(No Model.)

M. D. TIBBETTS.

MACHINE FOR WINDING BANDAGES.

No. 458,864. Patented Sept. 1, 1891.

Fig. I.

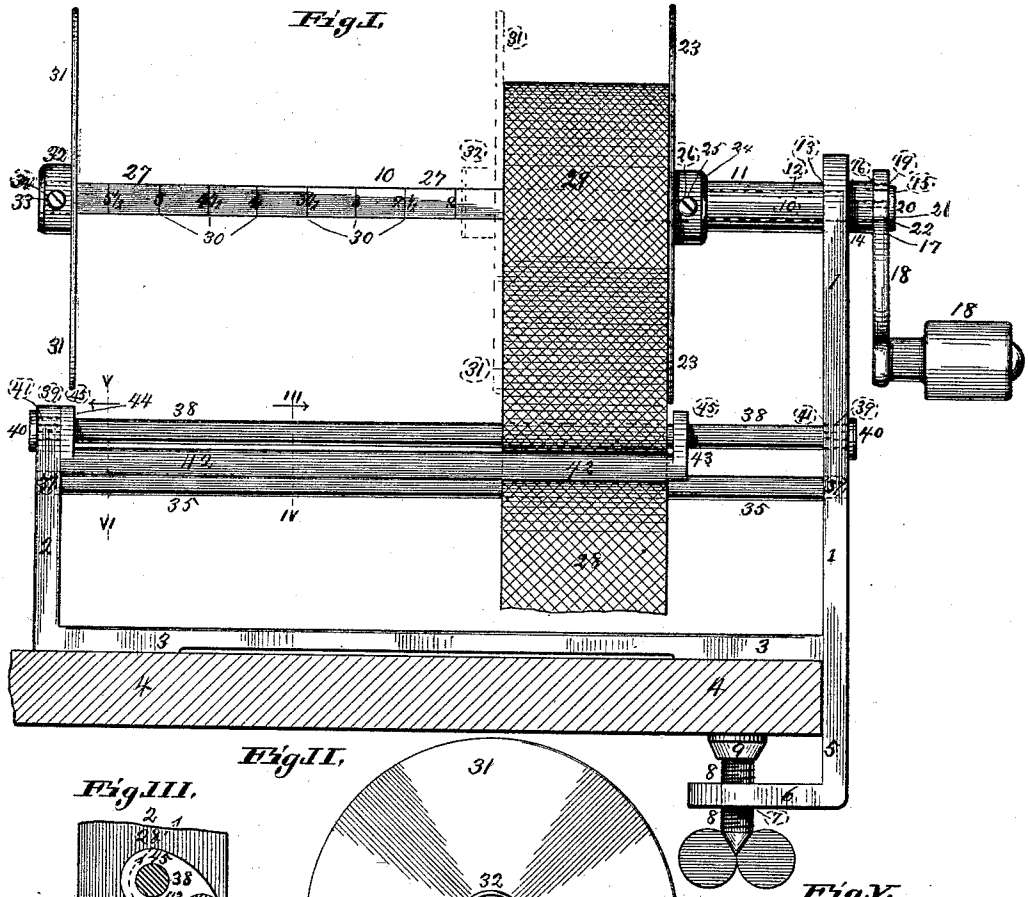


Fig. II.

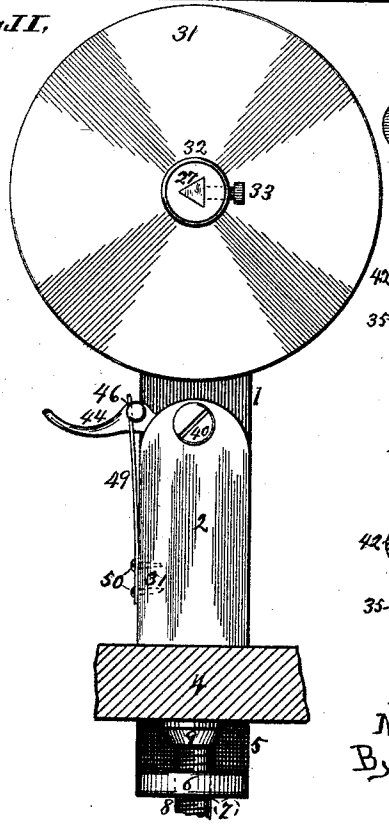


Fig. III.

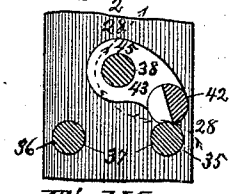


Fig. IV.

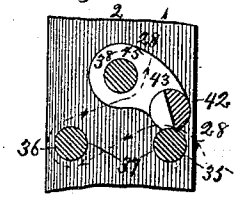


Fig. V.

