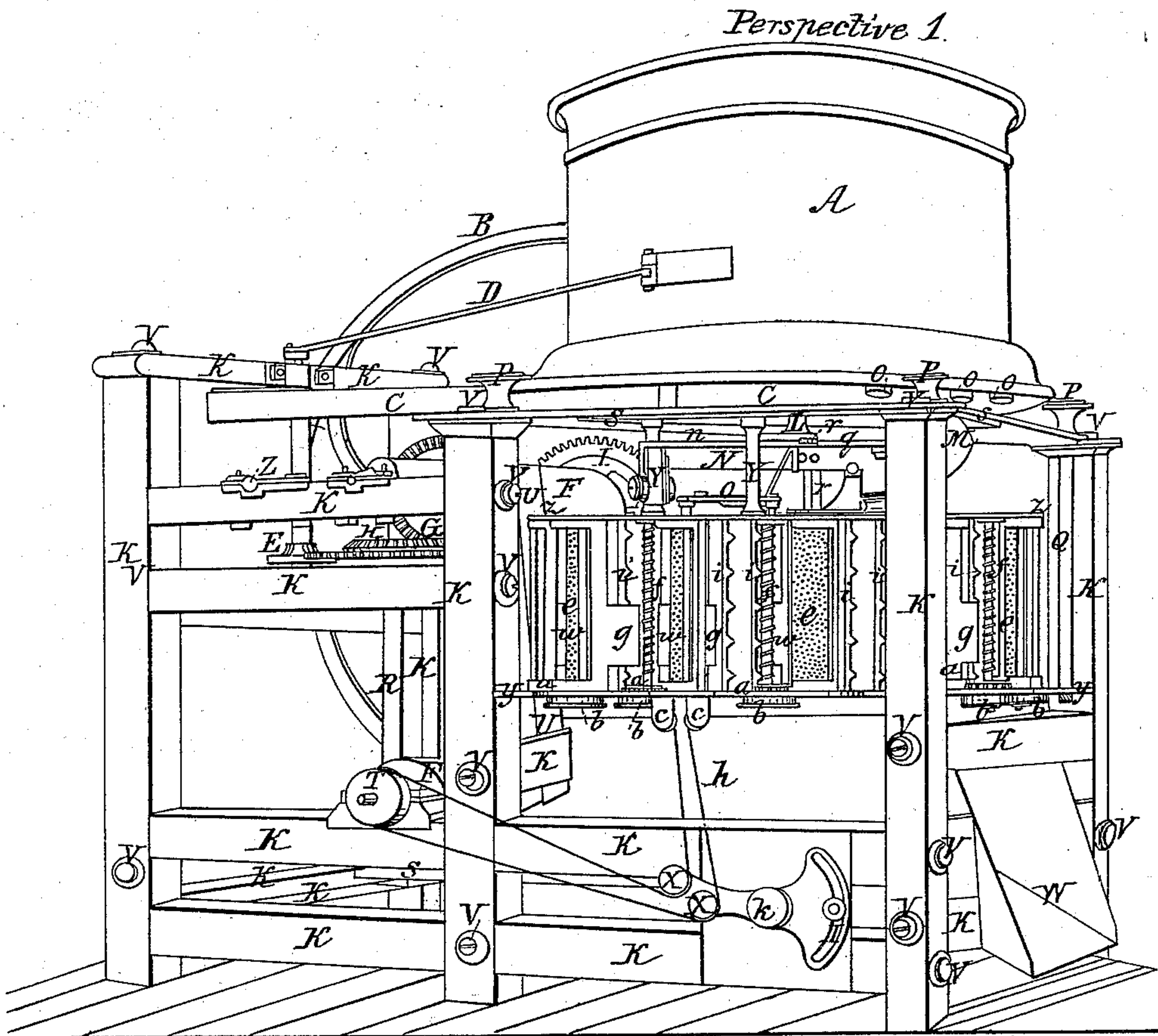


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Corn Husker.

No. 21,363.

Patented Aug. 31, 1858.



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Phales Lindsley.

