

No. 854,149.

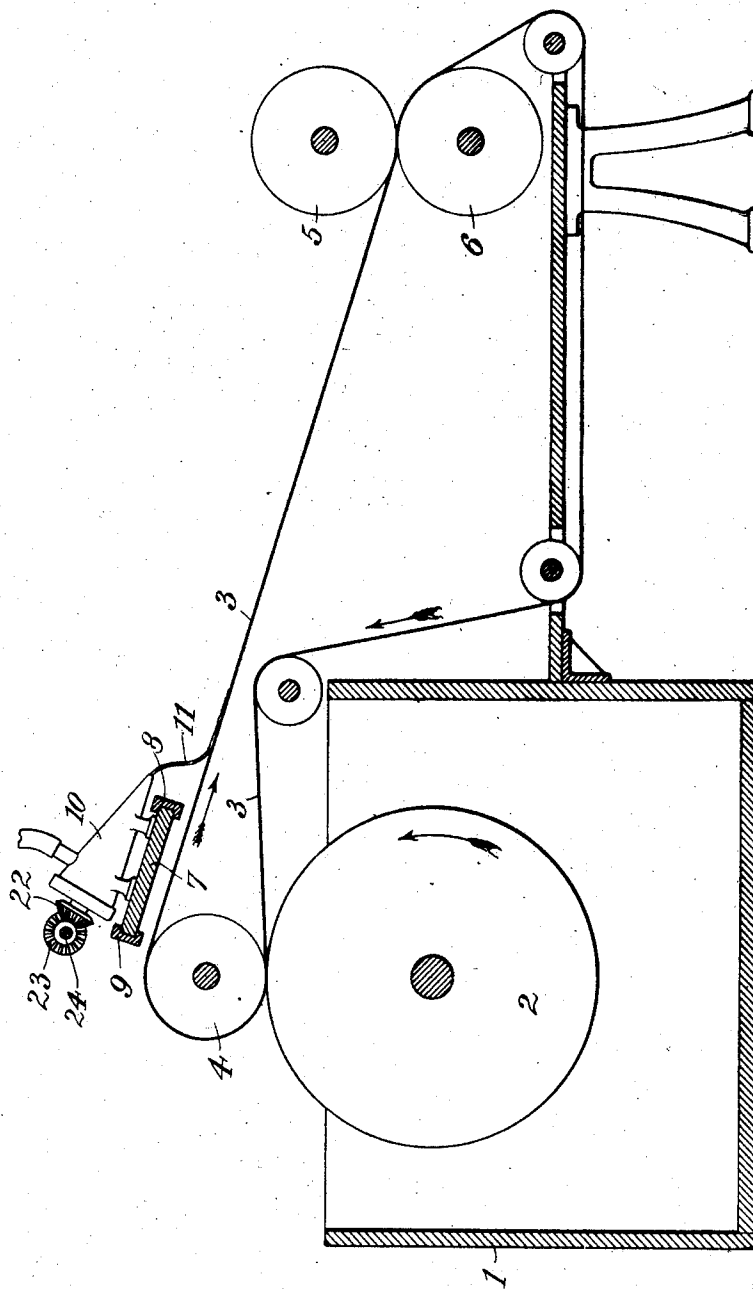
PATENTED MAY 21, 1907.

W. N. CORNELL.
APPARATUS FOR MAKING IMITATION WOOD.

APPLICATION FILED SEPT. 18, 1905.

2 SHEETS—SHEET 1.

Fig. 1.



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APPLICATION FILED SEPT. 16, 1905.

2 SHEETS—SHEET 2.

Fig. 2.

