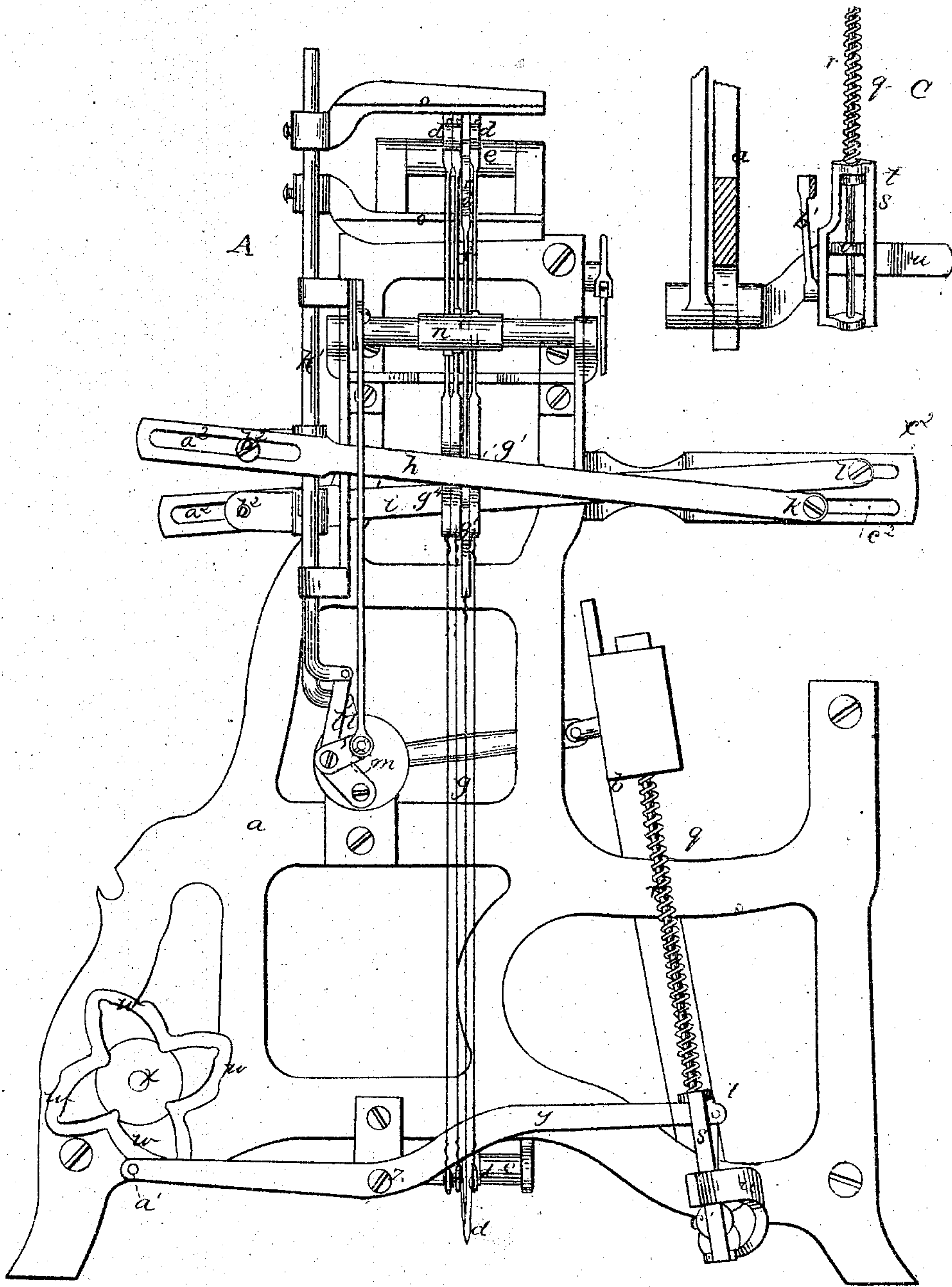


G. Crompton.
Loom.

Nº 75530

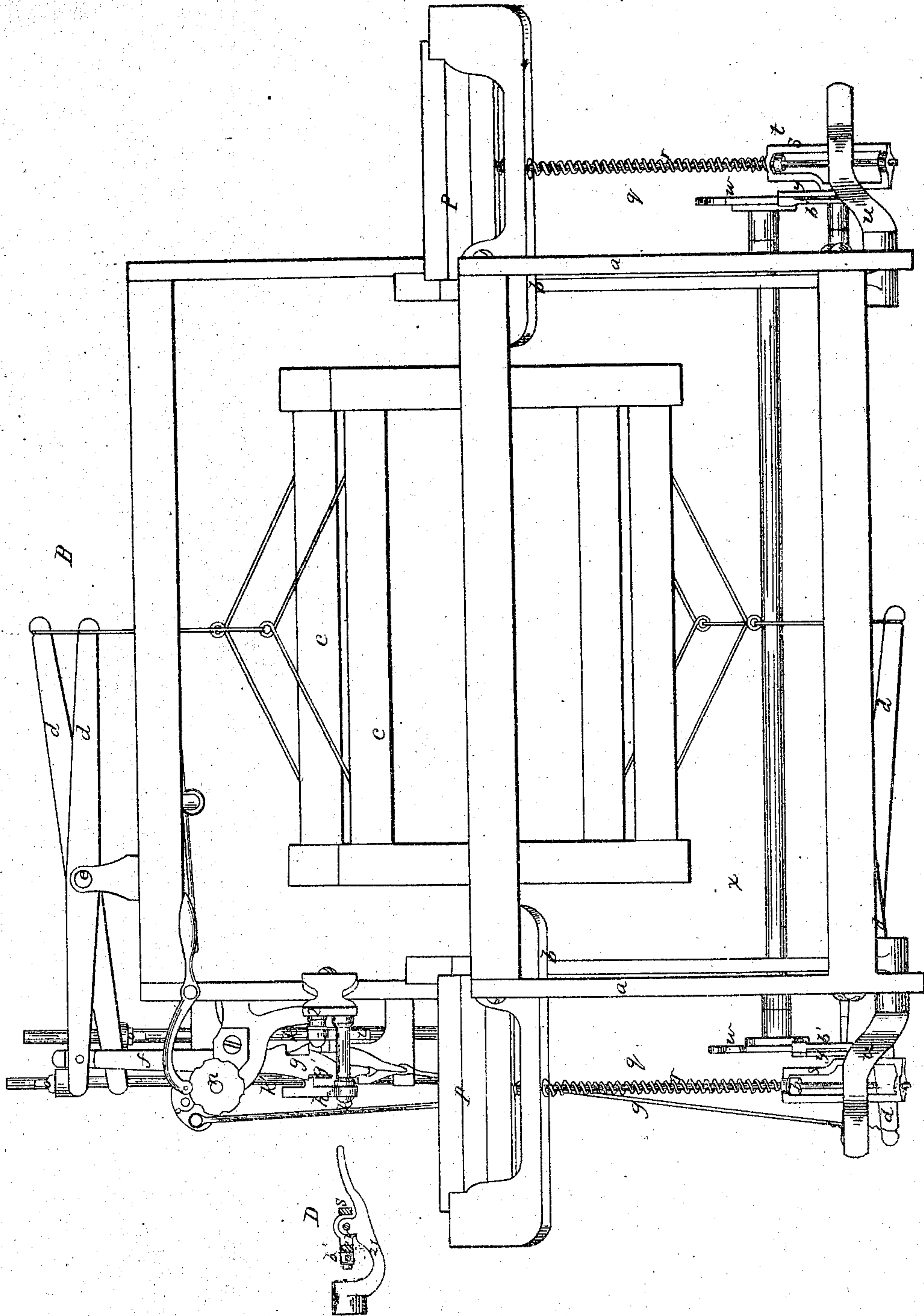
Patented Mar. 17, 1868.



G Crompton. Loom.

N^o 75530

Patented Mar. 17, 1868.



United States Patent Office.

GEORGE CROMPTON, OF WORCESTER, MASSACHUSETTS.

Letters Patent No. 75,530, dated March 17, 1868.

IMPROVEMENT IN LOOMS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, GEORGE CROMPTON, of Worcester, in the county of Worcester, and State of Massachusetts, have invented certain new and useful Improvements in Looms; and I do hereby declare that the following, taken in connection with the drawings which accompany and form part of this specification, is a description of my invention sufficient to enable those skilled in the art to practise it.

The invention relates partly to the harness-mechanism and partly to the movable shutter-box mechanism of fancy looms.

The invention consists primarily in combining with a lifter and a depresser working as levers from fulcra in the vertical plane of the cloth-making line, and with jacks having slots in which the lifter and depresser-levers work to insure the proper rise and fall of the jacks, two horizontal eveners-arms between which the heddle-levers extend, the eveners acting as clamping-jaws, to not only even the jacks after each change produced by the pattern-cylinder, but by clamping them together, to remove them with certainty from all strain of the lifter and depresser-levers, so that as the slots come into line, the tension upon the jacks shall free them from the lifter and depresser, and straighten them into line, ready for the next change to be produced by the pattern-cylinder.

The invention further consists in the arrangement or construction of the mechanism connecting the tappet-lever, which works the shuttle-boxes, with the rod upon which each set of boxes is supported.

The drawings represent a loom-frame with my improvements embodied thereupon, A showing an end view, B a front elevation. C is a view of the rear side of the stirrup which supports the shuttle-box rod. a denotes the frame, b the lathe, $c c$ the harness-leaves or frames, each suspended between an upper and a lower heddle-lever, d , the series of levers being supported on shafts e , and being connected at their front ends by upright jacks or hooks, f , and straining-wires, g . Each jack f has a slot, g' , cut into each of its opposite edges, said slot being made wide enough to allow it to slip freely into and out of connection with either the lifter-bar or lever h , or the depresser-bar or lever i . The lifter and depresser-levers are fulcrumed at k and l , in or about in the plane of the cloth-making line, and they are actuated by slide-rods k' , (to which they are adjustably connected,) these rods being raised and lowered by cranks ll on the main shaft m .

