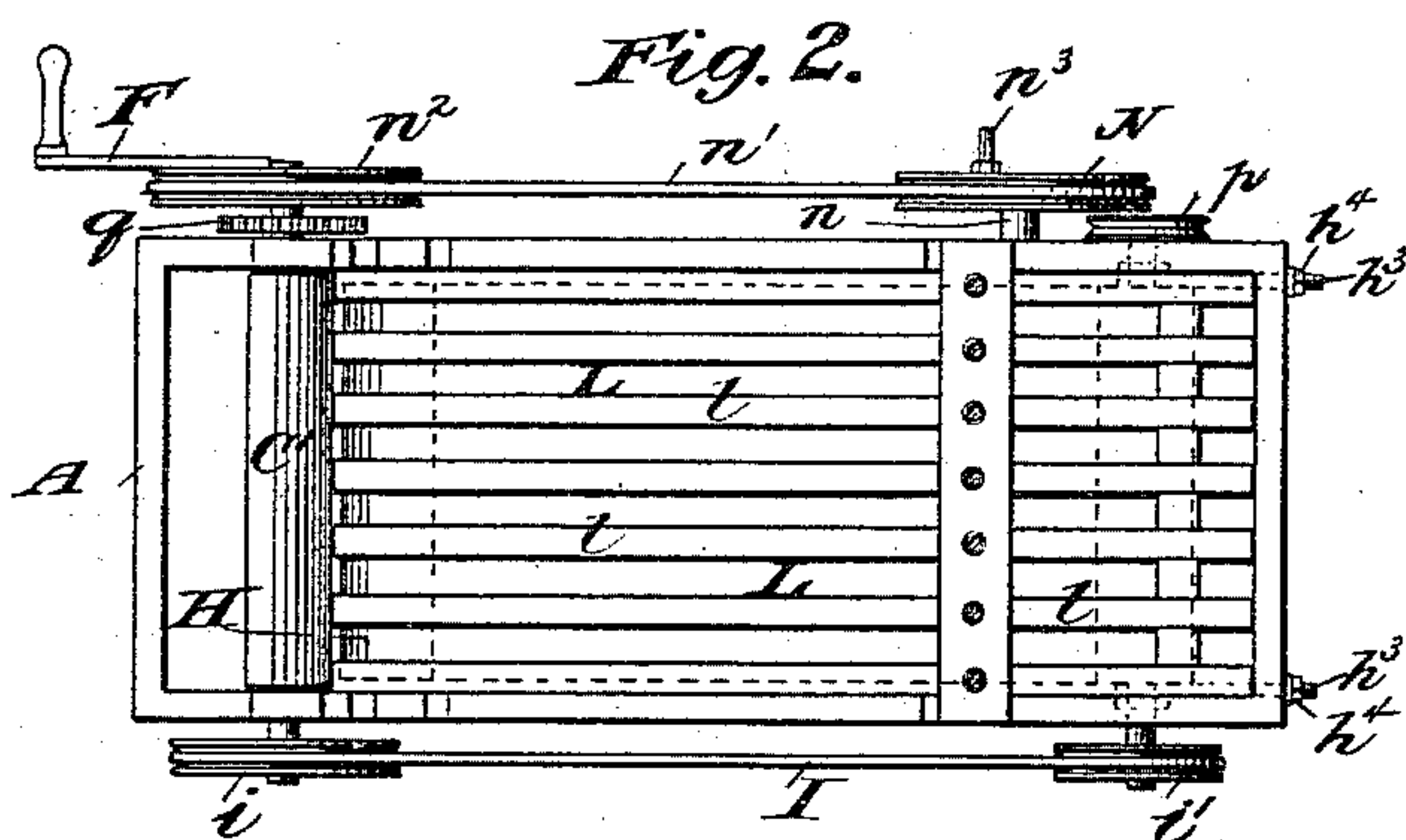
