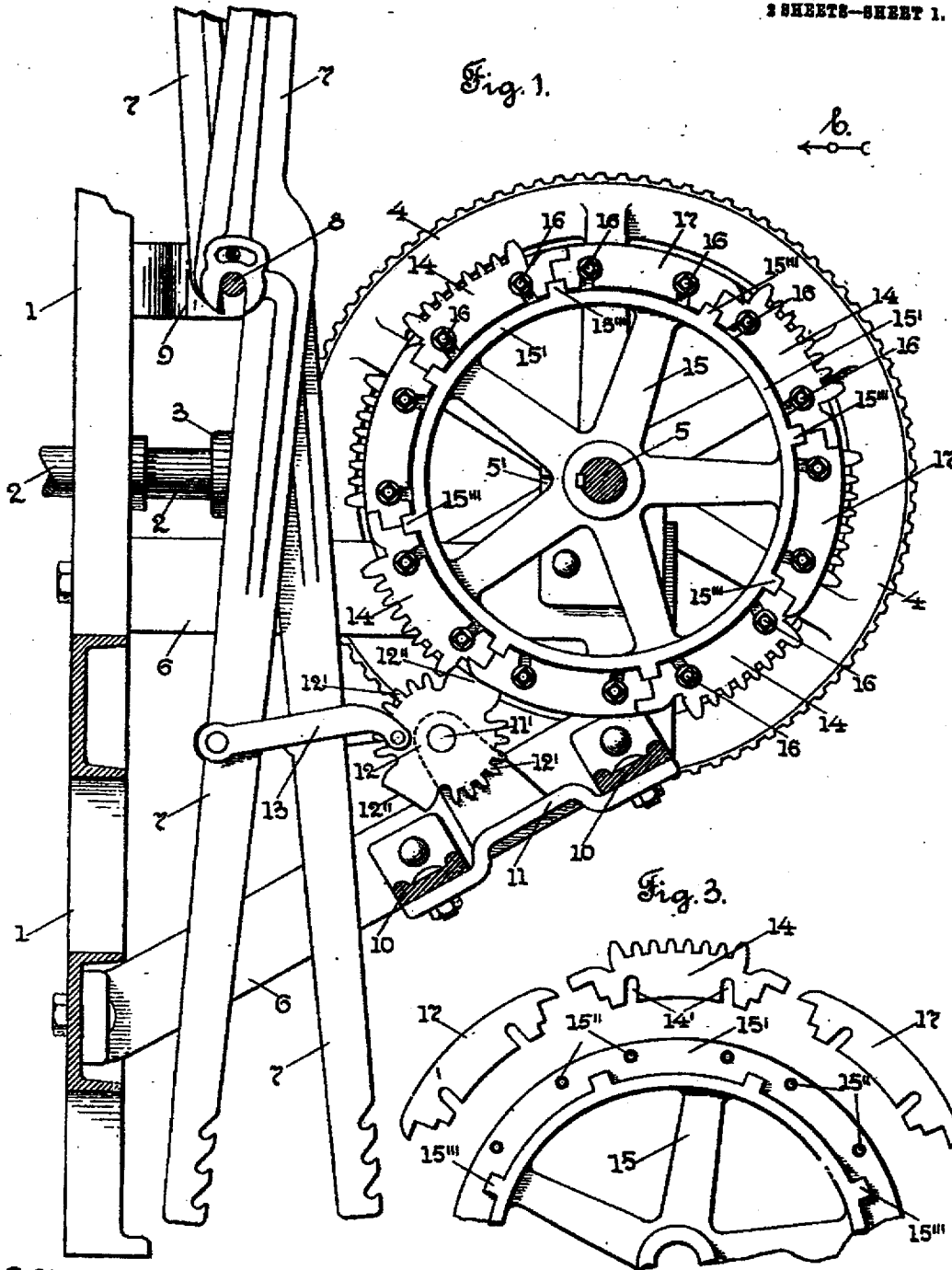


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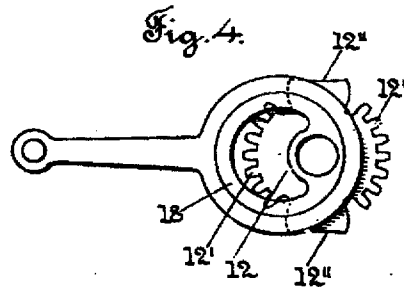
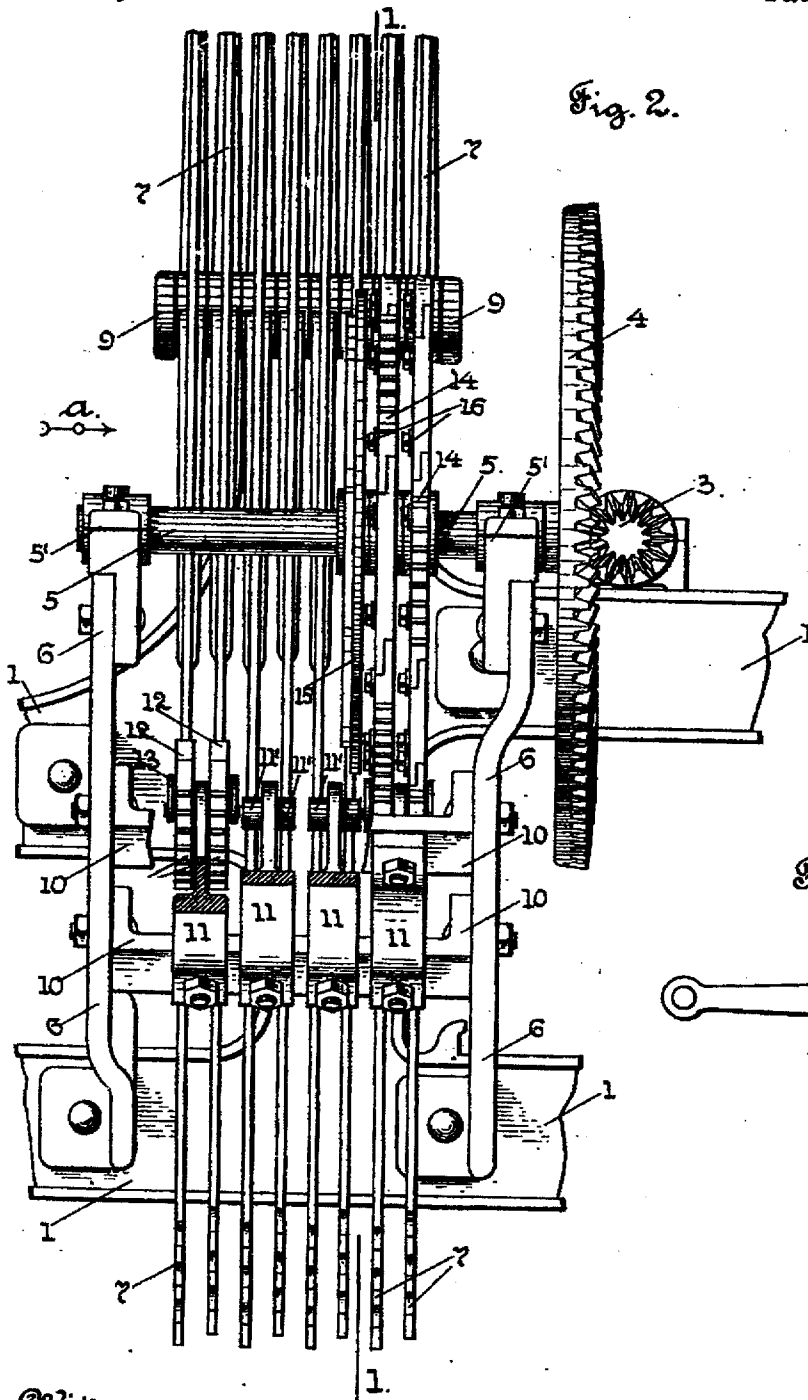
Fig. 1.



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Fig. 2.



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UNITED STATES PATENT OFFICE.

HECTOR LE DOUX, OF WORCESTER, MASSACHUSETTS, ASSIGNOR TO CROMPTON & KNOWLES LOOM WORKS, A CORPORATION OF MASSACHUSETTS.

LOOM HARNESS-MOTION.

935,666.

Specification of Letters Patent.

Patented Oct. 5, 1909.

Application filed October 25, 1906. Serial No. 340,499.

To all whom it may concern:

Be it known that I, HECTOR LE DOUX, 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 Loom Harness-Motions, of which the following is a specification.

My invention relates to looms, and more particularly to that class of looms which have a cam harness motion, in which upright harness jacks or levers, and cams for operating the same are employed, and my invention particularly relates to the harness motions of looms of the class referred to.

In my improvements, I do away with the ordinary cams for operating the upright harness jacks or levers, and I substitute for said cams, on the same shaft on which the cams are ordinarily mounted, a series of disks provided with gear segments, and plain segments, which are preferably detachable, and may be changed as desired, according to the desired movement of the harnesses, and which operate mutilated pinions which are connected through a crank connector, or otherwise, to the upright harness jacks or levers. There is one disk with gear segments and plain segments, and one mutilated pinion, and a connector, for each upright harness jack or lever. In case of any change of the pattern and of the movement of the harnesses, it is only necessary to remove the gear segments and the plain segments, and place them in different positions on their supporting disk, without removing the disk, and the shaft on which it is mounted, which is necessary in case of the ordinary cam harness motion.

