Jan. 8, 1929. 1,697,890

J. L. VAUGHN

WIRE BINDING MACHINE

Original Filed Feb. 18, 1927 3 Sheets-Sheet 1

Fig. 1

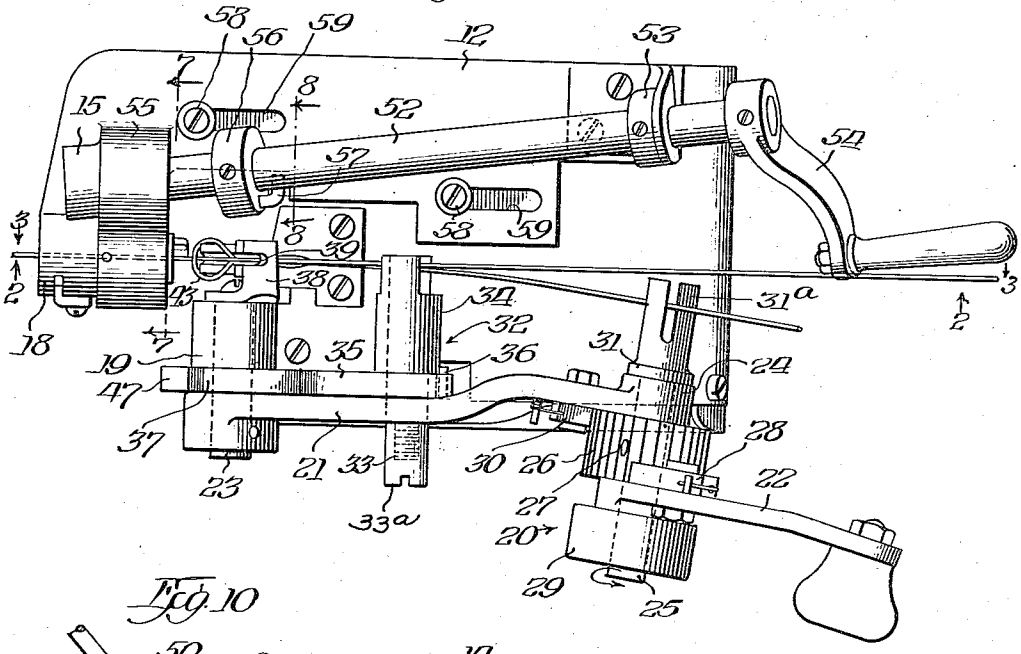


Fig. 10

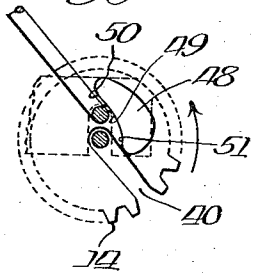


Fig. 11

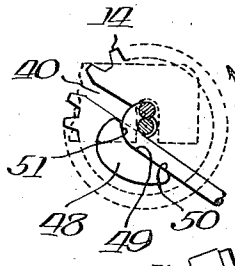
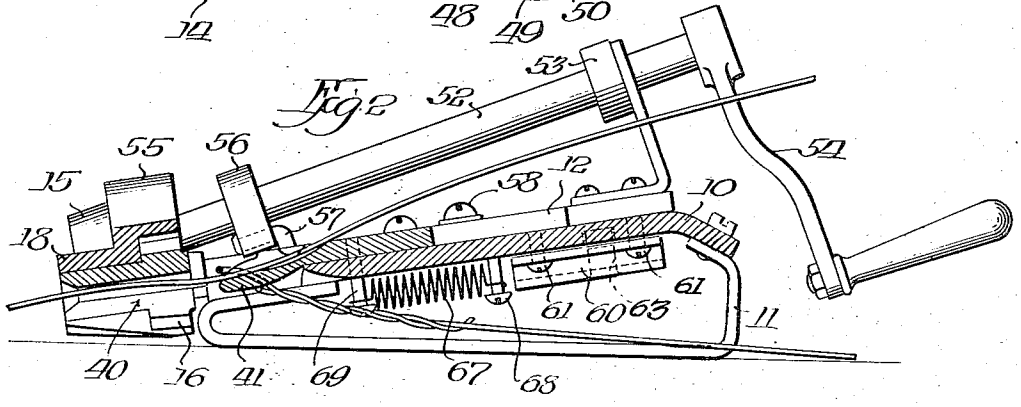


Fig. 2



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Original Filed Feb. 18, 1927 3 Sheets-Sheet 2

Fig. 5.

