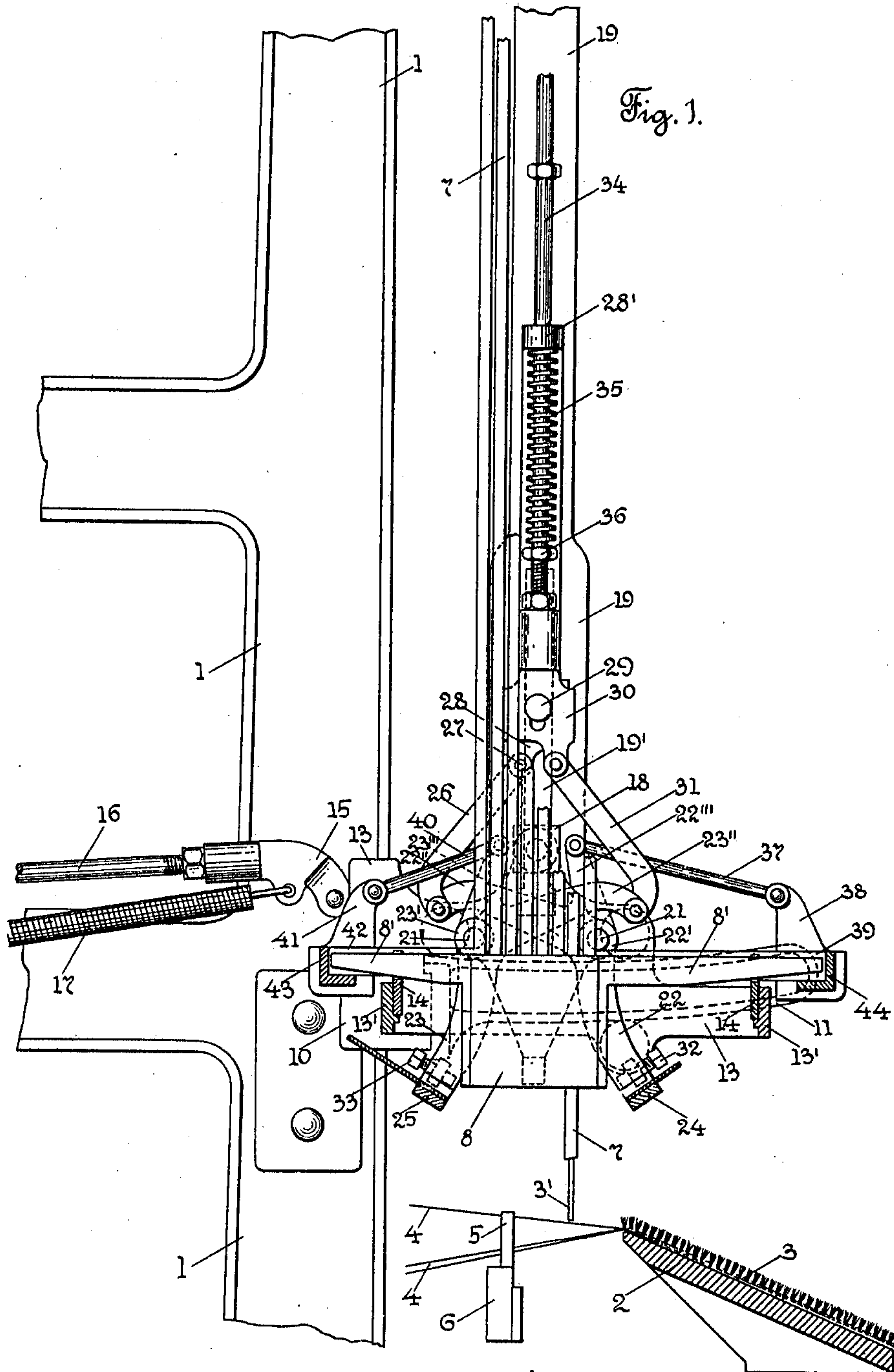


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 EVENER MOTION FOR TUFTED FABRIC LOOMS.
 APPLICATION FILED MAR. 2, 1910.

970,613.

Patented Sept. 20, 1910.

