April 27, 1926.

1,582,449

B. G. BUNDY

GUMMED STRIP

Filed Nov. 23, 1925

Fig. 1.

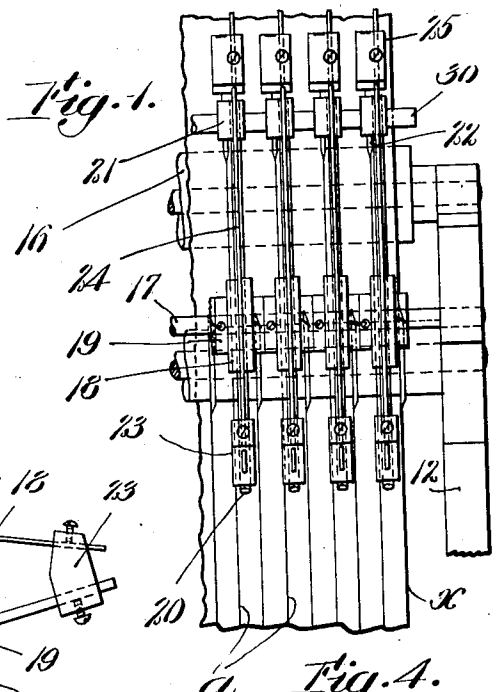


Fig. 2.

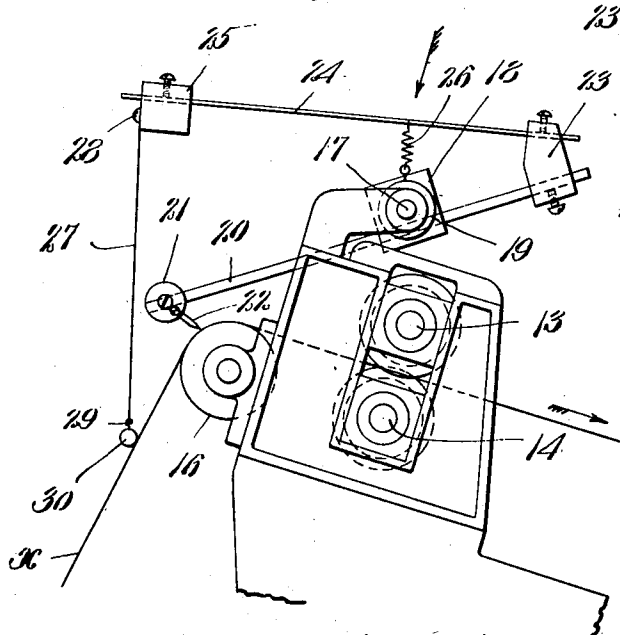


Fig. 4.

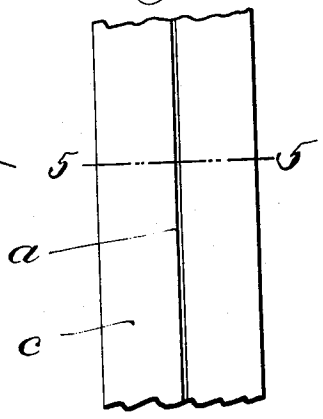


Fig. 3.

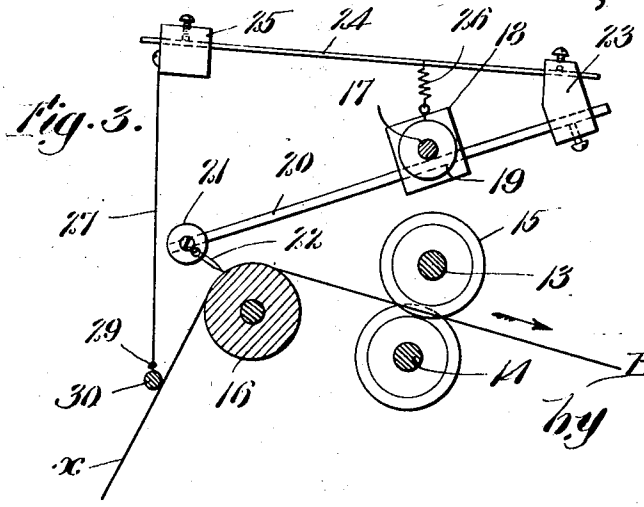
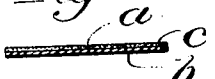


Fig. 5.



Inventor.

Benjamin G. Bundy

by A. W. Harrison Atty.

Patented Apr. 27, 1926. 1,582,449

UNITED STATES PATENT OFFICE.

BENJAMIN G. BUNDY, OF NASHUA, NEW HAMPSHIRE, ASSIGNOR TO NASHUA GUMMED & COATED PAPER COMPANY, OF NASHUA, NEW HAMPSHIRE, A CORPORATION OF MASSACHUSETTS.

GUMMED STRIP.

Application filed November 23, 1925. Serial No. 70,887.

To all whom it may concern:

Be it known that I, BENJAMIN G. BUNDY, a citizen of the United States, and resident of Nashua, in the county of Hillsborough and State of New Hampshire, have invented certain new and useful Improvements in Gummed Strips, of which the following is a specification.

This invention relates to the production of dry gummed sheet material in the form of strips, of the character commonly known as stay strip material which is usually commercialized in the form of coils from which suitable lengths can be severed for use in strengthening the corners of cartons or boxes, or other uses. Such material is well known.

It is customary to so make the material with longitudinal marks or scores that when a strip is being applied to use, such as on the corner of a box, it will bend along a mid-width line so that the strip will extend equal distances from the corner onto both sides of the box. Of course a single score line is preferably employed to best effect this result, and said score line should be at the exact mid-width of the strip regardless of the width of the strip.