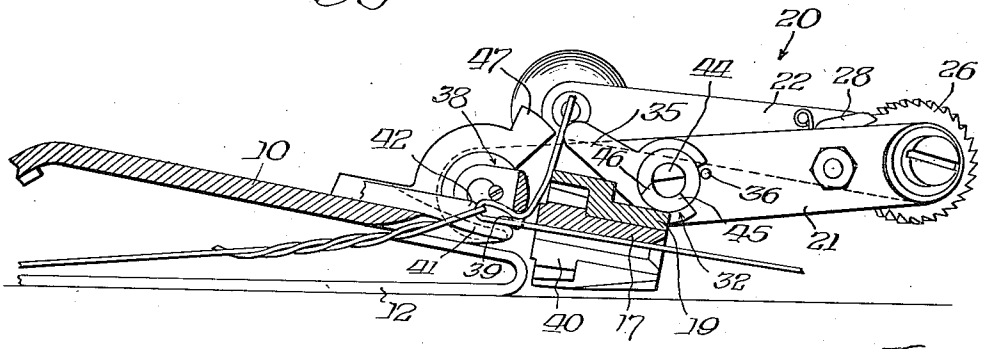


Fig. 7.

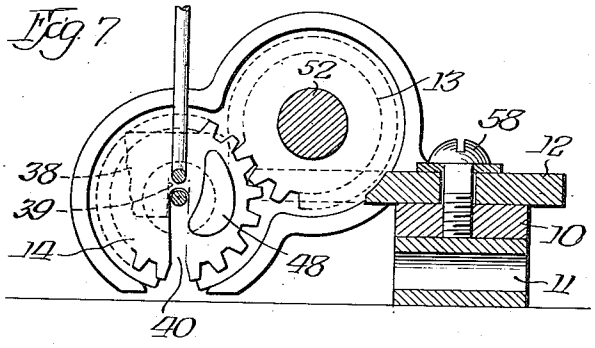


Fig. 8.

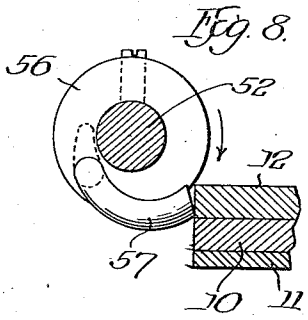


Fig. 9.

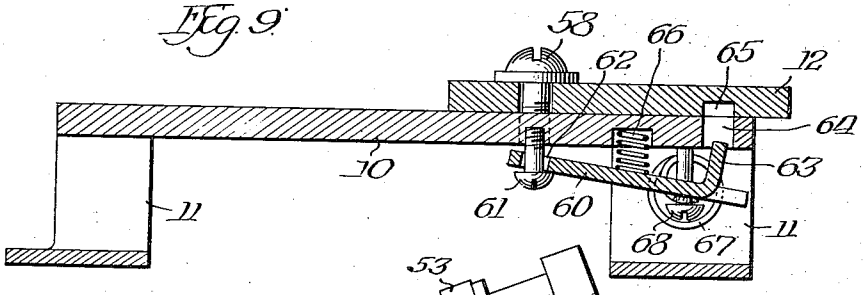
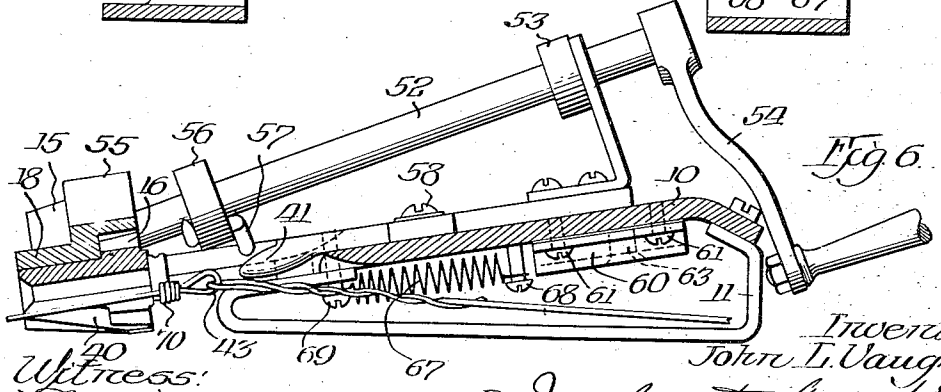


Fig. 6.



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WIRE BINDING MACHINE

Original Filed Feb. 18, 1927 3 Sheets-Sheet 3

Fig. 3.

