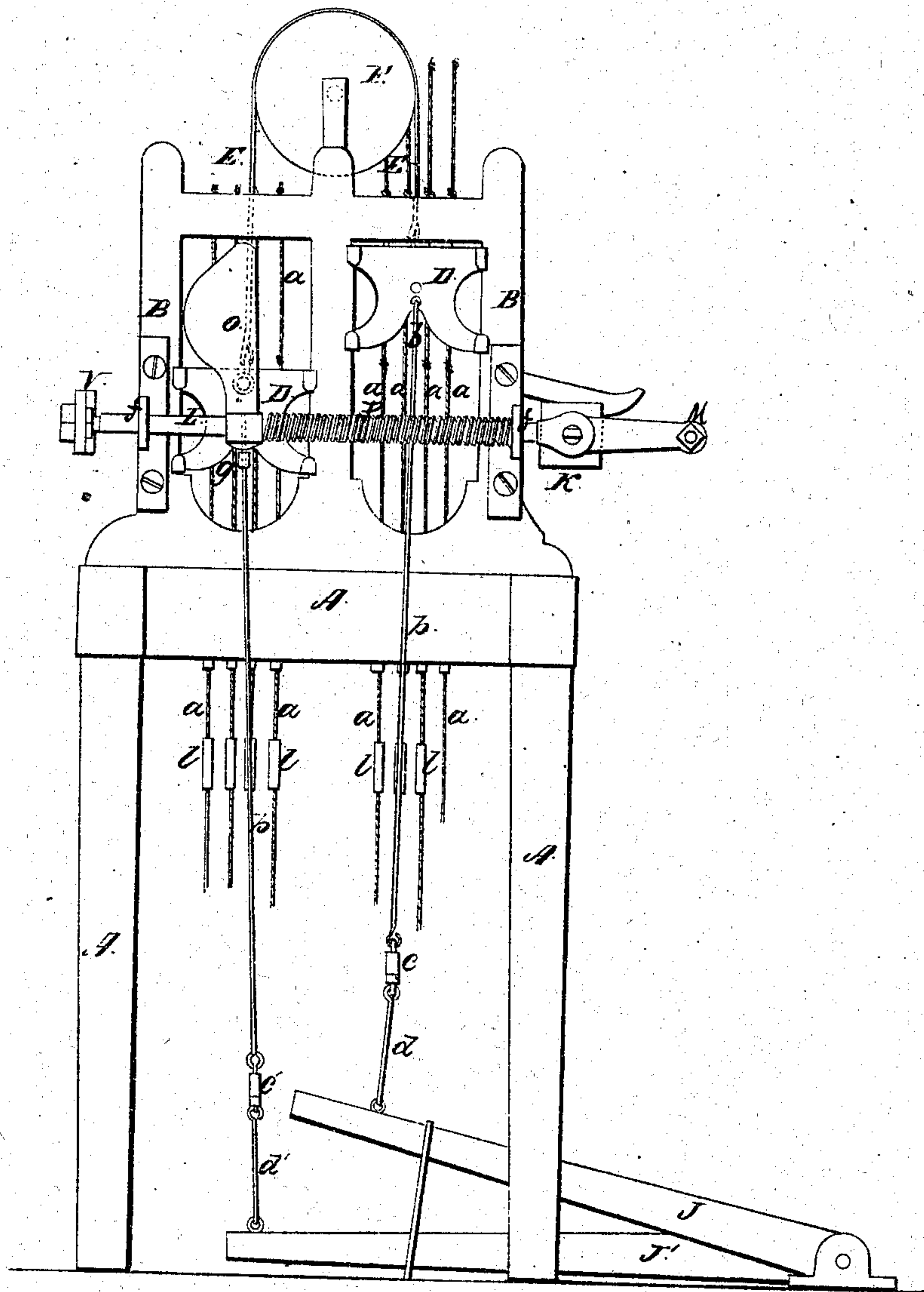


J. SCOTT & J. TANNAHELL.
LOOM.

No. 7,990.

Patented Mar. 18, 1851.

Fig. 1.



