

No. 657,763.

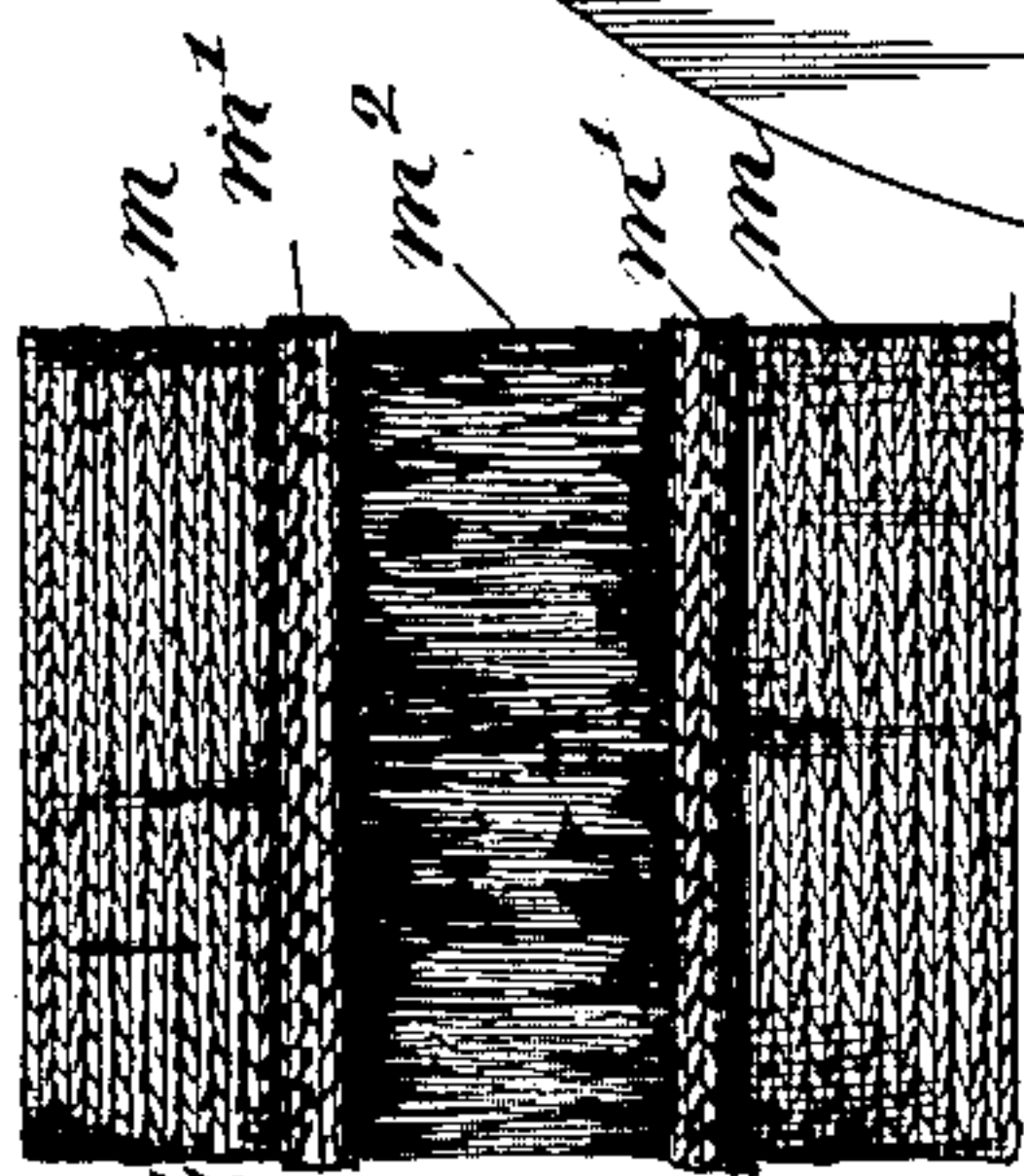