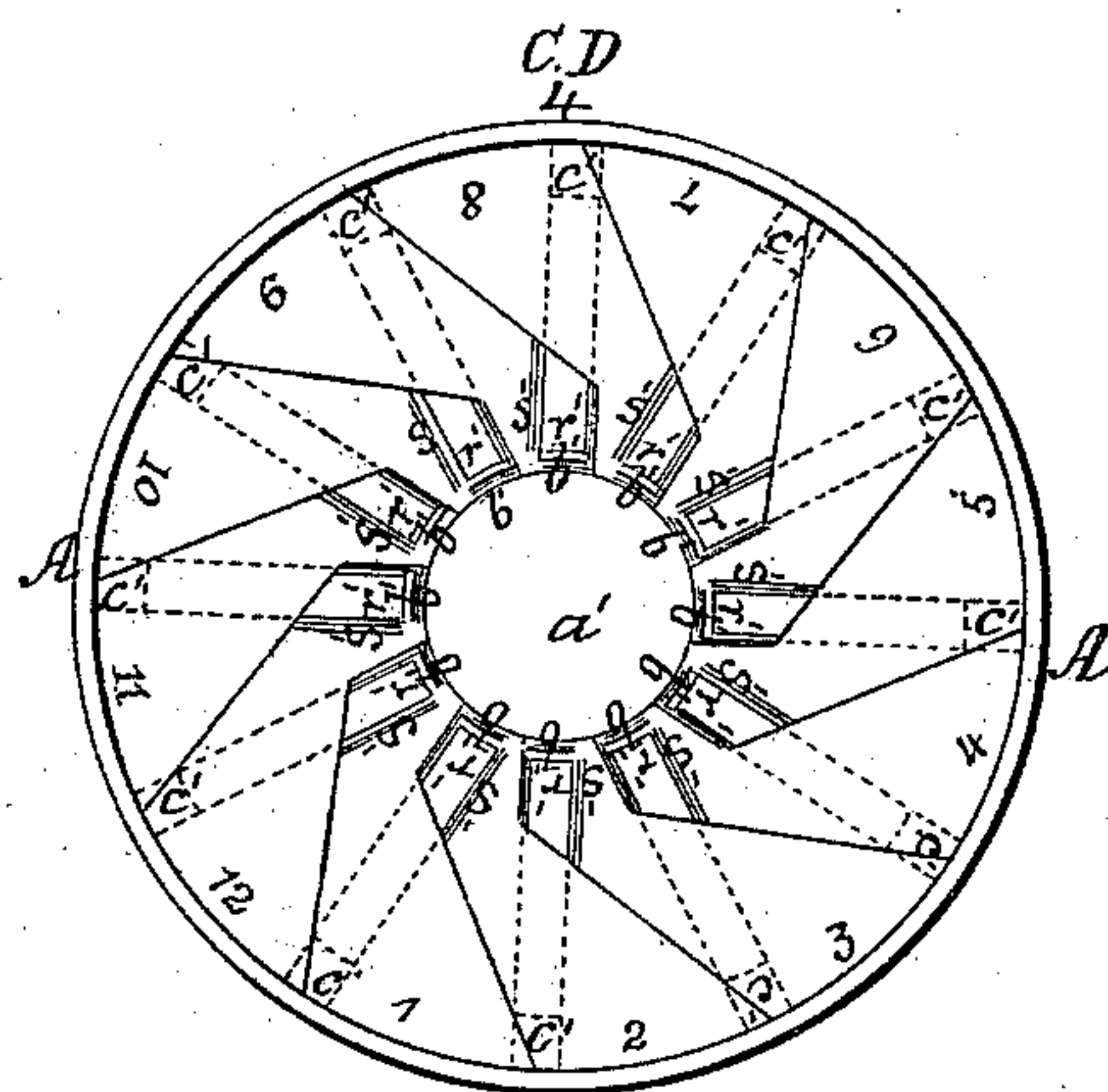
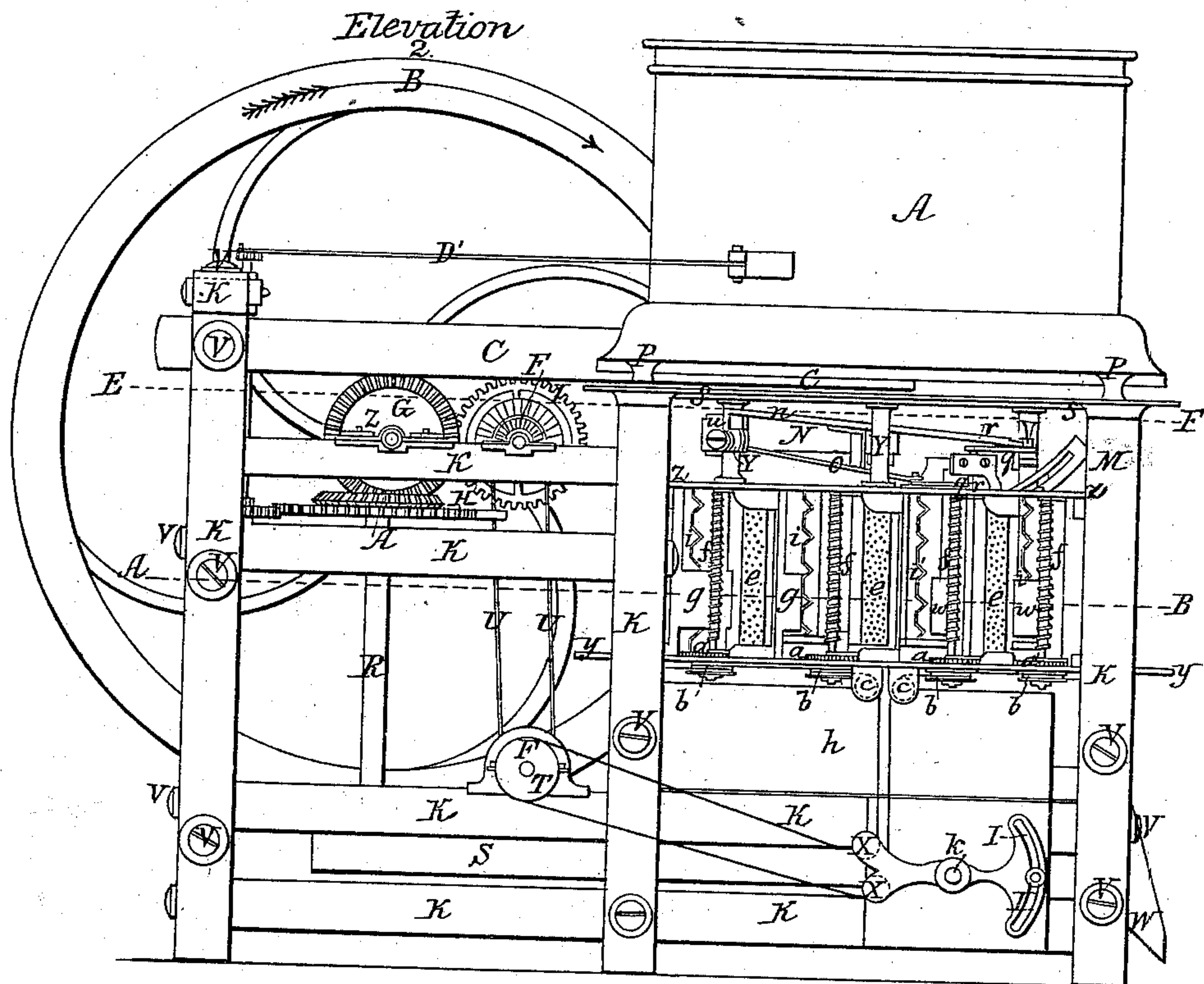
