(No Model.)

3 Sheets—Sheet 1.

W. H. MILLER & T. L. FARROW.

BOX SCREW AND CLAMP.

No. 484,159. Patented Oct. 11, 1892.

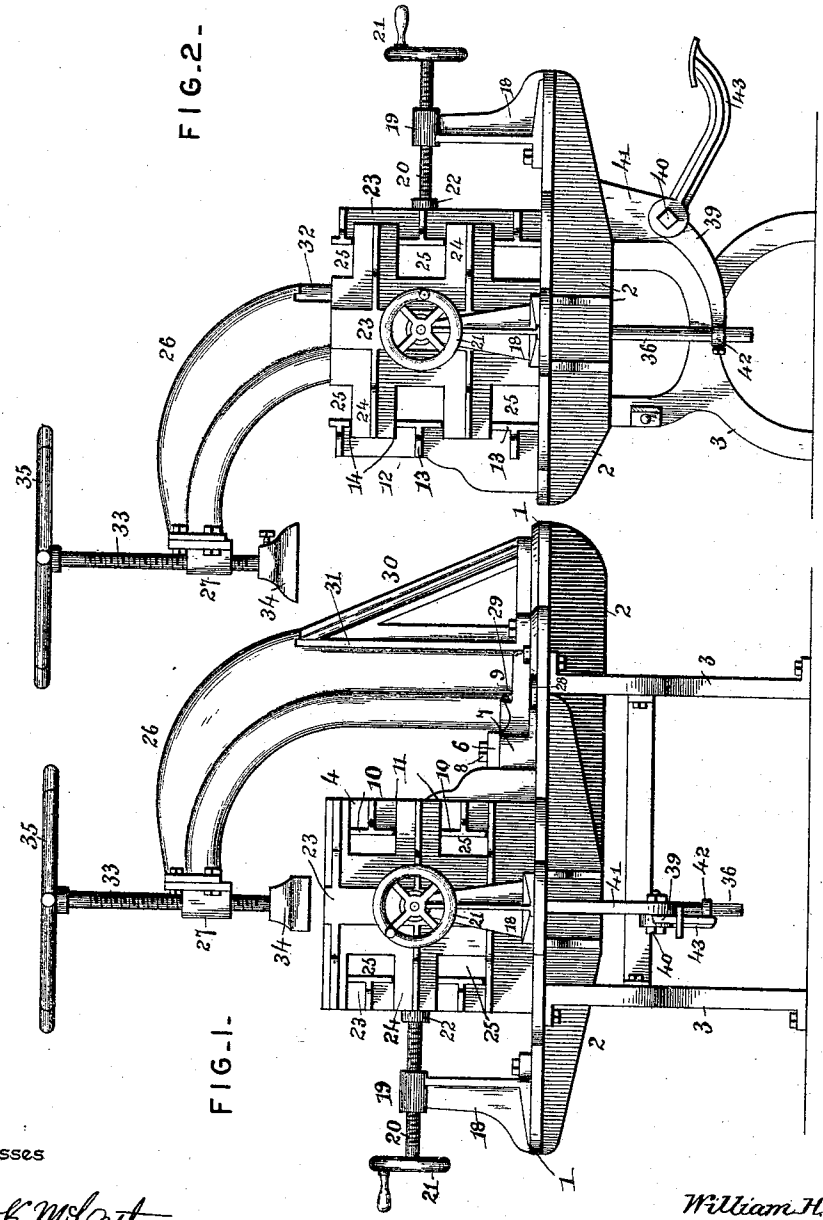

FIG. 2.

FIG. 1.

Witnesses

Jas. K. McCathran

D. P. Holthaupter

Inventors

William H. Miller

Thomas L. Farrow

By their Attorneys,

C. A. Snow & Co.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 3 Sheets—Sheet 2.

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FIG. 6.

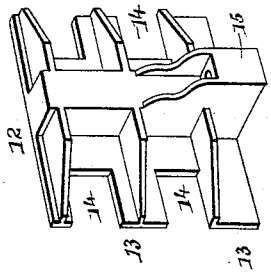


FIG. 7.

