No. 651,852. Patented June 19, 1900.

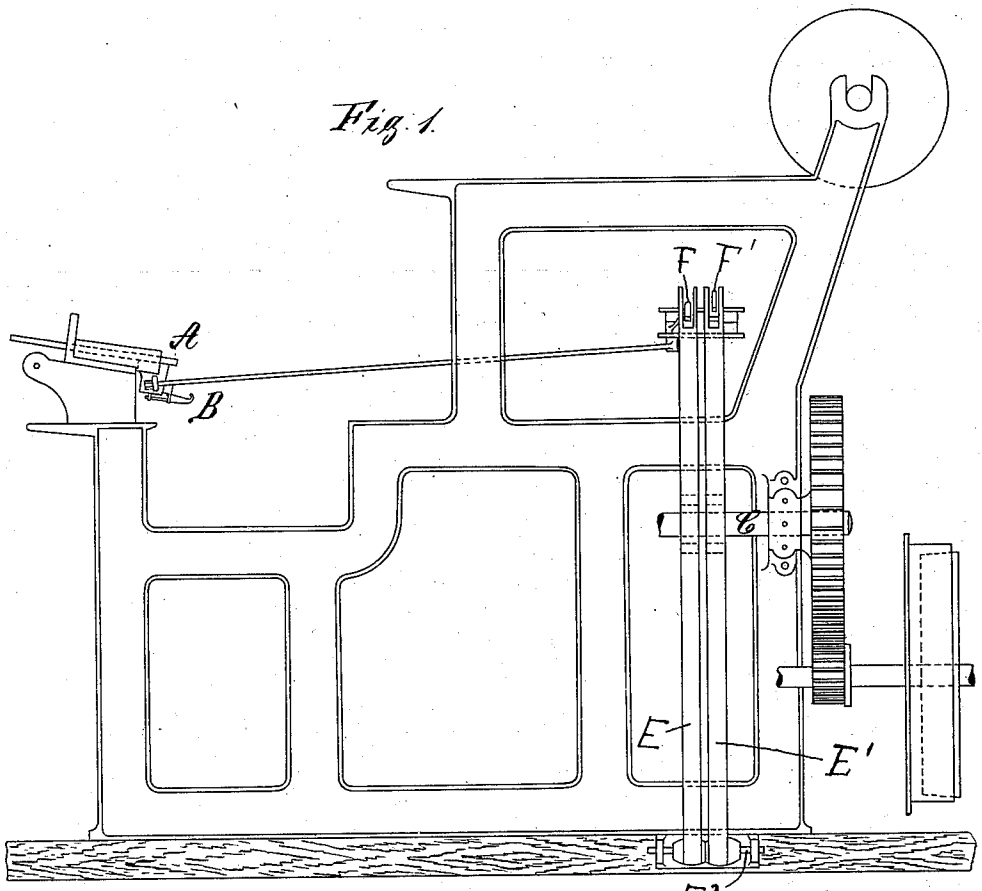
O. HALLENSLEBEN.

TUFT WEAVING AND CUTTING DEVICE FOR LOOMS.

(Application filed Nov. 5, 1897.)

(No Model.) 3 Sheets—Sheet 1.

Fig. 1.



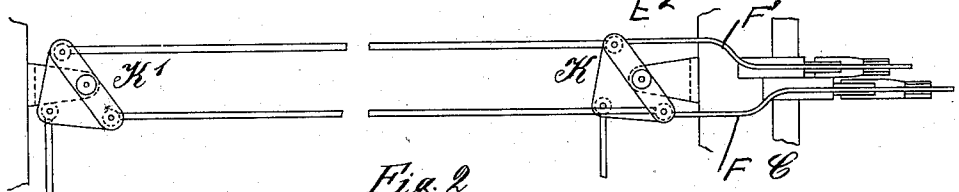
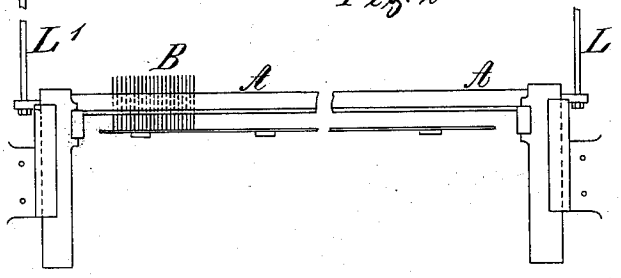


Fig. 2.