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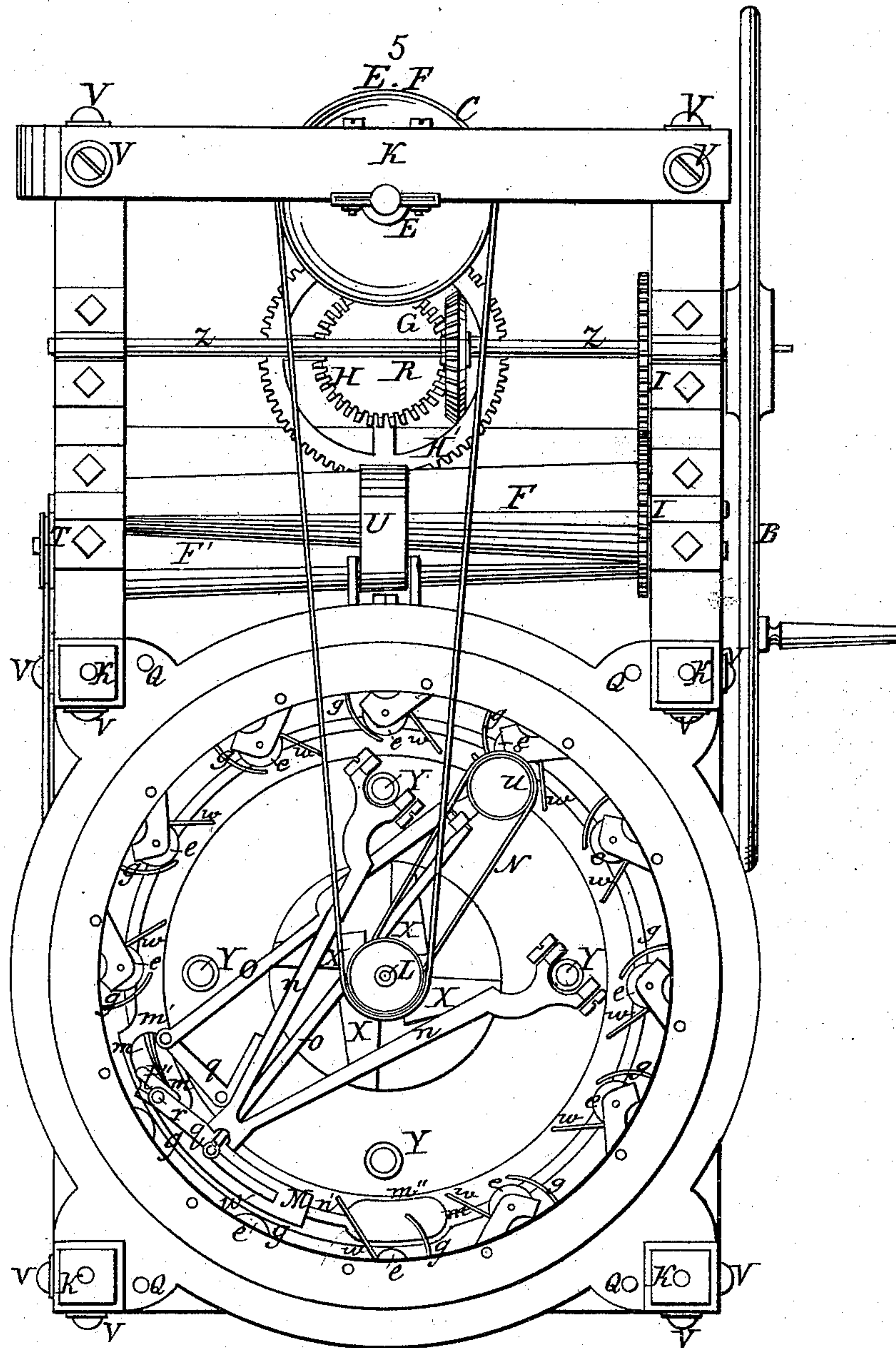