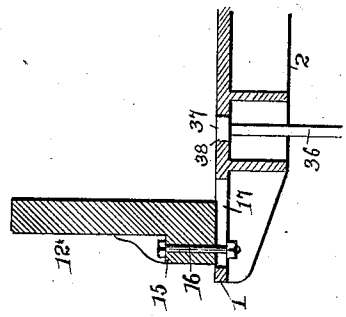


FIG. 4.

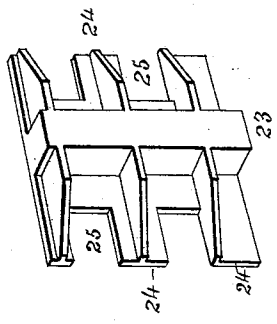


FIG. 5.

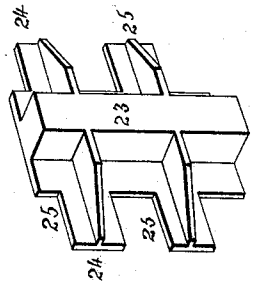
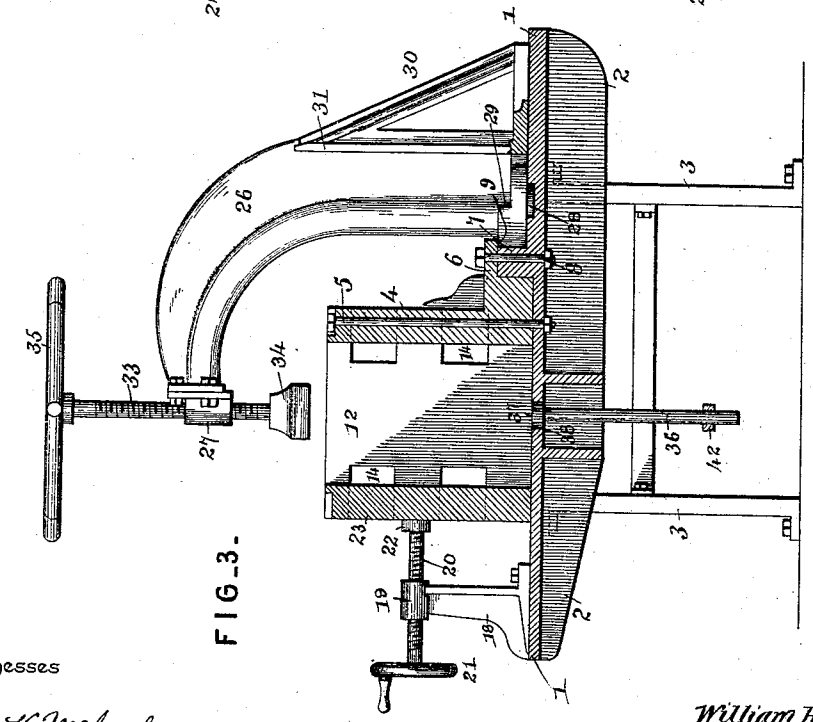


FIG. 3.



Witnesses

Jas. K. McCathran

D. P. Holcomb

By their Attorneys,

C. A. Snow & Co.

Inventors;

William H. Miller

Thomas L. Farrow

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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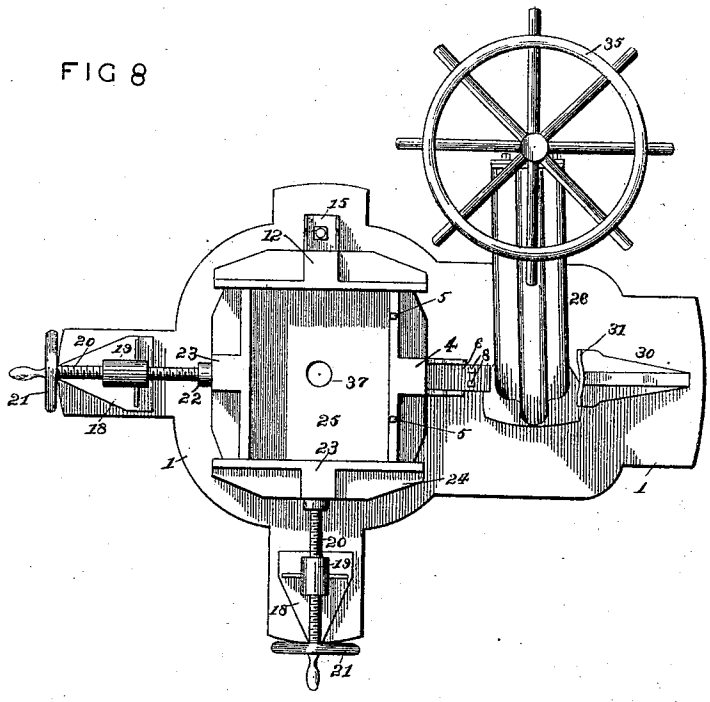
FIG 8



