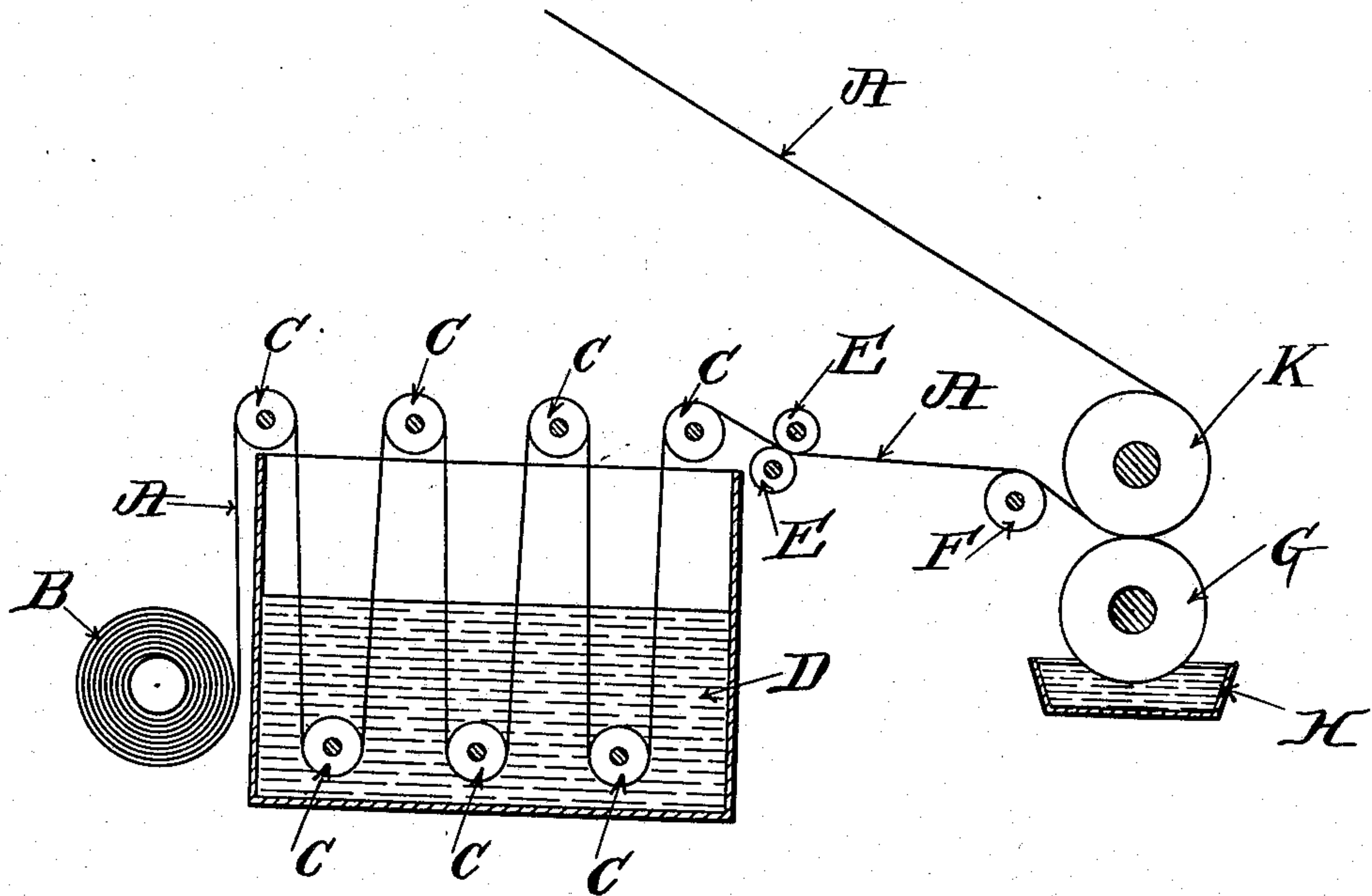


C. H. CROWELL.  
GUMMED PAPER.  
APPLICATION FILED NOV. 18, 1907.

930,648.

Patented Aug. 10, 1909.



Witnesses:  
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# UNITED STATES PATENT OFFICE.

CHARLES H. CROWELL, OF SWAMPSCOTT, MASSACHUSETTS.

## GUMMED PAPER.

No. 930,648.

Specification of Letters Patent.

Patented Aug. 10, 1909.

Application filed November 18, 1907. Serial No. 402,596.

*To all whom it may concern:*

Be it known that I, CHARLES H. CROWELL, citizen of the United States, residing at Swampscott, Essex county, State of Massachusetts, have invented a certain new and useful Improvement in Gummed Paper, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention has for its object to provide a gummed paper which shall not, in drying, or under the influence of changes in temperature or moisture, curl or roll up as does all gummed paper at present produced so far as known to me.

