger sprocket-wheel, F', united through the medium of a chain-belt to a smaller one, *e*, on the brush-shaft *e'*, which is suitably supported on the frame A. This shaft is provided with a rotary brush, F'', preferably of the spiral kind, and set substantially the same as that shown and described in Letters Patent No. 309,999, granted to me on the 30th day of December, 1884, for a corn silker.

G is a hopper supported between the two sides of the frame A and above the driving-roller B' of the belt B, in which the corn as cut from the cob is poured. This hopper has an upper and lower set of distributing-bars, *f*, which project from rods *f'*, as shown particularly in Figs. III, IV, and V. These rods, with their distributing-bars, are reciprocated in contrary directions by means of a rocker, *g*, on the shaft *g'*, adapted to vibrate in a sleeve, *h*, projecting from the frame A. The vibratory motion of the shaft *g'* is effected by means of an arm, G', fastened thereto, which is connected by the rod *h'* to a crank, G'', at the end of the fan-shaft H, hereinafter alluded to.

By referring to Fig. V it will be seen that the distributing-rods *f'* have pins *i*, which rest in slots *i'* in the rocker *g*. The full and dotted delineations of the rocker and certain of its attachments indicate the extremes of their movement.

By simply employing pins to connect the rods *f'* with the rocker *g* the said rods, with their distributing-bars, may be easily removed for cleaning or other purposes and replaced while the machine is in operation; and to admit of this removal the hopper G has slots *j*, as shown in Figs. I, II, and V, and is provided with a hinged door, H'.

To retain the rods *f'* in place, and prevent corn entering and escaping through the slots *j*, I employ plates *j'*, hinged to the inner sides of the hopper at *k*, and adapted to cover the slots, and to be raised, as shown by dotted lines in Fig. IV, to allow of the withdrawal of the rods, the hinged door H' being previously opened.

Parts of the machine not yet alluded to will be described, and their uses set out in the description of the operation of the machine which follows: Supposing the machine to be in operation, corn, as cut from the cob, is poured in the hopper G. By the action of the distributing-bars the corn, in falling to the conveyer-belt B, is evenly spread over its surface and to a uniform depth. The distributing-bars also serve to separate from the corn any pieces of cob that may be contained therein. The corn is carried by the conveyer-belt B toward a second hopper, I, hereinafter described, and against the silking-fingers *b*, which are moving in an opposite direction and



at a less speed. The object in moving the finger-belt at a less speed than the conveyer-belt is to avoid the danger of the fingers carrying the corn from the machine. When the corn to be silked contains the scrapings of the cob, such scrapings are not evenly mixed with the grain, and if the corn is packed in this condition one can will contain more of these scrapings than another. This difficulty is entirely obviated by forcing the corn on the conveyer-belt against the fingers, which serve to break the lumps of scrapings and distribute the particles thereof evenly among the grain. While the fingers are breaking the lumps of scrapings and mixing the same with the grain, they are also removing the silk from the mass, and the silk is carried by the fingers to the brush F'', which in its revolution in a contrary direction to the moving fingers cleans them and throws the silk to the silk-box I', supported on the frame A. A hood, J, (shown in full lines in Fig. IV and in dotted ones in Figs. I and II,) prevents the scattering of the silk and guides it to the silk-box I'. The second hopper, before alluded to and designated by I, is supported by springs J', bolted to the frame A, and is vibrated laterally of the machine through the medium of a bell-crank, k', pivoted at l, and a rod, l', attached to the crank G'' on the fan-shaft H. The hopper I consists of a box, open at the side next to the machine. (See Fig. IV.) This box contains a cross-piece, m, from which project bars m', as shown in Figs. III and IV, and is placed sufficiently close to the conveyer-belt to remove corn therefrom, but not to scrape the belt. The conveyer-belt, to which considerable chaff and short silk adhere, is finally cleaned by means of a wiper, n, attached to the frame A. This wiper is preferably made of strips of rubber or other flexible material fastened to a bar, n', and is adjustable with reference to the belt, as shown particularly in Figs. IV and VI. A pan, K, hinged to the frame A at o, serves to catch the matter wiped from the conveyer-belt.

