

(No Model.)

3 Sheets—Sheet 1

H. A. ADAMS.

CORN SHELLER.

No. 390,831.

Patented Oct. 9, 1888.

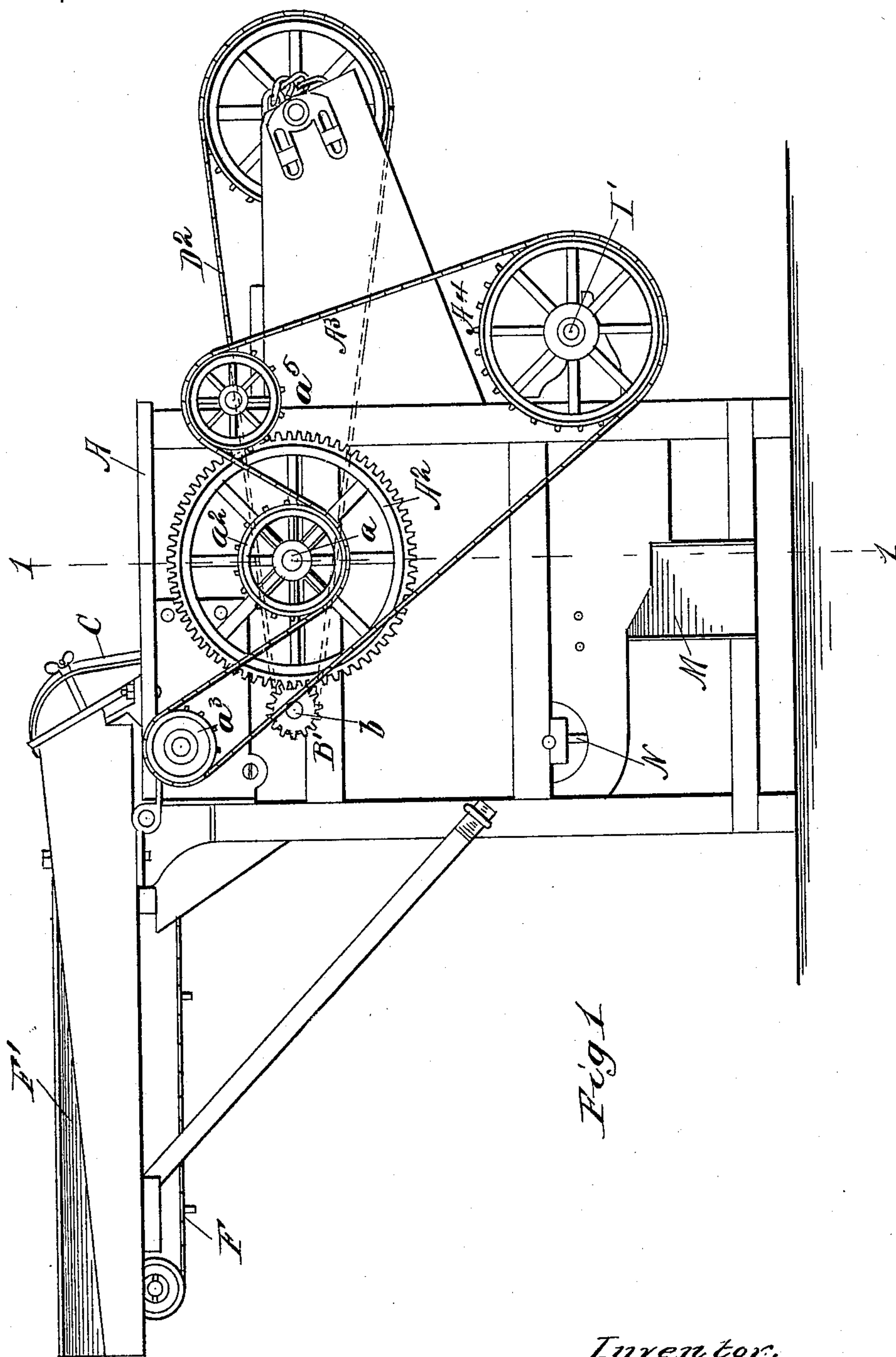


Fig 1

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By *Coburn V. Tucker.*
Attorneys.

