

C. Duckworth.
Shedding

N^o 49,090.

Patented Aug 1, 1865.

Fig. 1.

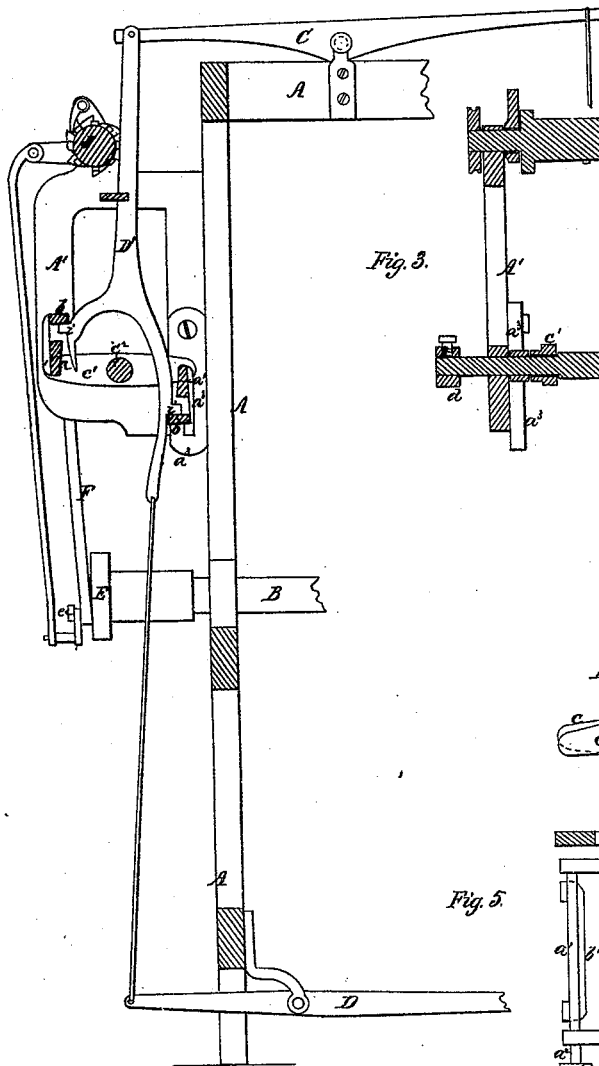


Fig. 3.

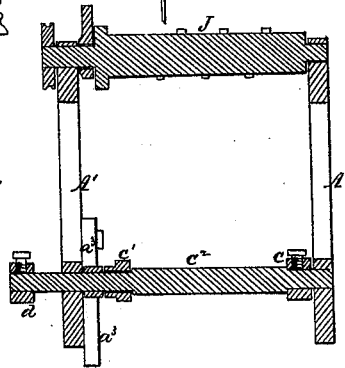


Fig. 2.

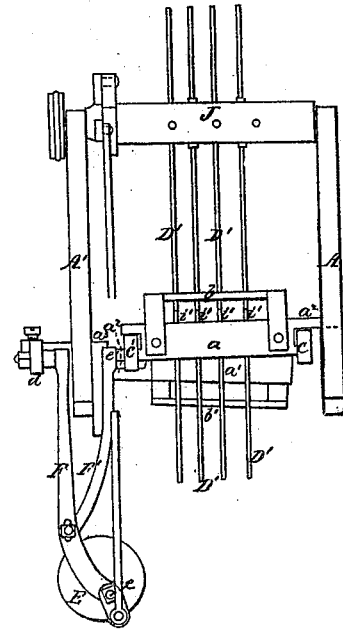


Fig. 4.

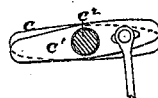
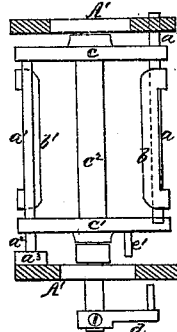


Fig. 5.



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C. DUCKWORTH, OF MOUNT CARMEL, CONNECTICUT.

IMPROVEMENT IN HARNESS-MOTIONS FOR POWER-LOOMS.

Specification forming part of Letters Patent No. 49,096, dated August 1, 1865.