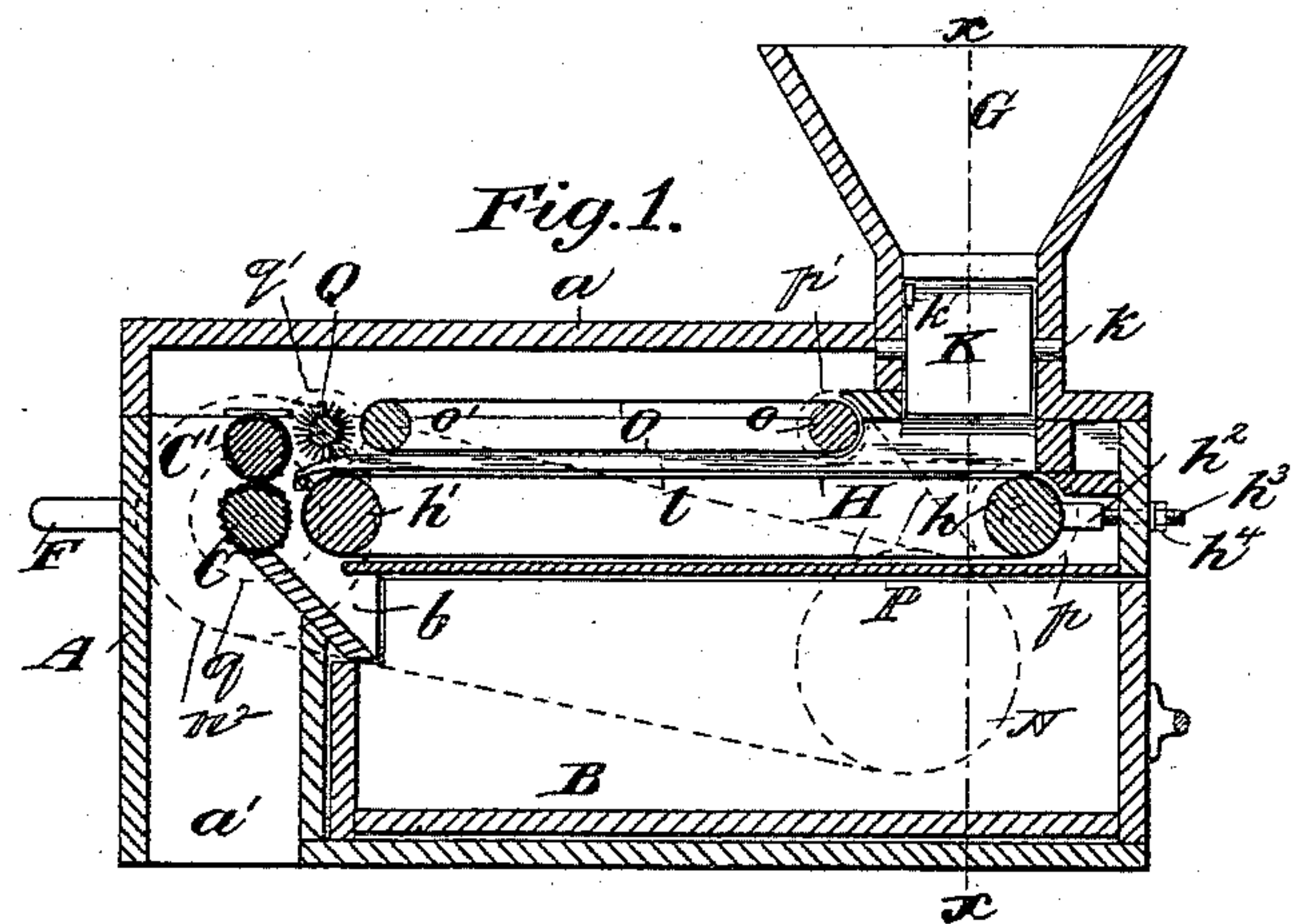


