

March 29, 1932.

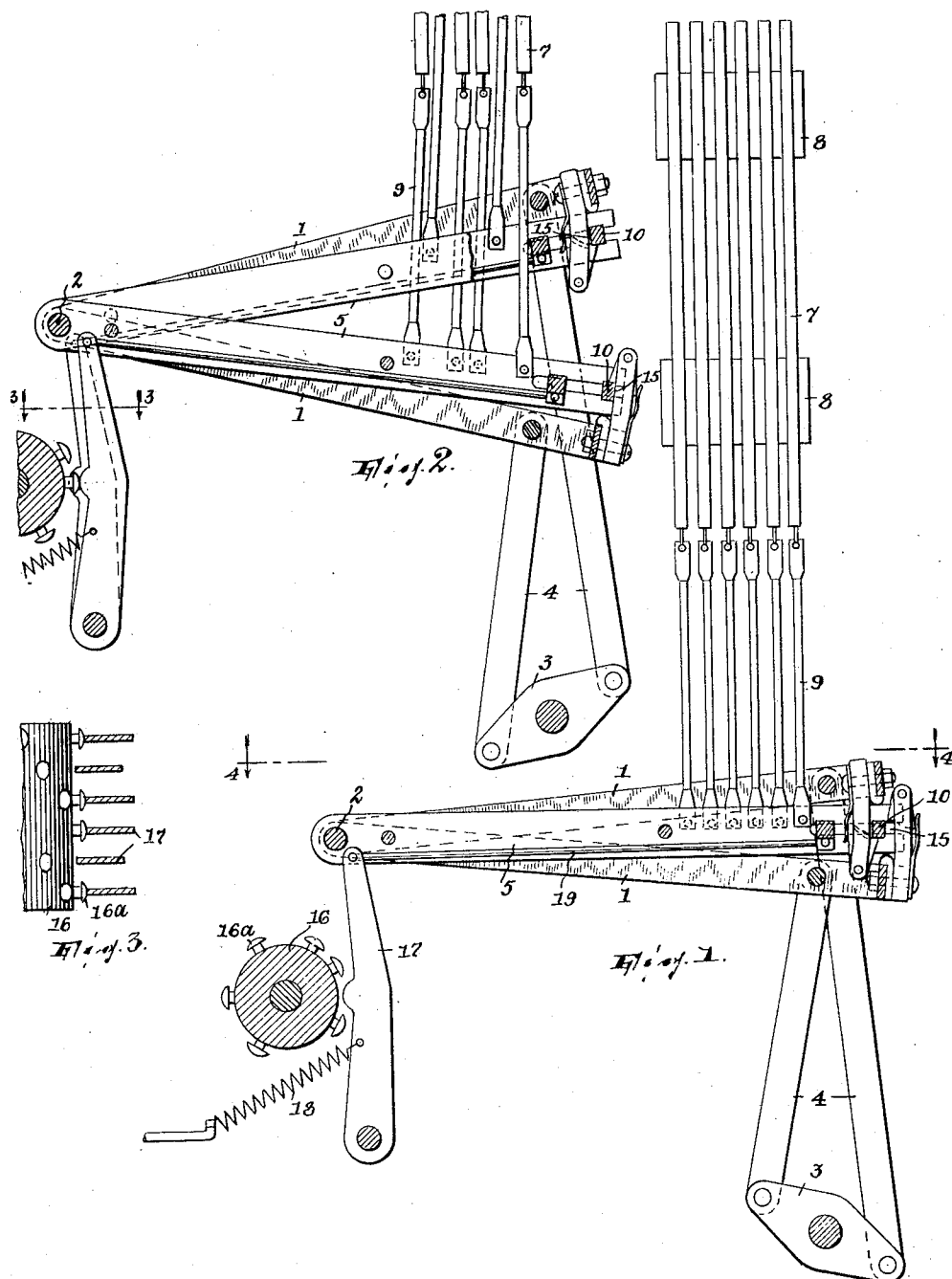
F. W. MERRICK

1,851,719

SHEDDING MECHANISM FOR LOOMS

Filed Feb. 24, 1930

3 Sheets-Sheet 1



INVENTOR,
Frank W. Merrick,

BY
John W. Merrick
ATTORNEY

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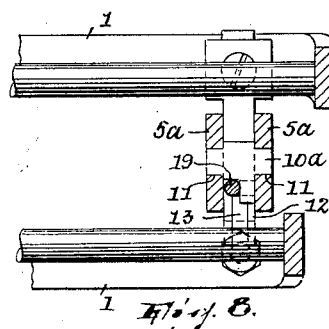
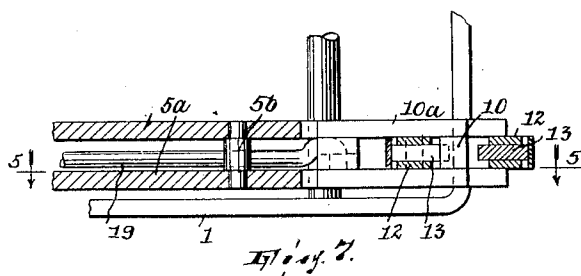
