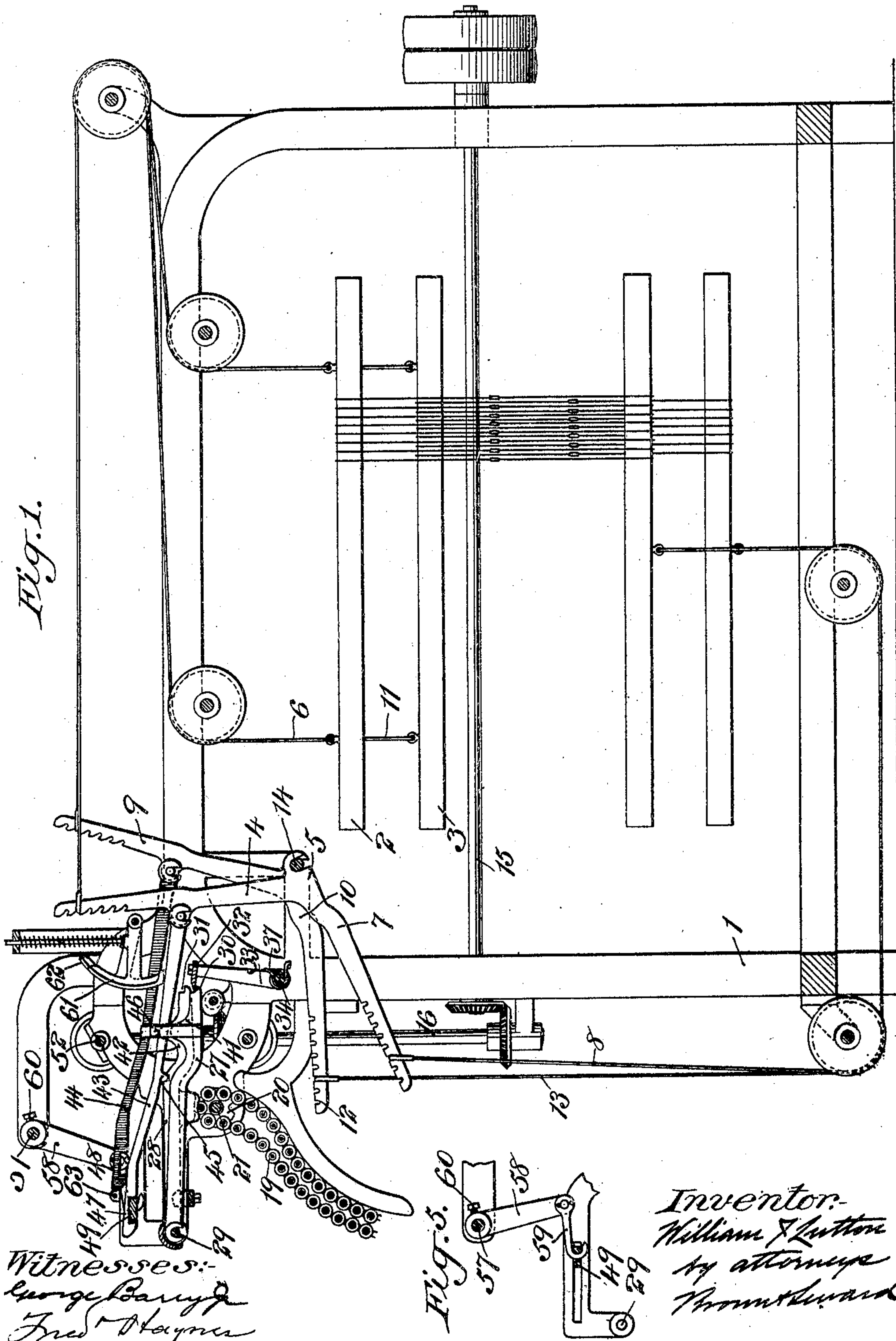


W. J. LUTTON.
SHEDDING MECHANISM FOR LOOMS.

APPLICATION FILED AUG. 28, 1902.

