

Furbush & Crompton. Loom.

N^o 29,873.

Patented Sept. 4, 1860.

Fig. 1.

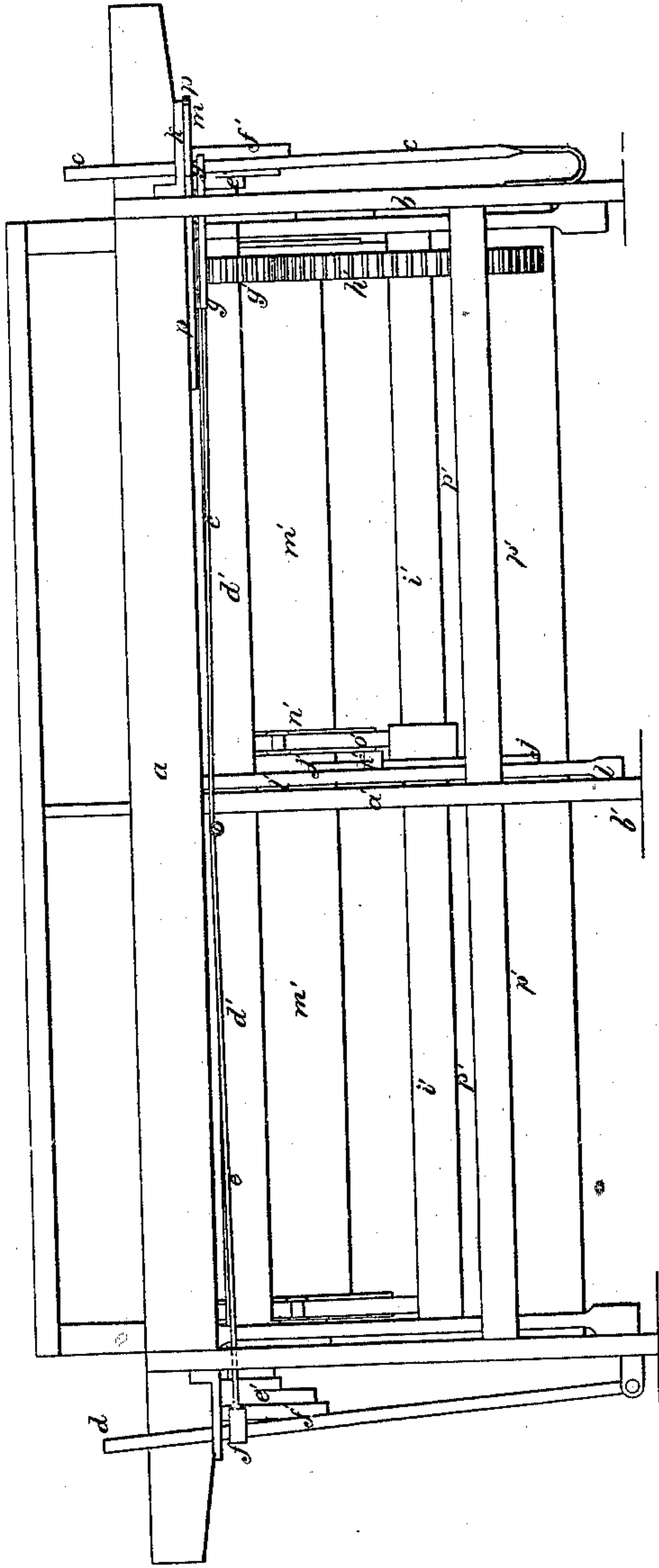


Fig. 3.

