

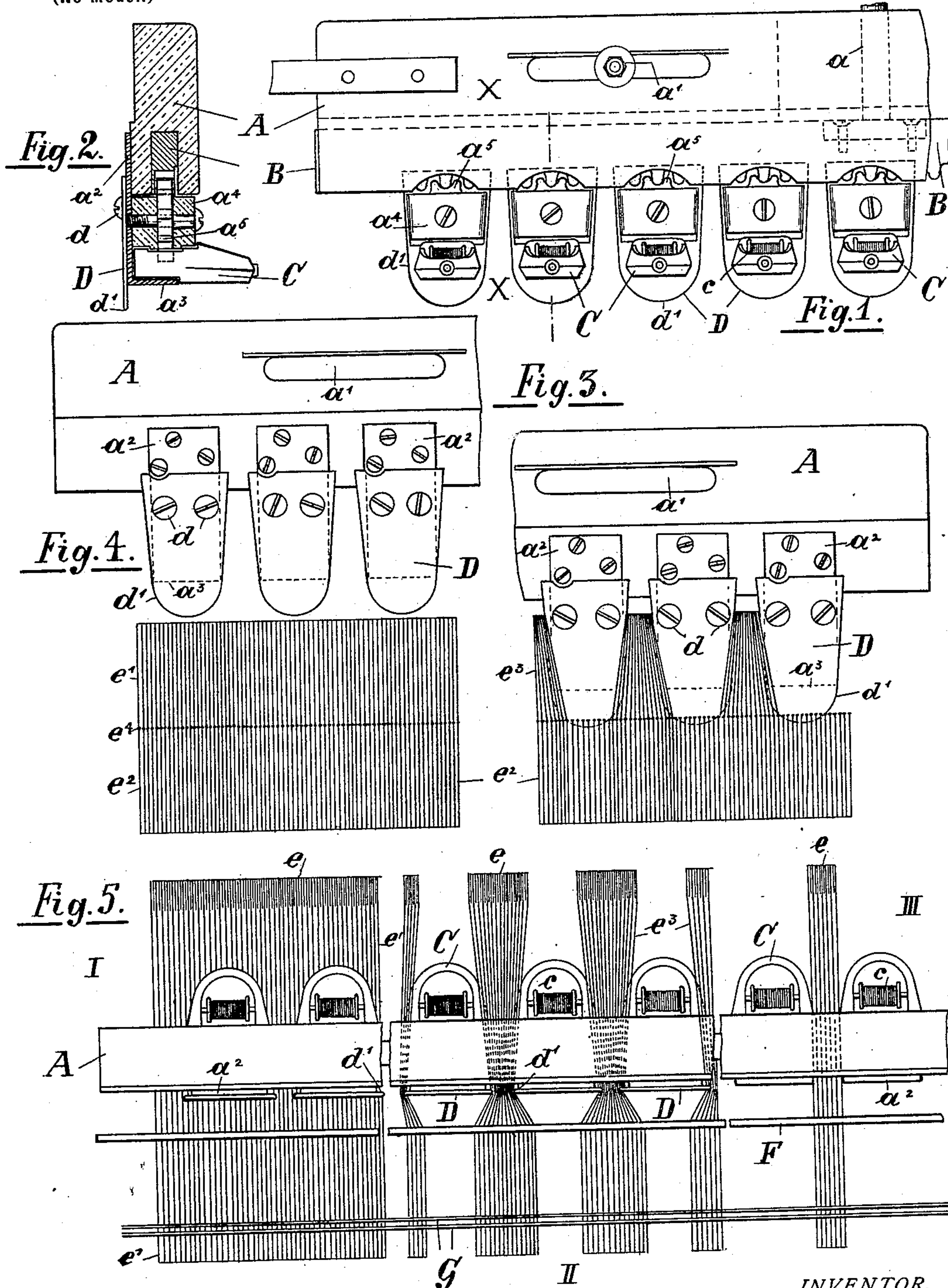
J. WADSWORTH.

