(No Model.)

4 Sheets—Sheet 1.

A. MEYER.

MACHINE FOR SHELLING GREEN PEAS.

No. 260,494. Patented July 4, 1882.

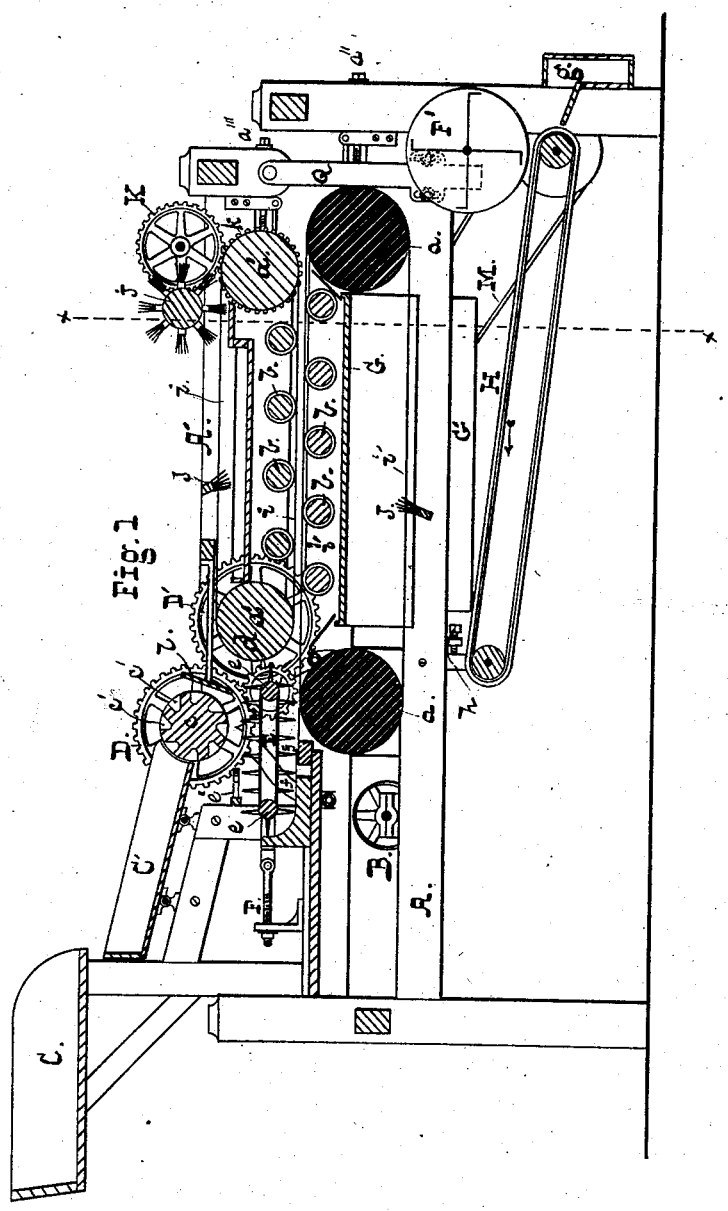

Fig. 1

— ATTEST —

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(No Model.) 4 Sheets—Sheet 2.

