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P. J. CHRISTMAN, JR

APPARATUS FOR MAKING STRETCHABLE PAPER

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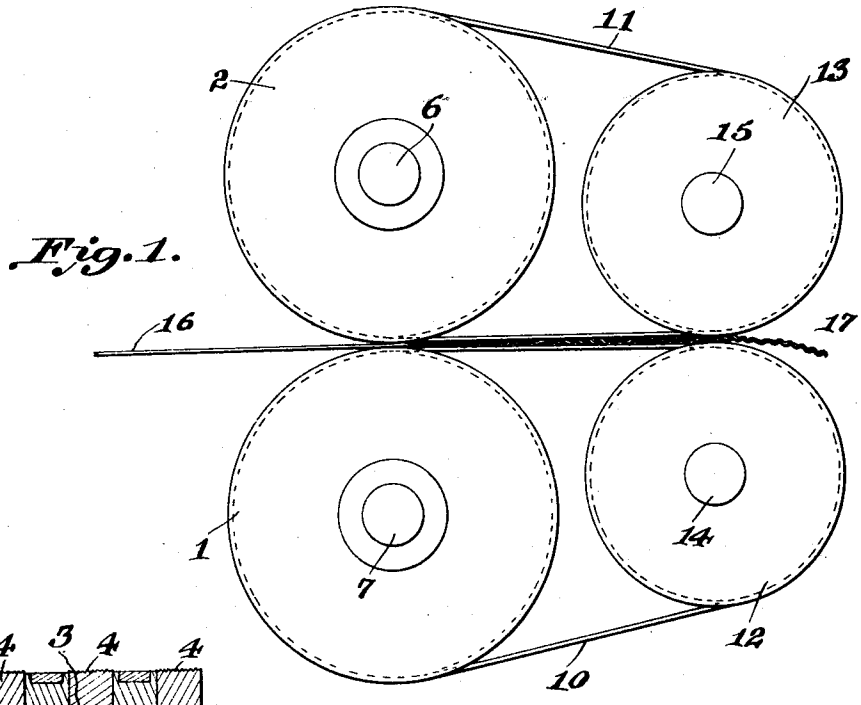


Fig. 1.

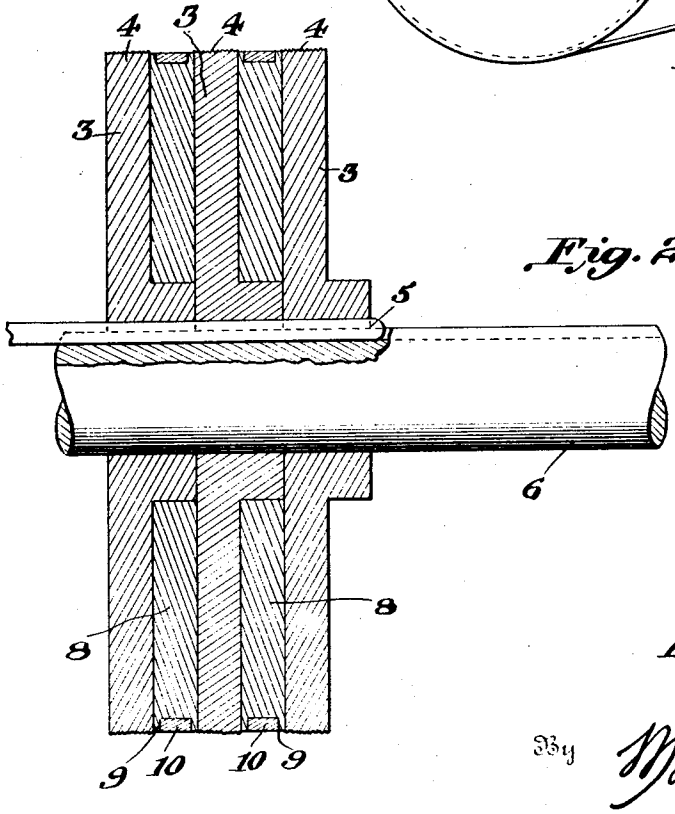


Fig. 2.

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UNITED STATES PATENT OFFICE.

PETER J. CHRISTMAN, JR., OF GREEN BAY, WISCONSIN.

