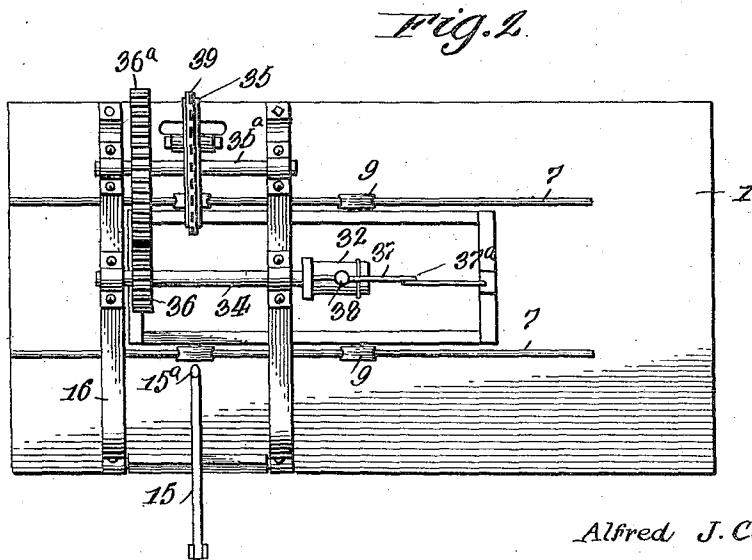
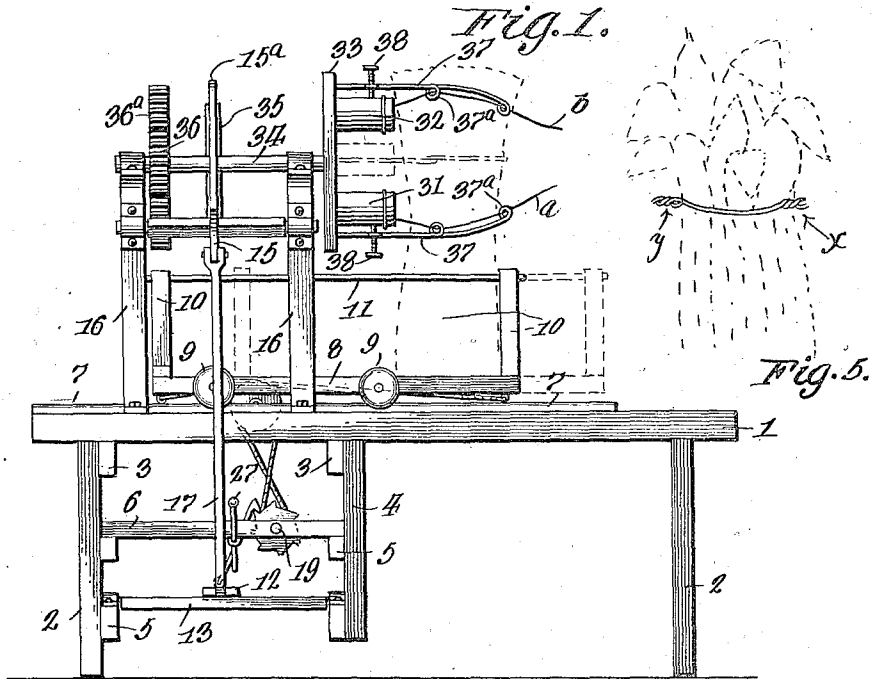


A. J. COLLINS.
 TOBACCO TIER.
 APPLICATION FILED FEB. 7, 1917.

1,262,455.

Patented Apr. 9, 1918.
 2 SHEETS—SHEET 1.



