

H. J. QUAMBUSCH.
LACE BRAIDING MACHINE.
APPLICATION FILED APR. 12, 1910.

986,313.

Patented Mar. 7, 1911

2 SHEETS—SHEET 1.

Fig. 1.

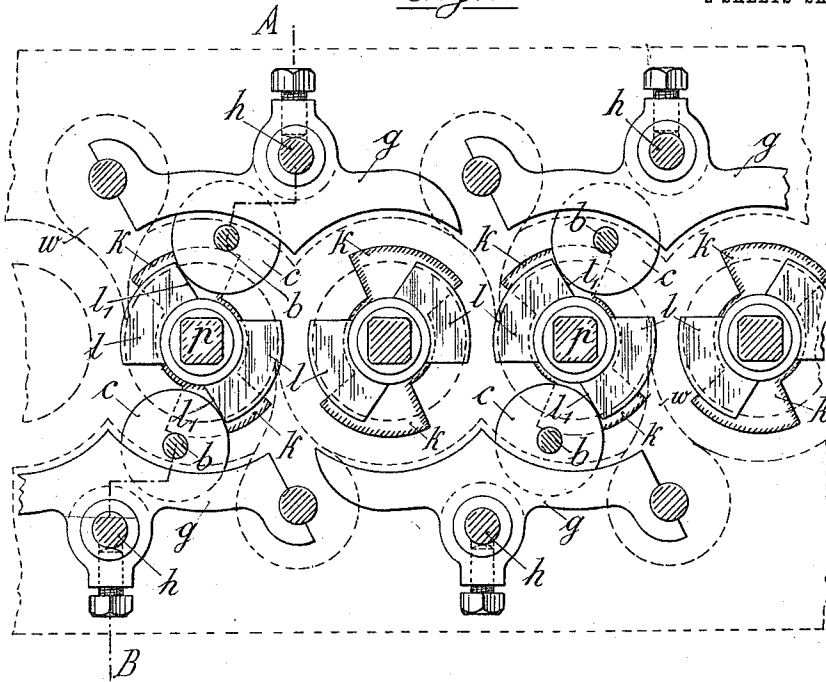
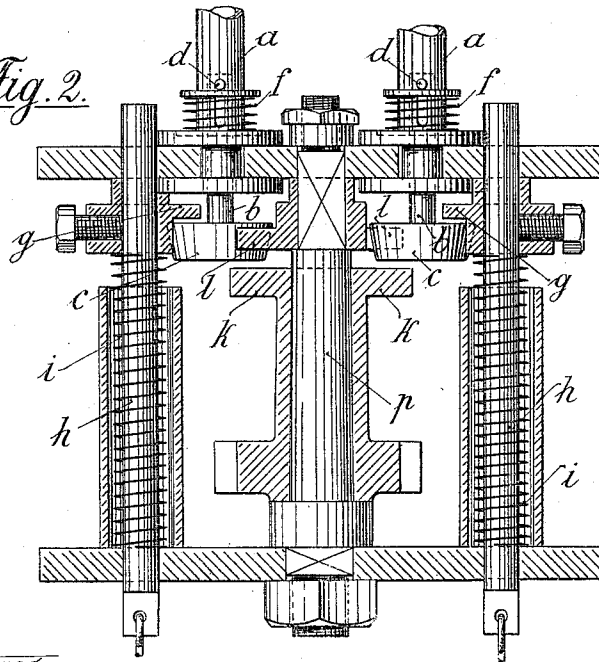


Fig. 2.



Witnesses:

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Otto König

Inventor:

