

No. 693,926.

Patented Feb. 25, 1902.

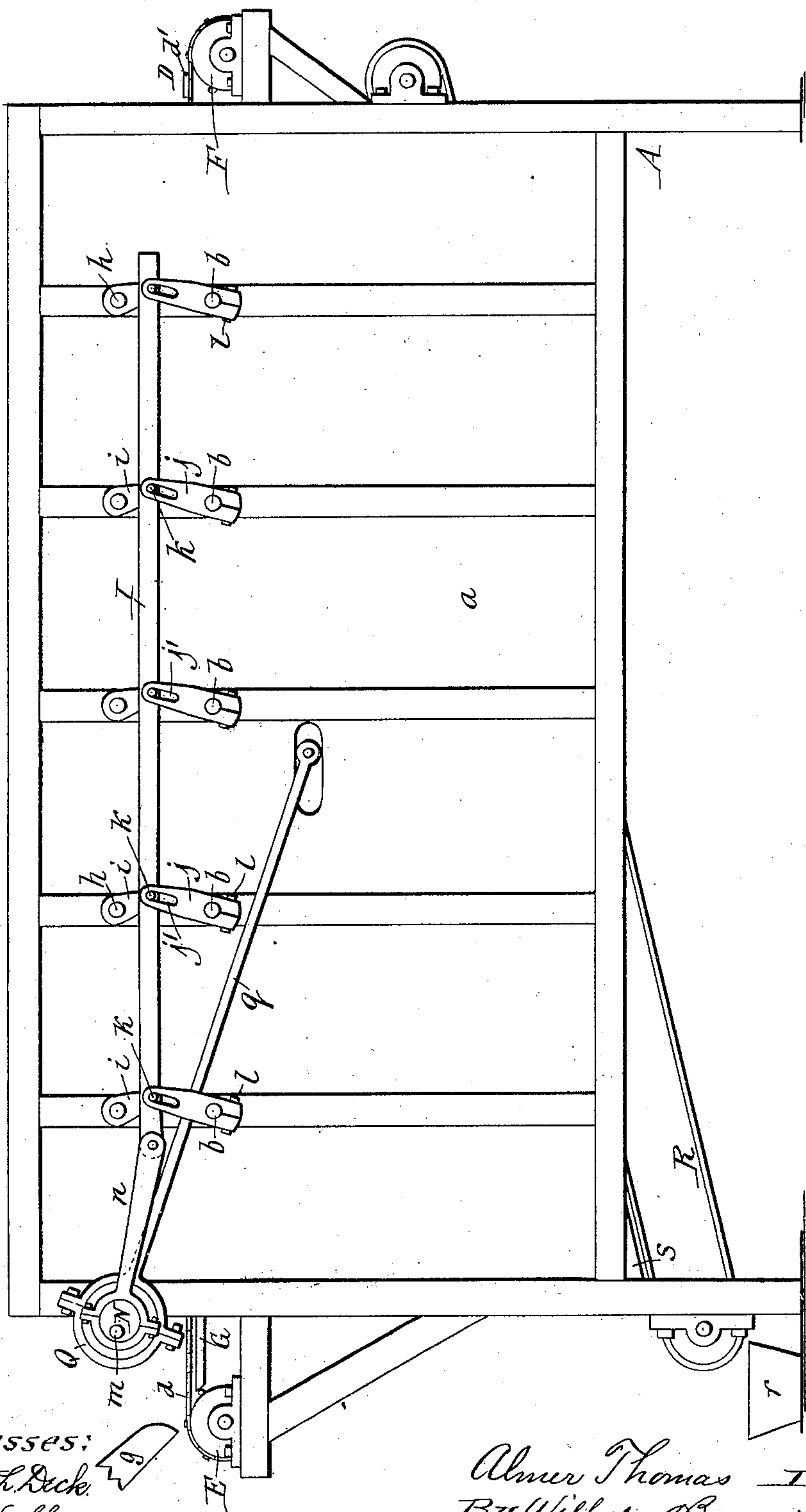
A. THOMAS.
MACHINE FOR HULLING GREEN PEAS.

(Application filed Feb. 18, 1901.)

(No Model.)

3 Sheets—Sheet 1.

Fig. 1.