To all whom it may concern:

Be it known that I, C. DUCKWORTH, of Mount Carmel, New Haven county, State of Connecticut, have invented a new and Improved Harness-Motions for Power-Looms; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a vertical sectional view through the contrivances for moving the harness. Fig. 2 shows the knives and hooks and the connecting-rods for giving motion to them. Fig. 3 is a vertical section through the studded pattern-cylinder and the shaft upon which the arms of the knives and hooks have their bearings. Figs. 4 and 5 show the manner of sustaining and guiding the knives and their hooks.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates to that kind of harness-motion which is especially adapted for fancy or figured weaving, and in which the movement of the harness and opening of the shed are effected by means of contrivances acting in proper times upon and giving an alternate reciprocating motion to hooked rods which are connected to the levers or jacks of the harness.

The main object of my invention is to obtain a uniform pitch or inclination of the shed, whichever heddles may be brought into action for opening the same, by so applying the knives which operate upon the hooked rods above mentioned to their shaft that one of the ends of each knife will have a motion imparted to it independently of their opposite ends, as will be hereinafter described.

Another object of my invention is to employ hooks in conjunction with the knives, which are constructed and applied in such manner as to perform the office of closers for the jacks.

To enable others skilled in the art to make and use my invention, I will describe its construction and operation.

In the accompanying drawings I have only represented those parts of a loom which are intimately connected with the contrivances that constitute the subject of my claims.

A is the frame of a loom, and B the driving-shaft which gives motion to the contrivances for actuating the harness.

C D are levers or jacks, between which the heddles are stretched in the usual manner, and D' are the hooked rods, which are attached to the outer ends of the jacks, and which are so formed as to receive an up-and-down motion from the knives *a a'* and hooks or closers *b b'*. The knives *a a'* are pivoted at their ends to two arms, *c c'*, which are applied to a rock-shaft, *c²*, that has its bearings upon a frame, *A'*, as shown in Figs. 1, 2, and 3, and one end of each knife projects beyond its respective arm and fits loosely into a vertical slot. The projection *a²* of the knife *a'* works in a slot which is made in an adjustable plate, *a³*; but the projection *a²* of the knife *a* works in a slot which is made through one side of the frame *A'*. Both knives work in vertical planes; but they are not always in horizontal planes. The arm *c* is keyed rigidly to its shaft *c²*, and rocks with this shaft; but the arm *c'* is applied loosely on its shaft *c²*, so that it can be rocked independently thereof. On the outer end of the rock-shaft *c²* a crank, *d*, is keyed, which connects with an eccentric wrist-pin, *e*, on the wheel E of the driving-shaft B by means of a pitman-rod, F, as shown in Fig. 2. By revolving the wheel E a certain amount of motion is given to the arm *c*, and to those ends of the knives which are pivoted to this arm.

At an intermediate point between the ends of the pitman F a pitman, F', is pivoted, which connects with the loose arm *c'* by means of a wrist-pin, *e'*, which can be adjusted and set nearer to or farther from the shaft *c²* at pleasure. The point at which the pitman F is connected to its arm or crank *d* is farther from the center of the rock-shaft *c²* than the point at which the pitman F' is connected to its arm *c'*; hence it will be seen that the extent of vibration or length of movement of the arm *c'* will be greater than that of the arm *c*, and consequently the knives *a a'* will at certain times during the movement of the parts assume inclined planes, one knife inclining in an opposite direction to that of the other knife, as shown in Fig. 2.

The amount of inclination which it is de-

sired to give the knives *a a'* may be varied by adjusting the wrist-pin of the pitman *F'*, as above described. By thus inclining the knives I give a corresponding inclination to the shed, and effect this object without giving to the parts the irregular jerking motion which is found in harness-movements wherein the knives are permanently inclined. The hooks or projections *i i'* of the rods *D' D'* are acted upon by plates *b b'*, which are secured to the knives *a a'* in planes parallel to the same, as shown in Figs. 1 and 5, so as to receive said projections between them and the knives, as shown in Fig. 1. These plates *b b'* I term "closers," as they serve to depress and to lift the hooked rods *D' D'* and the outer ends of the jacks, at the same time admitting of the required movements being given to said hooked rods by the studded pattern-drum *J*.

Having thus described my invention, what

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

1. The employment of a loose cross-arm, *c'*, upon the rock-shaft *c²*, in combination with the knives *a' a* and fixed cross-arm *c*, substantially as described.

2. The double-acting pitman-rods *F F'*, the former being connected to the rock-shaft *c²* and the latter being connected to the loose arm *c'*, substantially as described.

3. The slotted adjustable guide *a³*, in combination with the projection *a²* on the knife *a'*, substantially as described.

4. The specified construction, arrangement, and combination of the closers *b b'* and knives *a a'*, when the latter are operated as described, for the purpose set forth.

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