Feb. 6, 1923. 1,444,217.

S. SPARKS.

METHOD OF MAKING OILED PAPER.

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Fig. 1

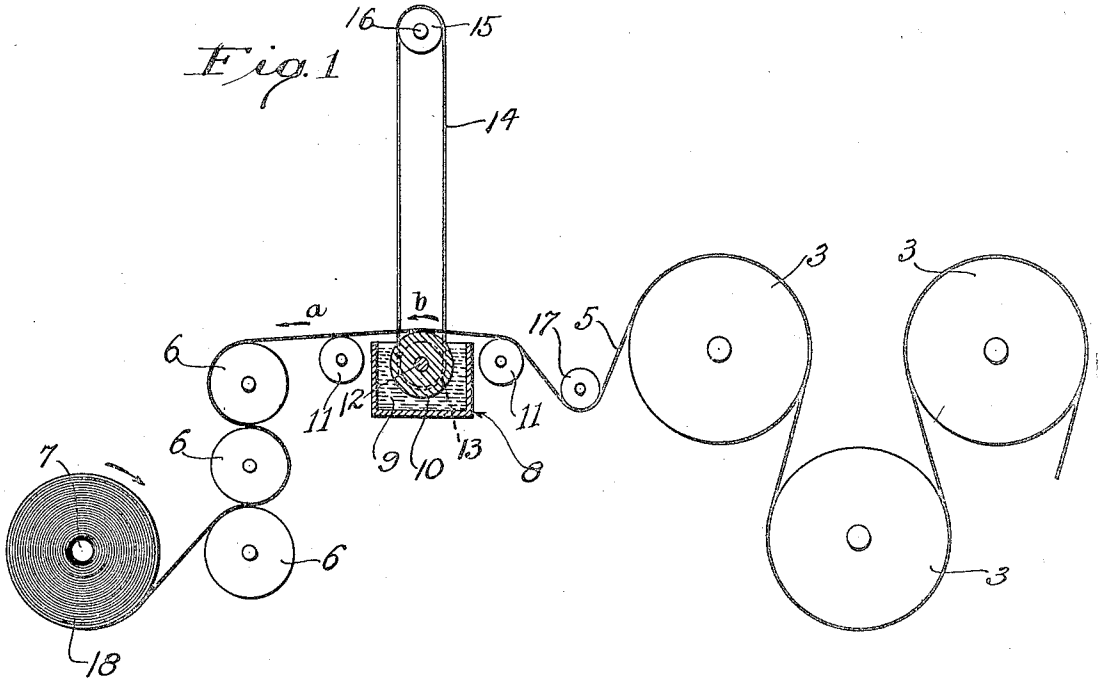
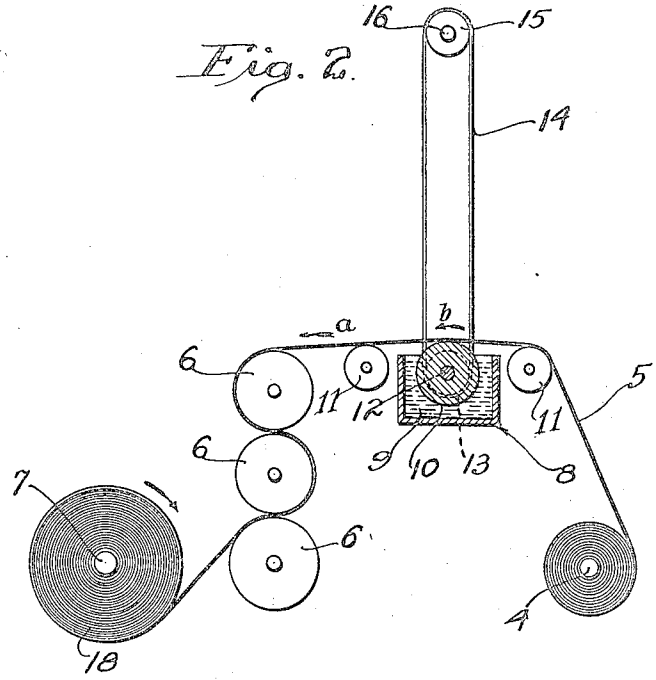


Fig. 2.



