L. M. HARWOOD.

METHOD AND APPARATUS FOR PACKAGING METALLIC LEAF.

APPLICATION FILED MAY 1, 1919.

1,360,741. **Patented Nov. 30, 1920.**

Fig. 1

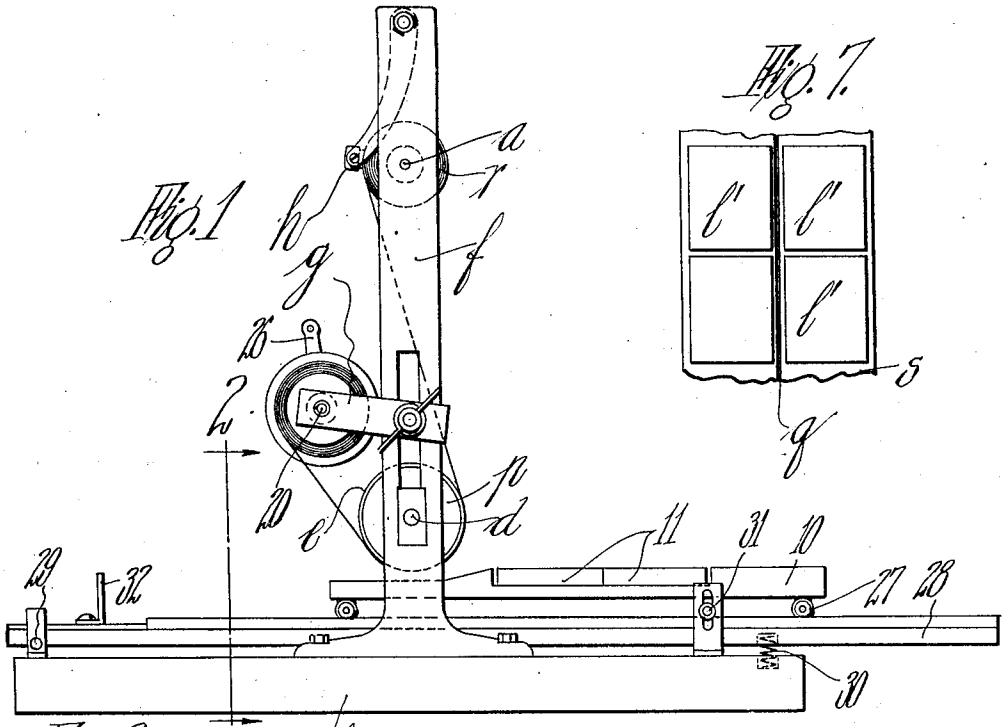


Fig. 7.

Fig. 2

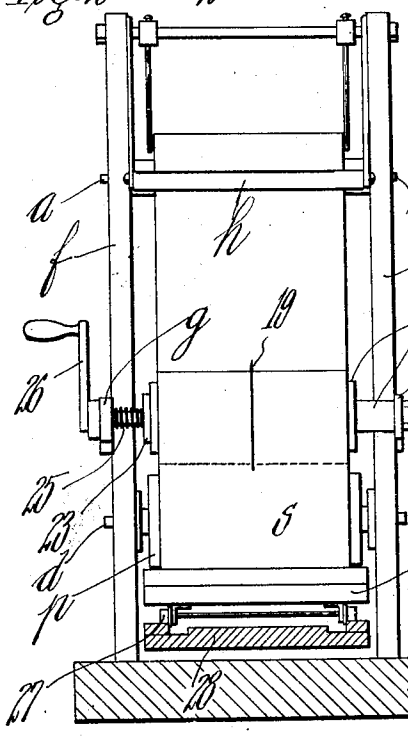


Fig. 3.

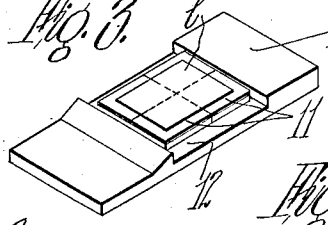


Fig. 4.

