

No. 690,388.

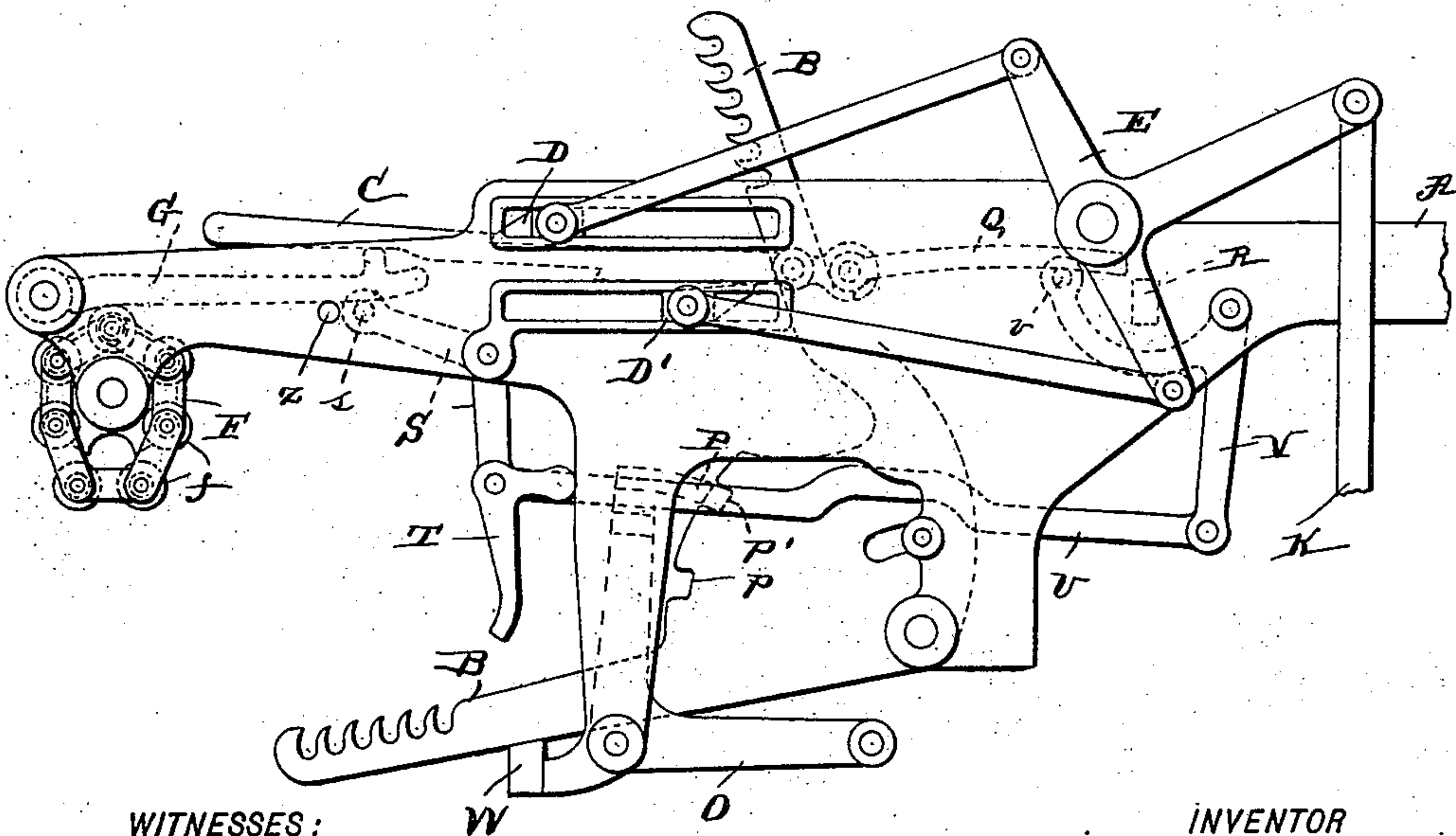
