C. L. McDowell.

Hand Loom.

No. 52,300. Patented Jan. 30, 1866.

Fig. 1.

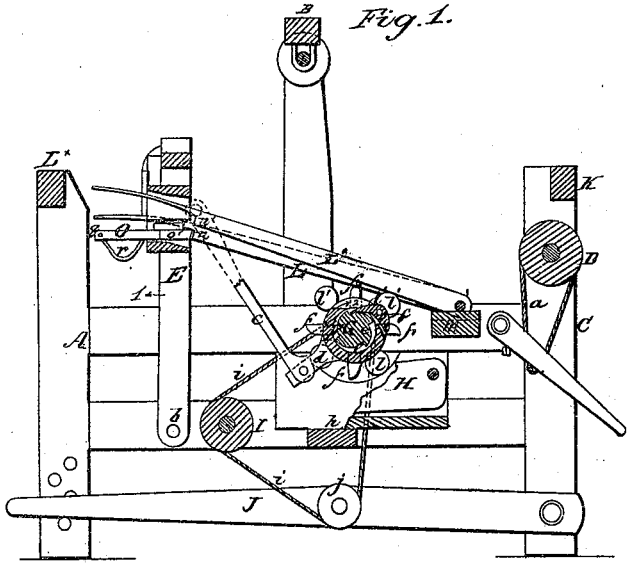
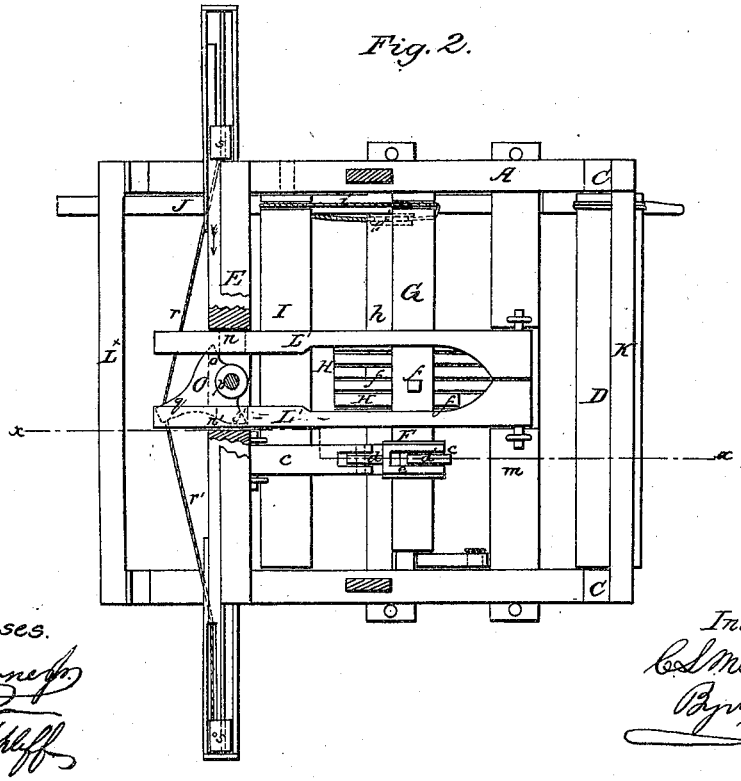


Fig. 2.



Witnesses.

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C. L. McDOWELL, OF WASSONVILLE, IOWA.

IMPROVEMENT IN HAND-LOOMS.

Specification forming part of Letters Patent No. **52,306**, dated January 30, 1866.

To all whom it may concern:

Be it known that I, C. L. McDOWELL, of Wassonville, in the county of Washington and State of Iowa, have invented a new and useful Improvement in Looms; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a longitudinal vertical section of this invention, the plane of section being indicated by the line *x x*, Fig. 2. Fig. 2 is a plan or top view of the same.

Similar letters of reference indicate like parts.

My invention consists, chiefly, in a novel method of operating the devices which propel the shuttle; and, secondly, in the method of operating the cloth-beam, as hereinafter described.

A represents a frame, made of wood or any other suitable material in the usual form of frames for looms. From the middle of this frame rise two uprights, which support the heddle-bearer B, and the posts C at one end of the frame form the bearings for the yarn-beam D, the motion of which is regulated by the tension of a rope, *a*, wound round one end of said yarn-beam and strained by means of a lever or in any other desirable manner.