My invention consists in certain novel features of construction of my improvements as will be hereinafter fully described.

I have only shown in the drawings detached parts of a harness motion embodying my improvements, sufficient to enable those skilled in the art to understand the construction and operation thereof.

Referring to the drawings:—Figure 1 is a sectional front view of a harness motion embodying my improvements, taken at a point indicated by line 1, 1, Fig. 2, looking in the direction of arrow *a*, same figure. Fig. 2 is an end or edge view of the harness motion shown in Fig. 1, looking in the direction of arrow *b*, same figure; some parts are left

off in this figure, and some parts are shown which are not shown in Fig. 1. Fig. 3 shows a detached portion of one of the disks, and a gear segment, and two blank segments, detached, and, Fig. 4 shows a modified construction of a mutilated pinion with an eccentric, instead of a crank connector.

In the accompanying drawings, 1 is a detached portion of a loom side, 2 is the crank shaft, having a bevel pinion 3 fast thereon, which meshes with and drives a bevel gear 4 fast on a shaft 5, mounted in suitable bearings 5' on stands 6, secured to the loom side. The shaft 5 corresponds to the ordinary cam shaft in the cam harness motion of a loom.

7 are the upright harness jacks or levers, which are fulcrumed on a rod 8 on stands 9 secured to the loom frame or end 1.

All of the above mentioned parts may be of the usual and well known construction.

I will now describe my improvements.

The lower part of the stand 6 has in this instance secured thereto, two transverse bars 10, for the stands 11, forming bearings for the mutilated pinions 12. Each stand 11, (there are four stands in this instance, see Fig. 2,) has on opposite sides thereof a stud or boss 11' to receive a mutilated pinion 12. Each mutilated pinion 12 has in this instance two toothed portions 12', on opposite edges thereof, and two dwell portions 12'' on opposite edges thereof, and each pinion 12 is in this instance connected by a crank connector 13 with an upright harness lever or jack 7 below its fulcrum, as shown in Fig. 1. There are in this instance eight upright harness levers or jacks 7, and eight mutilated pinions 12. Each mutilated pinion 12 has a rotary movement communicated thereto, by toothed segments 14, which are preferably removably attached to the flange 15' on a disk or wheel 15, which is fast on the shaft 5, in this instance by bolts 16 extending through holes 15'' in the rim or flange 15' on said disk 15, and through open end slots 14' in said segments. The dwell portions 12'' on the mutilated pinion 12 are adapted to engage plain faced segments 17, which are preferably removably attached to the flange 15' on the disk or wheel 15, in this instance in the same manner as the segments 14, and act to hold the mutilated pinion 12 in a stationary position, after a partial or full rotation thereof. The toothed segments 14, and plain segments 17, are pref-

erably made of the same length, and are interchangeable, with their ends interlocked, and held between projections 15'' on the disks or wheels 16. In case of a half rotation of a mutilated pinion 12, the upright harness lever or jack 7 with which it is connected, through connector 13, will move from one extreme position to the other, and cause the harness connected therewith to move up or down. In case it is desired to change the movement of the harnesses, according to the pattern desired, the gear segments 14 and the plain segments 17 are removed from the flange 15' on the disks or wheels 15, and placed in different positions relative to each other, without removing the disks 15, or the shaft 5 on which they are mounted.

Instead of having a crank connector 13, connecting an upright lever or jack 7, with its mutilated pinion 12, I may use an eccentric 18, attached at one end to a jack, and at its other end connected with a mutilated pinion 12, as shown in Fig. 4.

It will be understood that the details of construction of my improvements may be varied if desired. In case of very heavy looms, the gear segments and blank segments may be permanently attached to the disks or wheels.

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

1. In a loom harness motion having harness levers, a series of disks or wheels, each having on its periphery detachable gear segments and plain segments, said segments interlocking at their ends, and secured by bolts or screws extending through holes in the rim of the disk, and a mutilated pinion for each disk, having thereon a tooth portion and a dwell portion, and a connection intermediate said pinion and a harness lever, and said harness lever.

2. In a loom harness motion having upright levers, a series of disks or wheels, each having on its periphery detachable gear segments and plain segments, said segments interlocking at their ends, and secured by bolts extending through holes in the rim of the disk, and a mutilated pinion for each disk, having thereon tooth portions and dwell portions, a connection intermediate said pinion and an upright harness lever, and said harness lever.

HECTOR LE DOUX.

Witnesses:

J. C. DEWEY,
M. HAAS.