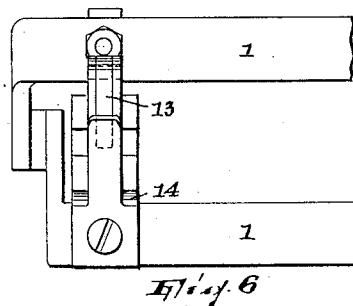
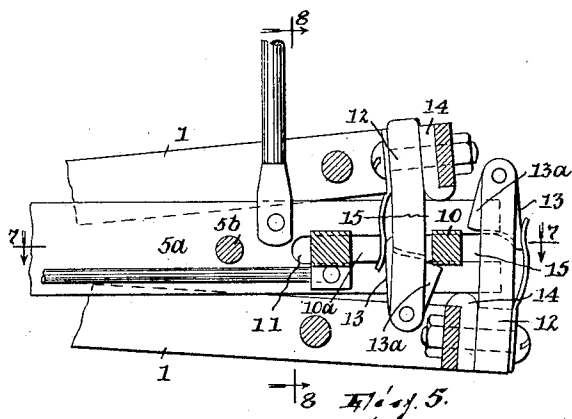
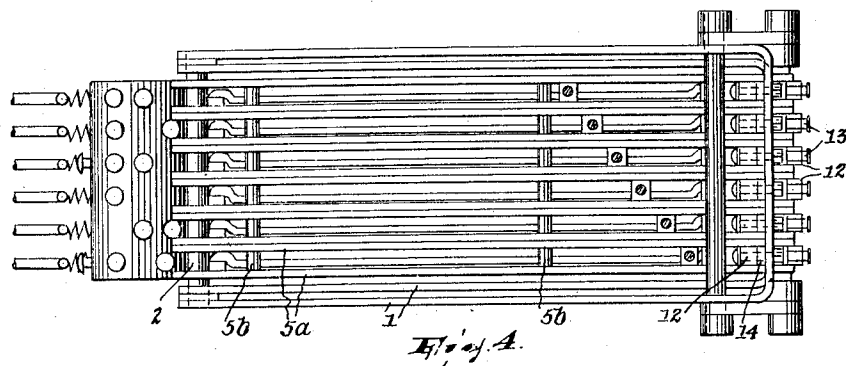
F. W. MERRICK

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SHEDDING MECHANISM FOR LOOMS

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3 Sheets-Sheet 2



INVENTOR,
Frank W. Merrick.

BY
J. H. Edwards,
ATTORNEY.

March 29, 1932.