Witnesses
F. M. Johnson.
D. P. Holhampton.

Inventors
William H. Miller
Thomas L. Farrow

By their Attorneys,
C. A. Snow & Co.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

WILLIAM H. MILLER AND THOMAS L. FARROW, OF WINSTON, NORTH CAROLINA, ASSIGNORS OF ONE-THIRD TO EDWIN D. RICH, OF SAME PLACE.

BOX SCREW AND CLAMP.

SPECIFICATION forming part of Letters Patent No. 484,159, dated October 11, 1892.

Application filed November 5, 1891. Serial No. 410,989. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM H. MILLER and THOMAS L. FARROW, citizens of the United States, residing at Winston, in the county of Forsythe and State of North Carolina, have invented a new and useful Box Screw and Clamp, of which the following is a specification.

Our invention relates to box-clamps, and has reference more particularly to that class of devices used in packing tobacco in boxes or caddies.

The object of the invention is to provide a machine of this character with an expansible and contractible box holder or clamp, whereby the machine is adapted to receive boxes of different sizes; and to this end the invention consists in mounting upon the bed-plate a shroud or box-holding frame, which shall under all adjustments of the same maintain the continuity of the clamping-walls.

The invention also embraces various other features and details hereinafter set forth and claimed.

In the accompanying drawings, Figure 1 is a side elevation of a box screw and clamp constructed in accordance with my invention. Fig. 2 is a front elevation of the same, the swinging arm being thrown out of position. Fig. 3 is a vertical longitudinal sectional view of the same. Figs. 4 and 5 are detail perspective views of the sliding clamping-plates. Fig. 6 is a similar view of the stationary laterally-adjustable jaw or clamp. Fig. 7 is a detail sectional view. Fig. 8 is a top plan view of the machine.

Referring to the accompanying drawings, 1 designates the base of the machine, which is constructed in any desired shape and cast with suitable webs and cross-flanges 2, giving strength to the same, and said base-plate is supported upon the braced legs 3, which are bolted to the floor upon which the said machine is supported. A stationary vertical clamping-plate 4 is securely bolted by means of the bolt 5 to said base-plate to one side of the center thereof, and is provided with a rearwardly-extending flange 6, fitting over the block 7, arising integrally from said base-plate and secured thereon by means of the clamping-bolt 8, passing through said block and the flange thereover, which latter slightly overlaps said block, so as to form a projecting lip 9, the function of which will readily appear. Said stationary clamp and plate 4 is provided with a series of oppositely-extending parallel arms or tongues 10, between which are formed squared recesses or grooves 11. At direct right angles to said stationary clamping-plate 4 an adjustable clamping-plate 12 is located. Said clamping-plate 12 is also provided with a similar series of oppositely-extending parallel arms or tongues 13, forming between the same squared notches or grooves 14, the arms 13 upon one side of said plate being adapted to work within the squared notches 11 of the stationary clamp 4, while the arms 10 of said stationary clamp are adapted to work within the squared notches 14 of the laterally-adjustable plate or clamp 12, located at that end of said stationary plate, thus forming a clamping-shroud consisting of clamping-plates having interlocking end tongues and grooves. The laterally-adjustable clamping-plate 12 is further provided with the rearwardly-extending perforated lug 15, through which passes the adjusting-bolt 16, clamping the same stationary upon the base-plate and working in the slot 17, formed in the base-plate parallel with the rear stationary plate, and thus providing means whereby said adjustable plate 12 may be adjusted to and from the right-angularly disposed stationary plate, according to the size of box adapted to be clamped therebetween.

