

*Patented Aug 5, 1851*

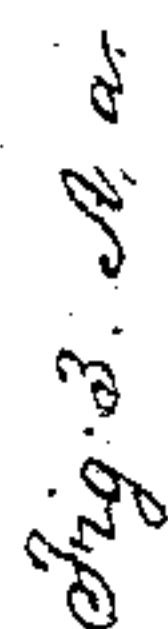


Fig. 1.

J. Johnson.

Sheet 2, of 2 Sheets.

Weaving Pile Fabric.

No. 8,281.

Patented Aug. 5, 1851.

Fig. 2.

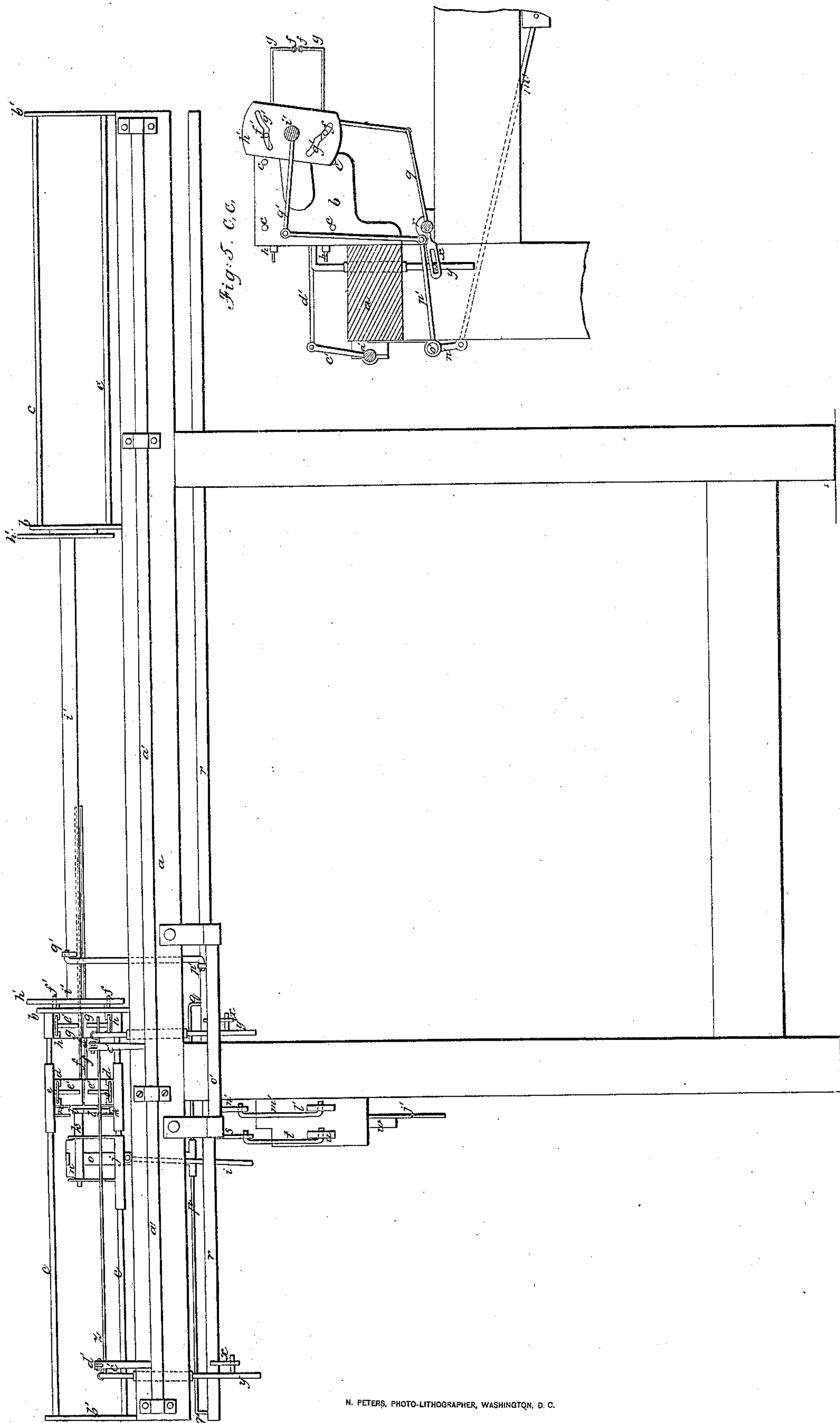
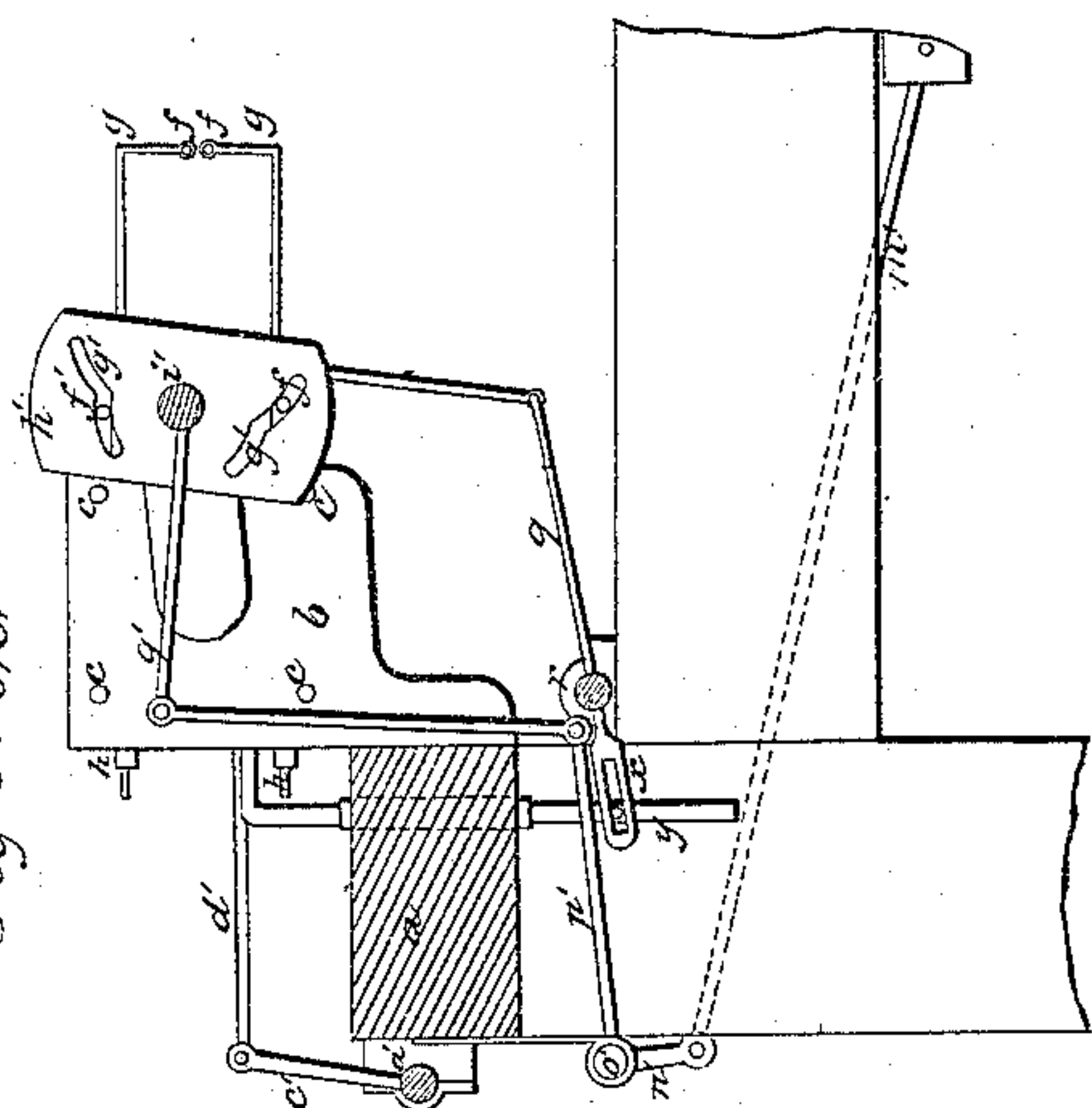


Fig. 5. C, C,





# UNITED STATES PATENT OFFICE.

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## LOOM FOR WEAVING PILE FABRICS.

Specification of Letters Patent No. 8,281, dated August 5, 1851.

*To all whom it may concern:*

Be it known that I, JOHN JOHNSON, of Troy, in Rensselaer county and State of New York, have invented a certain new and useful Improvement in the Method of Operating the Figuring or Pile Wires in Looms for Weaving Piled Fabrics, such as Brussels and Tapestry Carpets, and 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 plan; Fig. 2, a front elevation, and Figs. 3, 4, 5, vertical sections taken at the lines A, a, B, b, C, c, of Fig. 1.

