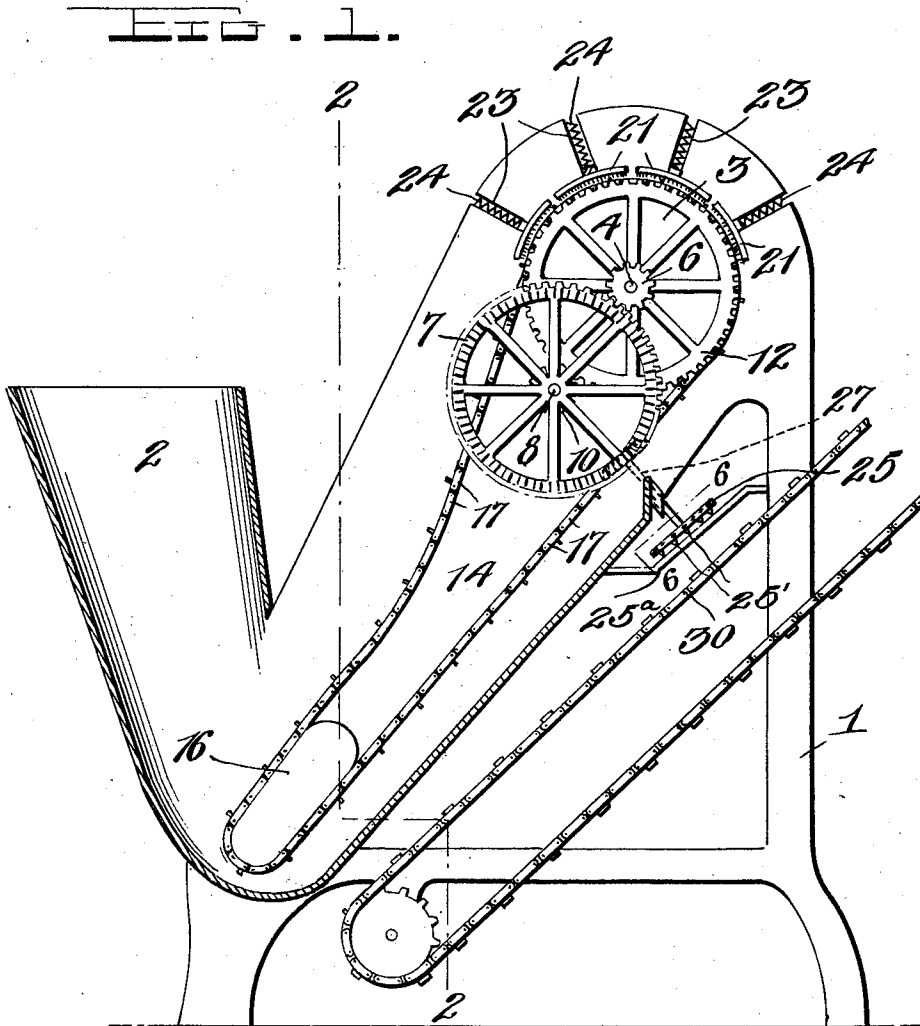


J. F. ERNST.
MACHINE FOR SHELLING CORN.
APPLICATION FILED MAR. 4, 1911.

1,009,394.

Patented Nov. 21, 1911.

3 SHEETS-SHEET 1.



Witnesses

Chas. L. Griesbauer.
H. F. McQuay.

