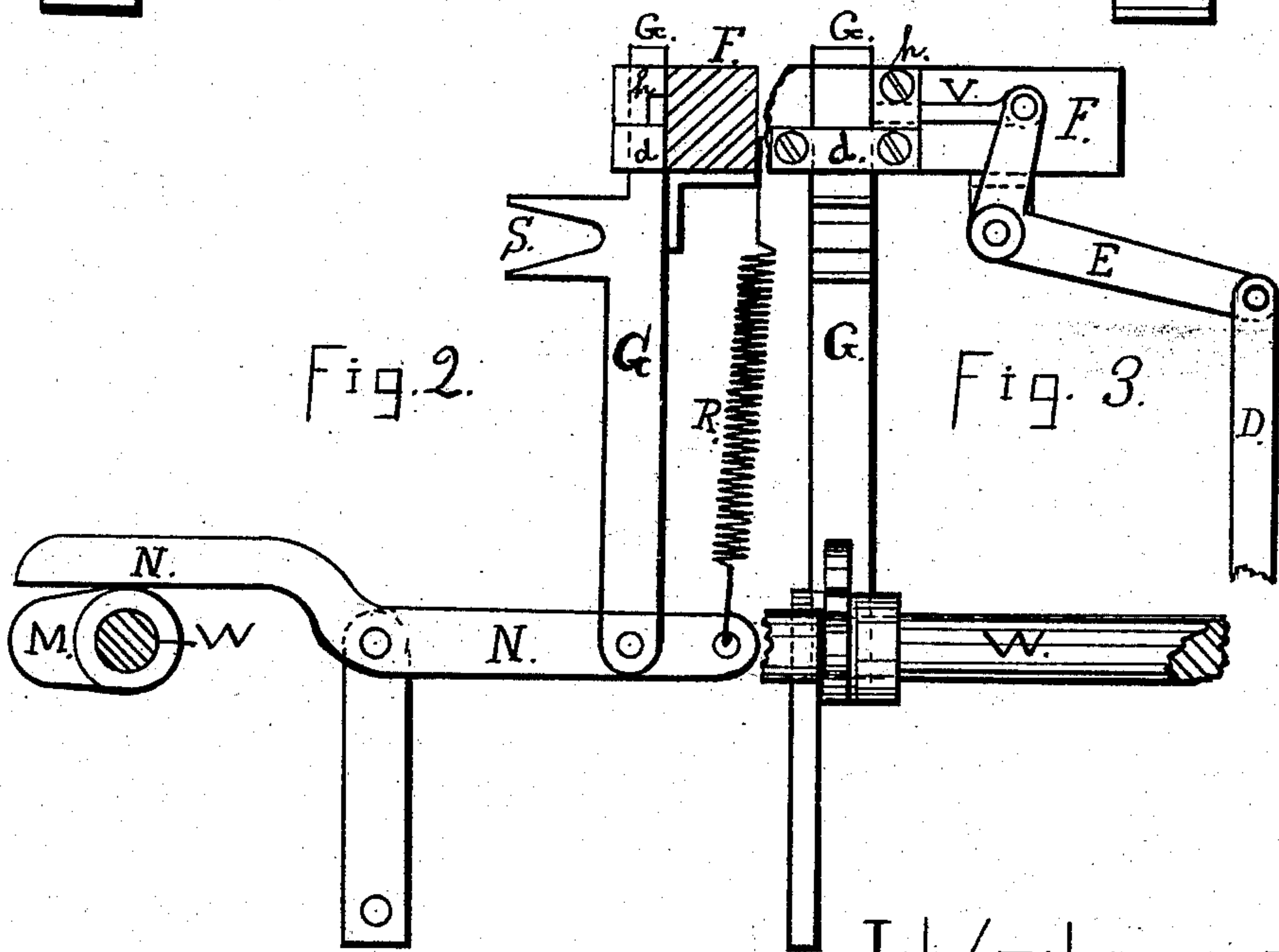
