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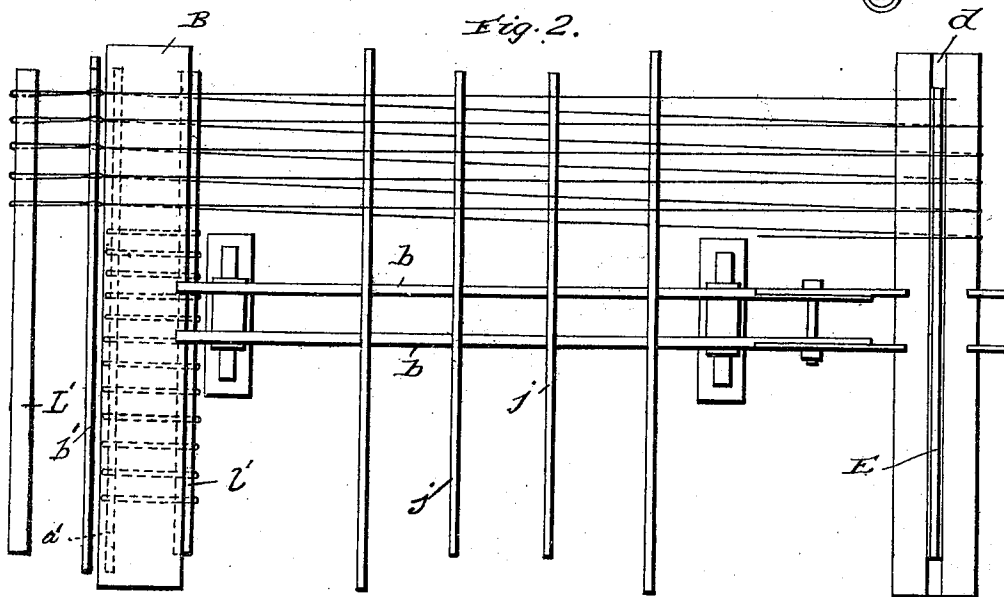
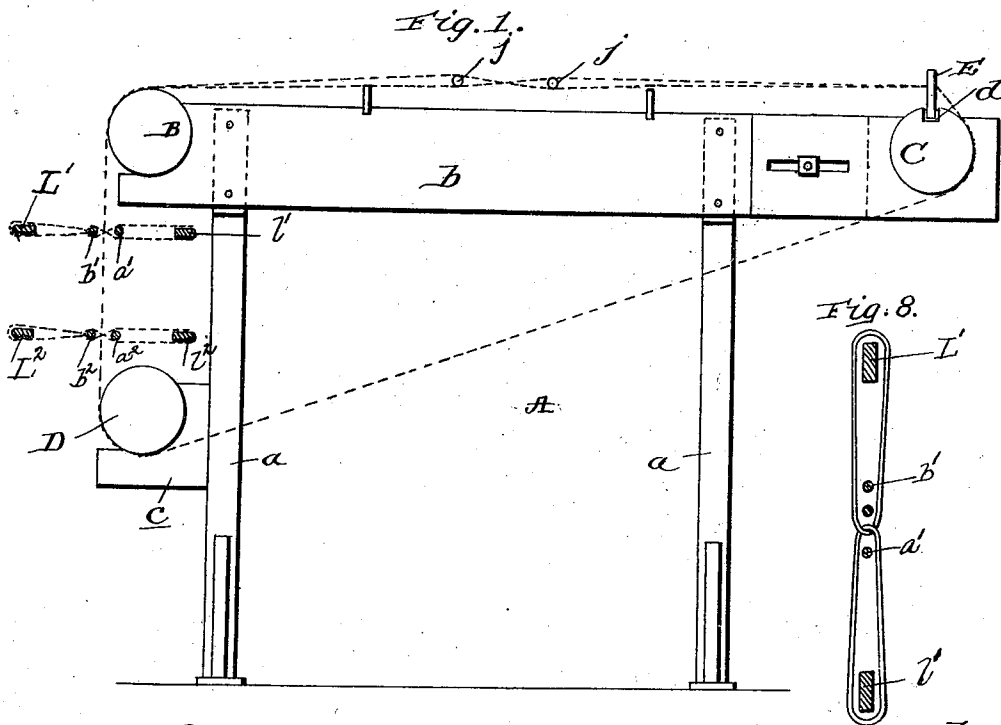
2 Sheets—Sheet 1.

D. FILEPPI.

LOOM FOR WEAVING ENDLESS AND JOINTLESS FABRICS.

No. 502,182.

Patented July 25, 1893.



Witnesses:
 E. Paeder
 W. F. Matthews.

Inventor

Domenico Fileppi

By

James Sheehy

Attorney's

(No Model.)

