

No. 743,450.

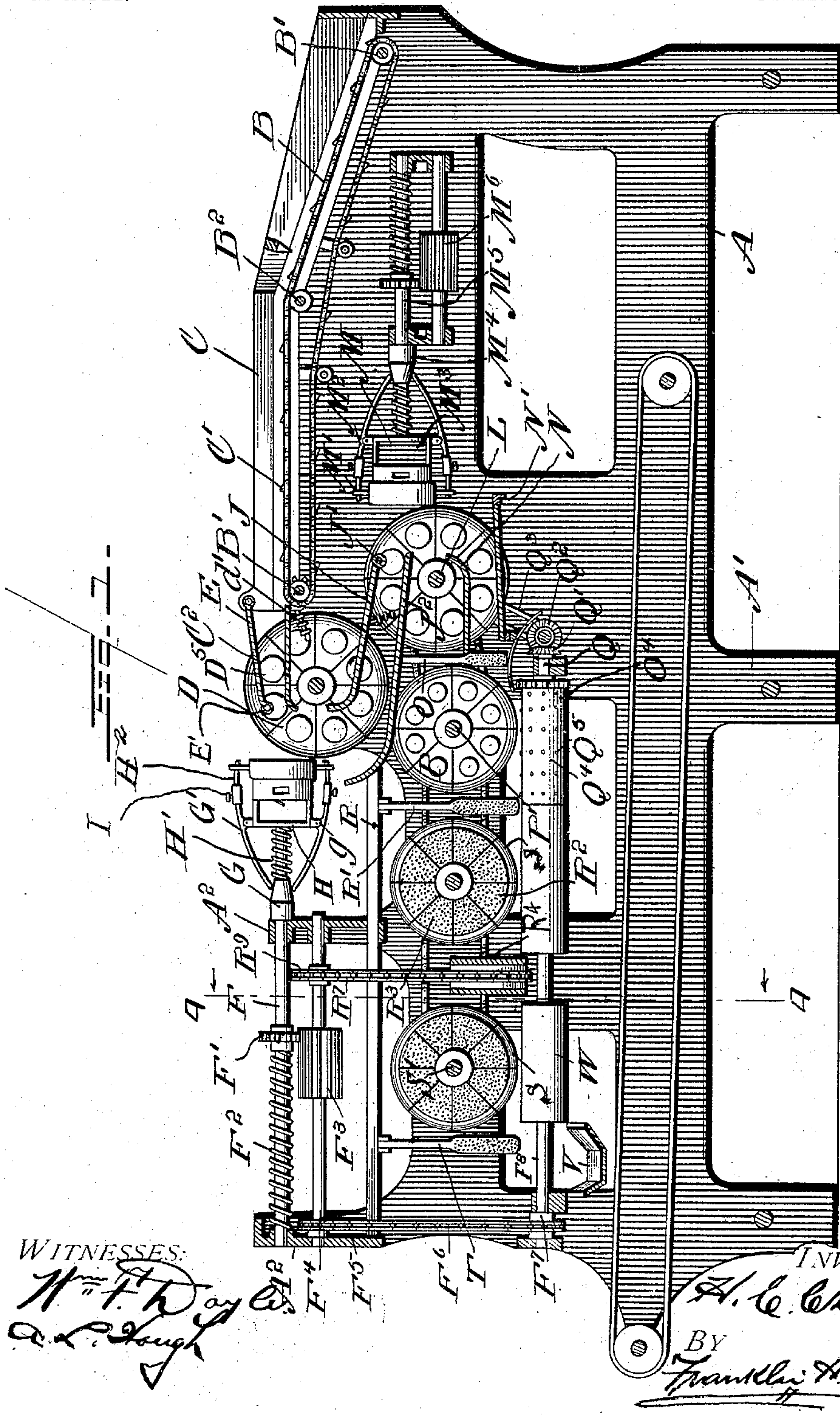
PATENTED NOV. 10, 1903.

H. C. CHAPMAN.
CORN HUSKER.

APPLICATION FILED APR. 14, 1903.

NO MODEL.