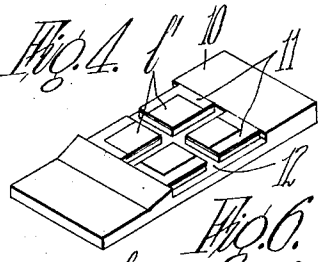


Fig. 5.

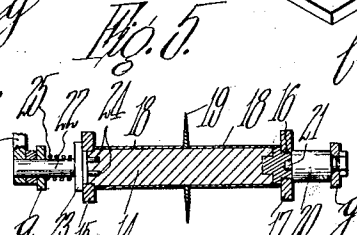
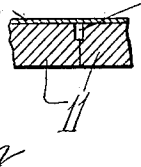


Fig. 6.



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METHOD AND APPARATUS FOR PACKAGING METALLIC LEAF.

1,360,741. Specification of Letters Patent. Patented Nov. 30, 1920.

Application filed May 1, 1919. Serial No. 294,016.

To all whom it may concern:

Be it known that I, LEON MARTIN HARWOOD, a citizen of the United States of America, residing at Springfield, in the county of Hampden and State of Massachusetts, have invented certain new and useful Improvements in Methods and Apparatus for Packaging Metallic Leaf, of which the following is a specification.

This invention relates to an improved method of packaging metallic leaf and to improvements in apparatus for use in carrying out the method.

According to prior practice, the leaf is suitably applied to a supporting strip, such as paper, and such strip with the leaf thereon, is wound up into a preliminary roll. In order to obtain rolls of smaller width than the preliminary roll, such roll is divided by suitable cutting means, which sever both leaf and supporting strip along the same line. That is, with a roll cut from a preliminary roll, as described, there is at least one, and frequently two, edges of the leaf which coincide with an edge or edges of the supporting strip. Where the edges of the leaf and supporting strip coincide, there is an undesirable tendency for the leaf and strip to adhere to one another along the edges, the edges of the leaf are not protected as desired, and the practice is therefore undesirable. This invention is concerned, among other things with the elimination of the disadvantages enumerated.

According to one feature of the invention, the leaf is placed upon a receiving table having two or more separable sections and is divided into two or more parts. The parts are then spaced from one another by separating said sections, and then a supporting strip is applied to the cut and separated parts and the latter are positioned on the strip in the same relative relation as they were upon the table.

According to another feature of the invention, the leaf is cut into two or more parts which are separated as described, and the supporting strip is applied so that the parts are spaced thereon as positioned upon the table, whereby the strip may be severed along a line or lines parallel to the edges of the strip and between the cut parts of the leaf leaving the cut edges spaced from the edges of the supporting strip.

According to a further feature of the invention, the leaf is cut and transferred to the supporting strip, as just described, and such strip is then wound into roll form and means are provided to sever the supporting strip between the cut parts of the leaf during the winding operation.

According to a further feature of the invention, I provide a winding arbor, upon which two or more tubular cores may be placed, and between each pair of cores I provide a cutting device, whereby the supporting strip may be cut during the winding operation and the cut rolls may be removed by reason of the separate tubular cores provided.

According to a further feature of the invention, I provide a receiving and cutting table of the class described which is mounted upon a rollway for travel to and from a pressure roll, about which a supporting strip travels, whereby the cut leaf sections on the table may be conveniently transferred to the supporting strip.

Other features and advantages will appear in the following description and in the illustrative embodiment of the invention in the accompanying drawings; in which—

Figure 1 is an elevational view of the improved apparatus;

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

Fig. 3 is a perspective view of the receiving table;

Fig. 4 is a similar view showing the separable sections thereof spread to space the cut edges of the leaf;

Fig. 5 is a longitudinal section of the winding arbor showing the tubular cores and strip cutting means;

Fig. 6 is a cross sectional view of the separable table sections; and

Fig. 7 is a fragmentary plan view showing the cut supporting strip with arrangement of the cut leaf sections thereon.