Witnesses,
W. C. Corlies,
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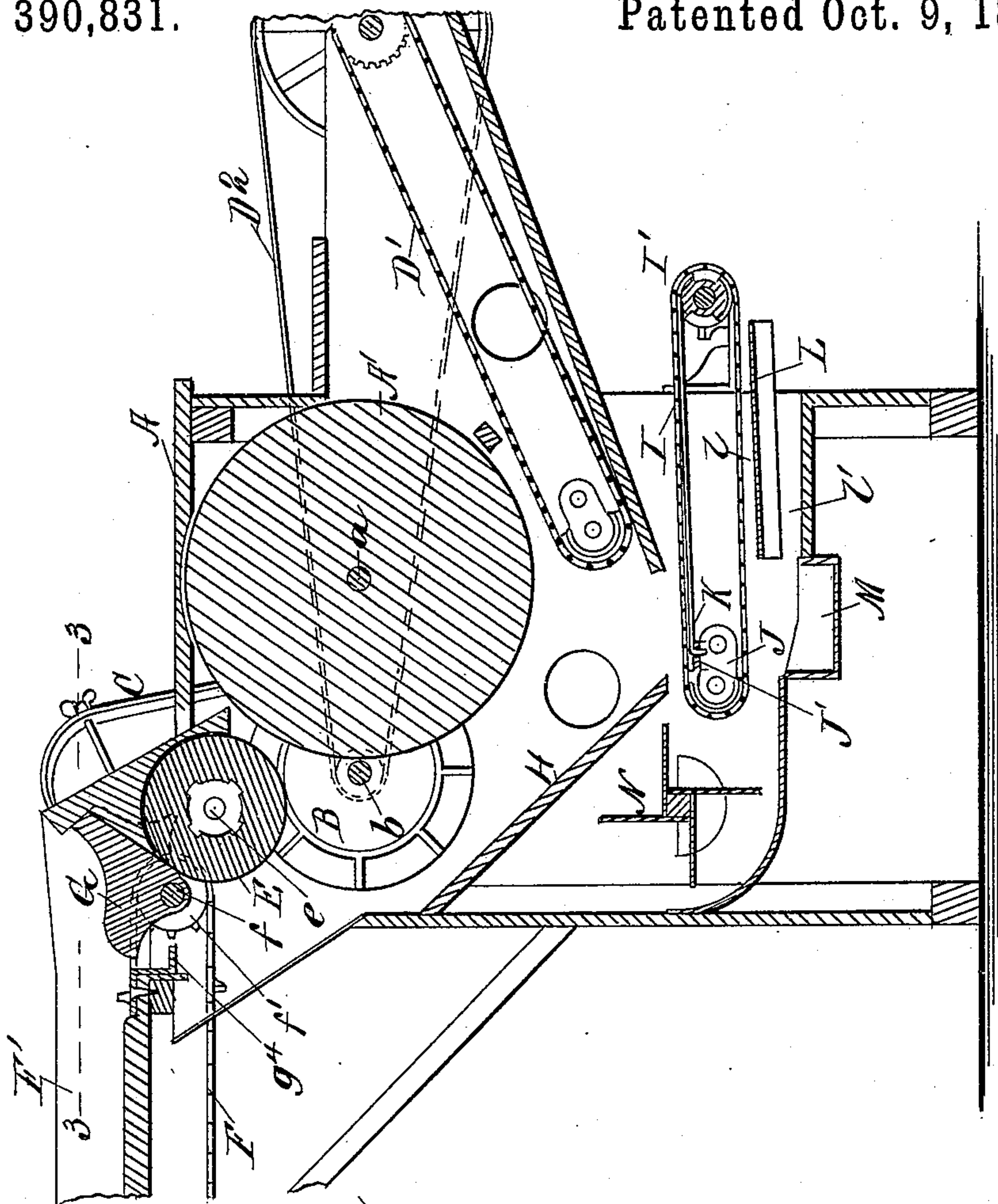