4 SHEETS—SHEET 1



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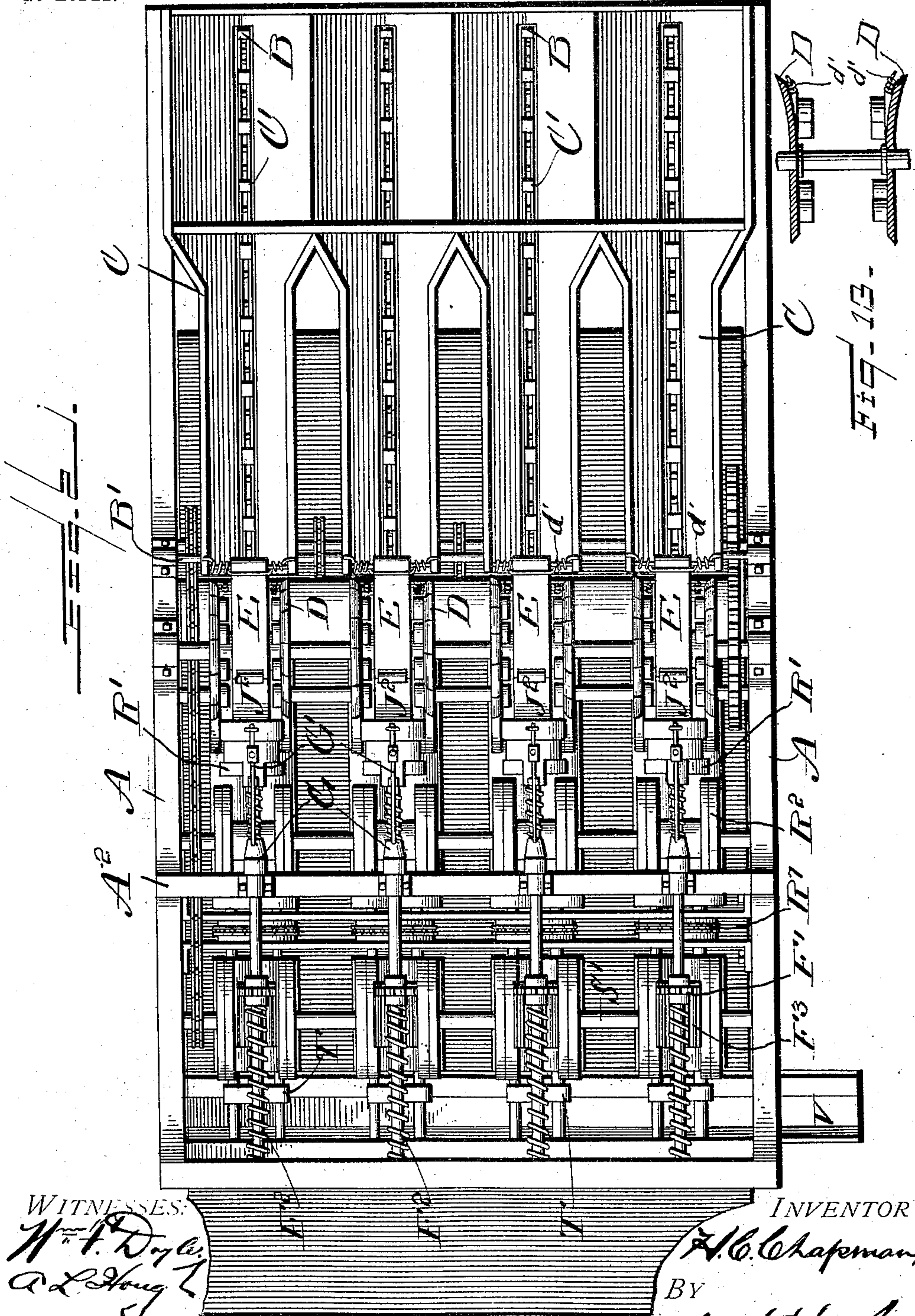