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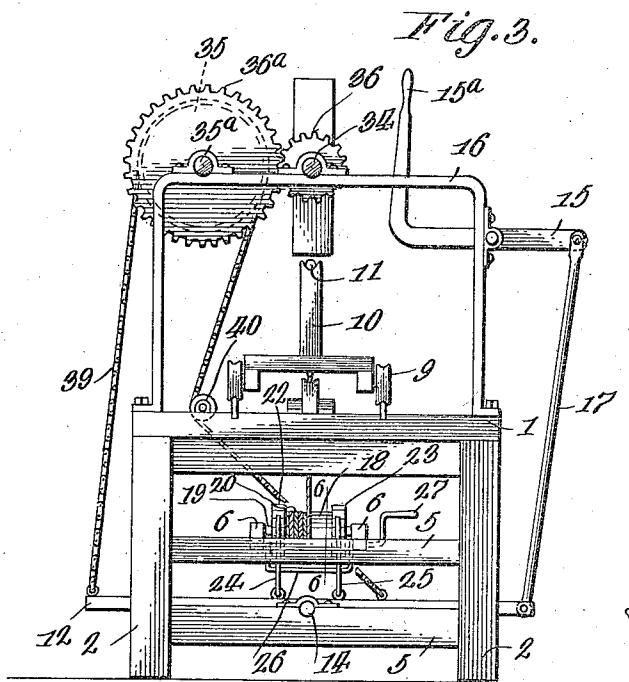


Fig. 4.

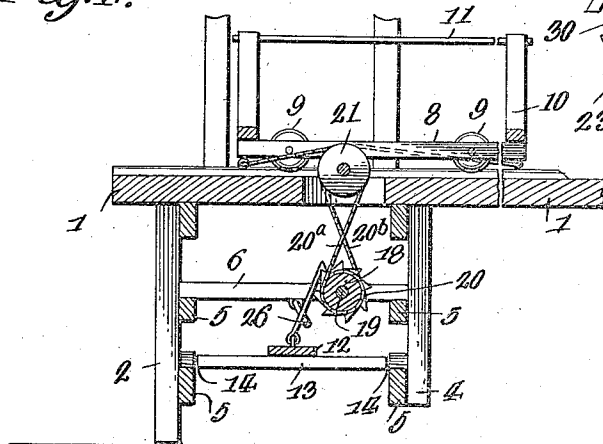
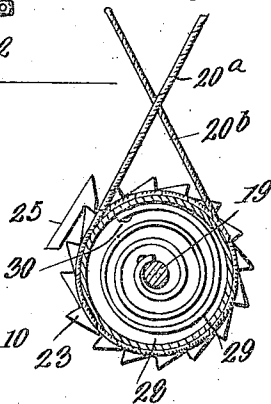


Fig. 6.



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UNITED STATES PATENT OFFICE.

ALFRED J. COLLINS, OF WINTERVILLE, NORTH CAROLINA.

TOBACCO-TIER.

1,262,455.

Specification of Letters Patent.

Patented Apr. 9, 1918.

Application filed February 7, 1917. Serial No. 147,219.

To all whom it may concern:

Be it known that I, ALFRED J. COLLINS, a citizen of the United States, residing at Winterville, in the county of Pitt and State of North Carolina, have invented certain new and useful Improvements in Tobacco-Tiers, of which the following is a specification.

My invention relates to improvements in tobacco shock tiers, and it consists in the constructions, combinations and arrangements herein described and claimed.

An object of my invention is to provide a device for looping or tying bundles of green tobacco into shocks, so that a great proportion of manual labor may be dispensed with and the tobacco handled and stored more readily.

Another object of the invention is to provide a tobacco shock tier including principally a reciprocable carriage for receiving a bundle of green tobacco, and a looping or tying device which acts on the bundle or shock of tobacco, as the carriage reciprocates.

Other objects and advantages will appear from the following specification reference being had to the accompanying drawings forming a part thereof, in which:

Figure 1 is a side elevation of the device illustrating its application,

Fig. 2 is a plan view thereof,

Fig. 3 is a rear elevation,

Fig. 4 is a central longitudinal section of a portion of the device showing the reciprocable carriage connections,

Fig. 5 is a perspective view illustrating the manner in which a shock is tied, and

Fig. 6 is a detail cross section on the line 6-6 of Fig. 3.

It is the practice in tobacco-growing regions to cut the green tobacco on the field and convey it to a curing-house where it remains for a specified time in order to be dried and cured. The curing-house is usually a large barn. In cutting the tobacco, the operatives gather the green leaves into bundles and tie them as such.

This bundling of the green leaves is known as "looping," and being done by hand takes a considerable length of time.

