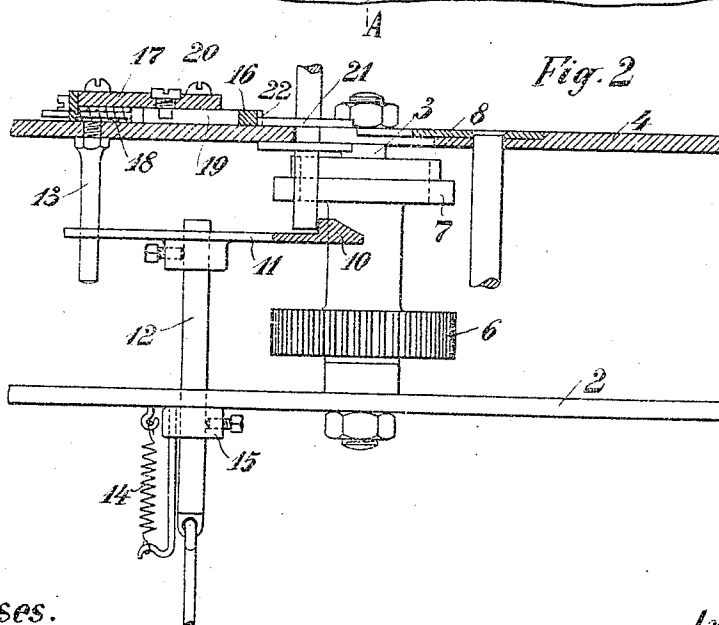
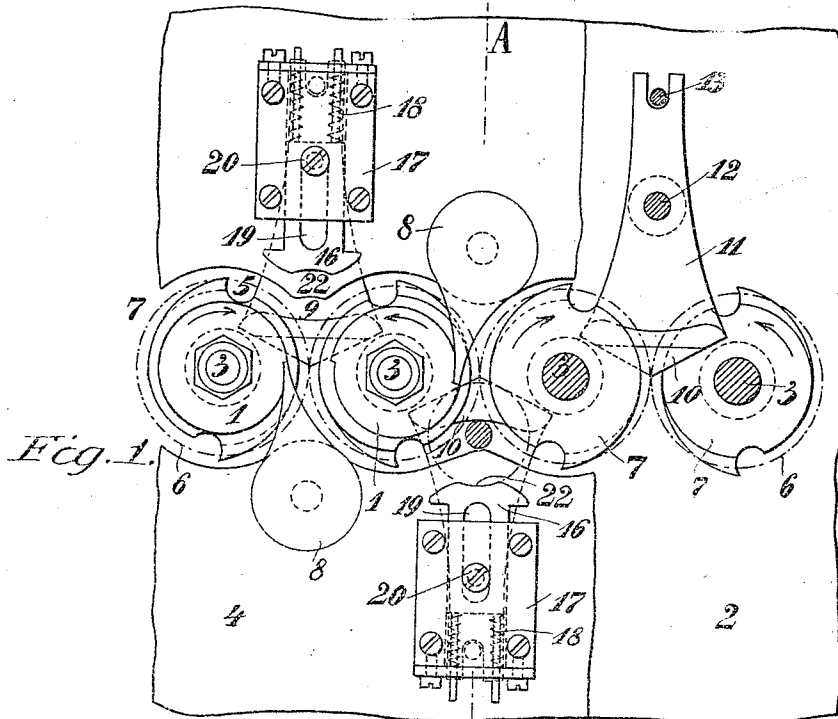


H. BUSCHER.
BRAIDING MACHINE.
APPLICATION FILED JULY 13, 1911.

1,011,913.

Patented Dec. 19, 1911.



Witnesses.
Albert F. Meyer.
Alfred Heinkel.

Inventor.
Hermann Buscher

UNITED STATES PATENT OFFICE.

HERMANN BUSCHER, OF LANGERFELD, NEAR BARMEN, GERMANY.

BRAIDING-MACHINE.

1,011,913.

Specification of Letters Patent.

Patented Dec. 19, 1911.

Application filed July 13, 1911. Serial No. 638,329.

To all whom it may concern:

Be it known that I, HERMANN BUSCHER, a citizen of the German Empire, residing at Langerfeld, near Barmen, in the Province of Westphalia, Kingdom of Prussia, Germany, have invented certain new and useful improvements in Braiding-Machines, of which the following is a specification.

There already exist well-known braiding machines in the case of which the bobbins can be arrested by being led across into a recess in the track by means of guide rails situated between the drivers, the securing of the bobbins in the disengaged position being effected with the aid of resilient abutments arranged opposite the guide rails, which abutments effect the reengagement of the bobbins after the guide rails have been lowered by shifting the bobbins within reach of special driving devices provided on the drivers. The forms in which these well-known machines have hitherto been constructed have not proved to be serviceable in practice because of the severe shocks which occurred on the reengagement of the bobbins and because the bobbins cracked and even broke in many instances, which is to be attributed to the recesses in which the bobbins were arrested being comparatively large, and to the bobbins after being released being thrown by the resilient abutments with a great velocity against the comparatively slowly rotating drivers by which they were then suddenly checked. The subject-matter of the present application is a new form of this well-known type of machine in which form the defects cited above are completely avoided. This is accomplished in particular by making as small as possible the recesses of the track which are formed by truncating or blunting off the points of the track plate, so that the bobbins are held just out of reach of the drivers and so that moreover the speed of the driver-wheels and the propelling force of the abutment-springs can be so regulated and said parts be brought into such cooperation with one another that the bobbins pushed forward by the abutments within reach of the drivers are moved on by said drivers without being brought to a standstill and with the velocity imparted to them by the abutments. In order that the arrested bobbins may be held with certainty out of the reach of the drivers in spite of

the smallness of the track recesses the resilient abutments possess a middle recess in their operative front edges into which recesses the upper guide disks of the bobbins enter so that the bobbins are thereby securely held.

