

1,263,477.

Patented Apr. 23, 1918.
2 SHEETS—SHEET 1.

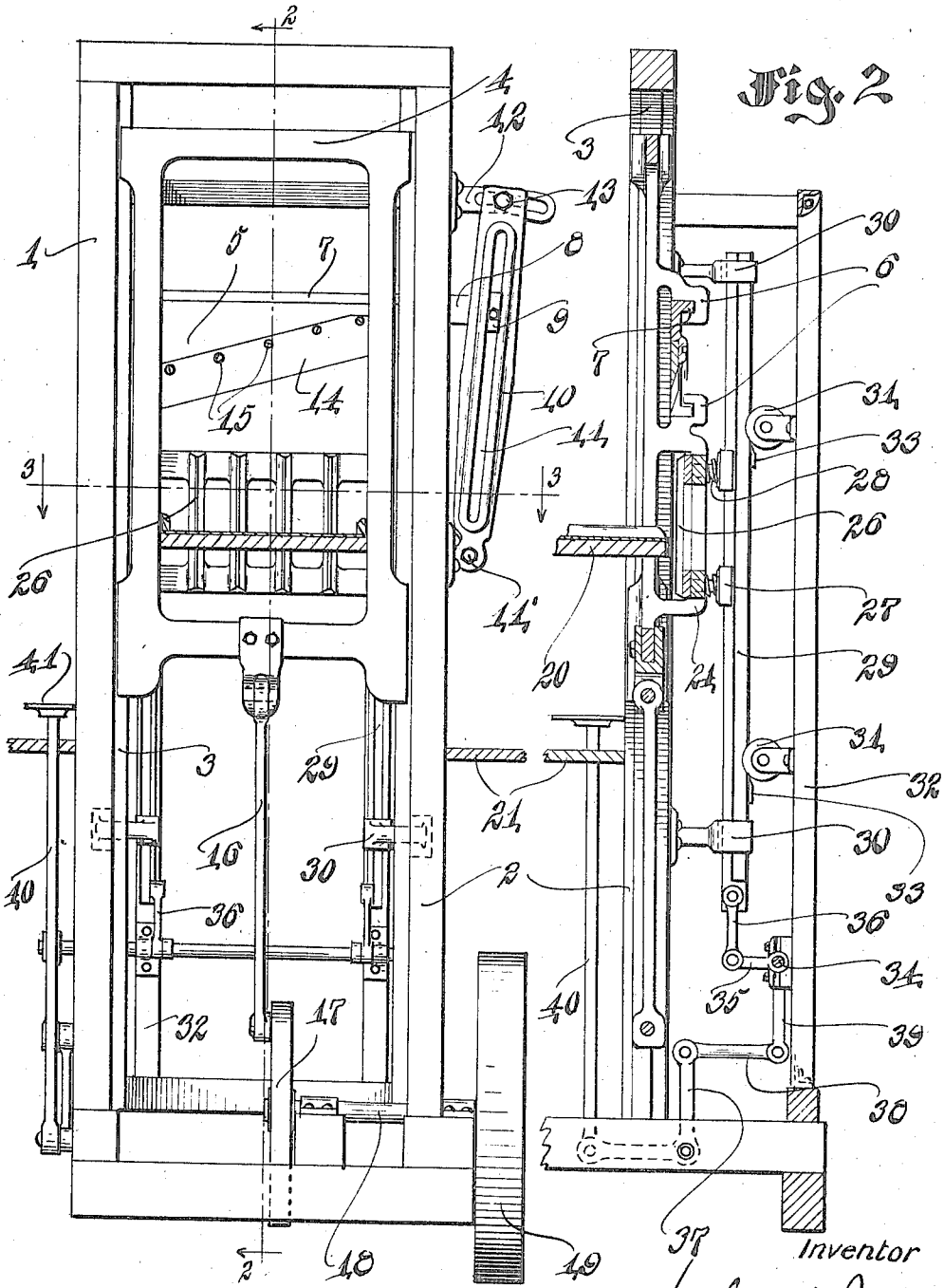


Fig. 1

Fig. 2

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BOX SHOOK MACHINE.
APPLICATION FILED APR. 20, 1917.