Inventor
John F. Ernst,

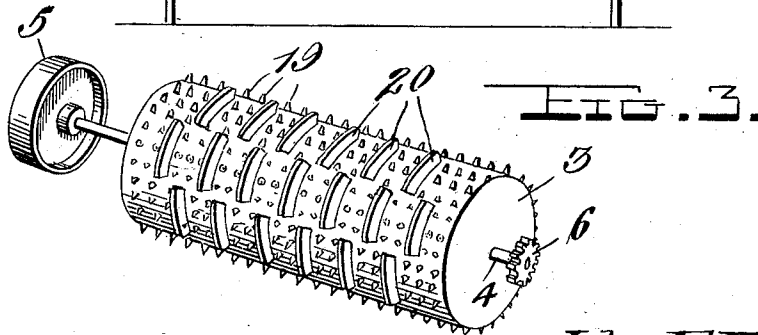
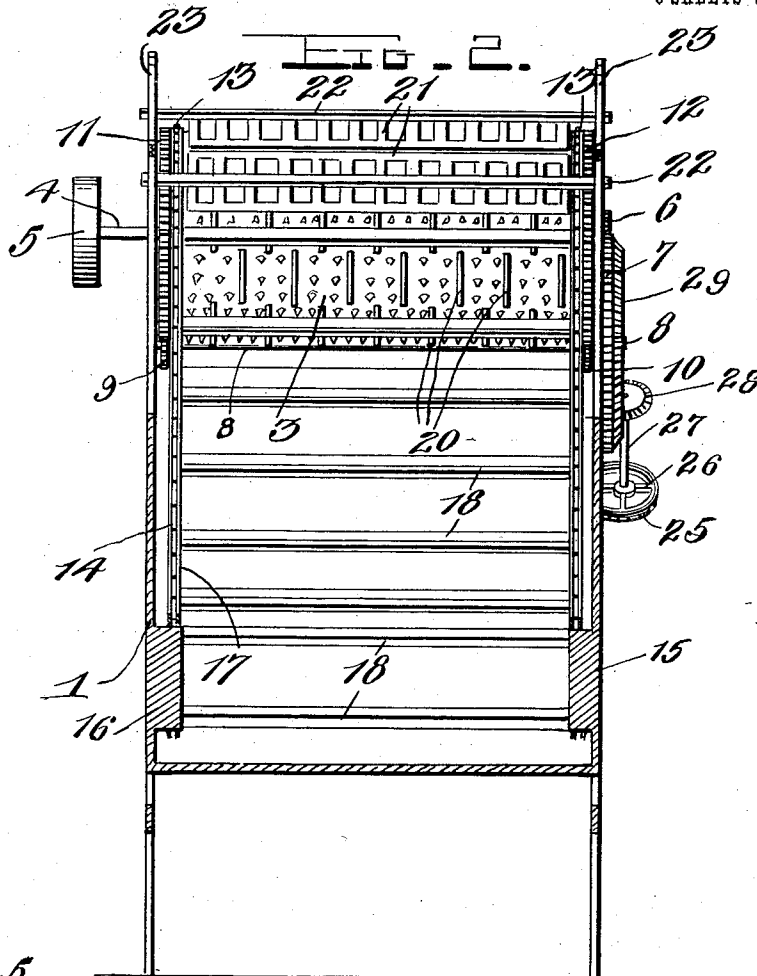
By Watson E. Coleman,
Attorney

