(No Model.) 3 Sheets--Sheet 1.

C. OATH, Jr.

CORN SHELLER.

No. 422,035. Patented Feb. 25, 1890.

Fig. 1

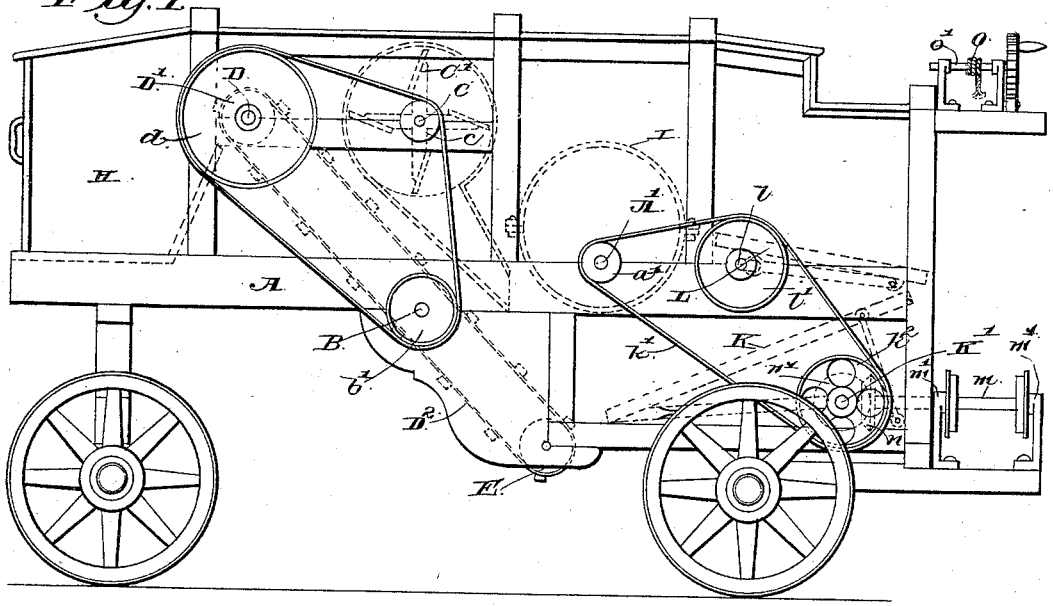
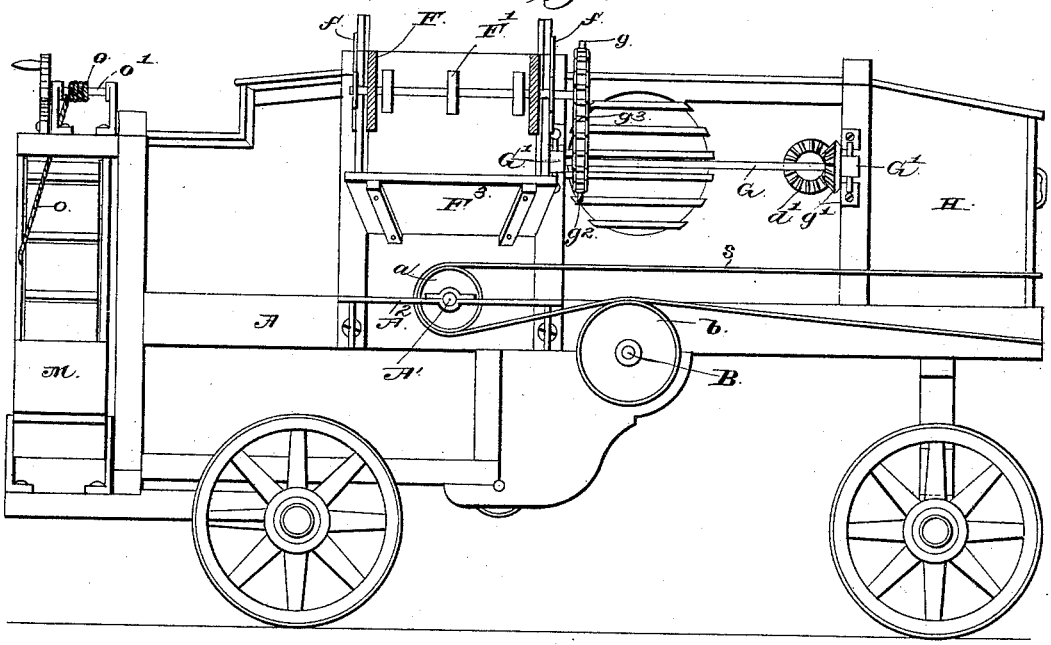


Fig. 2



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(No Model.) 3 Sheets—Sheet 2.