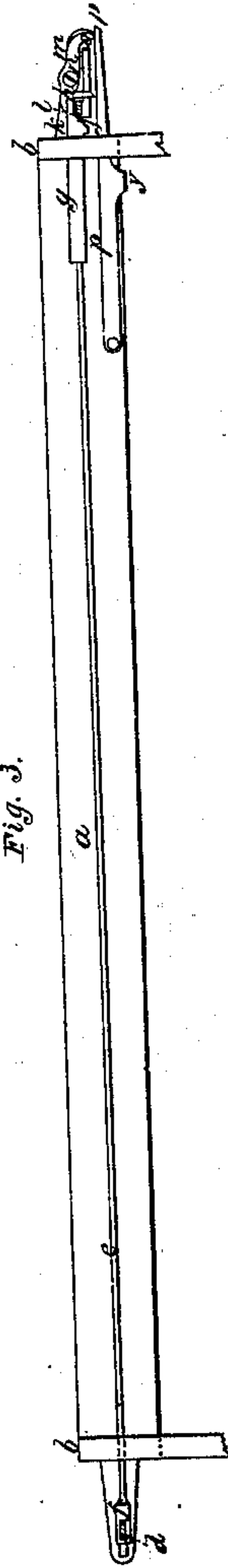
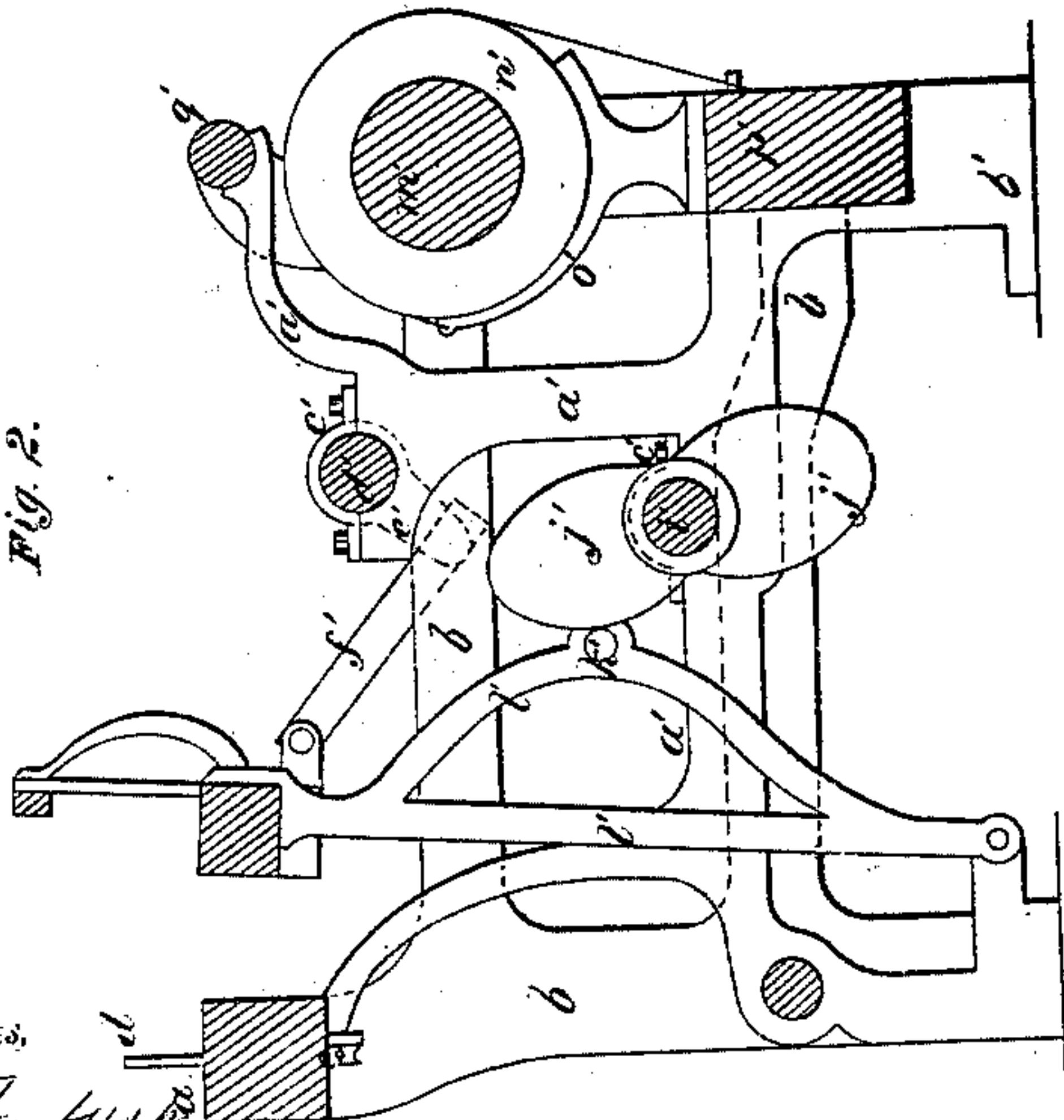


Fig. 2.