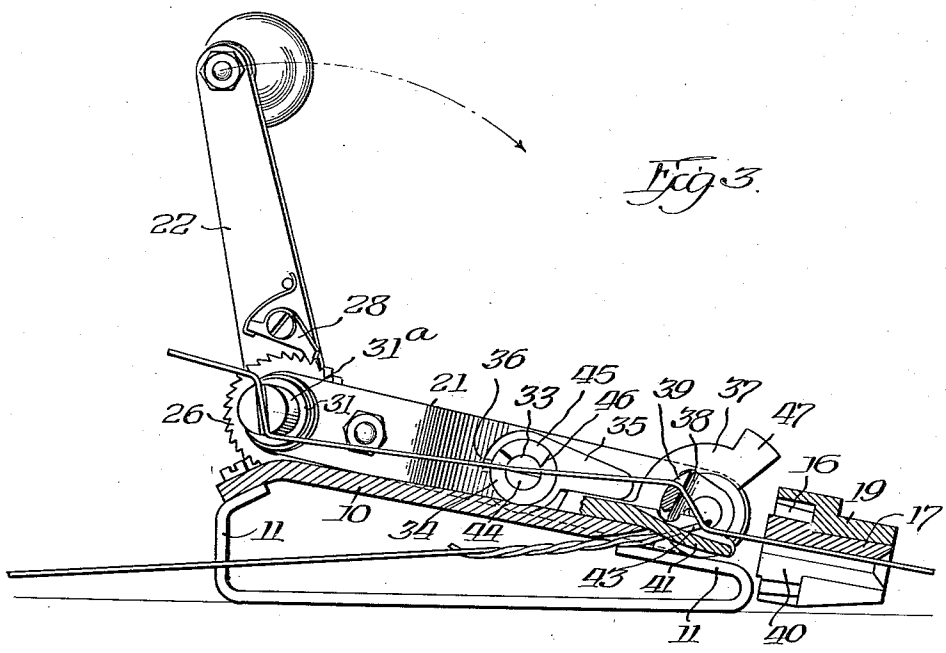


Fig. 12.

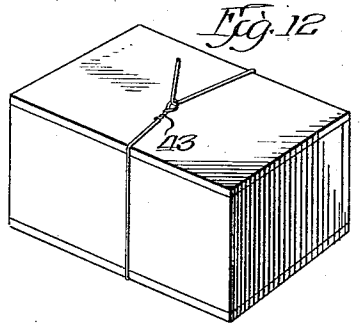
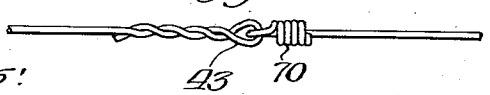


Fig. 4.

Fig. 13.



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UNITED STATES PATENT OFFICE.

JOHN L. VAUGHN, OF CICERO, ILLINOIS, ASSIGNOR TO THE GERRARD COMPANY, INC., OF CHICAGO, ILLINOIS, A CORPORATION OF DELAWARE.

WIRE-BINDING MACHINE.

Application filed February 18, 1927, Serial No. 169,263. Renewed September 26, 1928.

This invention relates to a wire binding machine and has special reference to a machine for stretching a wire around a bale, box or other masses or containers, for cutting the wire at a suitable length and finally for splicing the ends of the wire.

More particularly, this invention has reference to a machine for stretching a bail tie of the usual type around a bale, box or other mass or container and for obtaining any desired tension thereon; for cutting the straight end portion of the wire at a predetermined length; and for twisting the straight end portion of the wire around the main body portion to obtain a strong and neat tie.

One of the objects of this invention is to provide a machine of the type above described which will operate to stretch the wire around a bale or container and to produce any desired tension thereon.

A further object of this invention is to provide a machine as described above, which will be inexpensive to manufacture, compact in size and of a light weight.

A further object of this invention is to provide a machine of the type hereinbefore indicated which may be conveniently operated and require a comparatively short time for its operation.

Further objects and advantages will be apparent from the description and drawings forming a part of this specification to which reference may now be had for a more complete understanding of the characteristic features of this invention, in which drawings:

Figure 1 is a top plan view of the device embodied in this invention;

Fig. 2 is a vertical sectional view taken on the line 2—2 of Fig. 1;

Fig. 3 is a vertical sectional view taken on the line 3—3 of Fig. 1 and showing the machine in a substantially initial operating position;

Fig. 4 is a view similar to Fig. 3, showing a subsequent position wherein the wire is cut at a proper length preparatory to being brought into position for tying;

Fig. 5 is a view similar to Fig. 3 showing a third position of the device wherein the end portions are brought into a position for tying;

Fig. 6 is a view similar to Fig. 3 showing the machine in the act of ejecting the bail tie;

Fig. 7 is a detailed sectional view taken on the line 7—7 of Fig. 1;

Fig. 8 is a detailed sectional view taken on the line 8—8 of Fig. 1, showing a changed position of Fig. 7;

Fig. 9 is a vertical sectional view showing a locking portion of the device;

Fig. 10 is a detailed view of the twister pinion in one position thereof;

Fig. 11 is a view similar to Fig. 10 showing a subsequent position in which the end portion is being twisted around the main body portion;

Fig. 12 is a perspective view of the box or container showing the initial position of the wire on the box prior to positioning the device therein; and

Fig. 13 is a perspective view of the spliced end portions.

Referring now more particularly to the drawings, the device shown therein comprises a main base portion 10 which is preferably a metal casting or may be formed of sheet metal. This main base 10 is shown secured in any suitable manner to a pair of supports 11 which are preferably formed of strips of sheet metal, the main base being angularly disposed with reference to the bottom of the supports. An auxiliary base 12 is slidably mounted on the top of the main base 10 and carries a driving pinion 13 and a twister pinion 14, which latter are in engagement with each other. The driving pinion 13 is suitably supported in a bearing member 15 which latter is preferably integral with the auxiliary base. The twister pinion 14 comprises an enlarged head having gear teeth 16 cut therein and a reduced shank portion 17, which is journaled in a bearing 18, the latter being preferably integral with the auxiliary base 12.