Directly opposite to both the rear stationary clamping-plate 4 and the right-angularly disposed adjustable clamping-plate 12 standards 18 are bolted to the edges of the base-plate and are each provided at their upper ends with the threaded bearings 19, that are adapted to receive the threaded stems of the adjusting-screws 20, right-angularly disposed with relation to each other and carrying upon their outer ends the hand-wheels 21, by which the same are operated, and upon their inner ends the bearing-blocks 22, that are designed to bear against the outer faces of the sliding clamping jaws or plates 23. Said clamping-

plates 23 are each provided with the opposite outwardly-extending parallel arms or tongues 24, between which are formed the squared notches or grooves 25, similar to the squared notches or grooves of the stationary clamping-plates. The arms 24 of the sliding plate 23, parallel to the rear stationary plate 4, are designed to work in the squared notches of the side adjustable clamping-plate 12 and the right-angularly disposed sliding clamping-plate parallel with said adjustable plate 12, and said right-angularly disposed clamping plate or jaw is adapted to receive the projecting arms of both the front sliding plate or jaw and the rear stationary plate, while the arms thereof are adapted to work in the squared notches of both of said clamping-plates. It can be readily seen that on account of the several plates having interlocking tongues or grooves the adjustable stationary plate may be adjusted with relation to the rear stationary plate so as to accommodate two sides of the box, according to its size, which may be placed upon said base-plate filled or partly filled with tobacco, while by means of the adjusting-screws 20 the parallel and right-angularly disposed sliding clamping-jaws forming a rectangular clamp may be readily moved up against the opposite sides of said box, and thus securely clamp the same upon all four sides and effectually prevent the same from spreading under the pressure to be exerted upon the top of the box.

Upon the base-plate to the rear of the stationary clamping-plate 4 is pivotally mounted the curved screw-arm 26. Said screw-arm or standard 26 is curved from the base upward and over the space between the clamping-jaws and is provided at its extreme end directly thereover with a threaded bearing 27, while its lower bottom end is pivotally secured in said base at 28, and is further provided with an annular shoulder or flange 29, that is designed to work under the projecting lip 9 of the flange 6, and thus form a firm and secure pivotal connection, which allows the said arm to be swung directly ever the center of the rectangular clamp and away from the same, as desired. Bolted upon the base-plate 1, in rear of said arm 26, is the triangularly-shaped brace 30, provided with a vertical side 31, having a concaved bearing-face 32, within which the rear edge of said screw-arm 26 is rested, and which effectually prevents the same from displacement under pressure, while the curved or concaved side of said brace allows the said arm to be easily swung to either side of the same.

When the box, filled or partly filled with tobacco, has been clamped within the rectangular clamp, as described, the head of the same is securely and firmly forced in position by means of the screw 33 or other compressing mechanism working in the threaded bearing 27 at the outer end of the supporting-arm and is provided at its lower end with a bearing-block 34, adapted to bear upon said head, while a hand-wheel 35 is mounted upon the upper end of said screw to manipulate the same to force the head in its proper position. While the pressure is still upon the head of the box, and holding the tobacco firmly pressed therein, said head is lined up and nailed in position in the usual manner and is then ready to be removed from the clamp after the screw has been withdrawn and the screw-arm thrown to either side of the clamping device.

An ejector 36 is located beneath the bed of the machine and is provided with a head 37, working through the perforation 38, centrally located in the base-plate 1, and on account of the adjustment of the clamping jaws or plate is always centrally located with relation thereto, and in its normal position is sufficiently weighted to be either flush with the face of said base-plate or slightly below the same. A lever 39, pivotally secured upon the bolt 40, passing therethrough and through the depending arm 41, projecting downwardly from said base-plate, is adjustably clamped at 42 to the lower end of said ejector-rod 36, and terminates in the front of the machine in a treadle 43, by means of which the said ejector may be raised and throw the packed and headed box out of the rectangular clamp after the swinging screw-arm has been thrown out of position.