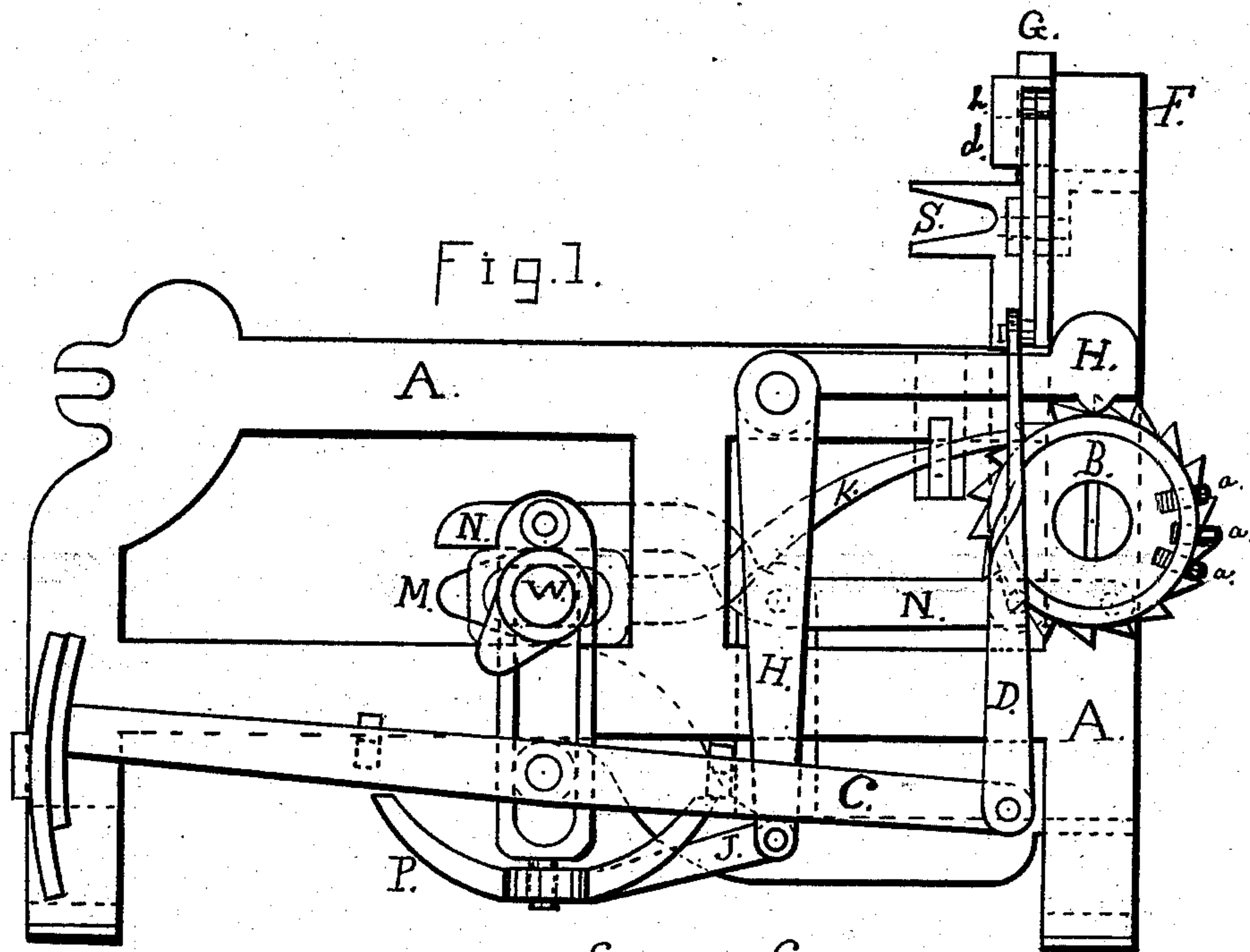