The main base 10 is provided with a bearing 19 preferably integral therewith and on which the operating handle 20 is pivotally mounted. The operating handle 20 comprises a pair of lever arms 21 and 22, said lever arm 21 being fixedly mounted on a shaft 23, which latter is mounted in the bearing 19. The other end of the lever arm 21 is provided with a bearing 24 in which a shaft 25 is journaled. A ratchet wheel 26 is

mounted on said shaft 25 and adjacent the bearing 24 and is fixed thereto by a pin 27 or other suitable means. The lever arm 22 is loosely mounted on the shaft 25 adjacent the ratchet wheel 26 and has a spring pressed pawl member 28 mounted thereon for engagement with the ratchet wheel 26. The lever arm 22 is held in position on the shaft 25 by the collar 29. A second spring pressed pawl member 30 is suitably mounted on the lever arm 21 and has engagement with the ratchet wheel 26.

In order to operate shaft 25, the lever arm 22 is oscillated and the pawl 28 engages the ratchet wheel 26 to rotate the latter in one direction only. A movement in the direction as indicated by the arrow in Fig. 1 is obtained by moving the lever arm 22 in that direction, the pawl 28 engaging the teeth of the ratchet 26 and the latter sliding past the pawl 30. By a movement of the lever in the opposite direction, the pawl member 28 will slide past the teeth of the ratchet wheel 26 and the pawl 30 will engage the teeth and hold the ratchet wheel 26 in a fixed position. On the other side of the bearing 24, the shaft 25 is enlarged to provide a shoulder 31 which bears against the bearing 24 and a bifurcated shank portion 31^a which acts as a winding drum.

A cutter 32 is mounted on the lever arm 21 and comprises a shaft 33 mounted in fixed relation with the lever arm 21, said shaft having a reduced threaded portion on which a nut 33^a is engaged. The shaft 33 has a collar 34 rotatably mounted thereon and on the iner side thereof. An arm 35 is fixed to the collar 34 and is slotted at its periphery, as shown more particularly in Fig. 3, to receive a pin 36, which is secured to the lever arm 21. It will thus be seen that the arm 35 and the pivotal collar 34 have but a limited rotary movement, the pin 36 engaging either end of the slotted portion on the periphery of the collar. The function of this movement will hereinafter be more fully described.

A cam 37 is mounted on the bearing 19 and in a plane coextensive with the plane of the arm 35. A guide finger 38 is suitably mounted on the shaft 23 and in a fixed relation therewith. The guide finger is provided with a slot 39 which engages and directs the wire of the bail tie.

The twister pinion 14 has a groove 40 extending from the outer diameter to a point central thereof and a corresponding groove is also contained in the bearing 18 in which the twister pinion is mounted. The groove 40 extends longitudinally through the entire twister pinion including both the shank portion 17 and the enlarged head portion having the teeth 16 cut therein. In the same plane with the central end portion of the groove 40 is a grooved tongue member 41 which latter is either mounted on the main base 10 or may be integrally formed therewith. The end of the tongue member is preferably rounded and is provided with an abutment 42 formed by an upwardly extending shoulder raised from this rounded end portion. The end of the tongue member is about one-fourth of an inch from the face of the twister pinion, this comparatively short distance being preferable for reasons which will hereinafter be stated. The slot 39, of the guide finger 38, the groove in the tongue 41, and the groove 40 in the twister pinion lie substantially in the same plane.

In order to prepare the machine for its operation, a bail tie of the usual type, having a loop on one end portion thereof and having the other end straight, is threaded into the machine in the following manner. The loop 43 is disposed over the end of the tongue member 41 and against the shoulder 42. The bail tie is then brought around the bale or container and the straight end portion is threaded into the groove 40, through the groove in the tongue member 41, the loop 43, the groove 39 in the guide finger, the wire cutter 32 and thence through the bifurcated shank of the winding drum 21^a. This position is shown particularly in Fig. 3 of the drawings wherein the machine is in readiness for operation.

In the operation of the machine, the oscillation of the lever arm 22 will rotate the winding drum 31^a in one direction only as has been hereinbefore recited, whereby the bail tie is drawn taut. It is apparent that the lever arm 22 may be either oscillated or rotated in some instances and that any desired tension may be obtained. When a desired tension has been obtained, the entire operating handle 20 is pivoted on the shaft 23 and the bail tie is cut to a predetermined length allowing for just enough wire to permit four or five turns of this end portion around the main body portion.

