

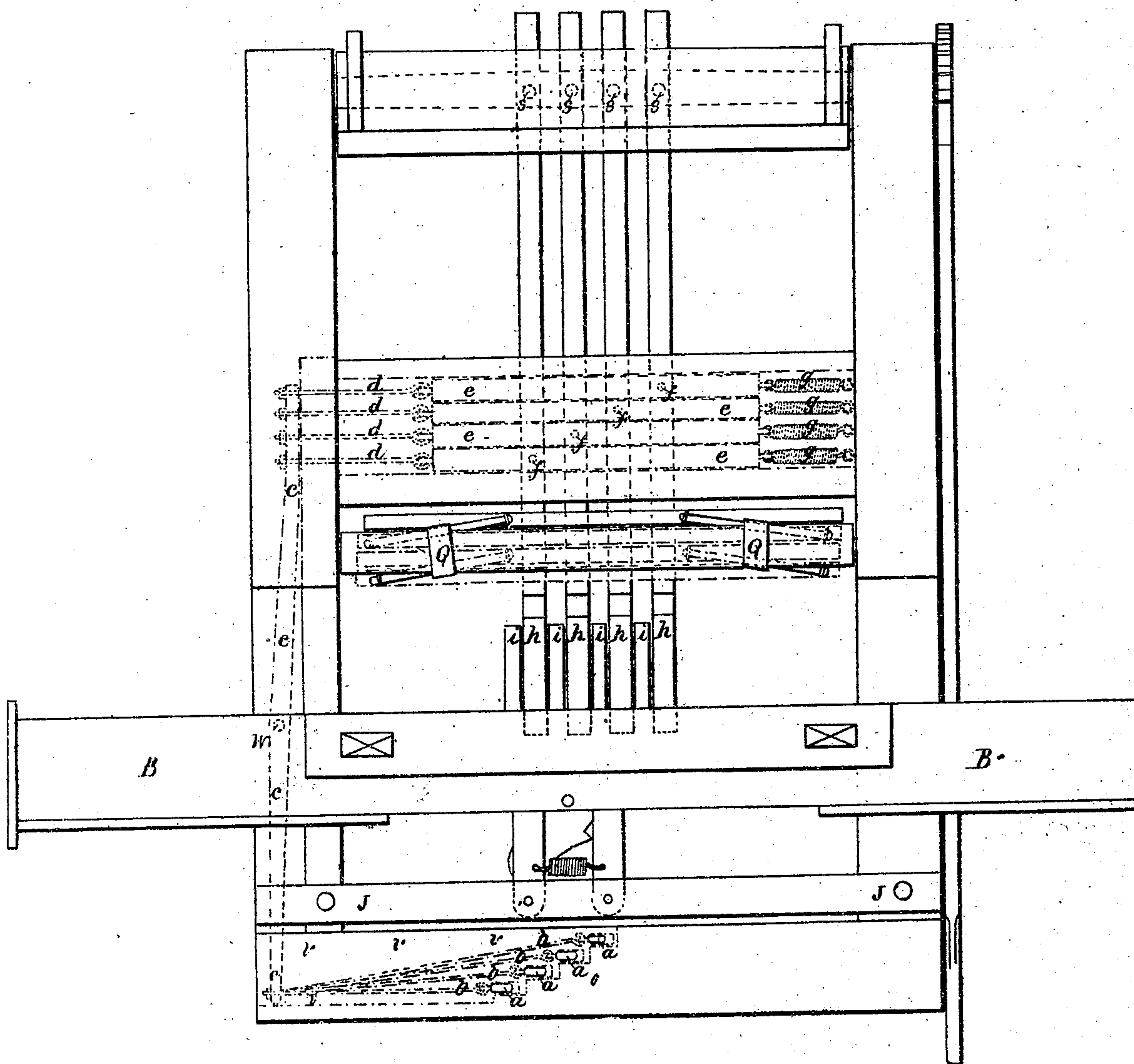
The specification in this application
is not to be construed as limiting

J. A. Mitchell.
Hand Loom.

Nº 10,340.

Patented Dec. 20, 1853.

Fig. A



UNITED STATES PATENT OFFICE.

JAMES A. MITCHELL, OF RINGGOLD, GEORGIA.

HAND-LOOM.

Specification of Letters Patent No. 10,340, dated December 20, 1853.