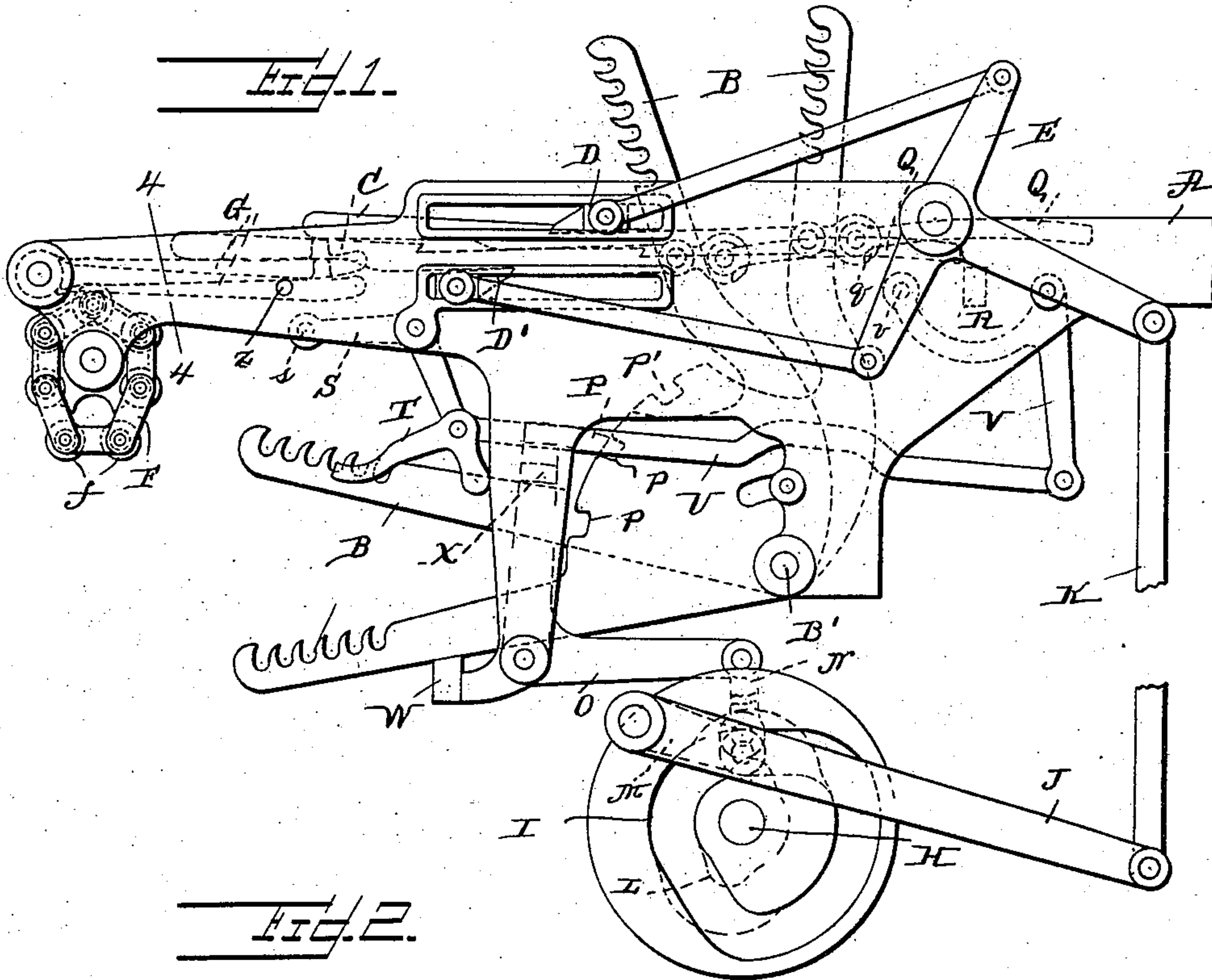
Patented Jan. 7, 1902.

