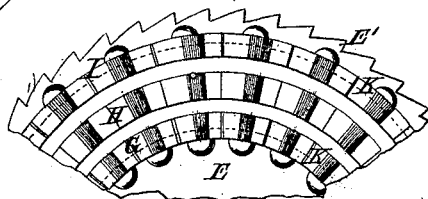


J. Clough & J. Crompton. Mach. for Weaving Embroidery.

112785

Fig. 3.



PATENTED MAR 21 1871

Fig. 1.

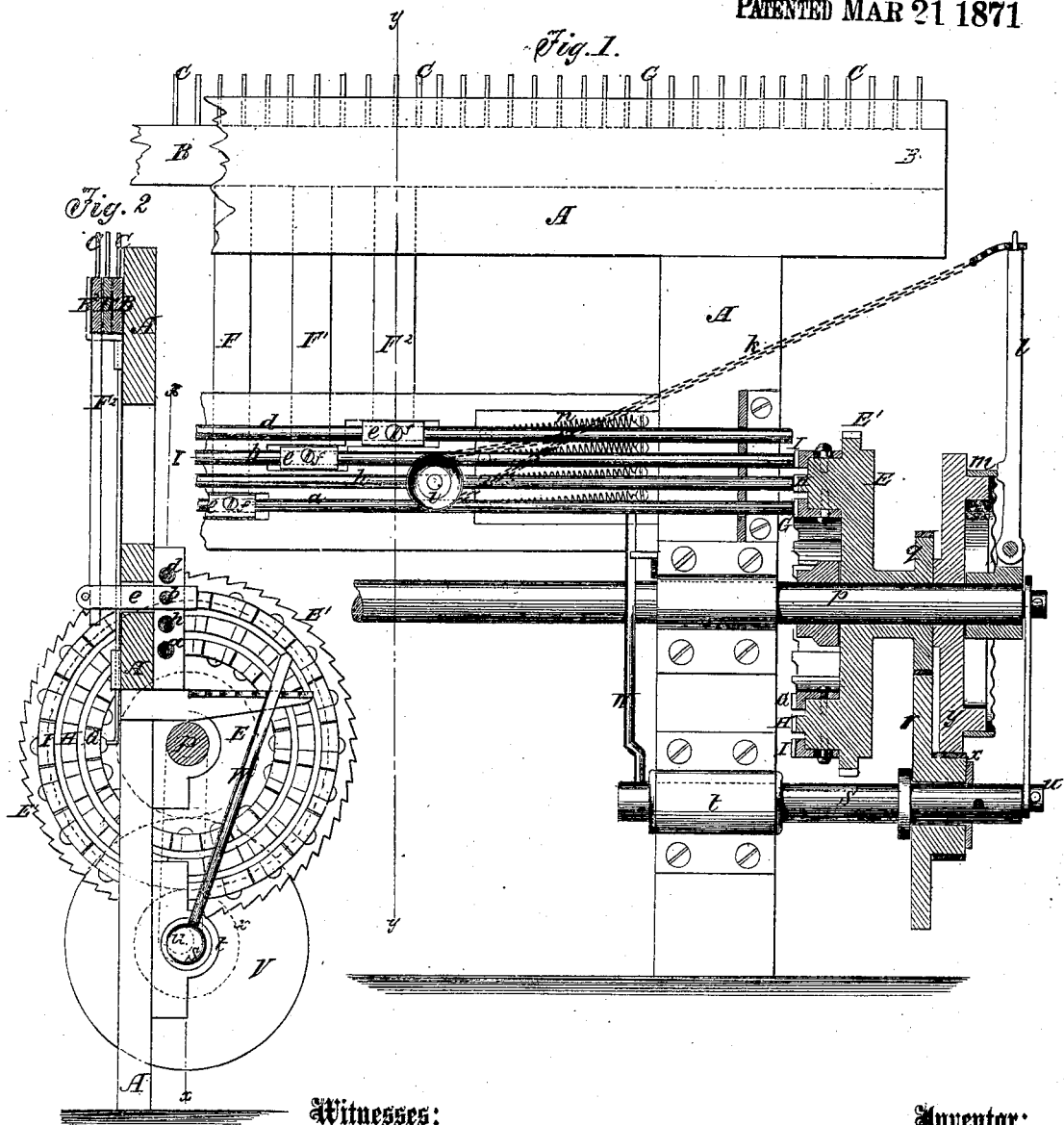
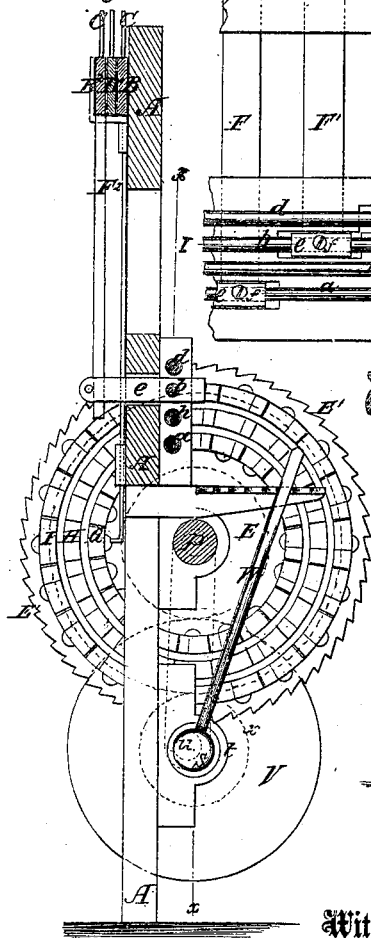


Fig. 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

JOSEPH CLOUGH AND JOSEPH CROMPTON, OF CHICOPEE, MASSACHUSETTS.