2 SHEETS-SHEET 1.



Witnesses
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 M. Laas

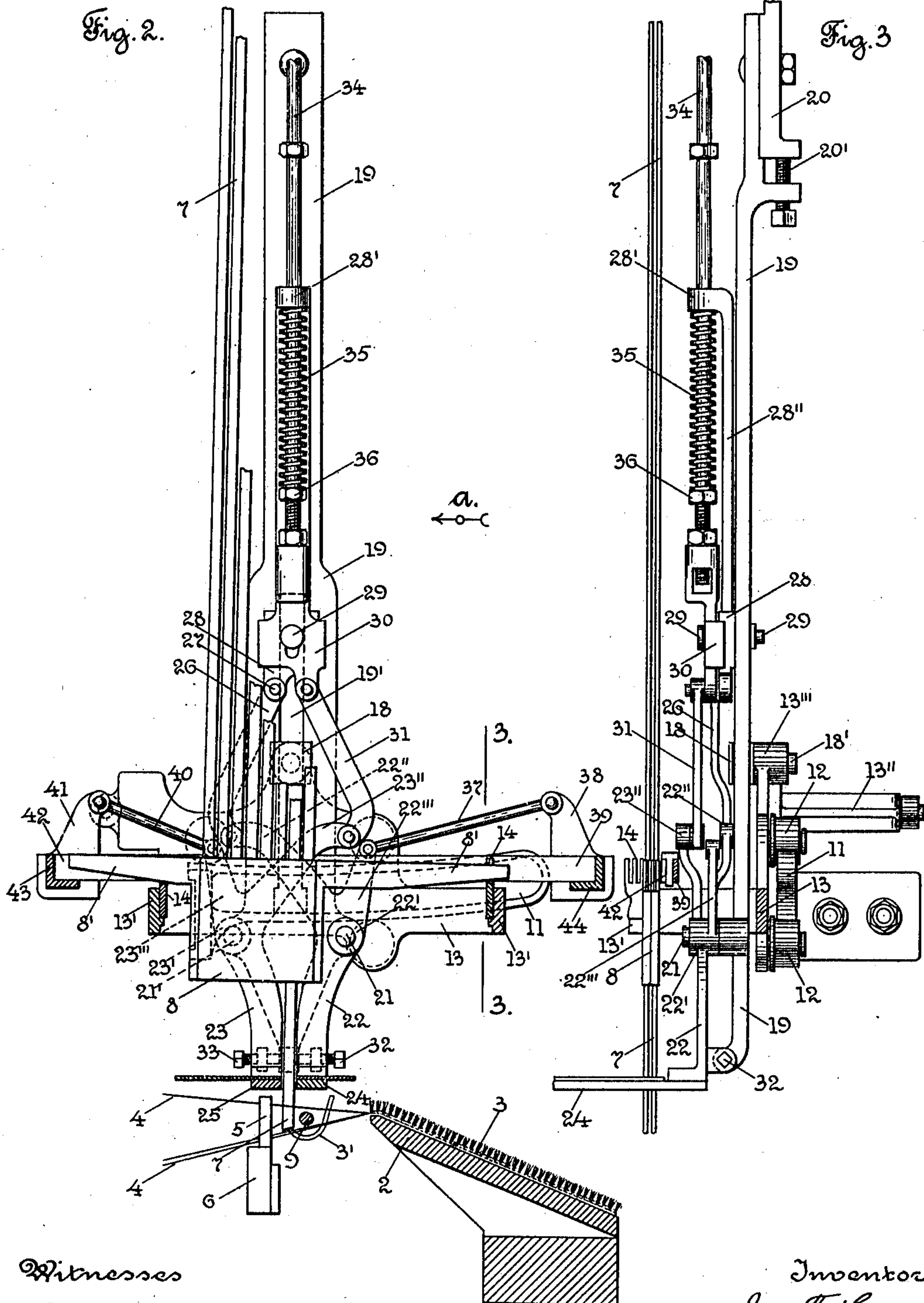
Inventor
 Jos. T. Cyr.
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UNITED STATES PATENT OFFICE.

JOSEPH T. CYR, OF WORCESTER, MASSACHUSETTS, ASSIGNOR TO CROMPTON & KNOWLES LOOM WORKS, A CORPORATION OF MASSACHUSETTS.

EVENER-MOTION FOR TUFTED-FABRIC LOOMS.

970,613.

Specification of Letters Patent. Patented Sept. 20, 1910.

Application filed March 2, 1910. Serial No. 546,820.

To all whom it may concern:

Be it known that I, JOSEPH T. CYR, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Evener-Motions for Tufted-Fabric Looms, of which the following is a specification.

My invention relates to an evener motion for tufted fabric looms of the type shown and described in U. S. Letters Patents, No. 343,110, and No. 446,402, in which a series of needles are employed, which carry the tuft yarn to form the pile on the woven fabric. In the construction shown in said Patent, No. 446,402, there is a set of eight needles which carry tuft yarn of different colors. For each set of needles, carriages are employed, which are adapted to receive the lower ends of the needles, said carriages are made movable in the direction of the length of the fabric, and when a selected needle is dropped from each one of the sets, eveners act upon the dropping needles, to bring all of them into the same row, and to aline them preparatory to being inserted into the warps.