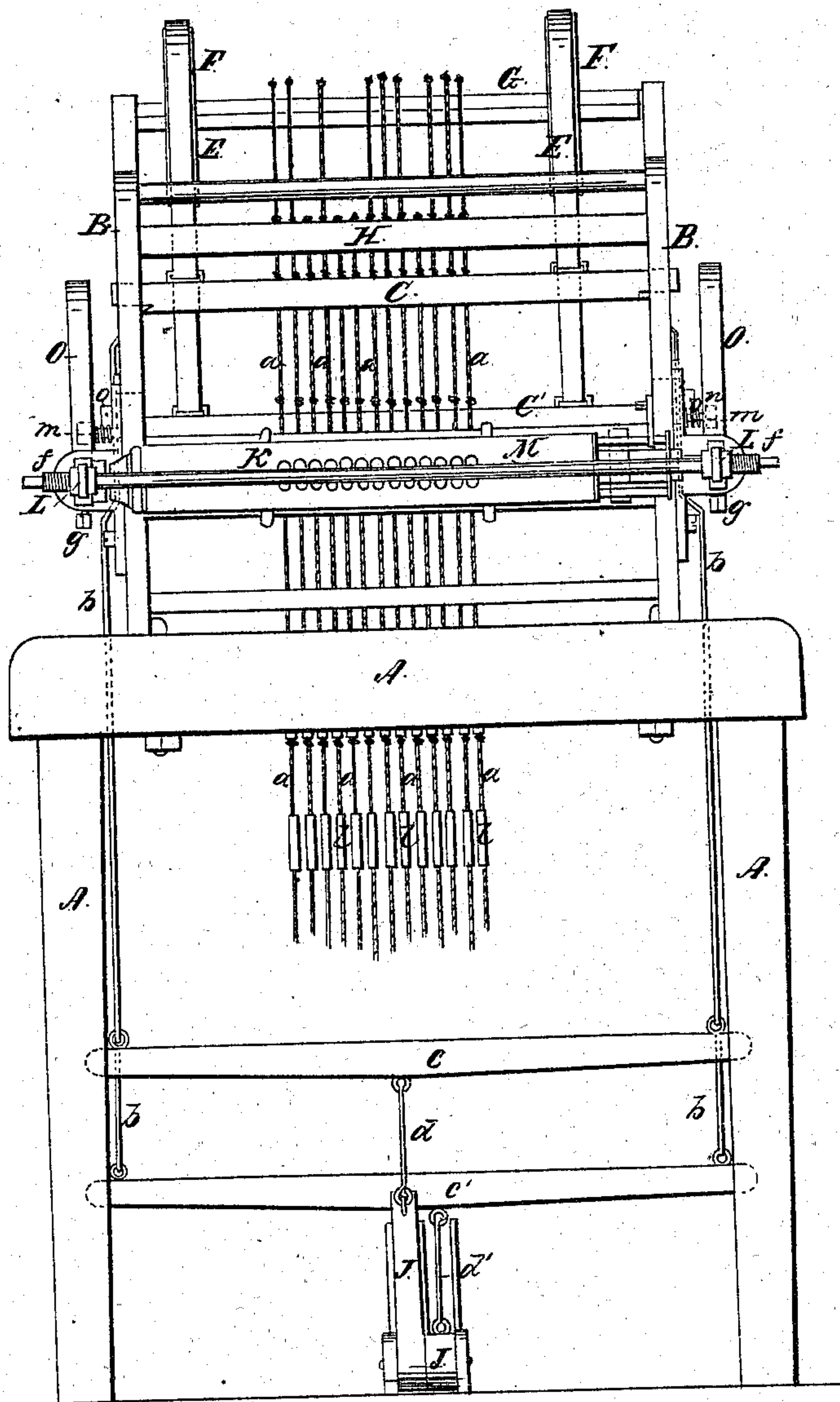
J. SCOTT & J. TANNAHELL.
LOOM.

3 Sheets—Sheet 2.

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Fig. 2.



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Fig. 3.