2 SHEETS—SHEET 1.



Witnesses:
George Barry
Fred Haynes

Fig. 5. 60
57 58 59 49 29

Inventor:
William J. Lutton
by attorney
Throckmold

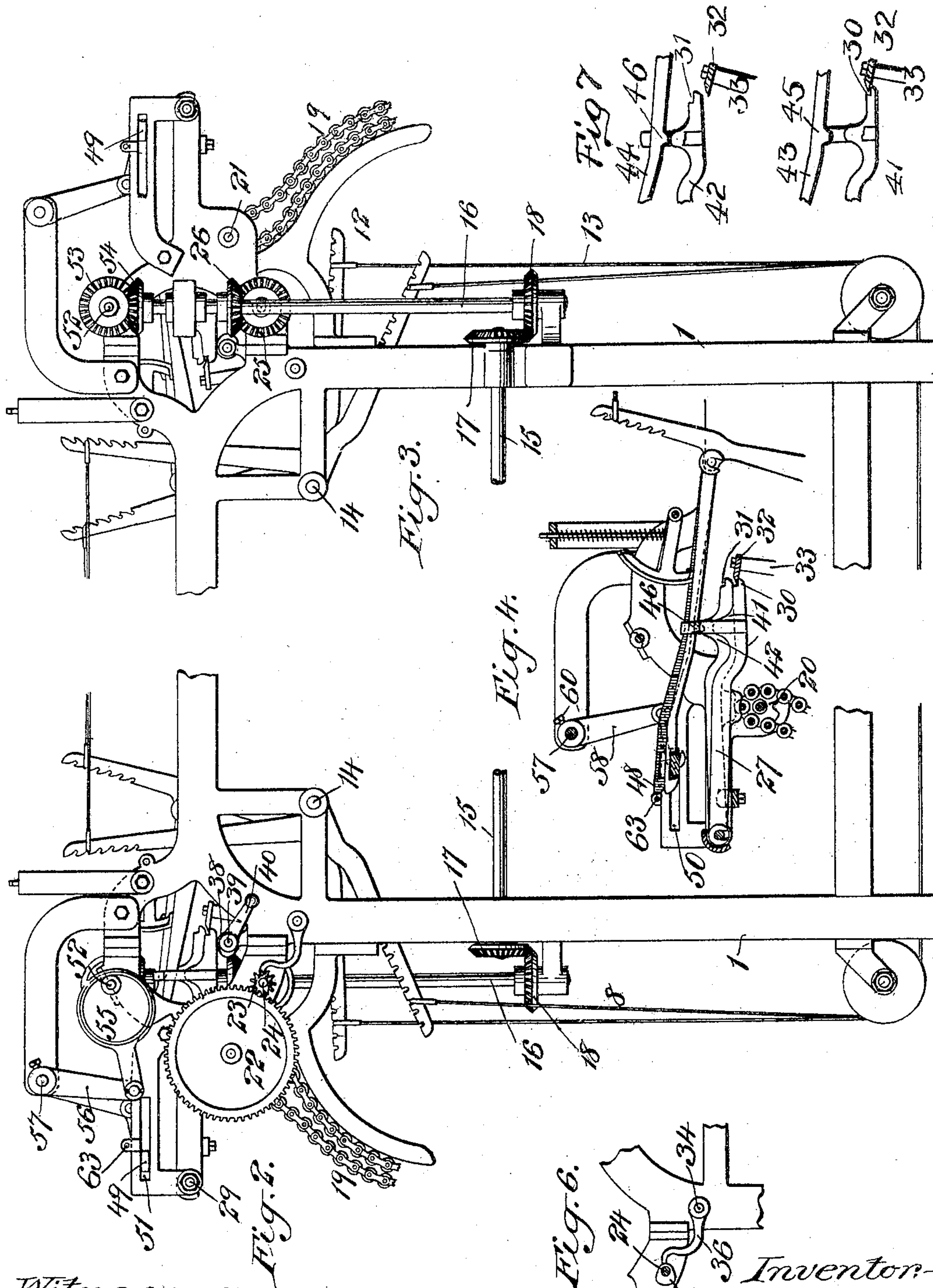
No. 797,967.

PATENTED AUG. 22, 1905.

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2 SHEETS—SHEET 2.



Witnesses:
George Barry J.
Fred H. Hays

Fig. 6.
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UNITED STATES PATENT OFFICE.

WILLIAM J. LUTTON, OF PATERSON, NEW JERSEY.

SHEDDING MECHANISM FOR LOOMS.

No. 797,967.