In carrying out my invention I provide a table 1 which is supported at the four corners by legs 2. Suitable braces 3 are provided beneath the table, which as shown in

Fig. 1, in one instance brace the adjacent legs 2, and in the other instance brace and support depending bracket members 4. Suitable cross bars 5 span the depending bracket members 4 and the adjacent legs 2 the upper bars 5 forming the support for a pair of parallel beams 6. The beams 6 support a ratchet winding mechanism hereinafter to be referred to. The lower bars 5 form mountings for a carriage actuating treadle also hereinafter to be referred to.

Tracks 7 are secured to the table 1 as clearly shown in Figs. 1 and 2, on which a tobacco bundle carriage 8 is arranged to run. The carriage 8 is provided with flanged or grooved wheels 9 which run on the tracks 7. The carriage 8 is provided at its forward and rearward ends with standards 10 the upper ends of which receive a bar 11. The bundle of green tobacco is set over the bar 11 and on to the carriage 8.

The carriage 8 is reciprocated over the tracks 7 by the action of a treadle 12. The treadle 12 includes a cross-bar 13 the ends of which are formed into trunnions 14. The trunnions 14 rest in suitable bearings in the lower bars 5, and are held to the bearings by cap plates as shown in Figs. 1 and 3. The treadle 12 is rocked on the trunnions 14 by a lever 15. The lever 15 is fulcrumed on a superstructure 16 which is secured to the table 1 as illustrated in the drawings. The superstructure 16 also forms the supporting means for other elements of the device which will be presently described. The lever 15 is provided with a hand grip 15^a which may be grasped by the operator in operating the device. The other end of the lever 15 is joined with the treadle 12 by a link rod 17. In moving the lever 15 on its fulcrum by reason of grasping the hand grip 15^a, the treadle 12 is accordingly rocked on its trunnions 14.

The movements of the treadle 12 are utilized for reciprocating the carriage 8 along the tracks 7. For this purpose a drum 18 of the cable winding mechanism previously referred to is employed. The drum 18 is rotatably mounted on a shaft 19 which is fixed in the parallel beams 6. A cable 20 is wound on the drum 18, one end thereof passing upwardly over a sheave 21 which is mounted on the table 1 as shown in Fig. 4, and is secured to the rear end of the carriage 8 as shown in Fig. 4. The other end

20^b of the cable 20 passes upwardly over a similar sheave 21 and is secured to the forward end of the carriage 8.

Ratchets 22 and 23 are secured to the ends of the drum 18. Pawls 24 and 25 engage the teeth of the respective ratchets 22 and 23, the pawls being loosely mounted on the treadle 12 at either side of the treadle fulcrum 14.

The pawls 24 and 25 may be simultaneously moved from engagement with the respective ratchets, by a disengaging bar 26 which is provided with a crank extension 27. When it is desired to disengage the pawls 24 and 25 from the ratchets 22 and 23, the crank 27 may be struck by the foot of the operator who is assumed to be standing adjacent to the lever 15, when the pawls will be disengaged simultaneously for a purpose which will presently be made clear.

Reference is now directed to Fig. 6 from which it will be observed that the drum 18 is divided with an annular chamber 28 in the plane of the ratchet 23. The chamber 28 houses a coiled spring 29 which is secured at one end to the fixed shaft 19 and at the other end, to the wall of the chamber 28 of the drum 18 as at 30. As the treadle 12 is rocked on its fulcrums 14, one or the other of the pawls 24 and 25 will be moved downwardly and cause the rotation of the drum 18 through the medium of the associated ratchet. Assuming the motion of the treadle to be such as to rotate the drum 18 in a counter-clockwise direction in Fig. 4, the cable end 20^a will be wound on the drum 18 and cause the carriage 8 to move forwardly. The end 20^b of the cable 20 is correspondingly let out. As the drum 18 is rotated in the counter-clockwise direction, the spring 29 will be partially wound by reason of its connection 30 with the drum. The stored tension in the spring 29 will serve to rotate the drum 18 in a clockwise direction and consequently return the carriage 8 by winding up the end 20^b of the cable 20. The foregoing description is an explanation of the manner in which the carriage 8 is reciprocated along the tracks 7.

