C. F. Bortling.

Loom.

No. 53,943. Patented Apr. 17, 1866.

Fig. 1.

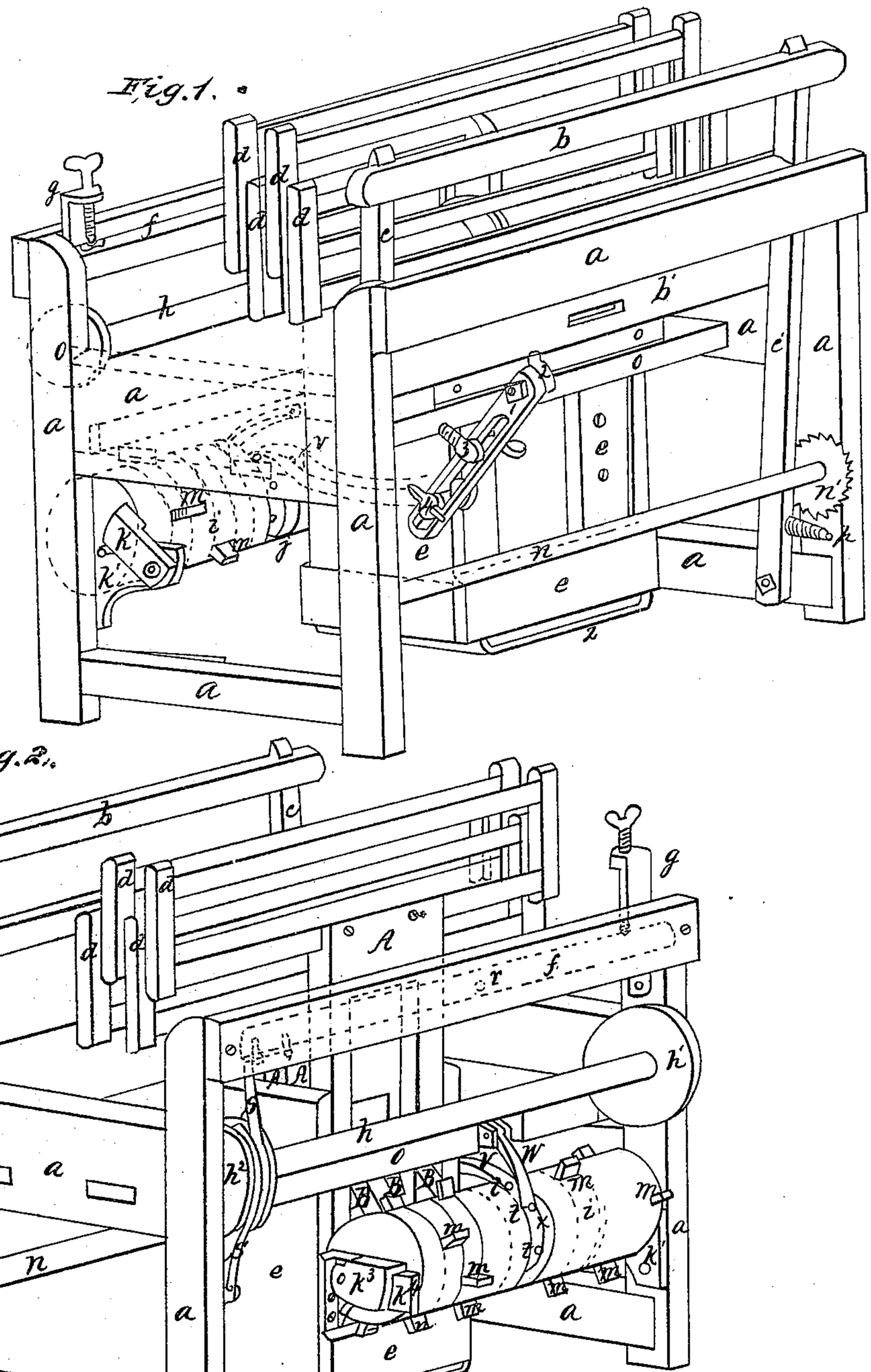

Fig. 2.

Witnesses.
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C. F. BARTLING, OF GREENVILLE, OHIO.

IMPROVEMENT IN LOOMS.

Specification forming part of Letters Patent No. **53,943**, dated April 17, 1866.

To all whom it may concern:

Be it known that I, C. F. BARTLING, of Greenville, Darke county, and State of Ohio, have invented certain new and useful Improvements in Looms; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the drawings which accompany this specification and form a part of the same, and to the letters of reference which are marked thereon.

The nature of my invention consists in providing the heddle-frames of a loom with an upright staff or post, which is rigidly attached to the same, said staffs or posts being constructed with stops or projections near the lower ends of the same.

It further consists in the use of a cylinder provided with projections or tappets, which serve to raise the heddle-staffs as the cylinder revolves by coming in contact with the stops or projections on the heddle-staffs.