W. C. ASIMOS.
SHEDDING MOTION FOR LOOMS.

(Application filed Aug. 17, 1900.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES:

Jesse B. Heller.

M. M. Hamilton.

INVENTOR

William C. Asimos

BY

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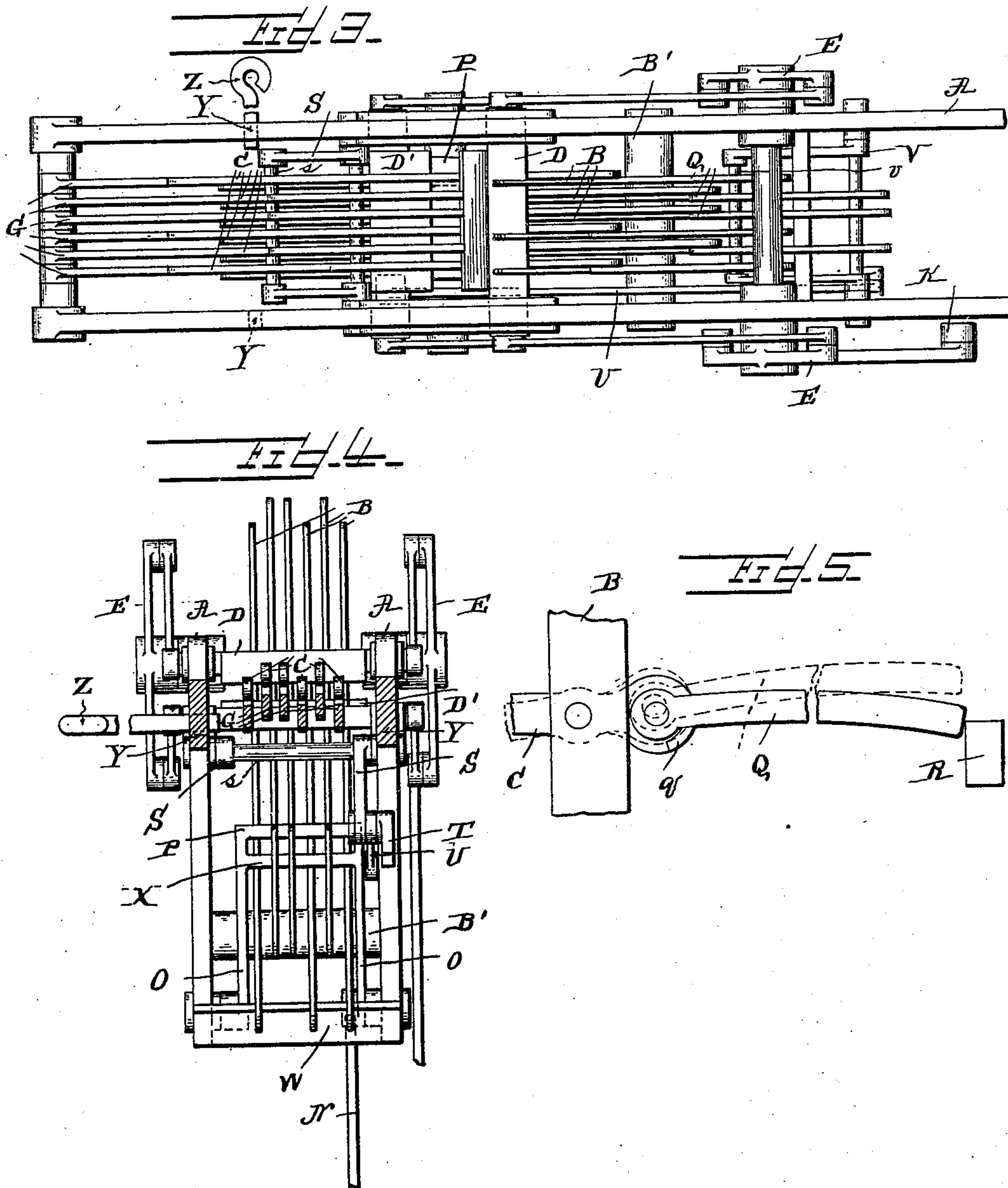
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UNITED STATES PATENT OFFICE.

WILLIAM C. ASIMOS, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO HIMSELF AND GOTTLIEB F. BAUER, OF PHILADELPHIA, PENNSYLVANIA, DOING BUSINESS AS BRIDESBURG MACHINE COMPANY.

SHEDDING-MOTION FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 690,388, dated January 7, 1902.

Application filed August 17, 1900. Serial No. 27,210. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM C. ASIMOS, a citizen of the United States, residing at Philadelphia, (Bridesburg,) county of Philadelphia, and State of Pennsylvania, have invented a new and useful Improvement in Shedding-Motions for Looms, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to shedding-motions for looms.

The objects of my invention are to improve the actuating mechanism for the harness-levers or jack-levers for operating the heddle-frames, to prevent the jack-levers from being drawn back after they have been moved to lift the heddle-frames by the weight of the heddle-frames, to permit all the jack-levers to be moved by hand either up or down, or, in other words, to permit the manual leveling of the jack-levers, to prevent the jack-levers from being moved by the reciprocating knives beyond a predetermined distance in either direction, so as to insure their locking-orifices registering with the lock that is operated from the main shaft, and to permit the pattern-chain to act upon any predetermined number of jack-levers less than the whole number without removing the corresponding pattern-rollers.