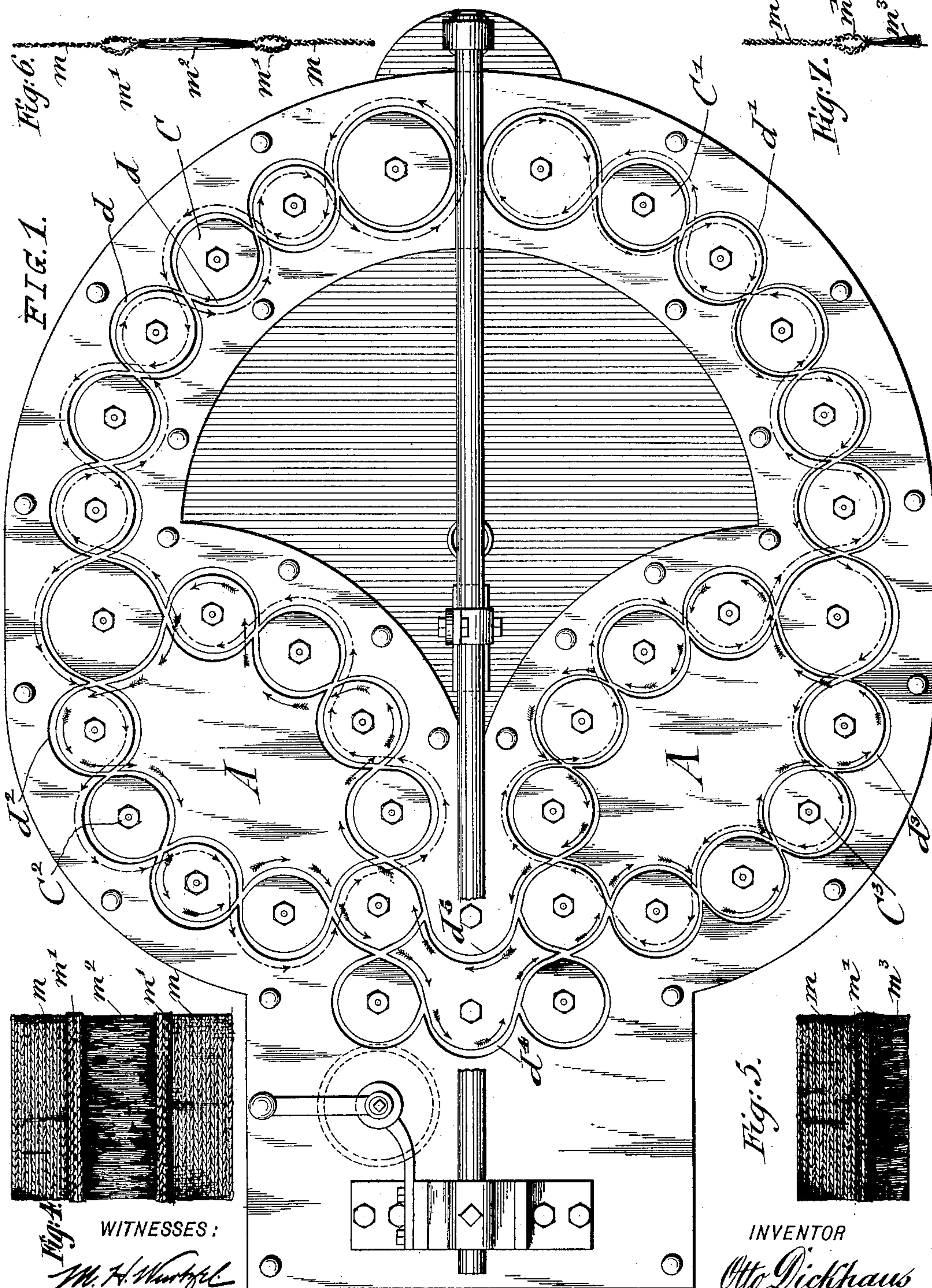
Patented Sept. 11, 1900.

