Feb. 12, 1935. J. WAGON 1,990,849

MACHINE FOR AND METHOD OF FORMING TAPES

Filed Nov. 21, 1932

Fig. 1.

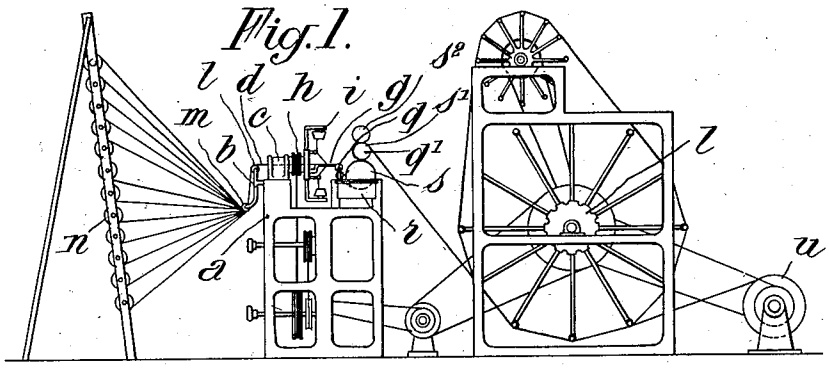


Fig. 2.

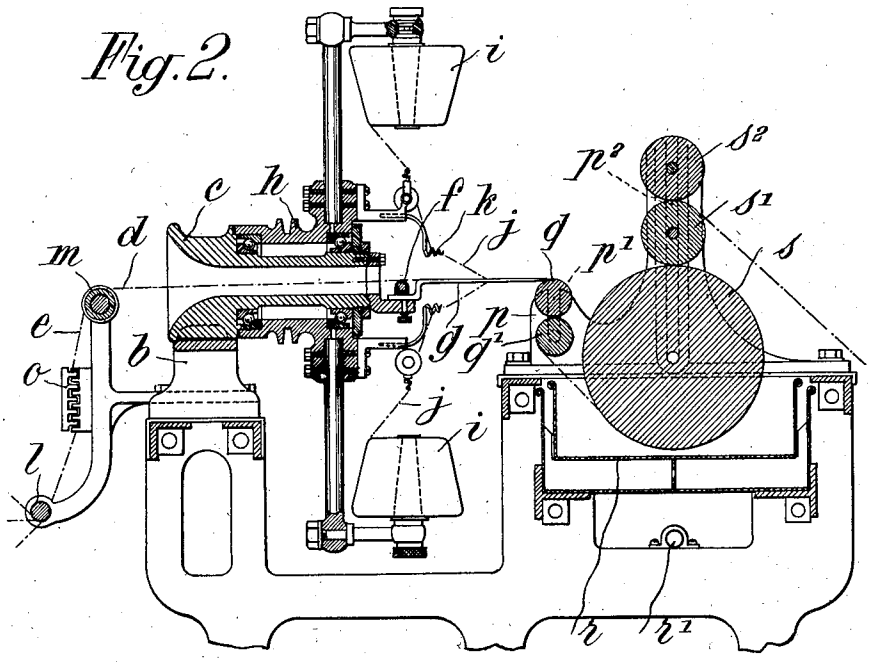
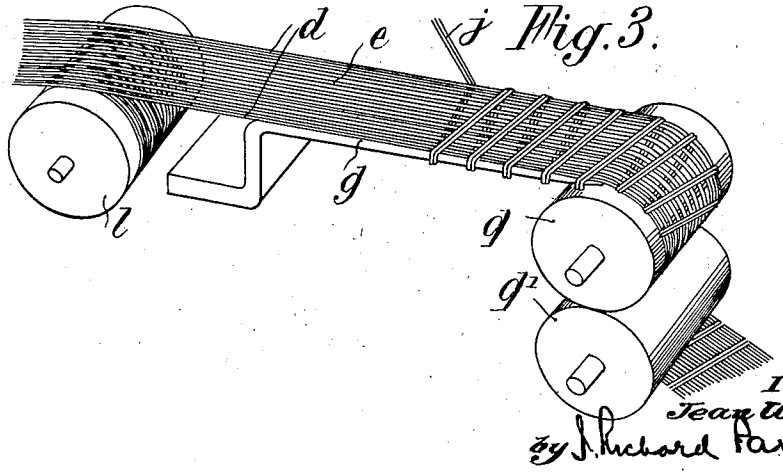


Fig. 3.