It has been found in the practical operation of looms of the type referred to, that the mechanism for alining the dropped needles sometimes fails to bring the row into correct alinement, as the movement of one, or both of the eveners depends upon the operation of a spring or springs, to close the eveners upon the dropped needles.

The object of my invention is to improve upon the construction of looms of the class referred to, and particularly the mechanism for operating the eveners, to cause them to positively bring all of the selected and dropped needles into alinement before being inserted into the warp.

I preferably provide a compressed spring on each actuating rod, as a give-way mechanism, which spring moves with the rods which close one of the pair of eveners. I am thus enabled to obtain a practically positive movement to close the eveners, and aline the dropped needles with the greatest precision.

My invention consists in certain novel features of construction of my improvements as will be hereinafter fully described.

I have only shown in the drawings a detached portion of a loom of the class referred to, with my improvements applied thereto, sufficient to enable those skilled in the art to understand the construction and operation thereof.

Referring to the drawings:—Figure 1 is a cross section through a detached portion of a tufted fabric loom, with my improvements applied thereto. Fig. 2 corresponds to Fig. 1, but shows some of the parts shown in Fig. 1, in a different position, and, Fig. 3 is a section, on line 3, 3, Fig. 2, looking in the direction of arrow *a*, same figure.

In the accompanying drawings, 1 is the loom side or end frame, 2 is the breast plate or cloth board, over which the pile fabric 3 passes; 4 are the warps which extend through the dents 5 of the reed, which is carried on the lay 6, moved back and forth by mechanism, not shown; 7 are tuft yarn needles, eight in each set, which carry the tuft yarn 3' to insert the same into the warp. For each set of tuft yarn needles 7 there is a carriage 8, which has pockets to receive the lower ends of the needles 7. The carriages 8 slide freely in the direction of the length of the fabric, and eveners, hereinafter described, act upon the lower ends of the tuft yarn needles, which are selected for the next row of tufts to be made, to aline them across the warps. The needles 7 are dropped at the proper time by the jacquard mechanism, not shown.

9, see Fig. 2, is the weft needle which carries the filling or weft yarn into the shed, in the usual way.

All of the above mentioned parts may be of the usual and well known construction in the class of looms referred to.

I will now describe my improvements.

Secured to the loom sides is a stand 10, which has thereon the curved track or arm 11. The track 11 extends toward the front of the loom, and is adapted to guide the rolls 12 on the truck roll stand 13. The stand 13 forms, with the stand on the opposite side, through the transverse bars 13' a swinging frame. The bars 13' have secured thereon the combs or racks 14, which are adapted to loosely hold in position the needle carriages 8 on their supporting bars 8', see Fig. 2. The stand 13 has secured thereon a

rearwardly extending frame or arm 13'', see Fig. 3, to which is pivotally connected a rod head 15, see Fig. 1, on a rod 16.

A helically coiled spring 17, see Fig. 1, is attached at one end to the rod head 15, and at its other end to a stationary part of the loom, not shown. Through the rod 16 and rod head 15, a swinging movement is communicated to the stand 13 and bars 13', by a cam and cam lever on the loom, not shown.

A guide block 18 has a stud 18', which is pivotally mounted in a boss 13''' on the stand 13, see Fig. 3, and acts to guide the vertically extending bar 19. The bar 19 is adjustably connected, through a bar 20 and a bolt 20', to an operating lever, not shown, to be raised and lowered. The block 18 travels in a slot 19' in the bar 19, see Fig. 2. Stud 21, 21', see Fig. 2, have loosely mounted thereon hubs 22' and 23' of the levers 22 and 23, respectively. The lower ends of the levers 22 and 23 are provided with eveners or bars 24 and 25, see Fig. 1, which in this instance consist of broad flat plates, which are adapted to extend underneath all of the needles which are not selected by the jacquard and dropped, see Fig. 2. Extending upwardly from the hub 22' on the lever 22 is an arm 22'', the end of which has pivotally connected thereto a link 26, see Fig. 3. The other end of said link 26 is pivotally connected to a stud 27, on a block 28, which is adapted to loosely slide in the slot 19' in the arm or rod 19, see Fig. 2.

