W. J. LUTTON.

PATTERN MECHANISM FOR LOOMS.

APPLICATION FILED JUNE 20, 1906.

917,088.

Patented Apr. 6, 1909.

2 SHEETS—SHEET 1.

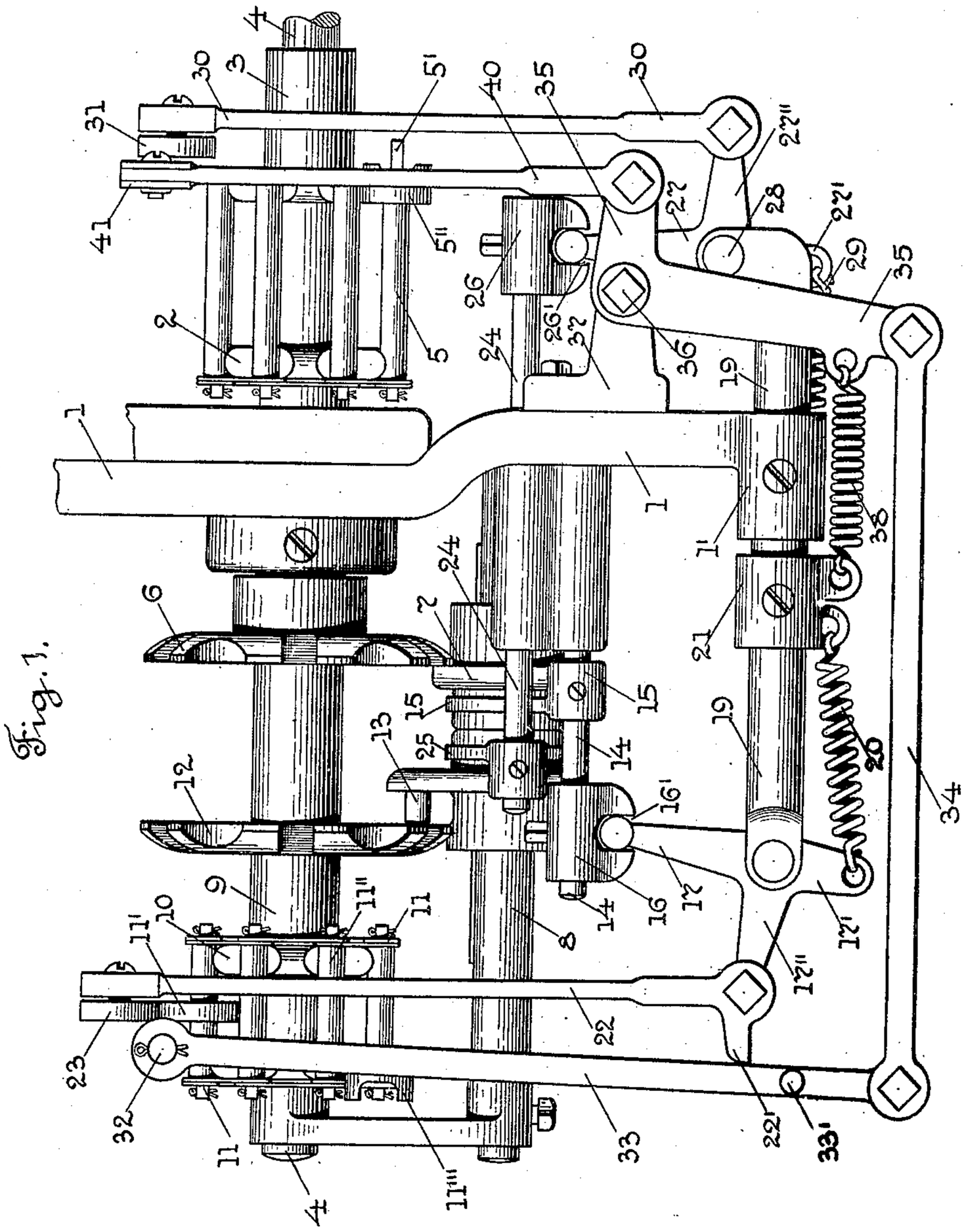

Fig. 1.