My invention consists in the provision of suitably-arranged stops for preventing the jack-levers from being drawn back, in actuating mechanism for leveling the jack-levers, in the provision of suitably-arranged stops for limiting the throw of the jack-levers by the reciprocating knives, and in the provision of a device for holding a predetermined number of the jack-levers out of action.

In the drawings, Figure 1 is a side elevation of the frame and the moving parts, showing different jack-levers and draw-bars in different operative positions. Fig. 2 is a similar view showing all the jack-levers leveled. Fig. 3 is a plan view of the same, showing the parts in the same position as in Fig. 1. Fig. 4 is a section on the line 4 4 of Fig. 1. Fig. 5 is an

enlarged detail side elevation of a portion of the draw-bars and their locking mechanism.

A designates the frame of the shedding-machine.

B represents the harness-levers or jacks pivoted on the shaft B'. These harness-levers are connected in the usual way, respectively, with the several heddle-frames and are actuated in the usual way—namely, by the notched draw-bars C and the transverse reciprocating knives D D', engaging the same and pivoted, respectively, to the upper and lower ends of the T-shaped rocker-arms E, secured to a shaft which oscillates in bearings on the frame of the machine. The draw-bars C are raised so as to bring the notched portions on the upper edge thereof into alinement with the upper transverse knife D in the usual way—namely, by the pattern-chains F on the overhanging end of the frame having the rollers f, which engage and lift the pivoted fingers G at predetermined intervals, which lift the corresponding draw-bars, causing the knife D to push the corresponding draw-bars, tilt the corresponding jack-levers, and operate the corresponding heddle-frames. The draw-bars are returned in the return movement of the reciprocating knives by means of the lower knife D' engaging the notched portions on the lower edge of the draw-bars in the usual manner. It will be understood that one or more of these jack-levers will normally be operated at each turn of the pattern-roller and that the remaining jack-levers will be held stationary by reason of their corresponding draw-bars not being shifted by the raising or withdrawal of their corresponding pattern-rollers. The knives D D' slide in slotted guideways in the overhanging framework in the usual manner.

H is the main shaft, having secured thereto the cam I.

J is a lever pivoted to the frame and in line of travel of the cam.

K is a link connecting the end of the lever J and the rocker-arm E. By this mechanism the rocker-arm E is actuated.

L is another cam on the main shaft.

M is a lever pivoted to the frame and in line of travel of the cam.

N is a link connecting the end of lever M and the ends of bell-crank levers O, one on each side of the machine.

P is a locking-bar secured between the upper ends of bell-crank levers O.

p p' are notches or locking-orifices in the jacks, one of which notches in each jack (dependent upon the position to which the jack has been moved by the reciprocating knives) is adapted to be engaged by the locking-bar.

Any other suitable and well-known mechanism may be used for operating the rocker-arms and the locking-bar.

The machine so far as I have described the same does not differ substantially from an old and well-known type of machine, and it embodies the same principle of construction and operation as is exhibited in the Letters Patent issued to Robert B. Goodyear on the 4th day of April, 1882, No. 255,850.

I will now describe the mechanism for preventing the jack-levers being drawn to the right (after they have shifted to the left) by the pull of the heddle-frames. The locking-bar P will not always be effective for this purpose, as it is temporarily released at each half-turn of the main shaft. When the pattern dictates the movement of the jacks to the right and the lifting of the heddle-frames during a number of successive revolutions of the main shaft, the weight of the heddle-frames tends to move the jack-levers to the right at each release of the locking-bar. I have provided a stop or lock which will positively and continuously hold the jack-levers in position to lift the heddle-frames except when the pattern-chain dictates that they shall move in the direction to lower the heddle-frames.

Q is a lever pivoted to the end of each draw-bar. A lug q is secured to the end of the draw-bar, which lug engages the lever Q and holds it on substantially a level with the draw-bar, while permitting it to be raised on its pivot.