(No Model.)

J. W. HARBIN.  
PEA SHELLING MACHINE.

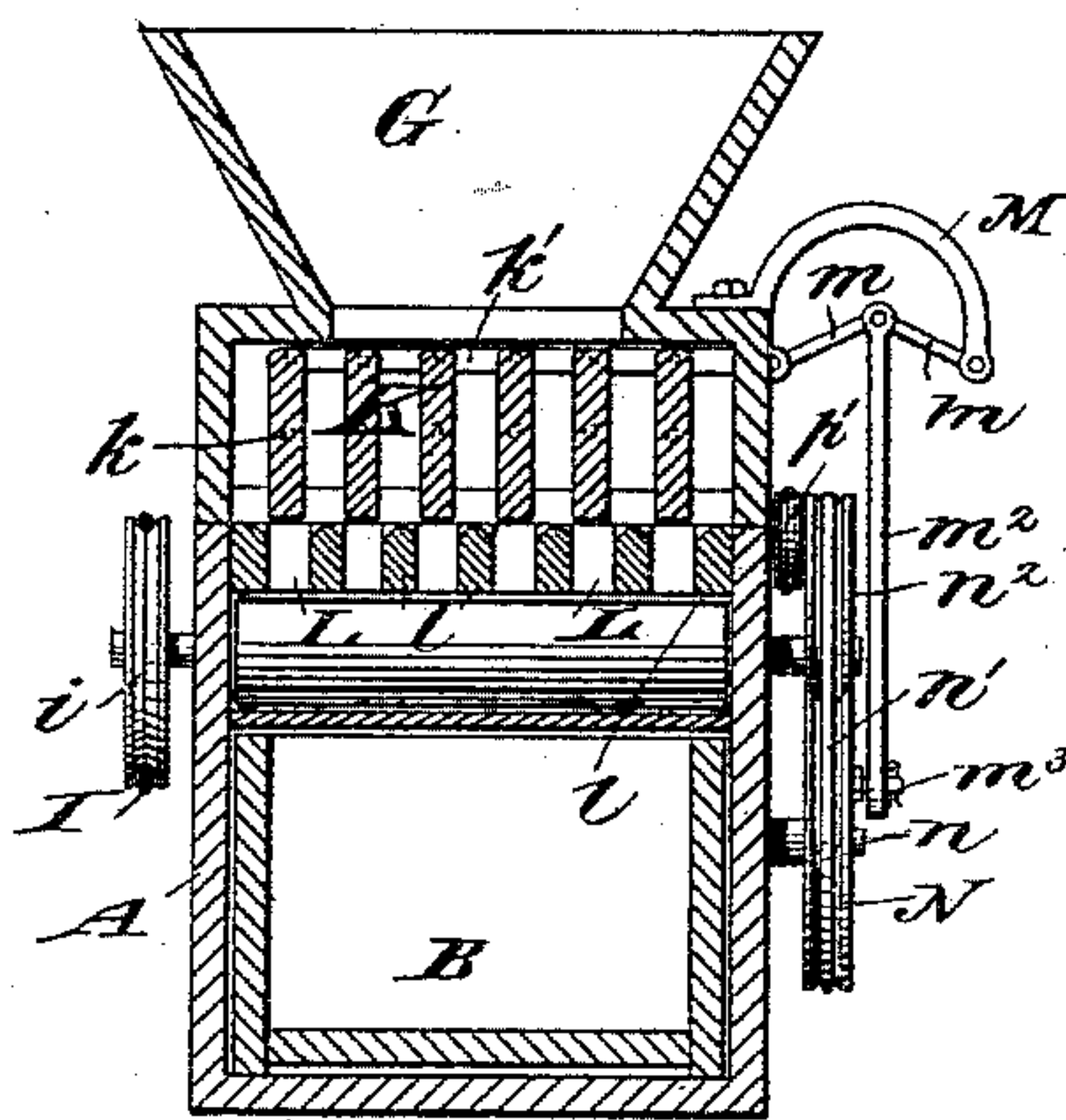
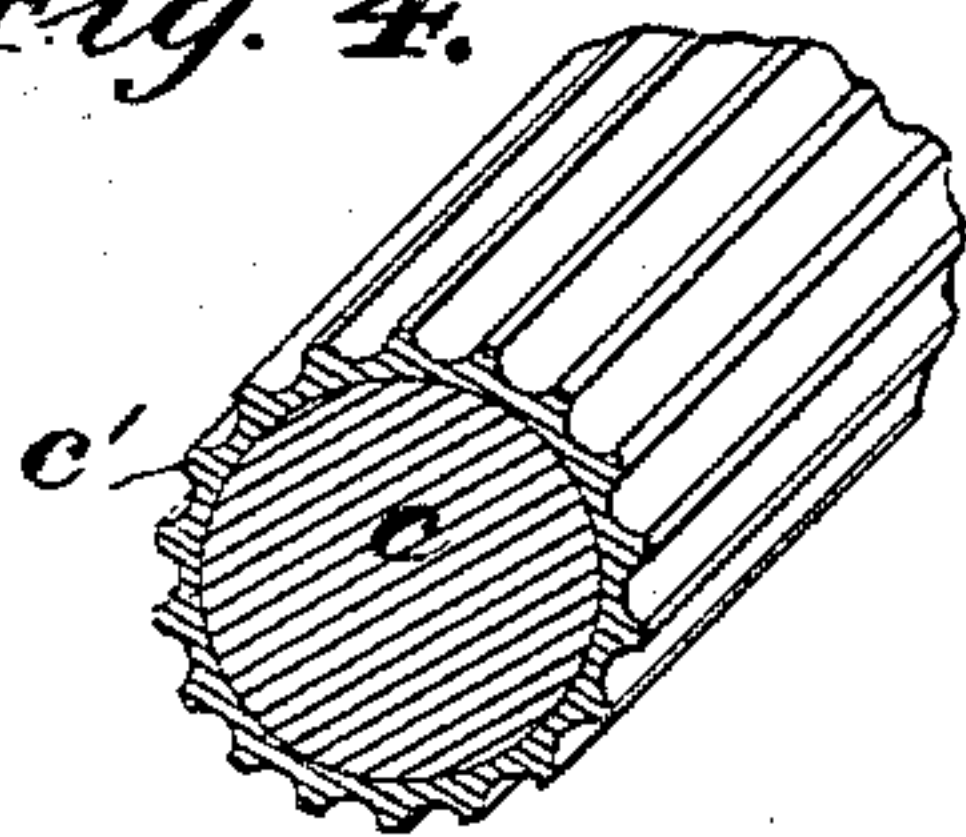
No. 437,987.