Each jack is carried into connection with either the lifter or depresser at or about the time the shed is closed, by the action upon it of the pattern-cylinder n , the particular leaf with which each pair of heddle-levers is connected being raised or lowered to form with the other leaves the desired shed, accordingly as its jack may be thrown into connection with either the lifter or depresser.

At the upper end of each slide-rod k' is a horizontal eveners-bar, o , the one upon the rod which carries the lifter-lever extending over the heddle-levers, and the one on the rod which carries the depresser-lever extending under the heddle-levers, as shown at B.

When the lifter and depresser work in slots in the jacks, and are arranged to operate from fulcra, and are actuated by the slide-rods, as shown, it sometimes happens that some particular jack clings on to the lifter or depresser-lever too long, or is not freed therefrom by the tension of the wire quickly enough to be actuated by the studs or teeth on the pattern-cylinder or chain for the next shed. To obviate this, or to insure the loosening of the jack-notches from the lifter and depresser-levers, I apply the horizontal eveners to the slide-rods k' , as shown, or in such manner that just before the cylinder is to produce the change, the upper heddle-levers are clamped between the eveners-bars, which are so positioned upon the slide-rods, that when they close upon the levers the respective slots are not only brought into line, but with such relation to the elevator or depresser-lever, that their upper and lower surfaces are carried out of line with the adjacent edges of the elevator or depresser-levers, so that the tension on the jacks cannot fail to bring the jacks into line for the next change to be produced by the pattern-cylinder.

The fulcra $k l$ of the lifter and depresser-levers are stationary, and the vibrating ends of the levers are slotted, as seen at a^2 , the levers being connected to the slide-rods by pins b^2 extending through the slots, the levers slipping or playing upon these pins, as they vibrate, this construction being in contradistinction to connecting the levers to the slide-rods unyieldingly, (endwise,) and allowing the fulcra to play in their slots. In

connection with giving this capability of play to the levers, by the slots a^2 at the pins b^2 , by which they are connected to the rods k' , the stationary fulera are made adjustable by means of the slots a^2 in the plate to which the levers are fulcrumed.

The movable shuttle-boxes are shown at pp , they being of that class in which the change is made from pick to pick by vertical movement of the boxes.

Each set of boxes is mounted on a vertical rod, q , supported upon a spring, r , which spring rests upon the top of a stirrup, s , the rod passing through the stirrup, and it and the boxes being held normally in position relatively thereto by the stress of the spring r , while such spring allows the stirrup to work up against the spring and towards the boxes, whenever the free upward movement of the boxes may be obstructed, a collar or stop, t , determining the downward movement of the stirrup upon the rod. Each rod slides freely through an arm, u , projecting from the frame a , the bearing v extending in between the side walls of the stirrup, as shown at D , which represents a cross-section through the stirrup. The employment of the stirrup to receive and carry the rod, and as a means of connection between the tappet-lever and the rod, makes a much stronger and more reliable provision for supporting the rod and insuring the proper movements of the boxes, than can be made with a direct connection between the lever and rod, as in the ordinary construction. Each stirrup-rod, with the boxes, is actuated from tappets w , on the tappet-shaft x , through a lever, y , hung on a fulcrum, z , and connected at its front end to the stirrup, the weight of the boxes and their connections, holding the pin a^1 against the face of the tappets, while the movement of any tappet brings any particular box into line in the usual manner.

Instead of making a direct connection of the tappet-lever to the rod or the stirrup, I make such connection through a link, b^1 , and I joint this link to the stirrup in or nearly in line with the journals c^1 on which the lathe vibrates. By this arrangement, the rod is entirely freed from all lateral strain, (tending or which might tend to cause the boxes to bind in their guides,) both from the motions of the tappet-lever and the vibrations of the lathe, and no vertical movement of the boxes can take place except at the proper time, such vertical movement or play being irremediable during the vibrations of the lathe under the different positions of the boxes for the various picks, when the connection is made without the link. The link is connected to the stirrup by an adjusting-screw and nut, working through a slot in the stirrup, this allowing the movement of the boxes to be adjusted so as to bring them or insure their being brought more perfectly into line with the shuttle-race.

I claim, in combination with angular lifter and depresser-levers, working upon fulera in the plane of the cloth-making line, horizontal rigid evener-bars fixed to the slide-rods and operating to even the jacks, substantially as described.

I also claim, in combination, horizontal rigid eveners, secured to slide-rods, angular lifter and depresser-levers, and the slotted jacks, substantially as described.

I also claim the slotted angular lifter and depresser-levers, working on stationary fulera, combined substantially as described with the slide-rods.

I also claim angular lifter and depresser-levers, vibrating on stationary but adjustable fulera, and fixed by sliding or yielding connections to the actuating-rods, substantially as described.

Also, in combination with the movable shuttle-boxes and mechanism for supporting and for changing them, the stirrup s , arranged to operate substantially as described.

Also, in combination with the tappet-lever and stirrup, constructed as described, the link b , connecting the lever and stirrup, and arranged relatively thereto, substantially as described.

GEO. CROMPTON.

Witnesses:

HORACE WYMAN,

J. A. WARE.