F. CHATFIELD.

LABEL FEEDING MACHINE.

APPLICATION FILED NOV. 28, 1913.

1,211,543.

Patented Jan. 9, 1917.

3 SHEETS—SHEET 1.

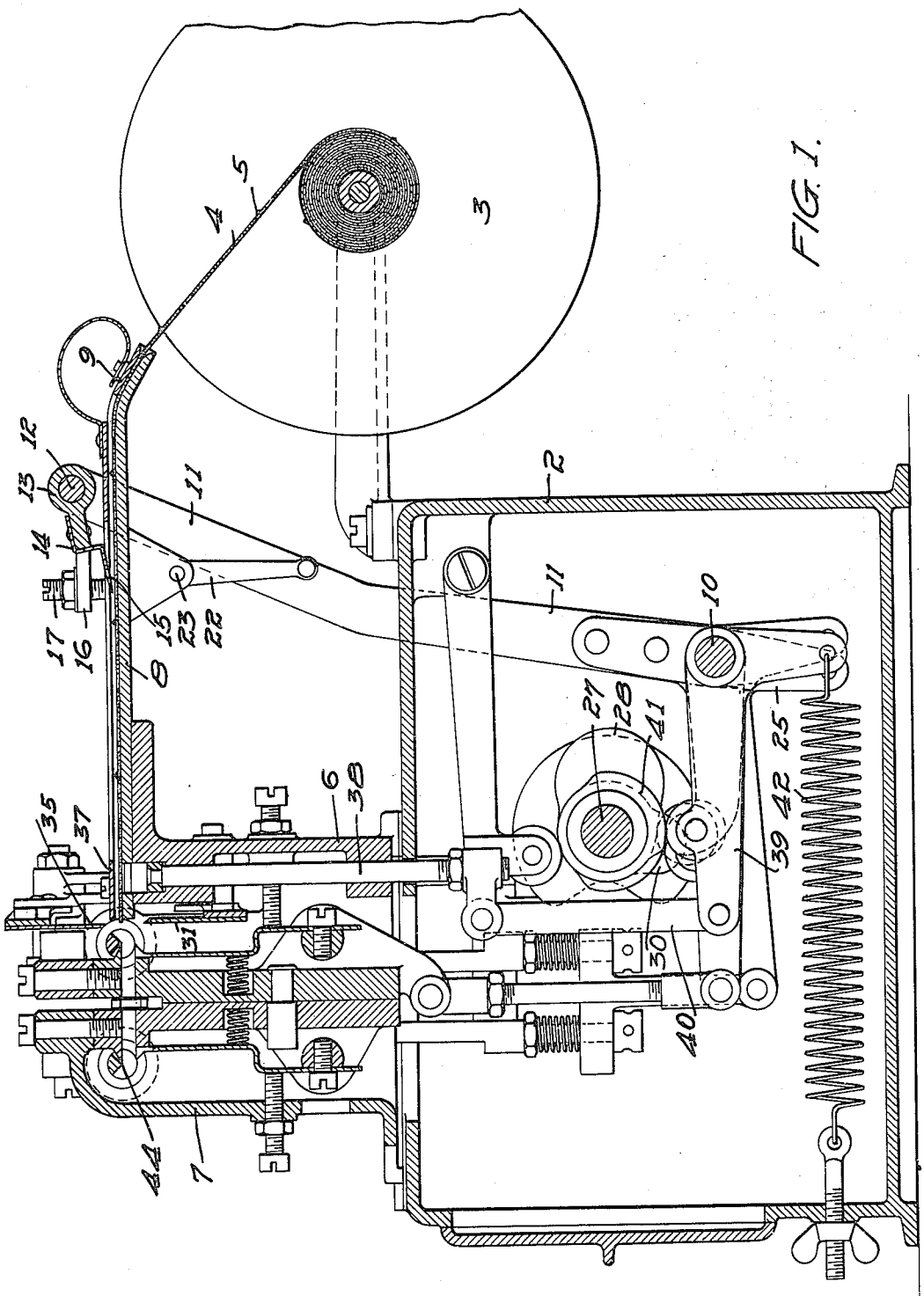


FIG. 1.