O. DICKHAUS.
BRAIDING MACHINE.

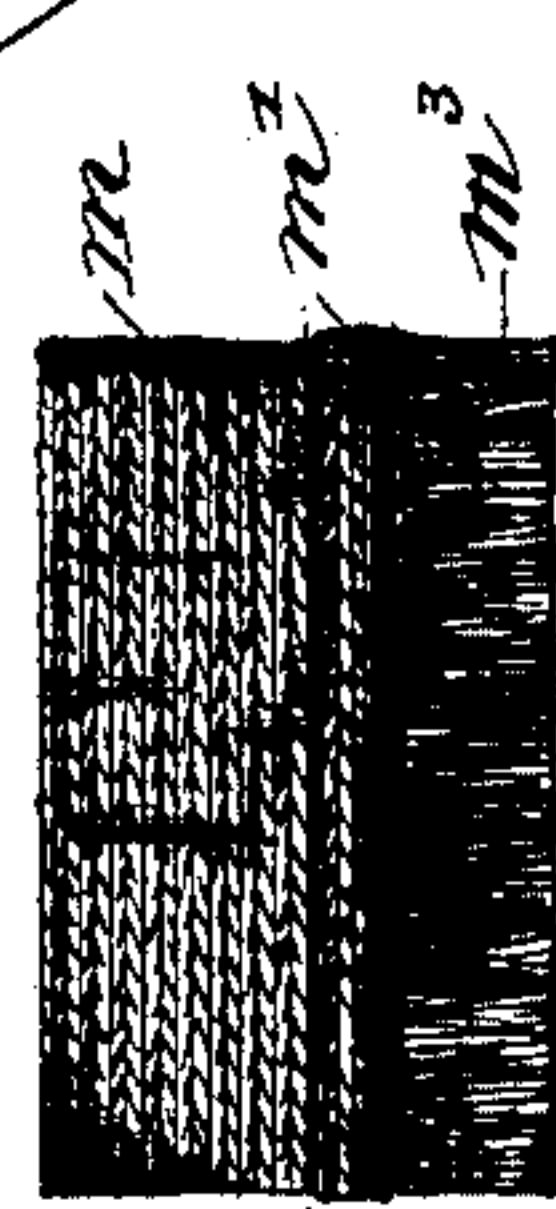
(Application filed Feb. 28, 1900.)

(No Model.)

