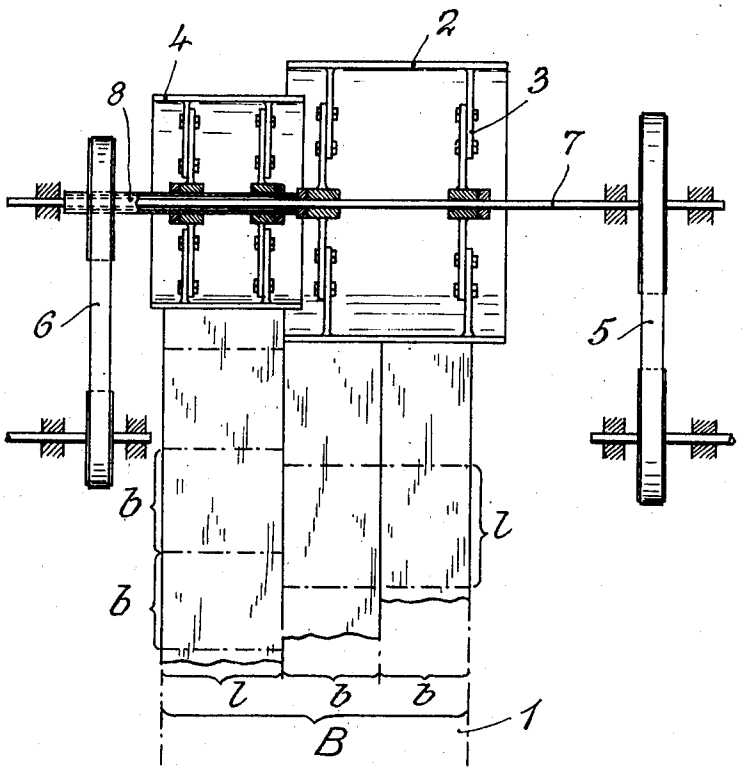
April 6, 1926. 1,579,786

A. E. RYBERG

CUTTING UP CONTINUOUS PAPER WEBS INTO SINGLE SHEETS

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UNITED STATES PATENT OFFICE.

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CUTTING UP CONTINUOUS PAPER WEBS INTO SINGLE SHEETS.

Application filed December 27, 1923. Serial No. 683,027.

To all whom it may concern:

Be it known that I, ANDERS EMIL RYBERG, a subject of the King of Norway, residing at Villa Maringo, Halden, Snaroen, near Christiania, Norway, have invented certain new and useful Improvements in Cutting Up Continuous Paper Webs into Single Sheets; 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, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

In the manufacture of paper in a continuous web which is to be cut into single sheets of determined size, it often happens that the breadth of the continuous paper web does not correspond to a whole multiple of the length or breadth of the separate sheets, and in order to utilize the continuous paper web economically, it is therefore often necessary to slit the web into ribbons of different breadths, some corresponding to the breadth and some to the length of the separate sheets.

Even in this manner it is, however, not possible to obtain an economic utilization of the paper web, if the cross-wise cutting of the web does not take place in such a manner that the ribbons, whose breadths are equal to the breadth of the sheets, are cut into lengths corresponding to a whole multiple of the length of the sheets, whereas the ribbons whose breadth correspond to the length of the sheets are cut into lengths corresponding to a whole multiple of the breadth of the sheets with the nearest approximation possible with regard to the varying length and the several windings of paper web on the reels.

The latter method is carried out according to the present invention in such a way that the paper web, after being slit to form ribbons of different breadths is wound on reels with different diameters adjusted to suit the dimensions of the sheets which correspond to the different breadths of the ribbons.

The several reel sections or reels are mounted on a main shaft and are driven independently of each other by means of a friction drive adapted to maintain a suitable tension of the web.

On the drawing is illustrated a form of the invention.

1 indicates the continuous paper web which is supposed to have a breadth B. This web is to be cut into single sheets having a breadth b and a length 1, it being supposed that $b+b+1=B$.

The most economic utilization of the paper web is then established by slitting the web to form two ribbons with the breadth b and one ribbon with the breadth 1, whereupon the two ribbons with the breadth b are cut into lengths corresponding with the best possible approximation to a whole multiple of 1, whereas the ribbon whose breadth is 1 is cut into lengths corresponding with the best possible approximation to a whole multiple of b.

In order to attain this object the two ribbons with breadth b are wound on a reel section 2 which is provided in the usual manner with adjustable spokes 3 and the circumference of which is so adjusted that the ribbons when cut up on this reel are obtained in lengths which give the least possible waste when cut crosswise into single sheets having the length 1.

In the same manner the ribbon having breadth 1 is wound on a second reel section 4, constructed in the same manner as reel section 2 and adjusted in accordance with the dimension b.

The reel sections or reels as indicated on the drawing are mounted co-axially and may be driven independently by means of a friction drive which is adapted to produce the necessary tension in the paper web. If only one length is required, the reel sections are coupled together and driven by means of one friction drive only.

On the drawing the friction drive is shown as a belt drive 5, 6, but it will be obvious that the drive may also consist of a turbine drive, electric drive or other driving means.

In the form of the invention illustrated on the drawing, one reel section 2 is mounted on shaft 7 which is driven by means of friction drive 5, whereas the other reel section 4 is mounted on a hollow shaft 8, enclosing shaft 7 and driven separately by means of friction drive 6.

It will, however, be obvious that this construction may be modified in many ways without departing from the spirit of the invention.

The reels illustrated on the drawing may

be substituted for the usual winding reels of the paper making machine, or they may be arranged separately, in which case the paper web is conducted from the ordinary winding reel or reels through the longitudinal cutting device to the separate reels in accordance with the present invention.

I claim as my invention:

1. In a method of cutting up a continuous web of paper into single sheets, the steps of slitting the continuous web longitudinally to form a plurality of separate ribbons, one or more of which have a breadth corresponding to the length of the single sheets, whereas the rest have a breadth corresponding to the breadth of the single sheets, and winding the several ribbons on separate reel sections or reels; the reel sections for the ribbons whose breadths correspond to the length of the sheets having their circumference adjusted to the closest possible approximation to a multiple of the breadth of the sheets, whereas the reel sections or reels for the ribbons whose breadths are equal to the breadth of the sheets have their circumference adjusted to the closest possible approximation to a multiple of the length of the sheets.

2. In a method of cutting up a continuous web of paper into single sheets, the steps of slitting the continuous web longitudinally to form a plurality of separate ribbons, one or more of which have a breadth corresponding to the length of the single sheets, whereas the rest have a breadth corresponding to the breadth of the single sheets, and winding the several ribbons on separate coaxially mounted and independently driven reel sections or reels; the reel sections for the ribbons whose breadths correspond to the length of the sheets having their circumference adjusted to the closest possible approximation to a multiple of the breadth of the sheets, whereas the reel sections or reels for the ribbons whose breadths are equal to the breadth of the sheets have their circumference adjusted to the closest possible approximation to a multiple of the length of the sheets.

In testimony that I claim the foregoing as my invention, I have signed my name.

ANDERS EMIL RYBERG.