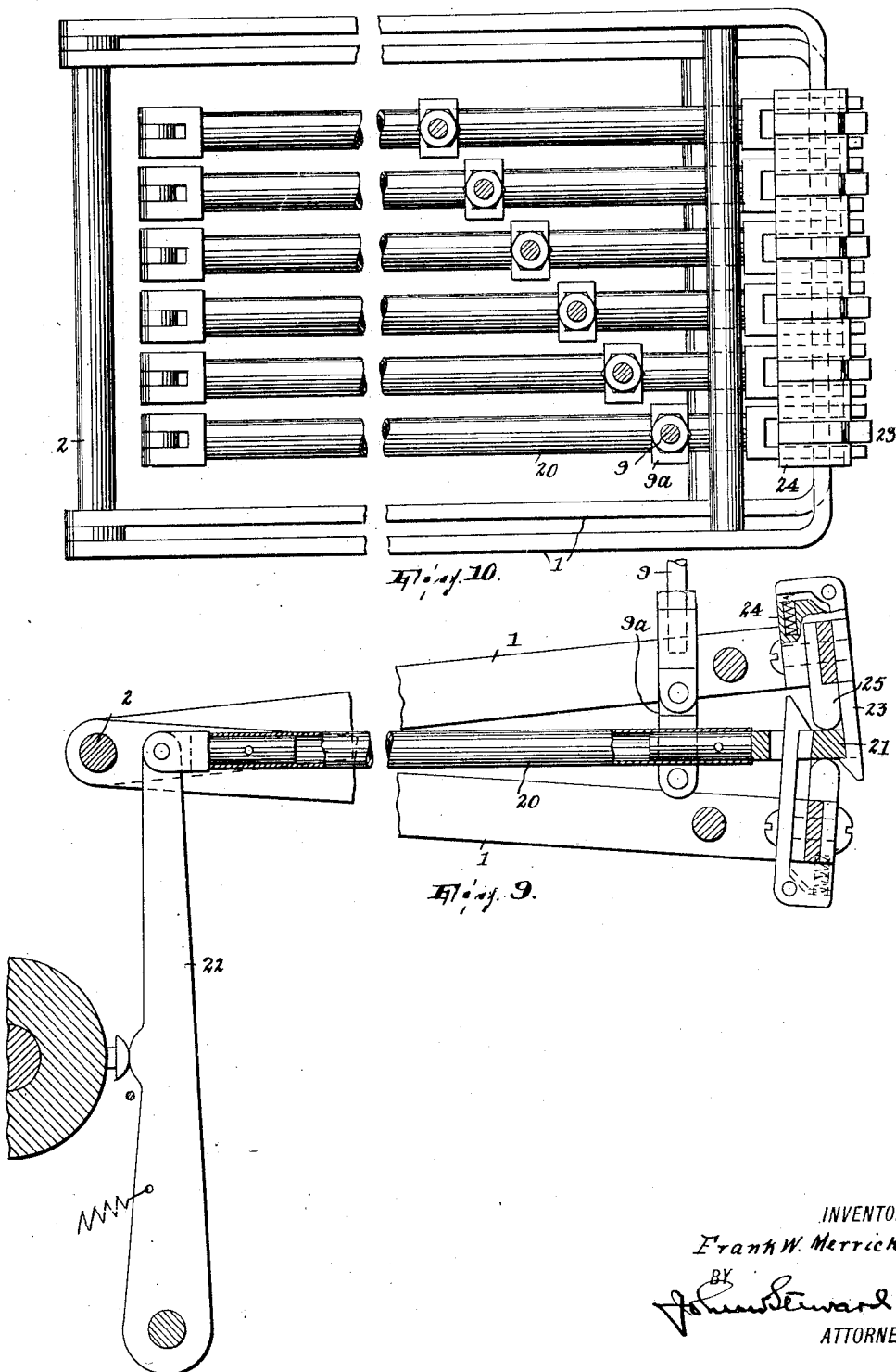
F. W. MERRICK

1,851,719

SHEDDING MECHANISM FOR LOOMS

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3 Sheets-Sheet 3



INVENTOR,
Frank W. Merrick
BY
John Seaward,
ATTORNEY.

UNITED STATES PATENT OFFICE

FRANK W. MERRICK, OF DORCHESTER, MASSACHUSETTS, ASSIGNOR TO WONDER WEAVE, INC., OF BOSTON, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS

SHEDDING MECHANISM FOR LOOMS

Application filed February 24, 1930. Serial No. 430,716.

This invention relates to warp-shedding mechanism and it is herein explained in connection with warp-shedding mechanism of the class set forth in the William S. Wells Patent No. 1,759,530, wherein, given actuators reciprocating in opposite directions together toward and together from an intermediate plane, systems to shift the warps are each adapted to be intercoupled with either actuator and uncoupled from the other in order to effect the forming of the sheds. The principal object is to construct a mechanism of this class so that it will operate more reliably than those mentioned, making it therefore possible to drive the mechanism at very high speed and still have it perform its duties accurately and efficiently.