E is the batten which oscillates on a rod or gudgeons, *b*, having their bearings in the longitudinal rails of the frame A, and this batten connects, by a rod or pitman, *c*, with the shank *d* of a click-wrench, F. This wrench is composed of a sleeve fitted loosely on the shaft G, and provided with a slot and suitable lugs, which form the bearings for the fulcrum-pin *e* of a click or dog, *d'*. This click drops into cavities *e* cut in the surface of the shaft G, as shown in Fig. 1 of the drawings. This shaft has its bearings in the longitudinal rails of the frame A in the usual manner; but instead of having a continuous rotary motion, it makes only one-quarter revolution for each stroke of the batten. This object is effected by the click-wrench F, as above described. If the batten moves forward in the direction of arrow 1, the click-wrench turns back in the direction of arrow 2, (marked near it in Fig. 1,) and the click *d'* slides over the teeth in the shaft without imparting any motion to it, thus causing said click to take a new tooth; but if the batten moves back in the direction opposite to arrow 1, the click-wrench is caused to rotate in the direction opposite to arrow 2 and the shaft G makes a partial revolution. If four teeth are cut in the shaft, it makes one-quarter revolution for each stroke of the batten; but it is obvious that the number of teeth can be increased or decreased to suit the number of treadles.

The shaft G carries four sets of tappets or cams, *f*, which act alternately on the treadles H. Said tappets may be secured in suitable mortises in the shaft by means of set-screws, so that they can readily be removed and arranged in any desirable order. For instance, if four tappets and four treadles are used, said tappets may be so arranged that they act on the treadles in regular order, beginning at the first and ending at the last; or they may be so placed that the third treadle will be depressed immediately after the first, then the second and fourth; or the tappets may be so placed that only two of the tappets are actuated and the remainder remain stationary. It is obvious that the number of treadles and the corresponding number of tappets can be increased or decreased as occasion may demand.

The treadle-box is supported by a cross-bar, *h*, of the frame A, and the treadles are constructed and shaped in the usual manner.

From the shaft G extends a cord or rope, *i*, around the cloth-beam I and around a pulley, *j*, which is pivoted to a long lever, J, situated on one side of the frame, near the bottom. By the action of this lever the tension of the rope *i* can be regulated and the cloth-beam is compelled to revolve with the shaft G.

The cloth-beam has its bearings in the lower longitudinal rails of the frame A, and by its action the finished fabric is wound up. If there is any slack, it will be taken up by the cloth-beam; if there is none, the rope *i* will slip and the yarn-beam will remain stationary.

The tappets *f* are also arranged in such a way that they can be easily lengthened and shortened, so as to get a good shed, and the tension of the warp, which is stretched from the yarn-beam over the beam K and breast-beam L* to the cloth-beam, is regulated by the

friction of the rope wound round the end of the yarn-beam and tightened by a suitable lever. As the weft is beaten up by the lay the friction of this rope is overcome and the yarn-beam is moved over the width of one thread.

The shaft G also carries two tappets, *l l'*, to operate the picker-staffs L L'. These picker-staffs are pivoted to the cross-bar *m* of the frame A, and they extend through mortises in the batten, as clearly shown in the drawings. Each of these pickers is provided with a shoulder, *n* or *n'*, which act on the noses *o o'* of the picker O. This picker oscillates on a vertical pivot, *p*, and an arm, *q*, extending from it in front of the lay connects, by cords *r r'*, with the flies S S'. The picker-staffs are alternately raised and lowered by the tappets *l l'*, so that they act at the proper intervals on the pickers O, one to throw the shuttle in one and the other to throw it in the opposite direction. In the position shown in Fig. 2, for instance, the batten has receded, the picker-staff L' is raised, and the picker-staff L has acted on the nose *o*, and the fly S, together with the shuttle, has been thrown in the direction of the arrow marked near it in said figure. On the next succeeding back-stroke of the batten the picker-staff L is raised by the tappet *l*, and the picker-staff L' comes in action and throws the shuttle in the opposite direction.

It will be noticed that the mechanism of my loom is governed by the oscillating motion of the batten. Its construction is simple, and a thoroughly uniform motion is effected, so that the fabric woven on it preserves a uniform density throughout.

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

1. The specific combination and arrangement of the picker-staffs L L', shaft G, tappets *l l'*, picker O, and flies S S, when the motion of all these parts is derived from the batten, as herein set forth.

2. Communicating the required motion to the cloth-beam from the batten by the means described.

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Witnesses:
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