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Fig. 3.

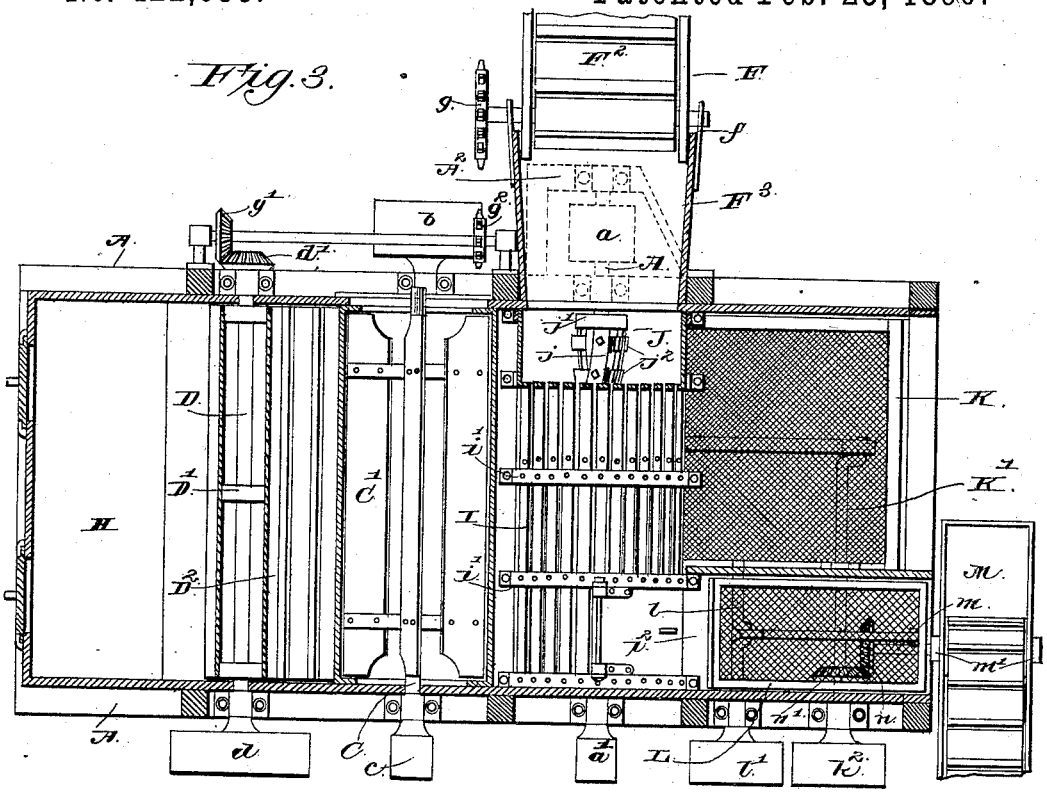
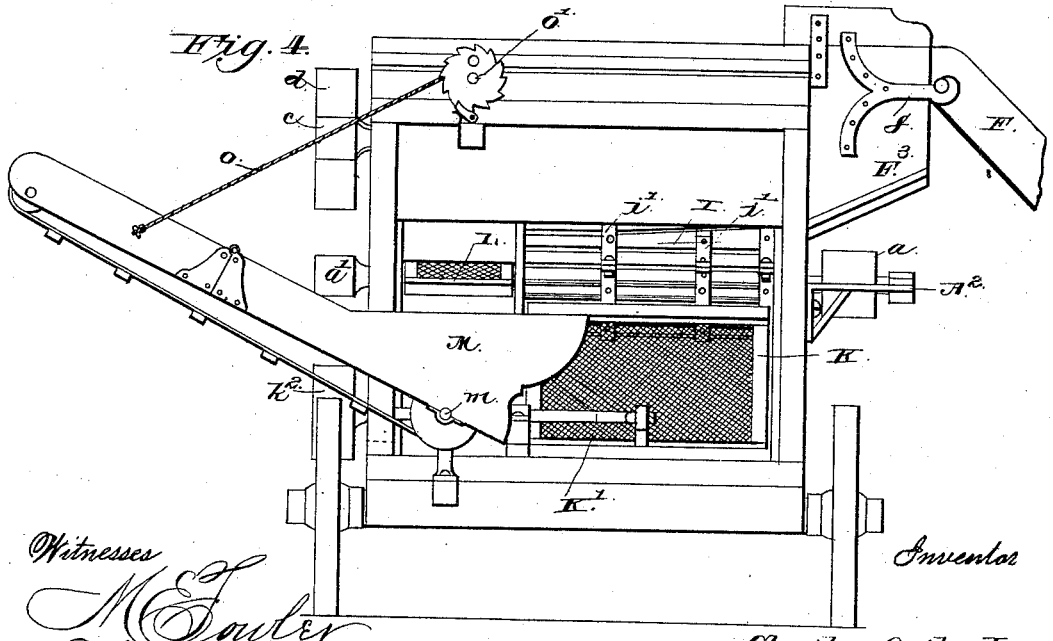