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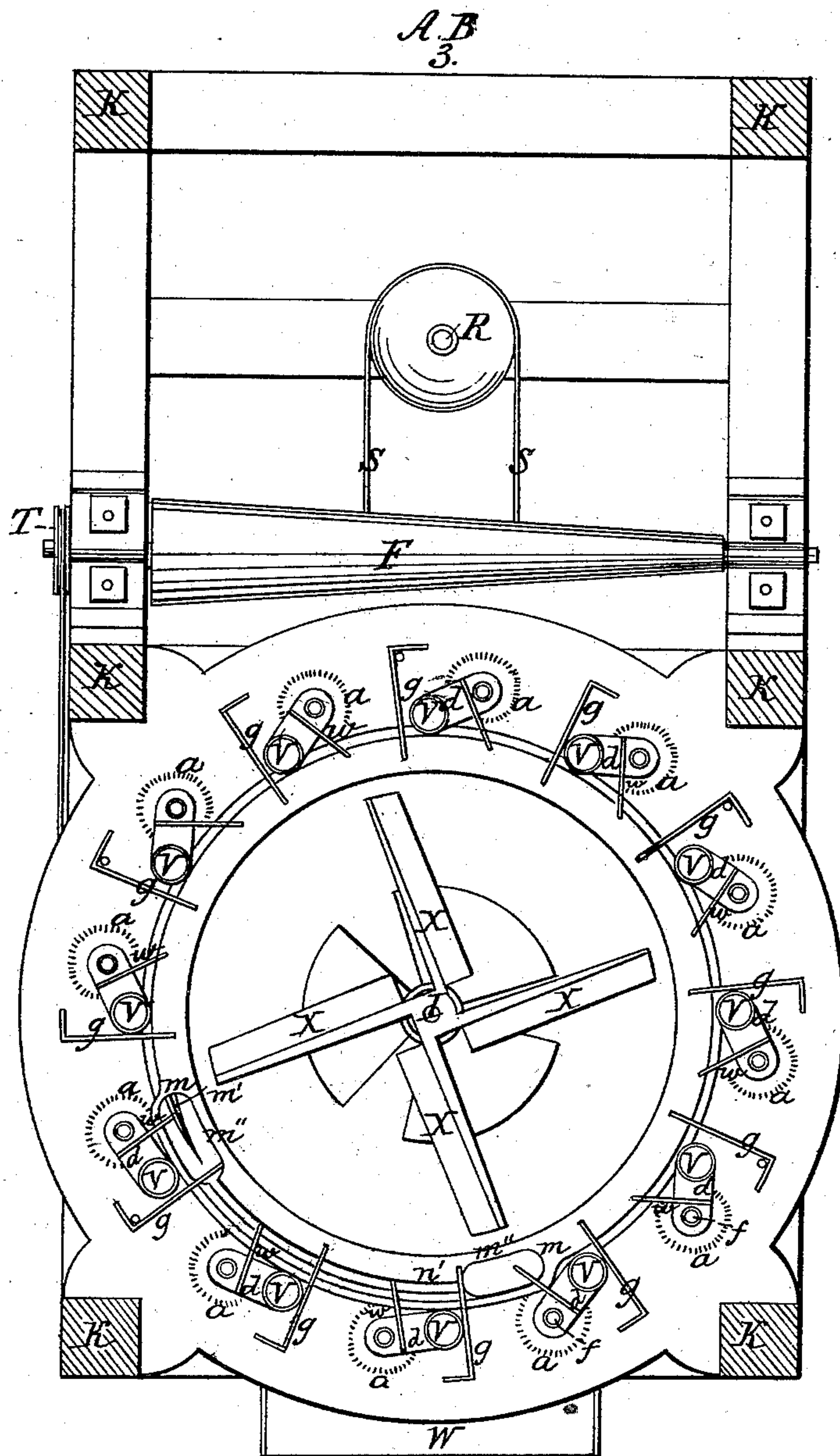
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Inventor.

