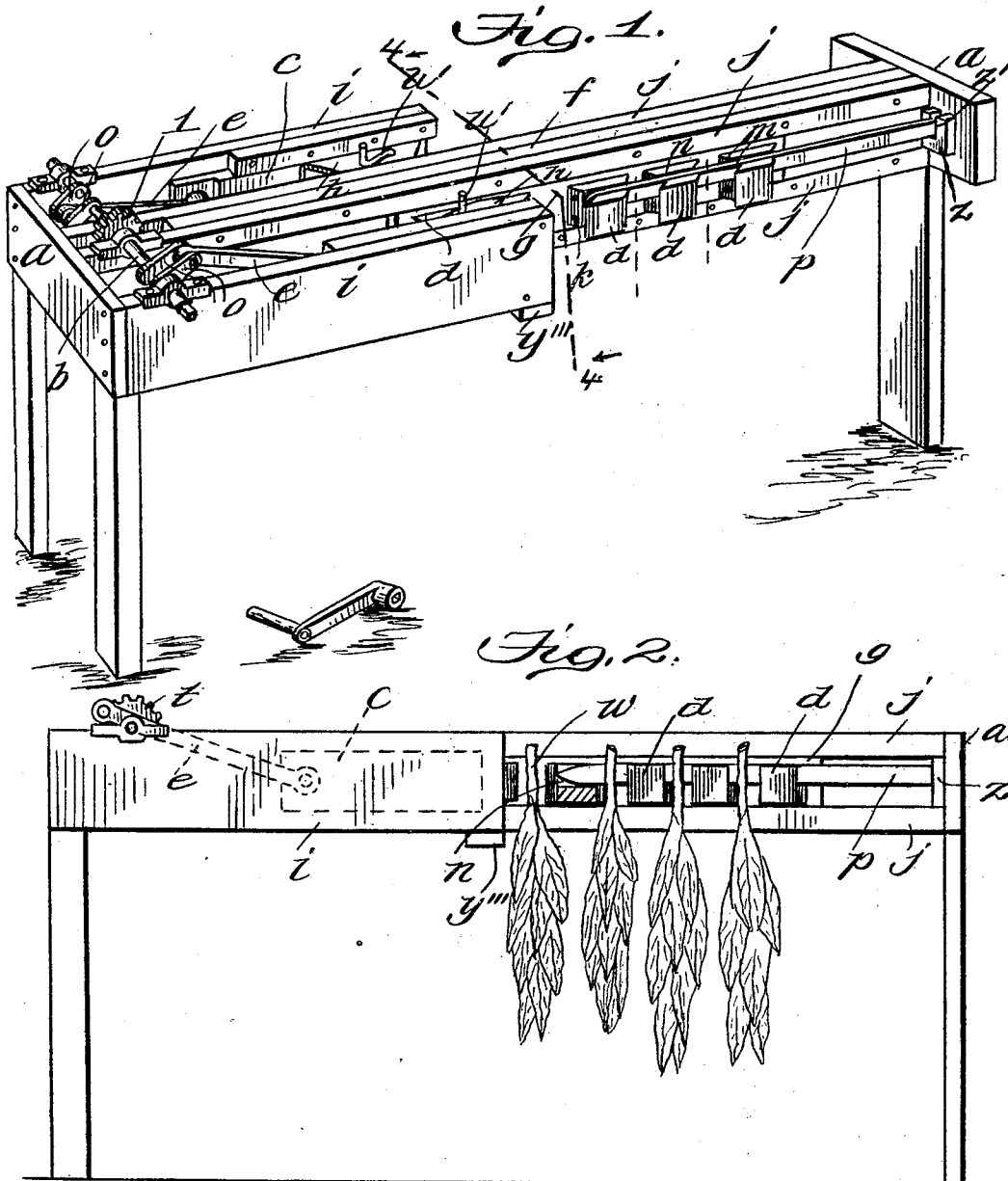


H. SHINN.
TOBACCO SPEARING MACHINE.
APPLICATION FILED SEPT. 9, 1908.

933,127.

Patented Sept. 7, 1909.

2 SHEETS—SHEET 1.



Witnesses

J. A. Timbulake
Joe L. Shinn

Inventor

Hiram Shinn
By *Joseph H. Shinn*

attys.

933,127.

Inventor
By Hiram Skinn
Joseph H. Skinn
attys

UNITED STATES PATENT OFFICE.

HIRAM SHINN, OF EATON, OHIO.

TOBACCO-SPEARING MACHINE.

933,127.

Specification of Letters Patent.

Patented Sept. 7, 1909.

Application filed September 9, 1908. Serial No. 452,303.

