

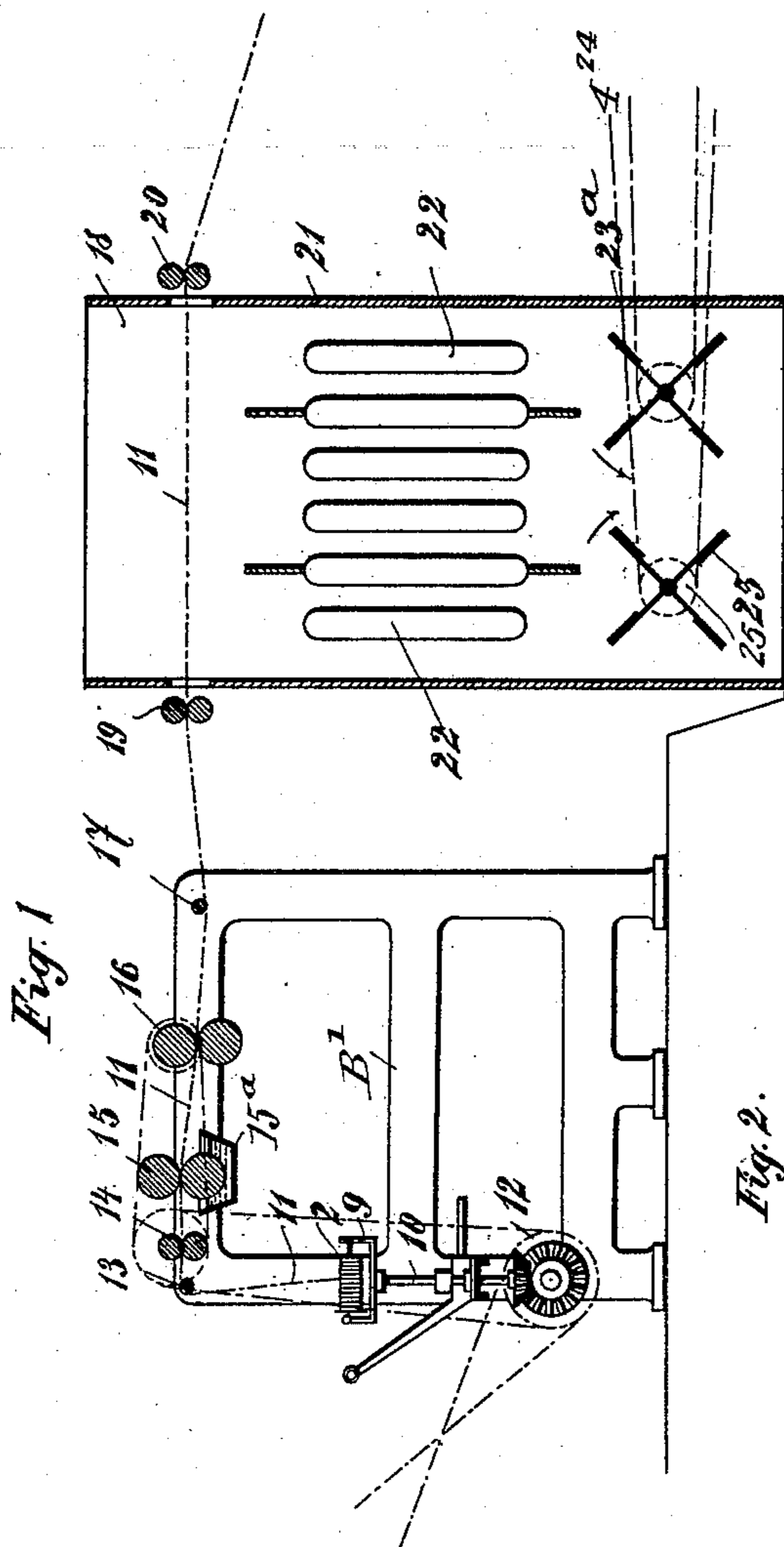
(No Model.)