It further consists of the arrangement of working the said cylinder by means of a pawl attached to the batten of the loom by means of a link which imparts motion to the cylinder, the pawl working against studs or pins in a groove centrally situated in said cylinder.

In the drawings, Figure 1 is a perspective view of the front of the loom. Fig. 2 is a perspective view of the rear of the same.

Like letters refer to like parts.

In Fig. 1, *a a a a* represent the frame of the loom. *b* is the top cross-bar of the batten, and *c* and *c'* are the batten-posts, which are hinged to the sills of the frame in the usual manner.

The heddle-frames *d d d d* are each provided with a staff or post, framed into and rigidly connected with the same, and extending downward to a point even with the base of the framing. These staffs or posts are each provided with an ear or projection on the side opposite the batten, the under side of which is at right angles with the plane of the staff or post. These staffs or posts are in the drawings marked A A A, and the ears are marked B B B, Fig. 2.

The staffs or posts A A A are mortised to admit the ears or projections of the succeeding staff or post to come to the same line upon the rear of the staff-box *e*.

The cylinder *i* has its bearings upon the journal-boxes k' and k^4, and is provided with tappets or projections upon its circumference, so formed and arranged as that during the revolution of the cylinder they successively come in contact with and raise the heddle staffs or posts, thereby changing the harness of the loom and forming the "shed" for the passage of the shuttle, which is closed by the descent of the heddle frame and staff by reason of their gravity. This arrangement secures a perfect perpendicular motion of the heddle-frames, and at the same time allows them to be readily removed, either separately or collectively.

The cylinder *i* is formed in two sections, each section having two sets of tappets. The journal-boxes k' and k^4 are each provided with a hinged guard having a ledge, which when down rests upon the journal-box and prevents endwise motion of the cylinder in that direction, as shown by k^3. If k^3 is raised and the cylinder *i* moved in that direction, a new set of tappets will be brought in contact with the heddle-staffs and a different fabric produced, and the hinge guard *k* of the opposite journal-box will drop into place and secure the regular action of the second set of tappets upon that section of the cylinder. Now, if both guards are raised, the heddle-staffs all being down, the cylinder may be taken out and the ends reversed, when a third set of tappets will be brought into action, and by moving the cylinder endwise, as before described, a fourth style of fabric will be the result, thus producing by one cylinder, arranged as described, four varieties of fabric, and by the introduction of a second cylinder, or of other succeeding ones, varieties of fabric may be multiplied at will. The sections of the cylinder are divided by a recess or groove, *x*, which is provided with stops or pins *t t t*, which are operated by the pawls *v* and *w*. The pawl *w* is attached to the cross-piece *o* by a screw-bolt, which renders it adjustable. The pawl *v*, which rotates the cylinder *i*, is operated by a link, 1, to the lower end of which it is attached by a thumb-screw, 4, and is adjustable in the slot of the link by means of said screw. The link 1 is supported centrally by a screw-bolt, 3, and at the top by a screw-bolt, 2, which is attached to the cross-bar b' of the batten *b*. It will be seen that the vibration of the batten operates the cylinder through the link 1 and pawl *v*, rais-

ing the heddle-frames in such varieties of combinations or singly as the arrangement of the tappets upon the cylinder may produce, the whole operation being performed by the forward motion of the batten. The springs *p p*, attached to the lower part of the batten-posts *c* and *c'*, are intended to assist the forward motion of the batten.

A leather strap, *z*, is stretched across the bottom of the box or frame *e*, in which the staffs A A A work, and is intended to act as a cushion or bumper for the ends of said staffs when released.

The warp-beam *h* is provided with a circular head, h^2, which is grooved to admit a strap, *s*. The lower portion of the strap *s* is secured to the framing, from which it passes once around the circular head h^2, and is secured to the end of the lever *f*, which has for its fulcrum the pin *r* in the framing of the loom. The position of the end of the lever opposite the strap is adjustable by a set-screw, *g*, attached to said framing. By depressing or releasing the end of the lever operated by the set-screw more or less tension is given to the strap, and more or less friction and consequent resistance is realized upon the warp-beam, while no undue friction is communicated to the journals of the beam, as the strap *s* serves to aid in suspending the beam, and the friction is exerted upon all parts of the circumference of the head h^2 alike.

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

1. The reversible, removable, and adjustable cylinder *i*, provided with tappets *m m m*, the recess *x*, and stops *t t t*, substantially as and for the purpose set forth and described.

2. The heddle-frames *d d d d*, when the same are provided with the staffs A A A and projections B B B, arranged and operated by the pattern-cylinder *i*, as and for the purposes set forth.

3. The link 1 and pawl *v*, in combination with the batten *b*.

4. The lever *f*, strap *s*, and set-screw *g*, arranged, in combination with the cloth-beam *h*, in the manner set forth.

5. The devices herein described for operating the heddles, by which the shed is opened by the forward motion of the battens.

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Witnesses:

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