No. 652,498. Patented June 26, 1900.

W. I. WHITEHURST.

POSITIVE SHUTTLE MOTION FOR LOOMS.

(Application filed Jan. 4, 1900.)

(No Model.)

Fig. 3.

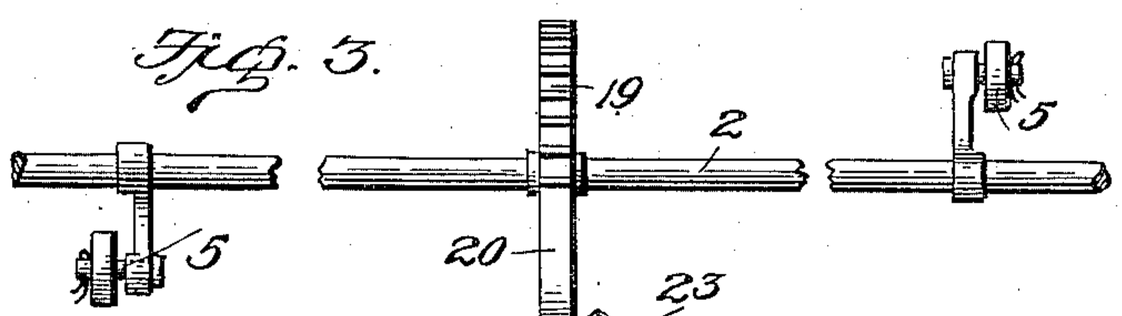


Fig. 1

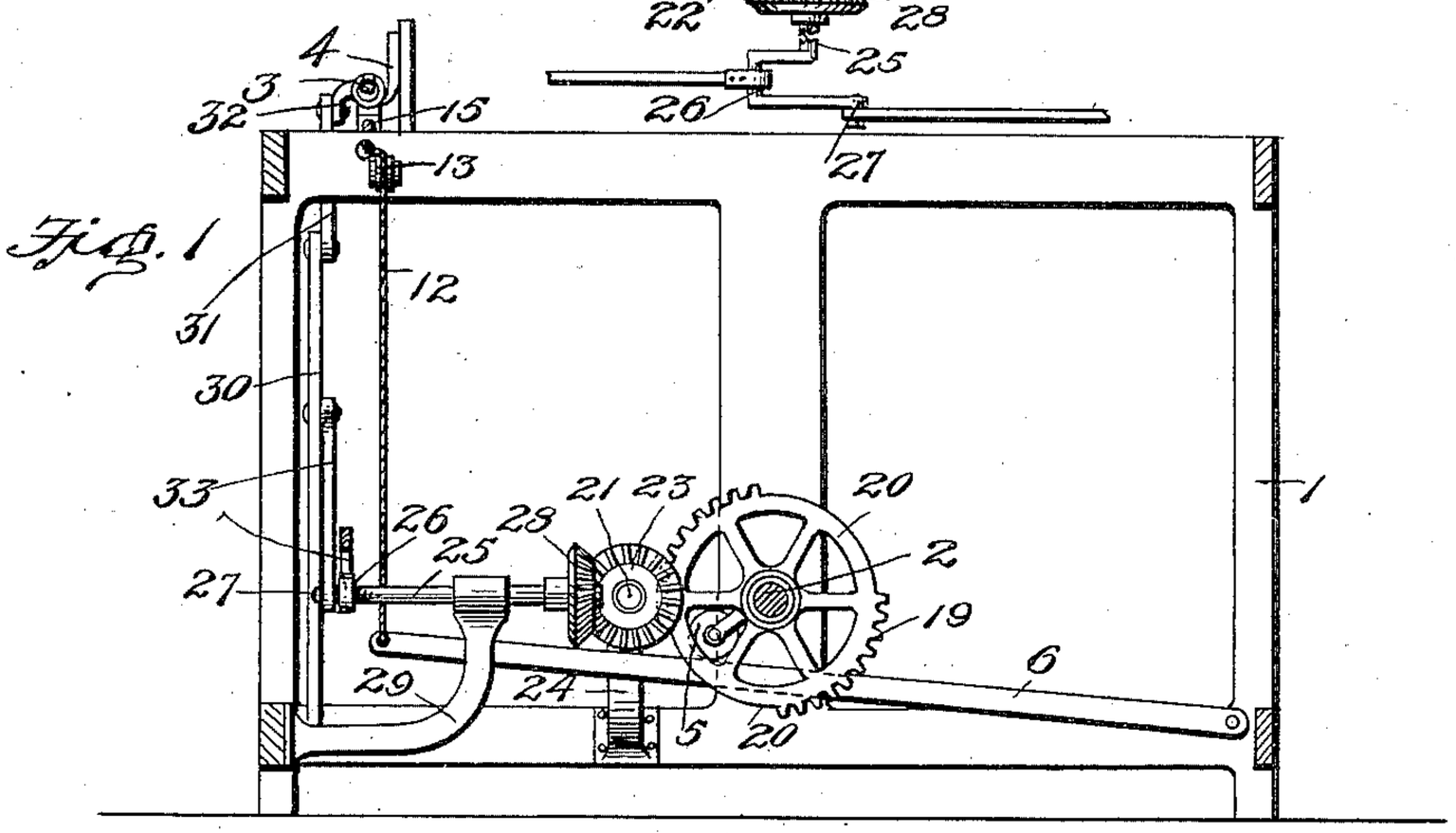
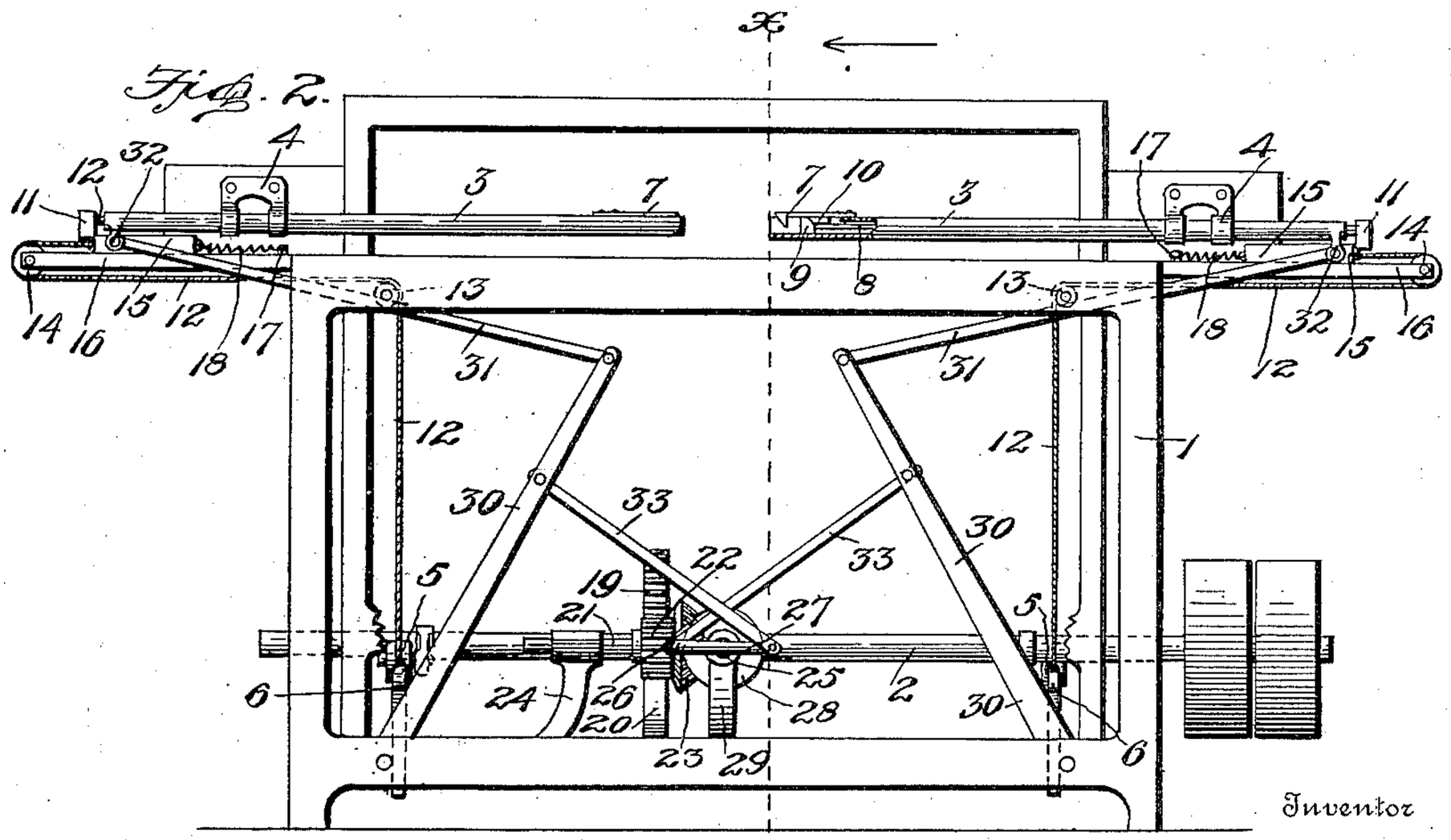


Fig. 2.



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UNITED STATES PATENT OFFICE.

WALTER I. WHITEHURST, OF BALTIMORE, MARYLAND.

POSITIVE SHUTTLE-MOTION FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 652,498, dated June 26, 1900.

Application filed January 4, 1900. Serial No. 335. (No model.)