Referring to these drawings and particularly to Figs. 3 and 4; a receiving table 10 is provided upon which the metallic leaf *l* to be cut may be placed. This table includes two or more leaf supporting sections 11, which may be moved into close adjacency, to support leaf *l* during the cutting operation and later separated to space the cut edges of the cut leaf sections *l'*, all as clearly indicated in Fig. 4. As shown, the table 10 is recessed, as at 12, to receive the separable sections 11 and such sections are held to the table by their own weight. The recess 12 is

wide enough to permit the sections 11 to be spread apart to space the leaf sections l', and, where as shown a longitudinal as well as a lateral spacing of the leaf sections l' is desired, other sections 11 are provided and the recess 12 is made long enough to permit the sections 11 to be separated longitudinally of the table. Obviously, any desired number of sections 11 may be provided as desired depending on the number of lateral and longitudinal cuts (either or both) which are to be made.

The cutting of the leaf while supported by the sections 11 of table 10 may be accomplished in any desired manner. An example of one cutting device suitable for this purpose is shown in my prior Patent No. 1,156,224, granted October 12, 1915. In connection with the cutting operation, the sections 11 may be slightly spaced to allow the cutter or cutters to pass therebetween. Preferably, however, the sections 11 abut, as shown in Fig. 6, and a recess 13, is provided in their side edges adjacent the top of the sections for the purpose of receiving the cutter.

The leaf after being cut and separated, may be transferred to the supporting strip in any desired manner. Where, however, the cut and spaced leaf sections are to be packaged in the roll form, the illustrated apparatus is particularly advantageous.

Such apparatus involves a supply roll r of the supporting strip and the roll r is suitably mounted by means of an arbor a in a pair of spaced standards f which are supported by a bed b. Also mounted in frames f by means of a shaft d is a pressure roll p, preferably provided with an outer peripheral layer e of rubber or the like. The supporting strip s is led from roll r to and around the pressure roll p and the end is then carried to a winding mechanism.

The latter includes an arbor 14 (Fig. 5) which has fixed on one end a flange 15. The other end of arbor 14 is threaded as at 16 to receive an interiorly threaded flange 17. Upon arbor 14 several tubular cores 18 may be placed and between the adjacent ends of the cores, cutters 19 may be placed. Each cutter 19 consists of a thin circular blade as indicated. By turning up the flange 17, the cores 18 and cutter 19 are clamped against flange 15. The arbor 14 is removably supported by and between a pair of arms g attached to frames f. On one arm g, a stud 20 is secured which stud has a cylindrical end 21 to fit into and rotatably support one end of arbor 14. In the other arm g, a shaft 22 is rotatably and slidably mounted. Fixed on shaft 22 is a flange 23 having two spaced pins 24 to fit into the other end of arbor 14 for an operable driving engagement. A spring 25 tends to hold flange 23 in the illustrated position and a crank handle 26 on shaft 22 provides means for rotating the arbor. By pulling handle 26 outwardly, the pins 24 may be withdrawn from arbor 14 to permit its removal and, upon removal of flange 17, the cores 18, with the cut rolls of strip and leaf, may be removed.

It will readily be seen that by turning handle 26 the arbor 14 is rotated to wind up the strip s, which is drawn around the pressure roll p from the supply roll r. The spring 25 operates to frictionally hold the arbor in the various positions to which it may be moved. If desired, a pad h, such as leather or the like, may be mounted, by means of two arms i pivoted to frames f, to bear upon the outer periphery of roll r. Such pad functions as a brake to prevent undue rotation of roll r. Other forms of roll gold machines may be used, as desired, and that described is given merely by way of illustrative example.

When the leaf is to be packaged in roll form, the receiving and cutting table 10 is provided with wheels, as 27, and mounted for travel along a rollway 28. Such rollway is pivoted at 29 to bed A and at the other end is urged upwardly by a spring 30, which is disposed between the rollway and bed A. A stop 31, preferably adjustable as indicated in Fig. 1, limits the upward travel of the rollway 28 under the action of spring 30 and an abutment 32 on the rollway limits the travel of table 10 in one direction. The stop 31 is so adjusted as to hold the top of the leaf supporting sections at a level slightly higher than the lowermost part of roll p so that, as table 10 is moved to carry the sections 11 in under the pressure roll, the spring 30 is compressed to yieldingly force the sections against the pressure roll.