Inventor:
Jean Wagon,
by J. Richard Paris Atty.

Patented Feb. 12, 1935 1,990,849

UNITED STATES PATENT OFFICE

1,990,849

MACHINE FOR AND METHOD OF FORMING TAPES

Jean Wagon, Paris, France

Application November 21, 1932, Serial No. 643,722
In Belgium December 10, 1931

5 Claims. (Cl. 117—34)

The present invention relates to tape of the type employed by bakers and confectioners for making dainty bundles.

Tape employed for making bundles of pastry and confectionery, is generally composed of a plurality of parallel strands held together only by glue or a similar adhesive. In actual practice, it has been found that tape of this kind sometimes falls apart when the glue cracks or breaks. Various remedies have been proposed for overcoming this difficulty but none have entirely succeeded. For example, it has been suggested that the longitudinal strands of which the tape is composed be held together by a "spiral" strand or strands enveloping all of the longitudinal strands. But, when tape is manufactured in this way, the lateral pull of the spiral strand on the longitudinal strands causes the latter to bunch so as to no longer lie in juxtaposition.

One of the objects of the present invention is to provide a spirally wound tape wherein none of the longitudinal strands are superposed but lie in juxtaposition to one another to form a ribbon of substantially constant width.

Another object is to provide a method for winding a spiral strand around a plurality of longitudinal strands so that the latter remain in juxtaposition.

A further object of the invention is to provide a machine operative to exert an increased tension on the lateral strands forming part of a plurality of juxtaposed strands, whereby a spiral strand wound thereabout no longer acts to move adjacent longitudinal strands out of the plane in which they lie.

Still further objects will appear in the course of the detailed description now to be given with reference to the accompanying drawing in which:

Figure 1 is an elevation showing one illustrative embodiment of the invention;

Figure 2 is an axial enlarged detail of the more important portions of the machine represented in Figure 1;

Figure 3 is a perspective showing, in detail, how the longitudinal strands are maintained under tension and in proper relation to one another during and after the operation of winding a spiral strand thereabout.

Referring to the various figures of the drawing, there is shown an assembly comprising a frame *a*, a post or support *b*, a hollow sleeve *c* rigidly supported on post *b*, a guiding cylinder *f* provided with a plurality of grooves and adapted to guide the longitudinal strands of which the tape is composed, a flat support or platform *g* positioned to receive the strands passing from guide *f*, a rotatable collar or journal *h* supported on ball bearings on element *c* and driven by a suitable transmission such as is shown diagrammatically in Figure 1, a pair of spools *i* supported on a pair of radial arms rigidly mounted on collar *h* and adapted to provide strands to be spirally wound about the longitudinal strands of the tape, a pair of braking guides *k* adapted to exert a braking action on spiral strands *j* being fed from spools *i*, a guiding roller *l* receiving thread or strands from a plurality of spools *n*, a grooved roller *m* positioned to receive strands from roller *l* and to guide the latter through element *c* onto grooved guide *f*, a braking element or elements *o* formed of a pair of spaced meshing teeth and interposed between guides *l* and *m*, elements *o* serving to maintain at least the most lateral strands composing the tape under increased tension, a support *p* having a vertical guiding slot formed therein, a pair of guiding and tensing rolls *q* and q^1 adjustably supported in the guiding slot in support *p*, roll *q* resting by its weight on roll q^1 and being positioned to lie tangentially, and practically in contact with one end of element *g*, an adhesive container *r*, a gas or electric heater r^1 adapted to maintain the glue or adhesive in a liquid state, a roller *s* extending into the adhesive contained in element *r*, a pair of lateral supports p^2 which may be made integral with support *p* and having vertical guiding slots formed therein, a pair of superposed rollers s^1 and s^2 resting by their weight on one another and on cylinder *s*, a drier of conventional design *t* and a winding-up spool *u*.