The same letters indicate like parts in all the figures.

My present invention relates to improvements in the method of operating the pile wires secured to me by Letters Patent bearing date the 12th of March 1850, in which the wires, on each side, are drawn out from under the woolen pile and inserted in the open shed by carriers, to which the outer ends of the wires are attached, the motion back and forth being given by the said carriers and corresponding guides near the selvages of the cloth, which has a back and forth movement in unison with the carriers. In the said patented method when two half wires are used meeting and lapping in the middle of the cloth, so soon as one range of loops have been formed, the wires must be drawn out, preparatory to the formation of another range of loops, so that the previously formed range have no support to resist the pull of the warps, except the weaving in by the picks.

The object of my invention is to double the sets of wires, so that one set shall remain in one range of loops to resist the pull on the warps during the process of forming the next range over the other wires or sets of wires. And to this end, the nature of my invention consists in combining together on one or both sides of the loom, two sets of wire carriers and guides, the carriers having an alternate in and out motion toward and from the selvage of the cloth, for inserting the wires in the open shed and drawing them out of the formed loops, and carriers and guides together having a back movement, toward the lay or open shed, and a forward movement toward the woven cloth. And my invention also consists in giving to the guides an up and down motion, that the

wires, which at the time of weaving must be on the same plane, may pass one another.

In the accompanying drawings, I have not represented any part of the weaving loom, and only as much of my previous invention, referred to above, as is necessary to show the connection of my present improvements.

To the breast beam *a*, of the frame of the loom, are attached four standard plates *b*, *b*, *b'*, *b'*, the two inner ones *b*, *b*, near to the selvage of the cloth to be woven, and the other two *b'* *b'* at the ends of the breast beam. On each side, from the outer to the inner plates, extend four rods *c c c c* two near the top, and two near the bottom, thus forming two sets.

As both sides are mounted alike, the description of one will be sufficient. To each set of rods *c*, *c*, is fitted a plate or carriage *d*, to slide thereon freely from end to end, so that there are two such plates *d*, *d*. In these plates are formed ways to which are fitted the carriers *e*, *e*, each of which carries a wire *f*, and these carriers are adapted to slide back and forth in the plates or carriages *d*, *d*, the required distance to carry the figuring wires *f*, *f*, from the woven pile to the open shed and back. The figuring wires fit and slide in holes in the two guides *g*, *g*, which are formed like the carriers, and which like them are fitted to slide in ways in two plates *h*, *h*, like the carriages *d*, *d*, except, instead of being adapted to slide on the rods *c*, *c*, they are each fitted to turn on one of the back rods. The carriers can thus be made to slide with the wires toward and from the selvage of the cloth, the wires being sustained by passing through the guides that remain near the selvage of the cloth; and the carriers and guides together may be made to slide toward and from the lay.

The in and out motion is imparted to the carriers in the same manner as in the patent before referred to; but as there are two carriers in the present plan, instead of connecting the mechanism which imparts the motion directly with the carriage of one of the carriers, the connecting rod *i*, (represented as broken off) is jointed to an auxiliary carriage *j*, adapted to slide on the lower set of rods *c*, *c*, and it is provided with a rock shaft *k*, with two arms *l*, *l*, on one end, which as the rock shaft is vibrated, enter a socket *m*, first on the lower carriage and then on the upper one. When the lower arm



