

O. M. MOORE.
BOTTLE CORKING MACHINE.
APPLICATION FILED FEB. 23, 1910.

988,205.

Patented Mar. 28, 1911.

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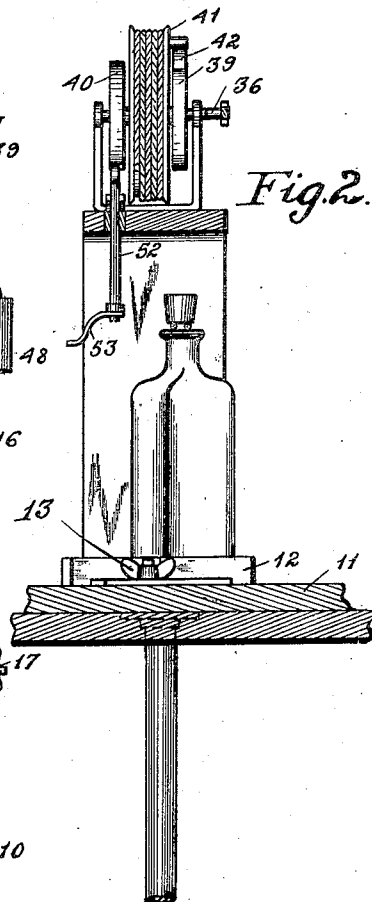
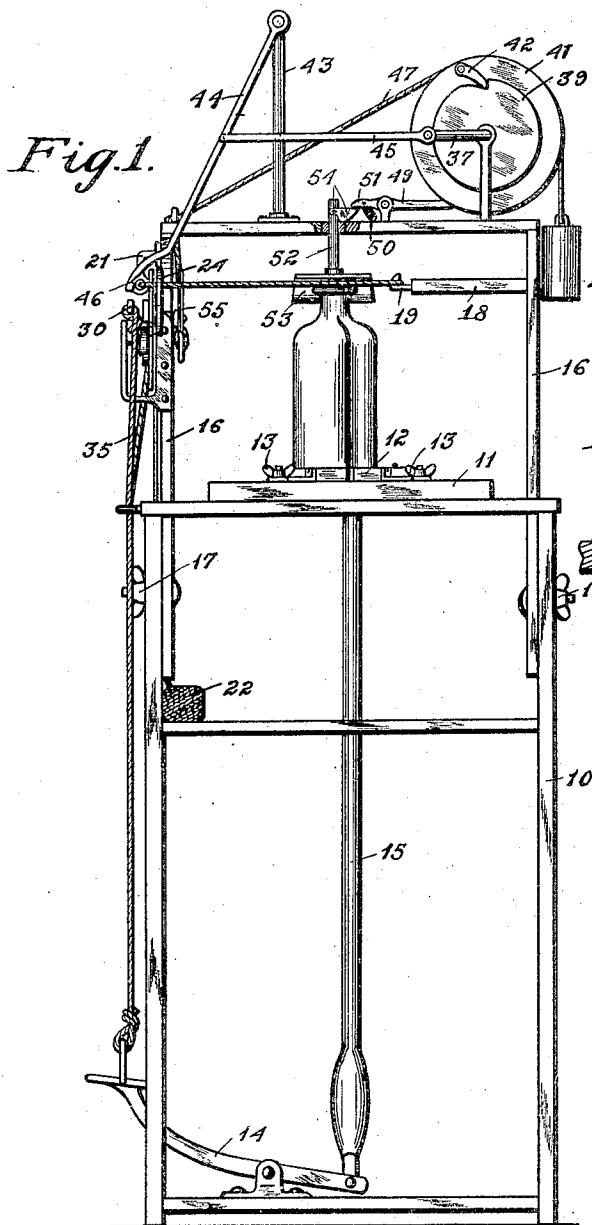
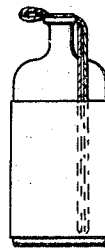


Fig. 3.



