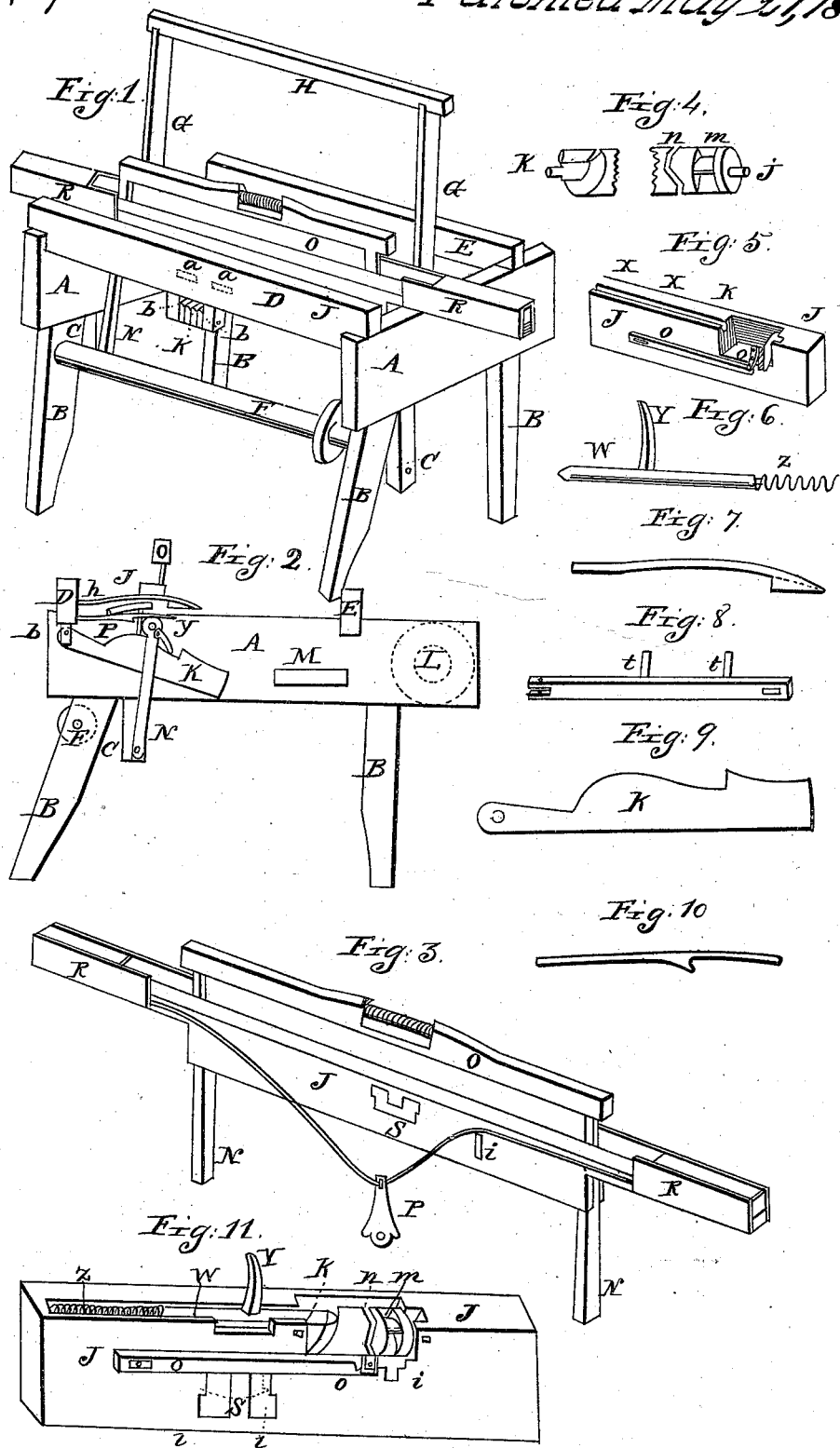


Hand Loom.

N^o 7,378.

Patented May 2, 1850.



UNITED STATES PATENT OFFICE.

JOHN G. GARRETSON, OF SALEM, IOWA.

