A. H. Boyd.

Take-Up and Let-Off.

No. 7,717. Patented Oct. 15, 1850.

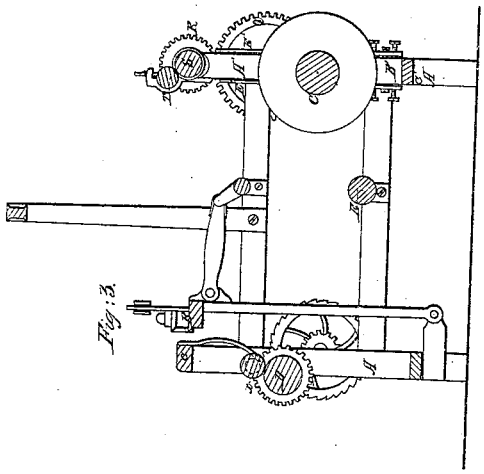

Fig. 3.

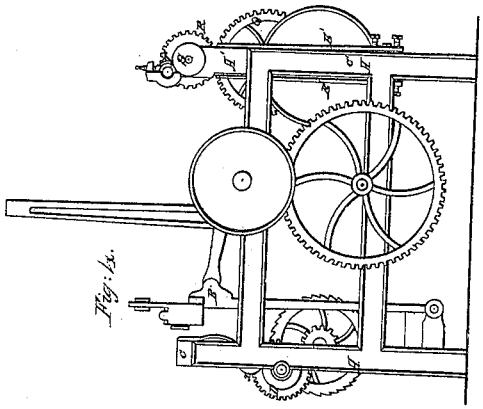

Fig. 4.

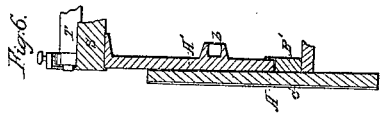

Fig. 6.

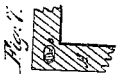

Fig. 7.

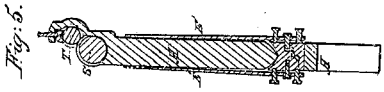

Fig. 5.

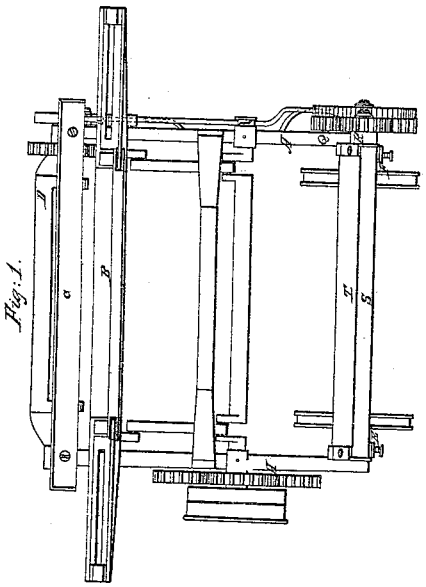

Fig. 1.

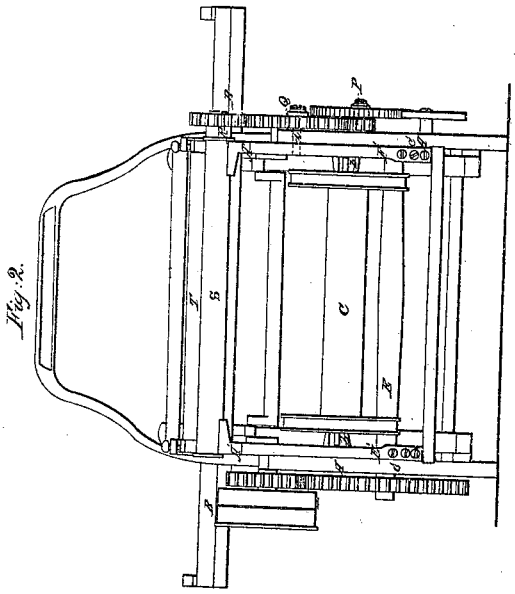

Fig. 2.

UNITED STATES PATENT OFFICE.

AMOS H. BOYD, OF SACO, MAINE.

LOOM.

Specification of Letters Patent No. 7,717, dated October 15, 1850.

To all whom it may concern:

Be it known that I, AMOS H. BOYD, of Saco, in the county of York and State of Maine, have invented a new and useful Improvement in Looms for Weaving; and I do hereby declare that the same is fully described and represented in the following specification and accompanying drawings, letters, figures, and references thereof.

Of the said drawings, Figure 1 denotes a top view of my improved loom. Fig. 2 is a rear elevation of it. Fig. 3 is a vertical and central section of it. Fig. 4 is an end elevation of it. Fig. 5 is a vertical section through one of the vibrating posts and the springs thereof to be hereinafter described. Fig. 6 is a vertical section through the said post, the end of the roller at the top of it, and the adjacent post of the frame of the loom.