Fig 3

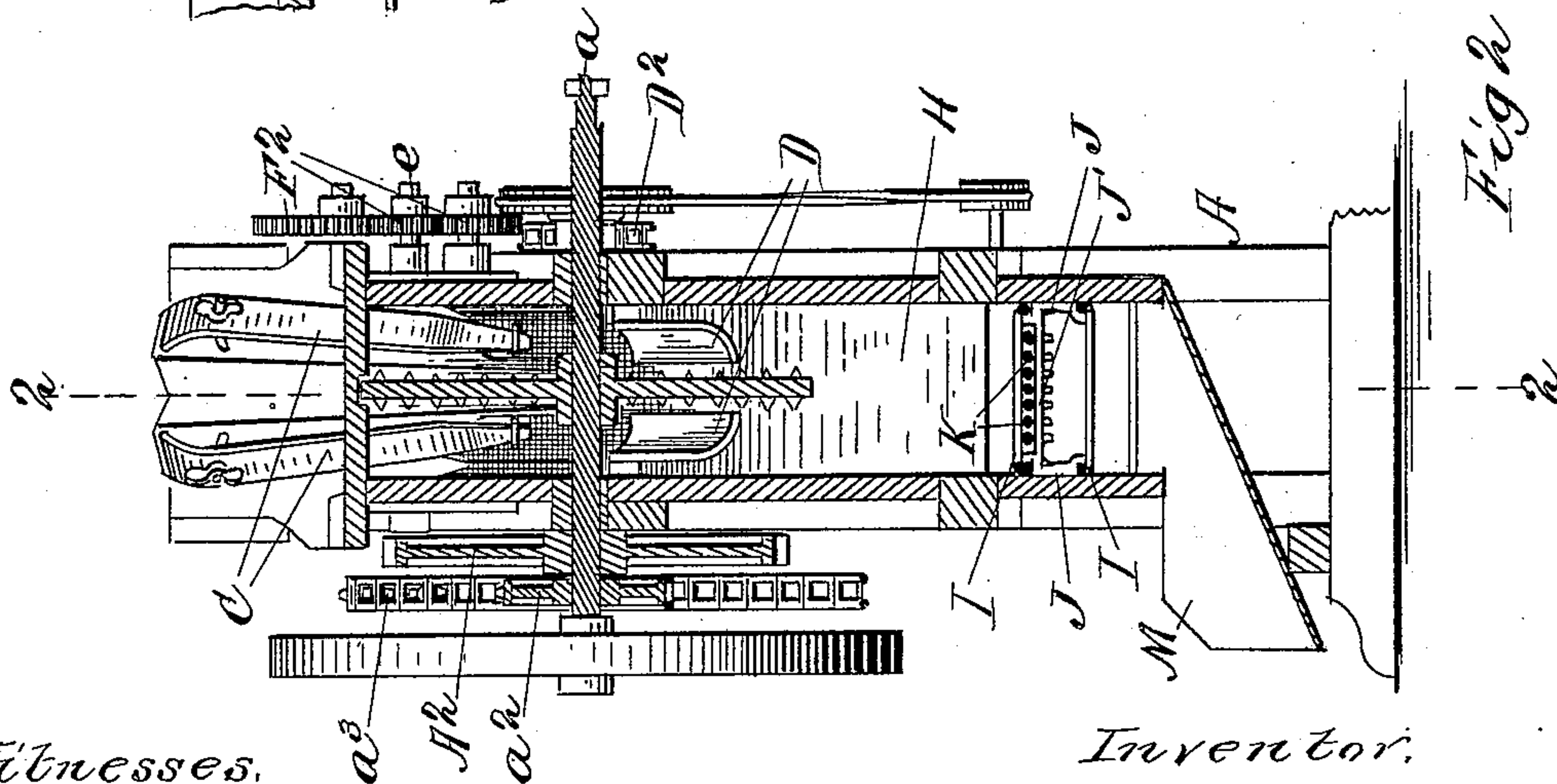


Fig 2

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(No Model.)