Charles John Christian Petersen.



# UNITED STATES PATENT OFFICE.

C. J. C. PETERSEN, OF DAVENPORT, IOWA.

## CORN-HUSKER.

Specification of Letters Patent No. 21,363, dated August 31, 1858.

*To all whom it may concern:*

Be it known that I, CHARLES JOHN CHRISTIAN PETERSEN, of Davenport, county of Scott, and State of Iowa, have invented a new and useful Machine for Husking Corn, hereby known as the "Self-Feeding Corn-Husker;" and I declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, forming part of this specification, in which—

Figure 1 is a perspective view; Fig. 2, a longitudinal elevation; Figs. 3 and 5, horizontal sections; Fig. 4, a top view of the feeder.

The nature of my invention consists in such improvements in corn huskers as are set forth in the claims herewith connected.

To enable others skilled in the art to make and use my invention, I hereby describe its construction and operation. To this end the machine is considered as resolved into the ensuing principal parts, viz: I, the power; II, the feeder; III, the fanner; IV, the butter; V, the husker; VI, the receiver.

(I) *Motive power.*—This consists of the fly-wheel, B, Fig. 1, hung on the horizontal shaft, Z, Figs. 2 and 5, on which rests a bevel gear wheel G, Figs. 1, 2, and 5, and a spur wheel, I, Figs. 1 and 2. These powers turn the vertical shaft, R, Figs. 1, 2, and 5, to whose top are fastened the bevel and spur-wheels H and H', Figs. 1, 2 and 3. On the lower part of the shaft, R, belong a pulley and the belt, S, Figs. 1 and 2, (which may be substituted by the bevel-gearings,) which revolve the fanner and its component parts. The spur-wheel, H', turns the vertical shaft and pinion E, Figs. 1 and 2, with its pulley and belt, C, Figs. 1 and 2. This belt runs to the fan shaft L, Fig. 3. On the top of the shaft, E, is fitted a small crank, with which the rod D, Figs. 1 and 2, is connected for the purpose of shaking or vibrating the feeder A, Figs. 1 and 2. The two conic rollers, F and F', Figs. 1 and 5, communicating by the belt, U, and turned by the spur wheel, I, regulate the splitting of the husks, by a cord passing over a curved pulley, T, Figs. 1 and 2, and thence to the tightening pulleys X, X, Figs. 1 and 2, which oscillate by the action of the lever whose fulcrum is at, k, and are regulated by the slot, l. The cord aforesaid bears up from X to C, and divides itself

there for the purpose of moving the rollers b, b, etc., Figs. 1 and 2.