One of the objects of the present invention is to produce such strips having score lines in the gum only, without any weakening of the body (paper or cloth) of the strips, either by cutting into the body or forming bent grooves therein.

Another object is to produce such strips in an economical manner, each with a score line in the gum accurately at its mid-width, whether the strips are narrow or wide. I attain this last mentioned object by effecting the scoring while the sheet material, having a dry coating of gum, is being cut into a plurality of strips side by side. And this is preferably done while said material is being operated upon by what is known as a slitting and re-winding machine one type of which is illustrated in Letters Patent No. 1,484,842, dated February 26, 1924.

With the above mentioned object in view, the present invention consists in the stay strip substantially as hereinafter described and claimed.

Of the accompanying drawings:—

Figure 1 is a plan view of so much of a slitting machine equipped with my improvements as is necessary to an understanding thereof.

Figure 2 is a side elevation of the same.

Figure 3 is a detail side elevation of the particular features of my invention which, in the present instance, comprises an attachment to a slitter of the general type illustrated in the patent referred to.

Figure 4 is a plan view of a piece of scored strip, as produced according to my invention.

Figure 5 represents a section on line 5—5 of Figure 4, on a scale enlarged to properly illustrate the strip.

The invention illustrated by Figures 1, 2 and 3 is claimed in my divisional application Serial No. 90,481, filed February 25, 1926, said figures and the description of the machine serving herein to simplify the characteristics of the article claimed herein.

Similar reference characters designate similar parts or features in all of the views.

A portion of the frame of the machine is indicated at 12, said frame supporting cutter shafts 13, 14, provided with cooperating disk cutters 15. It is customary in slitting and re-winding machines of the type illustrated in the patent referred to, to vary the number of cutter disks and the spacing thereof along their shafts, according to the widths of the strips into which the sheet x is to be divided.

In the embodiment of my invention illustrated, a roll or smooth-surfaced bar 16 is mounted in the frame of the machine, and the sheet or web x provided with a coating of dry gum, passes over said roll or bar on its way to the cutters 15 which divide the web into strips.

Loosely mounted on a tie rod 17 are blocks 18, the positions of said blocks along the tie rod being determined by collars 19 secured to the tie rod between the blocks. Extending through each block 18 is a rod 20 having at one end, above the roll 16, a clamp couple or head 21 in which a sharp-pointed scoring implement 22 is clamped and secured at the proper angle to press on the gum coating and crush it without affecting the layer which carries the gum. In practice I have found phonograph needles to make effective scoring implements. The points thereof bear on the web x where the latter travels over the roll 16.

Adjustably mounted on the other end of each rod 20 is a block 23 in which is mounted a rod 24, the said rod 24 extending above the needle-carrying rod 20 and having a weight 25 adjustably mounted thereon. By adjusting the rods and weights, the needles 22 will be caused to bear on the dry gum coating of the web *x* with more or less pressure according to the character of the gum coating on the web. A thick or very hard coating requires that the needles be caused to bear on the coating with heavier pressure than a thin or soft coating. It is important that the pressure shall be such that the dry gum will be crushed by the scratching operation of the implements 22, without any cutting or grooving operation on the body layer *b* (Fig. 5) of the web. The construction enables this to be done, so that the paper or cloth layer *b* will not be weakened in any manner by the scoring operation. Practically it leaves the layer *b* uniformly flat from side to side, with two stripes of gum *c* separated by a scored line *a* which retains many fractured particles of dry gum.

To counteract any tendency of the needle-carrying rods 20 to vibrate and result in imperfect scoring, it is desirable that some spring connections be made so that inertia or momentum of the weights will not cause vibrations. To this end I provide a spring 26 connecting each weight rod 24 with a collar 19, and I have also found it desirable to employ a light rubber band to act as a spring for the same purpose. Each rubber band 27 connects a screw 28 of a weight 25 with a hook 29 carried by a transvere rod 30 mounted in the frame of the machine.

The machine is provided with a scoring needle and its carrying members for each strip to be scored and cut. That is, the scoring units equal the strips in number. Each scoring unit can be adjusted along the rod 17 to a position that will locate its needle exactly in line with the middle of the space between cutters that are to determine the width of the strip scored by that needle. In other words, while the needles 22 act on the web before it is cut, the cutters (when they and the scoring units are adjusted according to the intended widths of the strips) sever the web along lines equi-distant from the score lines, so that each score will be exactly at the mid-width of each cut strip.

With the mechanism illustrated and described, it is possible for a machine to produce, simultaneously, scored strips of different widths instead of uniform widths. For instance, some of the disk cutters 15 may be two inches apart and others on the same shafts may be one inch apart. It is then only necessary to adjust the scoring units along the rod 17 so that their needles will be in alinement with the mid-width of the spaces between the cutting disks.

It is to be understood that by the terms needles, and paper, employed herein, I do not limit myself to an exact definition of either term. Any pointed implement capable of so scratching the gum as to effect the scoring may be used, and the term paper is to be understood as employed for the sake of brevity in referring to any web material. Furthermore, the term gum is employed as a generic term for any coating that adheres to the paper. And of course the scored strips may be employed for purposes other than strictly stay strips.

Having now described my invention, I claim:—

A stay strip having a dry gum coating, said coating having a narrow line at its midwidth characterized by the presence of fractured particles of gum effected by a scratching operation, the body layer of the strip being of uniform tensile strength throughout its area.

In testimony whereof I have affixed my signature.

BENJAMIN G. BUNDY.