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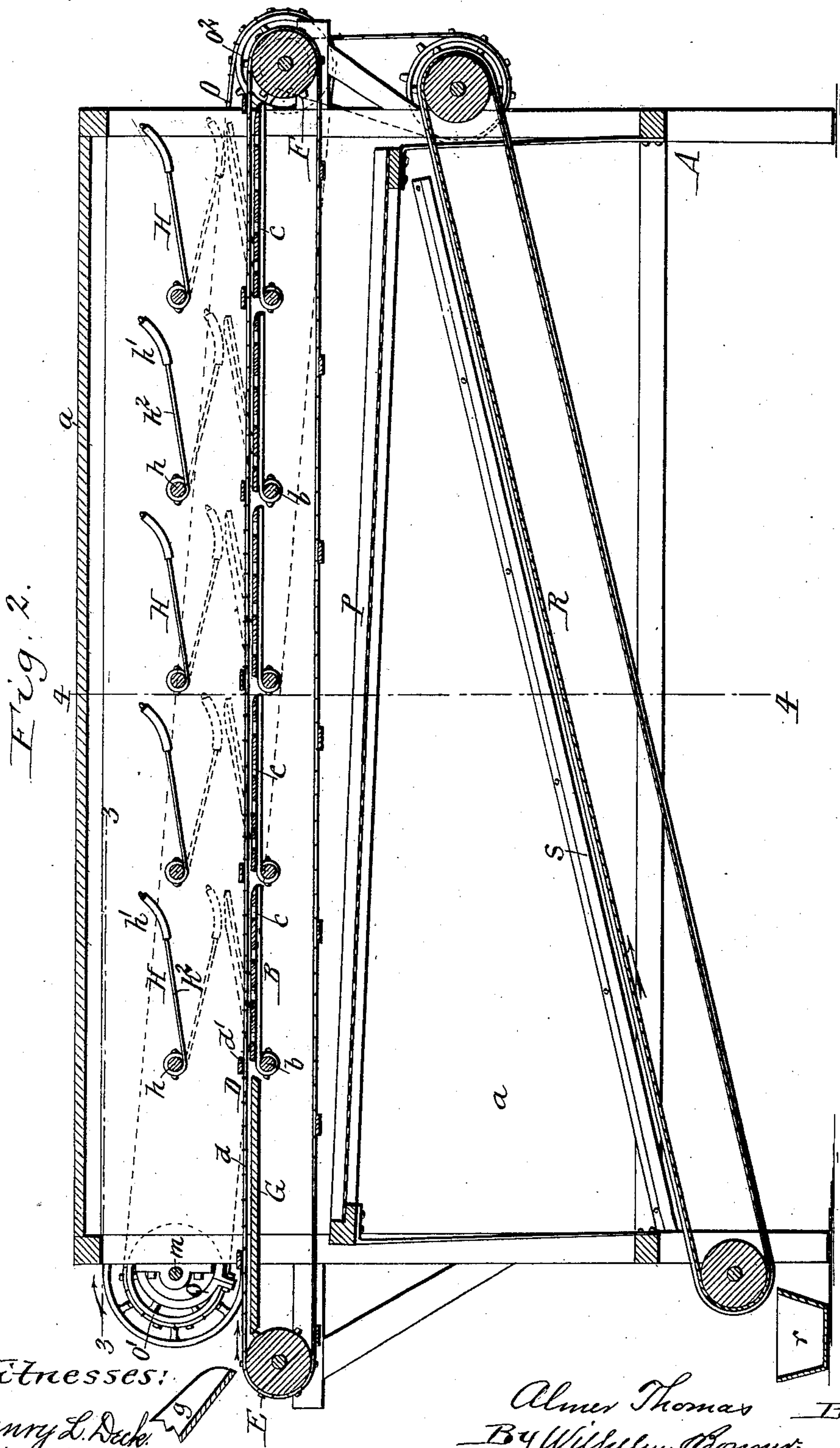