Fig. 4.



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(No Model.)

3 Sheets—Sheet 3.

C. OATH, Jr.

CORN SHELLER.

No. 422,035. Patented Feb. 25, 1890.

Fig. 5.

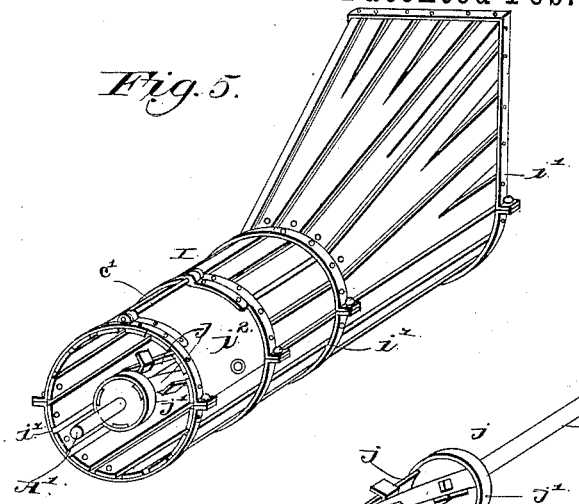


Fig. 6.

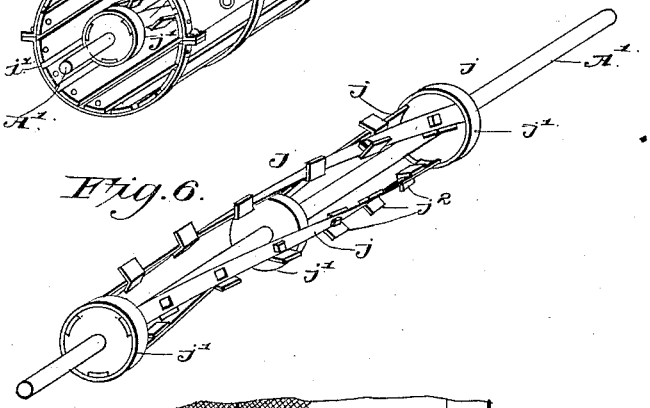
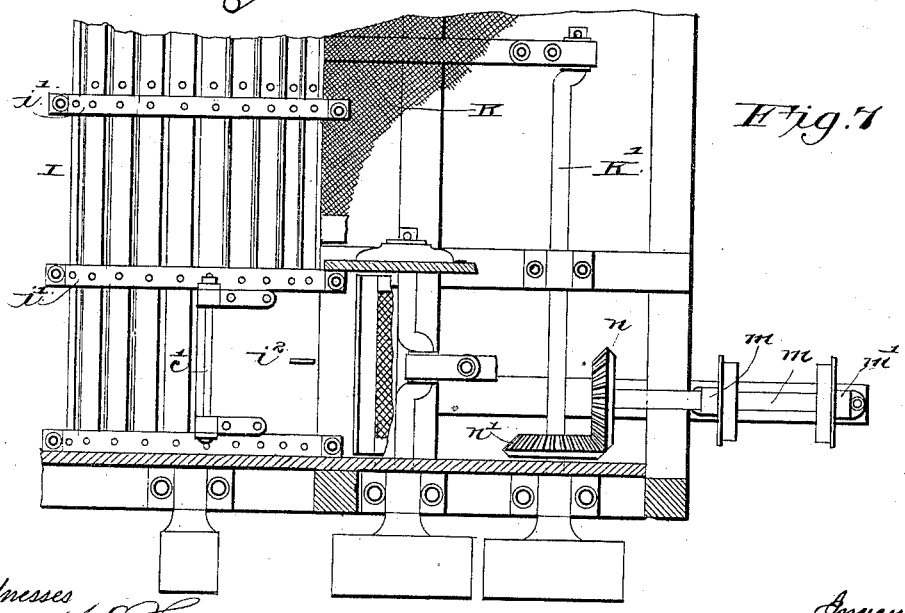


Fig. 7.