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Fig. 3.

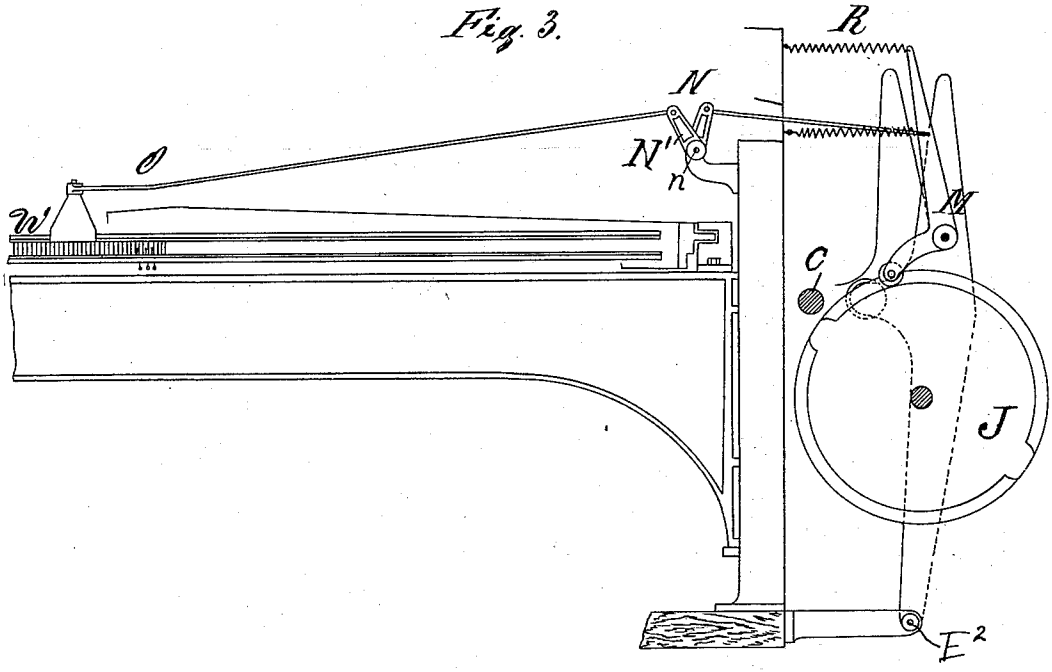
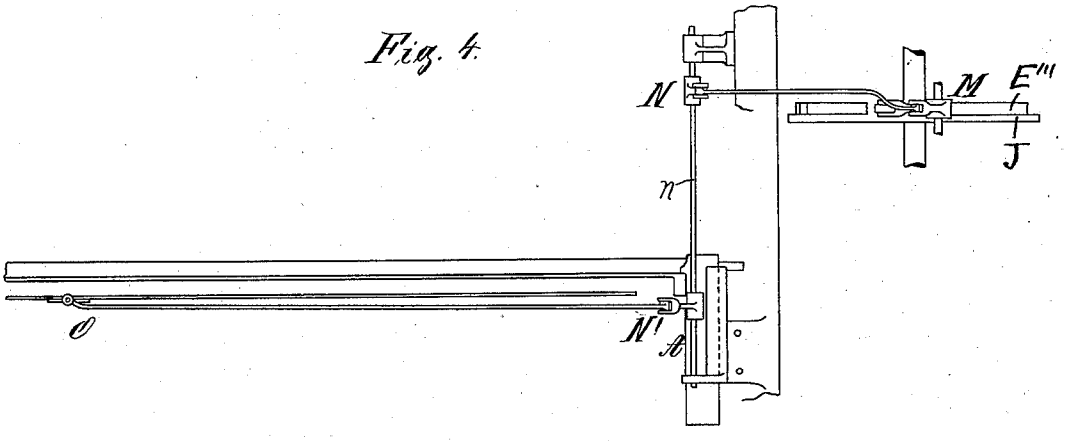


Fig. 4.



