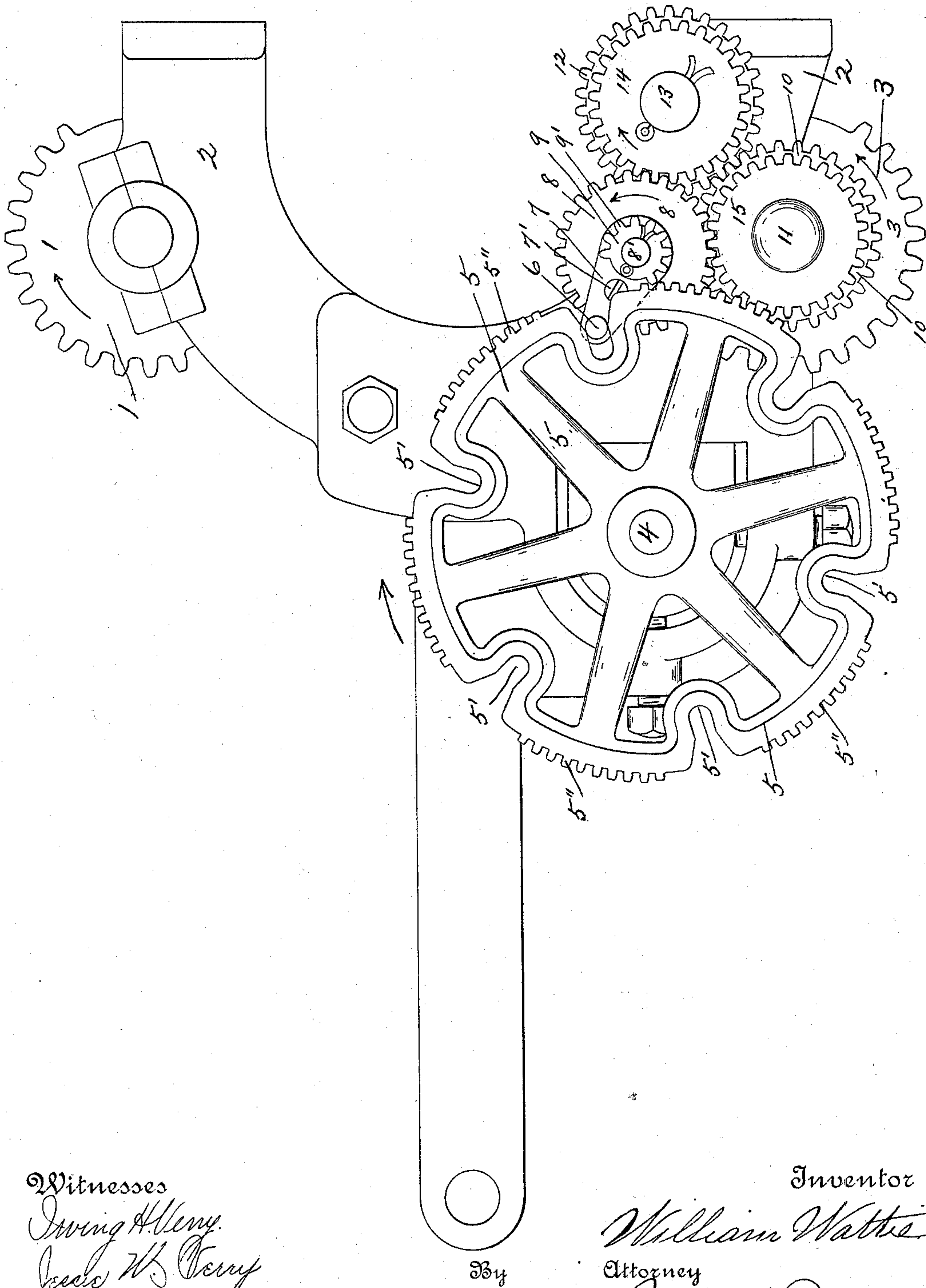


(No Model.)

W. WATTIE.  
PATTERN MECHANISM FOR LOOMS.

No. 533,256.

Patented Jan. 29, 1895.



Witnesses  
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# UNITED STATES PATENT OFFICE.

WILLIAM WATTIE, OF WORCESTER, MASSACHUSETTS, ASSIGNOR TO THE  
KNOWLES LOOM WORKS, OF SAME PLACE.

## PATTERN MECHANISM FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 533,256, dated January 29, 1895.

Application filed May 18, 1894. Serial No. 511,654. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM WATTIE, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Pattern Mechanism for Looms; and I do hereby declare that the following is a full, clear, and exact description thereof, which, in connection with the drawing making a part of this specification, will enable others skilled in the art to which my invention belongs to make and use the same.

My invention relates to looms, and more particularly to the harness and drop box mechanism of the well known Knowles loom, shown and described in the United States Reissue Letters Patent, No. 7,784, of July 3, 1877.

I am familiar with the pattern mechanism shown and described in the United States Letters Patent, No. 495,453, of April 11, 1893, and No. 506,818, of October 17, 1893, and the object of my present invention is to improve upon the construction of the pattern mechanism shown and described in said patents, and more particularly to simplify the construction of gears for communicating a continuous fast and slow motion to the pattern cylinder, for the same purpose as fully set forth and described in said patents.