Witnesses.
W. A. Loftus.
F. B. Caswell

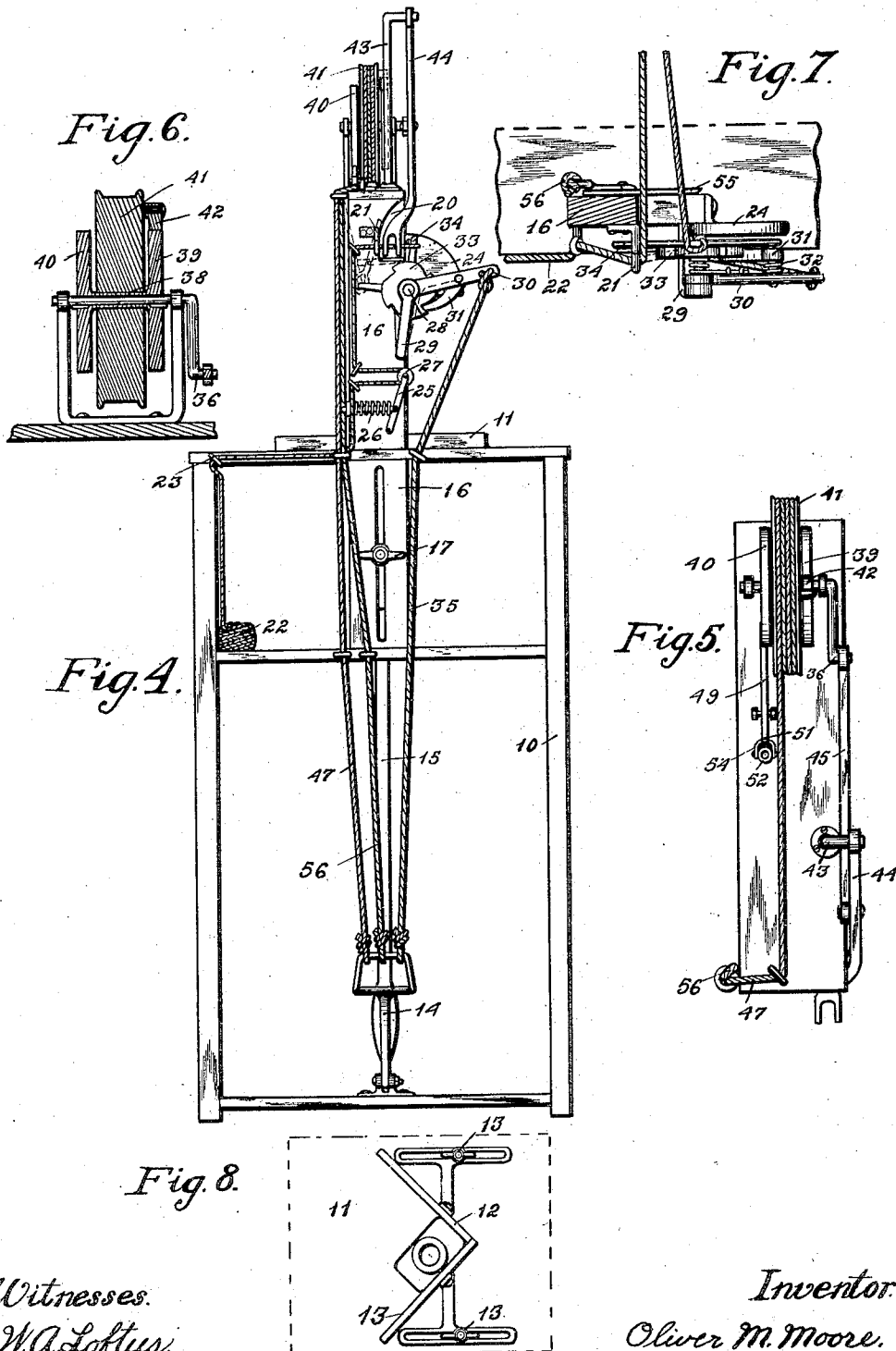
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UNITED STATES PATENT OFFICE.

OLIVER M. MOORE, OF CARROLL, IOWA, ASSIGNOR OF THREE-FOURTHS TO MARGARET M. MOORE AND ONE-FOURTH TO GEORGE H. BARTELS, OF CARROLL, IOWA.

BOTTLE-CORKING MACHINE.

988,205.

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Application filed February 23, 1910. Serial No. 545,441.

To all whom it may concern:

Be it known that I, OLIVER M. MOORE, a citizen of the United States, residing at Carroll, in the county of Carroll and State of Iowa, have invented a certain new and useful Bottle-Corking Machine, of which the following is a specification.

The object of my invention is to provide a bottle corking machine of simple, durable and inexpensive construction designed to automatically insert under the cork a looped piece of twine in such a manner that the doubled central portion of the twine will project from the bottle on one side of the cork and the ends of the twine on the other side so that the operator may, when desiring to remove the cork, place the ends of the twine through the looped end to thereby form a handle that is connected with the cork in such a manner that by pulling upon the handle the cork may be readily and easily removed from the bottle.