(II) *The feeder.*—This consists of a cylinder A, Figs. 1 and 4 united at its upper edge with another, having the shape of a funnel, but truncated at less than half the height of the cones of which it may be conceived to be a part. In the center of the feeder rises the cone, a', Fig. 4. From this cone, striking off radially to the exterior of the feeder or cylinder, A, lie twelve equal apartments. In each of these apartments are disposed the ear-conductor, the separator and the discharging tube. The conductors, r', r', &c., Fig. 4, are severally attached upon the lower edges and their interior ends to the base of the cone, a', by means of a suitable hinge, b'. These conductors consist of semicylindrical conduits or troughs, in which, respectively, the ears of corn lodge *in transitu* to the discharging tubes, O, O, O, &c., Fig. 1. By means of the hinge b', and the lever plate, S', (soon to be described) which belong to each conductor, each conductor is susceptible of a rise and fall at the end nearest the cylinder, A, the object of which motion is to receive the ear and then cause it to slide from the trough into the tube, O. Alongside and parallel with the conductor is the lever plate, S', which at one end enters an eye formed to receive it on the side and outer extremity of the conductor. It plays upon a pivot fulcrum at the proper point. It may assume any form which can perform its functions, but that which I have adopted is semi-spatulate. This or some equivalent form, at the end next the cone, a', is indispensable, in order to secure a perfect exclusion of all ears cut one from the ear trough. In motion the spatulate end of the lever rises and falls alternately with the exterior end of the conductor, thus securing the certain introduction of one ear only at a time. In action, also, the spatulate arm rises to the funnel cylinder, an elevation more than equal to the diameter of an ear, above the level of the conductor. This lever plate, S', may, therefore, be appropriately denominated the separator and is so styled. The spring, which is not shown in the drawing, but which assists to raise the conductor to its normal position upon the discharge of an ear, is not necessary in a working machine. The separator can be readily so balanced



upon its pivot fulcrum as to raise the conductor after depression with certainty and efficiency.

At the outer mouth of each of the conductors is a discharging tube O, Fig. 1. Into this, from the conductor, drops or slides the ear, which, in it, takes a nearly perpendicular position. The lower orifice of each of the twelve tubes O, O, &c., opens upon a circular plate, whose diameter is greater than that of the feeder, A. Through this plate, directly in the vertical descent of the ear, is an oblong hole ample enough to admit the passage of any ear. This plate partakes of the slight reciprocating motion of the feeder, of which it might be regarded as a part, and holds in its center the top of the revolving fan-shaft, L. Below this plate and at the distance of half the average length of an ear is a circular flat ring, S, which rests upon the blower or fanner by means of posts and partakes of its motion. In it is only one oblong hole, approached by a deep groove. In the descent of an ear through its hole in the plate above, its end, by the revolution of the ring, S, enters this groove and, upon reaching the oblong hole drops into a guide tube and thence vertically into position upon the base of the fanner and between the plate arms, *z*, and *w*, Figs. 1, 2, 3, 5, to be butted and stripped. This second guide tube, together with the apparatus which imparts to it a regular but intermittent motion upon its discharge of an ear into the butter, is not fully represented, but is so constructed and operated as to receive and discharge with certainty an ear, if descending, every time the oblong hole in the ring, S, passes under one of the twelve holes in the plate above, thus securing and discharging twelve ears in each circuit or revolution.

*The fanner.*—This is situated centrally below the feeder and within the husker proper. Its object is to blow the husks from the husking machine which surrounds it. Its frame is closed above and below by circular plates, as represented in Figs. 3 and 5. The upper one is designed simply to cover the fan, and stripping staves, *i*, *i*. The lower one has a larger diameter and also an eccentric, *m*, *m*, to be more particularly described under the head of "The butter." The fan itself is located in the interior of its apartment and consists of the upright shaft, L, Figs. 1 and 3, with four arms, X, X, X, X, to the ends of which are attached four spheroidal wings. Between the upper and lower circular plates is a series of perpendicular staves (called strippers) *i*, *i*, which stand nearly in the line of the circumference of the upper plate of the fanning apparatus, and consist of a rectangular plate on the exterior edge of which and at assigned distances are teeth, whose angle

points in the line of a radius of a circle parallel with the plates circular of the fanner and which in the operation of the machine strip the husks from the ear.

*The butter.*—There are two butters: one designed to cut the butt of the ear when the butt descends foremost, which butter is operated upon the lower plate of the fanner; the other designed to cut the butt of the ear, when the top descends foremost, which butter is operated below the upper plate of the fanner and in a line perpendicular with the lower plate of the same.

*The lower butter.*—In the eccentric projection, *m*, *m*, of the lower plate of the fanner are two oblong or extended holes *m'*, *m''*, connected by the slot, *n'*. The sides of these holes and of this slot converge somewhat, so that the upper mouth is wider than the lower. Into the slot *n'* settles the end of the ear, when embraced by the plate arms *z* and *w*, Figs. 1, 2, 3, 5, and put in position for butting. Along the slot, *n'*, the butt of the ear (when the ear descends butt foremost) is driven to the left till it reaches the left hand hole, in which is fixed longitudinally the rapier knife or divider *m'*, Figs. 3 and 5. The object or use of this is to split the butt, to facilitate the action of the reaper, *t*, Fig. 5. The reaper or cutter is *t*, Fig. 5, and the apparatus of which it is part is the shaft, *r*, Fig. 5, the crank, *q*, which imparts motion to the shaft, and thence to the reaper, also; *o*, *o*, connection rods attached to a crank springing from the shaft of the pulley, *u*, and below it.