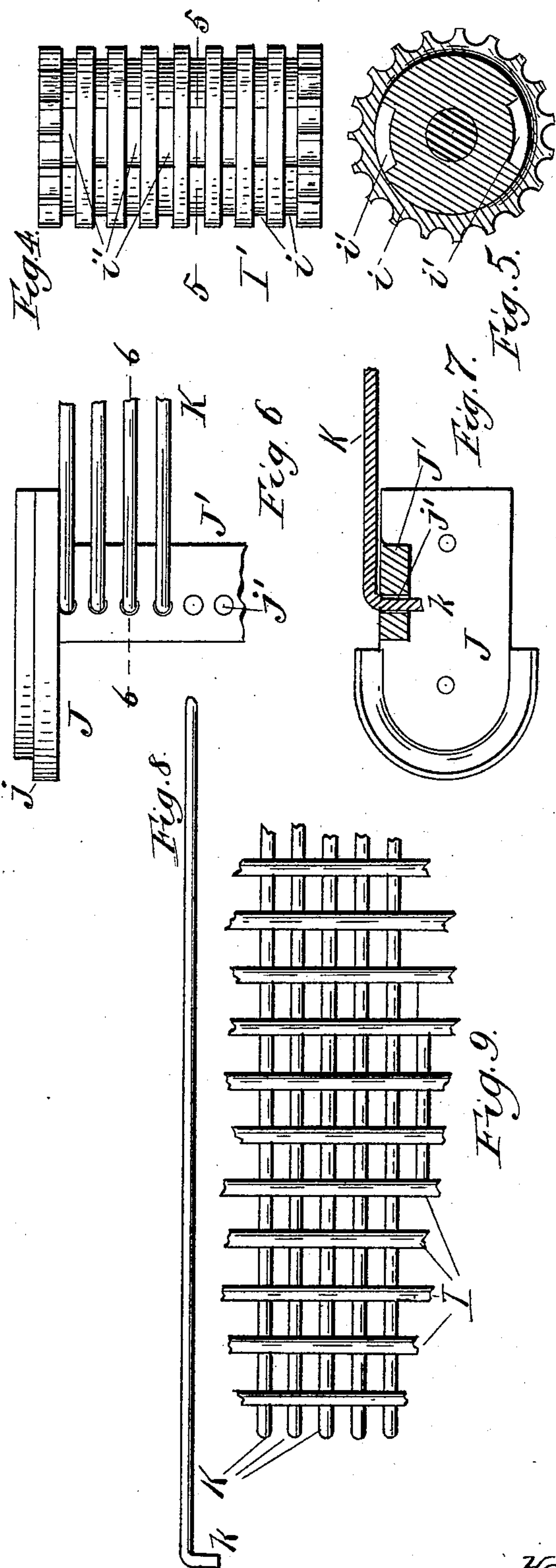
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UNITED STATES PATENT OFFICE.

HENRY A. ADAMS, OF SANDWICH, ILLINOIS.

CORN-SHELLER.

SPECIFICATION forming part of Letters Patent No. 390,831, dated October 9, 1888.

Application filed July 9, 1887. Serial No. 243,860. (No model.)

To all whom it may concern:

Be it known that I, HENRY A. ADAMS, a citizen of the United States, residing at Sandwich, in the county of De Kalb and State of Illinois, have invented a certain new and useful Improvement in Corn-Shellers, which is fully set forth in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of a machine embodying my invention; Fig. 2, a sectional view of the same, taken on the line 1 1 of Fig. 1; Fig. 3, a sectional view of the same, taken on the line 2 2 of Fig. 2; Fig. 4, a detail plan view of the drum which actuates the separator; Fig. 5, a detail sectional view of the same, taken on the line 5 5 of Fig. 4; Fig. 6, a detail plan view of the front portion of the separator with the chain removed; Fig. 7, a detail sectional view of the same, taken on the line 6 6 of Fig. 6; Fig. 8, a detail view of one of the vibrating rods of the separator detached, and Fig. 9 a detail plan view of a portion of the separator.