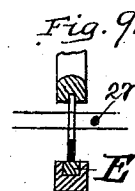
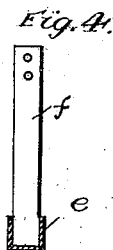
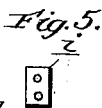
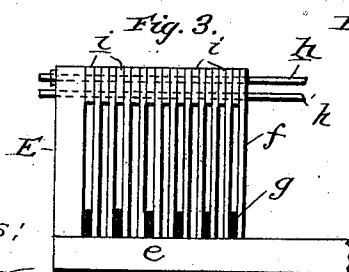
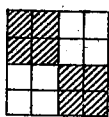
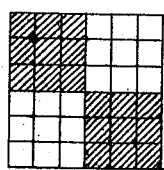
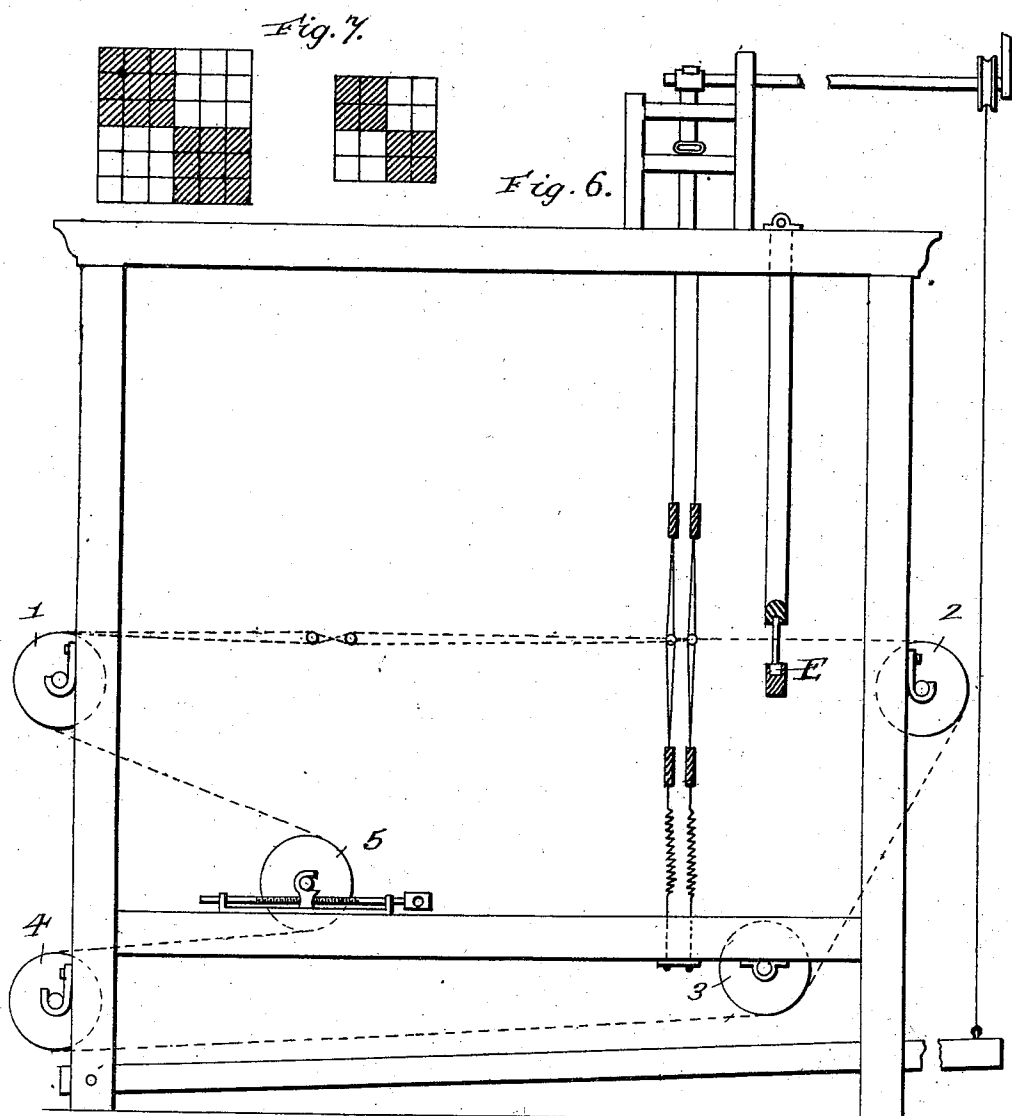
2 Sheets—Sheet 2.

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Patented July 25, 1893.



Witnesses:
C. Gaeder
W. F. Matthews

Domenico Fileppi
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UNITED STATES PATENT OFFICE.

DOMENICO FILEPPI, OF PATERSON, NEW JERSEY.

LOOM FOR WEAVING ENDLESS AND JOINTLESS FABRICS.

SPECIFICATION forming part of Letters Patent No. 502,182, dated July 25, 1893.

