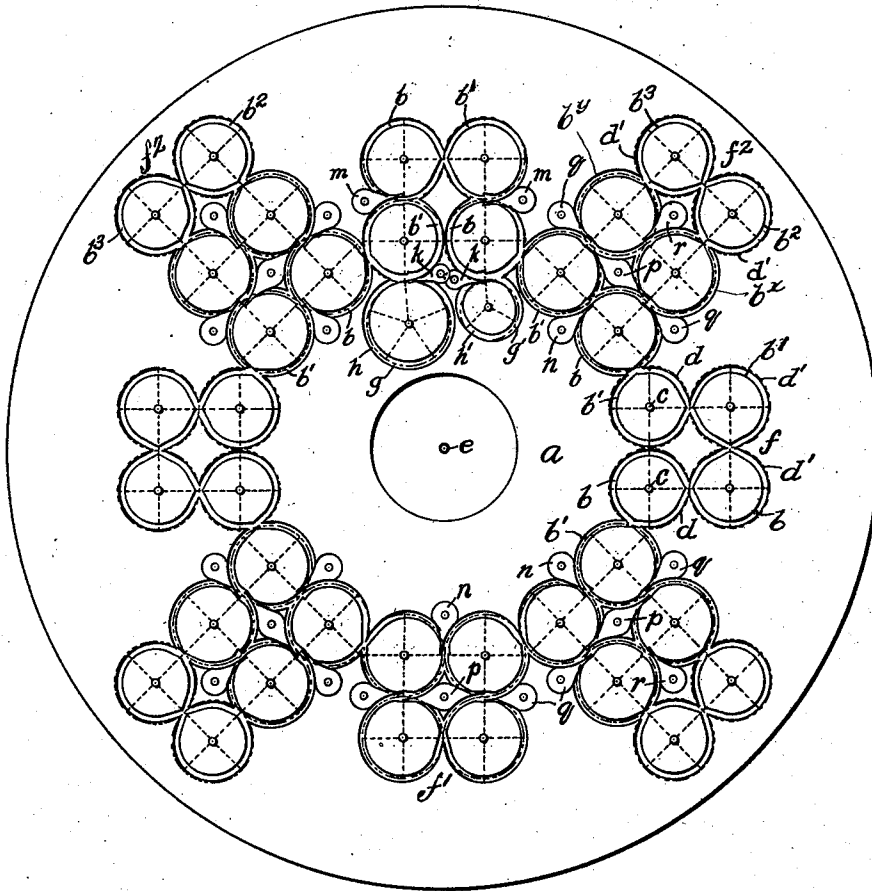


F. THUN & R. C. RAHM.
BRAIDING MACHINE.
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1,001,092.

Patented Aug. 22, 1911.



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FERDINAND THUN AND ROBERT C. RAHM, OF WYOMISSING, NEAR READING, PENNSYLVANIA, ASSIGNOR TO TEXTILE MACHINE WORKS, OF WYOMISSING, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

BRAIDING-MACHINE.

1,001,092.

Specification of Letters Patent. Patented Aug. 22, 1911.

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To all whom it may concern:

Be it known that we, FERDINAND THUN and ROBERT C. RAHM, both citizens of the United States, and residents of Wyomissing, near the city of Reading, in the county of Berks and State of Pennsylvania, have invented certain new and useful Improvements in Braiding-Machines, of which the following is a specification.

Our invention relates to an improved braiding machine adapted to employ a large number of carriers in a relatively small size machine and arranged to satisfactorily produce either tubular or flat braiding of greatly increased maximum width as compared with machines of the same size as ordinarily constructed, while at the same time permitting desired reduction of such maximum width by cutting out a portion or portions of the course and carriers as required.

The invention is fully described in connection with the accompanying drawing and is specifically pointed out in the claims.

The drawing is a plan view of a braiding machine embodying our invention, the loops provided in the race-way being shown as comprising either a single pair or a plurality of pairs of added carrier drive-gears and race-circles, with the required switches for cutting certain of each into or out of the main course as desired, and additional terminal gears and race-circles with switches for throwing the same into or out of the course being indicated. The full number of carriers ordinarily called for by the number of race-circles in the main circular course and in the loops formed thereon may be employed, and they are driven by the intermeshing drive-gears as usual, the set of the switches however determining the race-circles upon which they respectively travel.

a indicates the upper bed-plate of a braiding machine, in which is formed the usual braiding race-way for the bobbin-carriers, made up of a series or line of race-circles $b\ b'$ as shown inclosing the axes $c\ c$ of the carrier drive-gears (indicated by their pitch circles $d-d$) and successively intersecting as usual to provide crossings for the carriers. This line of race-circles as shown is circularly arranged around a central braiding point e as usual; said line however being fixedly increased in length by undulatory

bends f therein around which the carriers are compelled to travel and which thus serve to fixedly increase the width of fabric produced.