Specification of Letters Patent.

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Application filed August 28, 1902. Serial No. 121,271.

To all whom it may concern:

Be it known that I, WILLIAM J. LUTTON, a citizen of the United States, and a resident of Paterson, in the county of Passaic and State of New Jersey, have invented a new and useful Improvement in Shedding Mechanism for Looms, of which the following is a specification.

My invention relates to an improvement in shedding mechanism for looms, and has more particularly for its object to provide a mechanism which will present certain novel features of construction, form, and arrangement whereby the movements of the heddle-frames with respect to each other may be accurately timed to suit various requirements and for producing various styles of weave.

A further object is to provide a mechanism of the above character which will be comparatively simple and inexpensive to manufacture and which may be readily applied to looms now in common use.

A practical embodiment of my invention is represented in the accompanying drawings, in which—

Figure 1 represents a transverse vertical section through a loom having my improved shedding mechanism applied thereto, one heddle-frame being shown in its lowered position with its needle-bar at the limit of its inward movement and raised, the other heddle-frame being shown at the limit of its upward movement with its needle-bar at the limit of its outward movement and engaged with the laterally-reciprocating bar. Fig. 2 is a front view of a portion of a loom with the shedding mechanism in the same position as in Fig. 1. Fig. 3 is a rear view of the same. Fig. 4 is a detail view showing the parts in the positions which they assume when both of the needle-bars are at the limits of their inward movements, one of the bars being raised out of engagement with the laterally-reciprocating bar and the other bar being lowered into engagement therewith. Fig. 5 is a fragmentary view showing the means for operating the reciprocating bar which controls the hook-bar. Fig. 6 is a fragmentary view showing the arrangement for swinging the plate which locks and releases the pattern-chain-controlled bars, and Fig. 7 represents detail views of parts of two of the hook-bars and their respective pattern-chain-controlled bars.

The frame of the loom represented in the accompanying drawings is denoted by 1 and

may be of any well-known and approved construction.

The two heddle-frames which I have shown are denoted by 2 and 3, the heddle-frame 2 (shown in its upper position) being connected to the upper arm 4 of the rock-lever 5 through a flexible connection 6 and to the lower arm 7 of the rock-arm 5 through a flexible connection 8.

The heddle-frame 3 is shown in its lower position, and it is connected to the upper arm 9 of the rock-lever 10 by a flexible connection 11 and to the lower arm 12 of the lever 10 through a flexible connection 13. There is provided one of these rocking levers for each of the heddle-frames, there being two only represented in the accompanying drawings, as that will suffice to give a clear understanding of the operation of the invention. These rocking levers 5 and 10 are hinged upon a cross-bar 14, carried by the frame 1 of the loom.

The horizontal drive-shaft of the loom is denoted by 15, and it is geared to a vertical shaft 16 through bevel-gears 17 and 18.

The pattern-chain is denoted by 19, which chain passes around the usual chain-wheels 20, fixed to the shaft 21, mounted in suitable bearings in the loom-frame 1. This shaft 21 is provided with a gear 22, which intermeshes with a pinion 23 on a cam-shaft 24, mounted in suitable bearings in the loom-frame. This cam-shaft 24 is provided with a bevel-gear 25, which intermeshes with a bevel-gear 26, fixed to the vertical shaft 16.

The pattern-chain wheels 20 are provided with six teeth, and the relative size of the gear-wheel 22 and pinion 23 is such that one revolution of the cam-shaft 24 rotates the pattern-wheels 20 one-sixth of a revolution.

Two pattern-chain-controlled bars 27 28 are hinged at 29 to the loom-frame, which bars are raised or permitted to fall by spools in the pattern-chain 19, the spools which control the bar 27 being in a different plane from the spools which control the bar 28. These bars 27 28 are provided with notches 30 31 in their free ends, which notches are fitted to be engaged by a plate 32, carried by rock-bars 33, fixed to a shaft 34, whereby the bars 27 28 are locked and released as the plate 32 is brought into and out of engagement therewith. This plate is operated by means of a cam 35, carried by the shaft 24, which engages an arm 36, fixed to the shaft 34. This cam 35 is so arranged that it will rock the plate 32 out of

the notches 30 31 in the bars 27 28 every time the pattern-chain is advanced one spool.

