Aug. 16, 1966 N. H. SARV 3,266,538

APPARATUS FOR PEELING AND DISINTEGRATING OF VENEER

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FIG.1

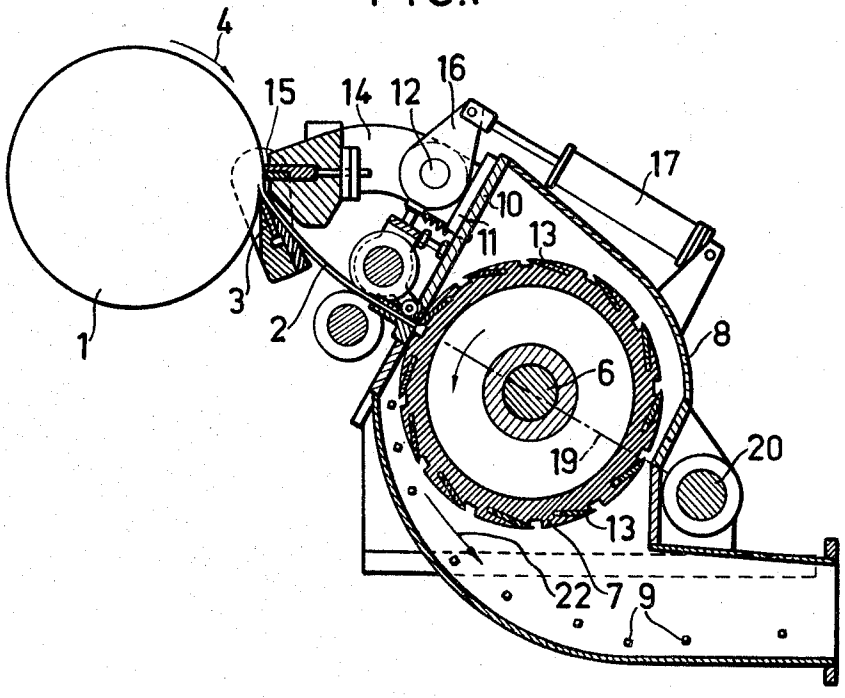

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FIG.2

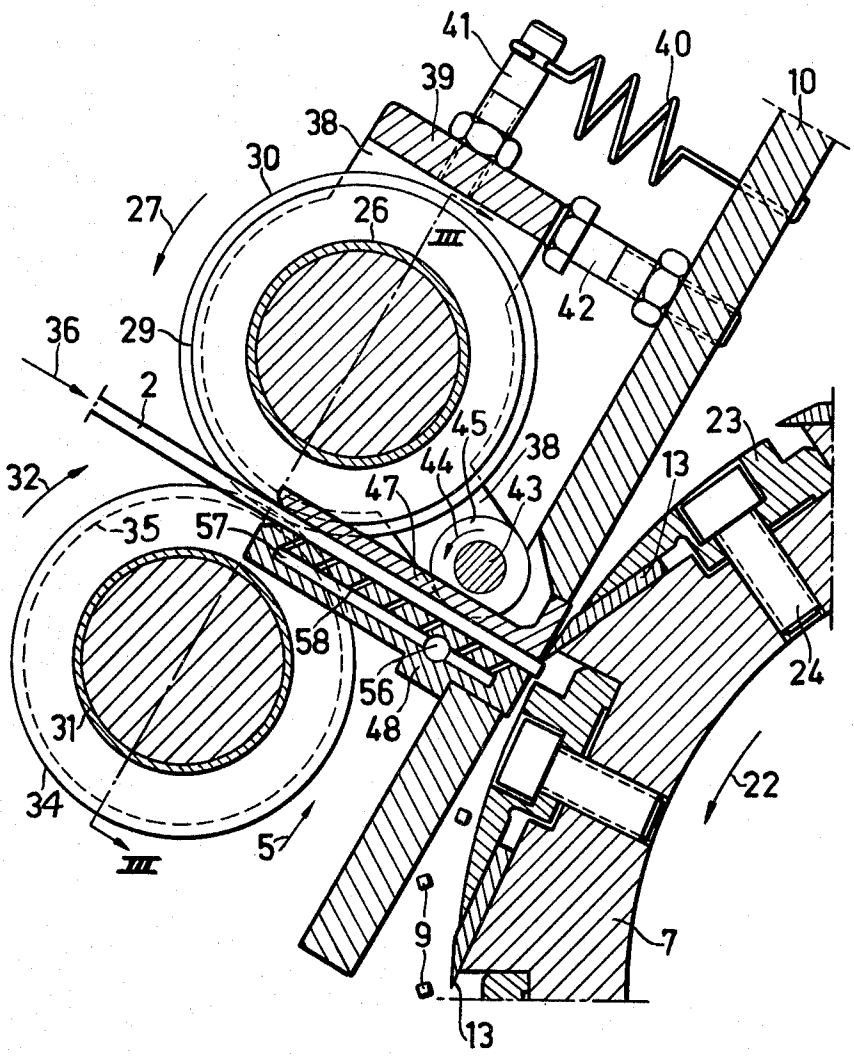

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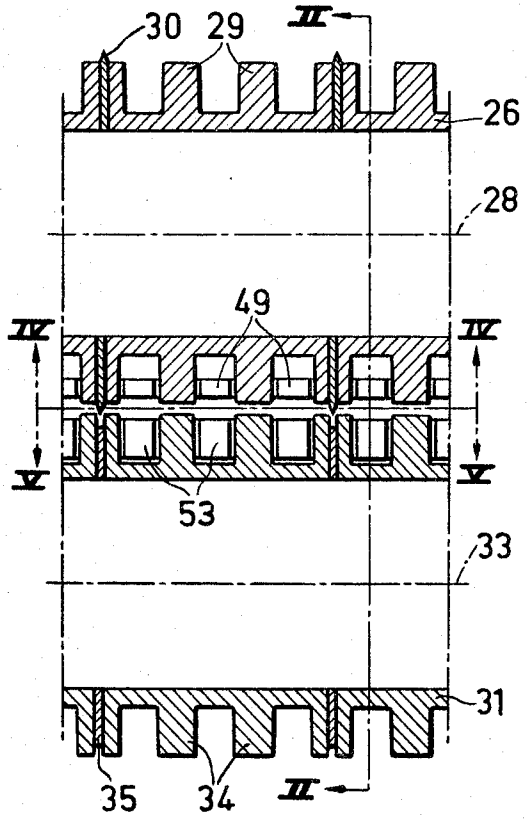
FIG.3



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APPARATUS FOR PEELING AND DISINTEGRATING OF VENEER

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FIG.4

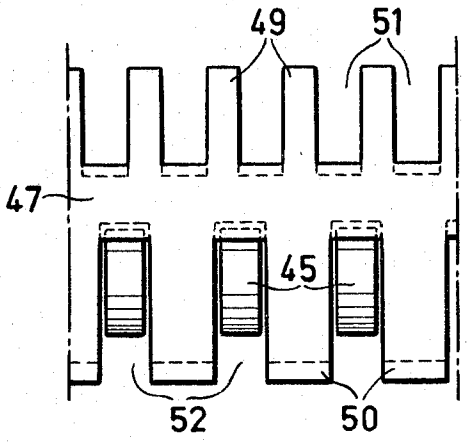
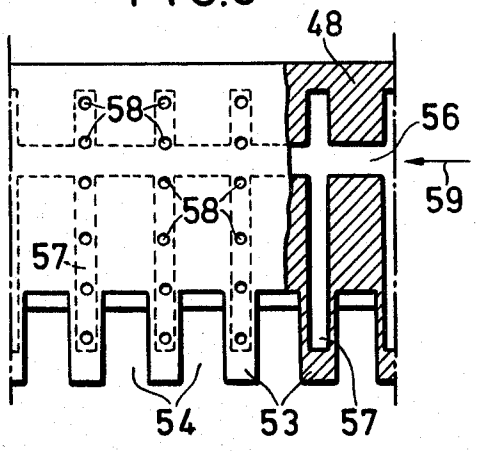


FIG.5



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3,266,538

APPARATUS FOR PEELING AND DISINTEGRATING OF VENEER

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Claims priority, application Sweden, Oct. 24, 1962, 11,395/62
3 Claims. (Cl. 144—50)

This invention relates to an apparatus for the peeling and disintegrating of veneer which is fed in a single layer to a cutter directly associated with the veneer peeling knife and by means of which the peeled veneer is cut, e.g. into match splints, or blanks for inner or outer boxes. This apparatus preferably comprises a rotatable cutter directly associated with the veneer peeling knife, and feeding means located between said peeling knife and said cutter and adapted to advance a single layer of freshly peeled veneer from the peeling knife to the cutter.

In producing splints of veneer in the match industry it has hitherto been common practice to arrange the veneer sheets coming from the veneer peeling lathe in a stack of sheets of suitable length. These sheets are generally half as wide as that log from which the veneer has been peeled, since this lathe is provided with a knife which separates the veneer web into two sheets of equal width extending side by side. These sheets are generally transferred manually to a sheet piling bench by two receivers who stand at the veneer peeling lathe and each take care of one of the two sheets.

During the peeling there always arise short pieces of veneer of less length than desired, as well at the commencement of the peeling operation while the log is unround as during the peeling operation, on account of breaks in the veneer sheets. Such short pieces give rise to considerable costs. A great part of the pieces are of such a quality that it will not pay to place them upon the veneer stack, e.g. on account of their small dimensions or poor quality, and therefore they give rise to wastage. The other small but utilizable pieces, on the other hand, incur high manipulation costs, since the receivers have to place them so on the stack that no unnecessary interspaces are formed between the small pieces which should not either overlap each other. The stack should, of course, be as homogeneous and uniformly thick as possible to be able to become advanced to the cutting machine as one unit.

