W. Talbot.
Wearing Bags.

No. 12,005. Patented Nov. 28, 1854.

Fig: 1.

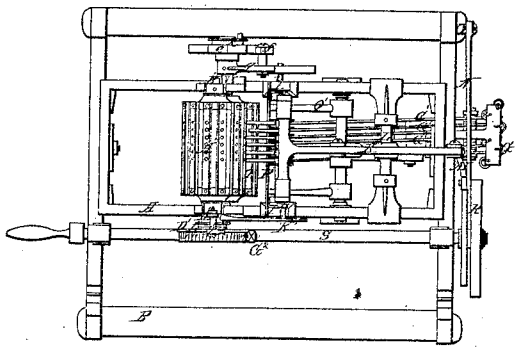


Fig: 2.

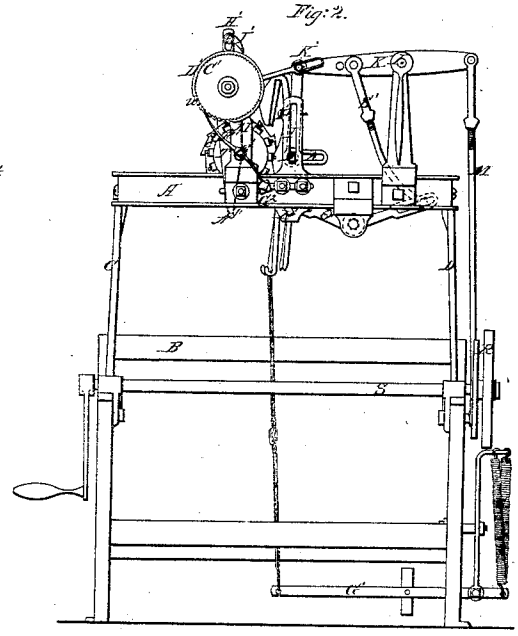


Fig: 3.

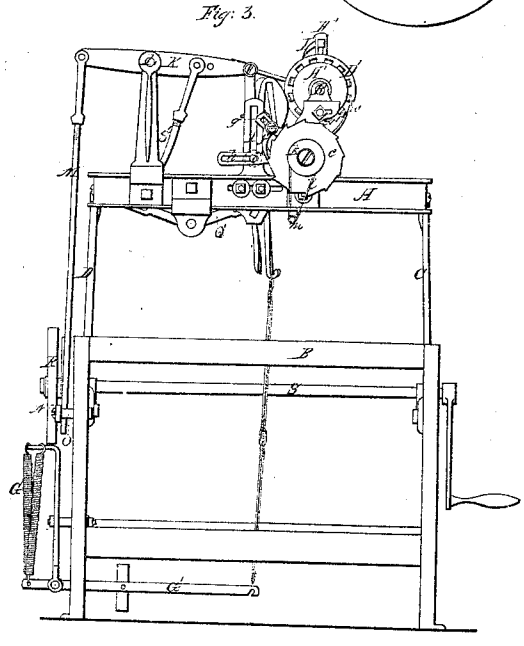


Fig: 5.

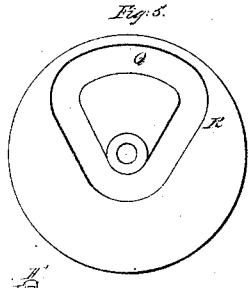
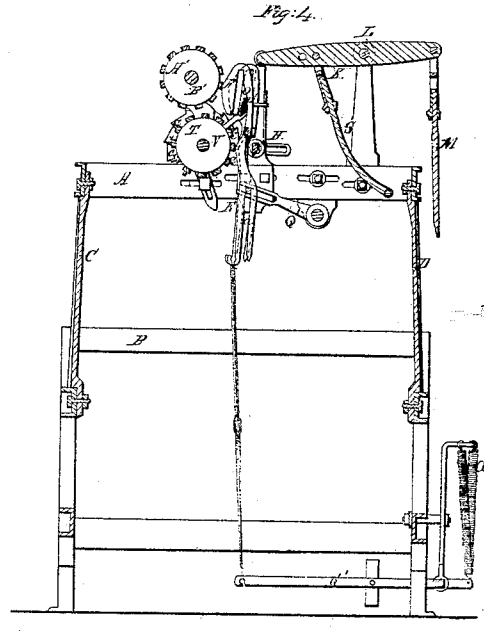


Fig: 4.



UNITED STATES PATENT OFFICE.

WILLIAM TALBOT, OF SANFORD, MAINE.

LOOM FOR WEAVING BAGS.

Specification of Letters Patent No. 12,005, dated November 28, 1854.

To all whom it may concern:

Be it known that I, WILLIAM TALBOT, of Sanford, in the county of York and State of Maine, have invented a new or Improved Loom for Weaving Bags; and I do hereby declare that the same is fully described and represented in the following specification and the accompanying drawings, letters, figures, and references thereof.