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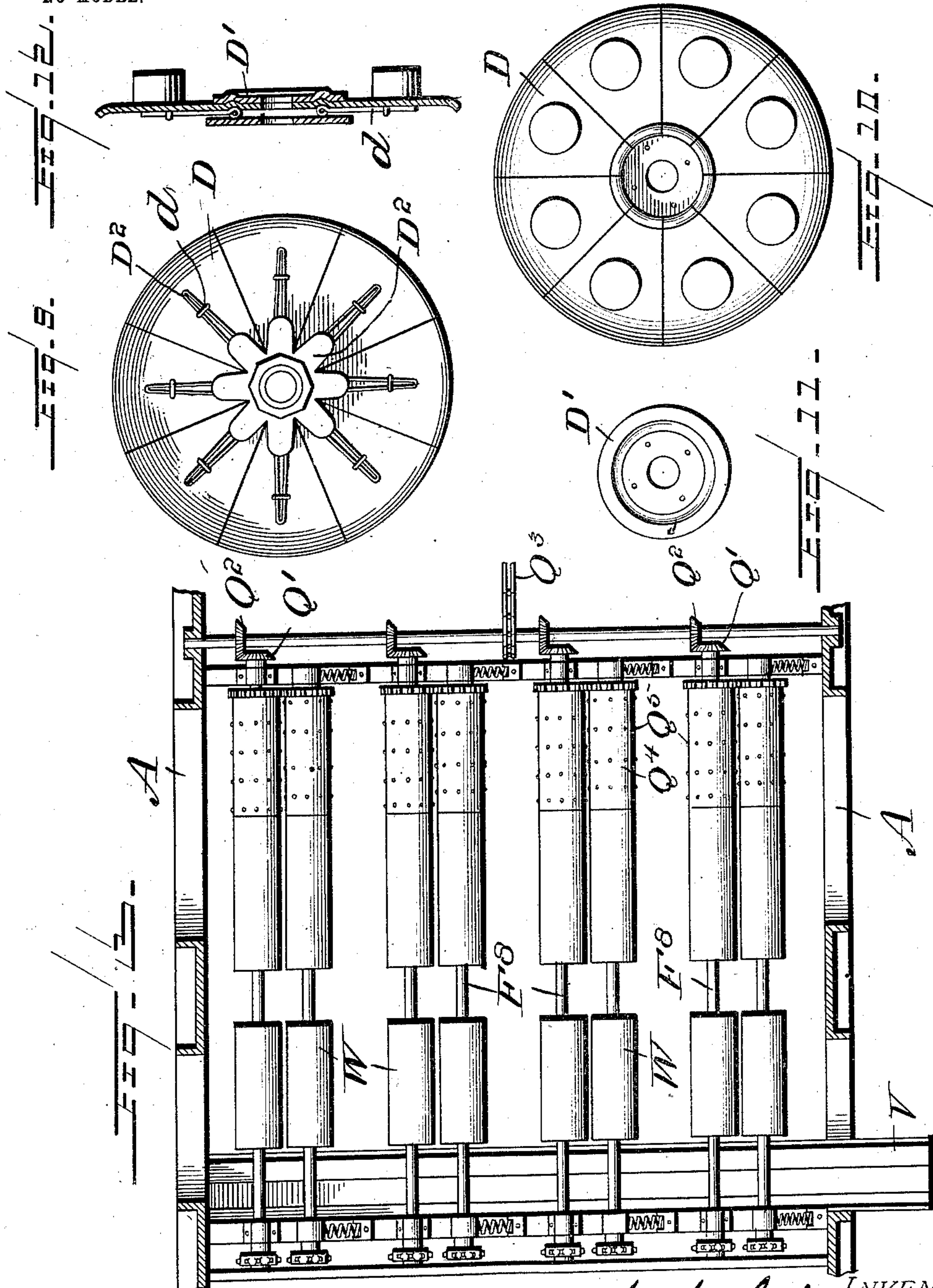
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