It is thought that the construction and operation of the herein-described box-screw and clamp is apparent without further description. We do not wish to be limited to the use of four sections or clamp-heads, as we consider a less or greater number as coming within the scope of our invention, provided, however, that in each instance the continuity of the box-chamber is preserved by interlocking the portions of the sections or clamp-heads, as before described.

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

1. In a machine for holding and clamping boxes while their contents are being compressed, the combination, with a bed or frame, of a series of jaws or clamps mounted thereon with interlocking tongues and grooves at the points of meeting of the jaws, means for adjusting and holding the jaws, and a compressing mechanism.

2. In a machine of the class described, the combination, with a bed plate or frame, of two plates 4 and 12, arranged at right angles to each other and having interlocking tongues and grooves at their meeting edges, two plates 23 23, arranged at right angles to each other and having interlocking tongues and grooves at their meeting edges, interlocking tongues and grooves at the meeting edges of the plates 4, 12, and 23 23, and means for adjusting the movable plates toward and from the stationary plates.

3. A tobacco-box clamp or holder consisting of a bed plate or frame, clamping jaws, heads, or plates provided with interlocking

tongues and grooves to preserve the continuity of the box-opening, and mounted upon the bed-plate, and means for adjusting one or more of said jaws, heads, or plates.

4. In a tobacco-box clamp, the combination of a bed frame or table, a shroud composed of a series of clamping walls or plates arranged to form a rectangular box-opening, means for adjusting one or more of said plates, and interlocking tongues or grooves at the junction of the movable plate with the adjacent plates.

5. In combination with a bed or frame, a box-holding clamp mounted thereon, an upright overhanging arm pivoted thereto and provided with a compressing mechanism adapted to work within the box-clamp, and the fixed bracket 30, engaging the arm and adapted to support the same, substantially as shown and described.

6. In a tobacco-box clamp, a base-plate, a stationary clamping-plate 4, bolted upon said base and provided with oppositely-projecting parallel arms and intermediate notches, an adjustable clamping-plate 12, right-angularly disposed to said stationary plate and provided with similar arms and notches and adapted to receive the arms and work within the notches of said stationary plate, sliding clamping-jaws 23 23, having opposite parallel arms and intermediate notches located parallel to said stationary plate 4 and said adjustable plate 12 and adapted to receive the arms and work within the notches of the plate adjacent to the same, means for moving said sliding jaws or plates, and a compressing mechanism mounted upon said base and adapted to work within said rectangular clamp, substantially as set forth.

7. In a tobacco-box clamp, a base-plate provided with a laterally-disposed slot 17, a stationary clamping-plate 4, provided with oppositely-projecting parallel arms and intermediate notches, an adjustable clamping-plate 12, bolted in said slot and provided with similar arms and notches and adapted to receive the arms and work within the notches of said stationary plate and at right angles thereto, sliding clamping-jaws 23 23, having opposite parallel arms and intermediate notches located parallel to said stationary plate 4 and said adjustable plate 12 and adapted to receive the arms and work within the notches of the plate joining or connecting therewith, bearing-standards 18, mounted upon said base, adjusting-screws 20, horizontally mounted in said standards and moving said sliding jaws or plates 23 23, and a compressing mechanism, all substantially as set forth.

8. In a tobacco-box clamp, the combination, with a base-plate having an integral block 7 rising therefrom, a stationary clamping-plate 4, having a flange 9 bolted over said block and projecting beyond the same, of a series of jaws or plates arranged with said stationary plate to form a rectangular box-holding clamp, a swinging screw-arm 26, pivotally mounted upon said base and provided with a threaded bearing at one end and an annular flange or shoulder at the other, adapted to work under said projecting flange 9 of the stationary plate, substantially as set forth.

9. In a tobacco-box clamp, the combination, with the base-plate, of a series of clamping jaws or plates located upon said base-plate and forming a box-holding clamp, a compressing mechanism adapted to work within said box-clamp, an ejector-rod located beneath said base-plate and working in a perforation therein, and a treadle-lever pivoted beneath the bed or base-plate and connected to said ejector-rod.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in the presence of two witnesses.

WILLIAM H. MILLER.
THOMAS L. FARROW

Witnesses:
W. N. REYNOLDS,
W. D. MOORE.