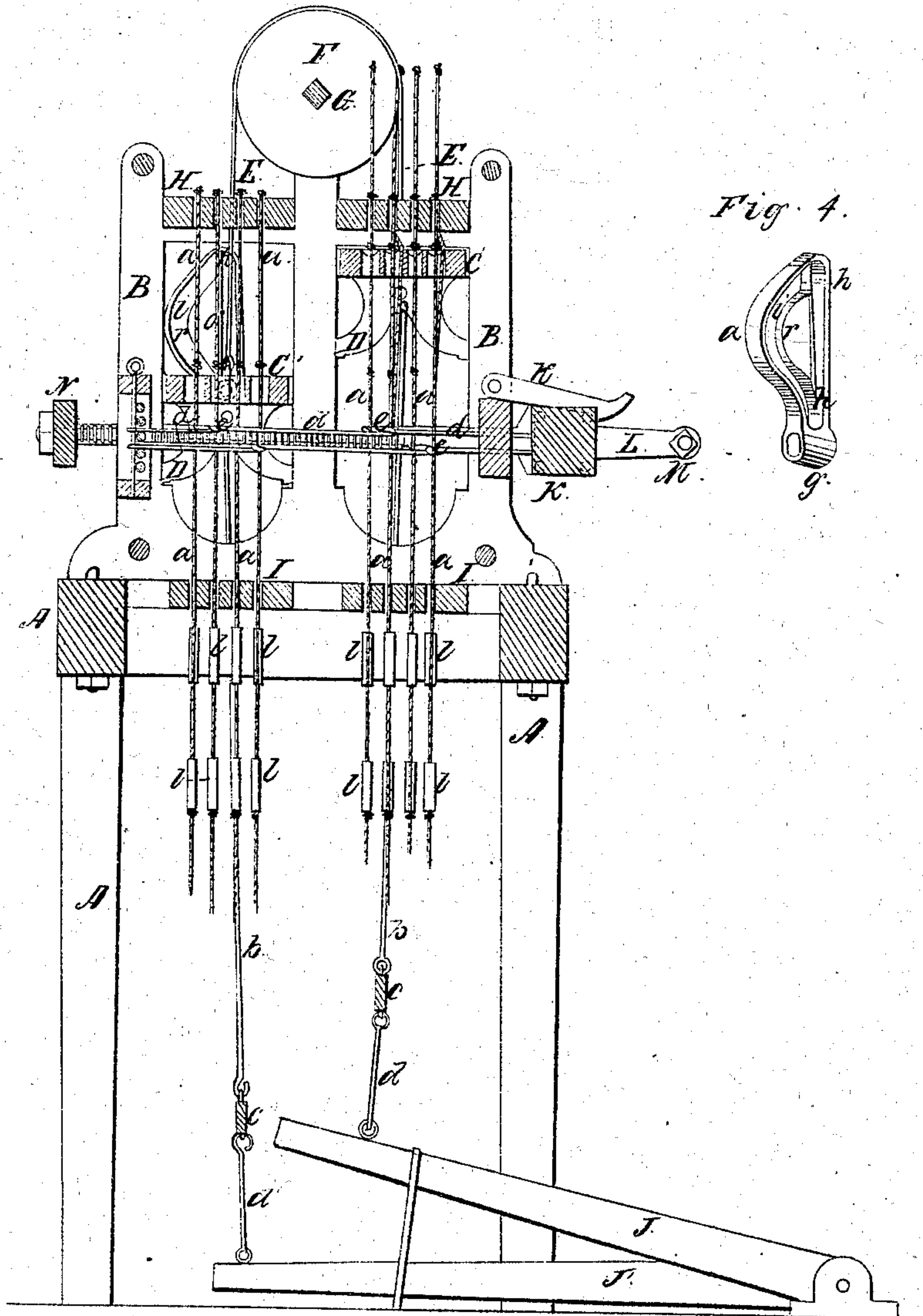
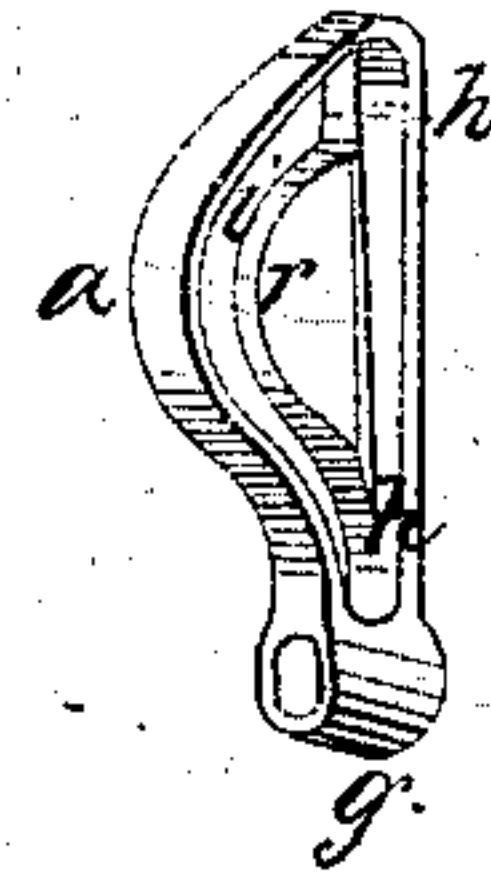