Witnesses,
M. A. Furbush
Geo. Crompton

UNITED STATES PATENT OFFICE.

M. A. FURBUSH AND GEO. CROMPTON, OF WORCESTER, MASSACHUSETTS.

POWER-LOOM.

Specification of Letters Patent No. 29,873, dated September 4, 1860.

To all whom it may concern:

Be it known that we, MERRILL A. FURBUSH and GEORGE CROMPTON, both of Worcester, in the State of Massachusetts, have invented certain new and useful Improvements in Power-Looms; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1, is a front elevation of a loom with our improvements applied; Fig. 2, a cross vertical section; and Fig. 3, a bottom view of the breast beam with the apparatus applied for starting and operating the loom by hand from either side, and also for stopping the loom when the shuttle fails to box.

The same letters indicate like parts in all the figures.

The first part of our said invention relates to the method of operating the belt shipper so as to enable the attendant to stop or start the loom from either side of the frame, and consists in combining with the two hand levers usually employed, one on each side of the frame, a sliding rod one end of which is connected with the hand lever on one side of the loom, and the other end notched to embrace the spring hand lever or belt shipper on the other side of the loom by a square shoulder on one side and by a shoulder and bevel or inclined plane on the other side so that the loom can be started or stopped from either side of the loom by a single motion of the hand.

The second part of our invention relates to an improvement in the mechanism for stopping the loom by the protector, and the object of the said improvement is to transfer the shocks due to the striking of the protector dagger from the breast beam to the side frame of the loom to avoid the rocking of the breast beam heretofore experienced; and this part of our said invention consists in the employment of a single lever under the breast beam one end of which is pivoted to the breast beam while the other end extends through and works in a mortise in the side frame, and when struck by the protector acts upon a trip lever to disengage the spring handle of the belt shipper, and also in providing the warp beam with an intermediate wheel or ring in combination with a standard or equivalent device, connected with the frame, and adapted to receive and form a bearing for the wheel, in-

intermediate wheel or wheels on the yarn beam so that the portions of the said beam between the end frames may be fully sustained against the force applied to the warps by the beating up of the weft threads in weaving the fabric.

In the accompanying drawings (*a*) represents the breast beam, (*b, b*) the side frames, and (*c*) the spring handle of the belt shipper, on the belt side of the loom, and (*d*) a like lever hinged to the other side frame but without the spring. A metallic rod (*e*) extends under the breast beam with one end (*f*) mortised to embrace the hand lever (*d*) and the other provided with a flat plate (*g*) fitted to slide in a mortise through the side frame. This plate is formed with a recess between two shoulders, one (*h*) on the outside of the spring handle (*c*), and the other (*i*) on the inside of the said handle. The distance between these two shoulders is a little greater than the thickness of the handle embraced. The inner part of the shoulder (*i*) is beveled as at (*j*) so that when the spring handle (*c*) is hooked in the notch (*l*) of the holding plate (*k*) in the usual manner to hold the belt on the fast pulley of the loom, by pushing the rod (*e*) to the right by the hand lever (*d*) the beveled or inclined plane (*j*) will act on the spring handle (*c*) and force it out of the notch (*l*) of the holding plate (*k*) so that the belt shall be shipped by the tension of the spring of the handle (*c*), and by moving the hand lever (*d*) to the left the said rod (*e*) is drawn in the opposite direction which brings the outer shoulder (*h*) in contact with the spring lever (*c*) which is thus forced toward the side frame until it is caught in the notch (*l*) of the holding plate where it is held so long as the loom is running. When the belt is shipped or unshipped with the spring hand lever (*c*) it acts on the shoulders (*h*) and (*i*) of the plate (*g*) on the end of the rod (*e*) and by the sliding of this rod the hand lever (*d*) is moved and held in position.