A bundle of tobacco leaves are set onto the carriage 8 when it is in the position shown in Fig. 1, whereupon the carriage 8 is moved forwardly to the dot-and-dash-line position, in which time the bundle is looped. The tobacco bundle is looped by cords or twine *a* and *b*. The twine *a* and *b* is contained in twine boxes 31 and 32. The twine boxes 31 and 32 are mounted near the ends of a box mount 33 which is mounted on the end of a driven spindle 34. The spindle 34 is journaled in suitable bearings on the superstructure 16 as clearly shown in the drawings. The spindle 34 is provided with a driven gear 36. The gear 36 is rotated by an intermeshing driven gear 36^a on a

shaft 35^a. The shaft 35^a is journaled on the superstructure 16 and carries the sprocket 35.

Twisting arms 37 are mounted on the box mount 33 adjacent to the twine boxes 31 and 32. The arms 37 are formed with loops 37^a through which the twine *a* and *b* is threaded. The twine is contained in the boxes 31 and 32 from which it is threaded through suitable holes in the covers of the boxes. Tension screws 38 may be provided by which the tension of the twine is adjusted so that it may not unwind from the twine pawls too rapidly.

The spindle shaft 34, and consequently its carried parts, is revolved by a chain 39 which is applied to the sprocket 35. The ends of the chain 39 are secured to the treadle 12 at either side of the pivotal point 14, a guide or tightening roller 40 being provided for the chain as shown in Fig. 3. As the treadle 12 moves, the spindle 34 will accordingly be rotated in its journals, and the twine *a* and *b* twisted first in one direction and then in the other. The twisting of the twine in the two directions referred to is accomplished by the action of the treadle 12, it being readily understood that the treadle rocks downwardly first on one side of its fulcrum and then on the other, these movements being imparted to the spindle 34 as will hereinafter be more fully explained.

From the foregoing description the construction of the device will be readily understood, and the operation thereof is as follows:

It should be explained that the thread twisting arms 37 are normally disposed in a horizontal plane as indicated by the dot-and-dash-lines in Fig. 1, and not in the vertical plane shown in full lines. The arms 37 are shown in the full line position simply for purposes of illustration. A bundle of green tobacco leaves are set down between the arms 37 (assuming them to be in a horizontal position) when they will be embraced by the arms and will rest on the carriage 8.

The twine ends *a* and *b* are assumed to have been twisted together as at *x* in Fig. 5 from a previous operation. The nature of the twine will be such that when it is twisted together it will remain so. For this purpose it may be covered with resin or some other binding material which will insure the retention of the twist *x* during what little handling the shock will receive.

The bundle of leaves being now in position, the lever 15 is grasped at 15^a and pulled outwardly. The treadle 12 is consequently rocked on its fulcrum and the cable end 20^a wound on the drum 18 in the manner already explained. The result will be that the carriage 8 is moved forwardly carrying the bundle of tobacco leaves with it. When this has happened the spindle 34 will be rotated and the twine *a* and *b* twisted at

the other side of the bundle of leaves as at γ in Fig. 5. The twist γ is now formed and is cut at the end thereof adjacent to the untwisted twine ends a and b . The looped shock is now removed from the carriage 8 and the now severed ends of the twine a , b , may be held together. The operator may now strike the crank 27 with his foot to cause the disengagement of the pawls 24 and 25 with the respective ratchets. The tension of the spring 29 will thus cause the rotation of the drum 18 in a clockwise direction, rewinding the cable end 20^b on the drum 18, and returning the carriage 8 to its former position.

At the same time that the pawls are released from the ratchets and the carriage 8 is returning to its normal position, the operator will shove the lever 15 inwardly (it being recalled that the lever 15 was pulled outwardly) when the chain 39 and the co-operating parts will cause the spindle 34 to rotate in an opposite direction to which it was rotated when the carriage 8 was moved forwardly. The result will be that the twine ends a , b will be twisted in an opposite direction while the ends are being held as previously explained, by the operator.