A. MEYER.

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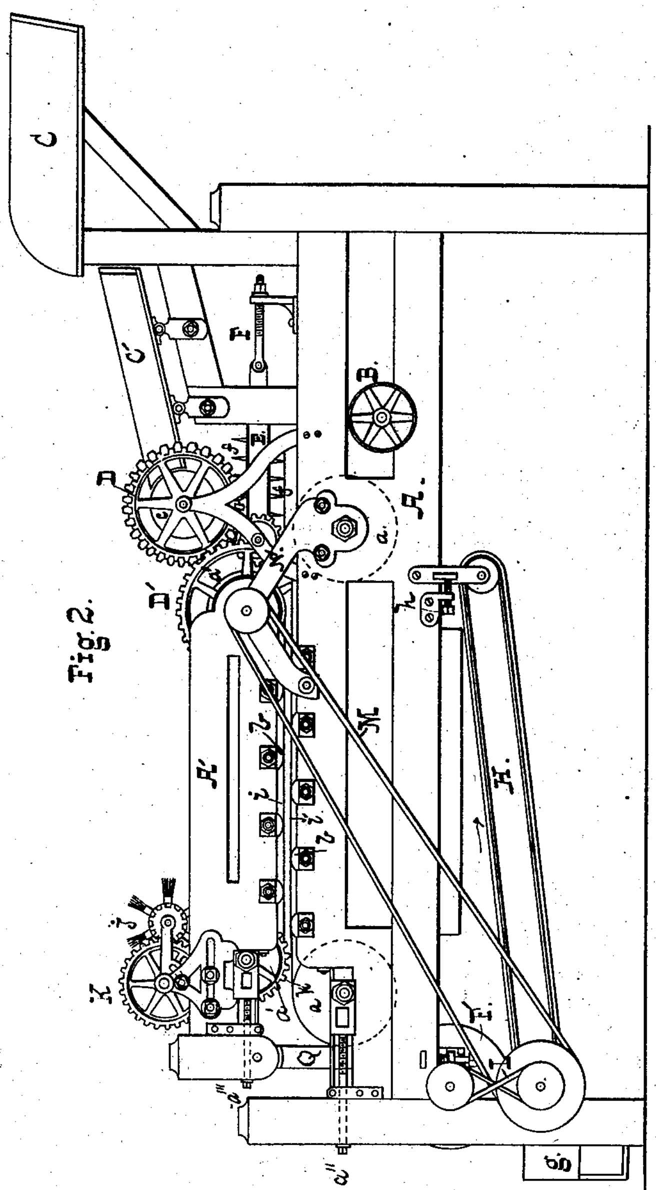

Fig. 2.

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(No Model.) 4 Sheets—Sheet 3.

A. MEYER.

MACHINE FOR SHELLING GREEN PEAS.

No. 260,494. Patented July 4, 1832.

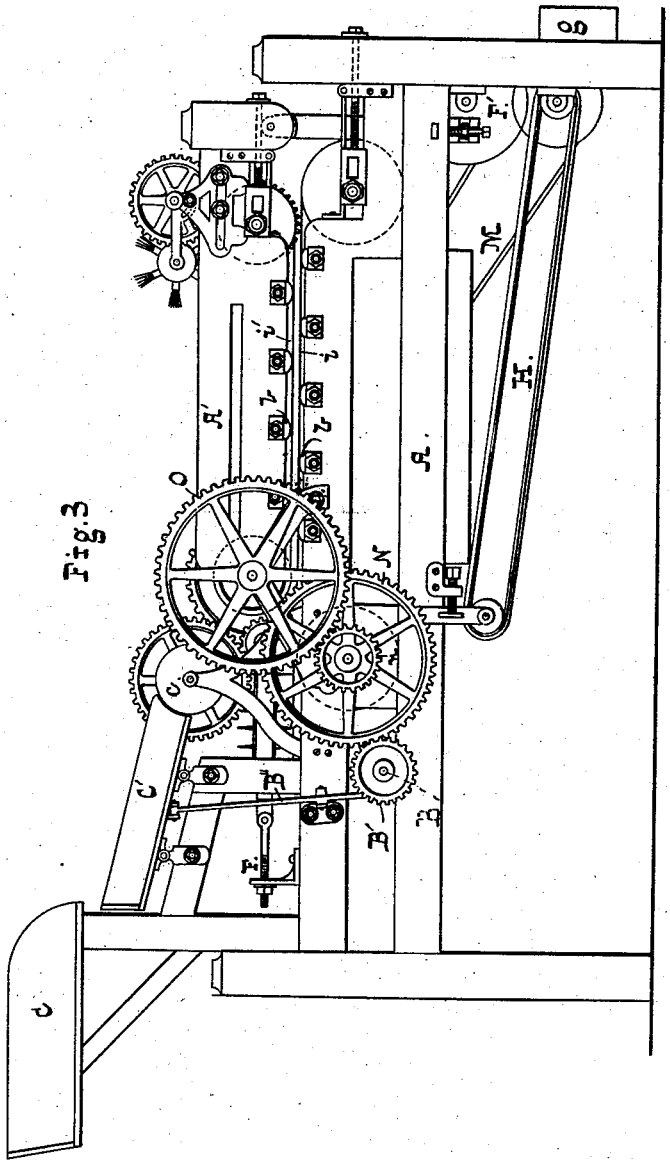

Fig. 3.