APPARATUS FOR MAKING STRETCHABLE PAPER.

Application filed May 26, 1925. Serial No. 33,060.

To all whom it may concern:

Be it known that I, PETER J. CHRISTMAN, Jr., citizen of the United States, residing at Green Bay, in the county of Brown and State of Wisconsin, have invented certain new and useful Improvements in Apparatus for Making Stretchable Paper; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to an improved apparatus for the creping of paper. The particular object being to provide an apparatus by which the use of water and what is termed in the trade "doctor blade" becomes unnecessary, that is the apparatus herein described and claimed produces a stretchable paper without moistening a web by passing it through a bath of water as now the common practice in the art.

In the drawings:

Fig. 1 illustrates a view of the apparatus by which the creping of the paper is accomplished, showing the built up pinch rolls, guide rolls, and belts in assembled relation tc each other, as the paper passes therebetween.

Fig. 2 designates a sectional view of the built up roll, comprising a plurality of discs, every other one of them being keyed to the shaft, the other discs being idlers having grooves for belts, and the keyed discs being provided with suitable knurled or roughened surfaces.

Numerals 1 and 2 designate two rolls built up of a series of discs, every other disc 3 having a knurled or rough face 4, and being keyed as at 5 to shafts 6 and 7. The remaining discs 8 forming the built up rolls are idlers riding in suitably spaced distances between the keyed discs 3, and having grooves 9 adapted to receive endless belts 10, and the belts being preferably made of flat metal. At a suitable point in relation to the built up rolls are located a pair of guide rolls 12 and 13 mounted on shafts 14 and 15. The numeral 16 represents paper as it comes from a supply source preparatory to being received by the pinch rolls 1 and 2. The guide rolls 12 and 13, and idler discs 8 are adapted to travel at a slower speed than the keyed discs 3, thereby causing the paper 16 to crinkle as it passes the knurled faces 4, and is forced down between the belts 10 and 11. The crinkled portion is designated by the numeral 17.

Heretofore it has been common in the creping of paper to moisten a web by passing it through a bath of water, running it through a pair of press rolls composed of a rubber roll and a chilled steel roll, the moist paper having a tendency to stick to the chilled steel roll and by having the paper that adheres to the chilled steel roll run against a so-called "doctor blade", and crinkling or creping it in that way.

This process differs materially from the old process and is what may be called a dry creping method, no water or doctor blade being necessary. In the process of making this stretchable paper without moistening, two rolls are used which are built up of a series of discs of suitable width, and of any suitable diameter. Every other disc in these rolls is keyed to the shaft while every second one is an idler. The discs that are keyed to the shaft have a knurled or rough face while the discs that run idle have a belt groove on their faces. A roll is made up by first putting on one of the keyed discs and then placing next to it one of the idler discs and so on until the roll is completed. Directly below these built up rolls are located a pair of rolls grooved so that they may receive an endless belt which will go around these rolls and also around the idler discs which are grooved to receive the belt. The built up rolls are driven at a certain speed while the lower rolls on which the belts are guided run at a different speed. The two built up rolls are placed side by side and act as pincher rolls, the knurled surface discs meeting and acting as pincher or driving rolls. These rolls crowd the paper down into the channel which is made up of the belts, and on account of the fact that the belts are driving at a slower speed the paper is crinkled between the walls, and this method results in providing an even crinkled sheet as it emerges from the lower belt rolls.

I claim:—

1. A device for the creping of paper, having means for maintaining the paper uniform and under control at all times, consisting of built up crowding rolls on a shaft, having rolls keyed to the shaft, and rolls riding idle thereon between the keyed rolls.

2. A device for the creping of paper, having means for maintaining the paper uni-

form and under control at all times, consisting of built up crowding rolls having idler elements.

3. A device for the creping of paper, having means for maintaining the paper uniform and under control at all times, consisting of built up crowding rolls on a shaft having idler elements, the idler elements being provided with grooves adapted to receive an endless belt.

4. A device for the creping of paper, having means for maintaining the paper uniform and under control at all times, consisting of built up crowding rolls having idler elements, the idler elements being adapted to receive an endless belt.

In testimony whereof I affix my signature.

PETER J. CHRISTMAN, JR.