In the drawings,

Figs. 1 and 2 are longitudinal sectional views of the mechanism showing the same in the positions, respectively, where the shed is closed and open;

Fig. 3 is a section on line 3—3, Fig. 2;

Fig. 4 is a section on line 4—4, Fig. 1;

Fig. 5 shows a fragment of what appears in Fig. 1 on a larger scale;

Fig. 6 is a fragmentary front elevation of what appears in Fig. 5;

Figs. 7 and 8 are sections on lines 7—7 and 8—8, respectively, Fig. 5; and

Figs. 9 and 10 are a longitudinal section and a plan view of a modification of the mechanism.

Let 1 designate a pair of actuator members (here U-shaped in plan and pivoted on a shaft 2) reciprocated together toward and together from an intermediate plane, as by a suitably oscillated double crank 3 acting on the actuator members through links 4 to reciprocate them.

And let 5 designate actuated members (here each a lever fulcrumed on shaft 2 and comprising two bars 5a with spaces 5b between them) to be reciprocated by the actuator members and each forming part of a warp-shifting system here shown as also including a harness shaft 7, assumed to have heddles or equivalent (not shown) for the warp threads and guided at 8, and a link 9 pivotal-

ly connecting said actuated member with the shaft 7.

Any one actuated member and each actuator member have coupling and keeper portions coactive to intercouple them and of which one such portion is movable, when said actuator members occupy given positions (as their proximating positions) in their reciprocating movement, substantially rectilinearly and crosswise of the paths of movement of the actuator members into and out of engagement with the other such position, thus (referring first to Figs. 1 to 8):

The coupling portion is here movable and applied to the actuated member, being a slide or bolt 10 movable in ways 11 extending radially from its axis 2 and formed in its bars 5a (see Figs. 5 to 8).

The keeper portion is here applied to each actuator member, and is here in effect a recessed portion of said member, that is to say (referring for the details to Figs. 5 to 8): said actuator member has a fork 12 in which is a spring-pressed latch 13 whose projecting or catching portion 13a forms with an abutment 14 on said member the said recess 15, open radially. A single coupling portion is made to coact with the keeper portions of the two actuator members by constructing the parts so that when the actuator members are in given positions in their reciprocating motion (here juxtaposed to each other—Figs. 1 and 5) the coupling portion may be moved into engagement with either keeper portion and clear of the other. Of course the two actuator members have as many pairs of the keeper portions as there are actuated members and hence coupling portions (Fig. 4). When a coupling portion and keeper portion are engaged the coupling portion in the present example contacts with the latch and the actuated member with the abutment 14; thus, or in any other way, once the coupling is established lost motion between the coupling and keeper portions may be avoided, to the end that in the reciprocation of the actuated with either actuator member the motion shall take place quietly and smoothly.

It is not here material by what medium the movement to couple or uncouple is effected,

but I have shown a pattern cylinder 16 having pegs 16a for displacing levers 17 which are normally urged toward the cylinder by springs 18 and are here connected with extensions 10a of the coupling portions (slotted as shown in Figs. 5 and 7 to receive the forks 12 of one actuator member) by links 19, the pattern cylinder being assumed to be rotated by any means step by step and adapted to effect changes in the positions of said coupling portions when the actuator members are juxtaposed to each other.

In Figs. 9 and 10 the portion of the actuated member which coacts with a portion of each of the actuator members is not movable in but is movable with the actuated member to effect the intercoupling and uncoupling. Said actuated member 20 is here a lever having its said portion (here the coupling portion) 21 formed thereon, said lever having support on some part permitting it to partake of the reciprocation of either actuator member as well as to move to coact with either keeper portion, as such a pattern-controlled lever, 22, as that already described. The keeper portions are here essentially the same as before, their recesses being formed between the spring-pressed latches 23 (pivoted in blocks 24 on the actuator members) and the abutments 25, the coupling portion in this case contacting with both the latch and abutment when engaged with a keeper portion. The links 9 may in this case be connected with the members 20 through pivoted shackles 9a (Fig. 9).