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UNITED STATES PATENT OFFICE.

CHARLES OATH, JR., OF MOUNT VERNON, INDIANA.

CORN-SHELLER.

SPECIFICATION forming part of Letters Patent No. 422,035, dated February 25, 1890.

Application filed April 24, 1889. Serial No. 308,350. (No model.)

To all whom it may concern:

Be it known that I, CHARLES OATH, Jr., a citizen of the United States, residing at Mount Vernon, in the county of Posey and State of Indiana, have invented a new and useful Corn-Sheller, of which the following is a specification.

My invention relates to corn-shellers, its object being to increase the efficiency of machines of this class and to improve the construction of the concave and cylinder, whereby the corn is prevented from choking up the concave and the strain on the bolts that secure the teeth to the cylinder is relieved, thereby rendering the teeth less liable to become loosened.

To these ends my invention consists in the construction, arrangement, and combination of the several parts, hereinafter fully described, and particularly pointed out in the claims.

In the drawings, Figure 1 is a side view. Fig. 2 is a view taken on the side opposite to that shown in Fig. 1. Fig. 3 is a horizontal section. Fig. 4 is a rear view. Fig. 5 is a perspective view of the concave detached. Fig. 6 is a similar view of the cylinder detached. Fig. 7 is a horizontal section, partly broken away, of a portion of the machine.

A A represent the main longitudinal beams of the frame of the machine, and A′ is a shaft journaled in suitable bearings on the upper sides of the beams A A and on a shorter beam A^2, which is attached to one of the beams A, as shown. Between the beam A^2 and one of the beams A to which it is attached a pulley *a* is mounted on the shaft A′. This pulley *a* is the main driving-pulley and receives its motion from the source of power through the medium of the belt *s*. The shaft A′ carries the cylinder J, to be hereinafter more fully described. To the under side of the beams A A about midway of their length are secured suitable bearings, in which a shaft B revolves. This shaft extends beyond the beams A on either side of the machine and carries on its ends the pulley *b b′*. The belt *s* runs over the top of the pulley *b* and imparts motion to it and to the shaft B and pulley *b′*. Journaled in suitable bearings in the upper part of the frame are the two shafts C D. These shafts extend beyond the frame of the machine on the side on which the pulley *b′* is located and carry the pulleys *c* and *d*, respectively. A belt passes over the pulleys *b′*, *c*, and *d* to transmit motion.

The shaft C carries the fan C′, which revolves within the machine, and the shaft D carries a roller D′, which forms the upper roller, over which the carrier-belt D^2 runs for the purpose of elevating the shelled corn to the receptacle H, as will be hereinafter explained.

E is the lower roller, over which the carrier-belt D^2 runs, and its shaft is journaled in suitable bearings on the lower part of the frame of the machine.

F is the corn-elevator, pivoted at its upper end in the brackets *f*, secured to the sides of an open casing or box F^3, the latter being secured to the side of the machine. The shaft of the top roller F′, over which the carrier-belt F^2 runs, projects beyond one of the brackets *f* and carries a sprocket-wheel *g*. A shaft G is mounted in suitable bearings supported by brackets G′, attached to the side of the machine, and carries at one end a bevel-gear *g′* and at the other end a sprocket-wheel g^2. A sprocket-chain g^3 passes over the wheels *g* and g^2, and the bevel-gear *g′* engages with a bevel-gear *d′* on the end of the shaft D. Motion is thus transmitted from the shaft D to the roller F′ to operate the carrier-belt F^2.

I is the concave, secured in the machine in any suitable manner, its mouth communicating with the box or casing F^3. This concave is made of iron bars bolted to the iron bands *i′*, three-eighths-of-an-inch space being left between each bar and those adjacent, so that the shelled corn can pass through freely. The body of the concave is cylindrical, but its mouth is enlarged and made square at its upper side, as shown. The bottom of the open casing or box F^3 slopes downward from the top of the elevator F to the mouth of the concave, and ear-corn can be supplied to the concave freely without danger of choking and without the necessity of an attendant feeding it by hand.