The block 28 has slidably mounted thereon, and connected therewith, by a stud 29, a second block 30. Pivotally connected to the block 30, is one end of a link 31, see Fig. 2. The other end of said link 31 has pivotally connected thereto the arm 23'' on the evenner lever 23. The upward motion of the blocks 28 and 30, actuated by the rod 34, causes the levers 22 and 23 to operate, to positively move the eveners or bars 24 and 25 toward each other, to aline all of the dropped tuft yarn needles, as shown in Fig. 2. Adjusting screws 32 and 33 limit the inward movement of the eveners. An up and down motion is communicated to the block 30 by an operating lever, not shown, through the actuating rod 34, to which it is attached. A helically coiled compression spring 35 encircles said rod 34 and bears at its lower end against an adjusting nut 36 on said rod 34, and at its upper end against the boss 28' on the arm 28'' extending up from the block 28. The spring 35 acts as a give-way connection between the blocks 28 and 30, and is a give-way part for the levers 22, in case any obstruction prevents said lever 22 operating to bring the evenner or bar 24 upon the dropped needles to aline the same, in connection with the bar 25.

To move the needle carriages there is a

third arm 22''', which extends upwardly from the hub 22' on the lever 22, and has its end pivotally connected to one end of a link 37; the other end of said link 37 is connected to a stand 38 secured on a horizontally extending side bar 39. The second lever 23 has an arm 23''', which is connected to one end of a link 40; the other end of said link 40 is connected to a stand 41 on a horizontally extending side bar 42. The side bars 39 and 42 are suitably guided, to have a sliding motion in the direction of the length of the fabric.

Angle irons 43 and 44, are suitably mounted on the side bars 39 and 42, respectively, and cross the loop transversely, and through the operation of the levers or arms 22''' and 23''', the transverse bars 43 and 44 are positively moved toward each other, see Fig. 1, to move the needle carriages 8 to their center position for the next selection of tuft yarn needles, all as will be understood by those skilled in the art.

It will be understood that the parts shown in the drawings are duplicated on the other end of the loom, not shown, and that the eveners or bars 24 and 25 extend transversely across the loom, and also the angle irons 43 and 44, and the transverse bars 13' carrying the combs or racks 14, in the usual way.

The operation of the mechanism shown in the drawings is briefly as follows:—When the eveners or bars 24 and 25 are open, as shown in Fig. 1, and the carriages 8 alined by the angle bars 43 and 44, and a needle has been dropped from each carriage, as shown in Fig. 1, the actuator rod 34 will be moved upward by a cam and lever, not shown, to positively move, through intermediate connections, the eveners or bars 24 and 25 toward each other, to aline the drop needles, and at the same time move the angle bars 43 and 44 outwardly to release the carriages, as shown in Fig. 2. After this operation, the actuating bar 34, and the connections thereto, and the closed eveners or bars 24 and 25, and also the bar 19, move downward to carry the row of dropped needles with their ends into the warps, and are moved back and forth, guided on the curved tracks by the rolls 12 on the carriage frame, to have a pick of filling inserted into the fabric, (see Fig. 2), after which the actuator rod 34 and the bar 19 both move upwardly to withdraw the needles into the carriages, after which the actuator rod 34 moves down again to positively open the eveners or bars 24 and 25, and close the bars 43 and 44 to aline the carriages, as shown in Fig. 1, for another indication to drop a new row of needles from the carriages, all as will be fully understood by those skilled in the art.

It will be understood that the details of

construction of my improvements may be varied if desired.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. In a loom for weaving tufted fabrics, tuft yarn needles, carriages for said needles, eveners, means operative from actuator rods to positively move said eveners toward each other to aline the needles dropped from the carriages, and to positively move them away from each other.

2. In a loom for weaving tufted fabrics, movable carriages, yarn needles therein, eveners for the needles dropped from the carriages, and positively moved actuating means to positively close the eveners upon the needles to aline the same, and to positively move them away from each other.

3. In a loom for weaving tufted fabrics, yarn needles, carriages for said needles, an actuating rod, a pair of levers at each side of the needles dropped from the carriages, and having for each pair of levers intermediate means to cause said eveners to positively move toward each other and aline the needles, and to positively move away from each other.

4. In a loom for weaving tufted fabrics, movable carriages for yarn needles, an angle iron to contact with each end of the carriages, and intermediate means to cause said

angle irons to move toward each other to aline the carriages.

5. In a loom for weaving tufted fabrics, having yarn needles and movable carriages, a pair of levers carrying an evenner or bar on each side of the drop needles to aline them, an angle iron at each end of the needle carriages to aline the carriages, an actuator rod, and intermediate connections, whereby a series of dropped needles may be alined while said carriages are released, and said carriages be alined while said needles are released.

6. In a loom for weaving tufted fabrics, a series of dropped needles, a pair of levers carrying an evenner or bar at each side of said needles, actuator rods, and positively operated intermediate connections to one pair of said levers, and a give-way connection between said rod and the other pair of levers.

7. In a loom for weaving tufted fabrics, a swinging frame carrying yarn needle carriages, truck rolls on said frame, curved tracks for said rolls, one set of said rolls being supported on said tracks, and another set below said tracks.

JOS. T. CYR.

Witnesses:

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