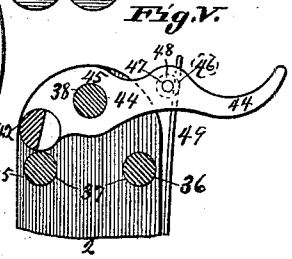
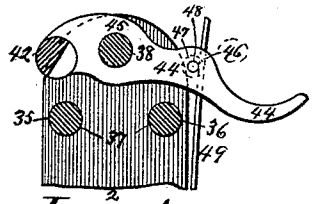


Fig. VI.



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UNITED STATES PATENT OFFICE.

MOSES D. TIBBETTS, OF HIGHLAND, ILLINOIS.

MACHINE FOR WINDING BANDAGES.

SPECIFICATION forming part of Letters Patent No. 458,864, dated September 1, 1891.

Application filed November 8, 1890. Serial No. 370,743. (No model.)

To all whom it may concern:

Be it known that I, MOSES D. TIBBETTS, of Highland, in the county of Madison and State of Illinois, have invented a certain new and useful Improvement in Machines for Winding Bandages, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

This invention relates to an adjustable machine for rolling bandage-cloth of any desired widths, and during the process of rolling of straightening and smoothing the same, so as to reduce the wrinkles from the previous sectional tear, and thus to produce a smooth bandage; and the invention consists in features of novelty hereinafter fully described, and pointed out in the claims.

Figure I is a side elevation of the machine, showing the same in the course of winding an inch and a half bandage strip, the adjustable disk shown in broken lines at that gage, while in full lines it is shown at the gage for a six-inch strip. Fig. II is an end elevation of the same, and shows the tension-trip lever sprung into full tension. Fig. III is an enlarged vertical detail section taken on line III IV, Fig. I, and shows the usual course of a heavy bandage-strip in rolling that requires less tension than the lighter fabrics to insure straight layers in the roll. Fig. IV is a like view taken on the same line, and shows the usual course of a light bandage-strip in rolling, which light strip, as it draws and puckers more in tearing and has less firmness of texture to assume and maintain a smooth equable fold, is given a turn round a supplemental tension-roll. Fig. V is an enlarged vertical detail section taken on line V VI, Fig. I, and shows the adjustable semicircular spring-actuated-contact tension-rod tripped into its operative position and spring-locked therein. Fig. VI is a like view taken on the same line, in which the contact tension-rod is shown elevated and spring-locked in its inoperative position.

Referring to the drawings, 1 represents the major shaft-bearing standard of the machine-frame; 2, the minor standard, and 3 the integral base-bar that connects said standards, and which base-bar is seated on the operating-table 4 or other convenient supporting-bench.

5 represents a pendent extension of the major standard at its base, from which extends laterally the right-angled lug 6, in the perforated screw 7 of which is seated the thumb-screw 8, on the tip of which thumb-screw is riveted the friction-lug 9. When the frame of the machine is seated on the table on which it operates, the thumb-screw is turned to effect its friction-grip beneath said table and firmly hold the machine thereon.

10 represents the roller-shaft that works within an elongated tubular shaft 11 and bearing 12, the fast end of which shaft is firmly secured in the socket or perforation 13 near the upper end of the major standard 1. The said roller-shaft projects from said tube-shaft and said major standard sufficiently to have securely mounted thereon a collar-cap 14, which may be shrunk thereon or otherwise secured. The said cap-collar has a projecting crank-seat 15, and the said roller-shaft, on which said collar is mounted, also extends flush therewith; also, projecting diametrically from said crank-seat and having a moiety thereof embedded therein, and with its inner end secured in said collar-cap, is a key-pin 16, which, when the perforate end 17 of the crank-handle 18 is seated on its crank-seat 15, fits in the recess 19 in the shaft of said crank-handle and holds the handle rigidly from turning on said crank-seat, thus enforcing the turning of the roller-shank whenever said crank-handle is turned.

20 represents the flat head of the screw 21, which screw is seated in the perforate screw-seat 22 in the terminal of the roller-shaft next said crank-handle, and the broad flat head of said screw when turned home holds said crank-handle to its seat.

23 represents the flat centrally-perforated gage-disk that forms the initial bandage-roll inclosure, which, with its attachment-collar 24, fits on the roller-shaft close to the tubular shaft 11, and is there secured by the set-screw 25, which is seated in the perforate screw 26 in said collar, and when turned home exercises a friction-hold against the roller-shaft, so as to securely fasten said collar and the disk it carries thereto. The operative end 27 of the roller-shaft from said disk forward is preferably made of an angular form, so as to readily present a clutch-hold of the bandage-

strip 28 and hold it taut while the machine winds it in a smooth compact roll 29. The said operative portion 27 of the roller-shaft is provided with graduating-marks 30 to indicate the width of the bandage-strip to be rolled.