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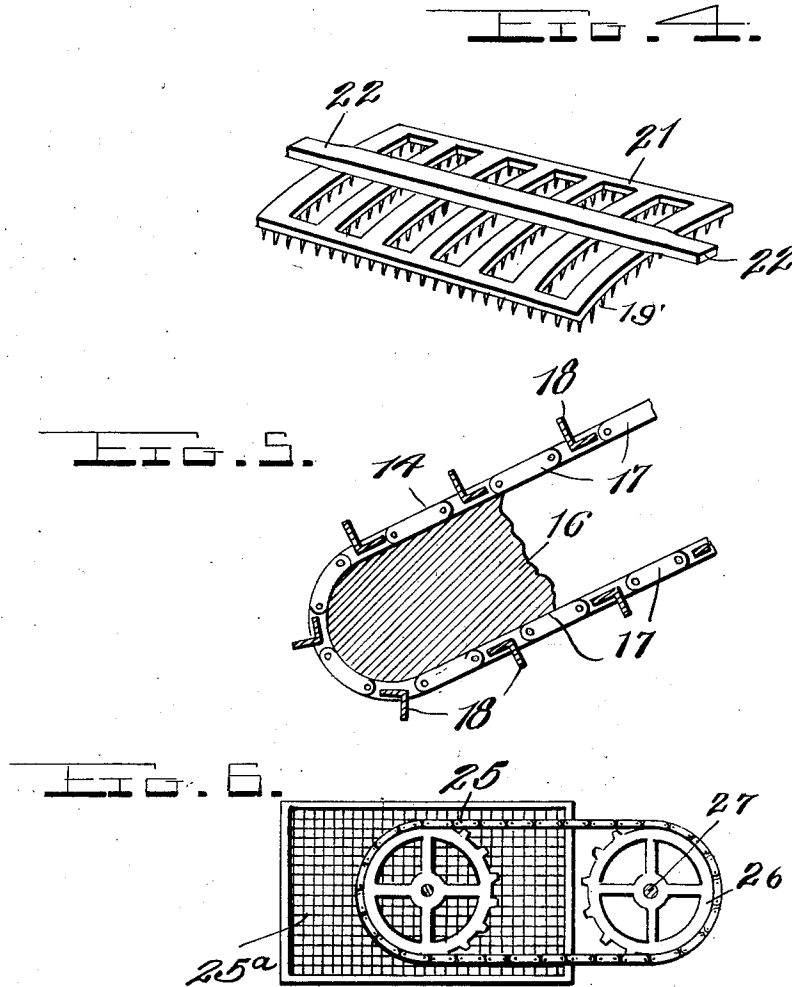
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UNITED STATES PATENT OFFICE.

JOHN F. ERNST, OF ST. JOHNS, MICHIGAN.

MACHINE FOR SHELLING CORN.

1,009,394.

Specification of Letters Patent. Patented Nov. 21, 1911.

Application filed March 4, 1911. Serial No. 612,277.

To all whom it may concern:

Be it known that I, JOHN F. ERNST, a citizen of the United States, residing at St. Johns, in the county of Clinton and State of Michigan, have invented certain new and useful Improvements in Machines for Shelling Corn, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to new and useful improvements in corn shelling devices, and more particularly to a self and force feed sheller, and my object is to provide a device in which the corn having been husked will be fed automatically to the shelling device.

A further object is to provide a device of this character which shall be positive in its shelling capacity.

A still further object is to provide a device with means for separating shelled corn from the cobs.

A still further object is to provide revolving means for shelling corn.

A still further object is to provide adjustable means for retaining the ears of corn in position over the revolving means, and a still further object is to provide a device of this character which is simple and economical in construction and extremely efficient in operation.

With these and other objects in view my invention consists in the novel features of construction, combination and arrangement of parts as will be hereinafter referred to, and more particularly pointed out in the specification and claims.

In the accompanying drawings, forming a part of this application, Figure 1 is a side elevation of the device having one side of the frame thereof removed; Fig. 2 is a vertical section as seen on line 2—2 of Fig. 1; Fig. 3 is a detail perspective of the revolving cylinder and its adjunctive parts; Fig. 4 is a detail perspective of one of the concave adjustable frame members for retaining the ears in position over the cylinder; Fig. 5 is a detail view of the endless chain or elevator, partly in section; and Fig. 6 is a section as seen on line 6—6, Fig. 1.

In carrying out my invention I shall refer to the drawings in which similar reference characters designate corresponding parts throughout the several views, and in which—

1 indicates a frame upon the lower end of which is formed the hopper 2, into which

is adapted to be emptied the husked ears of corn, and mounted adjacent the upper end of said frame is a toothed cylinder 3, said cylinder being revoluble within said frame by being mounted on the shaft 4 which is in turn mounted in bearings in the side walls of said frame.