R is a stop secured to the frame and extending across the loom. When any one draw-bar has been moved to the left, the lever Q rests close to or against the stop, so as to lock the draw-bar and jack from moving to the right. When the pattern-chain allows the draw-bar to drop, so as to bring it into position to be actuated by the lower knife to move it and the corresponding jack to the right, the dropping of the draw-bar raises the lever Q out of alinement with the stop R during the travel of the draw-bar to the right. When the pattern-chain raises the draw-bar to bring it into position to be actuated by the upper knife to move it and the corresponding jack to the left, the lever Q drops down against and slides upon the top of stop R until the draw-bar has completed its movement to the left, whereupon the lever Q slides free

of the stop R and drops down in front of it into the locking position.

I will now describe the mechanism for leveling the jack-levers.

S represents bell-crank levers pivoted to the frame, one on each side of the machine. s is a rod connecting corresponding arms of these bell-cranks, which rod extends underneath the fingers G.

T is a trigger or handle pivoted between its ends to one of the bell-cranks and one arm of which normally rests against the machine-frame, as shown in Fig. 1. The bell-crank levers S, rod s , and trigger T constitute a shifter for shifting the draw-bars onto a common level. Ordinarily some of the heddle-frames will have been raised and others lowered. By moving the trigger from the position shown in Fig. 1 to that shown in Fig. 2 the rod s will engage and lift all the fingers which have not been raised by the pattern-chain, thereby lifting all the draw-bars into position to be engaged by the upper knife to move them to the left. After the jacks have been thus all brought into position to lift all the heddle-frames any or all of them may be normally moved to the right by lifting the levers Q. This lifting of the levers Q, I accomplish automatically by means of the following construction:

U represents links connecting the lever ends of bell-crank levers S with the lower ends of bell-crank levers V, which latter are pivoted to the frame.

v is a rod connecting the free ends of bell-cranks V. This rod is immediately under the levers Q, so that when the trigger is turned to lift the fingers G, as shown in Fig. 2, the rod v by means of links U and bell-cranks V is raised to lift the levers Q out of alinement of stop R. After the rocker-arms and draw-bars are moved back to the position shown in Fig. 1 the jack-levers, or any of them, may be moved by hand to the right.

I provide the following means for limiting the throw of the jack-levers and draw-bars beyond the position to which they are thrown by the reciprocating knives.

W is a stop secured to the frame and engaging one arm of the jack-lever to limit its throw in one direction. The stop is located in such position that it will be engaged by the jack-lever when the draw-bars have been moved the proper distance to the left—i. e., a distance equal to the travel of the upper knife. In this position of the jack-lever the upper notch p is in exact alinement with the lock P and will be engaged thereby as soon as the lock rocks forward.

X is a stop secured to the lower face of the locking-bar P. This stop is located in such position that it will be engaged by the jack when the draw-bars have been moved the proper distance to the right. In this position of the jack-lever the lower notch p' is in exact alinement with the lock P, so as to be en-

gaged thereby as soon as the lock rocks forward.

I have provided the following means for holding out of action any desired number of

5 jack-levers during the operation of the looms. Y represents orifices in the frame immediately under the plane of the lower faces of fingers G when the same are in their raised positions. Z is a retaining device or holding-
10 bar adapted to be inserted in said orifices. After the fingers have all been raised by the leveling mechanism hereinbefore described the bar Z is inserted into the orifices Y to a distance sufficient to rest under the fingers
15 corresponding to the jacks which it is desired to hold out of operation. The fingers upheld will not be operated by the pattern-chain, and after the corresponding draw-bars are once shifted to the right they will be held
20 there, maintaining the heddle-frames raised during the entire operation of the loom. Heretofore it has been necessary to remove the pattern-rollers corresponding to the jacks which it was desired to throw out of operation, permitting the fingers to fall and the
25 draw-bars to be moved to the right, where they would stay in view of the absence of any means for raising the fingers, or the jacks would have to be removed or tied up. With
30 my device I maintain the fingers raised, thus avoiding the trouble and loss of time incident to a removal of the pattern-rollers or jacks and maintain, by means of the stop R, the jacks in position to hold the heddles ele-
35 vated.

Having now fully described my invention, what I claim, and desire to protect by Letters Patent, is—

1. In a shedding-motion for looms, the combination, with the harness-levers, and mechanism for actuating the same, of locking-levers connected with the harness-levers so as to move with the harness-levers, and a stop in alinement with the locking-levers when
40 the harness-levers have been moved to lift the heddle-frames, whereby the harness-levers are prevented from being drawn back by the heddle-frames.