Patented Oct. 7, 1890.

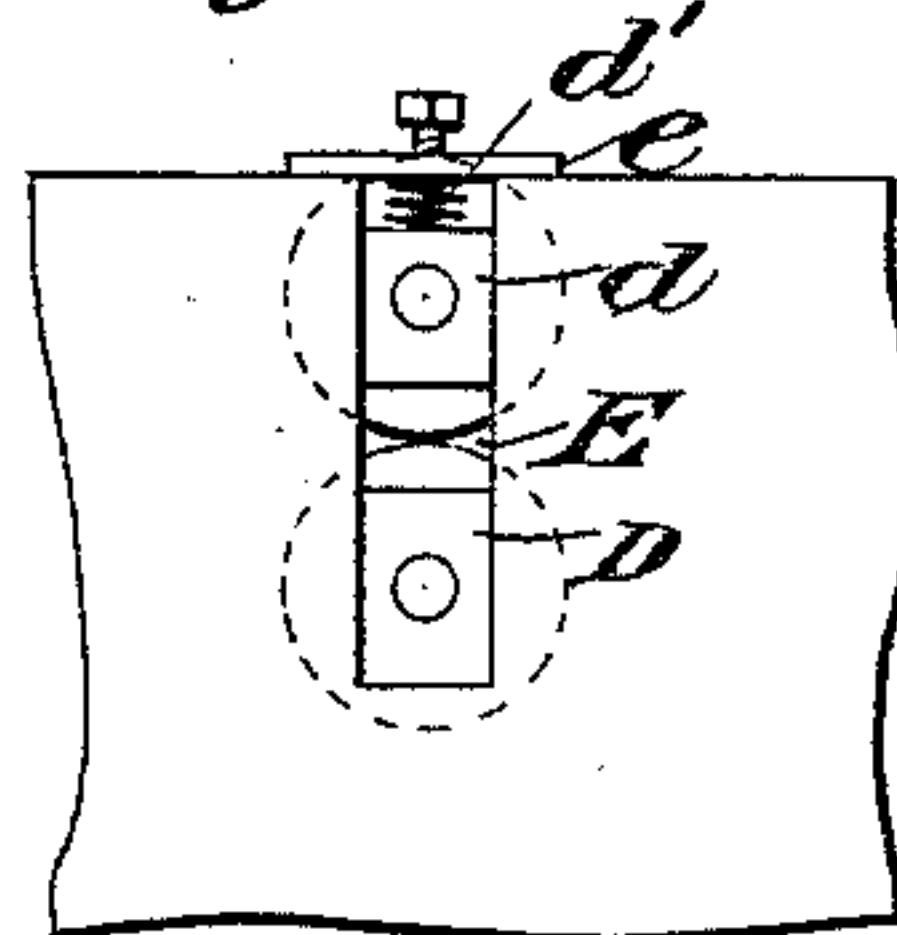


*Fig. 3*

*Fig. 4.*



*Fig. 5.*



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Inventor:-  
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# UNITED STATES PATENT OFFICE.