By the above described arrangement the belt shipper is placed completely under the control of the attendant, on whichever side of the loom he may be placed at the time, and from either side by one single movement the loom can be either stopped or started, instead of the two movements required by the means heretofore employed for this purpose.

On the under side of the holding plate

(*k*) is placed a small trip lever (*m*) turning on a fulcrum pin (*n*). The outer end of this lever has a projecting lip (*o*) which is acted upon by the outer end of another lever (*p*) that passes through and works in a mortise in the side frame, the inner end of the said lever being connected with the under side of the breast beam by a fulcrum pin. The extent of vibratory motion of the said lever is limited by the mortise in the side frame. The inner face of this lever (*p*) is formed with a projection (*y*) to be struck by the dagger of the usual stop motion. Suppose the spring lever (*c*) of the belt shipper to be hooked on, and the loom to be running, in that condition if either of the shuttles fails to box the dagger of the protector will strike against the projection (*y*) of the lever (*p*) and force it back, so that in this back movement it strikes against the projecting lip of the small trip lever (*m*) the other end of which is thus brought against the shipping lever (*c*) and disengaged; and as the vibration of the lever (*p*) is limited by the mortise in the side frame the shock due to the blow comes against the side frame instead of the breast beam as heretofore. The hooking on of the handle of the shipper restores the lever (*p*) to the position which will insure its being struck again when the shuttle fails to act.

The breast beam and other portions of the frame which extend across the loom are connected by an intermediate frame (*a'*) formed substantially by the side frames. This intermediate frame rests on the floor, as at (*b'*, *b'*) and is provided with suitable boxes (*c'*, *c'*) for the intermediate journals of the shafts which impart motion to the lay, and which without such intermediate support between the end journals would be liable to bend. The shaft (*d'*) is provided with cranks (*e'*, *e'*) connected by rods (*f'*, *f'*) with the end of the lay, and this shaft by a pinion and wheel (*g'*, *h'*) drives a parallel shaft (*i'*) sustained in like manner by the central frame (*a'*). This shaft carries a cam (*j'*) the periphery of which bears against a pin (*k'*) projecting from the side of a middle sword (*l'*) of the lay, and this cam is of such form that its periphery will impart to the lay the same motion as the end cranks on the shaft (*d'*) the object of the said cam being simply to bear against

the middle sword as the weft threads are beaten up and thereby prevent the lay from yielding during the operations of beating up the weft threads.

The warp beam (*m'*) is provided with a wheel or rim (*n'*) about the middle of its length the periphery of which wheel is grooved to fit onto the upper end of a standard (*o'*) on the cross beam (*p'*) of the frame, the said standard being concaved in a segment of a circle to embrace about the lower half of the said wheel so as to give ample support to the middle of the length of the warp beam so that it shall not yield by bending to the beats of the lay. The whip roll (*q'*) over which the warps pass is also sustained about the middle of its length by the middle frame (*a'*).

By the means above described all the parts which are liable to bend to the various strains due to the beats of the lay are fully sustained so as to resist such strains. It will be obvious from the foregoing that such means of support may be multiplied if the width of the loom should require it.

What we claim as our said invention and desire to secure by Letters Patent, is—

1. Connecting the two hand levers of the belt shipper, one on each side of the frame, by combining therewith the sliding rod connected with one so as to move therewith and provided with shoulders on each side of the spring handle, and with a bevel or inclined plane, substantially as described, so as to enable the operator to stop or start the loom by one motion from either side of the frame.

2. The single lever under the breast beam, and passing through and working in a mortise in the side frame, substantially as described, in combination with the trip lever and spring lever, of the shipper, substantially as described, and for the purpose set forth.

3. Giving support to the warp beam by means of one or more intermediate wheel or wheels, or the equivalent thereof, in combination with a standard or standards fitted thereto, substantially as described.

M. A. FURBUSH.
GEO. CROMPTON.

Witnesses:

H. C. RICE,
DANIEL R. PRATT.