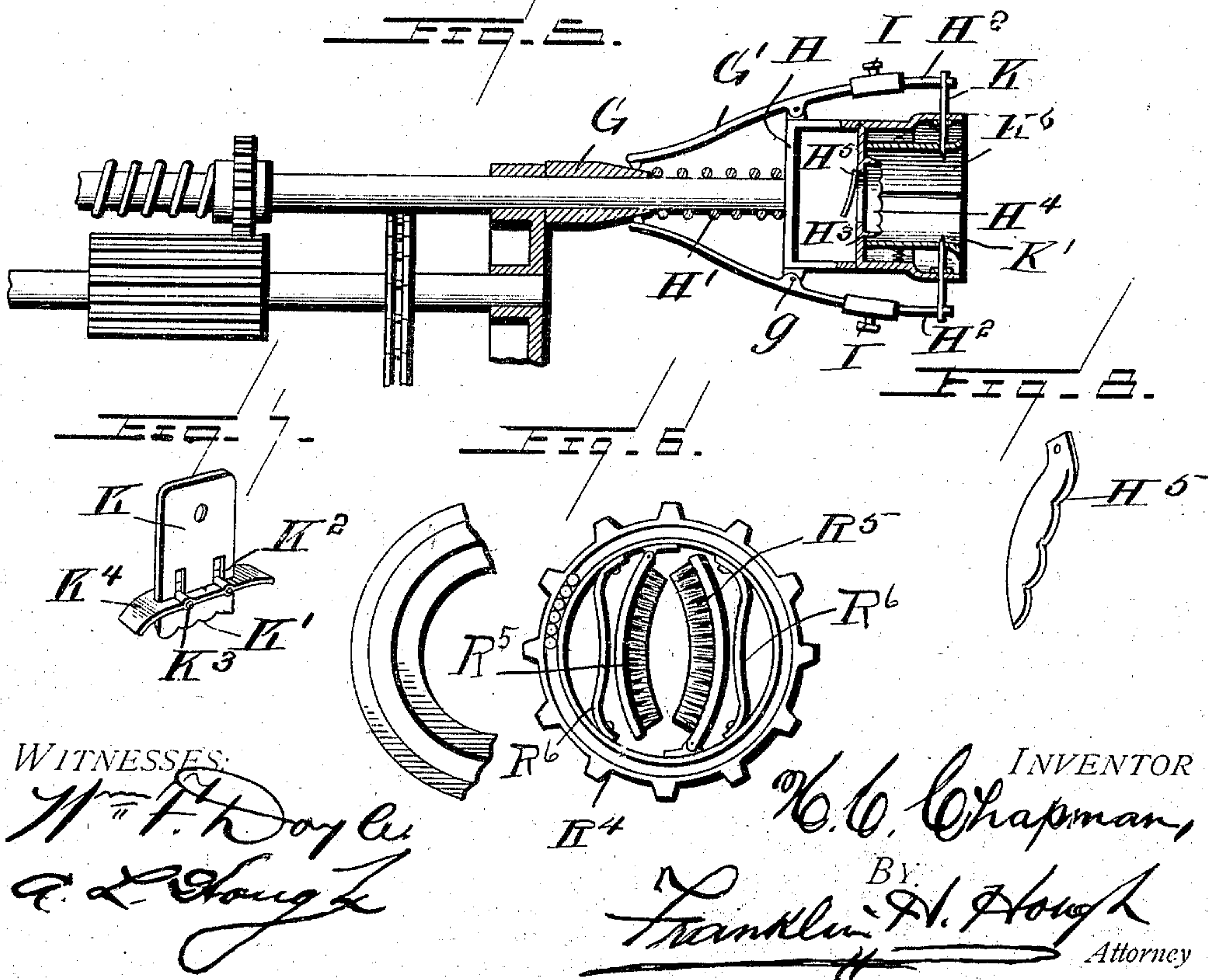
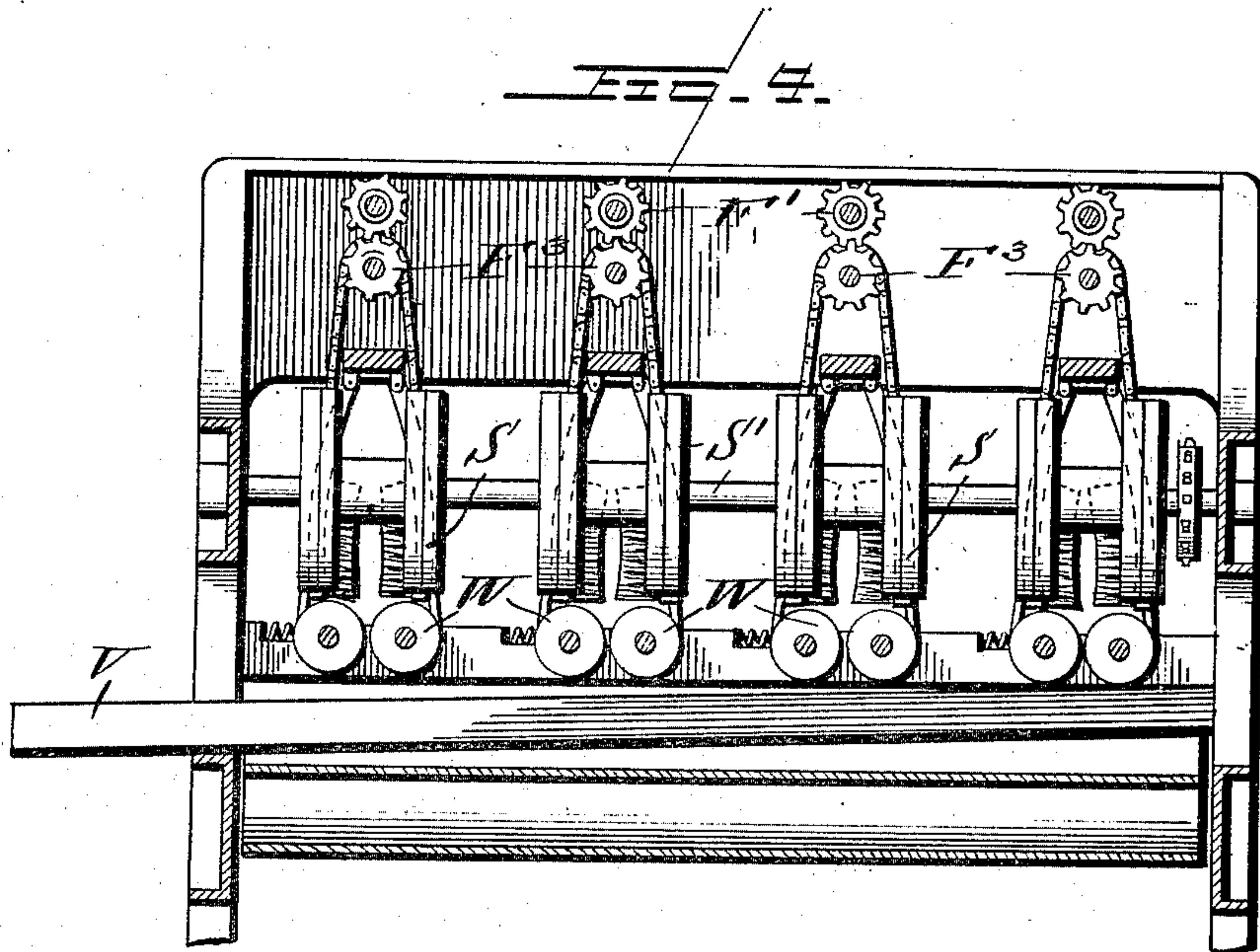
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4 SHEETS—SHEET 4.