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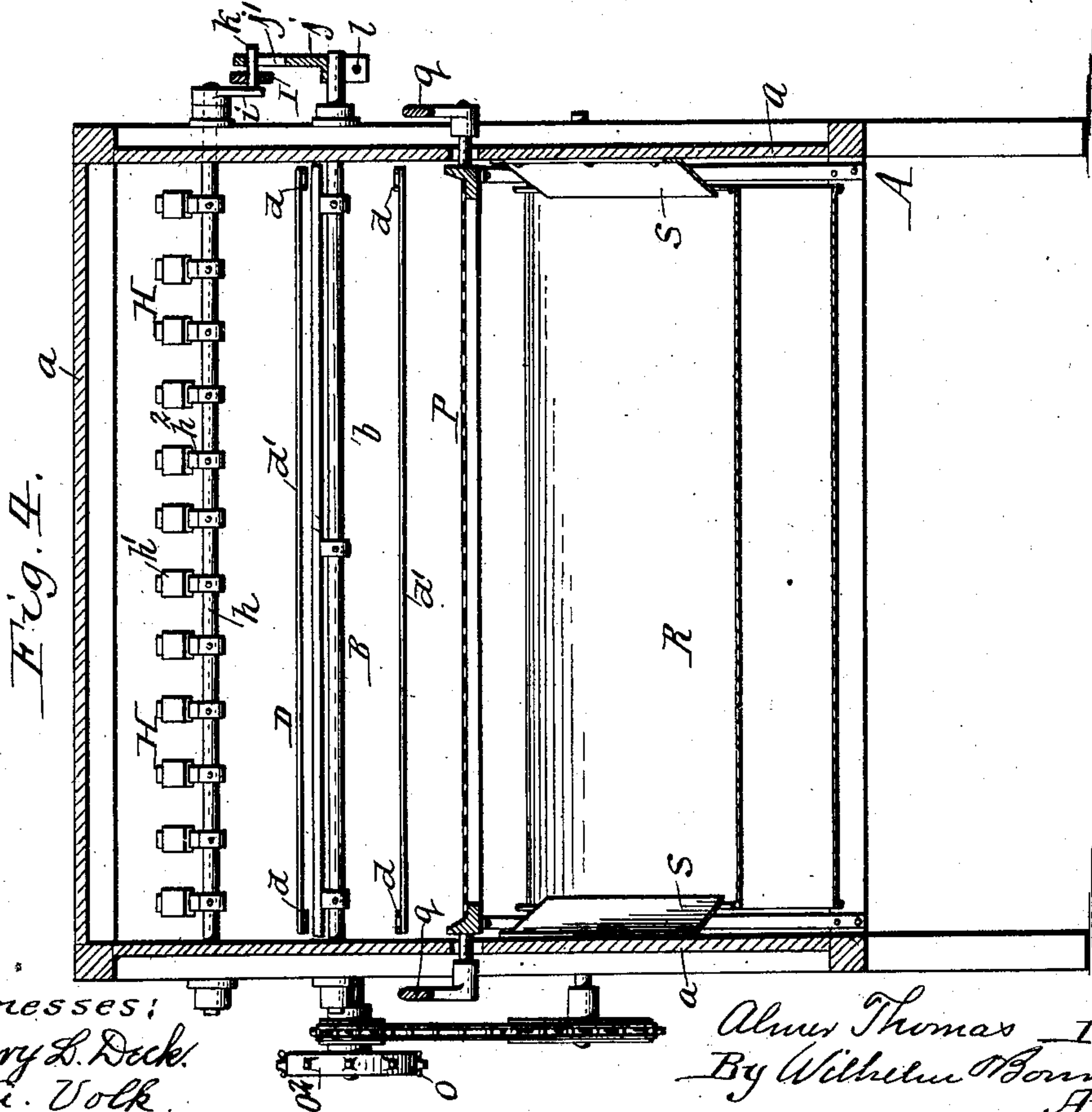
