

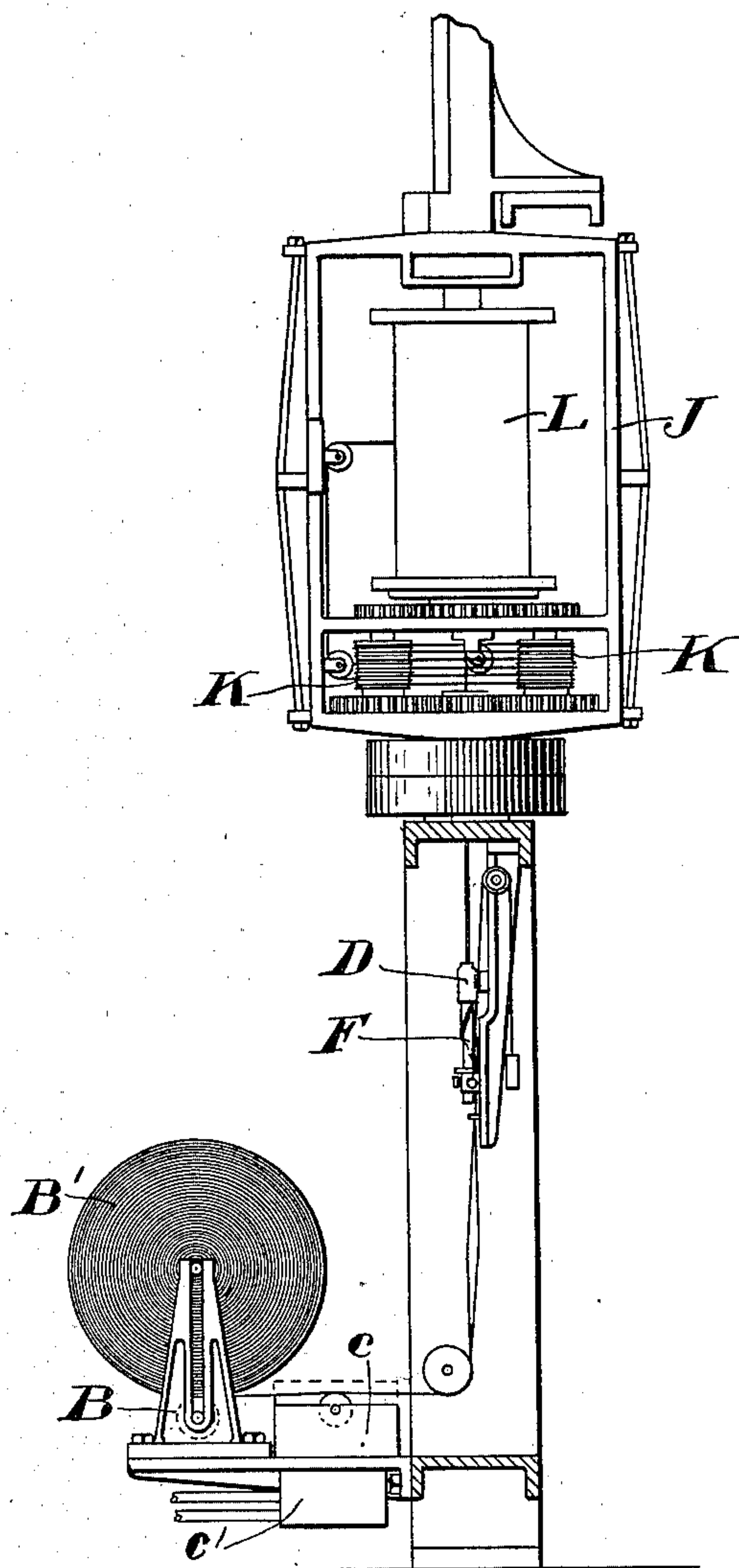
No. 731,714.

PATENTED JUNE 23, 1903.

F. J. SHAW.
PAPER REED.

APPLICATION FILED MAY 31, 1902.

NO MODEL.



Witnesses:
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UNITED STATES PATENT OFFICE.

FRANK J. SHAW, OF LEOMINSTER, MASSACHUSETTS.

PAPER REED.

SPECIFICATION forming part of Letters Patent No. 731,714, dated June 23, 1903.

Application filed May 31, 1902. Serial No. 109,609. (No specimens.)

To all whom it may concern:

Be it known that I, FRANK J. SHAW, a citizen of the United States, residing at Leominster, in the county of Worcester and State of Massachusetts, have invented an Improvement in Paper Reeds, of which the following description, in connection with the accompanying drawing, is a specification, like letters on the drawing representing like parts.

10 The object of my invention is to provide a paper reed—that is, a reed made from paper—as a substitute for the ordinary natural reeds commonly used in basket and chair work.

15 An objection to the natural reed is its liability to break or splinter easily, making it difficult to weave into the various forms of basket-work variously employed, for instance, in the basket bodies of baby-carriages, the ornamental decoration of chairs, and the like. The natural reed also is not of a uniform color and when woven in basket or ornamental work presents a lack of uniformity of color, which is objectionable from
25 the artistic standpoint.

My invention comprehends an improved twisted paper reed so treated with glue or stiffening substance as to give to the completed reed a degree of resilient stiffness necessary to enable it to be used in the weaving of basket and ornamental work, such as above referred to, yet which will not break or splinter while under manipulation.