HAND-LOOM.

Specification of Letters Patent No. 7,378, dated May 21, 1850.

To all whom it may concern:

Be it known that I, JOHN G. GARRETSON, of Salem, in the county of Henry and State of Iowa, have invented a new and useful Improvement in Looms, which I call the "Imperial Loom" and do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is an elevated perspective view of the loom put up containing the parts I claim as my invention. Fig. 2 is a sectional view of the same showing the position of the breast beam, mid beam, axis of the lathe, a section of its body with the cam wheel and pickerstaff therein, a view of one of the drivers, the finger, the hand, one of the treadles &c. Fig. 3 is a front view of the lathe with the pickerstaff attached to the picker straps. Fig. 4 is a view of the cam wheel drawn in two parts the better to show each end, this cam wheel is seen in section at *r* Fig. 2. Fig. 5 is a section of the body of the lathe in an inverted position showing the aperture in which the cam wheel is to be placed, the groove for the finger staff and spring the mode of attaching the lifting slide, &c. Fig. 6 is the finger staff with its finger and spring. Fig. 7 is one of the drivers. Fig. 8 is the lifting slide. Fig. 9 is one of the treadles. Fig. 10 is the hand. Fig. 11 is a view of a section of the body of the lathe in an inverted position showing the mode of attaching the cam wheel the lifting slide the finger staff &c.

My improvement in looms chiefly consists in the novel method of shedding the web by the direct action of the lathe upon the treadle by means of the finger at each backward vibration of the lathe coming in contact with a shoulder or jog on the treadle provided for that purpose, together with machinery attached to and in the body of the lathe suitable for moving the finger successively from treadle to treadle such as the nature of the fabric may require, also machinery suitable for propelling the shuttle back and forth immediately after the shed is produced.

A frame suitable for supporting a lathe so constructed with the parts connected therewith may be of the kind represented in Fig. 1 and Fig. 2 all of which I will now proceed to describe and refer to by letters,

the letters referring to the like letters on the drawings.

Let A A, Fig. 1, the sides be $2\frac{1}{2}$ by 10 inches and 4 feet long connected together by a tie say $2\frac{1}{2}$ by 10 inches the tenons entering the mortise M Fig. 2. Into A A Fig. 1 I affix B B B B Fig. 1 the legs of suitable size and length.

C, C, Fig. 1 are timbers inserted into A A to furnish an axis for the lathe, as represented at C, N Fig. 2.

D, Fig. 1, is the breast beam $2\frac{1}{2}$ by 5 and rising $3\frac{1}{2}$ inches higher than A, A, Fig. 1 also into D Fig. 1 I make the mortises *a, a* Fig. 1 about $\frac{1}{2}$ by 2 inches to receive the driver Fig. 7.

b b, Fig. 1, are proper supports for the axis of the treadles K Figs. 1, 2 and 9 and affixed into D Fig. 1. The mid beam E Fig. 1 is of the same size of D and placed as seen at E Fig. 2.

F, Fig. 1 is the cloth beam. L Fig. 2 is the outline of the yarn beam.

G, G Fig. 1 are standards about 20 inches high, affixed into A A Fig. 1 for the purpose of sustaining H Fig. 1 a beam used for supporting the harness.

J, Fig. 3, is the lathe with its parts marked N, O, P, R, S and *i* to construct which take scantling say 3 by 6 and about 7 feet long into which at a proper distance apart I insert the swords N, M, timbers say 2 by 2 and 25 inches long the use of the swords is to hang the lathe upon, the axis of which may be seen at C N Fig. 2 the upper end of the swords is made to extend through the body of the lathe J Fig. 3 to support the cap O Fig. 3, the use of the cap is to help confine the reed and furnish a hand hold to operate by when propelled by hand.

R R Fig. 3 are the shuttle boxes of the common or any suitable kind, the aperture *i* Fig. 3 is about 3 inches long and one inch wide for the admission of the hand hereafter to be described.

S, Fig. 3, is a mortise through the lathe $5\frac{1}{2}$ inches wide and two inches deep as represented in the figure its use is first to receive P Fig. 3 the pickerstaff where its axis is fixed in the center of the mortise secondly to admit the drivers Fig. 7 one of which passes through the lathe on each side of the picker staff.