The hereinabove described assembly operates in the following way: motive power for rotating elements *h*, *t* and *u* is provided by a motor and conventional transmission as shown in Figure 1; assuming a plurality of longitudinal strands to have been drawn successively over element *l* through braking element *o*, over guide roller *n* through *c* over roller *f*, into contact with support *g*, then successively over rolls *q* and q^1 in the manner shown in Figure 3, and finally over rollers *s* and s^1 through drier *t* onto wind-up spool *u*, rotation of the motor will cause dried *t* and wind-up spool *u* to draw lateral longitudinal strands *d* and central longitudinal strands *e* through the machine while spiral thread *j* is wound by spools *i* around said strands and

around support *g*; the spirally wound thread will be then drawn through the adhesive and, after being squeezed between s^1 and s^2 to remove excess adhesive, will pass through drier *t* and be wound in a finished condition on spool *u*.

The main contribution of the present invention resides (1) in employing braking element *o* for lateral threads *d* so as to increase the tension on the latter and so prevent their moving inward under the action of spiral threads *j*, (2) in extending platform *g* to a point just adjacent roller *q* so as to maintain a lateral pull on spiral threads *j* and so further prevent the latter from drawing lateral threads *d* inward (3) in positioning rollers *q* and q^1 so that the spirally wound tape is maintained under transverse and longitudinal tension, and (4) in maintaining this longitudinal and transverse tension during the passage of the spirally wound tape through the adhesive and into the drier. It is essential that the spirally wound thread lie in contact with a considerable portion of the circumferences of rollers *q* and q^1. In practice it is found that if the spirally wound thread is guided tangentially between a pair of superposed rollers without passing from over the surface of one onto the surface of the other in the manner shown in Figure 3, lateral collapse of the tape may occur and lateral strands *d* may move inward to lie in superposed, instead of juxtaposed, relation to central strands *e*.

The invention is not to be taken as limited to the particular tape above described: thus, some of the strands *e* may be deflected either upwardly or downwardly prior to the spool winding operation and may be deflected back to lie in superposed relation to spirally wound tape form. I as above described; several bobbins of the type, ' may be used instead of one and may be even mounted to turn in opposite directions so that spirals *j* are laid in opposite directions on the longitudinal strands; all of central strands *e* may be maintained under tension in breaking elements of the type *o* in addition to lateral strands *d*, etc.

What I claim is:—

1. A method of forming a wrapping tape comprising the steps of arranging a pair of lateral strands and a plurality of central strands to lie under tension in substantially parallel relation, subjecting said lateral strands to additional tension, wrapping a strand around said lateral strands and binding all of said strands together with an adhesive.

2. In combination a machine including means for drawing a pair of lateral strands and a plurality of central strands under tension therethrough, means for winding a strand around said lateral strands, and means for applying adhesive to all of said strands,—means for applying more tension to said lateral than to said central strands during their passage through the machine.

3. A structure as defined in claim 2 in combination with a support mounted in the course of movement of said lateral and said central strands, and a guide roller positioned adjacent one end of said support and in substantially tangential relation thereto.

4. A structure as defined in claim 2 in combination with a support for said pair of lateral and said plurality of central strands mounted adjacent the course of movement of said strands, a first guide roller positioned adjacent one end of said support and in substantially tangential relation thereto, and a second guide roller positioned adjacent said first guide roller, whereby the various strands may pass from said support over the surface of said first roller, then between said rollers, and finally over the surface of said second roller.

5. The method of operating a machine provided with means for guiding a plurality of strands therethrough, a support positioned along the path of movement of said strands, and a bobbin operative to wind a strand around said plurality of strands comprising the steps of guiding the strand coming from said bobbin so as to pass through said support as well as around the various other strands, maintaining all of the strands in substantially the same relative transverse position as they occupy when they slide off of said support, and passing all of said strands through an adhesive.

JEAN WAGON.