By referring more particularly to Figs. 3 and 4, a more complete description of the cutting action and the elements thereof will be recited. The shaft 33 has an extension 44 thereon which extension has a flat surface on which the wire of the bail tie rests. The collar portion 34 has an extension 45 which has a cutting edge 46 resting in an initial position just above the wire which is lying on the flattened surface of the portion 44. It will thus be seen that upon a rotation of the collar 34, the pointed end portion 46 will engage the wire and coact with the edge of the flattened surface of the projection 44 to sever the wire. This cutting action is very clearly shown in Fig. 4 of the drawing.

In order to effect the rotation of the collar portion 34, the operating handle 20 is pivoted on the shaft 23 and the arm 35 rides up the top surface of the cam 37 until said arm strikes an offset portion 47 of the cam 37. A continued movement of the operating handle will cause the arm 35 to rotate the collar 34

and sever the wire inasmuch as the shaft 33 is held in a fixed relation with the lever arm 21. The operating handle 20 is now continued to a position such as is shown in Fig. 5, wherein the cutter 32 rests on the bearing 19. It will be noted that during this movement of the operating handle, the guide finger 38 has directed the end portion of the wire to the twister pinion and the wire is in a position to be twisted around the main body portion.

By referring now to Figs. 10 and 11, a projection 48 is formed on the face of the enlarged head portion of the twister pinion and, in the drawings, to the right of a central point. This projection has an inner cam surface 49 with the front end portion 50 thereof a greater distance from the center than the rear end portion 51. Upon the rotation of the twister pinion 14, in the direction of the arrows the front end 50 of the cam portion strikes against the end portion of the bail tie and causes it to assume a position such as is shown in Fig. 10. A continued rotation in the same direction will cause the end portion of the bail tie to wrap around the main body portion such as is shown in Fig. 11. It will be noted particularly that the slot 40 is now in a position such that the wrapping of the end portion of the bail tie around the main body portion will tend to force the latter into the center of the slot 40 thus providing a good bearing surface for the main body portion to rest against. Further, there is no position of the twister pinion wherein the wire may possibly be ejected from the slot 40 until the completion of the splice.

It will also be noted that the rear end portion 51 of the cam surface is spaced just a sufficient distance to permit the thickness of the wire between the main body portion and the cam surface. This, of course, provides for a tight knot or tie. The rotation of the twister pinion 14 is continued until the end portion is completely wrapped around the main body portion and it is not possible for an end portion to project and to tear the clothing or rip the fingers of the attendant or any like damage.

Inasmuch as a comparatively short distance has been allowed between the end of the slotted tongue 41 and the face of the twister pinion 14 and inasmuch as the guide finger 38 rests between these two members in its final position, there is just enough clearance between the guide finger and the face of the twister pinion to form but a single loop, therefore, each succeeding loop pushes the twister pinion outwardly from the main base 10, which is possible because of the slidable engagement between the auxiliary plate 12 upon which the twister pinion is mounted and the main base 10. This insures that the coils formed by the twister pinion are tightly pressed together.

The driving pinion 13, as explained hereinbefore, actuates the twister pinion 14 and is in turn rotated by means of a shaft 52 which is mounted in a bearing 53 secured to the auxiliary base 12. An operating handle 54 is secured to the other end of the shaft 52. The driving pinion and twister pinion are suitably encased in a housing 55. In order to assure that the slot 40 rests in a perpendicular plane and in alignment with the slot in the bearing 18, in its initial position a collar 56 is secured to the shaft 52 and has a gravity weight 57 pivotally secured thereto for engaging a portion of the auxiliary base 12. When the shaft is rotated a sufficient number of times to coil the end portion of the wire around the main body portion, the shaft 52 is then reversed in its rotation until the gravity weight 57 abuts the auxiliary base 12. This gravity weight has been illustrated very fully in Fig. 8 of the drawings, a rotation of the shaft in the direction of the arrow permitting the pivoted weight to pass in one direction but upon a reversal of the direction of the shaft 52, the end of the weight strikes against the auxiliary plate. If the shaft is held in this latter position, the slot 40 of the twister pinion will be in alignment with the slot of the bearing 18.

It has been stated that the auxiliary base 12 is slidably mounted on the main base 10. This arrangement is made possible by means of a pair of screw members 58 engaging slots 59 in the auxiliary base 12 and extending therethrough to threadedly engage the main base 10. By referring now to Figs. 6 and 9, a plate 60 is disposed on the underneath side of the main base 10 and is pivotally secured thereto by means of the screws 61 engaging apertures 62 on one side thereof. The apertures 62 are substantially greater than the diameter of the shank portion of the screw and the head of the screw 61 is spaced from the base a substantially greater distance than the thickness of the plate 60. On the side opposite to that of the screw member 61, a tongue 63 is preferably struck out of the plate and is bent upwardly and at right angles thereto. The tongue 63 extends upwardly and is in alignment with an aperture 64 in the base 10, and a notch 65 in the auxiliary base 12. A compression spring 66 is mounted between the main base 10 and the plate 60 to hold the latter in such a position that the tongue 63 will not engage the notch 65. However, when it is desirable, the plate 60 may be moved upwardly against the compression of the spring 66 so that the tongue 63 will engage the notch 65 to hold the auxiliary base 12 in a fixed relation with the main base 10.