On the tenth day of March, A. D. 1849, Letters Patent of the United States were granted to me, for "an improvement in the delivery and take up motion of looms." The improvement which I have hereinafter described is particularly intended to be used on a loom having such patented delivery and take up motion, but I do not intend to confine it to such altogether, as it may be found serviceable on many looms otherwise constructed. The drawings herewith presented however exhibit a loom in part and as provided with my said patented improvements, as well as the new one, which I shall now proceed to describe.

In the above mentioned figures or in such of them as the same may be seen, A exhibits the main frame of the loom, B the lay, C the yarn beam or roller on which the warp yarns are wound, D the roller which imparts motion to the cloth roller *x*. E is the main driving shaft of the loom.

S and T are feed rollers, between which the yarns or warps are carried in their passage from the warp or yarn beam to the breast beam *c*. The delivery and take up motion is to be applied to operate the said feed rollers, and the roller D as represented in the drawings, and substantially as described and represented in the specification of my said Letters Patent of the tenth day of March, A. D. 1849, but instead of the rollers S and T being directly sustained by the main frame A as exhibited in the drawings of the said Letters Patent, they are supported by and made to revolve on two vibrating or movable posts A′, A′, which are placed within the main frame as seen in the drawings and rest respectively in steps or bearings B′, B′, affixed to the inner side of the posts *c*′, *c*′, of the frame A; the lower ends of such posts being formed as seen in Fig. 5, so as to allow the posts to vibrate. Each post is placed between two or any other suitable number of springs E′, F′, whose lower ends are fastened to the step of the post, and whose upper ends bear against the post. The yarn beam is also to have the bearings *b*, *b*, of its journals affixed respectively to the posts A′, A′. The large gear Q, by which motion is communicated from the pinion P, to the toothed gear R, fixed on the axle of the lower feed roller S, should turn on a shaft *d*, (see dotted lines in Fig. 2) made to project from the nearest vibrating post A′, and through a horizontal slot or passage *e*, made through the adjacent part of the loom frame; which slot or passage should be large enough to allow the proper vibrations of the post. Fig. 7 denotes a transverse and vertical section of the slot or passage *e*, and the shaft *d*.

I would remark that the springs of each vibrating post, may be made and applied to it, in any proper manner by which their pressure against it or their power of resistance to the motions of the post may be increased or diminished or regulated as occasion may require.

The Letters Patent taken out by me, March 10th, 1849, secured to me a "positive let-off motion" by means of the two or more feed rollers. The benefits of those rolls to a loom, are the delivery of the warp yarn regularly, to be made into cloth, so that when the cloth is made each and every inch of it contains the same number of threads of filling that may be desired, without regard to the amount of weight or spring that may be applied to the yarn beam or any other part of the loom, which has formerly been applied to regulate the amount of yarn delivered: And further, the warp yarn being secured and held fast between the said rolls, a uniform length to every thread of the warp is secured and the warp does not break so often as in other looms, in as much as each thread, of the warp, takes it proportional part of the strain brought upon the web, by the spring of the harness and beating up action of the lay, whereas in other and ordinary weaving, some threads are

lighter than others, caused by the unevenness of the yarn wound on to the beam. When the warp threads do break in weaving, the ends do not spring back out of the lease rods as in ordinary modes of weaving, because they are thus held fast between the rolls, and therefore the web is kept from getting crossed up and making bad cloth. I have named the principal benefits of the former improvement and will now speak of that of the present improvement.

By the application of the live or vibrating posts A′, A′, nothing is lost which was gained by the former loom, but by adding these posts, and connecting the rolls, yarn beam, and let-off motion to them they give great ease to the web, by yielding to every spring of the harness, thereby relieving the yarn from any increased tension while the harness is springing and the lay is beating in the filling or warp and thus enabling the loom to run with great speed without danger of breaking the warp or deranging the motion of the shuttle. By the vibration of the posts, the crank of the lay passes the dead centers with great ease, and consequently prevents the trembling of the lay. The trembling of the lay causes an irregularity of the motion of the shuttle, preventing its boxing regularly and consequently flinging an obstruction in the way of running a loom to any great speed. The motion of these posts and their effect, differ from other spring motions that have been used heretofore, in as much as former motions have been up and down or perpendicular only and varied the shed of the web in its horizontal position, while this motion is backward and forward or horizontal, and keeps the shed always in the same position.

I lay no claim to spring motions as they have been usually constructed and made to operate, but

What I do claim as my invention is—

The combination of the vibrating posts and springs applied to them, as arranged and adapted to the loom frame, and the operative parts with which they are connected, substantially in the manner and for the purpose of easing the web, without varying its horizontal position as hereinbefore specified.

In testimony whereof I have hereto set my signature this nineteenth day of August, A. D. 1850.

A. H. BOYD.

Witnesses:

PHILIP EASTMAN,

AMOS F. HOWARD.