E. CLAVIEZ.

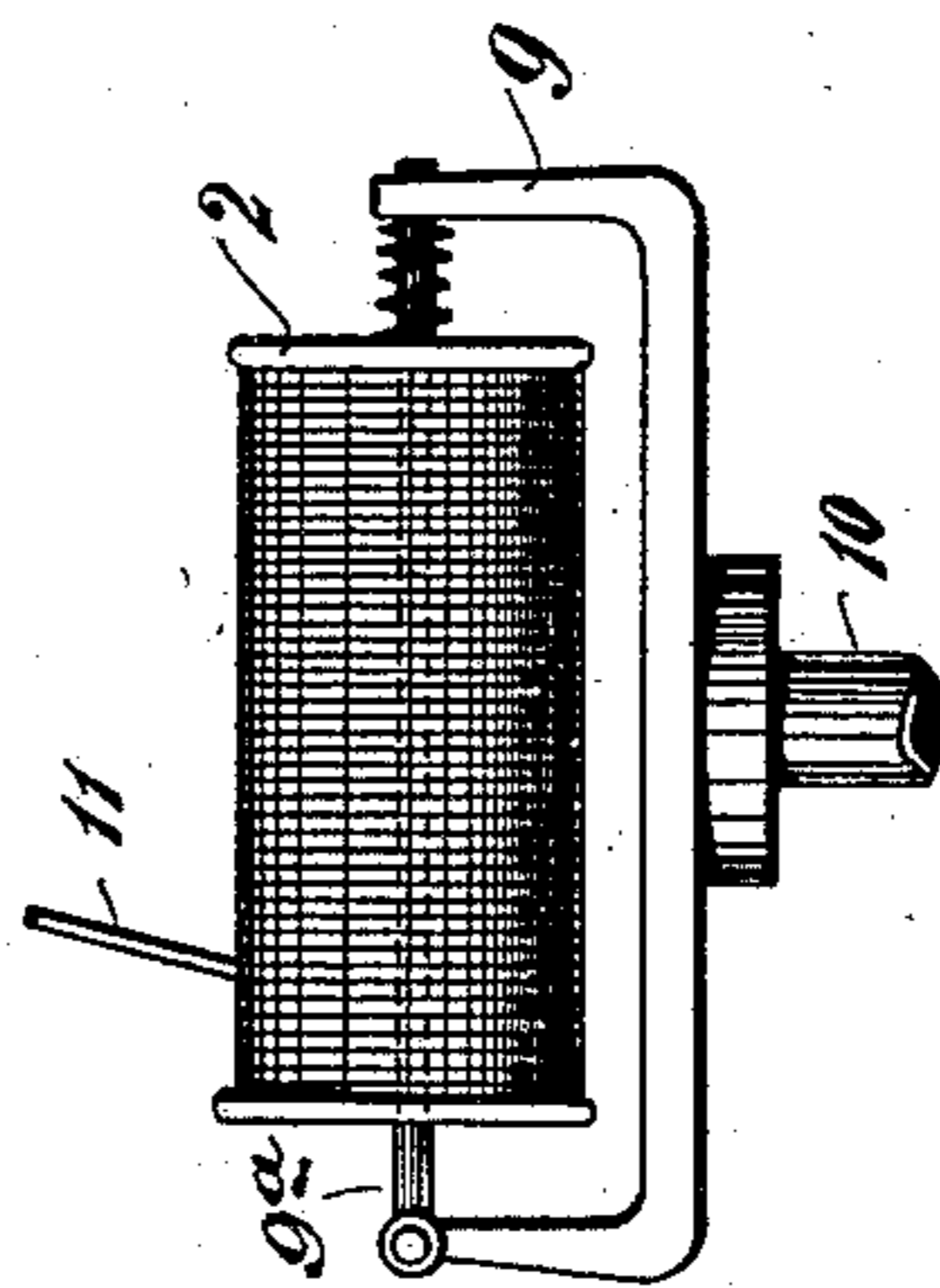
APPARATUS FOR MAKING YARN OR THREAD FROM PAPER.

No. 604,350.

Patented May 17, 1898.



*Fig. 2.*



WITNESSES:

*Attest*  
*George V. Jackson*

INVENTOR

*Emil Claviez*

BY *James H. Rogers*  
ATTORNEYS.

# UNITED STATES PATENT OFFICE.

EMIL CLAVIEZ, OF CHEMNITZ, GERMANY, ASSIGNOR TO THE KUNST-  
WEBEREI CLAVIEZ & COMPANY, OF LEIPSIC, GERMANY.

## APPARATUS FOR MAKING YARN OR THREAD FROM PAPER.

SPECIFICATION forming part of Letters Patent No. 604,350, dated May 17, 1898.

Application filed January 31, 1896. Serial No. 577,595. (No model.) Patented in Germany May 4, 1895, No. 93,324; in Austria December 13, 1895, No. 46/1,984; in England December 13, 1895, No. 23,942; in Hungary December 20, 1895, No. 5,692; in Belgium December 23, 1895, No. 118,993; in France January 3, 1896, No. 252,949; in Italy January 9, 1896, No. 40,565; in Sweden January 13, 1896, No. 7,932; in Norway January 14, 1896, No. 5,047; in Switzerland January 15, 1896, No. 11,830; in Spain January 18, 1896, No. 18,551; in Portugal January 18, 1896, No. 2,141; in Denmark January 20, 1896, No. 924; in Brazil April 6, 1896, No. 2,042; in India April 8, 1896, No. 126; in Luxemburg August 21, 1896, No. 2,593, and in Chile May 6, 1897, No. 779.