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UNITED STATES PATENT OFFICE.

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CORN-HUSKER.

SPECIFICATION forming part of Letters Patent No. 743,450, dated November 10, 1903.

Application filed April 14, 1903. Serial No. 152,568. (No model.)

To all whom it may concern:

Be it known that I, HEMEN C. CHAPMAN, a citizen of the United States, residing at Rockford, in the county of Kent and State of Michigan, have invented certain new and useful improvements in Corn-Huskers; and I 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, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to new and useful improvements in corn-husking machines; and it consists in the provision of mechanism whereby the ears of corn are fed by means of an endless conveyor into a machine, the ends of the ears cut off, and the husks and the silk removed from the ears.

The invention consists, further, in various details of construction and in combinations and arrangements of parts, which will be hereinafter fully described and then specifically defined in the appended claims.

My invention is clearly illustrated in the accompanying drawings, which, with the letters of reference marked thereon, form a part of this application, and in which drawings similar letters of reference indicate like parts in the several views, in which—

Figure 1 is a side elevation of the apparatus. Fig. 2 is a top plan view. Fig. 3 is a sectional view horizontally through the machine looking down upon the husk-removing rollers. Fig. 4 is a sectional view taken on line 4-4 of Fig. 1. Fig. 5 is a longitudinal sectional view through the apparatus for cutting the end of an ear. Fig. 6 is a detail view in elevation of the rotary brush. Fig. 7 is a detail in perspective of a husk-cutting knife. Fig. 8 is a detail of a knife with scalloped edge for severing the end of the ear. Fig. 9 is an enlarged detail view of one of the rotary sectional disks for clamping and holding the ears of corn while the ends are being cut. Fig. 10 is a reverse view of the disk shown in Fig. 9. Fig. 11 is a detail view of a section of the disk, and Fig. 12 is a sectional view through the disk. Fig. 13 is a section of the feeding-disks, the same being taken upon the line of the spreading-rollers.