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Fig. 6.

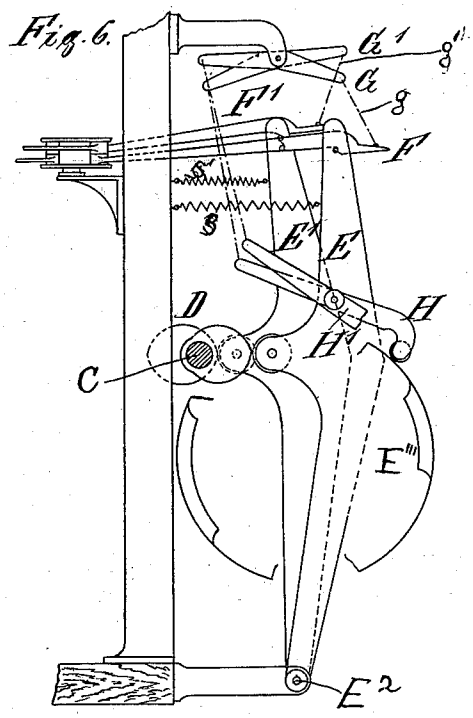


Fig. 5.

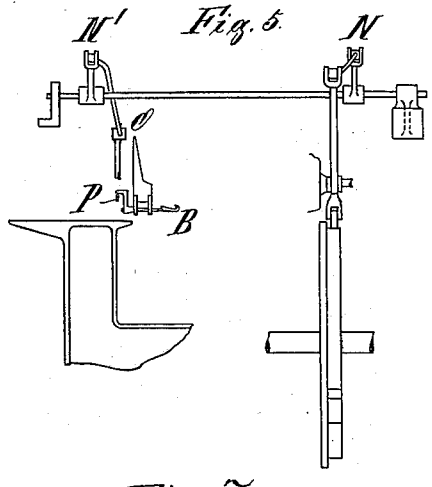
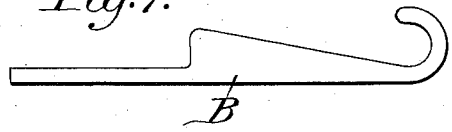


Fig. 7.



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UNITED STATES PATENT OFFICE.

OTTO HALLENSLEBEN, OF HILDEN, GERMANY.

TUFT WEAVING AND CUTTING DEVICE FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 651,852, dated June 19, 1900.

Application filed November 5, 1897. Serial No. 657,564. (No model.)

To all whom it may concern:

Be it known that I, OTTO HALLENSLEBEN, a subject of the King of Prussia, German Emperor, and a resident of Hilden, in the Province of the Rhine, German Empire, have invented a new and Improved Wire-Tuft Weaving and Cutting Device for Looms, of which the following is an exact specification.

This invention relates to a device for looms, more especially the kind employed in the manufacture of Smyrna carpets, and has for its object not only the weaving or forming of the pile-tuft, but at the same time the cutting apart of the said pile-tuft. This effect is usually attained by arranging a rail or bar A at the fore portion of the loom above the breast-beam, said rail or bar being parallel to the direction of the weft-thread and adapted to approach the shed or opening of the fabric or to move away from the same and having a number of hooks corresponding to the number of pile-warps, which hooks are lifted by a suitable or corresponding movement of the rail along or between the threads, said hooks before their revolution gripping the threads and by their return movement forming the tufts of pile and upon a repeated forward movement and after the pile-tufts thus formed have been tightly woven the said pile-tufts being cut through by means of a suitable knife attached to the shaft of each hook.