P Fig. 3 is the pickerstaff made of hard wood or other suitable material about $\frac{3}{4}$ of

an inch thick and about 3 inches wide at the widest part and $5\frac{1}{2}$ or 6 inches long the shoulders as seen in the figure are for the purpose of being acted upon by the drivers Fig. 7 alternately throwing the small end back and forth which motion is communicated to the shuttle by the common means of straps and pickers Fig. 4 the cam wheel is a cylinder say $2\frac{1}{2}$ inches in diameter and 6 inches long exclusive of its journals J, K Fig. 4 which may be $\frac{3}{4}$ of an inch diameter and one inch long. Near one end thereof I cut 4 or 6 notches one inch wide and $\frac{3}{8}$ of an inch deep as at *m* Fig. 4 the use of these notches is to be acted upon by the shoulder or projection of the hand Fig. 10 as the lathe is drawn forward or toward the cloth, one end of the hand Fig. 10 being fixed in D Fig. 2 part of which as seen at *h*, Fig. 2, the other end passing through the mortise *i* Fig. 3 and lays immediately over the cam wheel at the notch *m*, Fig. 4, and is acted upon by the shoulder of the hand Fig. 10 and thereby causes the cam wheel Fig. 4 to move onward the distance of one notch that is $\frac{1}{4}$ or $\frac{1}{6}$ of a revolution every time the lathe is drawn forward for the purpose of beating up the filling.

At *n* Fig. 4 I cut zigzag groove about $\frac{1}{4}$ inch wide and deep and diverging about one fourth of an inch back and forth and terminating at the beginning point, the use of this zigzag groove is to act on a projection of the lever of the lifting slide seen at *o* Fig. 5 and thereby communicating to the lifting slide Fig. 8 an onward and backward motion alternately of about $\frac{3}{4}$ of an inch so as to cause the projections *t*, *t* Fig. 8 alternately partially to fill the aperture S Fig. 3 and thereby causing the driver on that side to pass over the shoulder of the picker staff P Fig. 3 while (at the backward vibration of the lathe) the other driver comes in contact with the shoulder of the pickerstaff and communicates the proper motion to the picker straps picker and shuttle the projections *t t* may be seen at the dotted lines extending from *t t* Fig. 11.

At the end of the cam wheel Fig. 4 next *z* I cut a spiral cam of about $2\frac{1}{4}$ inches pitch in the whole revolution; the use of this cam is to act on the end of the fingerstaff W Fig. 6 and cause it to move about $\frac{3}{4}$ of an inch onward (or the thickness of one treadle) at each forward vibration of the lathe so that the finger Y Fig. 6 may at the next backward vibration of the lathe stand over and be ready to act upon the next treadle and so on until the cam wheel makes a full revolution when the spring Z Fig. 7 causes the fingerstaff W Fig. 6 to recoil and so place the finger Y Fig. 6 in a situation to act on the first treadle.

Fig. 5 is a section of the body of the lathe already described this figure represents the

lathe in an inverted position showing the aperture in which the cam wheel Fig. 4 is to be placed J K the bearings of its journals. X X shows the groove for the fingerstaff and springs.

W Fig. 6 the fingerstaff is a cylinder $\frac{3}{4}$ of an inch in diameter and 11 inches long to which is attached the finger Y about $4\frac{1}{2}$ inches long both of hard wood or other suitable material Z Fig. 6 is a spring of $\frac{1}{16}$ inch wire of which 40 or 50 coils are required. The use of the spring is to make the fingerstaff recoil back from the extreme point of the cam and thereby place the finger Y Fig. 6 in a situation to act on the first treadle in the series.

Fig. 7 is the driver of which 2 are used being about 15 inches long 2 inches wide and $1\frac{1}{4}$ inches thick at the thickest part being provided with a shoulder near one end as seen in the figure one end of the driver may be seen entering at D Fig. 2 into one of the mortises *a*, *a*, Fig. 1 the use of the driver is to act on the shoulder of the pickerstaff P Fig. 3 for the purpose of throwing the shuttle as already described.

