J. Tyler,

Water Wheel.

No. 52,625.

Patented Feb. 13, 1866.

Fig. 1

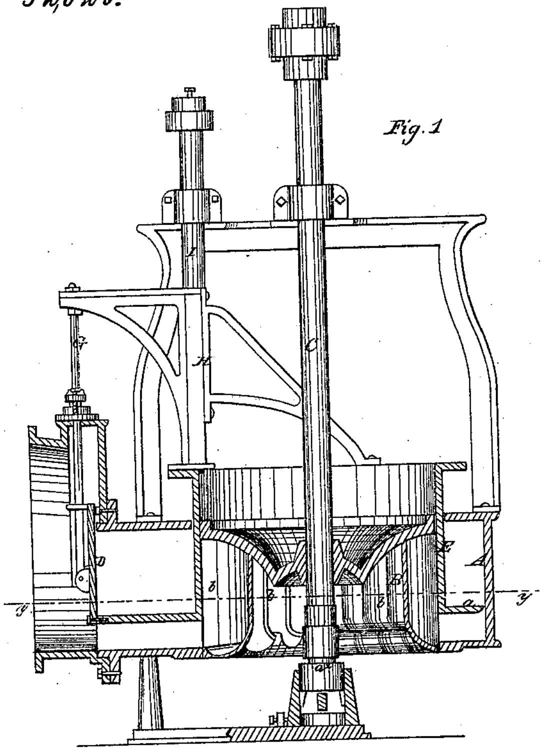


Fig. 3.

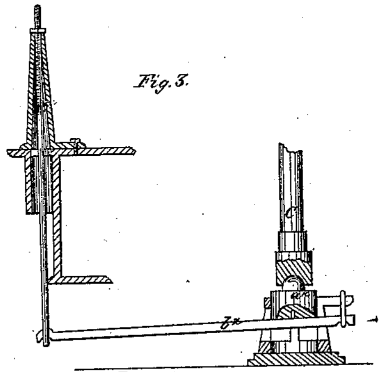


Fig 2.

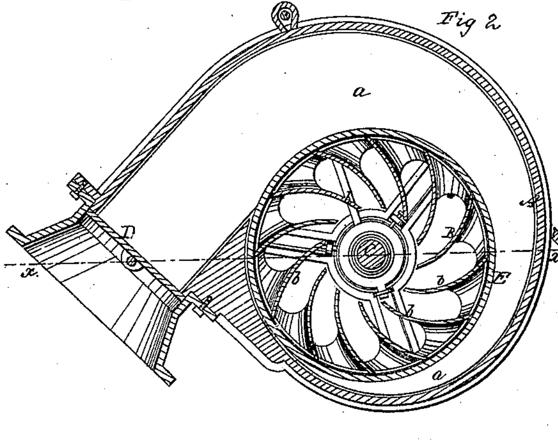
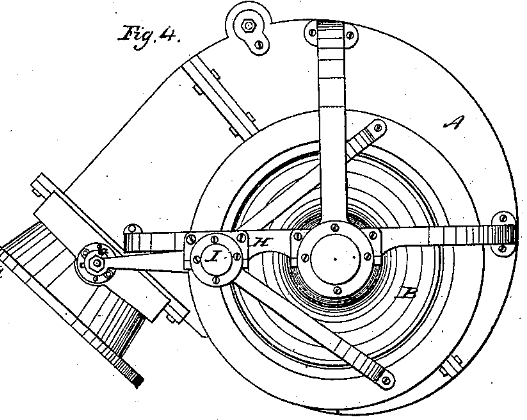


Fig. 4.



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UNITED STATES PATENT OFFICE.

CLEMENS UNVERZAGT, OF RICHMOND, INDIANA.

IMPROVEMENT IN HAND-LOOMS.

Specification forming part of Letters Patent No. **52,626**, dated February 13, 1866.