To all whom it may concern:

Be it known that I, HIRAM SHINN, a citizen of the United States, residing at Eaton, county of Preble, and State of Ohio, have invented a new and useful Tobacco-Spear-
ing Machine, of which the following is a specification.

The invention relates to a machine for stringing tobacco stalks on a tobacco stick.

The object of the invention is to provide a simple machine adapted to be readily operated and capable of rapidly and effectively stringing tobacco stalks on a tobacco stick.

The invention consists in the construction, combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended.

Figure 1 is a perspective view of a tobacco spearing machine constructed in accordance with this invention. Fig. 2 is a side view of the same with a part of the frame broken away. Fig. 3 is a cross-section of the same on the line 4-4 of Fig. 1. Fig. 4 is a perspective view of spring hook device on inside of plunger. Fig. 5 is a detailed view of the flexible spring hook, illustrating the means of communicating motion to the sliding boards of the machine and of breaking
that communication.

Similar characters refer to similar parts throughout the several views.

Fig. 1 is a perspective view of the tobacco spearing machine, in which *a*, *a* represents the frame. This frame is composed of a center beam of wood *f*, of sufficient strength to support the two side pieces *i i*, and the other working parts connected therewith, which is further strengthened by a cross-tie *y'''*, on the under side at the end of the side frames *i i*. The center beam *f*, has on either side a wooden frame *j j*, provided with a dovetailed groove *x* along its entire length for the support of the sliding boards *g g*, and the two side pieces *i i*, are also provided with like dovetailed grooves *x'* on their inner side for the support of the plungers *c c*. The sliding boards *g, g*, are each made one-half the length of the frame *a* and are provided with dovetailed tenons *y* so constructed as to slide in the grooves *x x* freely from end to end of the center beam *f*. The plungers are also provided with dovetailed tenons *y' y'*, to slide in the dovetailed grooves

x' x' in the side pieces *i i*. Fastened at convenient distances on the sliding boards *g g* are a series of iron guides *d d* which are bolted to the sliding boards by the bolts *h h*; the number of these guides being proportioned to the size of the machine and the number of tobacco stalks desired to be strung on the tobacco sticks *p p*. These iron guides *d d* are provided with V shaped notches *m, m*, on each face front and rear extending up and down, and with grooves *n n* in their upper surface cut parallel to the face of the sliding boards *g g* and of sufficient depth and width to contain the tobacco sticks *p p*.

At the rear end of the machine is a crank shaft *b* with a cog wheel *l* in its center and attached to the center beam *f* so as to mesh into another cog wheel of a smaller size on any suitable power shaft. Inasmuch as the power shaft forms no part of this invention and as its method of connection is sufficiently obvious it is not shown.

The crank shaft *b* has reciprocating cranks *o o* to which are attached iron rods or crank arms *e e* connecting the cranks *o o* to the plungers *c c*. The plungers *c c* move in the dovetailed grooves *x' x'* of the side pieces *i i* forward and backward a distance equal to the diameter of the circle made by a revolution of the cranks *o o*, and by means of a device hereafter described communicate their forward movement to the iron guides *d d* of the sliding boards *g g* forcing these boards forward intermittently. At the forward end of each plunger *c* is fastened a plunger-head or feeding device *h*; this plunger-head or feeding device *h* is a triangular piece of wood or iron attached to the inner faces of the plungers, one at the top and one at the bottom, and extending over and under the iron guides *d d* almost to the faces of the sliding boards *g g*, but so adjusted as not to interfere with the movements of the plungers *c c* nor with the movements of the sliding boards *g g*. In the forward end of each plunger-head or feeding device is a V shaped notch *r* corresponding to the V shaped notches *m, m*, of the iron guides *d d*.

In appropriate places in the plungers *c c* holes are cut of sufficient length and width to permit the hook *s* to move uninterruptedly in the face of the plungers *c c* when desired by the operator, and to engage itself with the

rear end of any desired iron guide when uncontrolled. Said hook *s* is the bent end of a piece of iron or flexible steel *t* fastened at one end by a bolt *v* to the inner face of the hole or mortise cut in the face of the plunger *c*.
 5 If this hook arm *t* is made of iron a spiral spring not shown is placed in the plunger at its back to force it outward when released from control, but if it is made of flexible steel as shown the spiral spring may be dispensed with. The flexible hook arm is controlled by the following device.

Through the top of the plunger-head or feeding device *h* and also through the bottom in a vertical line holes are made through
 15 which a rod *u* is rotatably mounted, having a handle-piece *u'* at its upper end and an offset *u''* intermediate its ends.

