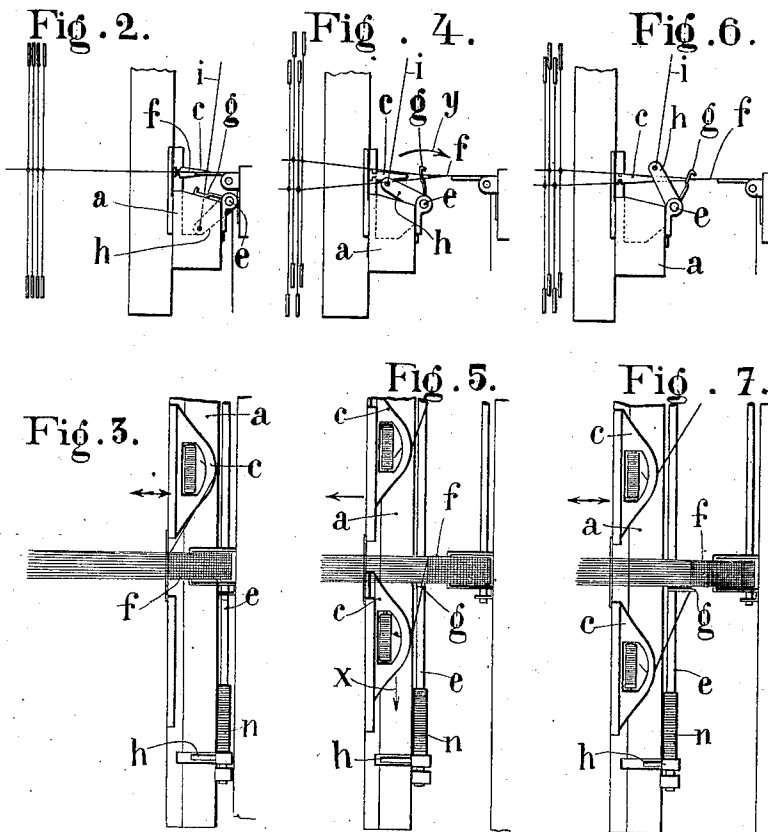
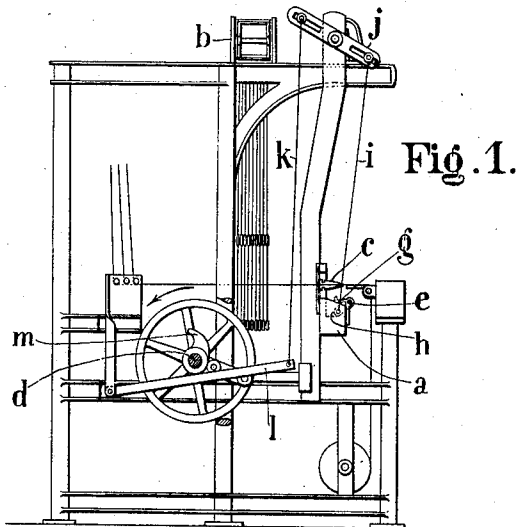


A. HANDSCHIN & H. KUNY.  
LOOM.

APPLICATION FILED FEB. 16, 1910.

991,297.

Patented May 2, 1911.



Witnesses:  
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Their Attorneys.

# UNITED STATES PATENT OFFICE.

ARNOLD HANDSCHIN, OF BASEL, SWITZERLAND, AND HANS KUNY, OF ST. LUDWIG, GERMANY, ASSIGNORS OF ONE-THIRD TO GREGOR STÄCHELIN, OF BASEL, SWITZERLAND.

## LOOM.

991,297.

Specification of Letters Patent.

Patented May 2, 1911.

Application filed February 15, 1910. Serial No. 544,069.

*To all whom it may concern:*

Be it known that we, ARNOLD HANDSCHIN, a citizen of the Republic of Switzerland, and resident of Basel, Switzerland, and  
5 HANS KUNY, a citizen of the Republic of Switzerland, and resident of St. Ludwig, in Upper Alsatia, Germany, have invented new and useful Improvements in Looms, of which the following is a full, clear, and exact specification.

10 In looms wherein two consecutive wefts, which are introduced into the same warp during one movement of the lay and by means of the same shuttle, are beaten up by the lay, while a change of shed takes place  
15 in the same warp after each introduction of the weft (see for example United States Letters Patent No. 944,610, dated December 28th, 1909) there is the objection that the one edge of the web becomes irregular if the material is several centimeters in width, the first inserted weft of each pair of wefts, which are beaten up simultaneously by the lay, taking always an oblique position with  
20 respect to the direction of the warp, so that at each beating up a loop is formed at one edge of the warp and protrudes beyond the selvage of the cloth.

Now, this invention has for its object to  
30 overcome these defects and to this end the lay carries a finger oscillating about a horizontal axis at one edge of the warp of each fabric produced on the loom, the said finger being actuated from the main shaft of the  
35 loom so that it presses the first of each of the wefts which are beaten up against the corresponding fabric in pairs and keeps the same pressed against the said fabric until the change of shed has taken place and the introduction of the subsequent weft begins.