In order to make my invention more clear, I refer to the accompanying drawings, in which similar letters denote similar parts throughout the different views, and in which—

Figure 1 shows a side view of my improved device attached to the loom. Fig. 2 shows the device in plan; Fig. 3, the same in elevation. Fig. 4 is a plan of Fig. 3; Fig. 5, a rear view of Fig. 3; Fig. 6, the mechanism imparting the forward and backward motion to the knife. Fig. 7 illustrates a detail view of a knife.

Above the breast-beam of the loom, as hereinbefore indicated, a bar or rail A is arranged, movable in a cross direction, from which bar A are movably journaled small knives or cutting edges B, said knives also being provided with hooks. These knives are inserted in the threads and elevated by the shafts, which cause the knives to move in a lateral direction in such manner that upon the return movement of the rail A the threads are gripped by all the hooks. These threads are now tightly woven to the fabric, and after the knives have ascended they are again drawn forward into engagement with the threads, and thus cut through the loops over or above the hooks.

The movements necessary for the herein-before-described operations are as follows: On one side of the loom is a movable shaft C, Fig. 1, upon which is secured a double eccentric D, Fig. 6. This double eccentric imparts a swinging movement to two levers E E′, pivoted at E^2 and held or pressed against said eccentric by means of springs S S′, Fig. 6. Above these levers E E′ are two pawls F F′, under which the levers E E′ can usually freely oscillate. These two pawls F F′ are lowered by means of the levers G G′, from which the same are suspended by wires *g g′* as soon as the roller of the levers H or H′ reaches or drops into a recess in the eccentric E‴. The disk J for operating the crank-lever M and the eccentric E‴ for operating the levers H H′ are situated side by side and mounted on the same shaft, as illustrated in Fig. 4. If, for instance, the lever G′ is lowered, the pawl F′ would grip the lever E′ and would draw the pawl to the right, and as these said pawls are bolted to the crank-levers K K′, Fig. 2, and these crank-levers K K′ attached to the cutting mechanism A by means of connecting-rods L L′ it will be clear that the said rail or bar A will be drawn forward and will cause the hooks B to enter between the threads. The crank-levers K K′ are double-armed levers the extremities of which are connected together, as shown in Fig. 2. The now necessary lateral movement of the hooks for the purpose of gripping the threads is effected by means of a disposition or arrangement of parts, as hereinafter more fully described and shown in Figs. 3, 4, and 5. This method of operation is as follows: A nose or projection upon the disk J is caused for the above-mentioned purpose to come into engagement with the roller of the crank-lever M, Fig. 3, which has the effect of drawing the lever N to the right, Figs. 3 and 4, in such manner that a laterally-elevating movement is imparted to the comb W, connected to the said lever N by means of a second lever N′, linked

to the comb W by a rod O. The levers N N′ are rigidly fixed to a common axis *n*. The motion given to the crank-lever M by means of the disk J is communicated through the levers N N′ to the small cranks P of the comb W, which causes the knives provided with hooks to make a quarter of a revolution. The necessary return movement of the bar or rail A, as well as the hook-knives B, takes place upon the descent of the pawl F in a similar manner as hereinbefore described with reference to the forward motion of the same, whereby after the threads have been woven above the hooks the nose or projection of the disk E‴, Figs. 3 and 4, moves away from the lever M, so that now by means of the spring R, attached to the frame of the machine and to the extremity of the lever M, the knife B is again drawn upward, so that when the rail A again moves forward the said knife severs the loop or cuts the same apart, the method of forming this loop having been hereinbefore described.

Having thus fully described the nature of this invention and in what manner the same is to be performed, what I desire to secure by Letters Patent of the United States is—

In an improved pile-tuft-weaving device for looms, a rail A bearing against the breast-beam, in combination with hooks B carrying cutting-knives and being journaled in said bar, a shaft C, a double eccentric D secured to said shaft C, levers E E′ pressed against the eccentric, pawls F F′, located above the levers E E′, levers G G′ lowering the pawls F F′, a disk E‴, a comb W and means to transmit the movements of the levers E E′ to the comb W and the hooks B, for the purpose and substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

OTTO HALLENSLEBEN.

Witnesses:
ERNEST ANDRÉ,
WILLIAM ESSENWEIN.