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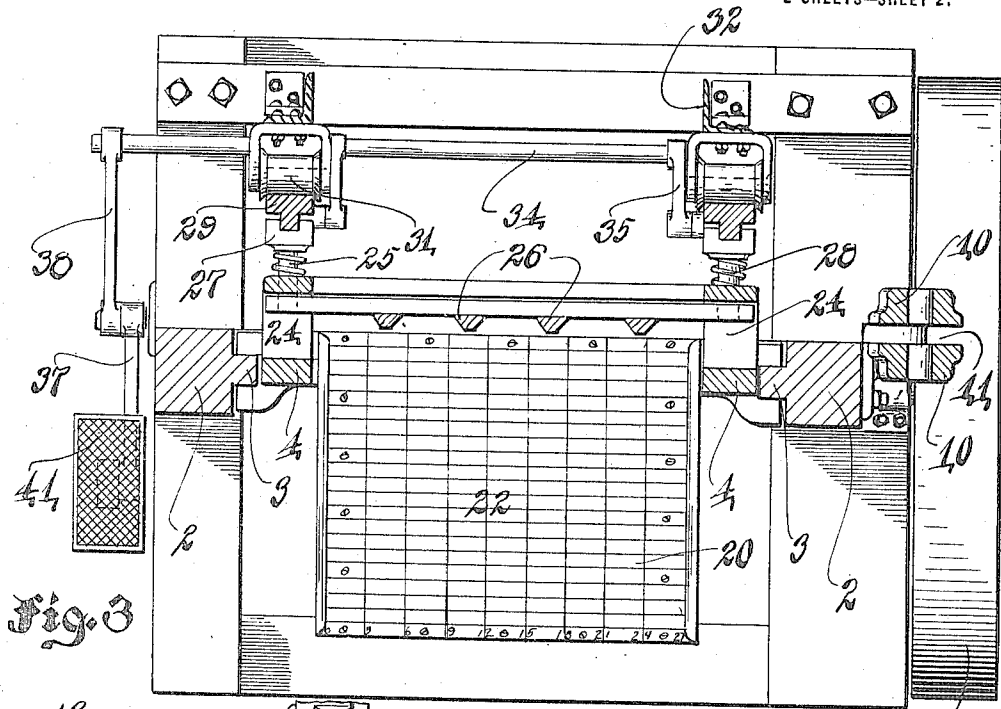


Fig. 3

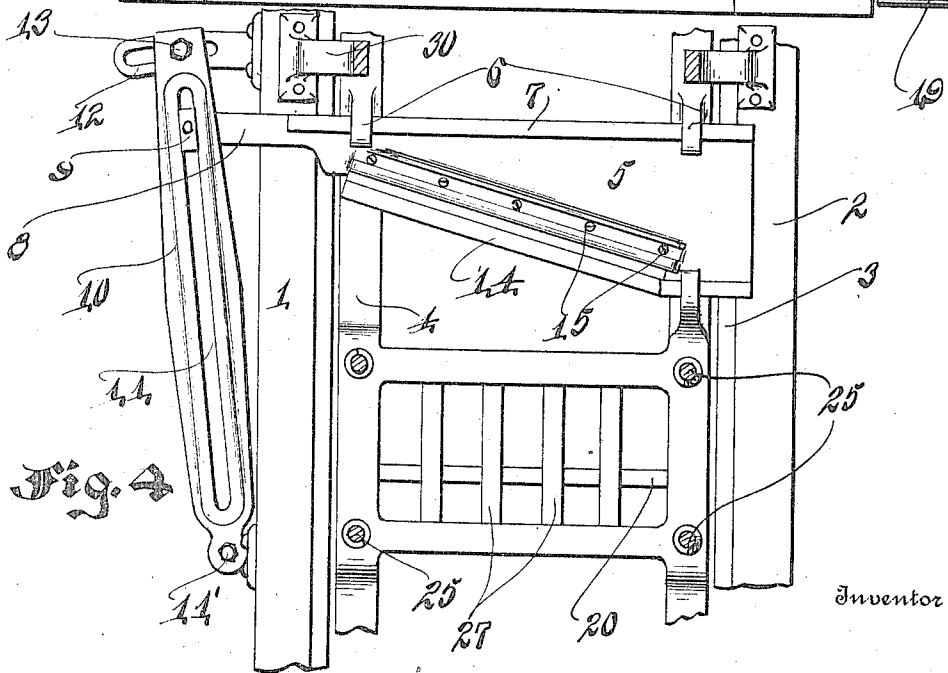


Fig. 4

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UNITED STATES PATENT OFFICE.