Inventor
Samuel Sparks

By Lyon & Lyon Attys.

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UNITED STATES PATENT OFFICE.

SAMUEL SPARKS, OF LOS ANGELES, CALIFORNIA.

METHOD OF MAKING OILED PAPER.

Application filed October 10, 1921. Serial No. 506,574.

To all whom it may concern:

Be it known that I, SAMUEL SPARKS, a citizen of the United States, and a resident of Los Angeles, in the county of Los Angeles and State of California, have invented certain new and useful Improvements in Methods of Making Oiled Paper, of which the following is a specification.

In the fruit packing industry it has become customary to wrap the fruit in paper so as to better preserve it, and it has been discovered that if fruit be wrapped in oiled paper the fruit will be preserved longer than if the paper is unoiled. Heretofore it has been difficult to apply the oil to the paper evenly and in sufficiently small amounts so that the paper will not be objectionably oily. By this method I am enabled to produce an oiled paper in which the oil is present in such small amounts that the oiled paper can hardly be distinguished from the same paper before oiling. In other words, there is merely a trace of oil in the paper, just a sufficient amount to be readily absorbed and held by the fiber of the paper. Not only does this method operate to apply a very slight amount of oil to the paper, but the oil is very uniformly distributed through the paper so as to avoid heavy oiling in some portions and no oiling in other portions.

Any suitable apparatus may be employed for performing the operations of the method, and the accompanying drawings illustrate two forms of apparatus which may be considered as typical only:

Figure 1 is a more or less diagrammatic view of an apparatus for performing the new method, a portion of the well-known Fourdrinier paper making machine being shown, together with an oiling device which is combined with said machine.

Figure 2 is a more or less diagrammatic elevation of a different form of apparatus for performing the new method, the drying rolls shown in Figure 1 being omitted and a reel being shown instead.

In Figure 1 of the drawings, I have shown several drying rolls 3 of a paper making machine of the Fourdrinier or any other suitable type. In Figure 2 I have shown a reel or spool of paper 4. In Figure 1 the strip 5 of paper is drawn from the drying rolls 3, and in Figure 2 said strip of paper is drawn from the roll 4.

In both views a series of cold rolls 6 is provided and adjacent them a reel or spool 7. It is understood that suitable power will be applied to turn the roll 3 and the reel 7 so as to draw the strip of paper 5 from the rolls 3 or 4, as the case may be. Rearwardly of the rolls 6 I provide a pan 8 in which is placed the oil 9 used in the oiling operation. This oil may be of any suitable kind, as, for example, that known to the trade as oronite crystal oil.

Mounted to rotate within the pan 9 is an oil-applying roller 10 which projects above the upper edge of the pan, and the strip 5 of paper rests upon said roller. Guide rollers 11 are preferably placed on opposite sides of the pan 8, the upper portions of said rollers 11 being somewhat below the level of the upper portion of the roller 10 so that contact of the roller 10 with the strip of paper is insured. The shaft 12 of the roller 10 is provided with a pulley 13 shown in dotted lines in the drawing. The pulley 13 is driven by a belt 14 which is driven in turn by a pulley 15 on a shaft 16. Any suitable power will be applied to turn the shaft 16.

Depending upon the amount of oil that is to be applied to the strip of paper, the roller 10 will be run faster or slower. It is preferable to have the peripheral speed of the roller 10 less than the speed of the strip of paper as it passes said roller. The less the peripheral speed of the roller 10 relative to the speed of the paper strip, the smaller will be the amount of oil transferred from the pan 9 by the roller 10 to the under-face of the paper. In Figure 1 the rolls 6 are to be considered as being the cold calender rolls of the paper making machine to which the drying rolls 3 also belong, and there is also shown a roller 17 interposed between the left hand roll 3 and the roller 11.