is in the socket of the lower carriage, the upper arm is out of the socket of the upper one. In this way by simply turning the rock shaft part of revolution, either of the  
 5 carriages can be connected with the auxiliary carriage so as to be moved in and out by it. The rock shaft *k*, has another arm *n*, connected by a joint rod *o*, with a rod or bar *p*, on which it can slide as the auxiliary  
 10 carriage is moved in and out; and the bar *p*, is on the end of two arms *q*, *q*, of a rock shaft *r*, provided with an arm *s*, connected by a rod, *t*, with a slide *u*, which carries two pins *v*, *v*, embracing the periphery of a cam  
 15 *w*, that receives motion from some part of the loom, so that when the slide is carried back by the cam, the auxiliary carriage is connected with the carriage of the lower carrier and vice versa.  
 20 The rock shaft *r*, by its connection with the slide *u*, in addition to the function just described, also shifts the apparatus, which moves the carriers and guides toward and from the lay, that the upper and lower set  
 25 may be alternately operated. For this purpose the said rock shaft *r* has two arms *x*, *x*, connected with two lifters *y* *y* that slide vertically in sockets fitted to the breast beam. The upper ends of these lifters are horizontal and to them are fitted the ends of a bar *z*,  
 30 so that it can be made to slide thereon freely by the vibration of a rock shaft *a'* provided with two arms *c'* *c'* connected by rods *d'* *d'* with the bar *z*. The rock shaft *a'* is to be  
 35 connected with and operated by a mechanism, like that described in the patent referred to, for moving the wire carriers and guides toward and from the lay, and the range of motion to be given to the bar *z*, must be  
 40 sufficient to carry the wires from the woven pile, to the open shed of the warps, that they may be there inserted. The wire carriers and guides are each provided with a stud pin *e'* projecting upward on the lower and  
 45 downward on the upper set. The bar *z* has a slot extending nearly its whole length to receive alternately the pins *e'* of the two sets of carriers and guides, and in which the pin of the two carriers alternately slide  
 50 as they move toward and from the lay, to insert and withdraw the wires. In view of this, the purpose of the vertical motion given to the lifters *y* *y*, is to shift the bar *z*, from the lower set of carriers and guides  
 55 to the upper one, when one wire is to be drawn out of the woven pile, and carried to and in the open shed to form a new range of loops, while the other wire remains in the woven pile and vice versa.  
 60 The ends of the carriers and guides are bent, the lower set up and the upper set down. This is for the purpose of having the two wires as near as possible on the same horizontal plane. The ends of the two car-  
 65 riers just pass each other without touching,

which brings the two wires sufficiently near to the same horizontal plane, as the carriers do not go near to the selvage of the cloth; but as the guides are near to the selvage, the wire there must be on the same horizontal  
 70 plane which would prevent the guide in connection with the wires to be drawn out and transferred to the open shed from passing by the other which is in connection with the wire last woven in.  
 75

To admit of its passing by, so soon as the wire is drawn out of the woven pile, the guide is moved vertically to a sufficient distance to admit of its passage and then moved back to its original position. For  
 80 this purpose the carriage of each carrier is provided with a wrist pin *f'*, near its inner end, the rear end being free to turn on the front rod *c*, and these pins are fitted each to a groove *g'* in a plate *h'*, on a rock shaft  
 85 *i'*, the two grooves being on opposite side of the axis of vibration. These grooves for half their length are concentric and the other half eccentric, so that when the plate vibrates in one direction from the vertical line,  
 90 one wrist pin is acted upon by the eccentric part of its groove to lift or depress its guide, while the other remains in the concentric part of its groove and on the return motion the reverse takes place. This rock-  
 95 ing motion is given to the shaft of the plate by a cam *j'*, on the same shaft as the cam before described, and this cam is embraced by two pins *k'*, *k'*, on a slide *l'* connected by a joint rod *m'*, with arm *n'* of a rock shaft  
 100 *o'*, provided with another arm *p'* in turn connected with an arm *q'* of the rock shaft of the plate.

The mechanism for working the wires is the same on both sides of the loom; but to  
 105 avoid the necessity of duplicating the cams, and connections for imparting the motions, the three rock shafts *r'*, *a'*, and *i'*, extend across, and have the same connections with the figuring wire apparatus on both sides.  
 110 If wires are to be used of sufficient length to extend entirely across the breadth of the cloth, the apparatus is only required on one side; but then the motion for drawing out and inserting the wires, must be double the  
 115 length.

Having thus set forth the principle of my invention and the manner of constructing and using the same, I wish it to be understood, that I do not limit myself to the  
 120 special construction and arrangement of parts herein specified, as these may be varied without changing the principle or mode of operation.

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

1. The employment, on one or both sides of the loom, of two carriers to which the figuring wires are secured, and two guides substantially as described, and operated  
 130

alternately, the said carriers having a motion toward and from the selvage of the cloth, to draw out and insert the wires, and together with the guides, a motion toward  
5 and from the lay to carry the wires from the woven pile to the open shed and back, as described.

2. And I also claim, in combination, giving

to the guides a vertical movement, after the wire has been drawn out to admit of their 10 passing each other, substantially as specified.

JOHN JOHNSON.

Witnesses:

EBENEZER MACGREGOR,  
HENRY C. LOCKWOOD.