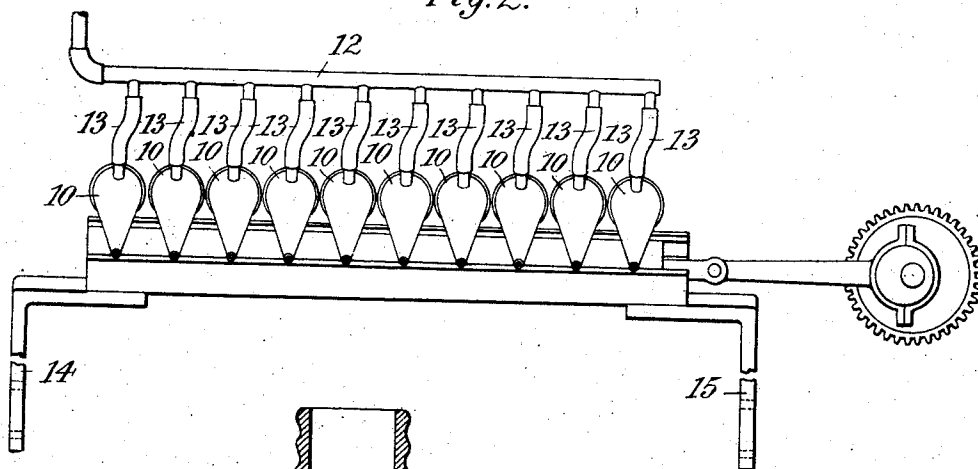


Fig. 3.

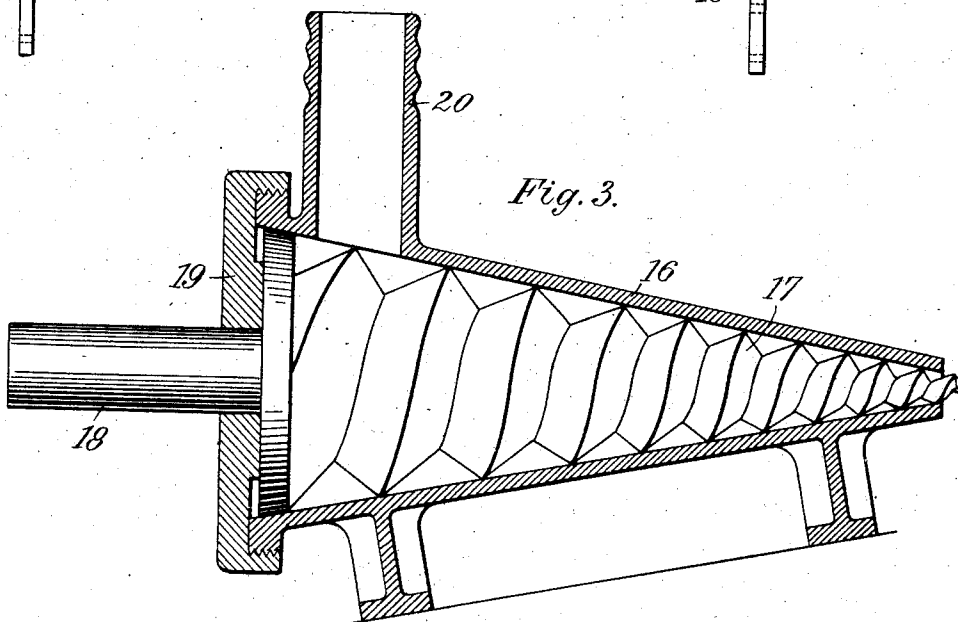
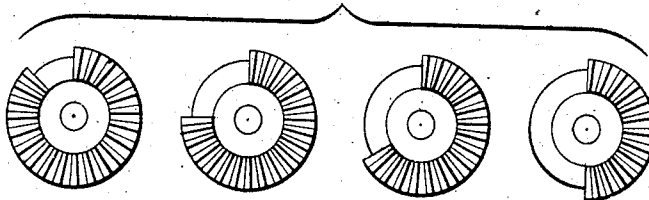


Fig. 4.



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UNITED STATES PATENT OFFICE

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APPARATUS FOR MAKING IMITATION WOOD.

No. 854,149.

Specification of Letters Patent.