WITNESSES

M. R. McInnis

E. A. Paul

INVENTOR

FRANKLIN CHATFIELD

BY Paul & Paul

ATTORNEYS

F. CHATFIELD.

LABEL FEEDING MACHINE.

APPLICATION FILED NOV. 28, 1913.

1,211,543.

Patented Jan. 9, 1917.

3 SHEETS—SHEET 2.

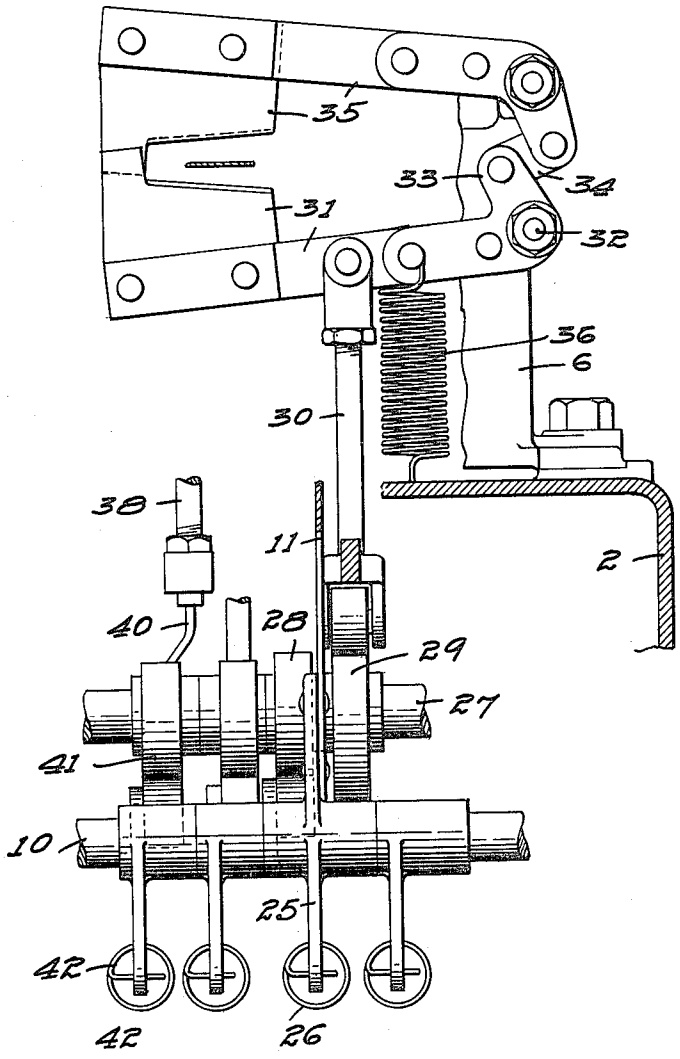


FIG. 2.

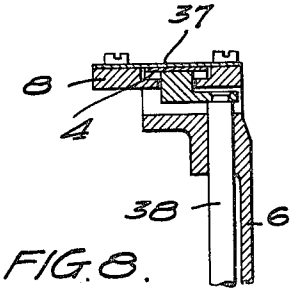


FIG. 8.

WITNESSES

M. R. M. Lewis

E. A. Paul

INVENTOR

FRANKLIN CHATFIELD

BY Paul & Paul

ATTORNEYS

F. CHATFIELD.

LABEL FEEDING MACHINE.

APPLICATION FILED NOV. 28, 1913.

1,211,543.

Patented Jan. 9, 1917.

