W. H. ROYAL.

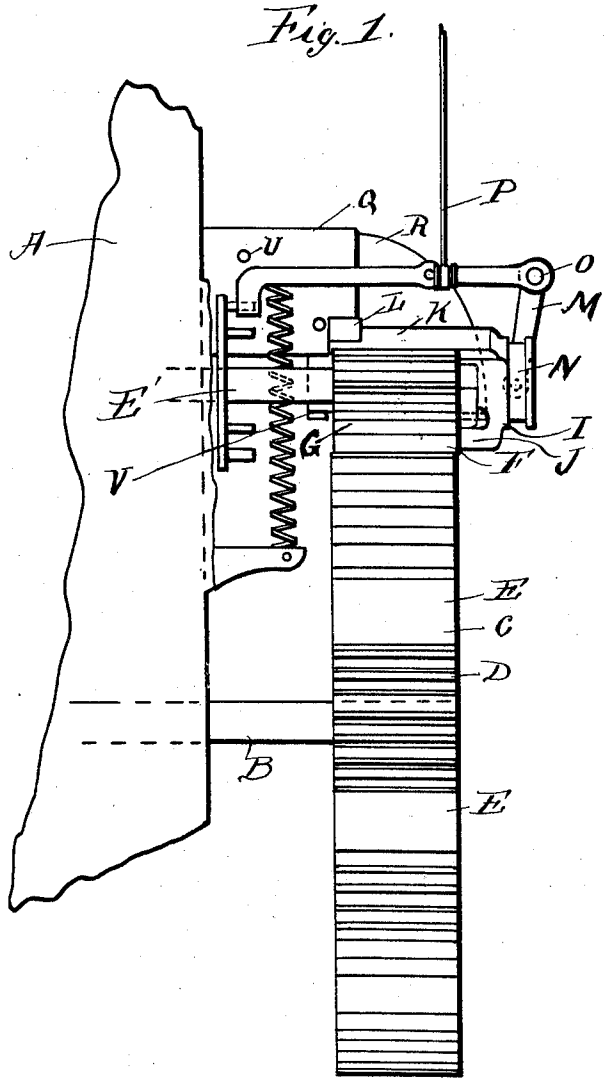
SHUTTLE BOX ACTUATING MECHANISM.

APPLICATION FILED APR. 12, 1909.

997,009. **Patented July 4, 1911.**

4 SHEETS—SHEET 1.

Fig. 1.



WITNESSES

S. M. Gallagher

Francis. A. Pcock

INVENTOR

William H Royal

BY

W. Prescott Williamson

ATTORNEY

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

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4 SHEETS—SHEET 2.

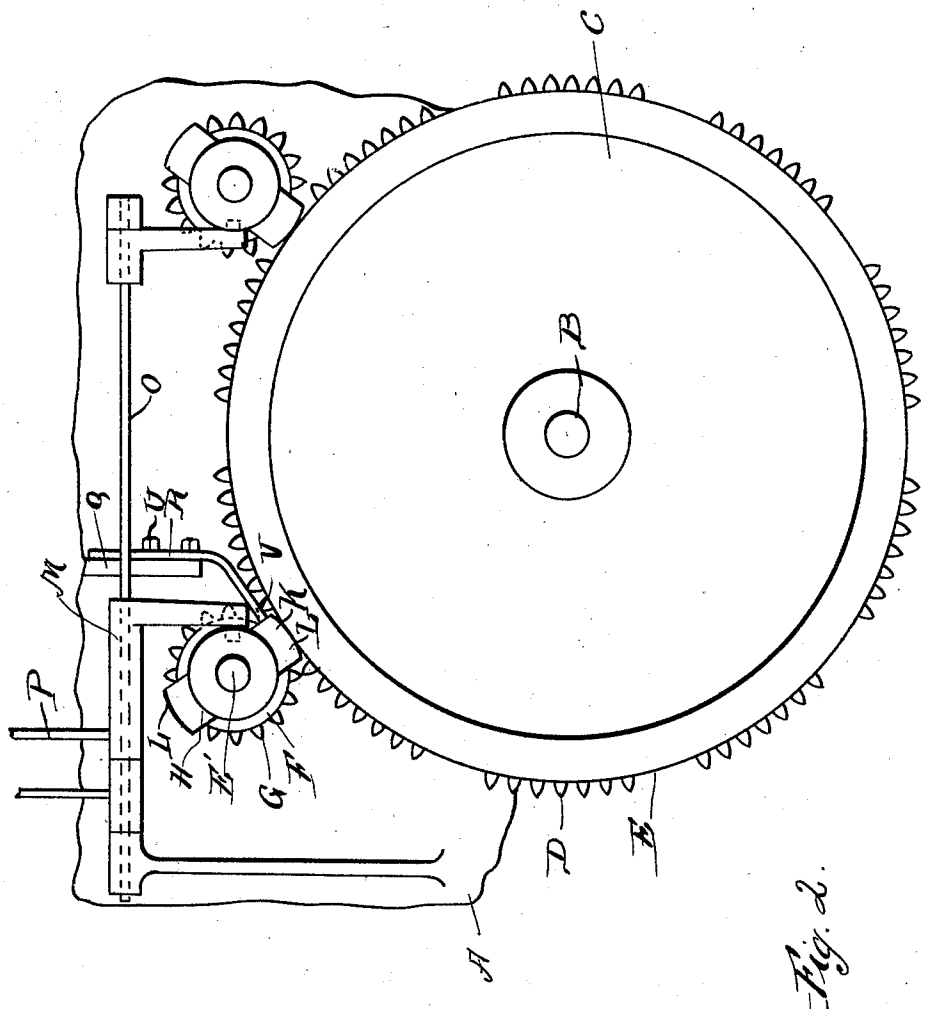

Fig. 2.