Fig. 8 is the lifting slide and may be made of a strip of wood $\frac{1}{2}$ by 1 inch and 15 inches long the projections *t t* are inch strap iron about 2 inches long and properly secured by rivets or other wire the lifting slide with its lever is seen at O O Fig. 5 properly placed in or on the lathe.

Fig. 9 is the treadle marked K $\frac{3}{4}$ of an inch thick $3\frac{1}{2}$ inches wide and 15 inches long and proportioned as the figure represents provided with a shoulder upon which the finger Y Fig. 6 is to act to bear down the treadle for the purpose of shedding the web the proper place for the axis of the treadles is at *b* Fig. 2. At Y Fig. 2 may be seen the finger ready to come in contact with the shoulder of K Fig. 2 by moving the lathe J Fig. 2 backward.

Fig. 10 is the hand made of hard wood or other suitable material about 14 inches long and $\frac{3}{4}$ of an inch wide and provided with a shoulder at about 9 inches from its axis in D Fig. 2 where a section of it may be seen at *h* Fig. 2 the other end entering the aperture *i* Fig. 3 to give motion to the cam wheel Fig. 4 as above described.

Fig. 11 is a view of the back of the lathe in an inverted position showing the parts already described and the letters and marks represent similar parts as in the foregoing figures.

The operation on the loom when propelled by hand power may be performed thus: Take hold of the handle in Cap O Fig. 1 and push the lathe backward until the finger Y Fig. 2 comes in contact with shoulder seen at K Fig. 2 the treadle still pushing back the lathe J Fig. 2 the finger Y Fig. 2 approaches nearly in a line parallel with N

Fig. 2 the sword compelling the treadle downward and consequently the harness and web and a shed is produced preparatory to the passage of the shuttle. The shuttle is then thrown in the following manner as soon as the web is opened wide enough by the above operation the shoulder of the driver Fig. 7 and seen also at D Fig. 2 comes in contact with one of the shoulders of P Fig. 2 the pickerstaff and produces the necessary motion to the picker and the shuttle passes through. Then by drawing the lathe forward one of the notches *m* Fig. 4 comes in contact with the shoulder of the hand Fig. 10 and the cam wheel Fig. 4 is moved forward one notch. The lifting slide Fig. 8 is thereby caused to move so that one of the projections *t t* Fig. 8 may partially fill that part of the mortise S Fig. 3 in which the driver has last acted on the pickerstaff at the same time opening that side of S Fig. 3 on which the other driver is next to act. The same motion of the cam wheel Fig. 4 just described acting by its cam on the end of the fingerstaff W Fig. 11 causes the finger Y Fig. 11 or Y Fig. 2 to pass over to the next treadle on the left continuing to pull forward you beat up the filling and the next backward motion produces the same effect, that is opens the web and throws the shuttle through and so on thus by varying the pitch of the cam wheel, the number of treadles the mode of hang-

ing the harness plane cloth and many of the various kinds of twilling is produced. 35

What I claim as my invention and desire to secure by Letters Patent is

1. The shedding the web by the direct action of the lathe on the treadles by means of the movable finger Y Fig. 6 and the fingerstaff W Fig. 6 or any similar fixtures for the purpose bearing down the treadle and thereby producing a shed in the web at the backward vibration of the lathe. 40

2. I also claim as my invention the combined action of the hand Fig. 10 cam wheel Fig. 4 fingerstaff W Fig. 6 and the finger Y Fig. 6 upon the treadles K Fig. 9 as above described for the purpose of shedding the web by the backward vibration of the lathe. 50

3. I also claim the combined action of the hand Fig. 10 cam wheel Fig. 4 by the zig-zag groove *n* Fig. 4 lifting slide Fig. 8 and drivers Fig. 7 upon the pickerstaff P Fig. 3 as above described for the purpose of throwing the shuttle back and forth alternately at each backward vibration of the lathe immediately after the shed is produced the loom to be propelled by hand or other suitable power—all the above parts being substantially as herein described. 60

JOHN G. GARRETSON.

Attest:

JNO. A. LYNCH,
LUKE DAVIS.