—ATTEST—

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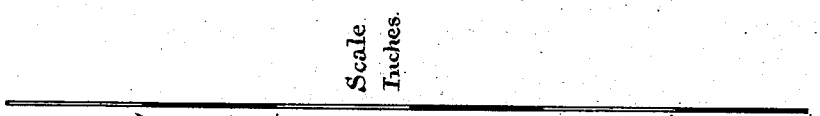
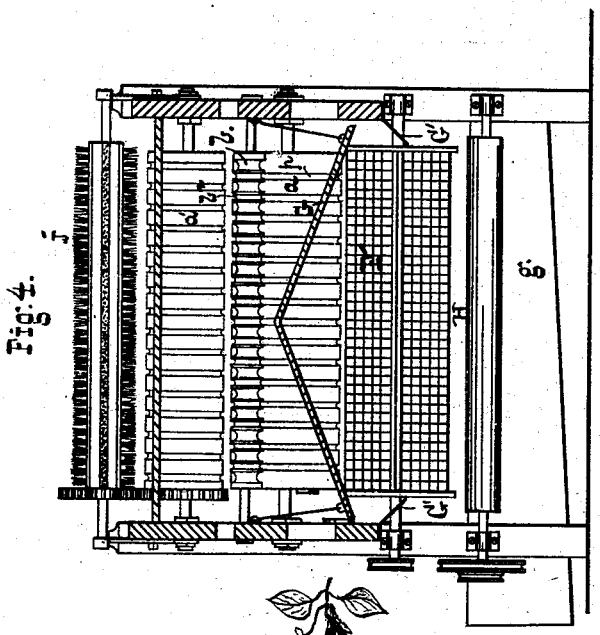
(No Model.) 4 Sheets—Sheet 4.

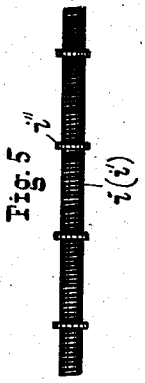
A. MEYER.

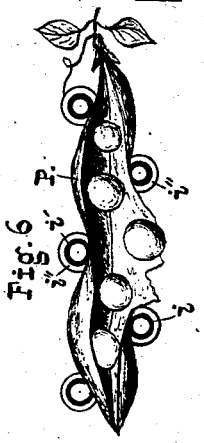
MACHINE FOR SHELLING GREEN PEAS.

No. 260,494. Patented July 4, 1882.









—ATTEST—
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UNITED STATES PATENT OFFICE.

AUGUST MEYER, OF BALTIMORE, MARYLAND.

MACHINE FOR SHELLING GREEN PEAS.

SPECIFICATION forming part of Letters Patent No. 260,494, dated July 4, 1882.

Application filed March 17, 1882. (No model.)

To all whom it may concern:

Be it known that I, AUGUST MEYER, of Baltimore city, State of Maryland, have invented certain new and useful Improvements in Machines and Methods for Shelling Peas; and I hereby declare the same to be fully, clearly, and exactly described as follows, reference being had to the accompanying drawings, in which—

Figure 1 is a central vertical longitudinal sectional view of the machine. Figs. 2 and 3 are elevations of the opposite sides. Fig. 4 is a cross-section on the line *x x* of Fig. 1. Fig. 5 is an enlarged view of the wire for bending and rolling the pods; and Fig. 6 is a transverse sectional view of the wires, showing their action in opening the pods.

My invention relates to machines and methods for removing green peas from the pods; and it has for its object to effect a complete and rapid separation of the pods or shells from the peas without bruising or splitting the latter; and my said invention consists, broadly, first, in simultaneously rolling and bending the pods, whereby they are caused to split and permit the peas to fall out; secondly, in a pea-shelling machine embodying a series of parallel wires, cords, or narrow belts adapted to roll and bend the pods; and, thirdly, in certain features of construction and combinations of parts, as hereinafter set forth.