2. In a shedding-motion for looms, the combination, with the harness-levers, and mechanism for actuating the same, of locking-levers connected with the harness-levers so as to move with the harness-levers, and a stop in alinement with the locking-levers when
50 the harness-levers have been moved to lift the heddle-frames, whereby the harness-levers are prevented from being drawn back by the heddle-frames, and means for lifting said levers out of alinement with said stop
55 preparatory to moving the jack-levers into position to lower the heddle-frames.

3. In a shedding-motion for looms, the combination, with the harness-levers, the draw-bars connected therewith, and the knives for
65 actuating the draw-bars, of locking-levers connected to the draw-bars, and a stop in alinement with the locking-levers when the

draw-bars have been moved into one of their extreme positions.

4. In a shedding-motion for looms, the combination, with the harness-levers, the draw-
70 bars connected therewith, and the knives for actuating the draw-bars, of locking-levers pivoted to the draw-bars, means to hold the locking-levers from moving on their pivots
75 beyond a definite point, and a stop in alinement with the locking-levers, whereby the draw-bars, when moved into one of their extreme positions, will be prevented by said
80 stop from being drawn back until they have been shifted into position to be returned by one of the knives, and whereby, when the draw-bars are again shifted to permit them
85 to be moved by the other knife into the first-named extreme position, the locking-levers will turn on their pivots and slide upon said stops.

5. In a shedding-motion for looms, the combination, with the harness-levers, the draw-
90 bars connected therewith, and the knives for actuating the draw-bars, of locking-levers pivoted to the draw-bars, lugs on the draw-bars to limit the movement of the locking-levers on their pivots, and a stop adapted to be engaged by the locking-levers when the
95 draw-bars have been moved into one of their extreme positions.

6. In a shedding-motion for looms, the combination with the harness-levers, the draw-
100 bars connected therewith, the knives for actuating the draw-bars, and a shifter for moving the draw-bars onto a common level to permit one of the knives to actuate the draw-bars so moved and thereby actuate all the
105 corresponding harness-levers to lift the corresponding heddle-frames, a lock or stop for normally preventing the return of the harness-levers after they have been moved to lift the heddles, and means for unlocking the
110 harness-levers, thereby permitting the heddle-frames to be separately raised and lowered manually.

7. In a shedding-motion for looms, the combination with the harness-levers, the draw-
115 bars connected therewith, the knives for actuating the draw-bars, and a shifter for moving the draw-bars onto a common level to permit one of the knives to actuate the draw-bars so moved and thereby actuate all the
120 corresponding harness-levers to lift the corresponding heddle-frames, a lock or stop for normally preventing the return of the harness-levers after they have been moved to lift the heddles, and means connected with and
125 actuated by the shifter for rendering the lock or stop inoperative, thereby permitting the heddle-frames to be separately operated manually.

8. In a shedding-motion for looms, the combination, with the harness-levers, the draw-
130 bars connected therewith, the knives for actuating the draw-bars, fingers for actuating the draw-bars, a rod adapted to engage and lift all the fingers and thereby move all the

draw-bars onto a common level to permit one of the knives to actuate said draw-bars and thereby actuate all the harness-levers to lift the heddle-frames, a bell-crank lever S, one end of said bell-crank lever S engaging the frame of the machine while the other end is adapted to be depressed by hand, thereby raising the rod s, and locking the same in its raised position.

9. In a shedding-motion for looms, the combination, with the harness-levers, the draw-bars connected therewith, and the knives for actuating the draw-bars, of a shifter for moving the draw-bars onto a common level, locking-levers connected to the draw-bars, a stop in alinement with the locking-levers when the same have been moved into one of their extreme positions, and a connection between the shifter and the locking-levers whereby the actuating of the former moves said locking-levers out of alinement with said stop.

10. In a shedding-motion for looms, the combination, with the harness-levers, the draw-bars connected therewith, and the knives for actuating the draw-bars, the fingers for shifting the draw-bars into position to be acted upon by one or the other of said knives, and the pattern mechanism for operating the fingers, of locking-levers connected to the draw-bars, a stop in alinement with the locking-levers when the draw-bars have been moved to one of their extreme positions, a shifter for shifting the fingers out of operative relation with the pattern mechanism, and a connection between the shifter and the locking-levers whereby the actuating of the former moves said locking-levers out of alinement with said stop.