WITNESSES

S. M. Gallagher.

Francis A. Wocock

INVENTOR

William H. Royal

BY

W. Preston Williamson ATTORNEY

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

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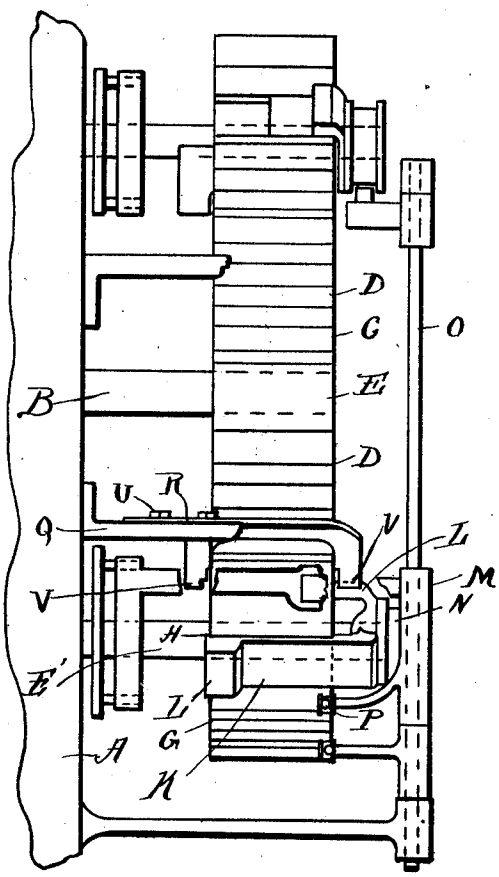
4 SHEETS—SHEET 3.

Fig 3



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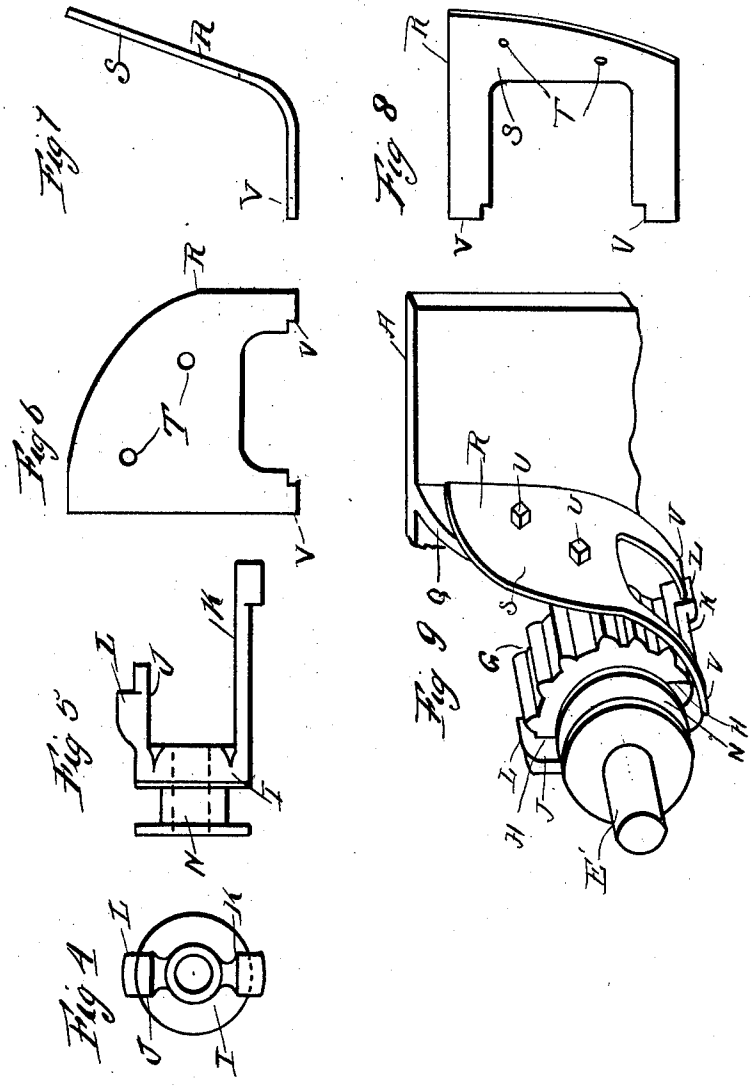

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S. McGallagher.