Reference now being had to the details of the drawings by letter, A designates the frame of the machine, which is mounted upon suitable legs A', and B designates endless conveyers, there being four shown in the drawings; but as many of the conveyers may be employed as desired. Said conveyers are mounted upon the sprocket-wheels B' and pass over idlers B'', said sprocket-wheels being driven from the shaft B'', which is geared to any suitable driving mechanism. Each conveyor is mounted in a suitable trough C, and at intervals along the chain are the lugs C', adapted to carry the ear of corn forward in said troughs and deposit the same upon the table C''. Mounted upon either side of said table C'' is a sectional disk D, there being a pair of disks of similar construction mounted adjacent to the end of each endless conveyor. These disks are made up of sections which are pivotally mounted at their inner ends upon the hub-section D', and a spring D'' is carried by an arm of a disk D'', Fig. 9 of the drawings, and is held by means of a fastening device d' to the section D'' of the disk. The inner face of each of said disks D'' carries a rubber plate D'', two of said rubber plates upon sections opposite upon the disks which are arranged in pairs being adapted to be held by said springs frictionally against an ear of corn at positions diametrically opposite and as the disks rotate to feed the ear forward from the endless conveyor. Mounted adjacent to the inner end of each trough in which an endless conveyor is mounted are the two series of spreading-rollers d'', which are so positioned with relation to each other and mounted upon suitable bearing-rods that as sections of the disks come adjacent to the ear of corn they will be thrown laterally or away from each other in order to allow the ear to advance upon the table C'' sufficiently to be gripped by the sections as they pass by said antifriction-rollers and are thrown, by means of the springs, against the ear of corn. Pivotaly mounted at the inner end of each trough is a plate E, carrying an antifriction-roller E' at its free end, which is adapted to rest upon the ear of corn as it is fed between the pair of disks.

Mounted in suitable bearings in the standards A'' of the machine is a shaft F, having

a pinion-wheel F' fixed to rotate therewith, and a spring F^2 is mounted upon said shaft and disposed intermediate one of the standards A^2 and the hub of the pinion-wheel F' and adapted to normally hold said pinion-wheel in a position at its farthest throw toward the conveyers or in the position shown in Fig. 1 of the drawings. Said pinion-wheel is in mesh with an elongated pinion-wheel F^3 , which is fixed to rotate with the shaft F^4 , which is journaled in said standards A^2 . The shaft F^4 has a sprocket-wheel F^5 , which is driven by means of sprocket-chain connections F^6 with the shaft F^7 , mounted upon and rotating with the shaft F^8 . Mounted upon the inner end of the shaft F is a collar G , having two flexible arms G' bearing thereon, said arms being pivoted at points g to lugs which are mounted upon the cup H . Said cup, an enlarged detail view in section being shown in Fig. 5 of the drawings, has a spring H' interposed between the cup and said collar or hub G , and at the outer ends of the arms G' are the adjustable bars H^2 , which are held in adjusted positions by means of the thumb-screws I . Connected to the ends of said bars H^2 are the cutting-knives K , an enlarged detail view of one of said knives being shown in Fig. 7 of the drawings. Said knives have scalloped cutting edges K' and have elongated slots K^2 , which are adapted to receive the pins K^3 , carried by the slotted bar K^4 , which is fastened to the outer enlarged end of said cup H . The inner cutting ends of said knives project at locations diametrically opposite through slots in the shell K^6 and are adapted to cut the husks off an ear which is held by the disks in said shell and as the latter rotates. H^3 designates an apertured partition in said cup H having an annular flange H^4 about its central aperture and a cutting-knife H^5 fastened to the inner face of said partition, its cutting edge projecting over the margin of said central aperture for the purpose of cutting off the end of an ear of corn as it is inserted through said aperture.

Mounted directly underneath the first pair of sectional disks D is a guide-plate J , having an antifriction-roller J' at one end thereof, and directly underneath said plate J is a stationary trough or track J^2 , with one end upwardly curved, as shown in Fig. 1 of the drawings, forming a passage-way to receive the ear of corn after one end has been severed. Mounted upon a shaft L is a pair of sectional disks L' , which are similar in construction to the disks D , before described, and each disk as it passes by the plate J^2 is thrown outward by means of the spreading-rollers J^3 , which are similar in construction with the rollers d' , before referred to, and M designates a cup, which is similar to the cup H , with similar attachments consisting of the cutting-knives M' , mounted on the arms M^2 and provided with a cutting-knife M^3 for cutting off the opposite end of the ear, said cup being yield-