J. & C. ROTHWELL.
Loom.

No. 221,865.

Patented Nov. 18, 1879.



WITNESSES.
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UNITED STATES PATENT OFFICE.

JOHN ROTHWELL AND CHARLES ROTHWELL, OF PHILADELPHIA, PA.

IMPROVEMENT IN LOOMS.

Specification forming part of Letters Patent No. **221,865**, dated November 18, 1879; application filed April 4, 1879.

To all whom it may concern:

Be it known that we, JOHN ROTHWELL and CHARLES ROTHWELL, of the city of Philadelphia and State of Pennsylvania, have jointly invented a new and useful Improvement in Looms for Weaving a Pile or Loop Fabric known as "Turkish Toweling;" and we do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification.

Our invention belongs to a class of looms for weaving a looped fabric, such as is fully described in Patent No. 192,659, July 3, 1877, the invention of the above John Rothwell.

The object of our invention is to control and operate automatically the mechanism that operates the spring-reed, which improvement enables us to produce articles of a much more uniform length of body and borders than when operated by and at the will of the weaver, as is described in Patent No. 192,659.

Our invention consists in the combination and arrangement of a pattern wheel or chain with and controlling automatically the mechanism that operates the spring-reed by which the loops are formed in weaving pile-fabric, as will be hereinafter described, referring to the annexed drawings, in which—

Figure 1 is an end view of a loom-frame, and showing parts of a shuttle-box-operating mechanism and our improvement connecting the shuttle-box mechanism with the device for controlling automatically the operations of the spring-reed. Fig. 2 is a view of the mechanism for operating the sliding bar G and jaw S. Fig. 3 is a rear view of Fig. 2, showing, in addition to the bolt, the pin V, bell-crank lever E, and connection D.

Similar letters of reference in the drawings refer to like parts.

A represents the end frame of a loom; W, the cam-shaft; C, the lifting and depressing lever for operating the shuttle-boxes. The drawings show an arrangement for operating three shuttles, and is known as the "anchor shuttle-box motion." For a general description of this style of shuttle-box motion see patent to R. B. Goodyear, No. 194,771, September 4, 1877; but it is obvious that other

styles of box-motions may be used in connection with our improvement.

B is the pattern-wheel. Into a rim on this wheel a series of holes, one for each tooth, is drilled and tapped for the reception of screw-pins *a a a* of two lengths. The wheel B is operated by the pawl K and a cam on shaft W, as is usual in box-motions.

H is a bell-crank lever, one arm resting on the rim of the pattern-wheel B, and the other arm is connected to the anchor-lifter P by the connection J.

The lever N is connected to the sliding bar G, which bar at the top is made to slide through a cap, *d*, fastened to the breast-beam F. This bar G and lever N are operated by cam M on shaft W.

V is the locking pin or bolt, and is fitted to slide through the cap *h*, fastened above cap *d* to the breast-beam F. This bolt V is connected to the short arm of the bell-crank lever E. (See Fig. 3.)

D is the connection by which the levers E and C are connected.

The operation of our improvement is as follows: The cam M operates the lever N, and it the sliding bar G and jaw S. Lever N operates the bar G in one direction, and said bar is moved in the opposite direction by the spring R, which locks and unlocks the spring-reed, as is described in Patent No. 192,659, and the operation of the loom will be to make looped fabric until one of the pins *a* in wheel B acts on the lever H, and it, through the connection J, the anchor-lifter P, and lever C, through the connection D, operates the bell-crank lever E, and the bolt V will be forced over the end of bar G. The cams on shaft W are set so that the lever C will be lifted just at the time the bar G is drawn down by the action of cam M. The bolt V, being forced over the top of bar G, will prevent the spring R from raising it, and by this means the reed will be locked and the loom will weave plain cloth to form a border. As the pattern-wheel continues to move and presents a long pin, *a*, the lever C will be raised still higher by the shuttle-box mechanism and change the box and shuttle, and the bolt V is made so as to allow it to be forced farther over the top of bar G, so that when a

short pin acts the bolt V will not be drawn entirely off the bar G, but will permit a change of shuttles without relieving the bar G, and thus permit the borders to be woven with different colors of filling. When the lever H is freed from the pins the box mechanism will change, dropping the lever C to the position shown in the drawings, and the bolt V will be withdrawn from the top of bar G, and the spiral spring R will cause the bar to rise as the cam M leaves the lever N, and the loom will weave looped fabric, as before described, until the pins act to operate the shuttle-box motion, and it is desired to weave a border.

It will be seen that the pattern wheel or chain that controls the box-motion and shuttles is also made to control the length of body and borders of the articles to be woven. If desired, the shuttle-boxes may be detached from the lever C, so as not to change the shuttles or filling; or the boxes may be so set as to use two shuttles only. It is also obvious that the bell-crank lever E may be connected directly to the arm H, resting on wheel B, and the pins acting directly and without the box-motion.

The length of the body and borders will be governed by the size of the wheel and position of the pins *a a a*. The drawings show the pins fixed in a pattern-wheel; but in practice we prefer to use the well-known pin-chain, as is now used for controlling the shuttle-box motions of power-loom. If desired, the well-known roller-chain may be used. Therefore we do not confine ourselves to the use of a pattern-wheel, as is shown in the drawings; and the parts as shown separately we do not claim; but, as our invention,

We claim—

The lever H, pattern mechanism to control the same, shuttle-box lever C, and connecting device, as described, in combination with bar D, bell-crank lever E, locking-pin V, bar G, having jaw S, and mechanism to operate the same, substantially as and for the purpose set forth.

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Witnesses:

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