31 represents the adjustable centrally-perforated secondary gage-disk that forms the corresponding bandage-inclosure to the initial gage-disk 23, which secondary gage-disk, with its attachment-collar 32, rides on the angular operative portion of the roller-shaft, and said disk is placed at such of the graduated marks at the given distance from its corresponding disk as denotes the width of the bandage-strip to be rolled, in which adjusted position it is secured by the set-screw 33, which engages in the perforate screw 34 in said collar, and when turned home exerts a friction-hold against said roller-shaft when said adjustable disk has been rightly placed to gage or accord with the width of the bandage-strip to be rolled, which position is indicated by the graduating marks and figures 30 on the roller-shaft.

35 represents the front-base initial tension-rod, and 36 the rear-base tension-rod, which are secured at their respective ends to the major standard 1 at one end of the machine and at the other end of said machine to the minor standard 2, the ends of said rods being, respectively, tight-fitted or screw-seated in the perforations 37 in said standards.

38 represents the combined upper tension-rod and axle, the ends of which are secured in perforations 39 respectively in said major and minor standards. The said combined upper tension-rod and axle is firmly held and retained in said standards to enable it to effect the double functions it has to perform by the flat-head screws 40, which are screw-seated in the perforate screws 41 in said combined rod and axle and whose flat heads, when said screws are turned home, are firmly seated against said standards and brace their respective attachment together at said union point.

42 represents a half-round adjustable spring-tension rod that is of fully equal length, or somewhat over, of the graduated portion of the roller-rod, and which rod is rigidly secured at its ends respectively to the carrier-arm 43 and the trip-lever 44, which carrier-arm and trip-lever are respectively provided with pivot-bearing perforations 45, through which perforations the combined upper tension-rod and axle 38 passes, and in which is provided the pivotal bearing of said carrier-lug and the operative spring trip-lever.

46 represents a knob-headed friction-pin that projects laterally from the trip-lever 44 in the perforation 47, in which its shank-pin 48 is rigidly fastened.

49 represents a vertical strap-spring, the bottom of which is secured to the minor standard 2 by the screws 50, that are seated in perforations in said strap-spring and are engaged in their perforate screw-seats 51 in said standard. Now it will be seen that when the lever has thrown the half-round tension-rod into its operative position (shown in Figs. I, II, III, IV, and V) the spring 49 exercises a pressure against the friction-pin 46 and *via* it on the trip-lever 44, so as to spring-lock and reenforce the tension of the half-round rod 42 on the bandage-strip 28, while it is drawn over the initial tension-rod 35 by the action of the winding-roller as it effects the roll, so that said rods 42 and 35, under the influence of the spring 49, effect a grip-jaw tension on the bandage-strip as it is rolled, the sharp edge of the semicircular rod 42 being engaged by the traveling bandage, thus causing such rod to impinge the rod 35 with greater force. When, on the other hand, it is required to withdraw the spring-influenced tension of the half-round rod 42, the lever 44 is tripped down, so as to spring up said adjustable tension-rod out of contact with the bandage-strip or with said initial tension-rod 35, over which said bandage-strip passes, the latter-described position of the lever and half-round tension-rod being shown in Fig. VI. It will be seen that both when the lever attains the position in which it has thrown the half-round tension-rod into its operative position, as also again when it has thrown it upward from said position, in either position it spring-locks said tension-rod in the first case in its operative and in the last case in its inoperative position, for as it passes from the one position to the other it slides the friction-pin 46 along the strap-spring 49 past the center bearing 45 of the lever 44. The knob-head of said friction-pin, as it has a lateral touch in all its positions against the strap-spring 49, keeps the half-round tension-rod 42 from longitudinal displacement.

It is well known that in tearing bandage-strips, and especially with loose web fabrics—as cheese-cloth, for instance—which are extensively used, the filling fibers of the cloth transversely of the tear, as they are drawn to their severance, distort and wrinkle the cloth, so as to make it especially unfit for surgical bandage-strips where the broken or wounded limb or other part to be bandaged is very susceptible to inflammation, so that a smooth bandage-strip is one of the first essentials, as is also the equal restriction of the bandage over all its parts. It is also an essential in the skilled hands of the practitioner that the bandage-strip roll shall be wound in perfectly even layers, so that it may pay out evenly into the surgeon's hands as he makes use of it. Now, when the bandage-strip is of heavy firm material all the tension that it usually requires in rolling, as shown in Fig. III, is provided by its passage through the grip-tension that is effected by the initial tension-rod 35, and the adjustable half-round spring-tension rod 42, between which it passes and *via* the rear of the combined upper ten-