JOHN W. HARBIN, OF NEW YORK, N. Y.

## PEA-SHELLING MACHINE.

SPECIFICATION forming part of Letters Patent No. 437,987, dated October 7, 1890.

Application filed June 26, 1890. Serial No. 356,770. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN W. HARBIN, of the city and county of New York, in the State of New York, have invented a new and useful Improvement in Pea-Shelling-Machines, of which the following is a specification.

My invention relates to an improvement in pea-shelling machines in which the pea-pods are fed into a hopper onto a constantly-moving carriage provided with means for disposing them longitudinally or endwise between a pair of shelling-rollers, which force the peas from the pods by the pressing of the pod under air-pressure.

The object is to provide a simple and effective machine of this character; and with these ends in view my invention consists in certain features of construction and combinations of parts, as will be hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view of a machine embodying my invention, the view being taken in vertical longitudinal section. Fig. 2 is a top plan view with the cover of the casing, the hopper, and upper guide-belt removed. Fig. 3 is a transverse vertical section through line *xx* of Fig. 1. Fig. 4 is an enlarged view in detail of a part of one of the shelling-rollers; and Fig. 5 is an enlarged view in detail of the side of the casing in the neighborhood of the journal-boxes in which the shelling-rollers are mounted, showing the relative location and the arrangement of the said boxes.

A represents the body portion of the casing, and *a* the cover of the same. The casing is here shown of an oblong form, but may be of any suitable form and diameter, as may be found convenient. At or near one end the said casing is provided with a discharge-opening *a'*, through which the pea-pods are discharged after the peas are extracted therefrom, and *B* denotes a compartment, preferably a drawer, slid into the casing, and into which opens a conduit *b*, through which the peas as they fall from the shelling-rollers pass into the said compartment or drawer.

A pair of shelling-rolls *C C'* are mounted one above the other within the casing, and preferably near one end, as shown, and are adapted to rotate with their adjacent surfaces in contact and in a direction to draw the pea-

pods through between them when presented in proximity to their adjacent faces. I find it advantageous to construct the body *c* of the rolls of wood and the cover *c'* of corrugated rubber, with the corrugations running lengthwise of the rolls. The roll *C* is journaled in stationary boxes *D*, which may be conveniently inserted in an elongated open slot *E*, extending downwardly through the upper edge of the body portion of the casing, while the roll *C'* is journaled in vertically-movable boxes *d*, also inserted in said slots *E* and held in yielding contact with the roll *C* by means of a suitable spring *d'*, inserted between a cap-piece *e* and the journal-box *d*. It is intended that power shall be applied to the roll *C* either by a crank *F*, as herein shown, or by a connection with any suitable power where it is desired to drive the machine by other than hand-power. The contact of the driving-roll *C* with the roll *C'* serves to drive the latter, or gears of well-known form may be introduced to give positive motion.

A hopper *G* is located at the opposite end of the casing from the shelling-rolls above referred to, the said hopper opening at its bottom to the surface of a constantly-moving carriage, here shown as an endless belt *H*, which is intended to convey the pods with the peas therein from the hopper to a point in proximity to the adjacent faces of the rolls *C C'*. The belt *H* is mounted upon suitable rollers or drums *h h'*, one of them, preferably the former, being mounted in adjustable supports *h<sup>2</sup>* for taking up any slack in the belt. The adjustment of the supports *h<sup>2</sup>* is here shown as effected by a screw-threaded rod *h<sup>3</sup>*, affixed to the support *h<sup>2</sup>* and extending through the end of the casing, the same being provided on the outside of the casing with a nut *h<sup>4</sup>*, for drawing the support toward the end of the casing. The endless belt *H* is driven by a belt *I*, connecting a pulley *i* on the projected end of the shaft of the roll *C* with a pulley *i'* on the shaft of the roller *h*. The belt-connection *I* is preferably located on the opposite side of the machine from that on which the power is applied to the roll *C*.