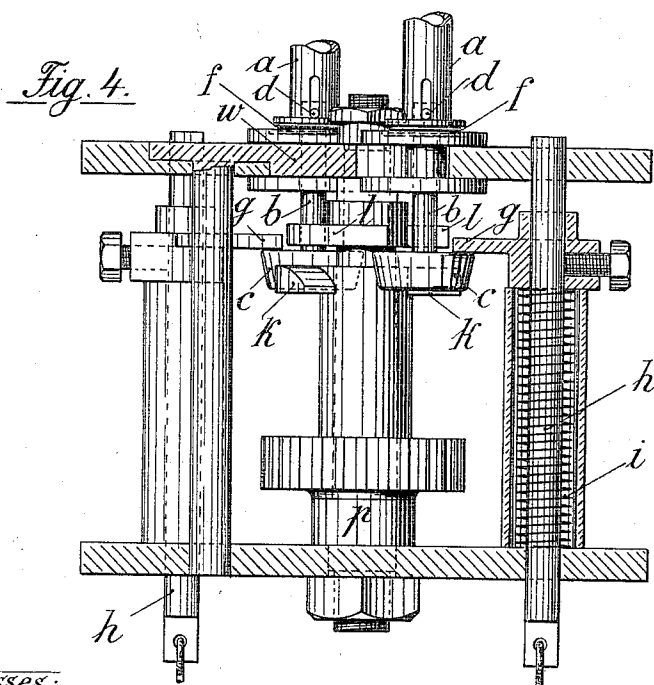
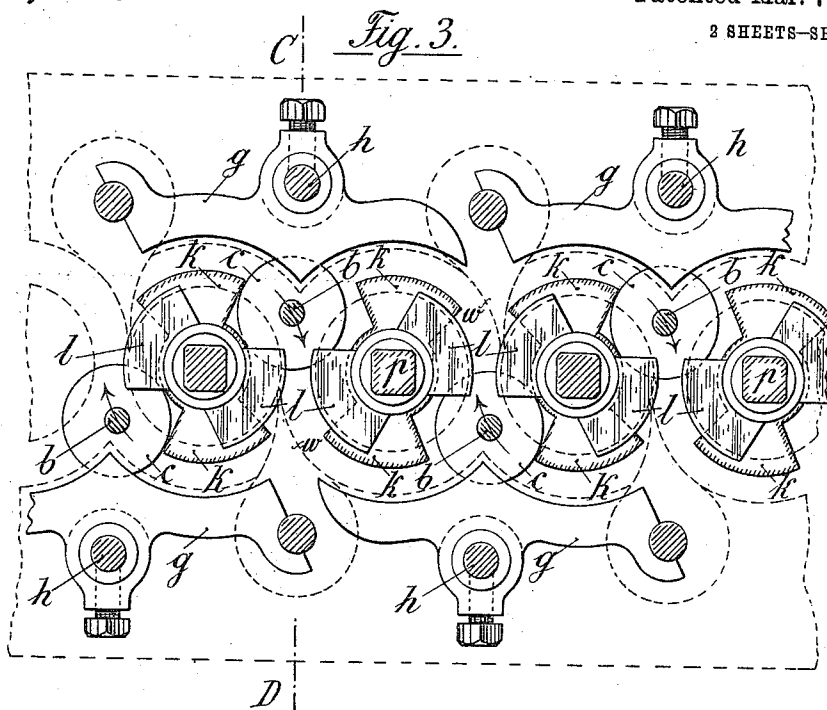
Herbert Julius Quambusch

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Chas. J. Wright
Otho König

Inventor:

Hermann Julius Quambusch.

UNITED STATES PATENT OFFICE.

HERMANN JULIUS QUAMBUSCH, OF NÄCHSTEBRECK, NEAR BARMEN-RITTERSHAUSEN,
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LACE-BRAIDING MACHINE.

986,313.

Specification of Letters Patent.

Patented Mar. 7, 1911.

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To all whom it may concern:

Be it known that I, HERMANN JULIUS QUAMBUSCH, a subject of the German Emperor, and residing at Nächstebreck, near Barmen-Rittershausen, Germany, have invented certain new and useful Improvements in Lace-Braiding Machines, of which the following is a specification.

My invention relates to lace-braiding machines for manufacturing lace which with regard to the manner in which the threads are interwoven or plaited is equal to lace made by hand, the patterns in the texture being produced by temporarily stopping individual bobbin-carriers. As is well-known, the threads of the stationary bobbins do not then participate in the plaiting of the working bobbins, *i. e.* the bobbins running in the bobbin-tracks, and according in each instance to the varying stoppage of different bobbins a different formation of mesh is brought about in the lace and with it a pattern. In order to be able to stop the bobbins each bobbin-carrier has been made heretofore in two parts, the bottom part, *i. e.* the driving pin, having been arranged movable vertically in the body of the bobbin-carrier carrying the bobbin, in order to place it within or out of reach of the drivers. This was done heretofore in such manner that, for stopping the bobbin-carrier by the draft of the jacquard pattern gear, the driving pin of the bobbin-carrier was lifted out of the drivers by means of guide rails which were located beside the bobbin-tracks under the top plate of the machine opposite the switches; when the guide rail returned into its bottom position, on the contrary, the driving pin moved into the track of the drivers and consequently the bobbin-carriers were driven. In this known form it is a defect that the driving pin has to be kept in its elevated position as long as the bobbin-carrier is to remain stationary, which necessitates special arrangements at the jacquard. Consequently the jacquard is more expensive to manufacture and the operation is more uncertain.