11. In a shedding-motion for looms, the combination, with the harness-levers, the draw-bars connected therewith, and the knives for actuating the draw-bars, the fingers for shifting the draw-bars into position to be acted upon by one or the other of said knives, and the pattern mechanism for operating the fingers, of locking-levers connected to the draw-bars, a stop in alinement with the locking-levers when the draw-bars have been moved to one of their extreme positions, a rod adapted when lifted to shift the draw-bars onto a common level, a lever pivoted to the machine-frame one part of which carries said rod, a handle on another part of said lever for tilting the same to lift said rod, and a connection between the handle and the locking-levers whereby the operation of the handle operates said rod and moves said locking-levers out of alinement with said stop.

12. In a shedding-motion for looms, the combination, with the harness-levers, the draw-bars connected therewith, and the knives for actuating the draw-bars, of locking-levers connected to the draw-bars, and a stop in alinement with the locking-levers when the draw-bars have been moved into one of their extreme positions, and manually-controlled

means for moving said locking-levers out of alinement with said stop.

13. In a shedding-motion for looms, the combination, with the harness-levers, the draw-bars connected therewith, and the knives for actuating the draw-bars, the fingers for shifting the draw-bars into position to be acted upon by one or the other of said knives, and the pattern mechanism for operating the fingers, of a retaining device adapted to be supported on, and movable transversely to, the frame of the machine for holding said fingers out of operative relation with the pattern mechanism.

14. In a shedding-motion for looms, the combination, with the harness-levers, the draw-bars connected therewith, and the knives for actuating the draw-bars, the fingers for shifting the draw-bars into position to be acted upon by one or the other of said knives, and the pattern mechanism for operating the fingers, of a retaining device adapted to be supported on, and movable transversely to, the frame of the machine for holding said fingers out of operative relation with the pattern mechanism, whereby the harness-levers controlled thereby will all be thrown into one position, and a stop for preventing the return of said harness-levers.

15. In a shedding-motion for looms, the combination, with the harness-levers, the draw-bars connected therewith, and the knives for actuating the draw-bars, the fingers for shifting the draw-bars into position to be acted upon by one or the other of said knives, and the pattern mechanism for operating the fingers, of a retaining device adapted to be supported on, and movable transversely to, the frame of the machine for holding said fingers out of operative relation with the pattern mechanism whereby the harness-levers controlled thereby will all be thrown into one position, locking-levers connected to the draw-bars, and a stop in alinement with the locking-levers when the same have been moved into the said position.

16. In a shedding-motion for looms, the combination, with the harness-levers and mechanism for actuating the same, of a reciprocating lock adapted to engage the harness-levers at the end of each throw of the same, and stops for limiting the throw of the harness-levers respectively in both directions, one of said stops being secured to the frame of the machine, and the other of said stops being secured to the lock, said stops being in alinement with the harness-levers in their back and forth movements respectively.

17. In a shedding-motion for looms, the combination, with the harness-levers, the draw-bars connected therewith, the knives for actuating the draw-bars, the pattern mechanism for raising the draw-bars, whereby the draw-bars and harness-levers will be moved into position to be engaged by one of said knives and thereby actuated to lift the cor-

responding heddle-frames, a stop in line of travel of the draw-bars when the same have been moved to cause the harness-levers to lift the heddle-frames, said stop being so located
5 as to be out of locking position after the pattern mechanism allows the draw-bars to drop into position to be engaged by the other knife.

18. In a shedding-motion for looms, the combination, with the harness-levers, the draw-
10 bars connected therewith, and the knives for actuating the draw-bars, of a stop for preventing the return of the harness-levers when the same have been moved into one of their extreme positions, and means for unlocking
15 the harness-levers, said unlocking means being thrown into operation by the shifting of the draw-bars preparatory to moving the harness-levers into the other of their extreme positions.

19. In a shedding-motion for looms, the combination with the harness-levers, the draw- 20 bars connected therewith, and the knives for actuating the draw-bars, of a stop for preventing the return of the harness-levers when the same have been moved into one of their 25 extreme positions, means for unlocking the harness-levers, a shifter for moving the draw-bars onto a common level, and devices connected to said shifter for throwing said unlocking means into operation during the operation of the shifter. 30

In testimony of which invention I have hereunto set my hand, at Philadelphia, on this 2d day of August, 1900.

WILLIAM C. ASIMOS.

Witnesses:

M. F. ELLIS,

M. M. HAMILTON.