3 Sheets—Sheet 1.



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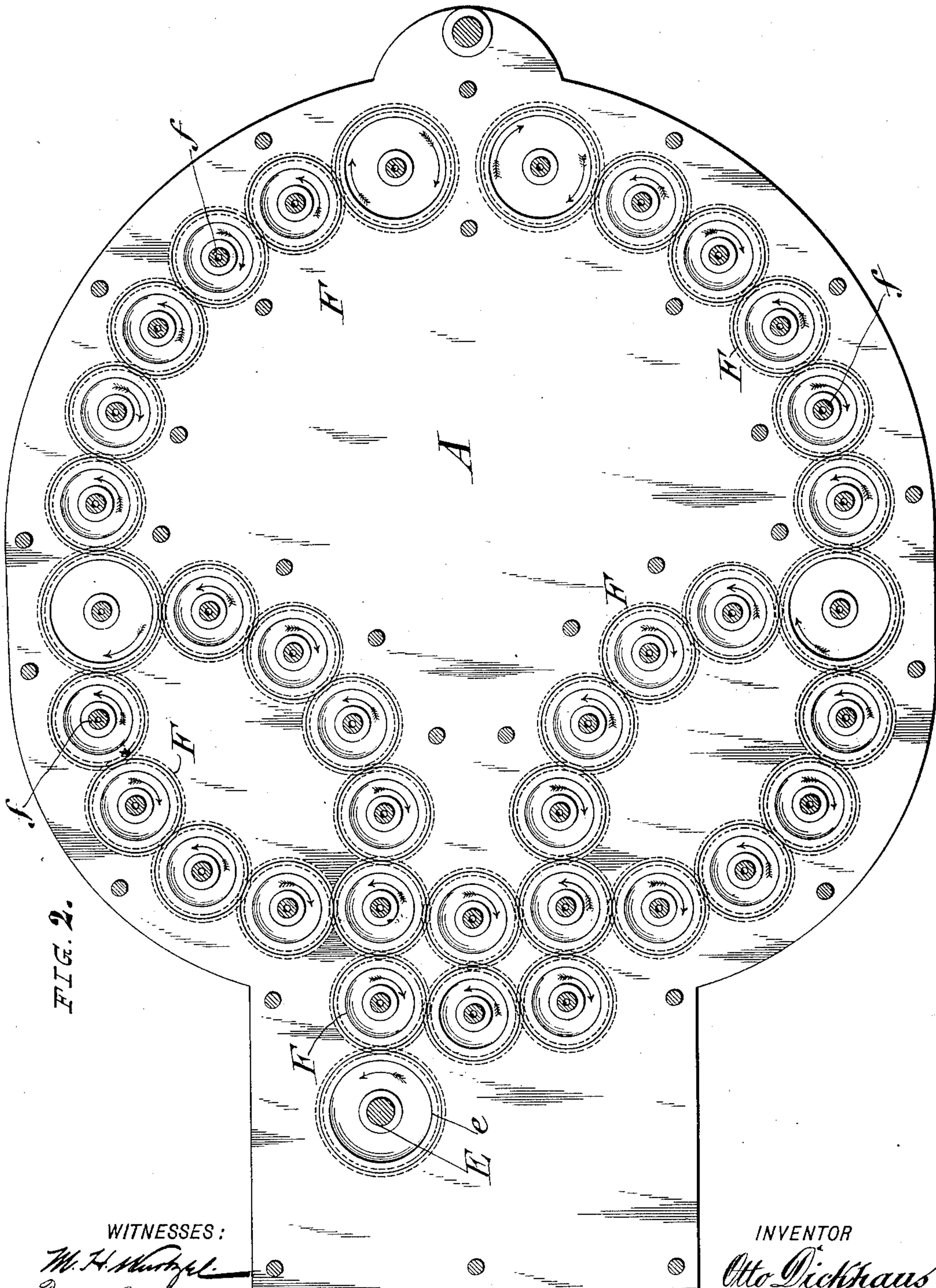


FIG. 2.