IMPROVEMENT IN LAPPET-LOOMS.

Specification forming part of Letters Patent No. **112,785**, dated March 21, 1871

To all whom it may concern:

Be it known that we, JOSEPH CLOUGH and JOSEPH CROMPTON, of Chicopee, in the county of Hampden and State of Massachusetts, have invented a new and useful Improvement in Machines for Weaving Embroidery; and we do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing, forming part of this specification.

This invention relates to improvements in machinery for weaving embroidery; and it consists in an improved arrangement of adjustable cams and connecting-rods with the needle-bars and a pattern wheel or former, having for its object to enable us to weave three distinct patterns simultaneously.

It also consists in an improved arrangement of the driving-gear for working the pattern-wheel, calculated to facilitate the setting of the pattern-wheel back or adjusting it with exactness, to make the exact adjustments of the needles with the pattern often required in case of accidents.

Figure 1 is a view of our improved embroidery attachment to looms, partly in elevation and partly in section, the section being taken on the line *x x* of Fig. 2. Fig. 2 is a section on the line *y y* of Fig. 1, and Fig. 3 is a partial face view of our improved cam-wheel.

Similar letters of reference indicate corresponding parts.

A is the frame, B B¹ B² the needle-bars, and C the needles, of an embroidery attachment to ordinary looms commonly placed on the lathe, and arranged so that at the backward vibration of the lathe, they are lifted, and let fall at the forward vibration. The said bars also have a lateral movement, which has been heretofore accomplished by the sliding rods *a b d* and a cam, E, the rods being attached to the bars by the arms F F¹ F², and the cam-wheel having a ratchet-rim, E, a tooth of which is brought against a pusher at each alternate movement of the lathe.

We now propose to attach the rods to the arms so that the latter may be adjusted on the former, so that we can move our needles and figures in the cloth as we may require, which

we do by fitting the blocks *e*, connecting the arms with the rods so that they may slide on them, and providing set-screws *f* to hold them at any point. We also provide the cam-wheel with three sets of tappets, G H I, the one H being permanently attached to the wheel or cast with it, and the other two being formed of separate blocks K, each tappet consisting of one block; and these blocks are attached to the wheel by set-screws or other suitable means in any way to admit of their being adjusted to or from the rods they act against to vary their arrangement for varying the figures.

The tappet-rim G acts upon the rod *a* connected to the arm F of needle-bar B, the rim I acts upon the rod *b* attached to arm F¹ of needle-bar B¹, and the rim H acts upon the rod *h*, which carries a roller, *i*, over which a chain, *k*, connected to the rod *d* of needle-bar B² works, said chain being connected at the other end to the upper end of the lever *l*, pivoted at the lower end, and bearing between the ends against a pattern-wheel, *m*, turning loosely on the shaft *p*, and arranged to move the rod *d*, through the medium of this lever, chain, and wheel *i*, in the same direction the other rods are moved by the cam-wheel; but the movement will be governed by the configuration of the pattern-wheel, while the movements of the rods *a* and *b* are governed by the cam-tappets. All the rods are moved back by spiral springs *n* attached to them at one end and to the frame at the other.

It will be seen that, by these arrangements, three distinct and different patterns are provided, and each set of needles will be worked according to its pattern simultaneously with the working of the others.

The cam-wheel E turns loosely on the shaft *p*, on which the pattern-wheel *m* is also mounted, and it has a small friction-wheel, *g*, gearing with another larger one, *r*, working loosely on the shaft *s*, which is mounted on eccentric bearings *t u* and provided with a hand-lever, &c., for turning it to engage or disengage these wheels with each other. The wheel *v* has a hub, *x*, gearing with a friction-disk, *y*, on the pattern-wheel *m*. The latter thus derives motion from the cam-wheel E. The said pattern-wheel *m* moving at a slower rate than the tappet-wheel E has the effect of working the

needle-bar B² according to a predetermined pattern in the same manner that the patterns are produced by the other needle-bars, through the medium of the adjustable tappets I' or G, which may be set for producing different patterns; and the patterns may be varied by changing the pattern-rims of the said pattern-wheel, thus producing the same effects as if the tappets H were also adjustable. This arrangement of the friction driving-gear and the eccentric shaft is provided to afford the greatest facility for disconnecting the pattern-wheel and setting it back, as is often required for adjusting the needles to the figure when anything occurs to interfere with their relative arrangements.

By using the friction-gear the adjustment may be made more exactly than could be done with cog-wheels, the movements of which in relation to each other could not be less than the measurement of the pitch of the teeth.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. The cam-wheel E, provided with one set of fixed tappets, H, the two sets of adjustable tappets G I, and combined with the sliding rods for working the needle-bars, the wheel *i*, chain, lever, and pattern-wheel *m*, all substantially as specified.

2. The combination, with the cam-wheel E and pattern-wheel *m*, of the friction-wheel *g*, wheel *r*, friction-disk *y*, and the eccentric shaft *s*, all substantially as specified.

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JOSEPH CROMPTON.

Witnesses:

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