In operation, with the table 10 positioned as illustrated in Fig. 1 and the sections 11 positioned as illustrated in Fig. 3, the leaf is laid upon the sections and cut either laterally or longitudinally or both by suitable means into the desired number of sections l'. The sections 11 are then separated and this results in a spacing of the cut edges of the leaf sections l' either lateraly or longitudinally or both, as illustrated. The table 10 is then moved along the rollway 28 toward the pressure roll until the upper surface of the forward sections 11 are engaged by the roll p. Then, by turning the crank handle 26, the strip s is wound up on cores 18 and the pressure roll is turned which, in turn, imparts movement to the table 10. As the table 10 moves in under roll p, the leaf sections l' adhere to the strip s. After the leaf sections l' have been transferred to strip s, the rotation of arbor 14 is stopped and the rollway 28 is depressed to withdraw the table from the pressure roll, whereupon the table is returned to the illustrated posi-

tion, as by gravity action. Succeeding leaf sections l' are cut, spaced and transferred to strip s in a like manner. As the strip s is wound up on its cores 18, the cutter 19 severs the strip along a line q (Fig. 7) which lies between the cut and separated edges of the leaf. Therefore, after a roll of requisite diameter has been wound up, the arbor 14 may be removed as described and cores 18 extracted therefrom leaving two or more separate roll packages in each of which the longitudinal edges of the leaf sections l' are spaced from the corresponding edges of the supporting strip.

The invention has been disclosed herein, in an embodiment at present preferred, for illustrative purposes, but the scope of the invention is defined by the appended claims rather than by the foregoing description.

What I claim is—

1. A method of packaging metallic leaf, which consists in placing the leaf upon a member having two or more separable sections, in cutting the leaf while supported by said sections, in then separating the latter to space the cut edges of the leaf, and in transferring the cut portions of the leaf to a supporting strip while the cut edges of the leaf are maintained in separated relation.

2. A method of packaging metallic leaf, which consists in placing the leaf upon a member having two or more separable sections, in cutting the leaf while supported by said sections, in then separating the latter to space the cut edges of the leaf, and in transferring the cut portions of the leaf to a supporting strip while the cut edges of the leaf are maintained in separated relation, and in then cutting the supporting strip along a line intermediate the cut edges of the leaf thereon.

3. A method of packaging metallic leaf which consists in placing the leaf upon a member having two or more separable sections, in cutting the leaf while supported by said sections into the widths required, in then separating the sections to space the cut edges of the leaf, and in then winding one or more widths with a supporting strip into roll form.

4. A method of packaging metallic leaf which consists in placing the leaf upon a member having two or more separable sections, in cutting the leaf while supported by said sections into the widths required, in dividing the widths into the desired lengths, in then separating the sections to space the cut edges of the leaf, and in then winding one or more widths with a supporting strip into roll form, while the cut edges of the leaf are maintained in separated relation upon the supporting strip in formation similar to their placement upon the cutting member prior to the cutting operation.

5. In a machine for packaging metallic leaf in roll form, means for winding up the supporting strip including a winding arbor, at least two cores carried by the arbor and a cutter between the cores, a pressure roll engageable with the supporting strip, and means to feed metallic leaf in laterally spaced sections to the strip and pressure roll, whereby the leaf sections are transferred to and located on the strip in laterally spaced relation, and the supporting strip is cut between the leaf sections.

6. A method of packaging metallic leaf, which consists in laying the leaf upon a cutting table having separable sections, in cutting the leaf into sections, in separating the sections of the table to space the cut edges of the leaf, and in thereafter applying to the cut and spaced leaf sections a suitable supporting member.

LEON MARTIN HARWOOD.