A further object is to provide means to be actuated by the operator's foot or for applying power whereby the twine is automatically moved to position between the bottle and the cork and then both ends are automatically cut off as the cork is moved into the bottle and then one end is automatically grasped so that the means for again placing the twine in position may readily and easily engage the twine.

A further object is to provide means for automatically actuating the mechanism for replacing the twine, which mechanism is set in motion by the removal of the corked bottle.

My invention consists in certain details, in the construction, arrangement and combination of the various parts of the device, whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claims and illustrated in the accompanying drawings, in which:

Figure 1 shows a side elevation of a device embodying my invention with a bottle in position therein ready to receive a cork. Fig. 2 shows an enlarged, detail, sectional view to illustrate the mechanism for releasing the twine threading mechanism upon the removal of a bottle. Fig. 3 shows a side view of a bottle provided with my improved cork pulling device. Fig. 4 shows a front elevation of a complete machine embodying my invention. The dotted lines

thereof indicate the position of the twine cutting shears. Fig. 5 shows a top or plan view of the machine. Fig. 6 shows an enlarged, detail, sectional view illustrating the power pulley for actuating the twine threading mechanism, and connected parts. Fig. 7 shows a detail, plan view partly in section to illustrate the twine cutting shears and a portion of the twine holding mechanism, and Fig. 8 shows a top or plan view of the bottle supporting platform.

Referring to the accompanying drawings, I have used the reference numeral 10 to indicate the frame of the machine. At the top of this frame is a platform 11 upon which two adjustable guides 12 are mounted, said guides being made adjustable by means of the set screws 13. They are so arranged as to permit the operator to insert a bottle on the platform 11 from one side and to firmly hold said bottle in position directly under the twine holding mechanism hereinafter described and also so that the bottle may be pushed through to the opposite side of the machine for the purpose of actuating the twine threading mechanism, as will hereinafter appear. In the bottom of the frame 10 is a treadle 14 having pivoted to one end an upright rod 15 which is connected with the platform 11 so that when the treadle is lowered the platform 11 will be elevated.

Adjustably mounted on top of the frame 10 is a supplemental frame 16 made adjustable by means of the set screws 17 so that it may move up and down relative to the frame 10 and to be fixed in any position of its adjustment. This frame carries a stationary arm 18 having a hook 19 at its end which end stands adjacent to the central portion of the bottle supporting platform 11. The front portion of the frame 16 is provided with a notch at 20 near its upper end and on one side of the notch 20 is a twine guide 21. A ball of twine 22 is supported on the frame and a portion of the twine is extended through a number of guides 23 and also through the twine guide 21. Mounted on the side of the front frame member 16 is a segmental plate 24 designed to provide one part of a clamp device for holding the end of the twine, as will hereinafter appear, to thereby cause the twine to extend over the notch 20. In this connection, I have provided means for taking up the slack in the twine as follows: Pivoted to the front of

the frame 16 is a lever 25 provided with a spring 26 and with a pulley 27, the latter being designed to engage the twine and the spring being designed to yieldingly hold the pulley in position for taking up the slack in the twine as clearly shown in Fig. 4.

The means for holding the end of the twine against the plate 24 comprises the following mechanism: Referring to Figs. 4 and 7 of the drawings, I have used the numeral 28 to indicate a shaft supported by the bracket 29 and having an arm 30 pivoted to it. This arm is provided with a pawl 31 provided with a spring 32. Fixed to the shaft 28 is a ratchet wheel 33 designed to be engaged by the pawl 31. Fixed to the shaft 28 is a series of radial arms 34 so shaped and positioned that they will move close to the segmental plate 23 and will firmly engage a piece of twine to thereby hold the same between the arm and the plate. Fixed to the outer end of the arm 30 is a rope 35, the lower end of which is attached to the treadle 14 so that each time the treadle is moved downwardly one of the arms 34 will be moved to position for engaging and clamping the end of the twine to the plate 24.