The auxiliary base 12 is held in a position such as shown in Fig. 3 or the initial starting position by means of a coil spring 67, which latter is secured between the screw 68 mounted on the auxiliary base and a screw 69 ex-

tending through a slot in the auxiliary base and secured to the auxiliary frame.

During the winding of the bail tie on the winding drum 31ª and during the cutting operation, one of the hands should grasp the device to hold it while the other hand is operating the operating handle. In grasping the device, it would be usual to press the plate 60 against the tension of the spring 66 so that the tongue 63 would engage the notch 65 in the auxiliary base and thereby hold the latter in a fixed relation with the base 10. After the wire is cut, the hand holding the device and pressing the plate 60 is removed to turn the operating handle 54 to twist the end portion of the bail tie around the main body portion. In withdrawing the hand, the auxiliary base is only held in position by means of the coil spring 67. As hereinbefore stated, each coil of the end portion, as it is wound around the main body portion, moves the twister pinion forwardly and this action is against the tension of the coil spring 67. After the tie has been properly made, it is now desirable to remove the device and the auxiliary base portion is manually moved forwardly into a position such as is shown in Fig. 6 where the loop 43 is disengaged from the tongue 41.

The tie 70, as shown in this figure and in Fig. 12, has each of its coils securely wrapped around the body portion of the bail tie and the coils are directly adjacent each other, leaving no end sticking out to catch on the container or bale or to tear the finger or clothing of an attendant. The bail tie is stretched around the bale or container at any tension desired. It will be noted that by means of the elements of the operating handle 20 being pivoted together, a conservation of space required in which to operate is afforded. The device is thus very compact and because of the proper leverages, etc. to be obtained by such a construction, the device may be so comparatively light in weight. It is also convenient to operate, inasmuch as the arm need only be extended about a foot to conveniently operate it into its various positions. The parts may be easily made and assembled, and therefore, are very inexpensive to manufacture.

While but a single embodiment of this invention is herein shown and described, it is to be understood that this invention is not to be limited to the specific construction shown and described therein as various modifications may be apparent to those skilled in the art without departing from the spirit and scope of this invention, and therefore, the same is to be limited only by the scope of the appended claims and the prior art.

I claim—

1. In a device of the character described, a base, an operating handle pivotally connected to said base, a winding drum mounted on said operating handle, means for rotating said winding drum to stretch a wire around a bale or container, means on said operating handle for cutting said wire at a predetermined length, and means for splicing the ends of said wire.

2. In a device of the character described, a base, an operating handle pivotally connected to said base, a winding drum mounted on said operating handle, means for rotating said winding drum to stretch a wire around a bale or container, means on said operating handle for cutting said wire at a predetermined length, and means on said base for splicing the ends of said wire.

3. In a device of the character described, a base, a two part operating handle pivotally connected to said base, a winding drum mounted on said operating handle, means for rotating said winding drum to stretch a wire around a bale or container, means on said operating handle for cutting said wire at a predetermined length, and means for splicing the ends of said wire.

4. In a device of the character described, a base, an operating handle comprising two pivotally connected lever arms, one of said lever arms being pivotally secured to said base, a winding drum mounted on said operating handle, means for rotating said winding drum to stretch a wire around a bale or container, means on said operating handle for cutting said wire at a predetermined length, and means for splicing the ends of said wire.

5. In a device of the character described, a base, an operating handle comprising two pivotally connected lever arms, one of said lever arms being pivotally secured to said base, a winding drum mounted at the pivotal connection between said lever arms, means for rotating said winding drum to stretch a wire around a bale or container, means on said operating handle for cutting said wire at a predetermined length, and means for splicing the ends of said wire.

6. In a device of the character described, a base, an operating handle comprising two lever arms, a shaft for pivotally connecting said lever arms, said shaft extending therefrom and acting as a winding drum, one of said lever arms being pivotally connected to said base, means for rotating said winding drum to stretch a wire around a bale or container, means on said operating handle for cutting said wire at a predetermined length, and means for splicing the ends of said wire.

7. In a device of the character described, a base, an operating handle comprising two lever arms, a shaft for pivotally connecting said lever arms, said shaft extending therefrom and acting as a winding drum, one of said lever arms being pivotally connected to said base, means on said shaft for rotating

said winding drum to stretch a wire around a bale or container, means on said operating handle for cutting said wire at a predetermined length, and means for splicing the ends of said wire.

8. In a device of the character described, a base, an operating handle comprising two lever arms, a shaft for pivotally connecting said lever arms, said shaft extending therefrom and acting as a winding drum, one of said lever arms being pivotally connected to said base, a ratchet wheel fixedly mounted on said shaft, a spring pressed pawl mounted on one of said lever arms for rotating said ratchet wheel to stretch a wire around a bale or container, a spring pressed pawl mounted on the other of said lever arms for preventing a rotation of said ratchet wheel in the opposite direction, means on said operating handle for cutting said wire at a predetermined length, and means for splicing the ends of said wire.