Figs. 1, 2, and 3 are on the same scale. The remaining figures are on the same scale with respect to each other, but on an enlarged scale with respect to Figs. 1, 2, and 3.

My invention relates to corn-shellers, and more particularly to that class in which the ears of corn are fed endwise into and through the shelling devices, a machine of this class being shown in Letters Patent No. 132,128, granted to me October 15, 1872.

My present invention has for its object to provide an efficient separating device for separating the corn from the silk, dust, and fragmentary portions of the cobs.

My invention further has for its object to improve the machine in various details of construction, as will be hereinafter more fully pointed out.

I will now proceed to describe a construction in which I have practically carried out my invention in one form, and will then particularly point out in the claims those features which I deem to be new and desire to protect by Letters Patent.

In the drawings, A represents the frame of the machine containing the shelling devices, which may be of any approved construction,

the form shown being well known and consisting of the flat runner A', mounted on the mainshaft *a*, and the bevel-runners B, mounted on the shaft *b*. The usual rag-irons, C, are employed in conjunction with these runners, and the usual shoes, D, are used to guide the cobs to the elevator D', by means of which they are discharged from the machine.

E represents the beater, which operates, as in my Letters Patent hereinbefore referred to, to force the ears of corn downward into the shelling devices. It embodies, however, in its construction certain features of novelty; but they will not be particularly described here, as they do not constitute a part of the present invention.

The feed-chains F are of any approved construction, and are arranged at the bottom of a horizontal hopper or feed receptacle, F', along which they serve to carry the ears of corn to the beater E. This latter is arranged, as shown, slightly below the feed-chains, so that the ears are delivered downward to the same.

Heretofore it has been found that during the operation of the machine the ears would tend to clog at the point where they are delivered by the feed-chains to the beater, forming what is known as a "bridge," which prevents the ears from entering the machine. It has therefore been necessary for an attendant to station himself at this point in order to release the ears by breaking the bridge. In order to overcome this difficulty and dispense with the services of this attendant, I employ a bridge-breaking device consisting of a vibrating arm, G. This arm is arranged, as shown, between the feed-chains F, being shown as mounted in the present instance on the shaft *f* of the sprocket-wheels *f'*, by means of which the feed-chains are driven. When at rest, the arm G forms simply a partition or division between the two sides of the machine; but once during each revolution of the beater it is thrown quickly forward, so that if a bridge is formed at this point it will be broken by the vibrating arm and the ears will be thrown back into position to properly enter the machine. By the employment of this bridge-breaking device I am enabled not only to dispense with the services of an attendant for this purpose, but I am also enabled to employ a horizontal hop-

per in place of the inclined elevator, which it has heretofore been deemed necessary to employ in order to prevent clogging at this point.

The corn, after being shelled, passes downward to the separator, being guided thereto by means of the incline H, and carrying along with it the silk, dust, and small fragments of broken cob which have managed to pass through the shelling devices. This separator consists of an endless chain, I, composed of transverse rods, the construction of this form of chain being well-known and needing no detailed description here. At its outer or rear end the chain I passes over sprocket-drum I', by means of which it is actuated, and at its inner end it passes over a curved guide consisting of two plates, J, one at each side of the machine, and each provided with a vertical flange, *j*, on the inner edge of the plate to retain the chain in position thereon. The guide-plates J are bolted to the sides of the frame A, and are connected by a cross-bar, J', which is preferably cast in one piece with the said guide-plates, as shown, although it may of course be made separate therefrom. The chain I passes over a body composed of a series of vibrating rods, K, arranged immediately underneath the upper portion of the said chain and extending in the direction of the movement thereof. The rods K are pivoted at one end to the cross-bar J', which is provided with a series of apertures, *j'*, to receive the downwardly-bent ends *k* of the rods K for this purpose. The free ends of the rods K rest in grooves *i* in the drum I', the said grooves being cam grooves provided with depressed portions *i'*, which serve to impart to the rods K a vibrating motion. This vibrating motion may be either vertical or horizontal, as desired.