Fig. 4.



UNITED STATES PATENT OFFICE.

JOHN SCOTT AND JOHN TANNAHILL, OF PHILADELPHIA, PENNSYLVANIA.

JACQUARD-MACHINE.

Specification of Letters Patent No. 7,990, dated March 18, 1851.

To all whom it may concern:

Be it known that we, JOHN SCOTT and J. TANNAHILL, both of the city and county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Jacquard-Machines, which are Applicable More Particularly to Looms for Weaving Ingrain or Double Carpets, or other Similar Fabrics; and we do hereby

declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side elevation of the Jacquard machine, the treadles being connected with it, but the other parts of the loom being omitted as unnecessary for the explanation of the invention. Fig. 2 is a front elevation of the same. Fig. 3 is a transverse vertical section of the same through the center. Fig. 4 is a detached view in perspective of one of the "double lockers" for giving motion to the cylinder frame.

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

The nature of our invention consists firstly, in an improvement in the manner of operating the cylinder for the purpose of turning it and changing the pattern card more quickly and, secondly, in applying tubular leaden weights to the tail cords above the harness of the loom for the purpose of keeping tension on them and insuring their proper operation as the trap boards are raised or lowered.

To enable others skilled in the art to make and use our invention, we will proceed to describe fully its construction and operation.

A, A, represent part of the frame of the loom; B, B, the frame of the Jacquard machine—which has two trap boards (C), (C'), attached to plates (D), (D), capable of sliding up or down in suitable guides; these trap boards are each suspended by straps (E) (E), which are secured to the peripheries of rollers (F), (F), mounted on a rocking shaft G, which has bearings in the upper part of the frame, the boards being thus attached one must be always ascending while the other is descending.

H, H, (near the top of the frame) are the suspending boards from which hang the knotted tail cords (a), (a), (a), (a).

I, I, are the neck or directing boards

through which the tail cords pass, below the trap boards.

J, J', are the treadles for raising and lowering the harness so as to govern the shedding of the warp; J, is connected to the front trap board O; and J', to the back trap board C'; the connection being formed by rods (b), (b), leading from the plates D, D, to cross pieces (c), and (c'), which are connected with the treadle by short rods (d), and (d').

d, d, d, are the needles which are arranged and supported in the usual manner, having eyes (e), (e), (e), through which the tail cords pass and by which when moved by the cylinder the action of the harness is governed; the tail cords have small tubular leaden weights (l), (l), (l), attached to the below the neck board for the purpose of keeping them tight so that their knots cannot be missed or wrongly caught by the trap boards. These weights will supercede the necessity of having the weights below the harness as heavy as usual and will be more effective in preserving the correct operation of it.

K, is the cylinder which is constructed in the usual manner, and hung in a frame consisting of two parallel rods (L), (L), which slide in bearing boxes (f), (f), attached to the sides of the frames, and are held together in front by a transverse rod M, and at the back by the bar N; k, is the catch which turns the cylinder.

