

Sheet 1-2, Steel's.

W. Aspinall.
Loom for Weaving Laynet.
N^o 50,764. *Patented Oct. 31, 1865.*

Fig. 1.

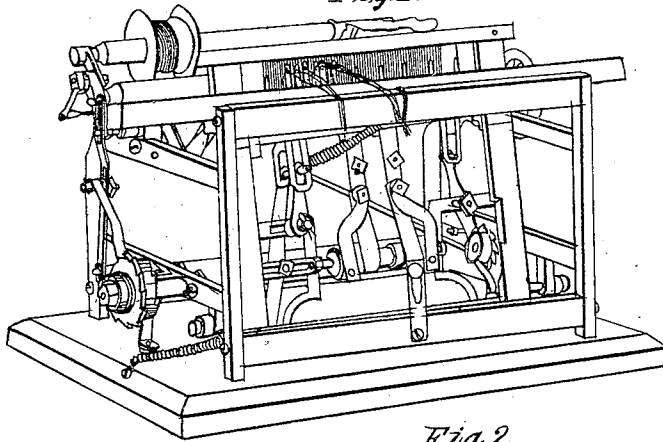


Fig. 2.

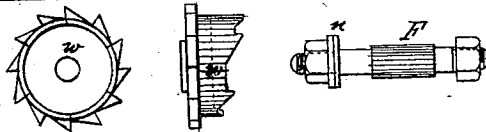
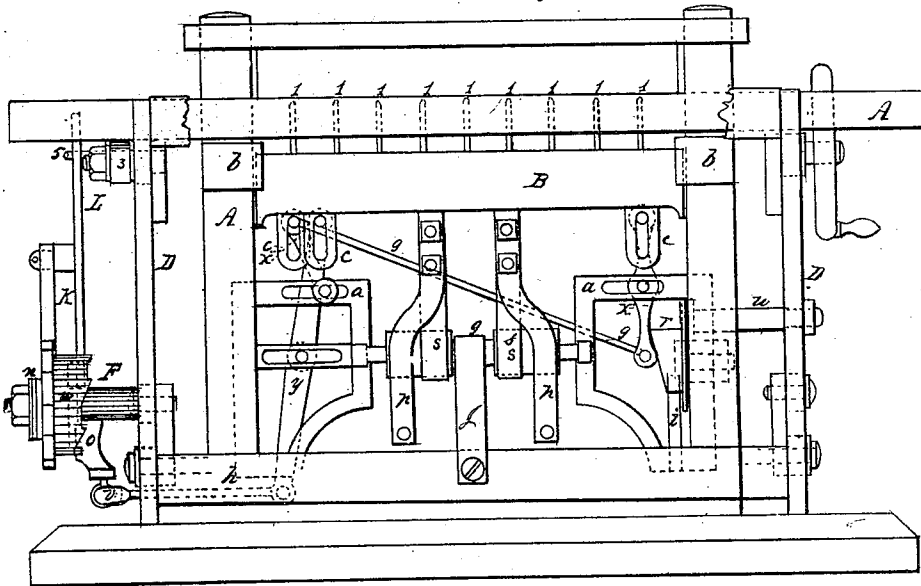
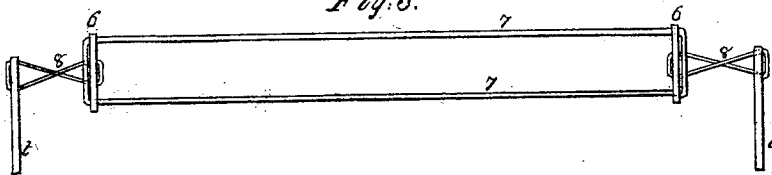
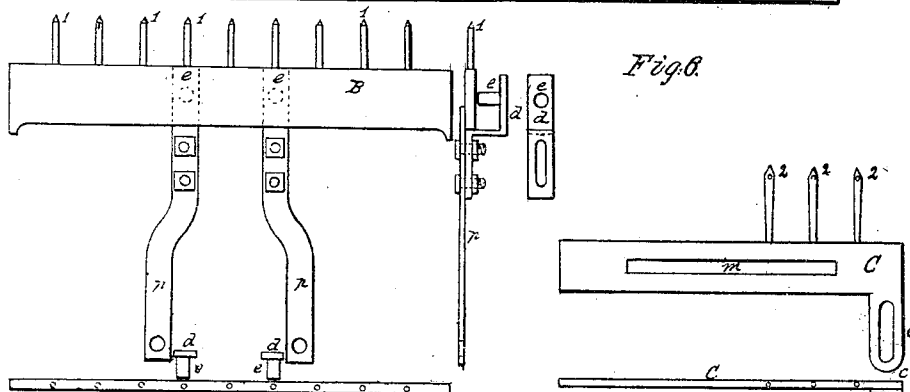
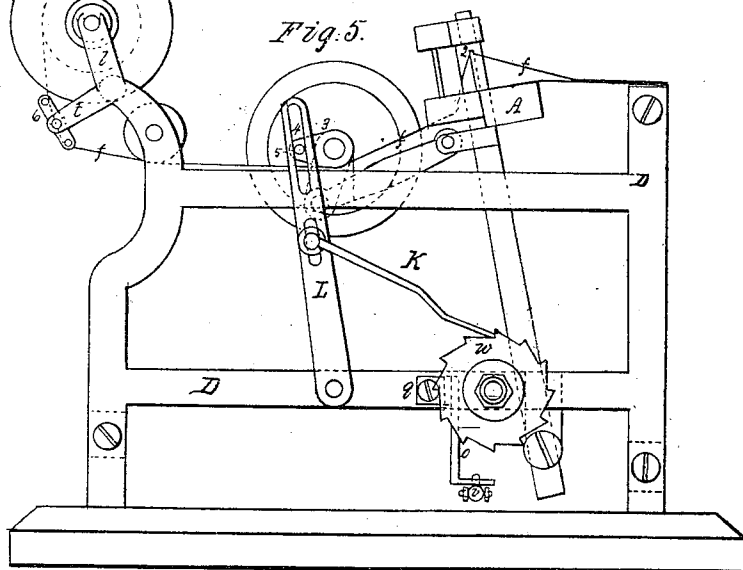
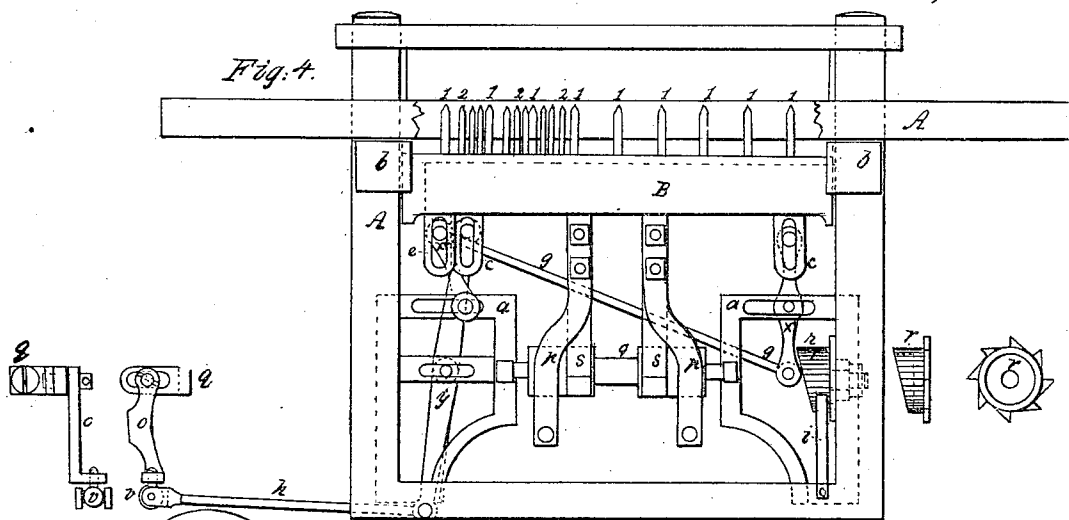