Patented May 21, 1907.

Application filed September 16, 1905. Serial No. 278,830.

To all whom it may concern:

Be it known that I, WILLIAM NORRIS CORNELL, a citizen of the United States, residing at Massena, in the county of Lawrence and State of New York, have invented certain new and useful Improvements in Apparatus for Making Imitation Wood, of which the following is a specification, reference being had to the drawing accompanying and forming a part of the same.

In a prior patent, number 670,847, granted to me March 26, 1901, I have described and claimed an imitation wood, formed of a plurality of sheets or backings of pulp between which separate pieces of pulp are irregularly disposed. In the same patent I have described and claimed a method of producing this article, that is, of disposing the separate particles or pieces of pulp irregularly over the several sheets or backings, by means of a blast of air. This method serves admirably for producing the appearance of knots or burls, but I have found that the apparatus herein described gives a somewhat better imitation of such woods as mahogany, rosewood, quartered oak, and other woods in which there is a pronounced grain; or in general wherever the particles of pulp should be in the form of bands, in counter-distinction to particles whose length does not differ greatly from their width.

In carrying out my present invention, any suitable apparatus may be employed for making the film or sheet of pulp upon which the particles are to be deposited, as for example, a paper machine of the ordinary type, in which the film formed upon a making cylinder is transferred to or picked up by a felt apron passing over and in engagement therewith. Upon the film carried by this apron or belt the pulp which is to produce the effect of the grain of the wood is deposited in the form of threads or strings, of any desired thickness, depending upon the effect desired, the said strings or threads of pulp being preferably given a sinuous or wavy form as they are deposited upon the sheet, thereby imitating the natural irregularities of the grain. To produce this latter effect, the devices by which the strings or threads are produced and deposited upon the pulp are given an oscillating or vibratory movement transverse to the movement of the pulp, thereby causing the threads or strings to assume a sinuous form, as will be readily understood. Various means may be provided for forming the

pulp strings or threads, but the method which I prefer is to extrude the same through narrow apertures, as will be more fully explained hereinafter.

Referring now to the annexed drawings for a more detailed explanation of my invention, Figure 1 shows the preferred embodiment of the same in longitudinal section. Fig. 2 is a front elevation of the devices for extruding the strings of pulp, showing also a simple mechanism for vibrating the same across the film of pulp on which the said strings or threads are to be deposited. Fig. 3 is a sectional detailed view showing one of the devices for extruding the pulp threads or strings. Fig. 4 shows several varieties of driving gears for the extruding machine for the purpose of producing strings or bands of different lengths.

Referring now more particular to Fig. 1, 1 indicates the vat or tank of a well known type of paper machine. 2 is the making roll, revolving in the direction of the arrow and carrying up on its surface a film of pulp which is received by a felt apron or band 3 passing over a couch roll 4 and through the usual pressure rolls 5, 6. At a convenient position above the apron 3 is a supporting member 7, preferably in the form of a platform mounted to slide in suitable guides, as for example those indicated at 8 and 9. Mounted on the platform 7 is a plurality of extruding machines, 10, shown more clearly in Fig. 2, adapted to extrude the pulp in the form of strings or narrow bands, one of which is shown for example at 11. These machines are connected with a pipe 12 by means of flexible pipes 13, so that the machines may be freely vibrated across the apron without disconnecting them from the pipe 12, as will be readily understood. The pipe 12 is connected with any suitable source of pulp, not shown, so that the extruding machines may be continuously supplied with material. Any suitable means may be provided for vibrating or oscillating the platform or support which carries the extruding machines. A simple and convenient mechanism for this purpose is the eccentric construction shown in Fig. 2. The guides or supports 8, 9 for the platform may be held in position above the apron by standards 14, 15, bolted to the sides of the tank or vat 1.

