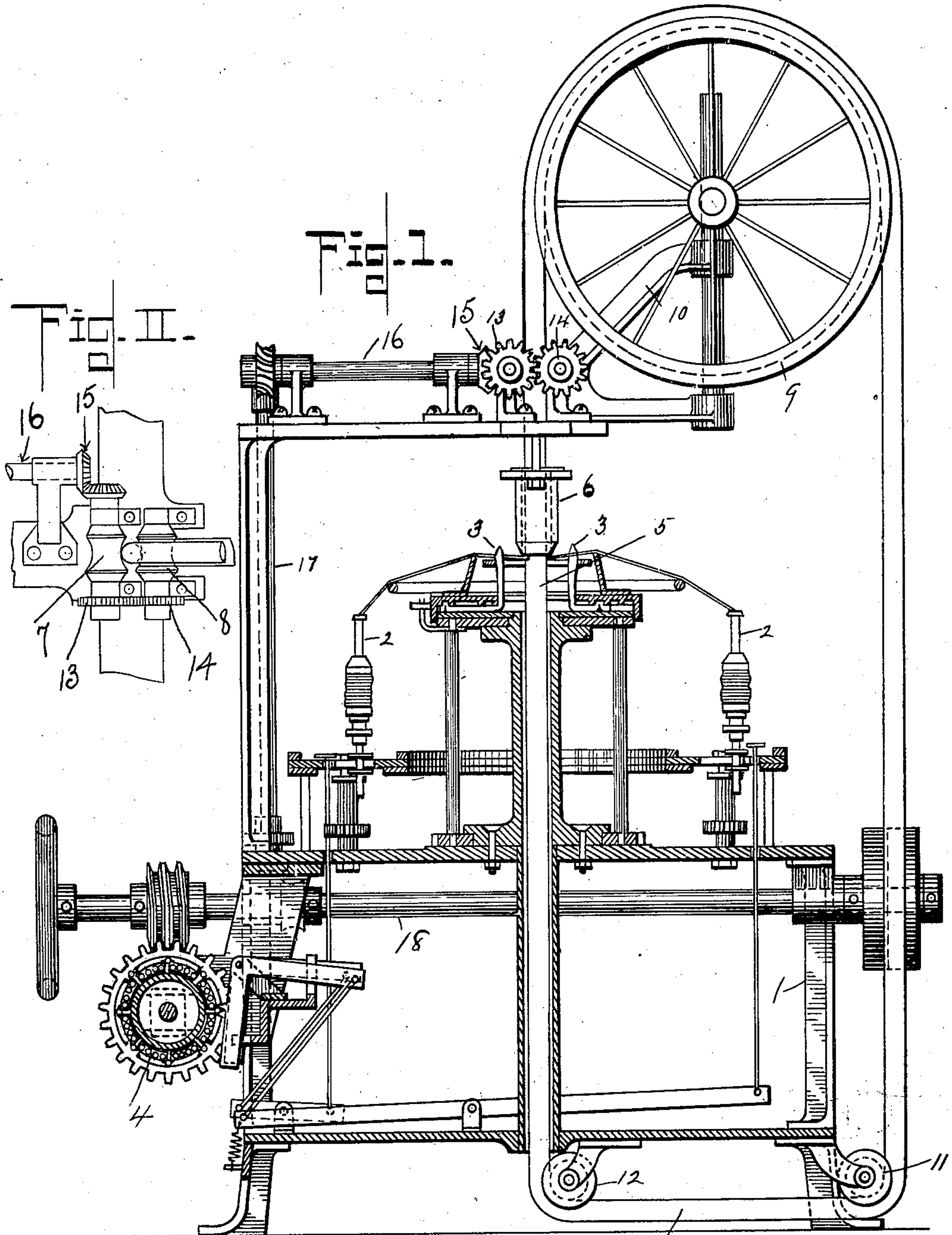


No. 861,703.

PATENTED JULY 30, 1907.

G. H. BLAKESLEY.  
LACE BRAIDING MACHINE.  
APPLICATION FILED APR. 5, 1905.



Witnesses.

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# UNITED STATES PATENT OFFICE.

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## LACE-BRAIDING MACHINE.

No. 861,703.

Specification of Letters Patent.

Patented July 30, 1907.

Application filed April 5, 1905. Serial No. 254,051.

*To all whom it may concern:*

Be it known that I, GILBERT H. BLAKESLEY, a citizen of the United States, residing at Bristol, in the county of Hartford and State of Connecticut, have  
5 invented certain new and useful Improvements in Lace-Braiding Machines; 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  
10 same.

The present invention relates to braiding machines and more particularly to braiding machines used for making lace and it has for its object to greatly improve the construction of such a machine whereby the lace  
15 as it passes from the machine will not be drawn and distorted and creased as is now the case with machines of this character.

In lace braiding machines as heretofore constructed the threads are laid about a core or mandrel which consists of a short cylinder fixedly supported in the machine and as the lace is formed it is drawn along this core or mandrel and off the upper  
20 end thereof by means of two rubber faced rollers between which the lace in flattened tubular form is passed and which by their rotation draw the lace from the core or mandrel and of course flatten the tube of  
25 lace as it passes between the rollers. The objections incident to such a construction are that the draft of the rollers on the lace has a tendency to draw and distort the threads and pattern of the lace and further the flattening of the tube of lace produces an objectionable mark or crease along the longitudinal central line of the lace strip which remains therein and is plainly visible after the false threads which unite the selvage  
30 edges of the lace strip have been removed and must be pressed out before the lace is placed upon the market.