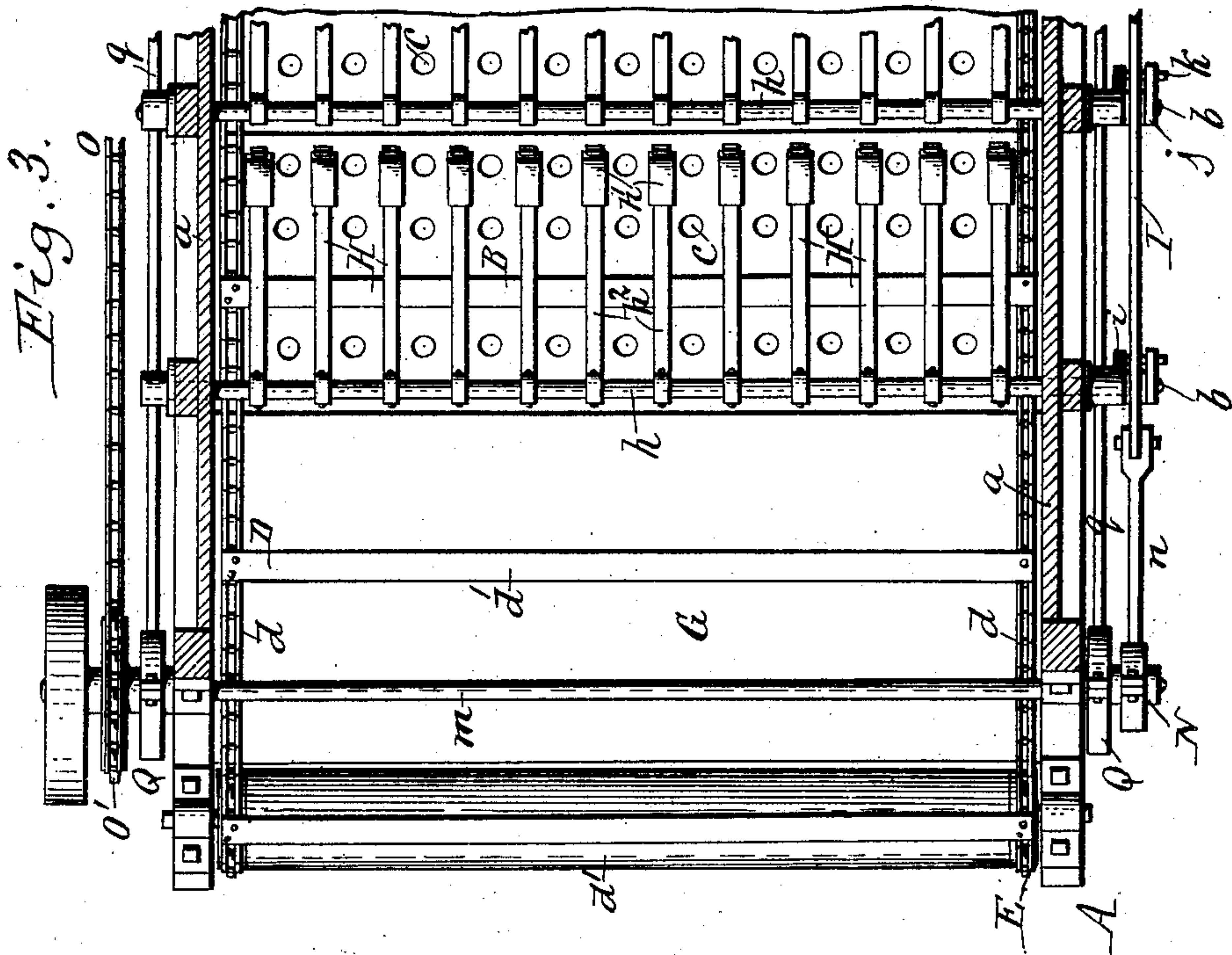
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3 Sheets—Sheet 3.