The construction of the extruding machines which I prefer to employ is illustrated in Fig. 3. Each machine consists of a con-

ical outer casing 16, containing a screw or worm 17 of similar form, carrying a shaft 18 extending through the cap 19 on the rear end of the device. The casing is also provided
 5 with a nipple 20, constituting a supply opening to which the flexible pipes 13 are connected. For the purpose of rotating the screw 17, and thereby forcing the pulp out of the narrow aperture 21, the shaft of each
 10 screw or worm may be provided with a bevel gear as 22, Fig. 1, meshing with bevel gears at 23, on a shaft 24 arranged adjacent to the gears first mentioned. Any suitable means may be provided for rotating the said shaft
 15 and at the same time permit the same to move with the platform 7 without disengaging the various bevel gears, but this is a mere mechanical detail which may be supplied by any one skilled in the art and therefore need
 20 not be specifically illustrated herein.

From the foregoing description, the operation of the apparatus will now be readily understood: The platform 7 being oscillated or vibrated transversely to the apron 3, as before described, the streams of pulp extruded by the machines 10 will fall upon the film of pulp in wavy or sinuous form, and when the plurality of similarly treated sheets or layers of pulp are united, the surface of the finished
 25 product will be covered very closely by the strings or threads of pulp thus deposited thereon. The effect is a very close imitation of the natural grain of the wood, especially if, where necessary, the shade or tint of the extruded strings be slightly different from that of the sheet upon which they are placed. If
 30 it is desired that the streams be deposited in longer or shorter lengths as opposed to continuous bands the full length of the sheet, the extrusion of the streams may be made intermittent, so that the advancing sheet of pulp, or the weight of the stream itself, will cause the same to be detached from the extruding machine. For this purpose, one or more or
 35 all of the driving gears on the shaft 24 may be of the so-called "mutilated" type that is, may have their teeth omitted for a greater or less extent of the periphery as shown in Fig. 4. It will of course be seen that for a portion
 40 of their rotation these gears will not engage the gears on their respective machines, and hence the latter for such periods will not be actuated.

The apparatus herein described is of course
 45 only one of the many embodiments of which my invention is capable and I therefore do not consider myself limited thereto; but

What I claim as my invention is:

1. In an apparatus of the kind described, the combination with a longitudinally moving band or apron adapted to carry a film or layer of pulp on its surface, of means for depositing a plurality of narrow strings or bands of pulp in sinuous form upon the layer of pulp thus carried, as set forth. 60 65

2. In an apparatus of the kind described, the combination with a longitudinally moving apron or carrier, of devices for extruding pulp in a plurality of strings or bands, said devices being arranged to discharge the said strings or bands upon a layer or film of pulp carried by said apron, and means for oscillating the extruding devices transversely to the apron or carrier, as set forth. 70 75

3. In an apparatus of the kind described, a device for extruding pulp in the form of a string or band comprising a conical outer casing, having a narrow discharge orifice, a conical screw or worm in the casing, and means for supplying pulp to the interior of the casing, as set forth. 80 85

4. In an apparatus of the kind described, the combination with a longitudinally moving band or apron adapted to carry a film or layer of pulp on its surface, of devices for extruding pulp in a plurality of bands or strips, said devices being arranged to discharge said strings or bands upon the layer or film of pulp carried by the apron, as set forth. 90 95

5. In an apparatus of the kind described, the combination with a longitudinally movable band or apron adapted to carry a film or layer of pulp on its surface; of a plurality of extruding devices, each comprising a conical casing having a discharge orifice at its smaller end, a conical worm or screw working in the casing, said devices being arranged to discharge upon the film or layer of pulp carried by the apron; and means for supplying pulp to the extruding devices; as set forth. 100 105

6. In an apparatus of the kind described, the combination with a longitudinally moving band or apron adapted to carry a film or layer of pulp on its surface, a plurality of devices for extruding pulp in bands or strings upon the film or layer carried by the apron, a support for the extruding devices, means for reciprocating said support transversely to the apron, and means for supplying pulp to the extruding devices, as set forth. 110 115

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Witnesses:

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