3 SHEETS—SHEET 3.

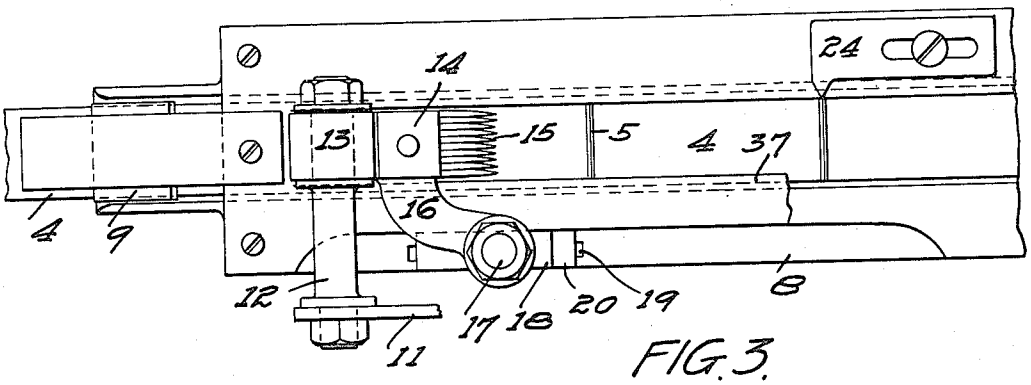


FIG. 3.

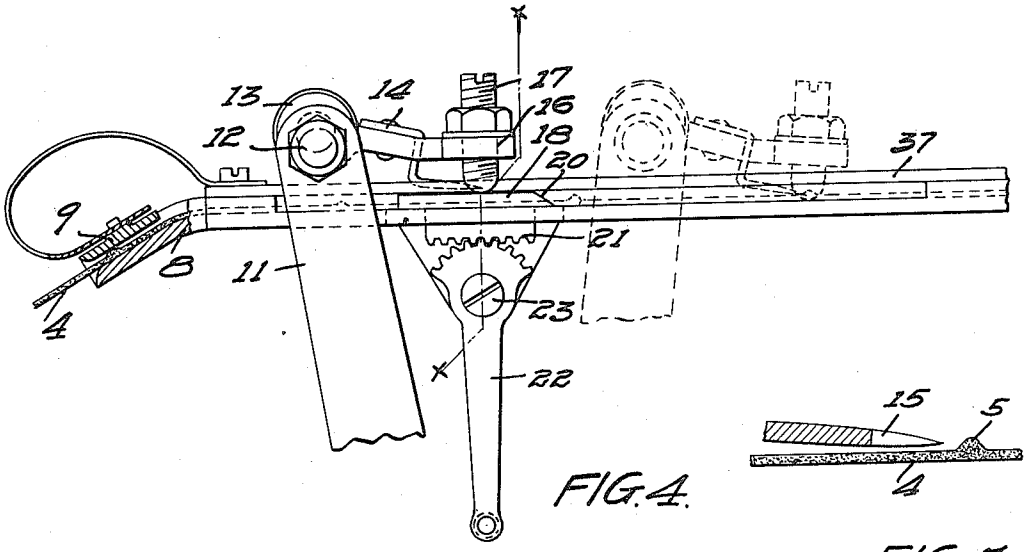


FIG. 4.

FIG. 7.

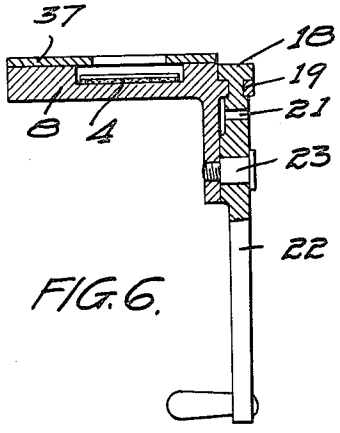


FIG. 6.

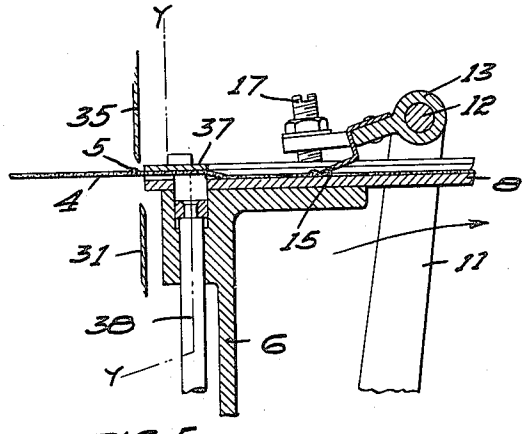


FIG. 5.