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BOX-SHOOK MACHINE.

1,263,477.

Specification of Letters Patent.

Patented Apr. 23, 1918.

Application filed April 20, 1917. Serial No. 163,343.

To all whom it may concern:

Be it known that I, HERBERT E. SMITH, a citizen of the United States, residing at Spokane, in the county of Spokane and State of Washington, have invented certain new and useful Improvements in Box-Shook Machines, of which the following is a specification.

My invention relates to improvements in box shook machines, especially adapted for slicing tops and bottoms for fruit boxes, packing boxes, and the like.

The principal object of my invention is the provision of a machine of the foregoing character so constructed that slabs or strips of different thicknesses to provide side, top, and bottom pieces, may be cut from suitable stock or material, as for instance, steamed bolts or quartered stock, without the necessity for stopping or shutting down the machine even momentarily for change or adjustment.

Further than this the apparatus is particularly designed to cut uniform slabs or strips having smooth even surfaces that will not require planing, dressing, or other finishing operations.

An additional object is the provision of a machine of comparatively simple, inexpensive construction which will effectually and economically perform its functions with due regard for economy in speed of production, cost of operation and labor, and general efficiency.

Broadly, my invention comprises a supporting frame or structure, a cutter element mounted in the frame having vertical and lateral reciprocating movement; a bench or table for supporting the box material and gaging the cut, instantaneously actuated spacing means for cutting strips of varying thickness, and a power transmitting mechanism.

The numerous features and advantages embodied in the construction provided will be hereinafter set forth in detail, recourse being had to the accompanying drawings which form a part of my application for patent, and in which—

Figure 1 is a front elevation of the complete machine showing the preferred man-

ner of mounting the same with the power transmitting pulley below the flooring.

Fig. 2 is a sectional side elevation thereof taken on line 2—2 of Fig. 1.

Fig. 3 is a cross-sectional view taken on line 3—3 of Fig. 1, said view being from above.

Fig. 4 is a detail view of a portion of the machine showing particularly the knife supporting element as it appears viewed from the rear of the machine with certain members of the latter removed.

Referring more specifically to the drawings in which like reference characters are used to indicate like parts in the several views, the numeral 1 designates the upright supporting frame portion of the machine as a whole. This frame is provided with the vertical side guide members 2, each of which has a tongue portion 3 to guide the vertically slidable knife or cutter frame 4 which is mounted between said guide members 2. This cutter frame has its side members grooved as shown and of a size to correspond with and receive the tongue portion of the members 2.

Mounted in this frame is a cutter carrier or plate 5 which is disposed at the upper portion of the frame and supported thereon by means of the grooved guide fingers 6 which fit over the flanged portion 7 of the carrier, the arrangement being designed to allow free sidewise movement of the carrier.

Said carrier or plate is provided with an extended side arm 8 carrying at its extremity a slide member 9 which is adapted to operate up and down between the guideway members 10 in the slots 11 thereof. These guideway members are set at an angle to the upright supporting frame and pivotally mounted at 11 to one of the vertical side members 2 thereof. A slotted slightly arcuate segment 12 is also secured fixedly to said side member 2 and the upper ends of the guideway members adjustably secured thereto by means of a bolt and nut fastening 13. The angle or pitch of the guideway members is governed by this arrangement and the adjustment also determines the extent of sidewise or lateral reciprocating movement of the knife carrier within the cutter frame

during operation of the machine. The blade or cutter proper 14 is secured to the carrier by means of the screws or bolts 15.

The cutter frame 4, which in operation has both a crosswise and a vertical reciprocating movement or action when the machine is in motion is connected by means of the connecting rod 16 to the crank wheel 17 on the shaft 18 and is adapted to be driven through the medium of the power pulley 19.

A material supporting bench or table 20 is disposed at convenient height and in proper relation to the cutter and above the floor indicated at 21, said bench having mounted thereon a metal scale frame 22 which is provided with the required lines to be used in determining and gaging the cut.