L is a fan of any approved construction, the rotary wings of which are secured to the fan-shaft H, before alluded to. The discharge-nozzle o' of the fan is toward the open side of the hopper I, and the air forced therefrom passes through the corn shaken through the bars m' and removes from the grain chaff and short pieces of silk contained therein. The rapid shaking of the bars m' lightens up the mass of corn as it falls through the hopper and facilitates the passage of the air through the grain. The bars m' also serve to catch any pieces of the cob that may have passed through the first hopper. The fan-shaft H is driven from the main driving-shaft c' through the medium of the gear-wheels L' and M, as shown in Fig. I. The silked corn falls from the hopper I to any suitable receptacle placed underneath thereof. Side boards, N, screwed to the inner faces of the frame A, prevent lateral dispersion of the grain from the conveyer-belt. The

side boards are grooved to receive the edges of the belt. (See Fig. VI.) An adjustable binding-roller, O, (see Figs. I, II, and IV,) is used to take up the slack in the conveyer-belt.

The principal object in having the silking-fingers on a moving belt is to admit of the said fingers being easily cleaned; but as other means for cleaning the fingers could be employed the fingers could be fixed or stationary without departing from the spirit of the invention, which aims to remove the silk from a body of corn by conveying the same against and through a system of silking-fingers.

I do not restrict myself to the use of the various devices shown for driving the belts and for effecting the vibratory movement of the several parts of the machine, as it is evident that other contrivances could be employed to produce the same effect.

I claim as my invention—

1. In a corn-silking machine, an endless moving belt for conveying corn and rollers for supporting said belt, combined with a series of silking-fingers situated over the said belt, through which the corn is forced, substantially as specified.

2. In a corn-silking machine, an endless moving belt for conveying corn and rollers for supporting the said belt, combined with a series of silking-fingers situated over the said belt, and a hopper containing distributing devices, substantially as specified.

3. In a corn-silking machine, an endless moving belt for conveying corn and rollers for supporting the said belt, combined with a series of silking-fingers situated over the said belt, and a fan arranged to force air through the corn, substantially as specified.

4. In a corn-silking machine, an endless moving belt to convey corn and rollers for supporting the said belt, combined with an endless moving belt on rollers carrying silking-fingers situated over the conveyer-belt, substantially as specified.

5. In a corn-silking machine, an endless moving belt to convey corn and rollers to support the said belt, combined with an endless moving belt on rollers carrying silking-fingers situated over the conveyer-belt, and means to move the fingers in a direction opposite to that of the conveyer-belt, substantially as specified.

6. In a corn-silking machine, an endless moving belt for conveying corn and rollers to support the said belt, combined with silking-fingers situated over the said conveyer-belt, a perforate shaking hopper located at the discharge end of the conveyer-belt, and a fan adapted to force air through the said perforate hopper, substantially as and for the purpose specified.

7. In a corn-silking machine, an endless moving belt for conveying corn and rollers to support the said belt, combined with an endless moving belt with silking-fingers, a perforate shaking-hopper located at the dis



charge end of the said conveyer-belt, and a fan adapted to force air through the said shaking-hopper, substantially as and for the purpose specified.

5 8. In a corn-silking machine, an endless moving belt to convey corn and rollers to support the said belt, combined with a wiper in contact with the said belt, a tray to receive the material wiped from the said belt, and a  
10 series of silking-fingers arranged over the said conveyer-belt, substantially as specified.

9. In a corn-silking machine, a hopper to receive corn, combined with distributing-bars arranged one above another, and means to  
15 reciprocate the said bars in opposite directions, substantially as specified.

10. In a corn-silking machine, a hopper to receive corn, combined with removable distributing-bars arranged one above another,  
20 and means to reciprocate the said bars in opposite directions, substantially as specified.

11. In a corn-silking machine, an endless moving belt to convey corn and rollers to

support the said belt, combined with an endless moving belt carrying silking-fingers, and  
25 a shaking perforate hopper situate at the discharge end of the said conveyer-belt, substantially as specified.

12. In a corn-silking machine, an endless moving belt for conveying corn and rollers to  
30 support the said belt, combined with an endless moving belt carrying silking-fingers, and a fan to force air through the corn falling from the said conveyer-belt, substantially as specified.

13. In a corn-silking machine, an endless moving belt to convey corn and silking-fingers situated over the said belt, combined with  
35 a shaking perforate hopper situated at the discharge end of the said belt and adapted to receive corn falling therefrom, substantially as  
40 specified.

SOLOMON DAVIES WARFIELD.

Witnesses:

CHAS. W. ARNOLD,  
DANL. FISHER.