In connection with these bends f which serve to positively lengthen the carrier course as shown, we provide at a determined point or points of the course, a pair of additional race circles $b^2\ b^3$ connecting with a pair of adjacent intersecting race-circles $b\ b'$ so as to form a separable loop upon the main course; said loop comprising a pair of intersecting base circles $b\ b'$, with outer loop circles $b^2\ b^3$ either directly connecting therewith as shown in the short loop f' or indirectly connected through intersecting circles $b^x\ b^y$ as shown in the longer loop f^2 . These additional race-circles are also provided with intermeshing drive gears and carriers, and are adapted to be cut into or out of the main course so as to lengthen or shorten the latter as desired; and when separated from the main course are adapted to serve as independent courses for the cut out carriers. This we accomplish by providing switches n and p to control the movement of the carriers around the adjacent race-circles $b\ b'$ forming the base of a loop as indicated; with an additional switch r in each loop comprising a plurality of pairs of additional or loop race-circles; so as to permit of the carriers being cut out of the main circular course and retained upon said loop race-circles when desired, thereby reducing the width of the main braid until the switches are operated to again throw the loop circles into connection with the circular course. While certain of the carriers are thus cut out from the main course by the switches they will be traversed upon the loop circles to form a separate braiding—a soutache upon a single pair constituting such a loop, or a two-line braid upon a loop made up of two pairs as shown; such separate braiding being subsequently cut away from the main braid or not as desired. The switches n , p , r may obviously be arranged so as to be automatically operated by a suitable jacquard mechanism as determined by the braid to be produced. The additional switches indicated at $q\ q\ q\ q$ are simply “blind switches” requiring no such operation.

For producing tubular fabrics the corrugated line of intersecting race-circles will

be arranged to form an endless race-way as usual, while for producing flat braids the separated ends thereof may be provided with ordinary terminals as well understood. As
 5 shown in the drawings we have provided for employing the same machine for producing either tubular or flat braids; and also for producing a braid alternately tubular and flat. To accomplish this we employ in con-
 10 nection with the corrugated race-way described, a pair of terminal gears g g' and connecting race-circles h h' , and a series of switches k k m m operated in any well known manner so as to either cause the car-
 15 riers to continue on in the endless race-way, or to be deflected through the terminals g g' and reversed, as desired.

What we claim is:—

1. A braiding machine having a series of
 20 intermeshing drive gears and concentric intermeshing race-circles, additional drive gears and race-circles connecting with a pair of adjacent gears and intersecting race-
 25 circles in said series to form a separable loop, carriers for all of said race-circles, and switches adapted to cut in or out said ad-
 30 ditional race-circles so as to operate the carriers thereon in connection with those upon the circular series or independently
 of the latter as desired.

2. A braiding machine having a series of
 intermeshing drive gears and concentric
 intersecting race-circles, a plurality of pairs
 35 of additional drive gears and intersecting race-circles connecting only with a pair of adjacent gears and intersecting race-circles
 40 in said series to form a single separable loop, carriers for all of said race-circles, and switches adapted to cut in or out said ad-
 ditional race-circles so as to operate the car-
 riers thereon in connection with those upon

the circular series or independently of the latter as desired.

3. A braiding machine having a circular
 series of intermeshing drive-gears and con- 45
 centric intersecting race-circles having spaced apart loop-forming bends, additional drive gears and race-circles connecting with
 said series between said bends to form sepa- 50
 rable loops, carriers for all of said race-
 circles, and switches adapted to cut the car-
 riers in said additional race-circles into or
 out of coöperation with those in said circular series of race-circles substantially as set
 forth. 55

4. A braiding machine having a circular
 series of intermeshing drive gears and con-
 centric intersecting race-circles having a
 loop-forming bend, terminal drive gears
 and race-circles connected with the base- 60
 circles and gears of said loop and switches adapted to cut into said circular series either
 the outer loop circles or the terminal race-
 circles as desired.

5. A braiding machine having a circular 65
 series of intermeshing drive gears and concentric carriers race-circles, a plurality of
 pairs of additional drive gears and race-
 circles connecting with a pair of adjacent
 gears and race-circles in said circular series
 to form a single radiating loop, carriers for
 all of said race-circles, and switches for
 controlling the course of the carriers upon
 said loop-forming race-circles. 70

In testimony whereof, we affix our sig- 75
 natures, in the presence of two witnesses.

FERDINAND THUN.
 ROBERT C. RAHM.

Witnesses:

D. M. STEWART,
 W. G. STEWART.