To all whom it may concern:

Be it known that I, CLEMENS UNVERZAGT, of Richmond, Indiana, have invented certain new and useful Improvements in Hand-Looms; and I declare the following to be a full, clear, and exact description of the same, reference being had to the drawings and letters of reference marked thereon, which accompany and form a part of this specification.

In the drawings, Figure 1 is a perspective view of the loom. Fig. 2 is a plan of the compound wheel and its attachments. Fig. 3 is a view of the shuttle-box and shuttle in position. Fig. 4 is a view of the cam-block and collar. Fig. 5 is a view of the picker-block, showing the arrangement of the picker-staffs and picker-spring, &c.

Like letters and numbers refer to like parts of the loom.

To enable those skilled in the art to make and use my improvement, I will now proceed to describe the same.

In Fig. 1, *a a a* represent the frame-work of the loom, which is of the ordinary form. The main shaft *i* extends across the frame, and resting upon suitable boxing is provided with two balance-wheels—one at each end outside of the frame-work, marked *d d*—each one of which is arranged with a wrist-pin, to which is attached the pitmen *l l'*.

The shaft *i* is surmounted with a cam-block, *e*, near its center, said cam-block *e* being made eccentric by being bored between its center and circumference.

The outer surface of the cam-block *e* is provided with a spiral groove traversed on its cross-section by a return-groove.

The collar *f*, which surrounds and works upon the cam-block *e*, is provided with a steel feather, *f'*, working in the spiral groove of the cam-block *e*, and upon its under side there are attached jaws 4, provided with graduating holes.

The pinion 1 is rigidly attached to the shaft *i*, and is driven by the compound bevel and spur wheel 2, whose axis is secured to the frame-work by any proper device.

The compound wheel 2 is provided with an adjustable wrist-pin, to which is attached the arm 6, which is jointed upon the arm 7.

The arm 7 extends along the outside of the batten-post *p'* to the cloth-roller *r*, and is provided with a pawl, 9, which pawl is fitted with a spring, and operates the ratchet-wheel 8 by the motion communicated to it by the revolution of the compound wheel 2.

The bevel-wheel 3 is fitted to the shaft 11, Fig. 2, which shaft extends along the outside of the framing, secured in any suitable manner, and terminating in a crank at the front of the loom.

Attached to the jaws 4 of the cam-block collar *f* is a stepping-bar, 12, Fig. 4, which depresses the treadles *n n n n* successively as it is carried along by the spiral groove in the cam-block *e* at each revolution. This bar is secured to the jaws by a pin, and the jaws are provided with holes to allow the lengthening or shortening of the motion of the stepping-bar.

The compound wheel 2 is secured upon its axis in such a manner as that it can be so changed as to produce the action of the pawl 9 at any point of the vibration of the batten *o* upon the ratchet-wheel 8, the wheel 2 being for this purpose adjustable upon its axis and fastened at any point desired by the operation of the screw holding it upon its center.

The warp-roller *b* is provided with heads at each end, in which recesses are formed to receive an elastic belt, the pressure of which is regulated by the set-screw *x*, Fig. 1.

In Fig. 5, *g* represents the picker-block containing at the bottom the picker-spring *t*, attached to the ends of which are the short levers *s s'* pivoted upon the blocks *h h'*, the upper ends being each constructed with a recess.

The picker-staffs *q q'* are pivoted near the upper portion of the picker-block *g*, and their lower ends so formed as to fit loosely into the recesses of the short levers *s s'*. By this arrangement an accelerated action is given to the picker-staff, and greater certainty given to the throw of the shuttle by the action of the spring *t*.

Fig. 3 represents the shuttle-box with the shuttle in position.

The cloth-beam *r* is provided with a ratchet-wheel, 8, operated by the spring-pawl 9 upon the bar 7, and held in position by the pawl 10 attached to the framing of the loom.

The pitmen *l l'* impart the reciprocating motion to the batten, and at the same time operate the devices for throwing the shuttle.