9. In a device of the character described, a base, an operating handle pivotally connected to said base, a winding drum mounted on said operating handle, means for rotating said winding drum to stretch a wire around a bale or container, means on said operating handle coacting with said base to cut said wire at a predetermined length, and means for splicing the ends of said wire.

10. In a device of the character described, a base, an operating handle pivotally connected to said base, a winding drum mounted on said operating handle, means for rotating said winding drum to stretch a wire around a bale or container, a shaft mounted on said operating handle for engaging said wire, means coacting with said shaft for cutting said wire at a predetermined length, and means for splicing the ends of said wire.

11. In a device of the character described, a base, an operating handle pivotally connected to said base, a winding drum mounted on said operating handle, means for rotating said winding drum to stretch a wire around a bale or container, a shaft mounted on said operating handle and having a flattened surface for engaging said wire, means coacting with said flattened surface for cutting said wire at a predetermined length, and means for splicing the ends of said wire.

12. In a device of the character described, a base, an operating handle pivotally connected to said base, a winding drum mounted on said operating handle, means for rotating said winding drum to stretch a wire around a bale or container, a shaft mounted on said operating handle and having a flattened surface, a collar rotatably mounted on said shaft and having an extending portion in spaced relation with said flattened surface for receiving said wire, means for rotating said collar to cut said wire at a predetermined length, and means for splicing the ends of said wire.

13. In a device of the character described, a base, an operating handle pivotally connected to said base, a winding drum mounted on said operating handle, means for rotating said operating handle to stretch a wire around a bale or container, a shaft mounted on said operating handle and having a flattened surface, a collar rotatably mounted on said shaft and having an extending portion in spaced relation with said flattened surface for receiving said wire, an arm fixed to said collar for rotating said collar to cut said wire at a predetermined length, and means for splicing the ends of said wire.

14. In a device of the character described, a base, an operating handle pivotally connected to said base, a winding drum mounted on said operating handle, means for rotating said operating handle to stretch a wire around a bale or container, a shaft mounted on said operating handle and having a flattened surface, a collar rotatably mounted on said shaft and having an extending portion in spaced relation with said flattened surface for receiving said wire, an arm fixed to said collar, a cam for actuating said arm to cut said wire at a predetermined length, and means for splicing the ends of said wire.

15. In a device of the character described, a base, an operating handle pivotally connected thereon, means for holding one end of a wire in a fixed relation with said base, a winding drum mounted on said operating handle for stretching said wire around a bale or container, means on said operating handle for folding one end portion of said wire back on itself to form a loop, and means for twisting said latter end portion around the main body portion of said wire.

16. In a device of the character described, a base, an operating handle pivotally connected thereon, means for holding one end of a wire in a fixed relation with said base, a winding drum mounted on said operating handle for stretching said wire around a bale or container, a cutter on said operating handle for cutting one end of said wire to a predetermined length, means on said operating handle for folding one end portion of said wire back on itself to form a loop, and means for twisting said latter end portion around the main body portion of said wire.

17. In a device of the character described, a base, an operating handle pivotally connected to said base, means mounted on said base for holding one end of a wire, a winding drum mounted on said operating handle for stretching the other end of said wire around a bale or container, means for cutting said last mentioned end to a predetermined length, a guide finger on said operating handle for directing said last mentioned end back on the body portion to form a loop and means for twisting said latter end around said main body portion of said wire.

18. A wire tying machine comprising a base member, a pivotally mounted member on said base, a winding drum rotatably mounted on said member, a handle for rotating said drum to stretch at any desired tension a wire around a bale, means operative when said member is rotated for cutting said wire at a predetermined length while held under tension, and means for forming a fixed loop upon the wire at its cut-off end.

19. A wire tying machine comprising a base, a member pivotally mounted thereon, means for holding one end of a wire in a fixed relation with said base, means for stretching the other end of said wire at any desired tension around a bale or container, means operable with said stretching means for cutting said wire at a predetermined length, a guide finger operable with said stretching means for directing said last mentioned end in an opposite direction to form a loop, and means for twisting said looped end portion around the body portion of said wire.

20. A wire tying machine comprising a base, a member pivotally mounted thereon, means for holding one end of a wire in a fixed relation with said base, means for stretching the other end of said wire at any desired tension around a bale or container, means operable with said stretching means for cutting said wire at a predetermined length, a guide finger operable with said stretching means for directing said last mentioned end in an opposite direction to form a loop, and a rotatably mounted twister pinion in slidable engagement with said base for twisting said looped end portion around the body portion of said wire.

21. A wire binding machine comprising a main base, an auxiliary base in slidable engagement with said main base, means for holding one end of a wire in a fixed relation with said main base, means for stretching the other end of said wire at any desired tension around a bale or container, and means on said auxiliary base for splicing the ends of said wire.