The means for threading a looped portion of the twine over the hook 19 immediately after the removal of a bottle from the machine comprises the following mechanism: Mounted on top of the supplemental frame 16 is a shaft 36 having a crank arm 37 on one end and also having a sleeve 38 keyed to it. On one end of this sleeve is a ratchet wheel 39 and on the other end a ratchet wheel 40, each of said ratchet wheels being provided with one notch only as clearly shown in Figs. 1, 2 and 6. Rotatably mounted upon the sleeve 38 is a pulley 41 which pulley carries a pawl 42 to engage the ratchet wheel 39. Mounted on top of the frame 16 is a standard 43 to support a threading arm 44 which arm is connected by means of a link 45 with the crank arm 37. The lower end of the threading arm 44 is forked, as shown in Fig. 4, and is also notched at 46 as shown in Fig. 1. Wound upon the drum 41 is a rope 47 having at one end a weight 48, the other end of said rope being fixed to the treadle 14. Mounted upon the top of the frame 16 is a pawl 49 having one end designed to engage the ratchet wheel 40. The said pawl is provided with a spring 50 for yieldingly holding it in engagement with the ratchet wheel 40. The pawl is also provided with a rounded end 51 and slidably mounted on the top of the frame 16 is a short rod 52 having at its lower end an inclined guide plate 53, and at its top is a pivoted lug 54. The said lug is of such shape that, when the rod 52 moves downwardly it will pass below the adjacent end of the pawl 49 and it will rest upon the top of the frame 16. Then when said rod 52 is moved upwardly

it will actuate the pawl 49 to hold it away from its ratchet wheel long enough to permit the pawl to disengage from the notch in said ratchet wheel. Then as the lug 54 passes upwardly it will move to position above the pawl 49 so that the spring 50 may return the pawl 49 to position in engagement with its ratchet wheel. After this has been done the rod 52 will drop by gravity and the lug 54 will engage the rounded end of the pawl 49 and thus move to position below it without moving the pawl during this downward movement of the lug. The practical operation of this threading mechanism is as follows: Assuming that the twine is supported in the position as shown in Fig. 4 and that the pawl 49 has been released to permit the weight 48 to rotate the pulley 41, then obviously the pawl 42 will carry the ratchet wheel 39 around with it one revolution. This will operate the crank arm 39 and will cause the arm 44 to be moved inwardly to position past the center of the frame and over the hook 19. The part of the twine between the forked ends of the arm 44 will pass over the hook 19 and become engaged by said hook 19. The notches 46 in the arm 44 prevent the twine from dropping from the arm 44; then when the arm 44 returns to the position shown in Fig. 1 it will leave the twine looped over the hook 19 as shown in Fig. 1. The releasing device consisting of the guide plate 53, the pawl 49 and connected parts is simply for the purpose of automatically releasing the weight immediately after the removal of a bottle from the machine so that the threading portion is automatically completed at the instant that a bottle is removed so that it will be ready for a succeeding operation.

The twine cutting mechanism comprises a pair of pivoted cutting blades 55 mounted adjacent to the notch 20 and having one stationary blade below the notch 20 and one movable blade to move across the notch. The movable blade is connected with a rope 56, which rope is also connected with the treadle 14 so that, when the treadle is lowered, both portions of the twine will be cut off adjacent to the notch 20.

In practical operation and assuming the parts to be in the position shown in Fig. 1, then upon a depression of the treadle 14, the three ropes 35, 47 and 56 will be simultaneously pulled downwardly. One of them will operate the shears to sever both strands of the twine as shown in Fig. 7. The rope 35 will operate the arms 34 to engage that portion of the twine holder 21 and will carry it across the notch 20 and support it in the position shown by dotted lines in Fig. 7 clamped between the arm 34 and the plate 24 while the downward pull upon the rope 47 will operate the pulley 41 to elevate the weight. At the same time a downward

movement of the treadle 14 will elevate the platform 11. Just prior to the elevation of the platform, the operator holds a cork as shown in Fig. 2 in position above the mouth of the bottle and on top of the twine; then as the bottle moves upwardly and after the twine is severed the cork will be forced downwardly into the bottle when it engages the top of the frame 16. This will also pull the looped portion of the twine clear of the hook 19; then the operator removes the bottle from the device by moving it under the inclined plate 53, which operation automatically trips the ratchet device 49 which immediately operates the arm 44 to engage the twine that extends across the notch 20, as shown by dotted lines in Fig. 7, and it carries the twine to position where it will engage the hook 19, as shown in Fig. 1, and then the arm 44 will return to normal position and the device is ready for a second operation. The tension device 27 will automatically take up any slack in the twine. By this means it is obvious that the corks may be inserted and the twine applied just as rapidly as the operator can place the bottles and corks in position in one side of the machine and remove the bottles from the other side as it is only necessary for the operator to press downwardly upon the treadle after the bottle and cork are in position.