The plate 32 is normally held at the limit of its inward movement in engagement with the notches in the bars 27 28 by means of a spring 37.

The free ends of the bars 27 28 may be adjusted as to the limits of their downward movements by means of a cam 38, engaging the lower edges of the bars 27 28, the shaft 39 of which cam is mounted in suitable bearings in the loom-frame. This shaft 39 may be provided with an adjusting-handle 40 for facilitating the adjustment of the cam 38 and for throwing the arms 27 28 out of engagement with the pattern-chain.

The bars 27 28 are provided with vertical projections or extensions 41 42, which are fitted to engage the cams on the hook-bars to be immediately described.

Hook-bars 43 44 are hinged to the upper arms 4 and 9 of the rocking levers 5 and 10, which hook-bars are provided with cams 45 46, which cams are fitted to be engaged by the projections 41 42 on the bars 27 28 when the bars are raised by the spools of the pattern-chain. These hook-bars 43 44 are provided with hooked ends 47 48, which are fitted to engage and disengage a bar 49, fitted to reciprocate laterally in grooves or guides 50 51 in the loom-frame. This bar 49 is reciprocated by the following means: A rotary shaft 52 is mounted in suitable bearings in the loom-frame, which shaft is provided with a bevel-gear 53, which intermeshes with a bevel-gear 54, fixed to the vertical shaft 16. This shaft 52 is provided with an eccentric 55, connected to an arm 56, fixed to a rock-shaft 57, mounted in suitable bearings in the loom-frame. This rock-shaft 57 has fixed thereto arms 58, the free ends of which are provided with links 59, which engage the opposite ends of the laterally-reciprocating bar 49. These arms 58 are adjustably secured to the shaft 57 by means of set-screws 60, so that the arms, and thereby the bar, may be accurately adjusted with respect to the movements of the other parts of the shedding mechanism.

The hook-bars 43 44 are yieldingly held at the limits of their downward movements by means of spring-actuated presser-feet 61 62.

A stationary bar or abutment 63 is arranged across the loom-frame in position to prevent the hook-bars from being moved from the limits of their inward movement except when they are permitted to drop into engagement with the laterally-reciprocating bar 49.

The relations of the parts are such that the heddle-frames are raised and lowered on every pick of the loom when their needle-bars are engaged with the laterally-reciprocating bar 49.

The operation of my device is as follows: Supposing the pattern-chain-controlled bars 27 28 are in their lowered positions because of the non-engagement of the spools on the pattern-chain therewith, the hook-bars 43 44 will be held at the limits of their downward movements interlocked with the laterally-reciprocating bar 49.

As the bar 49 is reciprocated the hook-bars 43 44 will also be reciprocated, thus rocking the levers 5 and 10 back and forth together.

When a spool in the pattern-chain raises one of the bars 27 28, the cam on the corresponding hook-bar will because of its engagement with the projection on the pattern-chain-controlled bar raise the hook-bar out of its engagement with the laterally-reciprocating bar 49, and thus stop the rocking movement of its rocking lever and the vertically-reciprocating movement of the heddle-frame controlled thereby.

It will thus be seen that by a proper arrangement of the spools on the pattern-chain the movements of the heddle-frames with respect to each other may be absolutely regulated so as to produce the weave desired.

While I have shown in the accompanying drawings two only of these heddle-frames and their shedding mechanisms, it is to be understood that I may employ any number of heddle-frames and shedding mechanisms therefor and may also combine the same with the ordinary loom or may provide all of the heddle-frames with the shedding mechanism, as may be desired.

It will also be seen that the mechanism which I have shown and described herein may be readily applied to looms now in common use at a small expenditure.

What I claim is—

A loom comprising heddle-frames, rocking levers connected thereto for reciprocating the heddle-frames, a laterally-reciprocating bar, hook-bars connecting the rocking levers with the laterally-reciprocating bar, a pattern-chain, means under the control of the pattern-chain for releasing the hook-bars from the laterally-reciprocating bar and means for operating the laterally-reciprocating bar comprising a rock-shaft, a shaft carrying an eccentric and connections between the rock-shaft and eccentric and the laterally-reciprocating bar.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 9th day of August, 1902.

WILLIAM J. LUTTON.

Witnesses:

FREDK. HAYNES,
HENRY THIEME.