In the accompanying drawings the machine is shown drawn to one-twelfth scale, the scale at the side of Fig. 4 being assumed to a half-foot subdivided into inches. The allowance to be made for photolithographic reduction may be readily determined upon, comparing an inch-scale to that on the accompanying drawings.

A is the main frame of the machine, in which is journaled a shaft carrying the main driving-pulley B. In the frame A are mounted rollers *a a*, having grooves *p* on their peripheries for the wires *i'*. These latter are endless bands led over the rollers *a a*, and they are sustained against sagging by a series of small rollers, *b*, mounted in the frame A. The bearings of one of the rollers *a* are made adjustable, and are provided with screws *a''*, so as to alter the tension of the wires *i'*, as may be desired.

An upper frame, A', is pivoted at one end in arms N', attached to the lower frame, and is adjustably supported by arms Q at the other. This frame also carries a pair of rollers, *a'*, and series of rollers *b*, similar to those of the lower frame, and having a corresponding series of wires, *i*. The grooves in the upper set of rollers are immediately over the spaces between the grooves in the lower set, so that the wires do not come opposite each other. (See Fig. 6.) One of the upper rollers is adjustable as to its bearings by means of a screw, *a'''*, in order to alter the tension of the upper wires.

On the shaft of the driving-pulley is keyed a wheel, B', (see Fig. 3,) which gears with a wheel, N, on the shaft of one of the rollers *a*, and the same shaft carries a small wheel, *n*, that meshes with a large wheel, O, on the shaft of one of the upper rollers *a'*, whereby the lower series of wires is driven faster than the upper series. On the opposite end of the shaft of the upper roller *a'* is secured a wheel, D', that engages with a wheel, D, and this latter in turn meshes with a small wheel, *d*, on the shaft *e* of the feed-belt E. Tension of this belt is maintained by means of a screw, F.

On the shaft of the end roller *a'* is a wheel, *k*, that engages with a wheel, K, which drives a revolving brush, *j*, designed to brush the wires *i'* and remove any shreds of pod which might adhere to them. Stationary brushes J J serve to supplement the action of the brush *j* and clean the lower wires, *i*.

C is the receiving shelf or hopper, and C' a discharging-chute, which latter is caused to oscillate by means of a lever, B'', actuated by a cam on the rear face of the wheel B'. On the shaft of the wheel D is a roller, *c*, having longitudinal grooves *c'*, as shown.

Beneath the wires *i'* is a board, G, inclined downward from the middle toward the sides of the machine, and below its edges at either side is an inclined ledge, G'.

H is an upwardly-inclined apron, mounted upon rollers, as shown, and driven in the direction of the arrow by means of a belt, M, led from a pulley on the shaft of the roller *a'*. Tension of the apron is maintained by means of a screw, *h*.

F' is a revolving screen at the end of the machine. It is driven by a belt, L, from a pulley on the shaft of one of the apron-rollers.

The wires *i i'* are of peculiar construction. Each consists of a coil similar to the bass strings of a piano, and on them are secured at inter-

vals collars i'', the object of which is to enforce the rolling of the pod and prevent it from sliding along without turning.

In operation the peas are placed in the hopper C, and are fed therefrom to the oscillating chute C'. They are taken up by the grooves c' of the cylinder c, and are discharged from the latter against the incline l, which delivers them to the belt E. The latter is provided with ribs f f, forming grooves in which the pods lie transversely to the length of the machine. The object of constructing this feeding mechanism as described is to prevent the presentation of the pods endwise, or, indeed, other than truly transversely to the shelling-wires. The pods, being delivered by the ribs f upon the lower series of wires, are carried forward upon them and between the two series of wires i i'. Now, as the lower wires travel much faster than the upper ones, as soon as the pods enter between them they commence to roll, and are at the same time bent, as shown in Fig. 6. This treatment has the effect to burst the pods and break the little stems which attach the peas to the same, permitting the peas to fall out of the pods. They fall between the lower wires and upon the plate G, whence they are discharged by the ledges G' upon the apron H. The latter is provided with ledges at its sides, formed by attaching a rope to the edges, like the bolt-rope of a sail, in order to prevent the peas from rolling off at the sides. As before stated, this apron is upwardly inclined and moves in the direction indicated by the arrow. The object of this is to effect a separation of the peas from any fine shreds of pod which may fall between the wires, and the object is fully attained. The peas, being practically spherical, roll down the apron and into the outlet-chute g, while the fragments of pod, being unable to roll, are carried upward by the belt, and are discharged at the upper roller as the belt passes over it. The empty pods are carried along by the wires and fall into the revolving screen, which is of sufficiently large mesh to pass any peas which come out with the pods, and which discharges the empty pods upon the floor. This screen consists of a series of radial reticulated plates, F', and it is driven by means of a belt, L, led from a pulley on the lower apron-shaft. (See Fig. 2.)