The purpose in forming each keeper portion with a latch yieldable to the coupling portion of the corresponding actuated member is to insure intended intercoupling of an actuated member with an actuator member when transfer of any actuated member from one actuator member to the other is to occur, thus enabling such transfer to be effected even if the mechanism is operated at high speed.

Having thus fully described my invention what I claim is:

1. A shedding mechanism including a pair of actuator members reciprocating together toward and together from an intermediate plane, an actuated member to be reciprocated by either actuator member and forming part of a warp-shifting system, and means guided for movement substantially rectilinearly and crosswise of the paths of the actuator members, when the latter occupy given positions in their reciprocating motion, and forming a coupling to intercouple said actuated member with either and uncouple it from the other actuator member.

2. A shedding mechanism including a pair of actuator members reciprocating together toward and together from an intermediate plane and an actuated member to be reciprocated by either actuator member and forming part of a warp-shifting system, said actu-

ated member and each actuator member having coupling and keeper portions coactive to intercouple them one of which portions is guided for movement and movable, when said actuator members occupy given positions in their reciprocating movement, substantially rectilinearly and crosswise of the paths of the actuator members into and out of engagement with the other such portion.

3. A shedding mechanism including a pair of actuator members reciprocating together toward and together from an intermediate plane and an actuated member to be reciprocated by either actuator member and forming part of a warp-shifting system, said actuated member and each actuator member having coupling and recessed keeper portions coactive to intercouple them one of which portions is guided for movement and movable, when said actuator members occupy given positions in their reciprocating movement, substantially rectilinearly and crosswise of the paths of the actuator members into and out of engagement with the other such portion, and one side of said keeper portion being a latch yieldable to the other portion when said actuator members approach said positions.

4. A shedding mechanism including a reciprocating actuator member and an actuated member to be reciprocated by said actuator member and forming part of a warp-shifting system, said actuator and actuated members having coupling and recessed keeper portions coactive to intercouple them one of which portions is movable, when said actuator occupies a given position in its reciprocating movement, into and out of engagement with the other such portion, and one side of said keeper portion being latch yieldable to the other portion when said actuator member approaches said position.

5. A shedding mechanism including a reciprocating actuator member, a warp-shifting system comprising an actuated member to be reciprocated by said actuator member, said actuator and actuated members having coupling and keeper portions coactive to intercouple them together and said actuated member being movable back and forth to move its said portion into or out of coupling engagement with the other of said portions, and a support, independent of said system, on which said actuated member is pivotally movable with the actuator member and crosswise of said back and forth movement when said portions are engaged with each other.

6. A shedding mechanism including a reciprocating actuator member, a warp-shifting system comprising an actuated member to be reciprocated by said actuator member, said actuator and actuated members having coupling and keeper portions coactive to intercouple them together and said actuated member being movable back and forth to

move its said portion into or out of coupling engagement with the other of said portions and a support, independent of said system on which said actuated member is pivotally
5 movable with the actuator member and cross-wise of said back and forth movement when said portions are so engaged, said support affording means to shift said actuated member back and forth.

10 7. A shedding mechanism including a set of side-by-side actuated members and an actuator member reciprocating toward and from the actuated members, there being as to each actuator member and each of the
15 actuated members a projection on one having a yielding latch and forming a coupling portion and said other member including a coupling portion movable into and out of latched engagement with the first coupling
20 portion.

8. A shedding mechanism including a set of side-by-side actuated members and an actuator member reciprocating toward and from the actuated members, there being as
25 to each actuator member and each of the actuated members a projection on one having a yielding latch and forming a coupling portion and in the other an opening to receive such coupling portion and said other member
30 including a coupling portion movable into and out of latched engagement with the first coupling portion.

9. A shedding mechanism including a set of side-by-side actuated members and an
35 actuator member reciprocating toward and from the actuated members, there being as to the actuator member and each of the actuated members a bearing on one such member for contact by the other and a yielding latch
40 spaced from the bearing and forming therewith a coupling recess and the other member including a bolt enterable and adapted to fit snugly between said bearing and the latch and withdrawable clear of the latch.

45 In testimony whereof I affix my signature.
FRANK W. MERRICK.

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