Application filed March 25, 1893. Serial No. 467,582. (No model.) Patented in France November 4, 1887, No. 186,770; in England August 16, 1888, No. 11,826; in Germany August 16, 1888, No. 46,121, and in Italy September 27, 1888, No. 24,117.

To all whom it may concern:

Be it known that I, DOMENICO FILEPPI, a subject of the King of Italy, residing at Paterson, in the county of Passaic and State of New Jersey, have invented certain new and useful Improvements in Looms for Weaving Endless and Jointless Fabrics, (for which I have obtained Letters Patent in France, dated November 4, 1887, No. 186,770; in England, dated August 16, 1888, No. 11,826; in Germany, dated August 16, 1888, No. 46,121, and in Italy, dated September 27, 1888, No. 24,117;) and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improved apparatus for weaving endless and jointless fabrics, and its novelty will be fully understood from the following description and claims when taken in conjunction with the accompanying drawings in which—

Figure 1 is a side elevation of my improved apparatus upon which the warp and the healds are formed previous to being placed upon a loom. Fig. 2 is a top plan view of the same. Fig. 3 is a detail front elevation of the comb or reed comprised in said apparatus. Fig. 4 is a side elevation of one of the teeth of said comb. Fig. 5 is a similar view of one of the spacing plates. Fig. 6 is a side elevation of a loom upon which the weaving process is carried out. Fig. 7 is a view of the carding or pattern of a plaited draft and tie of two and three threads respectively. Fig. 8, is a detail view, illustrating the manner of forming the healds, and Fig. 9, is a view illustrating the manner of using the comb to form the shed.

In order to impart a full understanding of my improved method I will describe the same in conjunction with the apparatus shown in the drawings, referring by letter to which, A, indicates the main frame of my improved apparatus upon which the warp and healds are formed. This frame A, comprises the uprights or standards *a*, and the longitudinal, vertically disposed side bars *b*, as shown. These side bars *b*, are designed and adapted to support the rollers B, and C, and they preferably comprise two sections which are adjustably connected together as illustrated so as to per-

mit of the distance between said rollers being lengthened when it is desired to stretch the warp. A third roller D, is employed in conjunction with the rollers B, and C, and it is preferably mounted upon ledges *c*, projecting from one of the standards *a*, below the roller B, as illustrated.

The roller C, is provided, as better illustrated in Fig. 2, with a peripheral kerf or groove *d*, which is designed to seat my improved comb or reed E. This comb or reed E, which is better illustrated in Figs. 3 to 5, is preferably formed from metal and it comprises a frame *e*, a series of equi-distant teeth *f*, formed integral with or seated in the base bar of the frame, a series of fillings of solder or the like *g*, which are arranged in the alternate spaces between the teeth and extend above the base of the frame about the proportional distance illustrated, one or more removable spindles *h*, which take through the uprights of the frame *e*, and the several teeth *f*, and are secured by nuts or other suitable devices, and a series of spacing plates *i*, which are mounted upon the spindles *h*, and are arranged between the teeth so as to properly space the same. The spindles *h*, are made removable, so that the comb or reed may be opened to receive the warp thread as presently described, but the comb is not weakened by reason of such spindles being removable, inasmuch as when they are replaced together with the plates *i*, and tightened, a comb is afforded for practical weaving purposes, equally as strong if not stronger than a comb in which the parts are fixedly connected together.

To form the warp upon the apparatus just described, the comb is opened by removing the spindles *h*, and the plates *i*, and is placed in the kerf or groove of the roller C, as illustrated. The warp thread, which of necessity, must be continuous is then carried through the first space of the comb or reed, past the registering sticks *j*, around the rollers B, and D, and through the second space of the comb and so on until every space of the comb, or so many as may be required, is occupied; care being taken in laying the threads to prevent them from crossing each other. The registering sticks *j*, are inserted between the warp

threads in such a manner that each thread passes over one of the rods and under the other alternately, as shown. Thus a cross or lease is formed by the threads between the two rods, which not only keeps the threads in their relative position and parallel to each other, but enables the weaver to readily detect any broken thread.