It sometimes happens that a pod, after being burst, opens out flat and retains one or more peas, like a dish. The pod, being so shallow, will not roll after being opened. These peas would be lost but for the screen F', which, in turning, effects the inversion of the half-pods, emptying out the peas, which fall through the screen into the chute g.

The wires i i' are made of a coil, but preferably without a core, somewhat after the form of the motor-cables of dental engines, my object being to secure perfect flexibility, together with a spring-like action, so as to bear with a yielding pressure on the pods and stand the continual bending over the rolls without breaking.

It will be seen that the action of the wires upon the pods, or rather upon the peas, is in no sense a squeeze, as the wires of the two series are not opposite each other, and the slightest twist of the pod is sufficient to break the tender stem which holds the pea to the pod, enabling it to roll from under a wire, should one be primarily opposite it.

Should it be desired to subject the peas to a further separation from any minute particles of stems or pods which were round enough to roll down the apron, they may be allowed to roll down an incline having a transverse break, such as is used in sorting shot. The peas, being spherical, acquire a speed in rolling down the plane sufficient to cause them to jump the break, while the refuse matter falls therethrough.

The machine I have shown and described is such as would be used on a large scale in shelling peas for packing; but a simpler machine could readily be made for household use, dispensing with the feed mechanism, the separating mechanism, and, indeed, consisting essentially of but two sets of wires and a simple crank for driving them. The few pieces of pod which would fall with the peas into the receptacle could readily be removed by hand.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The method herein described of shelling green peas, consisting in simultaneously rolling and bending the pods, whereby they are caused to burst and discharge the peas, as set forth.

2. In a pea-shelling machine, a moving surface for rolling the pods, in combination with a series of ribs or wires arranged to bend the pods, as and for the purpose set forth.

3. In a pea-shelling machine, the combination, with means for rolling and bending the pods, of a device for separating the peas from the empty pods, substantially as described.

4. In a pea-shelling machine, a double series of wires or bands, those of one set being located opposite the interstices of the other, arranged to roll and bend the pods, as set forth.

5. In a pea-shelling machine, a double series of wires or bands and mechanism for driving the same at different rates of speed, as set forth.

6. In a pea-shelling machine, a series of wires or bands having roughened or ribbed surfaces to enforce the rolling of the pods, as set forth.

7. In a pea-shelling machine, mechanism for rolling the pods and bending them, and a feeding device adapted to deliver the pods with their length transverse to the line of rolling, as set forth.

8. In combination with the double series of

wires, a feeding device adapted to deliver the pods transversely upon the wires, as set forth.

9. A double series of endless wires or bands, in combination with means for driving one set faster than the other and a series of supporting-rollers to prevent the sagging of the wires, as set forth.

10. In combination with the main frame, having rollers which carry a series of parallel wires or bands, the upper frame, having a similar series of wires and rollers, as set forth.

11. In a pea-sheller and in combination with the double series of wires, the supporting-rolls *v*, as set forth.

12. In combination with the shelling wires or bands, the feeding-belt having transverse ribs, as set forth.

13. In combination with the shelling wires or bands, those of one set arranged opposite the interstices of the other, an inclined endless apron adapted to separate the peas from the shreds of pod, as set forth.

14. In combination with the shelling-wires, the brushes J, as set forth.

15. In combination with the wires, the screen F′, adapted to invert the discharged pods, as set forth.

16. In combination with the shelling-wires, the fluted roller *c* and ribbed feeding-belt, as set forth.

17. The shelling-wires consisting of coils having bands at intervals, as set forth.

AUGUST MEYER.

Witnesses:
R. D. WILLIAMS,
JNO. T. MADDOX.