sion-rod and axle to the angular graduated roller-shaft 10, the angle edges of which grip the initial edge of the bandage-strip and hold it while the shaft is rotated by the crank-handle 18 to effect the laying of the roll. When, however, the bandage-strip is of lighter loose fabric, as in cheese-cloth, (which is largely used in bandage-strips,) more tension is required to straighten out the web of the cloth that has been distorted in tearing. In such case the tension course preferably adopted for the bandage-strip is, as shown in Fig. IV, through the grip-spring tension between the initial tension-rod 35 and the spring-tension half-round rod 42, around the back of the rear base-tension rod 36, around the front of the combined upper tension-rod and axle, and from that to the graduated roller-shaft around the angle edges of which the initial edge of the bandage-strip is gripped. When the condition of the cloth composing the bandage-strip makes it advisable, the spring-grip tension may for the time be dispensed with by the elevation of the half-round spring-actuated rod 42 by means of the depression of the trip-lever 44, which in said position is locked by the spring 49, as it also is in its reversed position when it has again passed its center bearings.

The initial disk 23 is intended to always remain in the position in which it is shown in Fig. I, to which position it is held by the set-screw 25, except when for cleaning, repairs, or for any other cause it is required to disconnect the various parts of the machine. The adjustable secondary disk 31, on the other hand, is removable from one point of graduation to another, according to the width of the bandage-strip to be rolled, and at said adjusted point is secured by the set-screw 33 until the roll having been effected said set-screw is loosened and said secondary disk is removed from the roller-shaft 10 preparatory to removing the perfected bandage-roll.

I claim as my invention—

1. In a bandage-roller machine, the major standard 1, the minor standard 2, the integral base-bar 3, that connects said standards, the pendent extension 5 beneath said major standard, the angle-lug 6, the thumb set-screw 8, the tubular shaft 11, that projects inwardly from the major standard 1, the roller-shaft 10, that has its bearings within said tubular shaft, the roll-carrier graduated angular end 27 of the roller-shaft, and the set and adjustable gage-disks mounted on said shaft, substantially as and for the purpose set forth.

2. In a bandage-roller machine, the frame of said machine, the roller-shaft mounted in said frame, the initial tension-rod 35, the rear tension-rod 36, the combined upper tension-rod and axle 38, and the adjustable half-round tension-rod 42, substantially as and for the purpose set forth.

3. In a bandage-roller machine, the frame of said machine, the roller-shaft that carries the roll mounted in said frame, the initial tension-rod 35, the rear tension-rod, the combined upper tension-rod and axle 38, the half-round adjustable tension-rod 42, the carrier-arm 43, that carries one end of said adjustable tension-rod, and the trip-lever 44, that carries the reverse end of said tension-rod, the said trip-lever and arm being pivotally mounted on said axle 38, substantially as described, and for the purpose set forth.

4. In a bandage-roller machine, the frame of said machine, the roller-shaft 10, the stationary tension-rods, the half-round adjustable tension-rod 42, the carrier-arm 43 and the trip-lever 44, that carry said adjustable tension-rod 42, the said carrier arm and lever pivotally mounted on the upper tension-rod, the friction-pin 46, that is secured in and projects laterally from said lever 44, and the strap-spring 49, secured to one of the standards of the frame, the said spring arranged to re-enforce the tension of the adjustable half-round rod 42 through the friction-pin of its trip-lever and to lock said lever to hold said tension-rod respectively in either its operative or inoperative positions, substantially as and for the purpose set forth.

5. In a bandage-roller machine, the frame of said machine, the roller-shaft 10, the tubular shaft 11, in which said roller-shaft has its bearings, the crank-handle 18, mounted on said roller-shaft, the key-pin 16, that keeps said handle to said shaft, the screw 21, that secures said handle from longitudinal displacement, the tension-rods 35 and 36, the combined tension-rod and axle 38, the screws 40, that are screw-seated in said axle 38 and whose flat heads prevent the spreading of the standards of the frame, the adjustable tension-rod 42, and the arm 43 and lever 44, that carry said tension-rod, the said arm and lever having pivotal bearings on said axle 38, the friction-pin 46, and the strap-spring 49, substantially as and for the purpose set forth.

6. In a bandage-roller machine, the combination of a roller-shaft 10, the initial set gage-disk 23 and the adjustable secondary gage-disk 31, mounted on said shaft, and the bearing-sleeve 11, fitting on said shaft and having connection with said fixed disk and being provided with means for rotating it, substantially as set forth.

7. The combination, with the rotary shaft having the gage-disks mounted thereon, of the bar 35, the semicircular tension-bar 42, resting on the bar 35, and pivoted arms supporting the bar 42, substantially as set forth.

MOSES D. TIBBETTS.

In presence of—
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