Of the said drawings, Figure 1, denotes a top view of a loom frame having my improvements applied to it, the weaving mechanism usually connected to said frame not being represented it not differing from such as is in common use. Fig. 2, is a front elevation. Fig. 3, is a rear elevation and Fig. 4, is a vertical and longitudinal section of my invention and the loom frame to which it is applied. Fig. 5, is an inner side view of the inner cam by which the lever of the lifter bar is operated, such grooved cam to be hereinafter described.

A horizontal frame, A, is arranged above the loom frame, B, and supported on two posts, C, D, extending upward from the same.

On a rod or bar E projecting across the middle part of the frame, A, a series of lifter hooks or contrivances is placed and made to rest. Each of the said lifter hooks being shaped as seen at F, in Fig. 4, wherein it is shown as bifurcated or provided with an opening, *a*, for the reception of the rod, E. One of the harnesses or heddles of the loom is to be suspended to each of the lifters, F. It is raised at the proper time by the elevation of its lifter F, and is depressed by the action of one of a series of springs, G, arranged as seen in the drawings: each of the said springs being attached to the short arms of one of a series of levers, G′, G′, whose longer arms, are connected to the heddles.

For raising the lifters a transverse bar, H, is employed. It plays vertically in upright guides I, I, and is suspended from one end of a lever, K, which vibrates or plays vertically upon a fulcrum, L. The outer end of the lever, K, has a connecting rod, M, jointed to it; the said connecting rod at its lower end being jointed to a lever, N, which works up and down upon the fulcrum or pin, O, at one end of it. The other end of said lever is provided with a pin or stud which is made to extend into the groove, Q, of a cam, R, fixed upon the loom shaft, S, the form of the groove of such cam being exhibited in Fig. 5, and it being so made as not only to arrest the motion of the lifters, and to produce the necessary upward and downward movement of the lifter bar, H, but also to arrest all motion of it and the lifters for a short period of time, viz, while the shuttle is being thrown through the shed or decussation of the warps, the lifters being thus maintained stationary this short period of time, so as to give the shuttle a free passage across the race beam of the loom and between the warps. In looms of this nature it has been customary heretofore to provide the lever, N, with a slot and to make a crank pin from a crank on the driving shaft to extend into such slot, the lever being raised and depressed by rotary motion imparted to the crank. In this manner a continuous motion of the lever and of course the lifter bar without any practical interval of rest was produced consequently the warps were in movement during the passage of the shuttle between them. By the employment of a grooved cam or operating lever as herein before described, the groove of the cam may be so formed as to cause the warps to remain stationary in position during each throw of the shuttle.

In connection with the lifters I make use of a perforated pattern cylinder, prism or rotary regulator pin wheel, T. It is arranged on the top of the frame, A, as seen in the drawings, and fixed on a horizontal shaft V, made to revolve in suitable boxes or bearings. Each bar of the prism or cylinder T, has a series of holes made in it, in number corresponding to the number of the lifters, the said holes being the same distance apart from center to center as are the lifters. Into some one or more of the holes of each bar, pins, *c*, *c*, are screwed or affixed and made to project from the external surface of the bar, these pins being arranged in a proper manner for the production on the loom of a twilled or such other fabric as it may be desirable to have woven by it. The pattern prism or cylinder is adjusted so near to the lifters as to cause the pins, *c*, *c*, during its revolution to be moved in contact with said lifters, and press them in a direction away from it and so as to move their hooks, U, directly over the lifter bar, H, and when the said lifter bar is raised upward it takes with it such lifter or lifters as may project over it.

For rotating the pattern prism or regulator pin wheel, T, the following mechanism is used, a ratchet wheel, *e*, is mounted on and affixed to the outer end of the shaft, V, an impelling pawl, F, works in connection with said ratchet; the said pawl is jointed to one arm of a rocker lever, *g*, which turns upon the shaft, *v*, as its fulcrum and has a slot, *h*, formed through its other arm, into which slot a pin, *i*, from the lifter bar, H, is made to project. The vertical movements of the lifter bar produces a reciprocating movement of the rocker lever such as will produce a regular intermittent rotary motion of the ratchet wheel and the pattern prism or cylinder. There is on the outside of the ratchet wheel a friction pulley, *k*, around which a cord, *l*, is made to extend, such cord being fastened to a pin or projection, *m*. The object of the cord is to produce friction on the periphery of the pulley and so as to prevent back motion of the ratchet during the backward movement of its pawl.

The above described apparatus is what is usually termed a jacquard apparatus, it being used in fancy weaving. In order to adapt it to the weaving of seamless bags and to close the warps together, or to weave them into one another so as to form what is termed the bottoming, I have added to it a secondary regulator pin wheel and sundry other mechanism for the purpose of operating the pin wheel or pattern prism. By the combined operation of both pin wheels or pattern prisms, the weaving of the body and the bottoming of the bag is carried on. The secondary regulator pin wheel or pattern cylinder being only brought into action when it is necessary to form the bottoming. By a series of revolutions of the primary regulator pin wheel the body of the bag is formed.