Fig. 3.



W. Aspinall *Sheet 2-2 Sheets.*
Loom for Weaving Laynet.
N^o 50,764. *Patented Oct. 31, 1865.*



UNITED STATES PATENT OFFICE.

WM. ASPINALL, OF MANAYUNK, PENNSYLVANIA, ASSIGNOR TO HIMSELF
AND JAMES LEDGER, OF SAME PLACE.

IMPROVEMENT IN LOOMS FOR LAPPET-WEAVING.

Specification forming part of Letters Patent No. 50,764, dated October 31, 1865.

To all whom it may concern:

Be it known that I, WILLIAM ASPINALL, of Manayunk, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Power-Looms for Weaving Fancy Goods called "Lappets;" and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The nature of my invention consists in the arrangement for working two needle-frames by one pattern-wheel; the arrangement of working the pattern-wheel on the side of the loom-frame, and operating it from the crank-shaft; the arrangement for adjusting the height of the needles; the arrangement for the tension of the threads worked by the needles.

To enable others skilled in the art to make and operate my improvement, I will now proceed to describe and explain its construction and operation.

In referring to the drawings which make a part of this specification, Figure 1 is a photographic perspective view of the main parts of a loom containing my improvements. Fig. 2 is a line-drawing, front view. Fig. 3 is a view of the tension-frame. Fig. 4 is a view of the lay and improvements for working the guide-pins and needles. Fig. 5 is a view of the end of the loom. Fig. 6 is a view of the guide and needle-frame. All the other figures are drawings of details.

D represents the loom-frame, of ordinary construction; A the lay, which is hung in the frame D in the usual way. On the swords of this lay are guides *b b*, in which the guide-pin frame B is made to slide freely. In this frame are supported the needle-bars C, by means of studs *e e*, forming part of the small brackets *d d*, which are adjustably secured to the extension pieces *p p*, which form part of B. These studs enter and extend through an oblong slot, *m*. In each bar rollers should be placed on the studs *e e*, in order to produce less friction as the bars C are moved laterally. The guide-frame and needle-bar should be made of sheet-iron, and the pins and needles may be tapped or soldered to them.