While the warp is being formed as above described, the healds are also formed as shown in Figs. 1, 2, and 8. For this purpose the lower leaf l' , of the first heald and its spindle a' , are placed at one side of the warp thread, and the upper leaf l' , and its spindle d' , on the other side. The second heald is similarly arranged; its lower leaf l^2 , and its spindle a^2 , being placed on one side of the warp thread, and its upper leaf l^2 and spindle b^2 on the opposite side thereof. Both the spindles and leaves of the healds may be supported in any approved manner, and as such support forms no part of my invention, I have not deemed it necessary to illustrate the same. The leaves and spindles of the healds being in position, we will suppose, for simplicity's sake, that the cloth draft and tie are employed, and that the lower parts or meshes of the healds have been formed upon the leaves and spindles l' , a' , l^2 , a^2 . At the first whirl or coil of the warp thread, the operator will pass it between the two spindles a' , b' , and will place it just against the first mesh or lower part of the first heald. Then, with this first mesh and by means of a special thread he forms a second mesh on the rail l' , and spindle b' . This mesh embraces the warp thread and constitutes the upper part of the first heald. At the second whirl or coil of the warp thread, the operator passes the warp thread between the spindles a^2 , b^2 , of the second leaf, and by repeating the previous operation, he forms a mesh constituting the upper part of the second heald. With the third whirl or coil, he begins again on the first leaf and so on. Thus as the warping proceeds, the healds are formed as required.

I would have it understood that instead of employing two leaves as described, a greater number might be used, and any known draft and tie might be employed. When the formation of the warp and healds is completed, the spindles a' , b' , a^2 , b^2 are withdrawn, the comb E, is closed and tightened and together with the warp and healds is placed in position in the loom illustrated in Fig. 6. This loom is provided with five (more or less) rollers 1, 2, 3, 4, and 5, which are removable in order to permit of the ready placement of the warp, and the said loom is also provided with mechanism for raising and lowering the healds and forming the shed, which mechanism may be of the ordinary or any approved construction. The loom is also provided with a frame to support the comb, which frame has its upper and lower cross bars made removable so that the comb may be readily removed when necessary, as will be presently described.

In addition to the above, the loom is provided with a mechanism for adjusting the roller 5, in a horizontal plane whereby it will be seen that the warp may be readily stretched or tightened when desired.

When the warp, comb or reed and the healds are placed in the loom as shown in Fig. 6, the weaving of the weft may be proceeded with in the usual manner until there remains but a small space between the ends of the woven part, when the healds being unable to separate the threads sufficiently to permit the passage of the ordinary shuttles, smaller shuttles must be employed. Finally the use of the healds must be abandoned and when this is necessary I prefer to cut the strings away from the upper laths, and thus preserve the lower portions of said strings or leaves for further use. After the use of the healds has been discontinued, the comb or reed may be employed to form the shed in the following manner, viz: The solder fillings between the teeth of the comb rest beneath the alternate warp threads, for example the even numbered threads, and these threads normally lie at a lower level than the odd threads by reason of being separated therefrom by means of an interposed needle or bar 27, which is passed across through the warp. This needle or bar 27, is employed when the use of the healds is discontinued. The shuttle is first passed above the even and below the odd threads, and the former are then raised above the latter by means of the solder fillings of the comb, and the shuttle again passed, in this case above the odd and below the even. The even threads are now allowed to drop to their original position by lowering the comb when the shuttle may again be passed above the even and below the odd threads, and so on in regular sequence, until a very small space remains between the ends of the woven part. The spindles h , of the comb together with the spacing plates i , are now withdrawn and the lower bar of the comb supporting frame being removed, the comb is allowed to fall out of engagement with the warp. After the comb has been removed or disengaged from the warp as just described, the weft may be passed through the warp by a needle or the like and the endless fabric finished in this way.

It will be readily understood that all kinds of draft and tie can be employed for the weaving operation, but it must also be added that it is absolutely necessary that the warping be formed with only one continuous thread so that no crossing of the warp thread occurs when both ends of the fabric are joined. This is an important point as the cloth produced can be employed without the difficulties attending the use of fabric, the ends of which are joined together. Nevertheless the fabrics can be used without difficulty even if the warping has been formed with several threads, the condition being that each thread must always be continuous. There is however one exception. If plaited draft and tie be

employed several threads can be used instead of one, according to the number of the draft and tie. Thus with a plaited draft and tie of two, two threads will be employed; with a
5 plaited draft and tie of three, three threads, &c. But it is always necessary for the threads to be continuous and the warp endless.

It will be readily understood that a fabric woven as just described will be endless, and
10 as a matter of course will be of an even thickness and aspect throughout, which is highly desirable as is obvious.

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

1. In an apparatus for weaving endless and jointless fabrics, a comb or reed comprising a frame, a series of teeth, and fillings of solder or other material resting in the alternate
20 spaces between the teeth and extending from the base to an intermediate point in the length

thereof, substantially as and for the purpose described.

2. In an apparatus for weaving an endless fabric, a comb or reed comprising a frame, a
25 series of teeth, fillings of solder or other material resting in the alternate spaces between the teeth and extending from the base to an intermediate point in the length thereof, spacing plates arranged between the teeth, and a
30 removable spindle taking through the frame and the teeth adjacent to the upper ends thereof; the said spindle being adapted to be secured in position so as to close the comb, substantially as specified.
35

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

DOMENICO FILEPPI.

Witnesses:

CHARLES BERTOLINO,
GIUSEPPE CONTI.