These objections are obviated in my machine by the employment of a traveling core or mandrel which moves through the machine with the lace thereon as  
40 said lace is formed about said core or mandrel and from which it is removed by cutting the false threads at some convenient point in the path of movement of the core or mandrel without having been subjected to the pulling and flattening action of rollers and thus not  
45 drawn and distorted and having no objectionable crease or mark along its center.

To the above ends my present invention consists in the combination of the lace braiding instrumentalities and a traveling core or mandrel upon which the lace  
50 is formed.

It further consists of the combination of the lace braiding instrumentalities and an endless traveling core or mandrel, and further of the combination of the lace braiding instrumentalities and an endless travel-

ing flexible core or mandrel, and further, of the devices 55 and combinations of devices which will be hereinafter described and claimed.

The present invention is illustrated in the accompanying drawing which shows in Figure 1 a vertical section taken through a lace braiding machine and the 60 preferred form of my traveling core or mandrel and in Fig. 2 a top plan view of a portion of the mandrel feeding mechanism.

Similar reference characters will be employed throughout the specification and drawing to designate 65 corresponding parts.

The machine comprises a suitable frame 1, spindles 2, beaters 3, pattern mechanism 4, and suitable mechanism for driving the spindles and operating the beaters and pattern mechanism whereby the spindles with 70 their bobbins of thread are caused to move around the core or mandrel and to cross each other whereby the threads are crossed and recrossed as the beaters lay them upon the core or mandrel in producing the desired pattern of lace, all in a manner well known to 75 those skilled in this art, and as the particular form of lace braiding mechanism shown in and of itself forms no part of the present invention and may be of any usual or desired construction, it is deemed unnecessary to further refer to its construction or operation. 80

Coöperating with the lace braiding mechanism is a core or mandrel 5 which as the beaters 3 lay the threads upon it in making the lace travels upward with the lace thereon and carries with and upon it the completed lace. 85

As shown in the drawing the best form of the core or mandrel now known to me is endless and flexible and is preferably formed of a flexible rubber tube of suitable diameter and of such a length that when the ends are united it will pass up through the machine and 90 through the guide 6 thence between the grooved feeding rolls 7 and 8, thence over a guide wheel 9 mounted upon a bracket 10 secured to the frame work of the machine, thence over guide wheels 11 and 12 suitably mounted upon the frame work, all as clearly shown in 95 the drawing.

Any suitable mechanism may be employed to cause the core or mandrel to travel with the desired speed through the machine, that shown in the drawing comprising the two grooved feed rolls 7 and 8, which are 100 geared together to turn in opposite directions by the gears 13 and 14 and driven by a bevel gear 15 carried by a shaft 16 which is in turn driven by the shaft 17 geared thereto and driven from the main driving shaft 18 of the machine. 105

In operation the core or mandrel will be slowly moved upward through the center of the machine as the lace braiding mechanism forms the lace and at some suit-



able point in its travel the false threads usually braided in and connecting the selvage edges of the lace strip will be cut out and the lace strip removed from the core or mandrel without stopping the movement thereof.

- 5 I am aware that it has heretofore been proposed to equip a braiding machine having a fixed mandrel with a fabric carrier consisting of an endless split flexible tube or band which passes through a tubular guide which causes said tube or band to surround and embrace the fixed mandrel, and further that a plurality of flexible bands or strips have been also proposed as a fabric carrier in braiding machines used in connection with a fixed mandrel, but such machines are to be distinguished from my invention, in which there is no fixed mandrel but a traveling mandrel about which the lace is formed and upon which it is supported and carried from the braiding point to a point of ready removal. My invention is further to be distinguished from such as are here referred to in that such bands or split tubes when drawn from the fixed mandrel will collapse and thus permit a distortion of the braided fabric, whereas my mandrel affords a firm support for the lace or fabric. It has further been proposed to so construct a braiding machine that a covering may be braided upon an endless flexible cord or core, the machine being opened up to permit the placing of the endless cord or core in position and also to permit the removal of the cord or core after the covering has been braided thereon. This machine has no mandrel at all and if the cord or core can

be considered as a mandrel when in place it certainly is not like the present invention, a component part of the machine. In short I believe that I am the first to provide a braiding machine with a traveling core or mandrel which forms a component part of the machine.

Having described my invention I claim as new and desire to protect by Letters Patent of the United States:—

1. A braiding machine comprising braiding mechanism, a traveling mandrel forming a component part of the machine and means for moving said mandrel continuously in one direction, substantially as described.

2. A braiding machine comprising braiding mechanism, an endless traveling mandrel forming a component part of the machine and means to move said mandrel, substantially as described.

3. A braiding machine comprising braiding mechanism, a flexible traveling mandrel forming a component part of the machine and means to move said mandrel, substantially as described.

4. A braiding machine comprising braiding mechanism, an endless flexible traveling mandrel forming a component part of the machine and means to move said mandrel, substantially as described.

5. A braiding machine comprising braiding mechanism, a traveling mandrel consisting of an endless flexible tube and means to move said mandrel, substantially as described.

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

GILBERT H. BLAKESLEY.

Witnesses:

ROGER S. NEWELL,  
ALICE E. BROWN.