Mounted on one end of the cylinder shaft 4 and beyond one side of the frame 1 is a drive pulley 5 about which is adapted to be applied a belt (not shown) from any source of power, and mounted upon the opposite end of said cylinder shaft is a small pinion 6 which meshes with a large cog or gear 7 carried by an additional shaft 8 also mounted between the walls of said frame just below said cylinder. With the rotation of the shaft 4 the additional shaft 8 will also be rotated through the medium of the pinion and gear 6 and 7 respectively, and an additional pair of pinions 9 and 10 similar to the pinion 6 are also carried by said additional shaft 8 which mesh, respectively, with the gear portions of the combined gears and sprockets 11 and 12. These combined gears and sprockets 11 and 12 are loosely mounted upon the cylinder shaft 4 and engaged with the teeth 13 of the sprocket portions thereof are the links of an endless elevator chain 14, which elevator passes over a pair of bosses 15 and 16 formed at the lower end of said frame and within said hopper 2. Through this particular means of mounting the gears and pinions in the particular manner described, it will be seen that the cylinder is adapted to be revolved at much greater speed than the combined gears and sprockets 11 and 12.

The endless elevator 14 is composed of a pair of endless link chains 17 and a plurality of cross-pieces or horizontal members 18 of the usual or any preferred form desired, and as said elevator is rotated that portion within the hopper 2 is adapted to cause ears of corn, which have been emptied there- in promiscuously, to be rolled here and there until the ears have become in a substantially horizontal position to rest upon the cross-pieces 18 of the elevator. Those ears which immediately place themselves upon the cross-pieces or horizontal members will be carried upwardly toward the cylinder 3, but it will also be noted that certain ears may, although not resting completely upon the horizontal members, be adapted to be carried upwardly with the elevator, but in view of the steep

incline of said elevator, which incidentally increases as the same nears the cylinder, these ears which were not properly placed will be dropped or forced back to the hopper. As the ears are raised upwardly through the medium of this endless elevator they are brought into contact with the revolving shelling cylinder, which has the outer surface thereof provided with numerous points or metal bristles 19 between which extend at regular intervals the annular flanges 20, and as said flanges are of a greater height than the bristles, the ears of corn when brought into contact with said cylinder will be prevented from having the grains thereof completely crushed as the same are shelled. The ears of corn being brought into place above the cylinder, which is rotating, as stated before, at a greater speed than the endless chain, are adapted to be stripped of their grains by the metal bristles, but some means must be provided for retaining the ears in position over said cylinder, and to this extent I have provided a plurality of concave sections 21 immediately above said cylinder, said elevator passing between the inner faces thereof and the outer face of said cylinder. These frame sections are composed of longitudinal and transverse bars which are concave in design and having the inner surfaces thereof also provided with points or metal bristles 19' similar to the bristles 19 of the cylinder, and said frame sections are held in position between the walls of said frame 1 by providing at the ends thereof the lugs 22 which are slidably mounted in the grooves 23 of the side walls of the frame. Adjustable springs 24 have one end thereof engaged with the frame sections and the other engaged with the outer end of the grooves or slots 23, thereby forcing said frame sections toward the cylinder 3, so that as the ears carried by the elevator are brought upwardly the same are forced and held in engagement with the bristles of said cylinder and frame sections, which action is adapted to strip the grains thereof from the cobs. After the ears have been stripped of their grains both the cobs and corn are passed over the cylinder and dropped downwardly to a sieve or the like 25^a, also mounted in said frame at a point some distance below the cylinder and an endless carrier 25 having one end thereof mounted just above said sieve, is provided with projecting rake teeth 25' and is adapted to collect the stripped cobs and convey the same to any convenient place beyond the frame. This carrier may be termed a cob rake and is rotatable over a sprocket 26 mounted on one end of a shaft 27 which is in turn rotatable through the medium of a bevel gear 28 at the opposite end of said shaft 27 which meshes with an additional bevel gear 29 carried on the gear

7. It will therefore be seen that as the shafts 4 and 8 are rotated the shaft 27 and, correspondingly, the carrier 25 will be simultaneously rotated, and the shelled corn is adapted to pass through the sieve to an additional endless elevator 30 just below said sieve, whereby the said corn will be conveyed to any convenient point for cleaning and canning.