The rod *u* has its handle *u'* lying flat upon the top of the plunger-head *h* and is always under the control of the operator. By a movement inward the offset portion *u''* of the rod *u* presses the hook arm *t* inward releasing the hook *s* from contact with the iron guides, thus permitting the plungers to move uninterruptedly forward and backward while the operator is preparing another stalk for spearing. When ready, the handle piece *u'* is moved outward releasing the pressure of the offset portion *u''*, and the tension of the hook arm *t* forces the hook *s* outward, ready for engagement with any iron guide which may lie in its path. The hook *s* is bent at an acute angle with the body of the hook arm so as to form an incline cam surface *s'*.
 25 During the backward movement of the plunger the cam surface *s'* contacts with the iron guide next in its way and is forced toward the face of the plunger as shown in dotted line *t'* of Fig. 5, permitting the hook end *s* to pass the guide; upon the forward movement of the plunger, the hook having positioned itself engages the rear of the iron guide and advances the sliding board one step. The reciprocating motions of the plungers coupled with the action of the hook intermittently moves the sliding board forward.

In the forward end of the frame *a* on either side a support *z* is provided having a slot *z'* in its upper surface, for the support of the butt end of the tobacco stick *p*, its point resting in the groove of the first iron guide as shown in Fig. 2. The operation of the machine is as follows. The tobacco
 30 stick *p* is positioned as shown in Fig. 2. The operator then places a tobacco stalk with its butt end up in the V shaped notch of the iron guide *d*, releases the handle piece *u'* which causes the hook *s* to engage the nearest iron guide and force the sliding board forward causing the V shaped notch in the plunger-head or feeding device *h* to close upon the tobacco stalk *w* and center it exactly in line with the point of the tobacco stick, which by
 35 reason of the advancing movement of the

sliding board is forced through the exact center of the tobacco stalk and down the stick the full length of a plunger advance. Inasmuch as the plunger will move several
 40 times faster than the most skillful operator can feed the device the hook *s* must be kept out of the way of the guide irons. To do this the operator simply pushes the handle piece *u'* inward which forces the hook arm *t* inward and holds it at the will of the operator. When another stalk is positioned in the V shaped notch of the second guiding iron and the handle piece released, the stalk is again centered by the advance of the V shaped notch in the plunger head or feed-
 45 ing device and impaled upon the tobacco stick, the first stalk being forced a corresponding distance forward. By a repetition of these processes the tobacco stick is filled as shown in Fig. 1, the vertical dotted lines
 50 representing the impaled tobacco stalks and the horizontal dotted line the tobacco stick. This stick with the impaled tobacco is then lifted out of the grooves in the guide irons, and the sliding board pushed back to the crank end of the machine and another tobacco stick inserted as shown in Fig. 2.

It is understood that a separate stick is used for each operation, the head being removed after each operation and placed on
 55 the end of the spear or stick next to be used. The stick or spear head forms no part of this invention. The advantage of this tobacco spearing machine in point of labor is very apparent. It is cheap in construction, easy of operation and thoroughly practical.

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

1. In a machine of the class described a tobacco holding device, a support therefor, means to support a tobacco stick, a feeding device constructed and arranged to impale the tobacco upon the stick and to intermittently advance the tobacco holding device
 60 when a tobacco stalk is in place.

2. In a machine of the class described a tobacco holding device comprising a slide provided with a series of iron guides, having means for holding a tobacco stick and provided with a V shaped notch, the apex of which terminates in the stick holding means.

3. In a machine of the class described a feeding device comprising a plunger, operating means therefor a plunger head or feeding device mounted upon the plunger having a V shaped notch therein, in combination with the holding device, said holding device being provided with an oppositely disposed V shaped notch adapted to cooperate with the notch in the plunger head or feeding device so as to center the tobacco stalk in a predetermined position.

4. In a machine of the class described a tobacco holding device, provided with means

to support a tobacco stick and having notches adapted to receive and center tobacco stalks and means to intermittently advance the tobacco holding device.

5 5. In a machine of the class described a frame, a tobacco holding device slidably mounted thereon, said parts being provided with means for holding a tobacco stick, a reciprocating plunger adapted to cooperate
10 with the tobacco holding device to force the tobacco upon the stick.

6. In a machine of the class described a frame, a shaft provided with oppositely disposed cranks with means to operate said
15 shaft, feeding plungers slidably mounted in the frame, rods connecting said plungers with said oppositely disposed cranks, a tobacco holding device adapted to cooperate

with said feeding plunger and means to support a tobacco stick.

7. In a machine of the class described a tobacco holding device, provided with means to support a tobacco stick and having notches adapted to receive and center tobacco stalks and automatic means to intermittently advance the tobacco holding device, with
25 means under the control of the operator to render said automatic means inoperative.

In testimony whereof I have signed my name to this specification in the presence of
30 two subscribing witnesses.

HIRAM SHINN.

Witnesses:

J. F. RANDALL,
JOHN QUILL.