35 In the accompanying drawing, illustrating diagrammatically one method of producing a reed involving my invention, there are shown the appliances necessary for applying the glue or stiffening material to the paper strip and thereafter for twisting the said strip into
40 the form of the completed reed.

Referring to the drawing, the strip or band of paper, preferably a low grade of Manila paper, is conveniently wound into the form of a coil B', carried by a holder B. The
45 strip or band is drawn from its coil during and by the twisting action and in passing to the twisting devices is acted upon by suitable devices, typified at c c', for applying liquid glue or suitable or equivalent stiffening substance to one or both sides or faces of the said strip. While it is possible to apply
50 the glue to both sides of the strip, yet be-

cause of the liability of thoroughly saturating the strip and rendering it thereby easily breakable when applied to both faces I prefer to apply the glue to one face only of the strip. After passing the glue-applying device or devices a strip is conducted to the spindle F, about which it is wrapped in a generally spiral tubular form, and is drawn upward
60 through the shell or die D, which crimps together the spiral tube and compresses the latter, after which it is subjected to a rapid and suitable twisting action due to the rapid rotation of the flier J, carrying the series of
65 pulleys or sheaves K K, about which the twisted reed is conducted, from which it is passed to and wound upon the spool L, mounted within the flier. The twisting of the spiral paper strip by the mechanism described preserves the cylindrical shape of the reed and
70 also increases its density or hardness, and the presence of the glue or stiffening substance twisted into the reed in a liquid or semi-liquid or soft condition and initially set in
75 and throughout the twisted reed furnishes to the complete reed upon the spool a degree of elasticity or resilient stiffness which is wholly absent in an article of this kind as heretofore made or attempted to be made.
80

I am aware that paper twine or string has been made in the manner above described excepting as to the application to the untwisted ribbon of glue or stiffening substance, and such string or twine to my knowledge
85 when completed has been passed through a size-box and a coating of size applied exteriorly thereto. A paper string or cord thus exteriorly sized lacks, however, the inherent resilient stiffness required by a reed for purposes of weaving and when bent or woven
90 lacks resilient stiffness enough to hold itself in position where woven—in fact, the little exterior stiffness applied to it is quickly lost by the flexing of the string or the exposure
95 thereof to dampness. A reed, on the other hand, must possess inherent elastic or resilient stiffness that will permit it to be worked like the natural reed and which will retain its resilient stiffness to the extent necessary
100 to enable it to remain of itself in the position in which it is woven, however open the mesh of the basket-work may be and however separate one reed may be from its neighbor.

By applying the glue or stiffening substance to the strip or band before twisting I insure the carrying of the glue or stiffening substance into the innermost parts of the reed. In fact, as the reed is fluted, compressed, and twisted it becomes thoroughly impregnated through and through with the glue or stiffening substance, which being initially set in the twisted reed gives to the latter an inherent elastic stiffness required for its purpose and wholly lacking in a paper twine or string.

By employing colored papers reeds may be produced of any desired coloring, thus giving to the basket-work a color effect suited to the taste of the weaver.

My improved reed is of course practically indestructible, since it cannot break or splinter, and, furthermore, by reason of its production from paper, the coloring of which may always be uniform, the color effect of basket-work produced with the paper reed is much more uniform and attractive than the same basket-work woven with the natural reed.

A paper reed possesses many important commercial advantages over the natural reed. For example, the natural reed deteriorates with age, breaking more easily the older it becomes, whether or not it is in actual use. Again, the natural reed is quite porous in its structure and ordinarily requires a coating or size of glue to fill the pores before the shellac, varnish, or finishing material is applied thereto, and it is recognized among those who handle natural reeds that the latter will break much more easily after having been coated with size or glue than before. The paper reed, on the other hand, is so thoroughly compact and condensed by the operation of twisting that it needs no filling whatsoever to support the finishing-coats of shellac or varnish, thus not only saving materially in the cost of finishing the paper-reed work, but retaining to the fullest the inherent and characteristic life and resiliency of the reed itself even after it is finished. The paper reed is much cheaper than the natural reed, present-

ing at the same time a superior effect in the work, thus making it a desirable reed to use.

In the above disclosure of my invention I have referred to the reed as formed from a single strip of paper. Obviously, however, if a single strip does not produce sufficient body for the reed, my invention comprehends the use of a plurality of strips which are twisted together to constitute the reed. In such event the stiffening substance might be applied to each separately or to the built-up band composed of the soft strips, the invention remaining the same whether one or more strips or bands are employed.

The drawing illustrates a machine of the type of that shown in United States Patent to Brownell, No. 551,615, December 19, 1895, to which reference may be had, if desired, for a more detailed description of its construction and operation. It is not deemed necessary herein to describe this or any machine more in detail, since any means whatsoever for applying the stiffening substance and twisting the paper strip may be employed.

My invention is not limited to the particular embodiment thereof or means for carrying it out hereinbefore described, but may be varied within the spirit and scope of the invention.

Having described my invention, and without limiting myself in the matter of details, what I claim, and desire to secure by Letters Patent, is—

A tightly-twisted paper reed having a stiffening substance twisted into and throughout the same to thoroughly impregnate said reed and permeating the interstices thereof, said stiffening substance being initially set in the twisted condition of the reed, whereby the entire reed is rendered a homogeneous, hard, resilient body.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FRANK J. SHAW.

Witnesses:

FREDERICK L. EMERY,
THOMAS B. BOOTH.