ingly held upon the hub M^4 , which is fixed to rotate with the shaft M^5 and is driven by geared connection with the pinion-wheel M^6 . Mounted underneath the shaft L is a guide-plate N , and underneath said plate N is a platform N' , on which the ear of corn falls after the two ends thereof have been cut off and the husks severed preparatory to the passage of the ear between the vertically-disposed brushes O , there being two of said brushes positioned near together and between which the ear of corn is adapted to pass before passing between the disks P , there being two of the latter, which are fixed to rotate with the shaft P' and have the rubber plates thereon similar to those described upon the disk D . Journaled in suitable bearings in the frame are the shafts Q , which have bevel-wheels Q' , with their ends geared to the wheels Q^2 , mounted on a shaft which is geared to the shaft L by means of a sprocket-chain Q^3 . Rotating with each of said shafts Q is a cylinder Q^4 , having spikes Q^5 about its circumference which are provided for the purpose of loosening the husks from the ear of corn as the ear is fed over the same by the disks P , the husks as they are severed from the ears adapted to pass between two rollers which are positioned adjacent to each other. Depending from a beam R , forming a part of the frame of the machine, are the two brushes R' , similar to the brushes O , before described, and between which brushes, which are concaved, the ear is fed by the rotary disks P . Journaled upon a shaft R^2 are the disks R^3 , which have their inner faces formed into brushes adapted to brush against the ears of corn as they are advanced by the disks over the rollers Q^4 . Mounted within the sprocket-wheel R^4 , which is mounted upon suitable ball-bearings, a detail of which is shown in Fig. 6 of the drawings and in side elevation in Fig. 1, are the two concaved brushes R^5 , which are pivotally mounted and held yieldingly by means of the springs R^6 . Said sprocket-wheel R^4 , which is mounted in suitable bearings, has a sprocket-chain R^7 , which passes about a gear-wheel R^9 , fixed to rotate with the shaft F^4 . Said brushes R^5 are so positioned with relation to the disks R^3 that as the ear of corn is advanced by said disks it will be fed through between the rotary brushes, which have a tendency to loosen any silk or remaining husks that may be upon the ear, and as the ear passes by said brushes it is caught by the disks S , which have bristles upon the inner faces and which are mounted upon the shaft S' , driven by geared connection with the main operating-shaft, and T designates a pair of depending brushes similar to the brushes R' , through which the ear passes after emerging from the disks S . Underneath the disks S are the rollers W , over which the ears pass and between which any silk or husks pass that are stripped from the ear as it passes through the apparatus, and directly underneath the last pair of brushes P is a chute V ,

into which the ear falls after being relieved of the husks and the silk.

In the present machine I have shown four sets of similarly-constructed apparatus for husking and removing the silk from the ears; but any number of sets may be employed as may be desired.

In operation the ears of corn are placed upon the conveyers and deposited from the same upon the platforms C², where they are gripped at positions diametrically opposite by the yielding sections of the disks D. As the disks revolve, the ears are fed forward into the open end of the cup H, which is rotating rapidly by geared connection with the main operating-shaft, and as the ear enters said cup the end of the ear which passes through the aperture in the partition H³ is severed and the husks are cut by means of the knives K a short distance in from the end of the ear. As the knives are rotating rapidly they perform their work without retarding the movement of the rear end of the ear, which after its forward end has been cut off is pulled down by the frictional gripping of the disks D, and the motion of the ear is reversed and is fed with the uncut end into the passage-way between the disks D, and when driven to its limit by means of the disks D the uncut end of the ear is frictionally gripped by the disks L' and fed into the second cup M, where the same operation is repeated as in cutting the opposite end, and at this stage of the operation of the machine the line of travel of the ear is again reversed and the ear fed by the disks L' into the passage-way between the table N' and the guide N and is pushed, by means of the disks L' still frictionally engaging the ear, between the brushes O. As the ear passes between the brushes it is gripped by the frictional disks T and is advanced over the spur-rollers Q⁵, where the husks are removed from the ear, after which the ear passes between the brushes R', is again engaged and acted upon by the disks R³, which have brush-surfaces, is passed between the rotary brushes R⁵, thence acted upon by the disks S preparatory to its final passage between the brushes T, which operation has a tendency to cut both ends of the ear and sever and remove the husks and silk which clings to the kernels after the husks are removed.

While I have shown a particular construction of apparatus embodying the features of my invention, it will be understood that I may make alterations in the various details of construction and in combinations of the apparatus without departing from the spirit of the invention.