When the foregoing operations are accomplished, the carriage 8 will have been returned to its former position, a twist will have been formed at the ends of the twines a , b and the device will be in readiness to receive another bundle of tobacco leaves. It will be understood that as soon as the carriage 8 is returned to its normal position by reason of the uncoiling of the spring 29, the operator will release the crank 27 which will permit the pawls to reengage the respective ratchets. The provision of the two ratchet mechanisms is simply for the purpose of permitting the operator to swing the lever 15 inwardly or outwardly as he may choose or as present conditions may demand.

I claim:

1. A bundle tying device, a table, a bundle carriage movable thereover and adapted to receive a bundle, and means for looping a twine around the bundle as the carriage moves in one direction.

2. A bundle tying device, a table, a carriage adapted to receive a bundle, means for moving the carriage forwardly over the table, means for looping and twisting twine around the bundle as the carriage moves forwardly, and means for returning the carriage.

3. In a bundle tying device, a table, a carriage adapted to receive a bundle, a drum, a cable wound on the drum and having its ends attached to the carriage, means for rotating the drum to move the carriage forwardly, and means for returning the carriage.

4. A bundle tying device, a table, a car-

riage movable over the table adapted to receive a bundle, a cable drum, a cable wound on the drum and having its ends secured to the ends of the carriage, a treadle having connections for rotating the drum to wind the cable and move the carriage forwardly, and means for disconnecting said connections from the drum to permit the return of the carriage.

5. A bundle tying device, a table, a carriage movable thereover adapted to receive a bundle, a shaft, a cable drum rotatable on the shaft, a spring coiled about the shaft and having its respective ends secured to the shaft and the drum, a ratchet on the drum, a cable wound on the drum and having its ends secured to the ends of the carriage, a treadle, a pawl on the treadle for engaging the drum ratchet and rotating the drum upon movement of the treadle, and a disconnecter for the pawl to permit the return of the carriage.

6. A bundle tying device, a table, a carriage adapted to receive a bundle movable thereover, a shaft, a drum having a ratchet mounted on the shaft, a spring having its respective ends connected to the shaft and the drum, a cable on the drum having its ends connected to the ends of the carriage, a treadle having a pawl in engagement with the ratchet to rotate the drum in one direction, wind the cable and store tension in the spring, a lever for operating the lever, and a disconnecter for the pawl to permit the rotation of the drum in an opposite direction by the tension of the spring.

7. In a bundle tying device, the combination with a reciprocable carriage adapted to receive a bundle, cable and drum devices for reciprocating the carriage, lever and treadle devices for actuating the drum, and associated twine looping and twisting arms for looping and twisting twine around the bundle as the carriage reciprocates.

8. In a bundle tying device, the combination with the table and superstructure, a reciprocable carriage movable over the table and adapted to receive a bundle, a spindle mounted on the superstructure, twine guides for guiding the twine and embracing a bundle, and means for moving the carriage with a bundle over the table to loop the twine around the bundle and twist the ends.

9. In a bundle tying device, the combination with the superstructure, a rotatable spindle having arms adapted to embrace a bundle, the arms having loops to receive and guide the twine, and tension screws for engaging the twine.

10. In a bundle tying device, a table and a superstructure, a carriage movable over the table and adapted to receive a bundle, a spindle journaled on the superstructure and disposed over the carriage, guide arms carried by the spindle, the guide arms being

4
 adapted to embrace the bundle on the carriage, drum and cable devices for moving the carriage and bundle forwardly to loop the twine around the bundle, treadle and
 5 lever devices for rotating the drum and twisting the threads, means for disengaging the treadle devices from the drum, and means for returning the carriage.

10 11. In a bundle tying device, the combination of a slidable carriage, said carriage being adapted to receive a bundle, and means for looping a twine around the bundle as the carriage is slid in one direction.

12. In a bundle tying device, the combination of a slidable carriage, adapted to receive a bundle, means for moving said carriage forwardly, means for looping and twisting twine around the bundle as the carriage moves forwardly, and means for returning the carriage. 15 20

In testimony whereof I affix my signature in presence of two witnesses.

ALFRED J. COLLINS.

Witnesses:

B. F. MANNING,

L. C. FLETCHER.

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