In connection with the twine holding mechanism including the arms 34, it is to be noted that there are a number of said arms, in the present instance four are shown, and the ratchet wheel 33 has an equal number of notches. The parts are so arranged that during each downward movement of the rope 35 one of the arms 34 is moved to position for clamping the end of the twine, as shown in Fig. 4, and obviously said arm will release itself from the twine when it moves to position beyond the plate 24 and the end of the twine will then drop from the machine and, hence, only a small portion of the twine will be wasted during each operation, the portion being only that amount necessary to be clamped between the arm 34 and the plate 24.

In Fig. 3, I have illustrated a completed bottle provided with my improved cork removing device and in said view I have illustrated a wrapper extended around the bottle to firmly secure the loose ends of the twine under the wrapper so that they will not become cut or entangled and so that the cork will not accidentally be pulled out.

One of the important advantages in connection with my invention is that a device may readily, quickly and easily be adapted for bottles of different sizes by simply adjusting the upper frame relative to the lower one and secure it in its adjusted position by means of the set screws 17. When this is done all of the parts of the twine applying

mechanism move with the upper frame member and, hence, the operation is just the same in connection with bottles of greater or less length. The position of the hook 19 need not be changed relative to the upper frame member at any time.

I claim as my invention:

1. In a machine of the class described, the combination of a frame, a bottle supporting platform mounted on top of the frame, means for raising and lowering said platform, a supplemental frame on top of the main frame having its top portion in position to be engaged by a cork in a bottle when the said platform is raised to thereby force the cork into the bottle, means for adjusting the upper frame member relative to the main frame so that bottles of different sizes may be used, a stationary hook on the upper frame designed to receive a piece of twine, and means for passing a piece of twine over the platform to engage said hook.

2. In a machine of the class described, the combination of a frame, a bottle supporting platform mounted on top of the frame, means for raising and lowering said platform, a supplemental frame on top of the main frame having its top portion in position to be engaged by a cork in a bottle when the said platform is raised to thereby force the cork into the bottle, means for adjusting the upper frame member relative to the main frame so that bottles of different sizes may be used, a stationary hook on the upper frame designed to receive a piece of twine, means for passing a piece of twine over the platform to engage said hook, and means for severing the twine on the opposite side of the platform during the upward movement of the platform.

3. In a device of the class described, the combination of a platform designed to support a bottle in an upright position, means for moving the platform vertically, a stationary top member above the bottle platform in position to be engaged by a cork in the bottle, means for supporting a doubled length of twine above the bottle platform, and means for cutting the twine during the upward movement of the platform.

4. In a device of the class described, the combination of a hook designed to engage and support the central portion of the doubled length of twine, means for automatically engaging and holding one end of said length of twine, means for slidably supporting the other end of said length of twine in position where it will be engaged by said twine holding device when the latter is operated.

5. In a device of the class described, the combination of a hook designed to engage and support the central portion of the doubled length of twine, means for automatically engaging and holding one end of

said length of twine, means for slidably supporting the other end of said length of twine in position where it will be engaged by said twine holding device when the latter is operated, said twine holding device comprising a stationary plate and a series of arms so arranged that one of them may clamp one end of said length of twine to the plate and the next arm will stand in position to engage the other end of said length of twine and to carry it to said plate when said device is actuated.

6. In a device of the class described, the combination of a hook designed to engage and support the central portion of the doubled length of twine, means for automatically engaging and holding one end of said length of twine, means for slidably supporting the other end of said length of twine in position where it will be engaged by said twine holding device when the latter is operated, said twine holding device comprising a stationary plate and a series of arms so arranged that one of them may clamp one end of said length of twine to the plate and the next arm will stand in position to engage the other end of said length of twine and to carry it to said plate when said device is actuated, and means for cutting off both sides of said length of twine adjacent to the said twine holding device.

7. In a device of the class described, the combination of a hook designed to engage and support the central portion of the doubled length of twine, means for automatically engaging and holding one end of said length of twine, means for slidably supporting the other end of said length of twine in position where it will be engaged by said twine holding device when the latter is operated, said twine holding device comprising a stationary plate and a series of arms so arranged that one of them may clamp one end of said length of twine to the plate and the next arm will stand in position to engage the other end of said length of twine and to carry it to said plate when said device is actuated, means for cutting off both sides of said length of twine adjacent to the said twine holding device, and means for simultaneously actuating the twine cutter and the twine holding device.