To the guide-frame B are two extensions, *p p*. To these are fastened straps *s s*. The straps are fastened to the drum 9. This drum is hung in the frames *a a*, fastened to the swords of the lay. On these frames are levers *x', x''*, and *y*. The levers *x' x''* are placed one in each frame *a*, and connected together by the rod *g*.

r is a cam or pattern wheel, provided with a ratchet-wheel, and attached to the frame *a* on the sword of the lay by means of a stud, and made to vibrate with the lay, and it is rotated by a pawl, in front or rear, as may be desired, fastened to the loom-frame D by stud *u*. The spring *i* is fastened to the lay and presses on the face of the pattern-wheel *r*, to create sufficient friction to keep it steady. The spiral spring seen in the photograph is fastened to the stud on the lever *x''* and to the race-beam of the lay, to keep the lever *x'* to the face of the pattern-wheel.

On the end of the main driving or crank shaft is a small crank, 3, having a stud, 5, which works in the slot of the lever L, pivoted to the side of the loom-frame, which lever communicates motion to the pattern-wheel *w*, on the stud F, fastened to the loom side or frame D.

On the side of the pattern-wheel is a loose washer of leather, *v*, between the nut and wheel, for producing the necessary friction upon it.

q is a bracket fastened to the loom-side. From this bracket is hung the lever *o*. To the end of this lever is attached the universal joint *v*. This joint is attached to the lever *y* by means of the rod *h*.

The shape or form of the pattern-wheel *w* for producing one figure is shown in the drawings, but this wheel is capable of a great many alterations.

The various shapes and methods of operating the lever *o*, are not new, and are well known by those skilled in the art of lappet-weaving. Therefore I have only described the method of rotating the wheel from the crank or main shaft and the function of the universal joint, which admits of the vibration of the lay.

Fig. 3 shows the tension-frame. *t t* are arms fastened to the sides of the loom near the yarn-

beam. 66 are pieces of wood, having two holes near the center and a hole at each end. Through the center holes are passed the cords 8 8 and through the outer holes are passed the cords 7 7. The cords 8 8 are twisted. E is the yarn-beam for supplying the needles with yarn, and which is mounted just above the whip-roller by means of the stand L. An ordinary yarn-beam for supplying the warp for the fabric to be woven is also used, but is not shown in the drawings.

The method of operating my improvements is as follows: The yarn desired to be worked or woven into the cloth is wound on the yarn-beam E. It is carried through the space between the tension-cords 7 7, and under the whip-roller, crank-shaft, bottom of the reed, and through the lay just in front of the reed, and through the eyes of the needles, as indicated by the line *f*, as the needles rise and fall. The cord 8 8 of the tension-frame being twisted will tend to turn the frame over, and this frame coming against the threads will keep them tight when being woven into the cloth. The frame B and needle-bar C are attached to the drum 9 by the straps *s s* and extensions *p p*. To the center or middle of this drum one end of a strap is secured, and the other end is fastened to the stand *f*, affixed to a cross-bar of the loom-frame. As the lay vibrates the drum will be partially revolved alternately in opposite directions, and thus, by lifting and depressing the extension-pieces *p p*, will cause the guide-pins and needles to rise vertically as the lay retreats from the cloth-making line. In producing the figure the needles receive a lateral as well as a vertical motion, which is produced by the pattern-wheel *r* and wheel *w*.

By connecting the rod *g* to the lower end of the lever *x'* and to the lever *x''*, I am enabled to work two needle-bars in opposite directions to each other, and produce a variety of pat-

terns with very simple arrangements of machinery. The wheel *w* on the loom-side works another needle-bar through the universal joint, connecting-rod *h*, and lever *y*. By placing this wheel on the side of the loom a much larger pattern can be made than if fastened to the swords of the lay. This wheel is moved one tooth at each revolution of the crank-shaft by means of the pawl K, attached to the lever L. The small bracket *d d*, Fig. 6, is fastened to the frame B by means of small bolts. The bracket is slotted to admit of adjusting the needles to raise them to the proper height, as they must raise the threads of sufficient height to allow the shuttle to pass under. In other plans the needle-bar has no slot, and no provision is made for adjusting them.

Having thus described such parts of the machine as I claim to be new and of my own invention, the other parts will be readily understood by those who are skilled in the art of lapet-weaving.

I claim—

1. In combination with the universal joint, the pattern-wheel fastened to the loom-frame and independent from the lay, and operated from the main driving-shaft, as above described.
2. The combination of the studs *e e* and slotted brackets *d d*, for the purpose of adjusting the needles vertically, as above described.
3. In combination with the needles, the tension frame and cords, constructed as and for the purpose described above.

WILLIAM ASPINALL.

Witnesses:

his
WILLIAM X LEDDON,
mark.
JOHN SHINN.