To perform the new method upon either of the apparatus above described, the strip of paper will be caused to travel in the direction of the arrow *a* and the roller 10 will be driven in the direction of the arrow *b*, preferably at a much slower peripheral speed than the speed of the paper strip. As the strip of paper runs over the face of the roller 10, it wipes the oil from that portion of the roller in contact with the paper and a comparatively slight amount of oil is more or less distributed upon the under-face of the paper strip. When the amount of oil applied to the paper is comparatively slight, as is preferable in practice, the oil is not applied absolutely evenly to the paper but runs

more or less in streaks, the amount of oil being insufficient to cover the strip as it is being applied. The strip thus oiled passes between the adjacent cold rolls 6, which function to still further distribute the oil over the under-face of the strip. In the apparatus shown in Figure 1, the rolls 6 also calender the paper.

From the rolls 6 the oiled strip passes to and is wound upon the reel 7 so as to form a roll 18 of oiled paper strip. This is one of the important operations of this method, since the paper strip is allowed to remain rolled for a sufficient length of time to permit the oil to become distributed evenly throughout the roll of paper. The pressure of the paper in the roll 18, together with the fact that the upper surface of the strip is brought into contact with the lower surface thereof, causes the oil to be distributed evenly over both surfaces and to permeate the fiber of the paper. The result is that if the roll 18 be allowed to stand for an interval of time, it will be found upon unrolling it that there is not enough oil upon the paper to be appreciable to the sense of touch, though there is sufficient oil within the fiber of the paper to retard decay of fruit wrapped in the paper. The length of time which I have found to be sufficient for allowing the paper to stand in the roll is from twenty-four to seventy-two hours. In this length of time the oil will diffuse so as to be substantially uniform in amount throughout the strip of paper.

After the roll 18 has stood for a sufficient length of time, it is taken to a sheet or roll cutting machine and cut and the cut paper packed in the manner at present employed for cutting and packing unoiled paper.

Though I have disclosed in the drawings and described two specific forms of apparatus for performing the method, it will be readily understood that the method can be performed with apparatus varying somewhat from those described. For example, it will be perfectly obvious, without further illustration, that the pan 8 and roller 10 may be interposed between any two of the drying rolls of a paper making machine, or that it may be interposed between the cold calender rolls of such machine and the reel 7. In other words, it does not matter so much whether the oil is applied to the strip at one point or another during its passage through the paper making machine, or at a point after the strip has left the paper making machine, but it is quite important that the strip, after the oil is applied, be formed into a roll, as above described, so that perfect diffusion of the oil will take place, in order that the comparatively small amount of oil that is applied to the strip may be absorbed evenly to such extent as to leave no noticeable trace thereof to the touch.

By preparing oiled paper by this method, the paper is highly useful in the packing of fruit and, heretofore, no satisfactory method has been found for producing such oiled paper.

If desired, the strip of paper after receiving the application of oil may be cut into sheets and the sheets placed in a pile so as to secure the same effect of oil diffusion and permeation as in the roll. In either event it will be readily understood that the paper after oiling is massed to secure the desired results.

I claim:

1. In the method of making oiled paper, the combination of steps consisting in applying oil to portions only of an uncalendered strip of paper, passing said paper between rolls to distribute the oil to unoiled portions of the paper, and then winding the strip into a roll.

2. In the method of making oiled paper, the combination of steps consisting in applying oil to a strip of paper in insufficient amount to cover the strip as it is being applied, and then winding the oiled strip into a roll to cause even distribution and permeation of the oil.

3. In the method of making oiled paper, the combination of steps consisting in applying oil to portions only of a strip of paper, and massing the paper thus oiled to effect diffusion and permeation of the oil.

Signed at Los Angeles, California, this 30th day of September, 1921.

SAMUEL SPARKS.

Witnesses:
GEORGE H. HILES,
L. BELLE WEAVER.