SWIVEL LOOM.

(Application filed Mar. 27, 1902.)

2 Sheets—Sheet I.

(No Model.)



WITNESSES:

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SWIVEL-LOOM.

SPECIFICATION forming part of Letters Patent No. 706,133, dated August 5, 1902.

Application filed March 27, 1902. Serial No. 100,341. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH WADSWORTH, a citizen of the United States, residing at Paterson, in the county of Passaic and State of New Jersey, have invented certain new and useful Improvements in Swivel-Looms, of which the following is a specification, reference being had therein to the accompanying drawings.

My improvement relates to swivel-loom, and particularly to the swivel-rack thereof, and is applicable to all looms in which swivel-weaving is wrought in combination with ground-weaving so as to produce figures. It is obviously adapted to looms for weaving narrow ware, such as tapes and ribbons, as well as for looms for weaving wider fabrics.

In swivel-weaving the combination of perforated cards and accompanying mechanism, known as a "jacquard," is used to determine the position of the figures by raising only the required warp-threads at the opening of each shed through which the swivel-shuttles are propelled. In all looms as now constructed the jacquard raises as many warp-threads at the opening of the shed as the width of the space between the swivel-shuttles will permit, and the width of the figure to be woven is limited by the width of said spaces.

The object of my invention is to provide means whereby figures of different sizes may be woven at the same time and in weaving them to overcome the limitation as to size, which is now imposed by the width of the said spaces between the swivel-shuttles. For instance, the object of my invention is with a loom having the swivel-shuttles located three-eighths of an inch apart to weave a figure of any size up to one inch in width. Although a larger figure might be woven, I fix that as the limit, as it might not be prudent to weave a figure more than one inch in width when the spaces between the shuttles are only three-eighths of an inch wide.

My invention consists of tongues with tapering sides of suitable material, which I secure to the swivel-support on the back of the swivel-rack, so as to project downwardly below the bottom of the swivel-shuttle. The tapering sides of the tongue are provided with smooth rounded edges to avoid damage to the warp-threads and to permit said warps

when raised by the jacquard or those of them that in their normal position do not lie opposite the spaces between the swivel-shuttles to slide along the contiguous edges of two adjoining tongues and to be there confined in the space between them while the swivel-shuttles are propelled through their respective sheds and until the sheds are closed, when the released warp-threads no longer so confined spread out, assuming their normal position prior to the forward movement of the reed, which drives the filling up to the fell in the usual manner. A result of my improvement is that more figures may be woven, as less space is required between the shuttles, and consequently more shuttles may be employed, my tongue-plates being adapted to confine the warp-threads raised by the jacquard into a narrower space than hitherto required, and, moreover, that the cards may be cut so as to weave figures of various sizes at the same time without any change of the spacing of the shuttles in the swivel-rack. These tapering tongues may be made in various sizes, and I prefer to make them independent of the rack, so that they may be screwed on or taken off without much trouble. Hence I do not wish to limit the invention to size or material, nor to these particular tongues, but will hereinafter claim broadly means for accomplishing the objects herein set forth.

The accompanying drawings form a part of this specification and represent what I consider the best means of carrying out the invention.

In the drawings, in which similar letters of reference indicate like parts in the various views, Figure 1 is a front elevation of a portion of a swivel-rack with the invention applied thereto. Fig. 2 is a sectional view through the line *xx* in Fig. 1. Fig. 3 is a back view of a portion of a swivel-rack lowered, the shed being formed and ready for the swivel-shuttle to be propelled therethrough. Fig. 4 is a back view of part of swivel-rack with the invention applied thereto, showing the rack up and the shed formed for the ground-shuttle to pass through. Fig. 5 is a three-part plan view of portion of a swivel-rack with the invention applied thereto, part I being a view when the swivel-rack is lifted,

as in Fig. 4. Part II shows the rack lowered and my improvement confining a large number of raised warp-threads in a small space, the swivel being ready to pass through the shed, and part III is a view showing portion of a swivel-rack lowered that is not provided with my improvement and indicating the number of warp-threads raised and how they are limited in number and necessarily limit the size of the figure to be woven in swivel-looms of the style now in vogue. Fig. 6 is a sectional side elevation of a swivel-rack embodying my invention, the solid lines showing it lowered and the dotted lines showing it raised and showing the shed open for the passage of the swivel-shuttles. Fig. 7 is an illustration of a piece of cloth woven without my improvement; and Fig. 8 shows a piece of cloth woven by my improved swivel-loom, indicating how the sizes and arrangement or location of the figures may be varied in the products thereof.