*The upper butter.*—The motive apparatus of this is fully represented in Fig. 5, and is nearly the same as the lower. Hence to describe the motive powers of the lower butter I have referred to so much of the upper as necessary to obtain a clear conception. The difference between them requires, therefore, delineation. In the upper butter the arms *n*, *n*, are united by hinges to the posts *y*, *y*. The use and necessity of these hinges will be apparent, when it is borne in mind that the cutting gear of this butter must be and is so constructed as to rise and fall with the length of the ear butted, in order that the rapier and the reaper may without failure divide and cut the butt when uppermost.

The cutting apparatus is seen in perspective in Fig. 2, wherein M presents the curved semicylindrical, hollow rider, of sufficient length and elevation forward to pass over the top of the tallest ear and of such height above the lower reaper as to allow its divider and reaper to butt the shortest ear. The butt slot of this rider is not represented, but is the same in fact and function as that of the lower butter as seen in Fig. 5, *n'*. The divider and reaper are also the same and operated by the pulley *u*, by means of the connecting rods *o*, *o*.



*The husker.*—This consists of two frame plates  $z, z$ , and  $y, y$ , Figs. 1 and 2, between which are included twelve separate and equally divided apartments, each having a stationary upright plate,  $z$ , (represented as straight in Fig. 3 and as circular in Fig. 5, for the purpose of showing the applicability of both forms,) an upright plate  $w$ , Figs. 1 and 3, and a roller  $e$ , Figs. 1 and 5, which operate by the rod spring,  $f$ , Figs. 1 and 3, in oscillation; a friction roller,  $v$ , Fig. 3, resting upon the foot-plate  $a$  of the plate,  $w$ , upon which the roller,  $e$ , stands and through which a rod passes for the purpose of fastening said roller,  $v$ , the roller,  $e$ , and the foot plate,  $a$ , with the corresponding top plate. The upright plate or arm,  $z$ , is designed to keep the ear stationary upon its discharge from the guide tube attached to the plate  $S, S$ , Figs. 1 and 2, till it approaches the point of the reaper. The roller,  $e$ , by virtue of its roughed face not only holds the ear of corn firmly, but presses it against the strippers  $i, i$ , Fig. 1. Each of the twelve apartments aforesaid has a small spur wheel  $a$ , Figs. 1, 2, and 3, fixed on the foot-plate  $a$  resting on the plate  $y, y$ , and turning by a pinion passing through it and connected with the horizontal wheel  $b$ , Fig. 1. The spur-wheels  $a, a$ , &c., regulate the motion of the roughed rollers,  $e, e$ , &c. The pressure of these rollers against the ear and thence the strippers  $i, i$ , is due to the springs  $f, f$ , Figs. 3, and 1. The suspension of this pressure, which takes place during the process of butting, is, on the other hand, due to the action of the eccentric,  $m, m$ , Fig. 3. The passage of the eccentric by the twelve apartments turns the small roller  $v, v$ , whereby the springs,  $f, f$ , are compressed with the vibrating arms  $w, w$ , as far back as the eccentric draws. Through each of the twelve apartments the husks escape from the machine, being driven forth by the fanner as soon as stripped from the ear.

The receiver consists of two circular boxes,  $h$ , with a spout,  $W$ , Fig. 1, which is the external box, and  $h'$ , (not represented,) which is internal. In the space between the inner and the outer box runs a clearer formed of an arm with a wing and turned by the fanner shaft. The office of the receiver is twofold: first, to receive the butted and husked ear from the husker through the hole,  $m''$ , Figs. 3 and 5; secondly, to discharge the ears by the clearer into the spout,  $W$ , thence to the basket for removal to barn or crib.