40 In the accompanying drawing, which illustrates a ribbon loom constructed in accordance with this invention, Figure 1 is a side view of the loom partly in section. Figs.  
45 2, 4, and 6 are side views, and Figs. 3, 5 and 7 are corresponding plans of parts of the loom which serve to explain the working.

The ribbon loom shown in the drawing is of the kind described in the United States  
50 Letters Patent No. 944,610, wherein two wefts which are consecutively introduced into the same warp by means of the same shuttle are together beaten up by the lay during one movement of the latter, the actua-  
55 tion of the lay *a* with respect to the actua-

tion of the dobbie *b* and the shuttle *c* being such that for each to and fro movement of the lay, the shuttles *c* are moved to and fro once and the dobbie effects two changes of shed. The mechanisms, by means of which  
60 the dobbie *b*, the shuttles *c* and the lay *a* are actuated by the main shaft *d* of the ribbon loom in the manner above described, are not illustrated since they are well known.

At the side of the lay nearest the breast  
65 beam is situated a horizontal rocking rod *e*, which is provided with a finger *g* at one edge of the warp of each of the ribbons *f* made on the loom, and with an arm *h* which, by means of the cord *i*, double-arm lever *j*  
70 and cord *k* is connected to the treadle *l* which is acted upon by a cam *m* situated on the main shaft *d*. The rod *e* is controlled by a spring *n* so that it tends to press the treadle *l* against the cam.  
75

After each beat of the lay, the rod *e* and fingers *g* are in the position shown in Figs. 2 and 3, that is to say, the fingers *g* rest on the lay and the treadle *l* on the hub of the cam *m*. (Fig. 1). A change of shed then  
80 takes place (Figs. 4 and 5), the lay comes away from the fabric and the shuttles *c* are moved through the shed in the direction indicated by the arrow *x*, Fig. 5, to put in a weft. As shown in Fig. 5 the weft is somewhat inclined, to the direction of the warp. Owing to the revolution of the main shaft  
85 the end of the boss of the cam *m* has meanwhile come into contact with the treadle *l* and has moved the latter away from the main shaft *d* in such a manner that, through the medium of the cord *k*, lever *j*, cord *i* and arm *h*, the rod *e* is turned against the action of the spring *n* in the direction of the arrow  
90 *y* (Fig. 4), that is to say, the fingers *g* are raised as shown. This movement of the fingers *g* in the direction of the arrow *y* continues until the shuttles *c* have completed their movement in the direction of the arrow  
95 *x*, each finger *g* pressing the already introduced weft thread against the fabric and continuing to press the same in the direction of the warp (Figs. 6 and 7) until the second change of shed has taken place and the shuttles begin to move in the direction  
100 opposite to that of the arrow *x* through the second open shed, in order to put in a second weft while the lay is nearing the breast beam, in order to beat the two introduced wefts. As soon, however, as the sec-  
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110

and change of shed has taken place the spring *n* again returns the rod *e* and fingers *g* into the position shown in Figs. 2 and 3 after the cam boss has become disengaged from the treadle *l*. Owing to the fact that the fingers *g* press the primarily introduced weft until the second change of shed has been effected, ribbons are obtained the edges of which do not show any protruding loops whatever.

This invention can of course be applied to ribbon looms in which, as in the case of velvet ribbon looms, two wefts are introduced simultaneously in opposite directions through two superposed sheds, and can also be applied to looms of all kinds.

In the drawing, the fingers *g* are shown of hook shape, but this form is not absolutely essential.

What we claim is:

1. In a loom, the combination of a lay, adapted to beat up together two consecutive wefts during one movement thereof, of means for changing the shed twice for each beat up of the lay and of a shuttle introducing the weft into two successive sheds of the same warp for each beat up of the lay, with a finger mounted on the lay, opposite one of the edges of the fabric manufactured on the loom, and adapted to oscillate about a horizontal axis on the said lay, a main shaft from which said finger is actuated to press against the fabric the first of each pair of wefts to be beaten up simultaneously by the lay, until a change of shed has been effected and the introduction of

the succeeding weft is beginning, substantially as described.

2. In a ribbon loom, the combination of a lay, adapted to beat up together two consecutive wefts during one movement thereof, of means for changing the shed twice for each beat up of the lay and of a shuttle introducing the weft into two successive sheds of the same warp for each beat up of the lay, with a spring controlled horizontal rocking rod, extending the breadth of the loom and provided with a plurality of fingers, each of the said fingers being mounted on the lay, opposite one of the edges of one of the fabrics manufactured on the loom, an arm associated with the said rod and connected by cords to a treadle, a main shaft provided with a cam adapted to actuate said treadle, said cam turning said rod about its longitudinal axis through the medium of said arm, cords and treadle in such a manner that each of the said fingers presses against the corresponding fabric the first of each pair of wefts to be beaten up simultaneously by the lay, until a change of shed has been effected and the introduction of the succeeding weft is beginning, substantially as described.

In witness whereof we have hereunto signed our names this 3d day of February 1910, in the presence of two subscribing witnesses.

ARNOLD HANDSCHIN.  
HANS KUNY.

Witnesses:

GEO. GIFFORD,  
AMAND RITTER.