

(No Model.)

H. A. SCHMITZ.
BRAIDING MACHINE.

No. 531,972.

Patented Jan. 1, 1895.

Fig. 1.

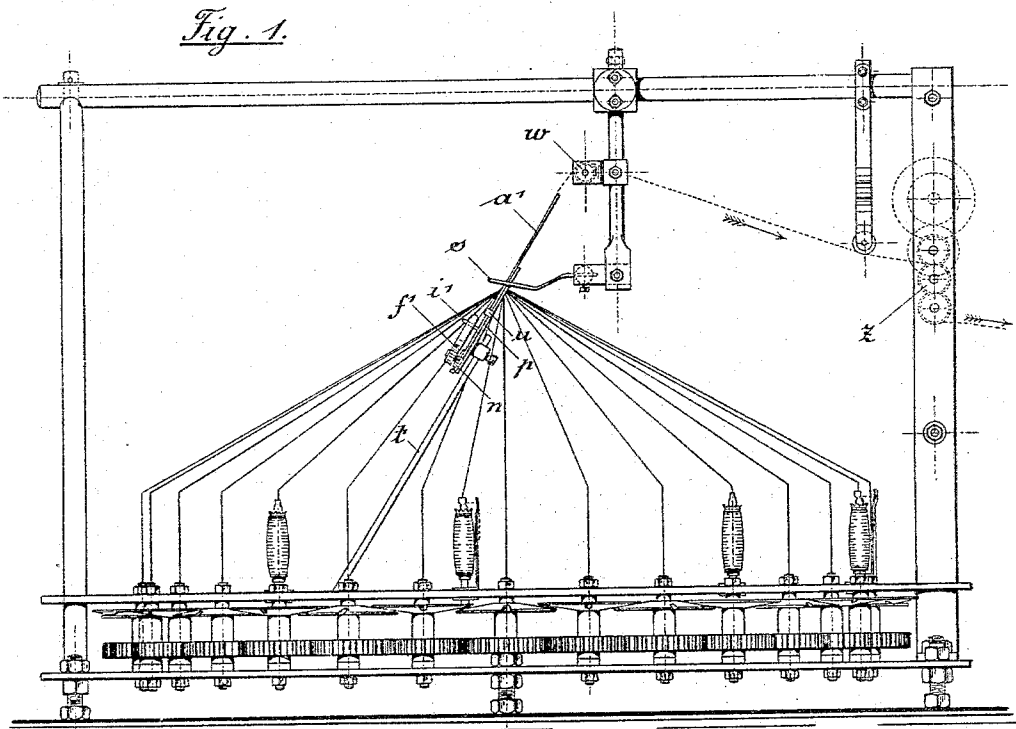
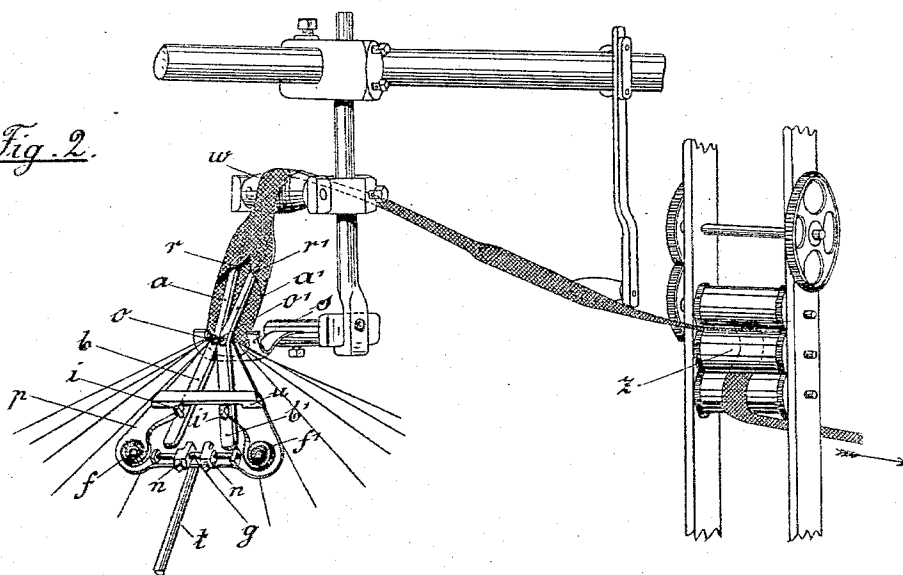


Fig. 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

HEINRICH AUGUST SCHMITZ, OF BARMEN, GERMANY.

BRAIDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 531,972, dated January 1, 1895.

Application filed August 23, 1894. Serial No. 521,120. (No model.) Patented in Germany March 31, 1893, No. 71,429.

To all whom it may concern:

Be it known that I, HEINRICH AUGUST SCHMITZ, a subject of the King of Prussia, residing at Barmen, in the Province of Rhenish Prussia, in the Kingdom of Prussia and German Empire, have invented new and useful Improvements in Braiding-Machines, (for which I have obtained Letters Patent of the German Empire, No. 71,429, dated March 31, 1893,) of which the following is a specification.

This braiding machine is provided at the point of braiding with a spreader or spreading tongs for producing alternate flat and tubular braid.

This invention relates to an arrangement which is applicable to braiding machines producing an alternate flat and tubular braid, said arrangement as seen in the annexed drawings being applied at the point of braiding, that is in the opening at the point of braiding. The arrangement comprising the new feature consists in a sort of fork with two tines or teeth, between which the spool threads run together, and which form said opening.

Figure 1 shows a side elevation of the braiding machine with the new arrangement. Fig. 2 is a perspective view of the arrangement on a larger scale.

The arrangement consists in tongs, whose straight rod like arms $a a'$ have a fulcrum or fulcrums $o o'$ and which are extended downward to form the legs $b b'$, upon which act the springs $f f'$ so that the legs are pressed together by the spring pressure acting against the pins $i i'$ and the arms $a a'$ are consequently continually spread or moved apart. The legs lie under a guide u on a downwardly expanding plate p . The said plate on which are also secured the springs, is movable on a rod t , which at its lower end is suitably secured to the race plates of the braiding machine. The arrangement is so set into the opening at the point of braiding that it rests in said opening at the point where the fulcrums of the arms or fingers $a a'$ are located (a point at which the plate p is arranged as narrow as possible, that is not wider than both fingers together) the fingers at the same time extending freely upward above the

point of braiding at s in an inclined direction toward the take up or guiding roller w .

The braiding machine provided with the above described arrangement, serves to form a braid which as already noticed consists of an alternate flat or ribbon like and a tubular braid portion, and the object of the arrangement is to spread out or flatten the hollow braid which is formed as a tube at the point of braiding, so that straight edges are produced and that at the point where the flat braid runs into the hollow braid the edges of the flat braid are both folded so that they run symmetrically and gradually from the hollow into the flat braid. This is effected by the fingers $a a'$ being drawn together by the threads as soon as a hollow braid is formed by the threads which run together at the point of braiding in the machine. The braid at the same time does not remain round, but is drawn flat by the pressure of springs $f f'$, and passes in this flat condition to the roller w and thence to the feeding and pressing device z , said braid slipping gradually from the tongs as the work progresses. At the transition part of the hollow braid into the flat braid, the legs gradually spread farther apart the more this point moves upward, so as to uniformly fold the edges $r r'$ of the flat braid. When the said part has passed over the ends of the fingers, the latter rest freely over the point where the braiding is being effected as long as the machine is working on flat braid. On the commencement of the tubular braiding the threads beginning at the fulcrums of the fingers draw the same gradually together again and the tongs will again act as above described.

To regulate the spread of the fingers according to the width of the braid to be formed, adjustable stops $n n$ are arranged at the lower end of plate p between legs $b b'$, which stops can be fixed by set screws on the rod g , and as said stops are set more or less apart they accordingly arrest the legs and thus determine the spreading of the fingers.

What I claim as new, and desire to secure by Letters Patent, is—

1. A braiding machine for forming alternate flat and tubular braid, having a spreader com-

posed of fingers movable to and from each other and extending upward over the point of braiding, and springs acting to spread the fingers apart, said fingers being adapted to be
5 inclosed and drawn together against the tension of said springs by the tubular braid, for the purpose of flattening the latter and forming straight edges and a regular transition part between the tubular and the flat parts
10 of the braid, substantially as described.

2. The combination with a braiding machine, of a spreader composed of pivoted fingers extending upward over the point of braiding, springs acting upon the fingers to

spread them apart, and a support on which the springs are mounted and to which the fingers are pivoted, said fingers being adapted to be inclosed and drawn together against the tension of said springs by the tubular part of the braid, substantially as and for the purposes described. 15 20

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

HEINRICH AUGUST SCHMITZ.

Witnesses:

R. E. JAHN,

F. H. STRAUSS.