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UNITED STATES PATENT OFFICE.

ALMER THOMAS, OF NORTHEAST, PENNSYLVANIA, ASSIGNOR TO ALBERT B. CHAPMAN, OF SILVERCREEK, NEW YORK.

MACHINE FOR HULLING GREEN PEAS.

SPECIFICATION forming part of Letters Patent No. 693,926, dated February 25, 1902.

Application filed February 18, 1901. Serial No. 47,739. (No model.)

To all whom it may concern:

Be it known that I, ALMER THOMAS, a citizen of the United States, and a resident of Northeast, in the county of Erie and State of Pennsylvania, have invented new and useful Improvements in Machines for Hulling Green Peas, of which the following is a specification.

This invention relates to a machine for hulling or threshing green peas on the vines by an operation in which the vines and pods are moved over a supporting floor or bottom and acted on by successive beaters which are arranged above this floor or bottom.

The object of my invention is to produce a simple and efficient machine for effecting this operation.

In the accompanying drawings, consisting of three sheets, Figure 1 is a side elevation of my improved hulling-machine. Fig. 2 is a longitudinal vertical section of the same. Fig. 3 is a longitudinal horizontal section of the front portion of the machine in line 3 3, Fig. 2. Fig. 4 is a vertical transverse section in line 4 4, Fig. 2.

Like letters of reference refer to like parts in the several figures.

A represents the stationary frame of the machine, provided at the sides and top with a suitable casing *a*.

B represents a sectional supporting floor or bottom arranged in the upper portion of the frame. As shown in the drawings, this floor is composed of separate sections which are arranged one behind the other in the direction in which the pea-vines are moved over the floor. Each section is supported at its front end by a transverse rock-shaft *b*, so that the section is capable of a vertical oscillatory movement. In their normal position the floor-sections stand horizontally, or nearly so. The rear end of one section stands adjacent to the front end of the following section, so that the sections form a practically continuous supporting floor or bottom.

The sections are provided with perforations *c*, through which the peas and small fragments of pods, &c., pass downwardly, while the vines, pods, and coarse fragments remain above the floor.

D represents an endless traveling carrier by which the vines are slowly moved over

the floor. This carrier may be constructed and operated in various ways; but I prefer to construct this carrier, as shown, of endless chains *d* and cross-slats *d'*. The chains run around sprocket-wheels E F, arranged, respectively, at the feed and tail ends of the machine. The upper part of the carrier is arranged immediately above the supporting-floor B, so as to drag the vines over the same.

G is a stationary head-board which is arranged at the feed end of the machine in front of the supporting-floor for receiving the vines, which may be delivered upon this board from a feed-chute *g* or in any other suitable manner.

H represents the beaters, which act upon the vines and pods while the same are moved through the machine over the supporting-floor B. These beaters have a vertical oscillatory movement and deliver rapid blows upon the vines and pods, whereby the pods are opened and the peas released. A transverse set or row of beaters is arranged side by side above each floor-section and secured to a transverse rock-shaft *h*, which latter is arranged above the corresponding floor-section, or nearly so. Each beater consists of a head *h'* and a flexible or elastic arm, stem, or shank *h''*, by which the head is connected with the rock-shaft *h*. The heads of each set of beaters are arranged above the free rear portion of the corresponding floor-section, and the beaters and floor-sections are oscillated simultaneously in opposite directions, the beaters moving down when the sections move up, so that the heads of the beaters and the free ends of the corresponding floor-section approach each other during this forward movement and recede from each other during the return stroke. The oscillatory movement of the beaters is preferably much greater than that of the floor-sections, about twice as large, and the parts are preferably so arranged and proportioned that the rocking movement of the shafts brings the heads of the beaters and the free ends of the floor-sections to about one and a half inches from each other. The heads of the beaters approach the floor-sections still closer by reason of the flexibility of the beater-arms, which enables the beater-heads by their momentum to de-

flect or bend these arms. The beaters deliver in this manner a yielding or cushioned blow upon the vines or pods, whereby the pods are opened and the peas are released without breaking or injuring the peas.

The beaters and floor-sections may be actuated by any suitable mechanism. As shown in the drawings, they are actuated by a horizontally-reciprocating bar I, which is connected with rock-arms *i* on the rock-shafts *h* of the beaters and rock-arms *j* on the rock-shafts *b* of the floor-sections. The rock-arms *i* project downwardly and the rock-arms *j* project upwardly from their shafts and are connected with the bar I by pins *k*. The arms *j* of the floor-sections are considerably longer than the arms *i* of the beaters to give the beaters a correspondingly greater oscillation than the floor-sections. The arms *j* of the floor-sections are provided with longitudinal slots *j'*, in which the pins *k* engage. The floor-sections are adjustable with reference to their arms, so that the normal or lowermost position of the sections can be regulated. Any suitable adjusting device can be employed for this purpose. As shown, the hubs of the arms are split and clamped upon the shafts *b* of the floor-sections by clamping-bolts *l*. Upon releasing the latter the free ends of each section can be adjusted up or down, as may be necessary.