*Operation.*—The *modus operandi*, though apparently complicated, is simple. Fill the feeder with unhusked ears. Turn the fly-wheel,  $B$ , Figs. 1 and 2, indicated by the arrow. Then the shaft,  $Z$ , imparts motion to the bevel-gear wheel,  $G$ , which in turn moves the bevel and spur-wheels  $H$  and  $H'$ , on the shaft,  $R$ . In the meantime the spur-

wheel  $H'$ , revolves the shaft and pulley,  $E$ , by a pinion and gives the rod,  $D$ , its vibrating motion. To the feeder this vibration is communicated, and by it the ears are shaken into position and twelve of them arrange themselves in the ear conductors  $r, r'$ , etc., Fig. 4. In the settlement of an ear into this position the outer end of the ear-conductor is depressed and the spatulate arm of the lever plate,  $S'$ , rises up, thus preventing the ingress or descent of impending ears, till the conductor aforesaid is relieved of its charge. Upon the depression of a conductor, the ear partaking of the vibration of the feeder, is rapidly shaken or slipped forward and downward into the discharging tube, butt or top foremost, as the case may be. As the ear leaves the conductor and enters the tube  $O$ , the spatulate arm of the lever plate  $S'$ , falls and the outer end of the trough,  $r'$ , rises to its normal position ready to receive another ear of corn. In the discharging tube,  $O$ , the ear is perpendicular. From this tube the ear descends through the oblong hole in the circular plate, before described, upon the ring plate  $S$ , which constitutes the cover to the fanner. Here one end of the ear (the lower end) rests till, in the revolution of the ring plate, its oblong and only hole reaches the ear and admits it through it to the guide conductor, which directs the ear into its place vertically in the husker at  $m''$ , Fig. 3. This guide trough being attached to the ring plate,  $S$ , and so suspended as to react twelve times in one circuit of the plate, causes twelve ears, or a full charge from the feeder, to be precipitated into place in the husker at each revolution of said ring plate. As the ear drops into the husker the butt (which for illustration I shall assume to be lowermost) enters the slot  $n'$  of the eccentric  $m, m$ , Fig. 3, while the body of the ear is embraced and held fast by the vibrating arm,  $w$ , which by the action of the eccentric upon the small rollers  $v, v$ , and consequently the spiral springs  $f, f$ , Fig. 1, is drawn in toward the upright plate,  $z$ . This embrace of the ear by said arm continues till the process of butting is completed, when the ear is assigned to the roughed roller and the strippers. Through or along the slot,  $n'$ , the butt of the ear slides till it reaches the other oblong hole of the eccentric. As it enters this the divider,  $m'$ , Fig. 3, splits the butt into two parts and as it passes out the reaper blade in its vibration severs these parts from the ear, and thus completes the process of butting. Twelve ears are butted at each revolution of the ring plate,  $S$ . After the ear is butted the arm,  $w$ , is restored to its original position and the roughed roller slowly revolves the ear against the arm,  $w$ , and the stripper, and in a direction reverse to the line of motion. By this motion the ear has a turn more than can be regarded as



necessary to husk it, hence the precision and certainty of stripping the ear clean. Upon the return of the eccentric the husked ear drops through the oblong hole *m''*, corresponding with the butting hole, and falls into the receiver, to be discharged by the spout W, Fig. 1. Twelve ears are husked and discharged at each circuit of the eccentric.

10 The action of the twelve apartments of the husker depends upon the motion of the two cone rollers F and F', operated by the spur-wheels, I, and the belt, U, Figs. 1 and 5. The curved pulley T, Figs. 1 and 2, on the lower roller carries an endless cord around the tightening rollers, X, X, the rollers *c, c*, and *b, b*, Figs. 1 and 2. In the center of the rollers *b, b*, are fastened the spur-wheels, *w, w*, for the purpose of regulating the roughed rollers *e, e*. With this additional description the process of husking is made intelligible. The ear stands enclosed by the arm *w*, the roller, *e*, and a stripper, *i*, Fig. 1. The roughed roller causes it to whirl against the smooth surface of the arm and against the teeth of the stripper. The spring *f*, keeps the arm to the ear and the ear to the teeth and roughed roller. The roughness of the roller, *e*, insures uninterrupted motion to the ear and overcomes the

30

resistance offered by the teeth of the stripper. Thus the process of husking is rendered efficient and complete, not a line of husk being left upon the ear. The husks are discharged in the manner and by the means indicated on a preceding page, through the apartments of the husker by the wind from the fanner.

What I claim as my invention and desire to secure by Letters Patent, are,

1. The feeder when constructed, arranged and operating substantially as described for the purpose set forth.
2. The butter, when constructed, arranged and operating substantially as described for the purpose set forth.
3. The husker when constructed, arranged and operating substantially as described for the purpose set forth.
4. The fanner when constructed, arranged and operating substantially as described for the purpose set forth.
5. The receiver, in combination with the fanner, husker, butter and feeder, when these several parts are arranged to operate conjointly as and for the purpose specified.

CHARLES JOHN CHRISTIAN PETERSEN.

Witnessed by —

CHRISTIAN RAUB,  
THALES LINDSLEY.