H. G. VINCKE & J. MIQUEL.

MANUFACTURE OF CORK FILM.

APPLICATION FILED JULY 21, 1911.

1,020,669. Patented Mar. 19, 1912.

Fig. 1.

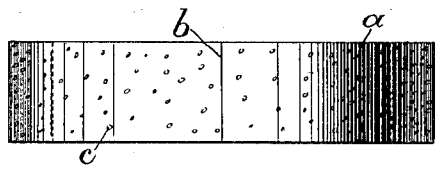


Fig. 2.

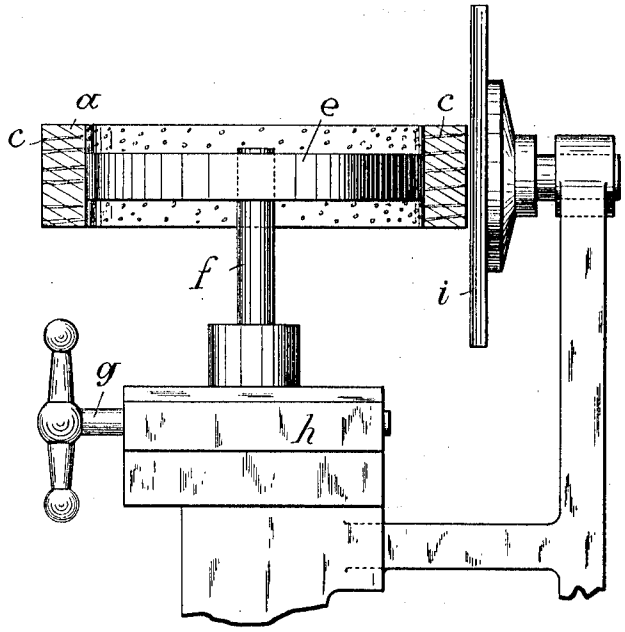
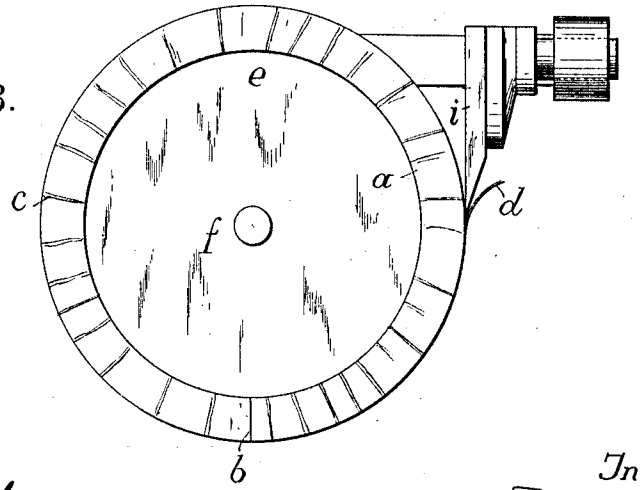


Fig. 3.



Witnesses.
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UNITED STATES PATENT OFFICE.

HEINRICH GERHARD VINCKE AND JUAN MIQUEL, OF SAN FELIU DE GUIXOLS, SPAIN.

MANUFACTURE OF CORK FILM.

1,020,669. Specification of Letters Patent. **Patented Mar. 19, 1912.**

Application filed July 21, 1911. Serial No. 639,785.

To all whom it may concern:

Be it known that we, HEINRICH GERHARD VINCKE, a subject of the Emperor of Germany, and JUAN MIQUEL, a subject of the King of Spain, both residing at San Feliu de Guixols, Catalonia, in the Kingdom of Spain, have invented certain new and useful Improvements in Manufacture of Cork Film, of which the following is a specification.

Apart from artificial cork film the manufacture of cork film has heretofore generally been carried out in the following manner: Good selected pieces of cork bark are cut by means of suitable machinery into thin cork sheets generally from $\frac{1}{16}$th to $\frac{3}{16}$ths of a millimeter in thickness. The cut is made perpendicularly to the pores and therefore more or less parallel with the lines which indicate the separate year's growth in the bark.

Owing to the nature of cork bark, the size of the utilizable pieces is very limited because it is difficult to obtain good pieces of greater width than approximately a hand span and from 2 to 3 hand spans in length.