The cylinder J is mounted on the shaft A′ and revolves within the concave I. This cylinder is constructed of three longitudinal bars *j*, firmly secured to the heads *j′* in such a way as to give the cylinder a spiral form. Each

bar j carries, preferably, six or more teeth j^2. These teeth are bent at a right angle, as shown, one portion being bolted to the flat side of the bars and the other having a partial bearing against the edge of the bar, so that the pressure of the teeth in operation is against the edge of the bars, and thus much of the strain on the securing-bolts is relieved and the teeth do not become loosened or detached. By only having three bars in the cylinder more room is given to twist corn in and shell it with greater rapidity than when using four or five bars. The cobs will be carried to the end of the concave by the spiral cylinder. From thence they are discharged through the door i^2, which is hinged at its top close to the end and on the side of the cylindrical portion of the cylinder, and which will open outwardly by the pressure of the cobs as they accumulate.

Located below the concave is a sieve K, on which the shelled corn drops from the concave. This sieve has a downward inclination to the carrier-belt D^2 and receives a reciprocating movement by means of a crank-shaft K′, having suitable bearings in the machine-frame. This shaft derives its motion from the shaft A′ by means of the belt k', which passes over the pulleys a' and k^2 on the shafts A′ and K′, respectively. The shelled corn will be shaken down to the carrier-belt D^2, the fan C′ will thoroughly cleanse it during its passage, and the belt D^2 will carry it to the receptacle H, from whence it can be discharged into sacks.

L is a riddle located so as to receive the cobs from the discharge-door i^2 in the concave. This riddle is adapted to have a reciprocating movement by means of the crank-shaft l, which derives its movement from the shaft A′ through the belt k', running over the pulleys a' and l' on the shafts A′ and l, respectively. This reciprocating movement will have the effect of separating the remaining corn from the cobs, the former falling through the riddle onto the riddle K, and from thence to the carrier belt or apron D^2, and the latter being carried along to the foot of the cob-carrier M at the rear of the machine. This carrier is pivoted at its lower end on a shaft m, mounted in suitable bearings m' on the main frame of the machine and an extension thereof. The shaft m is provided at one end with a bevel-gear n, which meshes with a bevel-gear n' on the shaft k'. The lower roller over which the belt of the carrier M runs is keyed to the shaft m, and hence derives its motion from the shaft k'. The carrier M leads to one side of the machine, and its upper end is adjustable vertically by means of a rope or chain O, leading therefrom to a shaft O′, on which it is adapted to be wound. The shaft O′ is provided with a crank-handle and a ratchet-and-pawl mechanism in the ordinary manner, and is mounted in suitable bearings on an extension of the upper part of the machine-frame.

The operation of the machine will be readily understood from the foregoing, and can be briefly stated as follows: The lower part of the corn-elevator F is placed in the corn-pen and the machine is started. The ear-corn will be carried by the elevator up to the box or casing, when it will slide down the inclined bottom of the box to the concave, and as the mouth of the latter is square and as large as the box no choking can take place, and the feed will be regular and uniform. The spiral cylinder, having plenty of space between its longitudinal bars, will take up the corn rapidly and shell it, the corn falling through the concave to the sieve below, where it is cleansed, and from whence it is carried by the carrier-belt D^2 to the receptacle H. The cobs will be carried to the end of the concave and discharged through the door i^2 onto the riddle, where the remaining corn will be separated from them and pass over the sieve K to the carrier-belt D^2, while the cobs will be carried to the cob-carrier M and thrown in a heap on one side clear of the machine.

Having described my invention, I claim—

1. In a corn-sheller, the combination, with the casing, of the concave arranged transversely in said casing and having an enlarged end registering with a feed-opening in one side of the casing, the other end of said concave being closed by the opposite side of said casing, said concave being provided in its rear side with a discharge-opening, at the upper edge of which is hinged a door normally closed, but adapted to be forced open automatically by the pressure of the cobs against the inner side of said door, substantially as set forth.

2. In a corn-sheller, the combination of the concave having a discharge-opening in its rear side and a door hinged at the upper edge of said opening, said door being normally closed, but adapted to be forced open by the pressure of the cobs against its inner side, the cob-screen arranged below the said discharge-opening, and the riddle arranged below and extending under the said cob-screen, said cob-screen and riddle being oppositely inclined, substantially as and for the purpose set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

CHARLES OATH, JR.

Witnesses:

JOHN LUTHER WELBORN,

JOSEPH ROSENBAUM.