WITNESSES

M. R. McInnis

E. A. Paul

INVENTOR

FRANKLIN CHATFIELD

BY Paul & Paul

ATTORNEYS

UNITED STATES PATENT OFFICE.

FRANKLIN CHATFIELD, OF MINNEAPOLIS, MINNESOTA, ASSIGNOR TO ROSE PATCH AND LABEL COMPANY, OF GRAND RAPIDS, MICHIGAN, A CORPORATION OF MICHIGAN.

LABEL-FEEDING MACHINE.

1,211,543. Specification of Letters Patent. Patented Jan. 9, 1917.

Original application filed December 26, 1912, Serial No. 738,702. Divided and this application filed November 28, 1913. Serial No. 803,589.

To all whom it may concern:

Be it known that I, FRANKLIN CHATFIELD, a citizen of the United States, resident of Minneapolis, county of Hennepin, State of Minnesota, have invented certain new and useful Improvements in Label-Feeding Machines, of which the following is a specification.

The object of my invention is to provide means for feeding a tape bearing marks or characters at intervals thereon so that when cut the labels will be of uniform length and the advertising matter or marks thereon properly centered with respect to the ends of the labels.

A further object is to provide a mechanism by means of which the degree of the feed can be regulated or controlled.

A further and particular object is to provide a feeding means for moving the tape through engagement of the feeding means with raised or thickened areas of the tape.

My invention consists generally in various constructions and combinations, all as hereinafter described and particularly pointed out in the claims.

In the accompanying drawings forming part of this specification, Figure 1 is a vertical sectional view through a label feeding and cutting mechanism embodying my invention, Fig. 2 is a view of the shearing mechanism, Fig. 3 is a plan view of the feeding device, Fig. 4 is a side elevation, partially in section, of the feeding mechanism, Fig. 5 is a detail sectional view of the feeding mechanism, showing the position of the severing knives, Fig. 6 is a transverse sectional view through the feeder table or guide, taken on the line x—x of Fig. 4, Fig. 7 is a detail sectional view showing the tape and the needle points engaging and feeding the same, Fig. 8 is a view taken on the line y—y of Fig. 5.

In the drawing, 2 represents a casing, in which the operating mechanism embodying my invention is mounted.

3 is a reel, suitably mounted on the casing and supporting a tape 4 from which the labels are formed. This tape is made of suitable fabric and has woven therein marks or characters designating the origin of the goods to which the labels are attached. These marks or characters are spaced apart uniformly in or on the tape and preferably the severing line between the labels is indicated by a weft 5 forming a transverse rib on the tape, as indicated in Fig. 1. This weft is engaged by the feeder to advance the tape, as will hereinafter appear, and also facilitates the adjustment of the feeder to time it properly with respect to the characters on the labels and the severing knives. The feeder may engage the marks or characters to feed the tape.

Upon the casing 2 brackets 6 and 7 are mounted, secured by suitable means. Upon the bracket 6 is a feed plate 8 having a flat upper surface adapted to receive the tape 4 and provided at its receiving end with a spring tension device 9 for holding the tape against the feed plate and regulating the feed thereof.

10 is a shaft mounted in bearings in the casing and on this shaft an arm 11 is journaled and adapted to oscillate within an opening in the top of the casing. The upper end of the arm 11 extends to a point above the feed plate 8 and is provided with a spindle 12 on which a sleeve 13 is mounted. A plate 14 is secured to said sleeve and provided with a series of needles 15 having rounded forward ends that are adapted to engage the tape or weft 5 thereon to feed the tape to the cutting knives.