Accordingly, a primary object of the invention is to reduce the costs at the disintegration of veneer into match splints or blanks for inner or outer boxes by reducing wastage and manual labour.

Another object of the invention is to facilitate further automation of the manufacture of matches.

An apparatus according to the invention is primarily characterized in that the feeding means comprise a hollow support for the veneer, said support having its interior connected to a source of compressed fluid and having a plurality of fine holes which extend from said hollow interior of the support to the upper face thereof in a direction which is in substantial concert with the feed direction of the veneer.

Hereby there is attained a particularly reliable and safe advancement of short veneer strips, e.g. the trailing ends of strips which have already become cut into splints, apart from their said trailing edges.

The invention will be better understood by the aid of the following description of a preferred embodiment taken in conjunction with the accompanying drawings, wherein:

FIG. 1 is a cross sectional view showing the main features of the apparatus according to the invention, and a log from which veneer is being peeled;

FIG. 2 is a cross sectional view of the feeding means as seen in the direction of the arrows II—II in FIG. 3 and part of the cutter according to the invention;

FIG. 3 is a schematic partial section along the line III—III in FIG. 2; and

FIGS. 4 and 5 illustrate details of the feeding means as seen in the direction of the arrows IV—IV and V—V respectively in FIG. 3.

According to FIG. 1 a log **1** from which veneer **2** is being peeled by means of the knife **3** is rotated in the direction of the arrow **4** by means of driving means, not shown. Even though this is not apparent from the drawings, the log **1** may be rotated by a device according to the U.S. Patent application Number 306,728, filed September 5, 1963, and the veneer peeling knife may be of the kind disclosed in the U.S. Patent Number 3,224,477, dated December 21, 1965. By means of a feeding device which is generally designated **5** and is most clearly shown in FIG. 2 the veneer **2** is advanced to a cutter **7** which rotates on an axis **6** and is enclosed in a housing **8**. The cutter comprises knives **13** by means of which the veneer divided into strips is cut to splints **9**. To the front wall **10** of the housing **8** there are secured a pair of bearings **11** in which stub shafts or pivots are journalled. A pair of levers **14** which jointly carry a pressure bar **15** cooperating with the veneer peeling knife are rigidly connected to the pivots **12**. Rigidly connected to one of the pivots **12** is further a second lever **16** which is coupled to a plunger of a pneumatic cylinder **17** by means of which the pressure bar may be swung away, so that the veneer peeling knife **3** will be accessible for cleaning and sharpening. That part of the apparatus which is located above line **19** and to the right of the knife **3** in FIG. 1 may be swung up in a clock-wise direction around the axis **20**, so as to make the cutter **7** accessible for inspection or replacement.

Now, it is referred to FIG. 2 which illustrates the feeding device **5** and a part of the cutter **7** on a larger scale, and FIGS. 3, 4 and 5. The cutter **7** which is assumed to rotate in the direction of the arrow **22** and of which only part is shown in FIG. 2 cuts the veneer **2** into splints **9** by means of the knives **13**. These are removably secured to the cutter body by means of knife holders **23** which in their turn are bolted to the cutter body by means of screw bolts **24**. As is evident from FIG. 2 the edges of the knives **13** project beyond the circumferential surface of the cutter body a distance which is in concert with the thickest splints to be manufactured. The thickness of the splints (in the feed direction of the veneer) is suitably controlled by adjustment of the rotational speed of the cutter which may be continuously adjustable, e.g. between 700 r./m. and 3000 r./m. which corresponds to 9.2 m./sec. and 39.4 m./sec., respectively. The feed velocity of the veneer may amount to 0.5–1.0 m./sec. 0.7 m./sec. is a suitable value.

According to FIGS. 2–5 the feeding device comprises an upper feeding roller **26**, which is rotatable in the direction of the arrow **27** on an axis **28** (FIG. 3) and has its circumferential surface formed of a plurality of small rollers **29**. The roller **26** is divided into a number of sections separated by lancet knives **30**. Cooperating with the roller **26** is a lower feeding roller **31** which is rotatable in the direction of the arrow **32** on an axis **33** (FIG. 3) and has its circumferential surface formed by a plurality of small rollers **34**. The roller **31** is divided into a number of sections separated by discs **35**. The rollers **29**, **34** advance the veneer **2** between themselves in the direction of the arrow **36** (FIG. 2) while the lancets **30** in cooperation with the discs **35** and the adjacent edges of the rollers **34** divide the veneer into narrower strips having a width corresponding to the desired splint length.