To all whom it may concern:

Be it known that I, JAMES A. MITCHELL, of Ringgold, in the county of Walker and State of Georgia, have invented and made
5 certain new and useful Improvements in Looms for Weaving, which invention and improvement I term the "Piano Hand-Loom;" and I do hereby declare that the following is a full, clear, and exact de-
10 scription of the method of construction and mode of operating the same, reference being had to the accompanying drawings, and making a part of this specification, in which—

15 Figure A, is a top sectional view of the loom, showing the piano-like keys, pegs, or knobs *a, a, a, a*, with the lever connecting rods *b, b, b, b* the horizontal lateral levers *c, c, c, c*, the lever connection rods *d, d, d, d*,
20 the treadle actuating bars *e, e, e, e*, with their pins or bolts connection *f, f, f, f*, and helical springs *g, g, g, g*, the harness treadles *h, h, h, h*, the treadle actuating forks *i, i, i, i*, the cloth beam or rail *J, J*, the cloth roller
25 or cylinder *k, k, k, k*, the chain or warp cylinder *L, L, M, M, M, M, N, N*; the treadle beam or fulcrum rail; *O, O*, the front beam or finger board; *g, g*, the harness; *s, s*, the pivots or fulcrum axis of the treadle; *v, v, v*,
30 *v, v*, the key recess, or chamber of the finger board; *B, B*, the batten or beater beam.

To enable others to be skilled in the use and application of my invention and im-
35 provements, I will proceed to describe the construction and operation thereof, the nature and principles of which, consist in the usual form of constructing hand looms, and the combining therewith, new and original mechanical combination, the description of
40 which I will give; deeming a detail of the loom in general unnecessary.

By reference to the drawing Fig. A, the mechanism is shown; exhibiting the piano-like action, keys, pegs or knobs, *a, a, a, a*,
45 arranged within a recess or chamber *v, v, v, v, v*, formed in the front rail *O, O*, which is the finger board for the mechanism, and forms part of the loom frame, said keys, or knobs *a, a, a, a*, projecting the required
50 distance upward, through corresponding apertures or openings, formed in the finger board or top plane *o, o*, of the loom frame, and arranged, not in a direct line transversely or longitudinally, but obliquely
55 across the finger board *o, o*, at suitable distances apart. To the lower ends of said

keys *a, a, a, a*, is attached mechanism, similar in operation to bell-cranks. These cranks are attached to wires or rods *b, b, b, b*, connecting the horizontal lateral levers *c, c, c, c*, turning on pivots *w*, which are connected by rod links *d, d, d, d*, with the treadle bars *e, e, e, e*; thereby communicating lateral motion to the treadles *h, h, h, h*. By this mechanical combination, all that is
60 necessary to be done, in order to actuate the right treadle, causing the required harness to act, the proper warp or chain thread, is simply to press with the finger the proper key or peg, and the right treadle is brought
65 laterally immediately under one of the forks *i, i, i, i*, attached to the underside of the batten or beater *B, B*, Fig. A, in the working it to and fro; or in beating up the woof. Thus the feet treadles are dispensed with,
70 and each particular harness is made to perform its respective office of carrying down, or bringing up the desired warp or chain, by the aid of the peculiar mechanism exhibited. The spiral springs *g, g, g, g*, are
75 used to perform the office of reacting or pulling back, the treadles *h, h, h, h*, and the harness *Q, Q*, after being operated by the hands or fingers. Again too, by this mechanism, the danger of treading the wrong
80 treadle is wholly avoided, and the liability of making irregularities and imperfections in the woven fabric, is greatly diminished.

It must be observed, that the warp, or chain threads pass around, and over the
85 chain cylinder *L, L, M, M, M, M*, toward the front part of the loom, and then passing through the harness *Q, Q*, and the batten or beater frame *B, B*, where the filling or woof is introduced, forming the cloth, which
90 passes over the cloth-beam or rail *J, J*, and continues down between the rail *J, J*, and the finger-board *O, O*, and is rolled around the cloth roller or cylinder *K, K, K, K*.

By my improved mechanical combination,
100 I am enabled to weave at least three yards per hour, and any number of ticks, or beats, may be made without any danger of injuring the woven article; because, by having the piano-like action, immediately be-
105 fore the operator, and the treadles so arranged and adjustable so that only one treadle, when required can be actuated in moving the batten, effectually prevents, as stated the drawing down of the wrong warp or chain.
110

Having thus fully described the material construction and operation of my piano

hand loom, in as brief and comprehensible a manner as is deemed essential, and having referred to the specific parts thereof, and the peculiar combination exhibited by
5 a sectional drawing, and the several parts thereof being shown by letters of indication.

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

10 The combination of the keys or pegs *a, a, a, a*, through the rods *b*, levers *c*, links *d*, and springs *g*, or their equivalents, with the

treadles, substantially in the manner described; whereby I am enabled to operate the harness of hand looms, by a movement of the fingers instead of the feet. I do not
15 however claim the inventing the hand loom, as generally constructed, or used, or as operated by feet pedals, or treadles.

JAMES A. MITCHELL. [L. s.]

Attest:

Y. W. THORNTON,
WM. L. WHITMAN.