I prefer to provide needles having points, as illustrated in Fig. 7, to slide over the thin portion of the tape without contacting therewith, but engage the thicker portion or weft. These needles are preferably arranged close together to present a series of points to the weft and engage it sufficiently for feeding purposes without penetration. The sleeve 13 is provided with a laterally extending arm 16 in which the screw 17 is adjustably mounted. The lower end of the screw is rounded and adapted to ride on a block 18 that is slidable in a guide 19 in the feed plate and has a beveled forward end 20. The underside of the block is provided with a series of teeth 21 which mesh with corresponding teeth on a quadrant lever 22 that is pivoted at 23 and depends below the feed plate and is adapted to rock back and forth to move the block 18 in its guide to shift its position with respect to the feeder. When the screw 17 rides up onto the block 18, the feeder will be lifted out of engagement with the tape and will be temporarily rendered inoperative and evidently, by the adjustment of the block 18 back and forth, the

operator of the machine can time the engagement of the feeder with the tape so that the tape will be cut a uniform distance from the marks or characters thereon and the labels will be of uniform length. It is, of course, important that the feed of the tape be properly timed with the movement of the shearing knives, otherwise the tape would be cut unevenly with respect to the marks or characters and any unevenness in the starting of the feed would soon become magnified to such an extent that the knives might cut through the characters or marks themselves on the labels instead of a uniform distance between them. I therefore regard this means for adjusting the feeder or timing its movement as an important feature of the invention.

When the machine is in operation, the feeder in its initial movement will be raised by the block 18 out of contact with the tape and will pass over the marks or characters thereon. Upon sliding down over the beveled end of the block 18 the feeder plate will engage the weft 5, or, if preferred, the surface of the tape itself, and feed the tape a predetermined distance toward the severing knives.

As shown in Fig. 3, I prefer to provide a gage plate 24, adjustably mounted on the tape guide and having a pointer that is arranged to move along the edge of the tape and be set opposite to the point where the tape is to be severed. The distance between this pointer and the knives determines the length of the label and by adjusting the feeder so that its stroke terminates or the label weft will be opposite the pointer, I am able to easily and quickly adjust the machine for cutting labels of uniform length with each operation. If for any purpose it is desired to change the length of the labels, the gage 24 is re-adjusted to increase or decrease the distance of its pointer from the knives and then the effective stroke of the feeder is modified to correspond to the corresponding adjustment of the gage plate.

The hub of the feeder arm 11 is provided with a depending arm 25 to which a coiled spring 26 is attached, said spring operating to swing the arm and hold the feeder at the limit of its outward movement. A shaft 27 is journaled in bearings in the casing and provided with a cam 28 that is adapted to contact with a horizontal extension on the arm 25 to force the feeder arm forwardly against the tension of its spring and feed the tape. The movement of the arm 11 as far as the cam is concerned will be uniform at all times, but the effective movement of the feeder will be regulated by the adjusting mechanism heretofore described.

Adjacent to the feeder cam 28 is a knife operating cam 29, arranged to actuate the arm 30 that is pivotally connected with one blade 31 of a severing knife that is pivoted at 32 and has an arm 33 connected by a link 34 with a similar arm on the opposite knife blade 35. This pivotal connection between the knife blades operates to effect a uniform simultaneous movement thereof toward one another to sever the tape, the knives being normally separated by the tension of a spring 36. This spring also serves to hold the arm 30 in operative engagement with the surface of the knife operating cam. A feed plate is provided near the severing knives with a plate 37 beneath which the tape is fed, and a plunger 38 is vertically slidable in guides in the bracket 6 and is adapted to contact with the under surface of the tape and force it upwardly against the plate 37 and clamp it securely on one side of the knives during the return of the feeder. An arm 39 is mounted on the shaft 10 and connected by a link 40 with the plunger 38 and held in engagement with a cam 41 on the shaft 27 by the tension of a spring 42. The connection of the link 40 with the plunger is preferably made adjustable, as shown, to allow the stroke of the plunger to be regulated. The plunger also prevents the tape from sliding backward on the return stroke of the feeder.

The folding mechanism which I will indicate by reference numeral 44, forms the subject matter of a pending application from which this case is divided, and I will therefore omit description of this folding mechanism herein, merely illustrating its position with respect to the feeding and severing devices of the machine.

The tape, bearing suitable marks or characters arranged at suitable intervals thereon, is fed into the machine and the feeder adjusted to engage the transverse weft or the tape itself, if preferred, and the engagement of the feeder with the tape is timed so that the weft or that portion of the tape midway between the characters thereon is fed into the path of the severing knife and held firmly by the engagement of the jaws or clamps on both sides. The closing of the knives will sever the tape and the severed label will then pass on to the folding mechanism.