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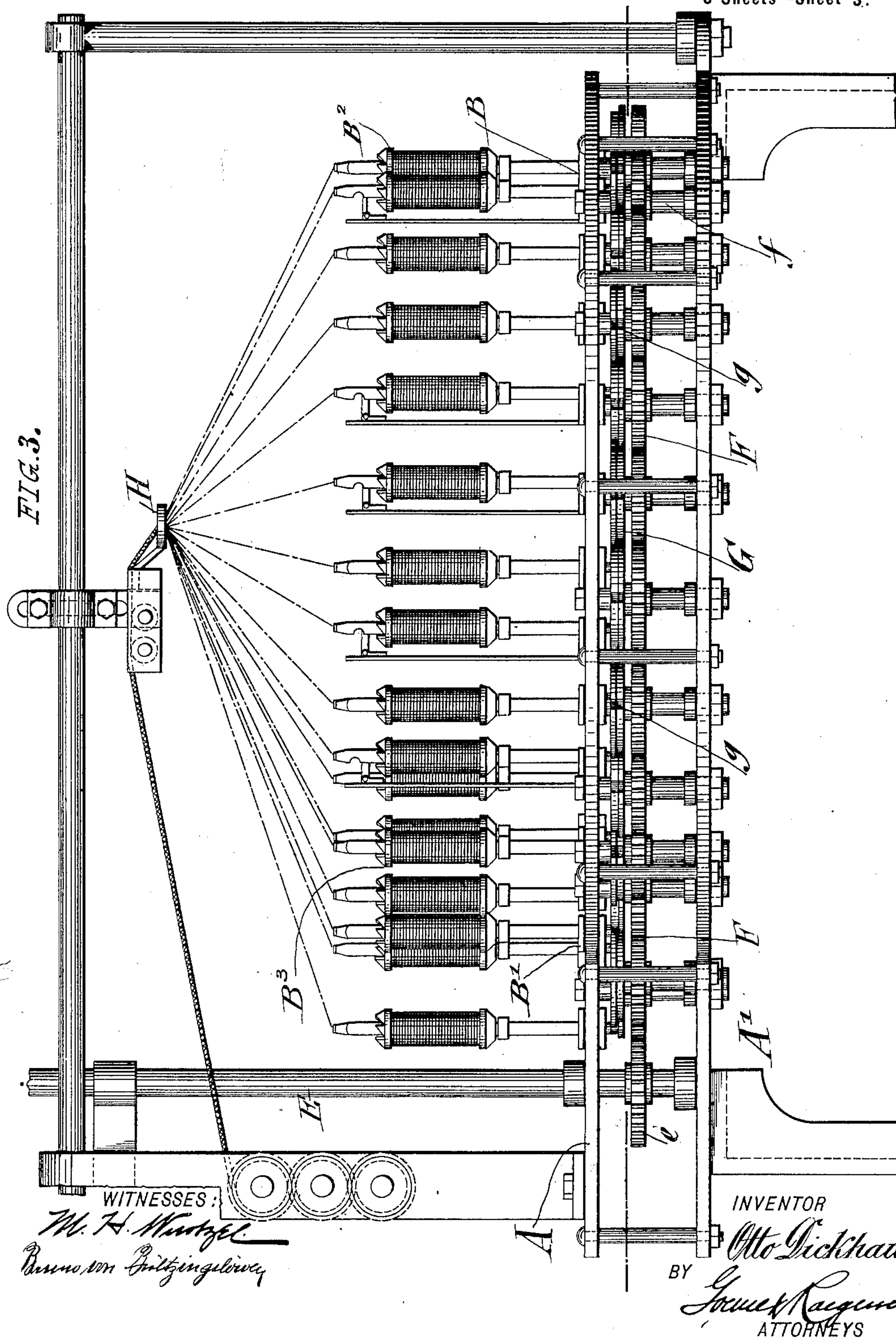
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3 Sheets—Sheet 3.



UNITED STATES PATENT OFFICE.

OTTO DICKHAUS, OF NEW YORK, N. Y.

BRAIDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 657,763, dated September 11, 1900.

Application filed February 28, 1900. Serial No. 6,795. (No model.)

To all whom it may concern:

Be it known that I, OTTO DICKHAUS, a citizen of the German Empire, residing at New York, borough of Queens, State of New York, have invented certain new and useful Improvements in Braiding-Machines, of which the following is a specification.

This invention relates to braiding-machines, and especially to a machine of that class which is constructed so as to turn out blanks for skirt-protectors, which are ordinarily made by a loom, they being usually woven and not braided, as by the present invention.

The invention consists of a braiding-machine which comprises a race-plate, means for supporting the same, said race-plate having two single lines of race-circles disconnected at one end, two converging loop-shaped and relatively-inclined series of race-circles communicating at their diverging ends with the other ends of said single lines of race-circles, and two connecting-ways only between the converging ends of the loops, with three sets of racers, gearing for moving the first set of racers only around one of the single lines of race-circles and the connecting loop-shaped series of race-circles, gearing for moving the second set of racers only around the other single line of race-circles and its connecting loop-shaped series of race-circles, gearing for moving the third set of racers only around the two loop-shaped series of race-circles and through the connecting-ways, and a drive-shaft provided with a gear meshing with the gearing for the third set of racers.

In the accompanying drawings, Figure 1 is a plan view of a braiding-machine made in accordance with my invention, the racers being omitted. Fig. 2 is an under side view, parts in section, of the race-plate, showing the driving-gear for the carriers. Fig. 3 is a side elevation of the machine; and Figs. 4, 5, 6, and 7 are views of the product, showing, respectively, a side view of the blank, a side view of the braid, an end view of the blank, and an end view of the braid.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A indicates the race-plate, suitably supported by frame A' and provided with openings in which are set

by the usual means suitable race-circles, around which the racers B travel, as indicated in Fig. 1. The race-circles C C' are formed in two single lines disconnected from each other at one end, the other ends of the race-circles C C' being connected, respectively, with two loop-shaped series of race-circles C² C³. The usual serpentine ways $d d' d^2 d^3$ pass around the race-circles C C' C² C³, respectively, said ways $d^2 d^3$ being connected by two non-crossing ways $d^4 d^5$.