At the opposite ends of the roller **26** there are provided two bell crank levers **38** which are interconnected by a bridge **39** and together therewith are rockable as one unit on the axis **28** (FIG. 3). The bell cranks are biased in the clockwise direction by a tension spring **40** having one of its ends attached to the wall **10** and its other end secured to a bolt **41** which is screwed into the bridge **39**. Its right hand limit position which is adjustable is determined by a bolt **42** screwed into the wall **10**.

In the lower arms of the bell cranks **38** a shaft **43** is rotatably secured which is rotated in the direction of the arrow **44** by the roller **26** through a belt or chain or the like (not shown). Rigidly secured to the shaft **43** are a plurality of rollers **45** which are pressed against the top side of the veneer strips **2** by the spring **40** to advance the strips towards the cutter **7**. A holding down plate **47** and a supporting plate **48** located below the holding down plate **47** are arranged behind the feeding rollers **26**, **31** as seen in the direction of travel of the veneer **2**. The holding down plate **47** which is substantially comb-shaped as seen in plan view (FIG. 4) has teeth **49**, **50** which are separated by tooth spaces **51** and **52** respectively. The tooth spaces **51**, **52** form recesses for the feed rollers **29** and **45** respectively which engage the top face of the veneer.

The supporting plate **48** (FIGS. 2 and 5) is substantially comb-shaped as seen in plan view and has teeth **53** and tooth spaces **54** which latter constitute recesses for the feeding rollers **34** engaging the lower face of the veneer. The supporting plate **48** is hollow and contains a channel system comprising a main duct **56** and branch ducts **57**. The main duct is connected to a compressor or another source of fluid pressure from which air or gas is supplied in the direction of the arrow **59**, and the branch ducts **57** extend into the teeth **53**. A great number of fine holes or nozzles **58** extend from the branch ducts **57** and open into the top face of the supporting plate **48**. The nozzles **58** are inclined and directed forward towards the cutter **7** and lie in planes which are substantially perpendicular to the axes of rotation of the rollers **26**, **31**, **43**, so that the air or gas jets issuing from the nozzles promote the feeding of the veneer and blow small veneer pieces having a length less than the spacing between the rollers **45** on the one hand and the common axial plane of the rollers **29**, **34** or the trajectory of the edges of the knives **13** on the other hand and thus not being able to become advanced by the rollers **45**, to the cutter.

On their very short way from the veneer peeling knife **3** to the rollers **29**, **34**, the veneer is guided by vanes or guiding plates (not shown), and the splints **9** produced by the cutter **7** are conducted directly from the outlet of the housing **8** to the succeeding station of treatment, e.g. a bath of phosphoric acid.

While the invention has been particularly shown and described with reference to one preferred embodiment thereof, it will be understood by those skilled in the art that various changes in form and details may be made therein without departing from the spirit and scope of the invention. Even though the invention has been described as applied to the manufacture of match splints, it is evident that the invention also covers means for the manufacturer of e.g. outer or inner boxes for matches in accordance with the above principle.

What I claim is:

1. Apparatus for the peeling and desintegrating of veneer, comprising a veneer peeling knife, a rotatable cutter and feeding means located between said peeling knife and said cutter for advancing a single layer of freshly peeled veneer from said peeling knife to said cutter, said feeding means comprising a hollow support for the veneer, said support having its interior connected to a source of compressed fluid and having a plurality of nozzles extending from said hollow interior of the support to the upper face thereof in a direction which is in substantial concert with the feed direction of the veneer, and a hold down plate parallel to the upper face of said hollow support and so spaced from said hollow support that the freshly peeled veneer is firmly supported by the hold down plate and the hollow support while said veneer is being advanced to the cutter.

2. Apparatus for the peeling of veneer and for cutting said veneer into equal-sized pieces comprising a veneer peeling device, a rotatable cutter carrying cutting knives, and feeding means located between said peeling device and said rotatable cutter for advancing a single layer of freshly peeled veneer to said rotatable cutter, said feeding means comprising a hollow support for supporting the surface of said veneer which is opposite to the direction of movement of the knives of said rotatable cutter, said support having its hollow interior connected to a source of fluid and having a plurality of nozzles extending from said hollow interior of the support to the supporting face thereof in a direction which is in substantial concert with the feed direction of the veneer and towards the direction of the cutter, and hold down means for holding said veneer in a firmly supported position against the hollow support while it is being advanced by said feeder means and cut by said rotatable cutter.

3. The apparatus of claim **1**, in which said hold down means comprises a comb-shaped plate having spaced teeth extending in planar alignment with said plate and tooth spaces between said teeth, and a plurality of spaced circular knives extending into the tooth spaces between said plate and through said veneer so as to slice said veneer into predetermined widths prior to cutting said veneer with the rotatable cutter.

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