A indicates the swivel-rack, which is supported on the stud a' , which projects through an elongated slot therein. B is the rack, and a a part of the mechanism which is connected with the rack to impart thereto a traverse motion.

The swivel-shuttle C, with its bobbin c , is held and permitted to operate between the toe a^3 of the L-shaped plate a^2 , which is secured to the back of the swivel-rack A and the blocks a^4 , which carry the pinions a^5 , whereby motion is communicated to the shuttles from the rack B. My taper tongue-plates D, having smooth rounded edges d' , are secured to the L-shaped plate a^2 at the back of the swivel-rack A by screws d or otherwise and project downwardly, as shown, so as to engage the outer threads e^3 of the upper plane of warp-threads, which are raised by the jacquard in forming the shed for the passage of the swivel-shuttles in weaving figures and to permit them to slide upwardly with the other warp-threads in their respective series and be confined in their respective spaces between the series of tongue-plates until the shuttles have passed through their respective sheds, when the sheds are closed and the reed F beats the weft up to the fell e . When the sheds are closed, the warp-threads that have been confined in the spaces between the tongues, some overlapping each other, assume their normal position, spreading out before the forward movement of the reed. The upper and lower planes of warp-thread in the ground-weaving are indicated, respectively, by e' and e^2 , and the upper and lower planes of warp-threads of the shed in weaving figures are indicated by e^3 and e^4 .

G represents the means for opening the

shed by the jacquard, I and I' the old and the new product, and i , i' , i^2 , i^3 , and i^4 the woven figures of various sizes.

I have shown in the drawings only such portions of a power-loom with my improvements applied thereto as are sufficient to enable those skilled in the art to understand the construction and operation thereof.

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

1. In a swivel-loom, a suitable shuttle-support, in combination with a tapering, tongue-shaped, plate, adapted to be removably secured thereto with its narrow end projecting downwardly below the bottom, and laterally beyond the sides, thereof, substantially as set forth.

2. In a swivel-loom, the combination with the swivel-shuttle and means for operating the same, of the swivel-shuttle support and a tapering tongue-shaped plate extending downwardly behind and below the swivel-shuttle, substantially as set forth.

3. In a loom, the combination with a swivel-shuttle rail carrying swivel-shuttles, of a series of tapering tongue-shaped plates extending downwardly, behind, and below the shuttles, substantially as set forth.

4. In a swivel-loom, the combination with the swivel-shuttles, of a series of swivel-shuttle supports, and a series of tapering tongue-shaped plates extending downwardly below and laterally beyond the shuttles, substantially as set forth.

5. In a swivel-loom, the combination with a swivel-shuttle rail carrying swivel-shuttles, of means extending downwardly below, laterally beyond, and substantially at right angles with, the swivel-shuttles, and adapted to receive and temporarily confine a plurality of warp-threads within a smaller compass during the operation of the swivel-shuttles, than they normally occupied before the shed was opened, substantially as set forth.

6. In a swivel-loom, a swivel-shuttle and a support therefor, and means extending downwardly below, laterally beyond, and substantially at right angles with, the swivel-shuttle, and adapted to crowd into a small compass the warp-threads comprising the upper plane of the shed formed for swivel-weaving, while the swivel-shuttle is passing through the shed.

In testimony whereof I affix my signature in presence of two witnesses.

JOSEPH WADSWORTH.

Witnesses:

HENRY WILDS,
JOHN F. KERR.