Now a primary object of my invention is to provide a device for stopping the bobbin-carriers of machines operating with two-part bobbin-carriers, the driving pin being raised and disengages from the drivers, while the bobbin-carrier is stationary, by a spring arranged on the pin, whereas the

draft of the jacquard pattern gear throws the pin into engagement and starts the bobbin-carrier working by means of the guide rail projecting over a head provided on the foot of the driving pin. In order that the driving pin shall not jump upward away from its driver while the bobbin-carrier which is in operation passes through the crossing of the bobbin-tracks I secure on the wheel pillars above the driver's slides, under which the head of the driving pin is held when it leaves the guide rail on the one side of the track in order to be received at the other side by the opposite guide rail.

One illustrative embodiment of my invention is represented by way of example in the accompanying drawings, wherein:— Figure 1 is a top plan view of part of a machine provided with my device, the top plate of the machine being indicated in dotted lines; Fig. 2 is a vertical section on the bent line A—B in Fig. 1; Fig. 3 is a top plan view corresponding to that shown in Fig. 1 with the bobbin-carriers in a different position, and Fig. 4 is a vertical section in the plane C—D in Fig. 3.

Referring to the drawing, the bobbin-carrier comprises, in known manner, a body or top part *a* provided with two small guiding flanges, and the driving pin *b* which is displaceable in a longitudinal bore in the top part and is provided with a head *c*. Opposite each switch *w* are two-armed, likewise well-known guide rails *g* extending as far as two plates or heads, the inner edges of which rails are shaped corresponding to the bobbin-track.

The driving pin *b* is guided by means of a transverse pin *d* in a short slot in the top part *a* and held in its elevated position by a spring *f*. The rails *g* are carried by bolts *h* and pressed by springs *i* into their highest position (Fig. 2). Now when, owing to the draft of the pattern gear or jacquard pattern gear, a rail *g* is moved downwardly, the driving pin of the head *c* is likewise drawn down and arrives into the plane of the drivers *k* (Fig. 4), in which position the bobbin-carriers are driven in the direction of the arrows shown in Fig. 3. The bobbin-carriers then remain in operation as long as the rails remain in their bottom position shown in Fig. 4 owing to the draft of the jacquard machine.

In order to prevent the driving pin of a

traveling bobbin-carrier being snapped upward out of reach of the drivers owing to the pressure of the spring *f* when passing the crossing and when changing over from one rail *g* to the opposite one I secure on each wheel pillar *p* non-revoluble slides *l*, under which the head *c* of the driving pin is pushed until the opposite guide rail receives it. By means of these sectorial slides I obtain the additional important result that the rails guiding the bobbin-carriers which are being operated can be released by the jacquard pattern gear as soon as the heads of the bobbin-carrier pins have passed under the slides and are consequently kept by these in engagement with the drivers. In this manner the change of direction of motion of the blades of the jacquard and a change in the adjustment of the hooks corresponding to the pattern of lace which is to be made can take place at the proper time and within a sufficiently long period, in which the bobbin-carriers run in definite parts of the bobbin-tracks. If a rail has arrived into its highest position owing to the draft of the jacquard leaving off, the driving pin held under the slide is brought into its elevated position by the spring *f* as soon as the edge of its head arrives at the edge *h* (Fig. 1) of the slide, and the bobbin-carrier will be stopped. The drivers *k* then

run freely under the head of the driving pin, as shown in Figs. 1 and 2. The head *c* of the driving pin is preferably mounted revolubly on the pin in order to obtain an easy motion and a small uniform amount of wear.

I claim:—

In a lace-braiding machine, the combination with a frame having bobbin-tracks and drivers arranged in the frame below the bobbin-tracks, of bobbin-carriers movable in the bobbin-tracks and each comprising a hollow top part and an upwardly spring-pressed headed bottom part movable in the latter, guide rails for coacting with the bottom parts of the bobbin-carriers and bringing the same into engagement with the drivers, and a fixed sectorial slide arranged above each driver for retaining the bottom parts of the bobbin-carriers in engagement with the drivers after one guide rail has released, and before another guide rail has coacted with the same, for the purpose specified.

In witness whereof I have hereunto set my hand in presence of two witnesses.

HERMANN JULIUS QUAMBUSCH. [L. s.]

Witnesses:

OTTO KÖNIG,
CHAS. J. WRIGHT.