To all whom it may concern:

Be it known that I, WALTER I. WHITEHURST, a citizen of the United States, residing at Baltimore city, in the State of Maryland, have invented certain new and useful Improvements in Positive Shuttle-Motions for Looms; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The invention relates to positive shuttle-motions for looms.

The object of the invention is to provide a simple, durable, and comparatively-inexpensive mechanism for imparting to the shuttle-carrying arms a positive intermittent reciprocating motion.

To this end the invention consists in certain features of construction and combination of parts, which will be hereinafter fully described and claimed.

In the accompanying drawings, Figure 1 is an end elevation of a loom-frame, showing my invention applied. Fig. 2 is a front elevation of the same. Fig. 3 is a detail elevation of the drive-shaft, its mutilated gear, and the gearing with which it coacts.

In the drawings the same reference characters indicate the same parts of the invention.

1 denotes the frame of the loom; 2, the drive-shaft, suitably journaled therein; 3, the shuttle-carrying arms, mounted to reciprocate in guide-brackets 4; 5, the knockers, fixed to said drive-shaft; 6, the knocker-levers, which are alternately engaged by the knockers 5; 7, a spring-latch carried at the inner end of each shuttle-carrying arm to secure the shuttle to said arm; 8, a releasing-rod located within the shuttle-carrying arm and provided with a beveled head 9 to engage a beveled block 10, secured to the under side of the spring-latch 7; 11, a head secured to the outer end of each rod, and 12 a rope secured to the free end of each lever 6, passing around the pulleys 13 and 14 and connected to a block 15, mounted to slide upon a guide-arm 16, secured to the frame of the loom. Said block is connected to a stud 17 on the loom-frame by a spring 18. In the rotation of the drive-shaft 2 the knocker-arms are adapted to alternately engage the two levers 6 and, through the cord 12, operate the sliding block 15, which, striking the head 11 of the rod 8, will raise the latch 7 to release the shuttle, so that the same will be transferred from one shuttle-carrying arm to the other in the reciprocation of the shuttle-arms.

While I prefer to employ the above-described means for releasing the shuttle from the shuttle-carrying arms, I would have it distinctly understood that I do not restrict myself to the same, as various other means may be employed without departing from the spirit of my invention.

19 denotes a mutilated gear the teeth of which are arranged on diametrically-opposite points of the wheel and are separated by the plain or smooth periphery 20.

21 denotes a counter-shaft provided with a fixed spur-pinion 22 and with a beveled pinion 23. This shaft is mounted in a bracket-bearing 24, secured to the frame of the loom.

25 denotes a crank-shaft having two diametrically oppositely disposed cranks 26 and 27 and a fixed beveled pinion 28. The crank-shaft is journaled in a bearing-bracket 29, secured to the frame of the loom, and its beveled pinion 28 meshes with the beveled pinion 23.

30 denotes two levers pivoted at their lower ends to the frame of the loom. 31 denotes links pivoted to the upper ends of said levers and having their outer ends pivoted to lugs 32, secured to the shuttle-carrying arms.

33 denotes two pitmen, the lower ends of which are pivoted to the cranks 26 and 27, and their upper ends are pivoted to the levers 30, intermediate the ends of said levers.

In the operation of the loom as the drive-shaft 2 is rotated this movement will be imparted through the intermediate gearing to the crank-shaft, which being connected to the levers 30 and said levers being connected to the shuttle-carrying arms 3, said shuttle-carrying arms will be reciprocated back and forth with a quick movement to transfer the shuttle from one arm to the other. It will be noted that in the rotation of the drive-wheel 19 when the blank parts 20 of the wheel come opposite the spur-pinion 22 the shuttle-carrying arms come to a full rest while the "lay" is beating up the thread.

From the foregoing description, taken in connection with the accompanying drawings, the construction, operation, and advantages of my improved shuttle-motion for looms will be readily apparent without requiring an extended explanation. It will be seen that the device is simple of construction, that said construction permits of its manufacture at small cost, and that it is exceedingly-well adapted for the purpose for which it is designed.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having thus described the invention, what is claimed, and desired to be secured by Letters Patent, is—

In a loom, the combination with the reciprocatory shuttle-carrying arms, of a drive-shaft provided with mutilated gear, a counter-shaft arranged parallel with the drive-shaft, a spur-gear fixed to the counter-shaft and adapted to mesh with the mutilated gear, a beveled pinion fixed to said counter-shaft, a crank-shaft arranged at right angles to the counter-shaft and located at the center of the loom, a pinion fixed to the crank-shaft and in mesh with the first-named pinion, levers pivoted to the frame, links connecting said levers to the shuttle-carrying arms, and pitmen connected to the cranks of said crank-shaft and to said levers, substantially as and for the purpose set forth.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

WALTER I. WHITEHURST.

Witnesses:
WM. H. JONES,
JOHN T. WHITEHURST.