The material for the boxes is first quartered from the log, then stained and laid upon the bench frame and trimmed true, following which it is fed directly below the path of the descending knife, being pushed forward by the operator after each cutting or slicing operation in position for the succeeding cut.

As clearly shown, the knife or cutter blade is set at an angle and when the cutter frame descends the construction previously described will serve to provide a slicing movement similar in character to the movement of a knife when slicing by hand. This movement of the cutter serves to make a very clean smooth cut so that dressing or planing of the slabs or strips is not required.

It is essential to provide means for making cuts of different thicknesses as this machine is designed for making both box tops and box sides, the one requiring material, say $\frac{3}{8}$ and the other $\frac{1}{4}$ of an inch in thickness. As it is impractical and uneconomical to stop the machinery to make adjustments, a special spacing device 23 having novel shifting means is provided.

This spacing device is shiftably or adjustably mounted in the rearwardly extended portions 24 of the side members of the cutter frame 4 by means of the four pins 25 which pins pass through the said extended portions, the spacing device being slidable thereon, (Figs. 3 and 4), and consisting of a rectangular frame and a series of vertical spaced bars 26 against which the stock or material being cut is pressed. As the knife moves downward into the stock it is obvious that the spacing device 23, being mounted on the cutter frame as aforesaid, will also move downward at the same time and will therefore be clear of the knife when the actual cutting operation takes place.

To the opposite ends of the pins 25 are secured the grooved shoes 27, and the springs 28 on the pins serve to maintain the spacing device against the portions 24 of the cutter frame. Said shoes 27 are adapted to ride or

slide upon the vertical bars 29 which bars serve to shift the spacing device when pressed forward or toward the front of the machine by means of an actuating mechanism to be hereinafter described.

Said bars 29 are loosely mounted in the stirrups or bifurcated brackets 30 and are supported by engagement of their rear faces with the flanged rollers 31, preferably two for each bar, said rollers being in turn mounted upon and supported by the fixed vertical uprights 32 which are rearward extensions of the frame 1. These bars 29 are provided on their front faces with wedges 33 which are designed to be moved upward in contact with the rollers 31 when the bars 29 are shifted upwardly for that purpose, in which case the bars will be forced slightly forward, the extent of such movement depending upon the thickness of the wedges, thus pushing the shoes 27 on the pins 25 to shift the spacing device toward the front of the machine and against the box stock or material on the machine bench so that the ensuing slabs will be cut thinner as desired.

The actuating mechanism for accomplishing this shifting and spacing operation, see Figs. 1 and 2, consists of a horizontal rotatable shaft 34 mounted on the uprights 32, said shaft having fixed thereto the links 35 each pivotally attached to a link 36 which is in turn connected to the lower end of each of the shift bars 29. The bell-crank lever 37, links 38 and 39, vertical rod 40, and presser foot 41, as clearly indicated in the drawings, complete the actuating mechanism.

It is obvious that pressure on the presser foot will serve to shift the bars 29 upward to interpose the wedges between the bars and the rollers to provide the desired instantaneous forward movement of the spacing device. It is also evident that in their upward movement the wedges will overcome the tension of the springs 28, and that when the shifting mechanism is reversed, as by lifting the presser foot, said springs will return the spacing device to its normal position for a thick cut.

I claim:—

1. The combination in a box shoo machine with a reciprocable knife and its frame and supporting structures therefor, of vertically movable wedge bars, spring pressed shoes carried by the frame and slidable on said wedge bars, and means for moving the wedge bars to space the knife as described.

2. In a device of the character described, the combination of a supporting structure, vertical guide members supported thereby, a cutter frame vertically slidable on said guide members, a cutter carried by said cutter frame, a forwardly and rearwardly adjustable spacing device mounted upon said cutter frame, tension members for maintain-

ing said spacing device in position on said cutter frame, pin members for slidably mounting the spacing device on the cutter frame, slidable shoe members carried by said 5 pin members, vertically movable bars in engagement with said shoe members, wedge members secured to said movable bars, fixed rollers in contact with said movable bars and adapted for engagement with said wedge members, and means for shifting said 10 movable bars.

In testimony whereof I affix my signature.

HERBERT E. SMITH.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."