In various ways the details of construction herein illustrated and described may be modified and still be within the scope of my invention.

I claim as my invention:—

1. The combination, with a tape guide, of a feeder arranged to engage the raised areas provided in a tape and advance the tape in said guide and means for timing the point of engagement of the feeder with the tape.

2. The combination, with a tape guide, of a feeder operating therein to engage the raised areas provided in a tape and advance the tape, and means for holding the

feeder out of engagement with the thinner portions of the tape but allowing it to engage with the thicker portions thereof.

3. The combination, with a tape guide, of a pivoted feeder operating therein and adapted to engage the raised areas provided in a tape and advance the tape and means for tilting said feeder out of engagement with said tape during a predetermined part of the stroke of said feeder.

4. The combination, with a tape guide, of a feeder operating therein and having a series of needle points provided with rounded ends, said points being adapted to slide over the thinner portions of the tape without engaging therewith, and to engage the thicker portions and feed the tape, and means for regulating the effective stroke of said feeder.

5. The combination, with a tape guide, of a reciprocating feeder operating therein and having means for engaging and feeding tape, severing knives whereto the tape is fed by said feeder and a gage adjusted longitudinally of said guide, said gage indicating the limit of the stroke of said feeder for a label of predetermined length.

6. The combination, with a tape guide and a feeder operating therein, of means for holding the feeder out of engagement with the tape during a predetermined part of the stroke of said feeder, and means for adjusting said holding means to vary the point of engagement of said feeder with the tape.

7. The combination, with a tape guide adapted to receive a tape provided at intervals with marks or characters, of a feeder operating to engage said marks or characters and advance the tape, a tape severing means adapted to sever the tape between the marks or characters thereon, and means for timing the engagement of said feeding devices with the tape to the operation of said knives.

8. The combination, with a tape guide adapted to receive a tape bearing marks or characters thereon at uniform intervals, of severing knives operating to cut the tape transversely between said marks or characters, a feed device arranged to engage and feed the tape to said knives, means for timing the engagement of said feed device with the tape, and means for adjusting said timing device to regulate the operative stroke of said feed device and the movement of the tape to the stroke of said knives.

9. The combination, with a tape guide, of severing knives adapted to receive a tape bearing marks or characters thereon and sever it transversely between said marks, a pivoted feed device operating in said guide, a sliding block arranged to engage and lift said feed device out of engagement with said tape, and means for adjusting said block to vary the point of engagement of said feed device with said tape.

10. The combination, with a tape guide and a feeding device having means for engaging raised portions of the tape provided at intervals thereon to feed the same, of severing knives operating to sever the tape, and means for clamping the tape on both sides of said knives during the severing operation.

11. The combination, with a tape guide, of a pivoted feeder having means for engaging and feeding the tape, a sliding block arranged to engage and lift said feeder to an inoperative position, and a lever having a toothed connection with said block.

12. The combination, with a feed plate, of an oscillating arm provided with a spindle overhanging said feed plate, a sleeve mounted on said spindle, a plate carried by said sleeve and provided with a series of feeding points adapted to engage raised areas provided on a tape on said feed plate, and means for tilting said sleeve plate to raise or lower said points.

13. The combination, with a tape guide, of a feeder operating therein and having a series of feeding points adapted to slide over the thinner portions of the tape and engage the thicker portions thereof, and means for regulating the effective stroke of said feeder.

14. In combination with a tape guide, a feeding device having means adapted to slide over thinner portions of the tape and engage raised portions thereof provided at intervals to feed the tape.

15. The combination, with a tape guide, of a feeder having a series of needle points provided with rounded ends, said points being adapted to slide over the thinner portions of the tape and engage the thicker portions and feed the tape.

16. The combination, with a tape guide, of a pivoted feeder having means for engaging and feeding the tape and a sliding block arranged to engage and lift said feeder to an inoperative position.

In witness whereof, I have hereunto set my hand this 17" day of November, 1913.

FRANKLIN CHATFIELD.

Witnesses:
GENEVIEVE E. SORENSEN,
EDWARD A. PAUL.