22. A wire binding machine comprising a main base, an auxiliary base in slidable engagement with said main base, means for holding a looped end portion of a wire in a fixed relation with said base, a twister pinion rotatably mounted on said auxiliary base and having a slotted portion therein for receiving the other end of said wire, said latter end being threaded through said looped end portion, means for stretching said wire at any desired tension around a bale or container, means on said main base for directing said threaded end in an opposite direction to form a loop, and means on said twister pinion for twisting the end of said last mentioned loop around the main body portion of said wire.

23. A wire binding machine comprising a main base, an auxiliary base in slidable engagement with said main base, means for holding a looped end portion of a wire in a fixed relation with said base, a twister pinion rotatably mounted on said auxiliary base and having a slotted portion therein for receiving the other end of said wire, said latter end being threaded through said looped end portion, means for stretching said wire at any desired tension around a bale of container, a guide finger for directing said threaded end in an opposite direction and in close proximity to said twister pinion to form a loop, and means on said twister pinion for engaging and twisting the end of said last mentioned loop around the main body portion of said wire, said auxiliary base having tensioning means whereby each successive coil produced by the twisting action are pressed tightly against the other.

24. A wire binding machine comprising a base, means for holding one end of a wire in a fixed relation with said base, a twister pinion rotatably mounted on said base and having a slotted portion therein for receiving the other end of said wire, means for stretching said wire around a bale or container, and a projecting portion on the face of said twister pinion and disposed adjacent said slotted portion in the direction of travel for splicing the ends of said wire.

25. A wire binding machine comprising a base, means for holding one end of a wire in a fixed relation with said base, a twister pinion rotatably mounted on said base and having a slotted portion therein for receiving the other end of said wire, said slotted portion extending from the outer periphery to a point approximately central thereof, means for stretching said wire around a bale or container, and a projecting portion on the face of said twister pinion and disposed adjacent said slotted portion in the direction of travel for splicing the ends of said wire, said projecting portion having a cam surface for engaging one end of said wire.

26. A wire binding machine comprising a main base, an auxiliary base in slidable engagement therewith, and having spring tensioning means for normally obtaining a positive relation therebetween, means for holding a looped end portion of a wire in a fixed relation with said main base, a twister pinion rotatably mounted on said auxiliary base and having a slotted portion extending from the outer periphery to a point approximately central thereof for receiving the other end of said wire, said latter end being threaded through said looped end portion, means for stretching said wire at any desired tension around a bale or container, a guide member for directing said threaded end in an opposite direction to form a loop, said guide member being in close proximity to the face of said

twister pinion in its final position, and means on said twister pinion for twisting said threaded end around the main body portion of said wire whereby each successive twist is urged into a snug relation by said tensioning means.

27. A wire binding machine comprising a main base, an auxiliary base in slidable engagement with said main base, means for holding one end of a wire in a fixed relation with said main base, means for stretching the other end of said wire at any desired tension around a bale or container, a twister pinion mounted on said auxiliary base, and having a slotted portion extending from the outer periphery to a point central thereof for engaging said wire, a projecting portion for twisting said last mentioned end around the main body portion of said wire, said projecting portion being spaced from the body portion of said wire at one end a distance substantially equal to the diameter of said wire and at the end in the direction of travel a distance greater than the diameter of said wire whereby an ironing action is produced and a tight knot is obtained.

28. In a wire binding machine, a main base, an auxiliary base slidably mounted thereon and having spring tensioning means for normally obtaining a positive relation therebetween, a member on said base for stretching a wire around a bale or container at any desired tension, means on said member for cutting said wire at a predetermined length, means on said auxiliary base for splicing the ends of said wire, and manually operated means on said base for engaging and holding in a fixed relation said auxiliary base during said stretching and cutting operations and for disengaging during said splicing operation whereby said tensioning means restricts the slidable engagement of said auxiliary base with said main base.

29. A wire binding machine comprising a main base, another base relatively movable with respect to said main base, means for holding one end of a wire in a fixed relation with one of said base members, means for stretching the other end of said wire at any desired tension around a bail or container, and means on the other of said base members for splicing the ends of said wires.

30. A wire binding machine comprising a pair of relatively movable base members, means for normally obtaining a positive relation therebetween, means for holding one end of a wire in a fixed relation with one of said base members, means for stretching the other end of said wire at any desired tension around a bail or container, and means on the other of said base members for splicing the ends of said wires.

In witness whereof, I have hereunto subscribed my name.

JOHN L. VAUGHN.

CERTIFICATE OF CORRECTION.

Patent No. 1,697,890. **Granted January 8, 1929, to**

JOHN L. VAUGHN.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 1, line 27, for the word "convenently" read "conveniently"; page 2, line 36, for the misspelled word "iner" read "inner" and line 91, for "21a" read "31a"; and that the said Letters Patent should be read with these corrections therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 12th day of February, A. D. 1929.

M. J. Moore,
Acting Commissioner of Patents.

(Seal)