As is well known, gummed paper is a common article of manufacture and sale. It comprises paper having upon one side thereof an adhesive coating or layer composed of gum or the like. It is usually made in sheets or strips by coating one side of the paper with the gum or adhesive composition, the latter being applied moist and then allowed to dry. The paper thus produced may be handled, packed, shipped, stored, and used whenever desired, it being only necessary to moisten the gummed surface or coating before the paper is applied to use. A serious objection to this gummed paper, as at present made so far as known to me, is that it curls or rolls and will not remain in a flat, or substantially flat, condition. The curling or rolling is due to the drying and subsequent shrinkage of the adhesive layer, which as before stated, is applied in a moist condition to a sheet of dry paper, and is then allowed to dry. In the process of drying, the adhesive coating or gummed layer shrinks with the result that the paper is caused to curl or roll up. In using this paper, the fact that it is curled or rolled up, as above stated, very seriously interferes with its use for many purposes. It is apt to be cracked or impaired in being straightened out, and the straightening of it out and holding it in a straight or substantially flat condition while it is being moistened preparatory to use, not only interferes with the best results in its use, but requires a considerable expenditure of time on the part of the user which would not be required if the paper was flat and would remain flat. In other words, the fact that the paper is curled and twisted interferes with the character of the work, and the speed of the operator or user, to a very considerable extent, as will be clear.

The object of my present invention is to produce a gummed paper which shall not curl or twist, but which shall remain substantially flat and shall therefore be free from the objections above noted.

My invention will be readily understood from the following description taken in connection with the accompanying drawing and the novel features thereof are pointed out and clearly defined in the claims at the close of this specification.

In the accompanying drawing I have shown one embodiment of my invention.

In said drawing, the path of the paper A from the large roll or source of supply B is shown. The paper is guided by means of suitable guide rolls as C in the well known manner, so as to be immersed one or more times in the moistening bath D; thence it passes between suitable squeeze rolls E; thence by means of suitable guide rolls as F and K to a gum roll G working in the well known manner in a vessel H containing the adhesive mixture. From thence it passes to dry rolls, or other well known drying means. This arrangement is only one of many similar arrangements of rolls and baths and gum applying device which may be used in the production of my improved gummed paper. The paper should pass through the moistening bath a sufficient length of time before it reaches the point at which the adhesive is applied to permit the paper to become thoroughly moistened and to expand fully under the influence of the moisture. The paper thus moistened and expanded then has the adhesive coating applied thereto in the usual way by the well known means. After the adhesive is applied the still moist paper passes over the usual hot rolls or is otherwise properly dried in any well known manner. In this way the moist adhesive is applied to the moist paper and both the layer of adhesive and the layer of paper are dried together and so shrink uniformly and there is no tendency of the adhesive layer to cause the paper to curl or twist.

I have found in practice that simply moistening the paper thoroughly, applying the adhesive to the moist paper and then drying the whole gives satisfactory results and enables me to produce a gummed paper which will remain substantially flat. It may however be found in drying some kinds of paper and in using certain kinds of adhesive mixtures or compositions that for the best



results it would be desirable to modify the application of the moisture to the paper with a view to obtaining such a degree of moisture as will insure a substantially equal shrinkage of the paper and the gum layer.

I claim as my invention,—

1. The process of making dry gummed paper which consists in expanding dry, un-  
gummed paper by feeding the same contin-  
uously from the roll and passing it through  
a water bath and wetting the paper through-  
out the thickness thereof, then passing the  
wetted paper between squeezing rollers to  
expel surplus moisture and to leave the pa-  
per in a uniformly expanded and moistened  
condition throughout its thickness, then ap-  
plying to one side only of the paper thus wet-  
ted and expanded a liquid adhesive while the  
paper is still in its expanded and moistened  
condition throughout, then drying and  
shrinking simultaneously and uniformly both  
the paper and the adhesive thereon while the  
former is maintained stretched.

2. The process of making dry gummed pa-

per which consists in expanding dry, un-  
gummed paper by feeding the same contin-  
uously from the roll and passing it through  
a liquid bath and wetting the paper through-  
out the thickness thereof, then passing the  
wetted paper between squeezing rollers to  
expel surplus moisture and to leave the pa-  
per in a uniformly expanded and moistened  
condition throughout its thickness, then ap-  
plying to one side only of the paper thus wet-  
ted and expanded a liquid adhesive while the  
paper is still in its expanded and moistened  
condition throughout, then drying and  
shrinking simultaneously and uniformly  
both the paper and the adhesive thereon  
while the former is maintained stretched,  
and then running the dry gummed paper  
directly onto a roll.

In testimony whereof I affix my signature,  
in presence of two witnesses.

CHARLES H. CROWELL.

Witnesses:

WILLIAM A. MECLEOD,  
ALICE H. MORRISON.