The reciprocating bar I is actuated from a driving-shaft *m* at the front end of the machine by an eccentric N and rod *n* or by any other suitable mechanism. The endless carrier D may also be driven from the shaft *m* by an endless chain O running around sprocket-wheels O' O².

P represents a shaking-screen, which is arranged underneath the floor B and receives the material which passes through the floor. This material consists of peas and small fragments of pods, vines, and leaves. The perforations of the screen P are of such size that they allow only the peas and fragments smaller than peas to pass through, while all larger matter escapes over the tail end of this screen. The screen may be actuated from the driving-shaft *m* by an eccentric Q and rod *q*.

R is an inclined separating-apron which is arranged lengthwise underneath the screen P. The upper portion or head of this apron extends beyond the tail end of the screen and receives the tailings therefrom. The peas and fine matter fall from the screen upon this apron, which travels upwardly. The peas roll down over the apron and are collected in a trough *r*, while the fine matter adheres and is carried up by the apron and discharged over the head thereof. Any peas which are contained in the tailings falling from the screen upon the apron can separate themselves from the tailings and roll down, while the tailings are elevated and discharged.

s represents side flanges which overhang the sides of the apron and prevent the fall-

ing material from passing beyond the sides thereof. These flanges are secured to the side pieces of the casing *a* of the machine.

The vines, with the pods attached, are fed upon the front end of the supporting-floor and are moved over the latter. During this travel of the vines and pods through the machine they are subjected to numerous blows delivered by the beaters, whereby the pods are opened and the peas released. The upward oscillation of the floor-sections loosens the mass of vines and prevents the same from becoming matted, shakes out the peas, and facilitates the escape of the peas downwardly. The threshed vines and pods are finally discharged from the tail end of the floor.

The speed of the beaters and floor-sections may be more or less, according to circumstances; but it has been found in practice that about one hundred and eighty blows per minute give good results.

While my improved machine is principally designed for hulling green peas, it may be used for hulling or threshing other seeds and grains—for instance, beans of various kinds, either green or dry.

I claim as my invention—

1. In combination, a floor comprising a series of individually-oscillating sections arranged one behind the other, means for oscillating said sections, means for moving the vines and pods over said floor, and a correspondingly-acting series of threshing-beaters arranged over the floor-sections above the path of the vines and pods for delivering blows upon the same while being moved over said floor, substantially as set forth.

2. In combination, a floor comprising a series of sections arranged one behind the other, each section being capable of individual oscillatory movement on a transverse pivot, means for oscillating said sections individually, means for moving the vines and pods over said floor, and threshing-beaters arranged over each floor-section above the path of the vines and pods and having their free striking ends arranged over the free end of the corresponding floor-section, substantially as set forth.

3. In combination, a floor comprising a series of sections arranged one behind the other, each section being capable of individual oscillatory movement on a transverse pivot at its front end, means for oscillating said sections individually, means for moving the vines and pods over said floor, and correspondingly-acting threshing-beaters arranged over each section above the path of the vines and pods and secured at their front ends to a rocking support, substantially as set forth.

4. In combination, a floor comprising a series of sections arranged one behind the other, each section being capable of individual oscillatory movement on a transverse pivot, means for moving the vines and pods over said floor, oscillating correspondingly-acting threshing-beaters arranged over the floor-sections

tions above the path of the vines and pods, and mechanism whereby the floor-sections and the beaters are simultaneously oscillated in opposite directions, substantially as set forth.

5 5. The combination of a floor for supporting the pea vines and pods, consisting of upwardly-oscillating sections and provided with escape-openings for the hulled peas, an end-
10 less carrier whereby the vines and pods are moved over the floor, and oscillating correspondingly-acting threshing-beaters arranged above the floor, substantially as set forth.

15 6. The combination of a floor for supporting the pea vines and pods, consisting of sec-

tions secured to transverse rock-shafts and having escape-openings for the hulled peas, means for moving the vines and pods over said floor, correspondingly-acting threshing-beaters secured to transverse rock-shafts, 20 rock-arms secured to said rock-shafts, and a reciprocating actuating-bar connected with said rock-arms, substantially as set forth.

Witness my hand this 16th day of February, 1901.

ALMER THOMAS.

Witnesses:

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EDWARD WILHELM.