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

1. A corn-husking apparatus comprising a frame, endless conveyers, disks arranged in pairs adapted to frictionally engage the ears as they are carried by the conveyers, and ro-

tary knives adapted to receive the ears as they are fed by the disks and sever the ends thereof, and means for removing the husks, as set forth.

2. A corn-husking apparatus comprising a frame, endless conveyers, disks arranged in pairs and adapted to receive the ears from the conveyers and frictionally feed the same forward, rotary knives adapted to sever the ends of the ears while they are held by the disks, and knives for cutting the husks, as set forth.

3. A corn-husking apparatus comprising a frame, endless conveyers, disks arranged in pairs and adapted to feed the ears forward from the conveyers, two sets of cutting-knives reversely arranged, and means for cutting one end of an ear and reversing the ear and cutting the other end, and means for removing the husks, as set forth.

4. A corn-husking apparatus comprising a frame, endless conveyers, disks made up of yielding sections adapted to engage ears of corn and feed the same from the conveyers, rotating knives for cutting the ends of the ears and the husks, and means for removing the husks from the ears, as set forth.

5. An apparatus for husking corn, comprising a frame, endless conveyers, disks made up of yielding sections adapted to frictionally engage an ear as it leaves the conveyer, spreading members for spreading the sections of the disks prior to their engagement with the ear, and means for cutting the ends of the ears, as set forth.

6. A corn-husking apparatus, comprising a frame, endless conveyers thereon, rotary disks made up of yielding sections, a spreader member for spreading the disks, a pivotal plate with an antifriction-wheel at its end adapted to contact with the ear as it passes between the disks, and rotary cutting-knives adapted to sever the ends of the ears as they are fed by the disks, as set forth.

7. A corn-husking apparatus, comprising a frame, endless conveyers, rotary disks made up of yielding sections, rubber plates upon the disks, spreading members for spreading the sections, a cup-shaped shell, knives rotating therewith adapted to sever the end of an ear of corn, and means for severing the husks from the ear, as set forth.

8. A corn-husking apparatus, comprising a frame, endless conveyers, disks made up of yielding sections, antifriction spreading-rollers adapted to contact with said sections to throw the same in opposite directions, a shaft journaled in suitable bearings in the frame, a cup-shaped shell rotating with said shaft, and knives carried by the shell adapted to sever the end of the ear as it is fed therein by said disks, and means for severing the husks from the ear, as set forth.

9. A corn-husking apparatus comprising a frame, endless conveyers, rotary disks made up of yielding sections adapted to frictionally engage and feed an ear forward from the conveyer, a shaft and means for rotating the

same, a cup-shaped shell having an apertured partition therein, a knife mounted adjacent to said partition and against which the end of the ear is held by the disk to be severed, and means for cutting and removing the husks, as set forth.

10. A corn-husking apparatus, comprising a frame, endless conveyers, disks arranged in pairs and adapted to feed the ears from the conveyers, a shaft and means for rotating the same, a cup-shaped shell, a knife carried by said shell for severing the end of the ear, and yielding arms carrying knives rotating with the cup for cutting the husks, and means for severing the husks after being cut, as set forth.

11. A corn-husking apparatus comprising a frame, endless conveyers mounted thereon, frictional feeding-disks arranged in pairs adapted to advance the ear from the conveyer, a shaft, a hub fixed to rotate therewith, a cup-shaped shell rotating with said shaft, a spring interposed between said shell and hub, arms pivotally mounted to the shell, knives carried at the ends of said arms, and an end-severing

knife mounted adjacent to an apertured partition in the shell, as set forth.

12. A corn-husking apparatus, comprising a frame, means for cutting the ends of the ears and reversing the ears, rollers with spurs about their circumferences against which the ears are held by friction feed-disks, whereby the husks are loosened and removed, and brushes between which the ears are passed by said disks, as set forth.

13. An apparatus for husking corn, comprising a frame, endless conveyers, means for cutting one end of an ear and automatically reversing the ear and cutting the opposite end while the ear is in motion, spur-carrying cylinders for removing the husks, and rotary brushes between which the ears are fed by the friction-disks, as set forth.

In testimony whereof I hereunto affix my signature in presence of two witnesses.

HEMEN C. CHAPMAN.

Witnesses:

C. C. B. KUTTS,
J. M. SPORE.