Francis A. Pocock

INVENTOR

William H. Royal

BY

W. Preston Williamson

ATTORNEY

UNITED STATES PATENT OFFICE.

WILLIAM H. ROYAL, OF PHILADELPHIA, PENNSYLVANIA.

SHUTTLE-BOX-ACTUATING MECHANISM.

997,009. Specification of Letters Patent. Patented July 4, 1911.

Application filed April 12, 1909. Serial No. 489,347.

To all whom it may concern:

Be it known that I, WILLIAM H. ROYAL, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a certain new and useful Improvement in Shuttle-Box-Actuating Mechanism, of which the following is a specification.

My invention relates to a new and useful improvement in shuttle box actuating mechanism, and has for its object to provide an exceedingly simple and effective device of this construction wherein the boxes are alternately moved into position by a mutilated wheel which is constructed to automatically lock itself in complement with a locking device.

In weaving cloth the mutilated wheel is caused to turn a half revolution every time a different color is desired in the weave, but should this wheel pass the half revolution and make two-thirds of a turn, it would cause the picker to catch and break the picker stick or it would throw the shuttle out through the shed, or it would make a wrong pattern. The usual way to overcome the possibility of said wheel turning more than a half revolution is to add more springs or to tighten the ones that are in place, and in a short time this will break the first tooth off the gear wheel, and when this happens a new gear must be put in position, which is very expensive. When springs are tightened or added they produce such a great amount of friction between the working parts that considerable extra power is required, and to overcome the possibility of said wheel turning, I provide a means engaging with the shifting teeth whereby said wheel will be locked every half revolution.

With these ends in view, this invention consists in the details of construction and combination of elements hereinafter set forth and then specifically designated by the claim.

In order that those skilled in the art to which this invention appertains may understand how to make and use the same, I will describe its construction in detail, referring by letter to the accompanying drawing forming a part of this specification, in which—

Figure 1 is a front elevation of a portion of a loom showing my improvement applied thereto. Fig. 2, a side elevation thereof. Fig. 3, a plan view. Fig. 4, an end view of the shifting teeth. Fig. 5, a side elevation thereof. Fig. 6, a face view of the lock. Fig. 7, an edge view thereof. Fig. 8, a plan view, and Fig. 9, a perspective view showing the relation of the lock to the eccentric wheel.

In carrying out my invention as here embodied, A represents a loom having a shaft B on which is mounted the gear C, having sets of teeth D between each set of which is a space E. Meshing with this gear and mounted on the shaft E′ is the box lift mutilated wheel F, having two sets of teeth G and two sets of spaces H.

I is a collar slidably mounted on the shaft E′ and having the extensions J and K formed therewith, on each of which is formed a tooth L. These teeth with the extensions J and K shift backward and forward so that first one and then the other mesh with the gear C, and in order that these teeth may be shifted at the proper time, a shifting lever M is provided which engages with the yoke N of the collar, and is mounted on the shaft O, said shifting lever being operated by the cards through the medium of the wire P.

Q denotes a beam of the loom, to the outer end of which is attached the lock R, having a body portion S provided with openings T, through which pass the bolts U for securing said lock to the beam Q. Formed integral with the body portion S are the arms V, at some desirable angle thereto which will bring them at right angles to the shifting teeth L when the lock is secured to the beam Q.

The operation of the device is as follows:—The gear C is constantly revolving and at a certain predetermined time the collar I with its extensions J and K is moved so that one of the shifting teeth L will mesh with one of the spaces E of the gear C, which will cause the mutilated wheel F to revolve until the opposite shifting tooth L comes in contact with one of the arms V of the lock R, which will hold said mutilated wheel stationary until the shifting teeth are again moved, at which time the same operation will take place. The parts are in such position that the lower shifting tooth L, for example take one of the extensions K, is resting against one of the arms V of the lock R, and when the shifting teeth are moved this tooth upon the extension K will mesh with the gear C, causing the eccentric

F to turn, at the same time the tooth L on the extension J will be moved until it is in alinement with the opposite arm V of the lock R and outside of the edge of the mutilated wheel F, so that when said mutilated wheel has revolved a half revolution the tooth on the extension J will come in contact with one of the arms of the lock R, holding the mutilated wheel stationary until the opposite shifting movement takes place, at which time a similar operation will take place.

Of course I do not wish to be limited to the exact details of construction here shown as these may be varied within the limits of the appended claim without departing from the spirit of my invention.

Having thus fully described my invention, what I claim as new and useful, is—

Shuttle box actuating mechanism comprising a master wheel having spaced sets of teeth, a mutilated wheel co-acting with said master wheel and mounted on a shaft connected to operating mechanism for the boxes, a shifting collar on said mutilated wheel, laterally spaced teeth on said collar, adapted to alternately move into operative relation to said master wheel, and a locking device rigidly secured to the frame and having resilient spaced arms adapted to alternately co-act with the inoperative teeth of the collar to stop the revolution of the mutilated wheel at each semi-rotation.

In testimony whereof, I have hereunto affixed my signature in the presence of two subscribing witnesses.

WILLIAM H. ROYAL.

Witnesses:
EDW. W. ANSTICE,
S. M. GALLAGHER.