For many purposes, among others for the manufacture of cork tubes or sockets such as are used for the mouthpieces of cork-tipped cigarettes, it has been found to be desirable to use the cork film in endless rolls. With this object the leaves of cork film cut from the pieces of cork are stuck together at their ends or short sides in such a manner that the edge of one sheet overlaps the edge of the other sheet to the extent of approximately 1 millimeter. The endless band thus obtained of course presents the defect that the cork film is of double thickness at the joint. In order to obviate this defect and for many other reasons the endless cork film is also prepared by sticking the sheets of cork film cut from the pieces of cork separately side by side on a strip of tissue paper unwound from a roller. Both of these methods of manufacturing endless cork film are tedious and expensive but they are as far as we are aware the only methods that have heretofore been employed in practice.

It is true that attempts have been made to manufacture the endless cork film by first of all preparing a cylindrical piece of cork from good selected cork wood (and also by sticking together a number of pieces and plates of cork to form a block in such a manner as to obtain a larger cylindrical piece of cork) and then while this cylinder is slowly rotating about its axis to cut it into an endless band by means of a suitable cutting device. No matter how well the cylindrical piece of cork may be selected, however or how carefully the pieces may be formed into a block, it is hardly possible for the cut to be at right angles to all the cork pore passages and a low grade product results which is hardly worth considering for practical purposes.

Now the present method of manufacturing endless cork film has for its object to insure that the cut shall be effected perpendicularly to the pore passages in the cork wood.

Reference is to be had to the accompanying drawings, in which—

Figure 1 is an elevation of a piece of cork bent into a hoop from which a cork film is to be cut; Fig. 2 is an elevation and Fig. 3 a plan view of a machine for cutting the hoops into a film.

The method of forming a film in accordance with the invention is as follows: A piece of cork bark of the greatest available length and of good selected quality is cut in the longitudinal direction into strips and one of the strips is gradually bent to form a hoop *a* (see the accompanying drawing) in which the hoop *a* is shown in Fig. 1 in side elevation, in Fig. 2 in section and Fig. 3 in plan. This bending is preferably effected with the bark side inward so that the outer periphery of the hoop is formed by what is called the belly side of the cork wood. It is of course possible to form the hoop in the reverse manner so that the hard outer bark forms the periphery. In both cases it is desirable however first of all to free the cork strips from the hard outer bark. In many cases it is also advantageous to increase the pliability of the cork strip by softening it in cold, warm or boiling water or by treating it with steam. Treatment with glycerin and similar substances also increases the pliability. The two ends of the cork hoop *a* are stuck at *b* with a soft but waterproof cement preferably of the same color as the cork wood with or without the employment of pressure. As shown in the drawing the pore passages *c* pass through the continuous cork hoop in the radial direction. After drying the cork hoop is clamped around a suitable support

such as a cylinder, disk or the like which is rotated, the cork hoop being caused to rotate in contact with a knife arranged parallel with the axis of the hoop while its support is constantly fed forward; this knife shaves a thin cork strip *d* (Fig. 3) from the hoop with a cut perpendicular or at right angles to the pore passages until finally the entire cork hoop is divided from the exterior to the interior into a single continuous cork strip of the same width as the hoop which is wound into a roll. Owing to the fact that the cut has been effected perpendicularly to the pore passages, all the pores in this cork strip form small round holes so that the strip will not break or tear under normal conditions. The cemented parts of the cork strip also adhere well together.

A constructional form of an apparatus for cutting up a cork strip is diagrammatically illustrated by way of example in the accompanying drawing.

The disk *e* carrying the cork hoop *a* is mounted on a shaft *f* which is journaled in a slide-block *h* displaceable by means of a screw spindle *g*. On a level with the disk *e* and of the cork hoop *a* a knife *i* is arranged in the direction of the movement of the slide block and of the shaft *f* so that the cutting edge of this knife runs parallel with the shaft. Now if the cork hoop is caused to rotate against the knife while being constantly fed forward the knife will continuously shave from the hoop an extremely thin continuous shaving of cork until the thickness of the hoop has been exhausted.

Instead of forming a single strip of cork into a hoop a number of cork strips can be stuck together both in the direction of their length and width with the waterproof cement already referred to and bent into a hoop as already described. As far as possible the pieces of cork of which a hoop is composed should be cut from one and the same sheet of cork so as to obtain material which is as homogeneous as possible.

What we claim and desire to secure by Letters Patent of the United States is:—

The method of manufacturing cork film which consists in bending a strip of cork bark to form a closed hoop, uniting the ends of said strip with cement, rotating said hoop by means of a suitable support, the periphery of the hoop being in contact with a stationary knife, and imparting a feed motion to said support, so that a cut is effected substantially at right angles to the pore passages and a continuous band of cork film is obtained.

In testimony whereof we affix our signatures in presence of two witnesses.

HEINRICH GERHARD VINCKE.
JUAN MIQUEL.

Witnesses:
HARRY A. MCBRIDE,
EDWIN NEINLAM.