O, O, (one on each side of the machine) are what we term the dowel lockers consisting of plates of metal having bosses fitting on the sliding bars L, L, to which they are secured by set screws (g), (g), they have grooves (i), (i), nearly in the form of the letter D, the straight side being slightly elongated at the bottom, a step or fall being made in the groove as the top and bottom in the corners (see h, h', Fig. 4.); a spiral spring (P,) (See Fig. 1) is coiled around each of the sliding bars L, L, between the lockers and the front bearings f, f, which has a tendency to hold back the cylinder frame.

Secured in the outside of each of the plates D, D, carrying the back trap board C', is a stud (m), which carries a friction roller (n,) (See Figs. 1 and 2) fitting and running in the groove i, i, of one of the double lockers, the roller is kept to the bot-

tom of the groove by a spiral spring (o) which is coiled around the stud.

It may be well here to observe that in weaving ingrain carpets by hand, that being the purpose to which these improvements are mainly applicable, the two trap boards are usually detached, and each operated by a combination of levers in connection with the treadles, such arrangement requires one treadle and the board to which it is connected to be raised and sunk, and then the other treadle and its board to be similarly operated, making one shed at each operation; in that case the cylinder is moved forward during the upward motion of the back board C', by which it is turned for taking another pattern card, and it is brought back to its place by the downward stroke of the board; the groove in the locker for that purpose being nearly in the form of the letter s.

Our machine is operated by the weaver placing his right foot on the treadle J', and his left foot on the treadle J, and keeping up a continuous treading motion with both feet, at the same time, causing one treadle to ascend as the other descends, and raising one board as he depresses the other, making a rising and falling shed, one part of the shed rising as the other part is falling, which allows two sheds to be formed, in the same time as one when the boards are detached; this requires the cylinder to be thrown forward, turned, and brought back to its place, by one motion of the back-board, as, if it were brought forward and turned by the upward motion, and returned to its place by the downward motion, the cards could not be properly presented to the needles.

The operation of the double locker will be seen by referring to Figs. 3 and 4. The back board C' is represented in all the Figs.; in its lowest position and the friction rollers n, n, in the lowest part of the groove i, i; as the board C' is raised by depressing the treadle J, and front board C', the roller passes up to the curved part of the groove, overcoming the resistance of the spring P; and throwing forward the cylinder frame until it (the roller) arrives at the most prominent point r, of the curve, at which time the frame has carried the cylinder to its most forward position and it (the cylinder) has been turned by the catch k, in the

usual manner, so as to present its next side and another card to the needles; as the roller n, continues ascending the groove i, i, the spring P, carries back the frame, and when it has arrived at the upper part of the groove the cylinder is brought back so as to bring the card in a fixed position for operating the needles, the roller passing the edge of the upper step h, in the groove, is forced below it and prevented from returning down the curved part; during the downward motion of the board C, and the raising the front part of the shed, the roller works in the straight part of the groove, and the cylinder and pattern are held stationary, the roller having arrived at the bottom falls over the lower step h, and is prevented returning in the same direction; the two steps h, h, always preserving the proper direction of motion of the cylinder frame. By making the rising and falling shed, the weft is filled into a crossed shed and a closer and firmer texture is given to the cloth. The loom can also be worked at a high speed, the weights l, l, l, l, on the tail cords keeping them tight and preventing them from being displaced, at whatever speed the loom works.

We have proved by experiment that a hand loom with our improvements in the Jacquard machine will weave as much ingrain carpet as any power loom, and works lighter than any loom now in use.

What we claim as new in our invention and desire to secure by Letters Patent is

1. The manner of operating the cylinder by means of the double lockers O, O, in combination with the springs P, P, whereby its complete operation is effected by the upward motion of the trap board C', substantially as, and for the purpose herein described.

2. The application of weights l, l, l, l, to the tail cords above the harness for the purpose of more effectually keeping them tight or straight and thereby ensuring the more correct operation of the trap boards and needles upon them substantially in the manner herein set forth.

JOHN SCOTT.
JOHN TANNAHILL.

Witnesses:

JOHN BINNS,
JAMES MARTIN.