My invention consists in certain novel features of construction and combination of parts of the pattern mechanism for looms, of the class above referred to, and more particularly in making the pattern cylinder gear with a series of notches in its periphery, adapted to be engaged by a pin on a continuous rotating gear, as will be hereinafter fully described.

I have shown in the drawing a detached portion of the head of the Knowles loom, above referred to, sufficient to illustrate the nature of my improvements applied thereto.

Referring to the drawing, a front elevation of a portion of the head of said Knowles loom, with my improvements applied thereto, is shown.

In the accompanying drawing, 1 is the upper cylinder gear, journaled in the upper portion of the head frame 2, and 3 is the lower cylinder gear, journaled in the lower portion of the head frame 2.

4 is the pattern cylinder shaft journaled in

the frame 2 in the usual way. On the front end of said shaft 4 is fast the pattern cylinder gear 5, which is provided with a series of equidistant notches 5' in its periphery. In this instance there are six notches. The portions of the periphery of the gear 5, between the notches 5', are provided with gear teeth 5''. For a predetermined distance on each side of the notches 5', the teeth 5'' are left off, and these portions of the periphery of the gear 5 are plain, as well as the notched portion. The outer ends of the notches 5' are beveled, or made flaring, to allow of the ready admission and withdrawal of the driving pin 6, on the arm or plate 7, secured to the gear 8, in this instance by a screw 7'. Said gear 8 is journaled on a stud 8'.

The plate 7 secured to the gear 8 has a mutilated pinion 9, made integral therewith, or secured thereto. Said pinion 9 is provided with nine teeth, corresponding to the number of spaces between the teeth 5'' on each section of the periphery of the gear 5, and the teeth on the mutilated pinion 9 are adapted to mesh with, and communicate a slow motion to the gear 5, through the revolution of the gear 8, when the pin 6 is free from engagement with the slots 5', in said gear 5.

Continuous motion is communicated to the gear 8 from the upper or lower cylinder gear, in this instance from the lower cylinder gear, either in a forward or in a backward direction, by the ordinary system of circular gears, as shown in the drawing. Said system of gears consists of a gear 10, connected and adapted to move with the lower cylinder gear 3 by the sliding key 11, in the ordinary way. Said gear 10 meshes with, and drives a gear 12, loose on a stud 13 fast in the head frame, and a third gear 14, made integral with the gear 12, or secured thereto, meshes with, and drives the gear 8.

A fourth gear 15 is journaled on the same shaft as the gear 10, and meshes with the gear 8, and runs loose, except when it is desired to reverse the pattern chain mechanism, when by means of the sliding key 11, the gear 15 is connected and made to revolve with the cylinder gear 3, and turn the gear 8 in the reverse direction, leaving the gear 10 loose, all in the ordinary way.



From the above description in connection with the drawing, the operation of my improved pattern mechanism, for communicating a continuous fast and slow motion to the  
 5 pattern cylinder shaft 4, and to the pattern cylinder, not shown, will be readily understood by those skilled in the art.

When the loom is running properly the revolution of the cylinder gear 3 will cause  
 10 the gear 10, connected therewith, to revolve in the direction indicated by the arrow, also the gear 12, and the gear 14 fast thereto, and the gear 8, and through the gear 8, the arm 7, carrying the pin 6, and the mutilated pinion 9.  
 15 At every revolution of the gear 8 the pin 6 will enter into one of the slots 5', in the periphery of the gear 5, and communicate to said gear a fast motion for a part of its revolution. As soon as the pin 6 leaves the slot 5', the  
 20 teeth 9' on the mutilated pinion 9, will engage with the teeth 5'' on one section of the periphery of the gear 5, and communicate a slow motion to said gear, for a part of its revolution. This operation is repeated, and a continuous fast and slow motion of the gear 5,  
 25 and also of the pattern cylinder shaft 4, and of the pattern cylinder, not shown, is obtained.

In case it is desired to reverse the motion of the pattern cylinder shaft 4, the slide pin  
 30 11 is drawn out, causing the gear 15 to revolve with the cylinder gear 3, and turn the gear 8

in the opposite direction, and also the plate 7 carrying the pin 6, the gears 10, 12, and 14 running loose.

The advantages of my improvements will  
 be readily appreciated by those skilled in the art. 35

I do away with the elliptical gears, which are expensive to make, and I obtain a continuous fast and slow motion with the ordinary system of circular gears. 40

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

In a loom, the combination with the head 45 motion cylinder gear, and the pattern cylinder gear provided with a series of notches in its periphery, and teeth thereon intermediate the notches, of a system of gears intermediate said cylinder gear, and the pattern cylinder 50 gear, one of said gears carrying a pin which engages the notches in said cylinder gear, to communicate a fast motion thereto, and also a pinion, which engages the teeth on the periphery of said gear between said notches, to 55 communicate a slow motion thereto, substantially as shown and described.

WILLIAM WATTIE.

Witnesses:

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