My invention is particularly adapted for use in mill work, and I am aware of the fact that many devices have been invented for the purpose of shelling corn from the ear but the same have never proven a success in practice and it is to obviate the many difficulties which have been experienced in the former devices that I provide my improved corn shelling machine.

From the foregoing it will be seen that I have provided a device for shelling ears of corn which is self and force feeding. It will further be seen that I have provided a rotating means for shelling the ears, and further a means for retaining the ears in position over the rotating means. Furthermore it will be seen that I have provided a device with means for separating the shelled corn from the cobs and it will still further be seen that the device is one which is simple in construction, inexpensive to manufacture and extremely efficient in operation.

Although I have stated that this device is particularly adapted for use in mill work, it must be stated that the same is also splendidly adapted for use by farmers and stock-feeders, in view of the small amount of power required to operate the same, and the minimum expense attached to the installing of the device.

What I claim is:

1. A corn shelling device of the character described, comprising a frame, a shaft rotatably mounted therein, a cylinder carried by said shaft, a combined gear and sprocket loosely mounted on said shaft, an additional shaft rotatably mounted in said frame below the first referred to shaft, means to rotate said additional shaft through the rotation of the first shaft and at a lower speed than the latter, an endless chain engaging the sprocket portion of said combined gear and sprocket, means on the frame for supporting the lower end of said chain and a gear mounted on said additional shaft engaging the gear portion of said combined gear and sprocket.

2. In a corn shelling device of the character described, the combination with a frame, a shaft rotatably mounted therein, a stripping cylinder mounted on said shaft and means to rotate said shaft; of an additional shaft rotatably mounted in said frame, means to rotate said additional shaft through the rotation of the first referred to shaft,

means to convey ears of corn to said stripping cylinder, a sieve mounted in said frame below the cylinder and adapted to receive cobs and stripped corn therefrom, and an
5 endless carrier disposed immediately above said sieve and operated through the rotation of said additional shaft for conveying the cobs from said sieve.

3. In a corn shelling device of the character described, the combination with a frame,
10 a shaft rotatably mounted therein, a stripping cylinder mounted on the shaft, and means to rotate said shaft; of an additional shaft, means to rotate said additional shaft
15 from the first referred to shaft, means to convey ears of corn to said stripping cylinder, a sieve carried in the frame below said cylinder to receive the cobs and shelled
20 corn therefrom, and means operated by the rotation of said additional shaft for conveying the cobs from the sieve.

4. In a corn shelling device of the class described, the combination with a frame, a
25 shaft rotatably mounted therein, a cylinder carried on the shaft, means to rotate said shaft, and a combined gear and sprocket loosely mounted on said shaft; of an additional shaft rotatably mounted in the frame,
30 means to rotate said additional shaft through the rotation of the first mentioned shaft, a conveyer chain disposed in the frame and extending over the sprocket portion of said
combined gear and sprocket, means on the frame for supporting the opposite end of

the chain, a gear carried on the additional
35 shaft engaging the gear portion of said combined gear and sprocket, a sieve carried in the frame below said cylinder, a cob rake disposed over said sieve, and means to operate
40 said rake through the rotation of said additional shaft.

5. In a device of the character described, the combination with a frame, a shaft rotatably mounted therein, a stripping cylinder
45 carried on said shaft and a yieldingly supported means also mounted in said frame to cooperate with said stripping cylinder; of an additional shaft rotatably mounted
50 in said frame, a combined gear and sprocket loosely mounted on the first referred to shaft, a sprocket rigidly mounted on said first mentioned shaft, means carried on the
55 additional shaft cooperating with said gear to rotate said additional shaft with the rotation of the first mentioned shaft, additional means carried on said additional shaft
60 cooperating with the gear portion of said combined gear and sprocket to rotate the same on said first mentioned shaft, and means cooperating with the sprocket portion
of said combined gear and sprocket to convey ears of corn to said stripping cylinder.

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

JOHN F. ERNST.

Witnesses:

WILL. J. STOYE,

CHARLIE McPRANGEL.