*To all whom it may concern:*

Be it known that I, EMIL CLAVIEZ, a citizen of the German Empire, residing at Chemnitz, in the Kingdom of Saxony and German  
5 Empire, have invented certain new and useful Improvements in Apparatus for Making Yarn or Thread from Paper, (for which I have obtained Letters Patent in Germany, No. 93,324, dated May 4, 1895; in France, No.  
10 252,949, dated January 3, 1896; in Austria, No. 46/1,984, dated December 13, 1895; in England, No. 23,942, dated December 13, 1895; in Hungary, No. 5,692, dated December 20, 1895; in Belgium, No. 118,993, dated December 23, 1895; in Italy, No. 40,565, dated January 9, 1896; in Sweden, No. 7,932, dated January 13, 1896; in Norway, No. 5,047, dated January 14, 1896; in Denmark, No. 924, dated January 20, 1896; in Spain, No. 18,551, dated  
20 January 18, 1896; in Portugal, No. 2,141, dated January 18, 1896; in Luxemburg, No. 2,593, dated August 21, 1896; in India, No. 126, dated April 8, 1896; in Brazil, No. 2,042, dated April 6, 1896; in Chile, No. 779, dated May 6, 1897, and in Switzerland, No. 11,830, dated January 15, 1896,) of which the following is a specification.

This invention relates to an apparatus for making yarn or thread from paper; and the  
30 object of the same is to produce a yarn or thread from paper strips without the use of vegetable fibers, which yarn or thread may be used in the same manner as any other yarn or thread which is made of wool, flax,  
35 hemp, or the like.

My invention consists of certain features of construction and combinations of parts to be hereinafter described and then claimed.

In the accompanying drawings, Figure 1 is  
40 a sectional side elevation of a drawing-frame and a drying apparatus with the twisting apparatus mounted on the drawing-frame. Fig. 2 is a detail view of the spinning apparatus.

45 Similar letters of reference indicate corresponding parts.

Preparatory to the practical use of my invention the paper strips from which the yarn or thread is to be made are produced in any  
50 suitable manner.

The yoke-shaped twisting apparatus consists of a twisting-frame 9, (see Fig. 2,) which is provided with a suitable spindle 9<sup>a</sup>, on which a spool 2 is placed, one end of said spindle being pivoted to one of the branches of  
55 the yoke, while the other end is detachable from the other branch of the yoke to facilitate the introduction and removal of the spool. The twisting-frame 9 is provided with a vertical shaft 10, which is journaled in suitable  
60 bearings in the frame B' of the drawing mechanism. The rotation of the shaft 10 and the consequent rotation of the twisting-frame 9 are accomplished through the medium of a  
65 suitable driving mechanism 12, whereby the necessary twist is imparted to the shreds or strips conducted from the spools. From the spools the twisted threads are drawn over a  
70 guide-roller 13 into the preliminary drawing-rolls 14, mounted in the upper part of the frame B'. By means of the preliminary drawing-rolls 14 the twist imparted to the shreds or strips 11 is rendered even. To the rear of  
75 the drawing-rolls 14 are mounted a pair of rolls 15, and to the rear of these are also mounted a pair of rolls 16, these latter rolls forming a portion of the drawing mechanism. The lower roll of the pair of rolls 15 dips into  
80 a fount or trough 15<sup>a</sup>, which is supplied with suitable chemicals which are applied to the shreds or strips drawn between the rolls 14 and 16, whereby the shreds or strips are im-  
85 pregnated with chemicals and a smooth appearance imparted to the surfaces of the shreds or strips. After the impregnation of the shreds or strips by the chemicals in the  
90 trough 15<sup>a</sup> they are again compressed between the drawing-rolls 16, the same being simultaneously stretched. The drawing or stretching is produced by reason of the fact that the  
95 second drawing-rolls 16 have a greater peripheral speed than the drawing-rolls 14.

To the rear of the drawing apparatus is arranged a drying apparatus 18, the threads produced by the drawing mechanism being led under a guide-roller 17, supported by the frame B', through a pair of guide-rollers 19, mounted in front of the drying apparatus, through the upper part of the latter, and finally out of the same between a pair of guide-rollers 20, from whence the threads are drawn in dry condition by a suitable winding-up mechanism which winds them into cops.

The drying apparatus 18 is provided at about its central portion with a suitable heater or radiator 22, arranged in its casing 21, and below the heater 22 are mounted two parallel exhaust-fans 23 23<sup>a</sup>. The object of the exhaust-fan is to set in motion the dry air in the drying apparatus and vibrate the threads, so that the drying process is facilitated.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

In apparatus for making yarn or thread from paper, mechanism for imparting a twist to the shreds of paper, a pair of rolls for pulling the twisted shreds from said mechanism, a pair of drawing-rolls, means for revolving the latter at a greater rate of speed than the pulling-rolls, mechanism for applying suitable size to the twisted shreds between the pulling-rolls and the drawing-rolls, a drying device, and means for conducting the threads from the drawing-rolls through the drying device, substantially as set forth.

EMIL CLAVIEZ.

Witnesses:

PAUL SCHULZ,  
LEO ROJOWSKI.