One example of mechanism according to the present invention is illustrated, by way of example, in the accompanying drawing, in which:

Figure 1 is a part of a braiding machine in plan with a portion of the cover-plate removed, and Fig. 2 a section on the line A—A, Fig. 1.

1 are the plates supported by the pillars 3 mounted on the base-plate 2, which plates in combination with the track-plate 4 form the track 5. On the pillars the drivers 7 driven by the toothed wheels 6 are arranged which drivers in the case of the single-thread braiding-machine illustrated are provided in the usual manner with two blades or propellers in such a manner that the blades of two adjacent wheels lie in different planes and lap over one another. At the track crossing-places tongue-switches 8 are arranged in a well-known manner for the purpose of controlling the motion of the bobbins, said switches being operated either from the jacquard machine or in any other suitable manner. Opposite the tongue-switches 8 the point of the track-plate is blunted off for the purpose of forming a track-recess 9 in which the bobbins are arrested and which in accordance with the invention is made so small that a bobbin standing in the same is kept with its pin just out of the reach of the two adjacent drivers. In order to put the bobbins out of action a guide-rail or guide-piece 10 is employed the support 11 of which is secured on a rod 12 guided in the base-plate 2 so as to be capable of reciprocating vertically up and down and is also guided on a pin 13 fixed on the track-plate so as to insure that said support will not rotate. A spring 14 which is in tension and which engages with the rod 12 tends moreover to hold the support 11 with its guide-piece 10 in its highest position limited by the adjustable ring 15, in which position the guide-piece 10 guides a bobbin led from the right or from the left to the crossing place out of the reach of the blades on the drivers and into the recess 9 in the track. In order to release the bobbins again

the guide-pieces are lowered, this being effected at the proper time by means of jac-guard cords attached to the rods 12.

Opposite the switches, that is, behind each 5 of the track-recesses 9 there is arranged on the trackplate one of the resilient abutments mentioned in the introduction. These are in the form of slides 16 which are movable radially with regard to the track and which 10 are arranged in a casing 17 and are subjected to the influence of springs 18 which tend to push them forward toward the track. The motion of these slides is limited by the co-operation of elongated slots 19 provided in 15 them and screws 20 which engage in them and which are secured in the slide casings. The front edges of the slides, which edges face the track and coöperate with the upper guide-disks 21 on the bobbins are curved at 20 their right and left sides substantially parallel to the curve of the track while in the middle of each a recess 22 is provided. If a bobbin approaches the crossing place from the right or the left it is led by the guide-piece 10, when the latter is left in its raised 25 position, out of reach of the driver and into the recess 9 in the track, the resilient abutment, that is, the slide 16, being gradually forced back. When the bobbin has passed 30 into the recess 9 it snaps at once into the recess 22 in the abutment, so that it is then held with certainty in the correct position and cannot pass, by means of an unintended displacement, to the right and left within 35 reach of the driver in spite of the slight distance separating the bobbin from the driver. When the bobbin is released by drawing down the guide-piece 10 for the purpose of reëngagement, the resilient abutment presses 40 it back within reach of the driver only a small movement being necessary for this, so that the bobbin is prevented from being cracked as occurs in the case of the well-

known machines. The bobbin which has been forced forward is then at once engaged 45 by the blades of the drivers and is moved on by the latter with approximately the velocity imparted by the abutment, so that shocks on the bobbins and detrimental effects are entirely avoided. It is consequently possible 50 to let this new machine run at a very high speed (200 or more revolutions per minute) so that its output is extraordinarily great.

Having now explained the nature of my invention I declare that what I claim and 55 desire to secure by Letters Patent is:

In combination with the rotary drivers of a braiding machine carrying driver blades to move the bobbins and tongue switches to direct the motion of the latter, a track plate 60 having recesses 9 arranged respectively opposite the tips of the switches and adapted to receive the stem of a bobbin when shifted out of operation and into such recess, guide rails arranged to guide the bobbins into this 65 position, a spring-pressed abutment provided with a recess for the side of the bobbin and arranged to yield when such position is taken, but to thrust back the bobbin, 70 after pressure on it is released, into the path of the driver blades, means for moving said guide rails to free the bobbins therefrom and gearing for actuating the switches and drivers, the size of the recesses 9, the form and size of the driver blades, the resiliency of 75 the abutments and the speed of the drivers being relatively adjusted to permit the rotating driver blades to take the bobbins from the recesses 9 without a shock.

In testimony whereof, I have signed my 80 name to this specification in the presence of two subscribing witnesses.

HERMANN BUSCHER. [L.S.]

Witnesses:

ALBERT F. NUFER,
ALFRED HENKEL.