8. In a machine of the class described, the combination of a vertically movable platform, a stationary frame above it designed to engage a cork in a bottle on the stationary platform to force the cork into the bottle when the platform is elevated, means for supporting a doubled length of twine upon a bottle on the platform, a device for carrying a doubled length of twine over the platform, means for operating the twine carrying device comprising an arm capable of swinging over the platform and of engaging and carrying a doubled length of twine with

it, means for automatically moving said arm, and means for releasing the arm moving means comprising a guide plate and a releasing device connected with the guide plate and so arranged as to be actuated by the removal of a bottle from the platform.

9. A device of the class described, comprising a vertically movable platform, a stationary hook supported above the platform, an arm capable of engaging a doubled length of twine and of moving it across the platform into position in engagement with said hook, means for operating said arm comprising a crank shaft, a pitman connecting it with said arm, a pulley, a weight for operating the pulley, a ratchet wheel connected with the crank arm, a pawl connected with the pulley to engage the ratchet wheel, a second ratchet wheel also connected with said arm, a spring actuated pawl to engage the latter ratchet wheel, a sliding rod, an inclined plate on the sliding rod, and a pivoted rod on the sliding rod to coact with the spring actuated pawl for the latter ratchet wheel, for the purposes stated.

10. In a machine of the class described, the combination of a twine supporting hook, means for engaging a doubled length of twine and attaching it to said hook, a twine holding device comprising a stationary plate, a series of radial arms capable of movement across said plate and close to it, a twine guide spaced apart from the said stationary plate, one of said radial arms being designed to engage the end of a piece of twine and hold it to the plate and the adjacent arm being in position to engage a piece of twine passed through said guide device and to carry it to the said stationary plate when the radial arms are rotated.

11. In a machine of the class described, the combination of a twine supporting hook, means for engaging a doubled length of twine and attaching it to said hook, a twine holding device comprising a stationary plate, a series of radial arms capable of movement across said plate and close to it, a twine guide spaced apart from the said stationary plate, one of said radial arms being designed to engage the end of a piece of twine and hold it to the plate and the adjacent arm being in position to engage a piece of twine passed through said guide device to carry it to the said stationary plate when the radial arms are rotated, and means for rotating said radial arms comprising a ratchet wheel operatively connected with the radial arms, a pawl to coact with the ratchet wheel, and means for operating said pawl to move the ratchet wheel and arm.

12. In a device of the class described, the combination of a frame, a vertically movable platform therein, a top piece fixed to the frame above the platform, a stationary hook

below said top piece and above the platform, a stationary guide to support one end of a double length of twine, means for supporting the other end of a doubled length of twine, said means being also designed to engage the end of said length of twine carried by the guide and for moving it to position to be engaged by the clamping device, a twine cutter designed to sever both ends of a doubled piece of twine, a treadle, and means operated by the treadle for simultaneously elevating said platform and for operating said twine cutter and also said twine clamping mechanism.

13. In a device of the class described, the combination of a frame, a vertically movable platform therein, a top piece fixed to the frame above the platform, a stationary hook below said top piece and above the platform, a stationary guide to support one end of a doubled length of twine, means for supporting the other end of a doubled length of twine, said means being also designed to engage the end of said length of twine carried by the guide and for moving it to position to be engaged by the clamping device, a twine cutter designed to sever both ends of a doubled piece of twine, a treadle, and means operated by the treadle for simultaneously elevating said platform and for operating said twine cutter and also said twine clamping mechanism, means for automatically moving a doubled length of twine to position over the said platform, and means actuated upon the removal of a bottle from the platform for operating the twine carrying mechanism.

14. A device of the class described, com-

prising a stationary frame, a vertically movable platform on top of it, an adjustable frame above the stationary frame, a hook carried by the adjustable frame, a twine gripping device comprising a stationary plate, a series of radial arms designed to move across the stationary plate and to contact with the stationary plate in clamping a piece of twine, a twine guide spaced apart from the said plate and designed to hold a piece of twine in position engaged by one of said radial arms to move the twine to position over the stationary plate, means for engaging the portion of twine between the gripping device and said guide, and for moving a doubled portion of the twine to position in engagement with said stationary hook, said twine moving means comprising a pivotal arm forked at its lower end and provided with a notch, a weight actuated device for operating said arm, a trip device for releasing the weight designed to be actuated by the removal of a bottle from the device, a twine cutter, a treadle, means connected with the treadle for elevating the said platform and three ropes also connected with the treadle, one being designed to operate the radial arms of the twine clamping device, the other being designed to operate the twine cutter, and the third being designed to elevate the weight, said parts being arranged and combined, substantially in the manner set forth, and for the purposes stated.

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Witnesses:

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