Three sets of racers are employed, one set traversing the ways $d d^2$, as indicated by the darts, so as to pass around the race-circles C C² of the single line and loop at one side of the machine, another set traversing the ways $d' d^3$, as indicated by the darts, so as to pass around the race-circles C' C³ of the single line and loop at the other side of the machine, and the other and intermediate set B' traversing the ways $d^2 d^3 d^4 d^5$, as indicated by the feathered arrows, so as to pass around the race-circles C² C³.

Driving mechanism for the racers which is arranged in accordance with the arrangement of the race-circles is necessarily employed. The same comprises a suitably-driven shaft E, carrying a driving-gear e , which meshes with one of the series of intermeshing gears F, which are arranged and turn as indicated by the arrows in Fig. 2. Short shafts f of the gears F support the usual carriers G, the notches g of which receive the pins of the racers and carry the same through their courses upon the race-plate.

It would be superfluous to more fully describe the well-known construction of the elementary parts employed, and so I will now describe the operation of the machine.

The bobbins or spools B², carried by the two end series of racers B, are wound with the thread, be it linen or cotton, which is to make up the headings of the skirt-protectors, while the spools B³, carried by the intermediate series of racers B', are wound with the thread, be it worsted or some other thicker thread, which is to make up the brushes. A skilled operator now starts the braiding operation, so that one end set of racers B is caused to travel, as indicated by the darts, along ways $d d^2$, the other set of racers B being caused to travel, as indicated by the darts,

along ways d' d^3 . When the racers B are moving along the ways d d' , the flat linen or cotton portions m of the blank shown in Fig. 4 are braided; but when they are moving along the ways d^2 d^3 the linen or cotton threads are interbraided with the worsted or equivalent threads on the spools B^3 . The racers B' , which carry the spools B^3 , travel as indicated by the arrows in Fig. 1, so that in passing around the loops of race circles C^2 C^3 the threads from said spools B^3 form, in connection with the threads from spools B^2 , tubular braided portions m' . (See Figs. 6 and 7.) Said racers B' also travel through the ways d^4 d^5 , which, as will be seen, do not cross, in consequence of which the tubular portions m' are connected by transverse non-braided threads m^2 of worsted, for instance, so that the machine produces a web composed of flat braided portions m of some material, such as linen or cotton, tubular braided portions m' of mixed material, and inbraided connecting-threads m^2 of some serviceable stuff, such as worsted.

Only two connecting-ways d^4 d^5 are arranged between the loop-shaped series of race-circles, as only two sets of racers pass through these ways, the extra thickness of the brush portion being easily provided for by arranging, say, three threads on each spool of said sets of racers. The simplicity of the construction by providing only three sets of racers and by using but two connecting-ways between the loops lowers the cost of the machine and enables the turning out of superiorly-braided skirt-protectors.

The skirt-protectors such as shown in Fig.

5 are formed by severing the connecting-threads m^2 of the blank through their mid-lengths, so that brushes m^3 are formed, the flat portions m forming the headings.

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

In a braiding-machine, the combination of a race-plate, means for supporting the same, said race-plate having two single lines of race-circles, disconnected at one end, two converging loop-shaped and relatively-inclined series of race-circles communicating at their diverging ends with the other ends of said single lines of race-circles, and two connecting-ways only between the converging ends of the loops, with three sets of racers, gearing for moving the first set of racers only around one of the single lines of race-circles and the connecting loop-shaped series of race-circles, gearing for moving the second set of racers only around the other single line of race-circles and its connecting loop-shaped series of race-circles, gearing for moving the third set of racers only around the two loop-shaped series of race-circles and through the connecting-ways, and a drive-shaft provided with a gear meshing with the gearing for the third set of racers, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

OTTO DICKHAUS.

Witnesses:

PAUL GOEPEL,
M. H. WURTZEL.