An endless pattern chain and a common pattern pinion as used in the ordinary jacquard machine could be employed to weave a bag, but it will be seen that in order to make such a bag of some two or three feet in length and to terminate it with a bottoming a chain of great and entirely of inconvenient length would have to be employed. I therefore make use of the primary regulator pin wheel or pattern cylinder which I cause to keep rotating as much as it may be necessary to form the bottom of the bag, and when such body has been completed I bring into action a secondary pattern cylinder and by means of it intermingle the warps so as to form the bottoming of the bag. This secondary pattern cylinder is seen at A′. It is constructed like the primary cylinder and supported on a horizontal shaft, B′. The said shaft carries or has fixed upon it two ratchet wheels, C′, D′; the outer one of which, C′, has a row of teeth extending entirely around its periphery. The inner ratchet has a simple arc of teeth made in its periphery as seen at, *w*.

The shaft, V, carries a crank pin, E′, upon which is fixed an impelling pawl lever, F′, the upper arm of which rests against the periphery of the ratchet wheel, C′, while the lower arm has a weight, G^2, fixed upon it, such weight being sufficient to keep the upper arm of the pawl lever pressed in contact with the ratchet wheel. During each entire revolution of the shaft, V, or the primary pattern cylinder such a motion will be imparted to the pawl lever as to move the ratchet wheel C′, the distance of one tooth forward.

On the shaft B′, there is a rocker H′, which carries an impelling pawl, I′, and is moved by a pin, K′, that works in a slot formed through one arm of the lever, said pin being extended from the lever, K. The said impelling pawl, I′, rests upon the periphery of the ratchet wheel, D′, and by the movement of its rocker lever, H′, and the lever, K, such pawl has a reciprocating movement imparted to it.

Around a grooved pulley L′, affixed to the inner side of the ratchet, D′, a friction band M′, is carried its object being to prevent back rotation of the ratchet. Such band, M′, is attached to a stud N′, of the framework.

The bars of the secondary pattern cylinder or such of them as may be necessary should be provided with suitable pins to operate on the lifters while the said pattern cylinder is being put in movement. From the above it will be seen that after quite a number of revolutions of the primary pattern cylinder, the secondary pattern cylinder will be made to operate against the lifters and will so operate until the impelling pawl, I′, has moved entirely over against the short arc of teeth of the ratchet, D′, the weaving of the body then stops, and the bottoming goes on. Each of the lifters is provided with a cam, O′, which is made to rest against a stationary horizontal bar, P′, the arm being so formed as to cause the upper end of the lifter to be moved away from the upper pattern cylinder when the lifter descends. The transverse bar, E, which supports the lifters is sustained by a rocker lever, Q′, and has each of its ends working in two cam grooves, one of which is seen at, R′, the said slots being so arranged as to produce a lateral movement of the bar E, during a vertical movement of it. The object of these cam grooves is to produce a movement of the lower part of each lifter similar to that which is given to the upper part of said lifter by its cam, O′.

The rear arm of the rocker lever, Q′, is connected to the front arm of the lever, K, by a connecting rod, S′, which is jointed to both levers. By such a connection of the two

levers, it will be seen that their movements are always in opposite directions, so that while the lifter bar, H, is being elevated for the purpose of raising some one or more of the lifters, the bar, E, is being depressed for the purpose of lowering the remaining lifters and allowing their heddles to be depressed by the action of their springs G, G, hereinbefore described. In this way I open the shed of the warps by moving downward a portion of these warps, while at the same time I move upward another portion of them not producing the openings of the warps by the movement of only one portion of them as is the case in the ordinary Jacquard apparatus. By thus moving both portions of the warp one portion upward and another portion downward at the same time, the warps are relieved from much of that great strain which is produced on them when part of the lifters are suffered to remain stationary while the remainder is lifted high enough to raise the warps sufficiently to permit the passage of the shuttle between them and the rest of the warps. The object of giving a lateral movement to the lifters during their downward movements as above specified is to prevent their hooked teeth from coming in contact with and resting upon the pins of the primary pin wheel during the descent of the lifters.

I am aware that bags have been woven on what is termed a plain loom, the same having been effected in manner as exhibited in the specification and drawings of the invention of Cyrus Baldwin patented in the United States, on the second day of December, 1851, but that a fancy or Jacquard weaving loom has been used for such purpose, I am not aware.

I do not claim a series of cams applied to the shaft of a loom and made by mechanism as described in the said Baldwin's specification to operate the treadle levers of a system of heddles and so as to weave a bag, but in combination with the Jacquard apparatus or series of lifters, their lifting mechanism and the rotary regulator pin wheel or its equivalent, I claim—

The secondary regulator pin wheel or cylinder or its equivalent, and a mechanism substantially as described [or the equivalent therefor] for imparting to the secondary pin wheel or regulator its proper motions and intervals of rest, whereby by the combined action of both regulators the weaving of the body of the bag and the bottoming of it is carried on, as described; my machinery, being adapted to the weaving of plain, twilled, or fancy work as occasion may require.

In testimony whereof I have hereunto set my signature this first day of May A D 1854.

WILLIAM TALBOT.

Witnesses:

SAMUEL THOMPSON,

JOHN HEMINGWAY.