The feeding of the pods from the hopper onto the belt *H* is regulated and rendered effective by means of a series of slats *K*, pivoted centrally, as at *k*, so as to tilt trans-



versely of the machine, and loosely connected at their upper ends to an operating-bar  $k'$ , the reciprocatory movement of which causes the lower ends of the slats to swing first to one side and then to the other side of a series of channels L, which lead along the upper face of the belt to or near the shelling-rolls. The reciprocatory movement is given to the operative bar  $k'$  by means of a toggle-lever, one member  $m$  of which is connected to the bar  $k'$ , and the other member  $m'$  of which is connected to the end of an overhanging bracket M, secured to the casing. The toggle-lever  $m m'$  is operated by a connecting-rod  $m^2$ , connecting a wrist-pin  $m^3$  on a crank-wheel N with the meeting ends of the members  $m m'$  of the lever. The crank-wheel N is mounted upon a stub-axle  $n$ , secured to the casing, and is driven by a belt  $n'$  connecting it with a driving-pulley  $n^2$  on the end of the shaft of the roll C. The belt  $n$  is preferably on that side of the machine on which power is applied to the roll C.

The channels L, which extend from beneath the hopper to or near the shelling-rolls C C', are conveniently formed by means of a set of guides or partitions  $l$ , which extend longitudinally and in proximity to the upper face of the belt H. The object of the channels L is to feed the pea-pods with peas longitudinally or endwise toward the shelling-rolls and to prevent them from assuming any other position during their travel.

The mechanism as thus far described forms a complete and practical machine in itself; but in order to further provide against any tendency toward misplacement in feeding the pods rapidly to the shelling-rolls I have provided an upper guide-belt O, the lower face of which is intended to run in proximity to the upper edges of the guides  $l$ . The rollers or drums  $o$  and  $o'$ , on which it is mounted, are located at points intermediate of the rollers  $h h'$ , on which the belt H is mounted, so that there will be a slight yielding of the belt H beneath said rollers in case of any wedging of the pods beneath them. The belt O may be driven by means of a cross-belt P, connecting a pulley  $p$  on the shaft of the roller  $h$  with a pulley  $p'$  on the shaft of the roller  $o$ . The belt P and the pulleys  $p p'$  are shown in dotted lines in Fig. 1 of the drawings.

To further provide for the feeding of the pods from the ends of the belt H to the shelling-rolls and to prevent the peas as they fall from the pods from being drawn upwardly toward the cover of the casing, I provide a brush Q, located over the rear end of the belt H and of the channels L and between the belt-roller  $o'$  and the shelling-roll C', the said brush being driven by means of a gear-wheel

$q$ , fast on the shaft of the roller C and intermeshing with a pinion  $q'$ , fast on the brush-shaft. The pinion  $q'$  is shown in dotted lines in Fig. 1 of the drawings.

In operation the peas from the hopper are agitated and directed by the feed mechanism at the base of the hopper into the channels L above the endless belt and are carried by said belt along the channels and presented endwise between the shelling-rolls C C'. The pressure of the rolls compresses the air within the pods, which compression bursts the pod and causes the peas to fly out of the pod in the direction opposite to that in which the pod is moving. The peas will fall downwardly through the conduit  $b$  into the receptacle B, while the pods will pass on between the shelling-rollers and fall through the discharge-opening  $a'$  into a suitable receptacle.

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

1. The combination, with the shelling-rolls, the feed-hopper, and the endless-belt carrier leading from the base of the hopper to the shelling-rolls, of a series of channels along the surface of the endless belt from a point beneath the hopper to a point near the shelling-rolls, a second endless belt located above said series of channels and intermediate of the ends of the first-named endless belt for controlling the passage of the pods along the channels to the shelling-rolls, and means for operating the belts, substantially as set forth.

2. In a pea-shelling machine, the combination, with a pair of shelling-rolls, a feed-hopper, and a constantly-moving carriage leading from the hopper to the rolls, of a series of swinging slats located at the base of the hopper for distributing the pea-pods onto the carriage, substantially as set forth.

3. In a pea-shelling machine, the combination, with the shelling-rolls, the feed-hopper, and the endless carriage leading from the hopper to the shelling-rolls, of a brush located above the rear end of the carriage in proximity to the shelling-rolls for preventing displacement of the pea-pods and peas, substantially as set forth.

4. In a pea-shelling machine, the combination, with a feed-hopper, shelling mechanism, and means for conveying the pea-pods from the hopper to the shelling mechanism, of a series of tilting slats secured at the base of the hopper for feeding the pea-pods, a toggle-lever for tilting the slats, and mechanism for operating the toggle-lever from the driving-shaft, substantially as set forth.

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