Underneath the under portion of the chain I is arranged a plate or table, L, which extends from the rear of the said chain forward to the discharge-spout M. A clear space, *l*, is left between this table and the chain, and a similar space, *l'*, extends between the bottom of the casing A and the said table.

N represents a blast-fan, which is arranged in front of the separator I and sends a blast of air directly along the same, both above and below.

The operation of this portion of the machine is as follows: The corn, along with the silk, dust, and fragments of the cobs, falls upon the chain I and is carried to the rear, the corn itself passing through the chain and between the vibrating rods, which by their action facilitate the passage of the grain. A portion of the grain will pass directly downward to the discharge-spout M, while another portion will be carried so far to the rear as to fall upon the plate or table L; but this latter portion will of course be carried forward to the discharge-spout by the forward motion of the under portion of the chain. The fragments of the cobs and the other larger impurities will be carried off by the chain I and discharged

from the machine separately, while the silk, dust, and lighter impurities will be blown out of the machine at the same point by the blast-fan M. The grain is subject to the action of the fan during the whole of its passage through the separator and from the separator to the discharge-spout, the cleaning-blast passing through the spaces *l* and *l'*, as well as above and through the separator proper. It will thus be seen that the shelled grain will be discharged in a thoroughly cleaned condition, the separator operating in an efficient manner to obtain this result.

Any form of actuating mechanism may be employed to drive the various mechanisms hereinbefore described. In the present instance I have shown the main shaft *a* as provided with a gear, A², which meshes with a pinion, B', on the shaft *b*. A sprocket-wheel, *a*², mounted on the shaft *a*, serves to drive the sprocket-chain A³, which passes over sprocket-wheels *a*³ and A⁴, the former on the shaft *e* and the latter on the shaft of the sprocket-drum I'. An idler, *a*⁵, is employed to properly guide the sprocket-chain A³. The cob-elevator D' is driven by means of a sprocket-chain, D², from a sprocket-wheel on the shaft *b*, and the feed-chains F are driven by a train of gear-wheels, F², from the beater-shaft *e*. Any other form of driving-gear may be substituted for that shown.

The general operation of the machine will be readily understood from the preceding description, and therefore needs no detailed description here. The operation of the particular devices to which my present invention relates has been fully pointed out in the preceding description. I have also shown in the drawings and described in a general way an improvement in the feeding devices which carry the ears of corn into the sheller; but these feeding devices constitute no part of my present invention, and will be made the subject-matter of another application for patent.

It is obvious that various modifications may be made without departing from the principle of my invention. For instance, the machine shown in the present instance is what is known as a "two-holed sheller;" but it is obvious that my invention is not limited to this particular description of machine. Various modifications will readily suggest themselves, and I therefore do not wish to be understood as limiting myself strictly to the precise details hereinbefore described, and shown in the drawings.

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

1. In a corn-sheller, a separator consisting of an endless chain composed of transverse rods, in combination with a series of rods secured at one end and free to vibrate at the other end, arranged longitudinally of the said chain beneath the upper portion and extending substantially the length thereof, and a device for

vibrating the free ends of said rods, as and for the purposes specified.

2. In a corn-sheller, the endless separator-chain I, in combination with the drum I', provided with cam-grooves, and the vibrating rods K, arranged within the chain and pivoted at one end to a suitable support at one end of the separator, and at their other free ends resting in the cam-grooves of the said drum at the other end of the separator, substantially as and for the purposes specified.

3. In a corn-sheller, the endless separator-chain I, in combination with its actuating-drum I', provided with cam-grooves, the transverse bar J', provided with apertures j', and the vibrating rods K, having at one end downward bends to enter the apertures j', and at

their other ends resting unsecured in the cam-grooves of the drum, substantially as and for the purposes specified.

4. In a corn-sheller, the combination, with the endless chain I, of the actuating-drum I', provided with cam-grooves, the curved plates J, having flanges j on their inner edges, the transverse bar J', having apertures j', and the vibrating rods K, having their forward ends bent downward to enter the apertures j', and their free rear ends resting in the cam-grooves of the drum I', substantially as and for the purposes specified.

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Witnesses:

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