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Fig. 3.

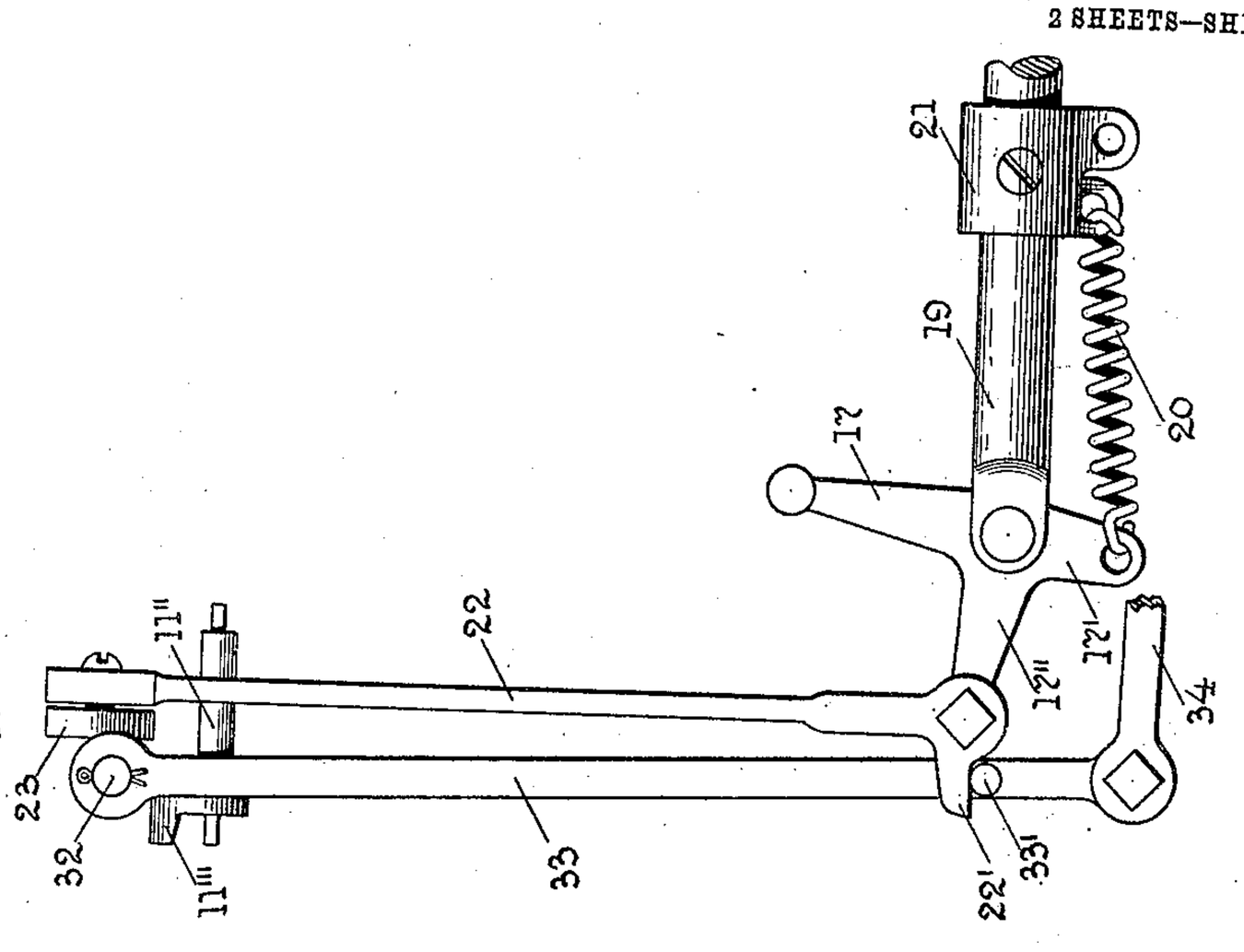
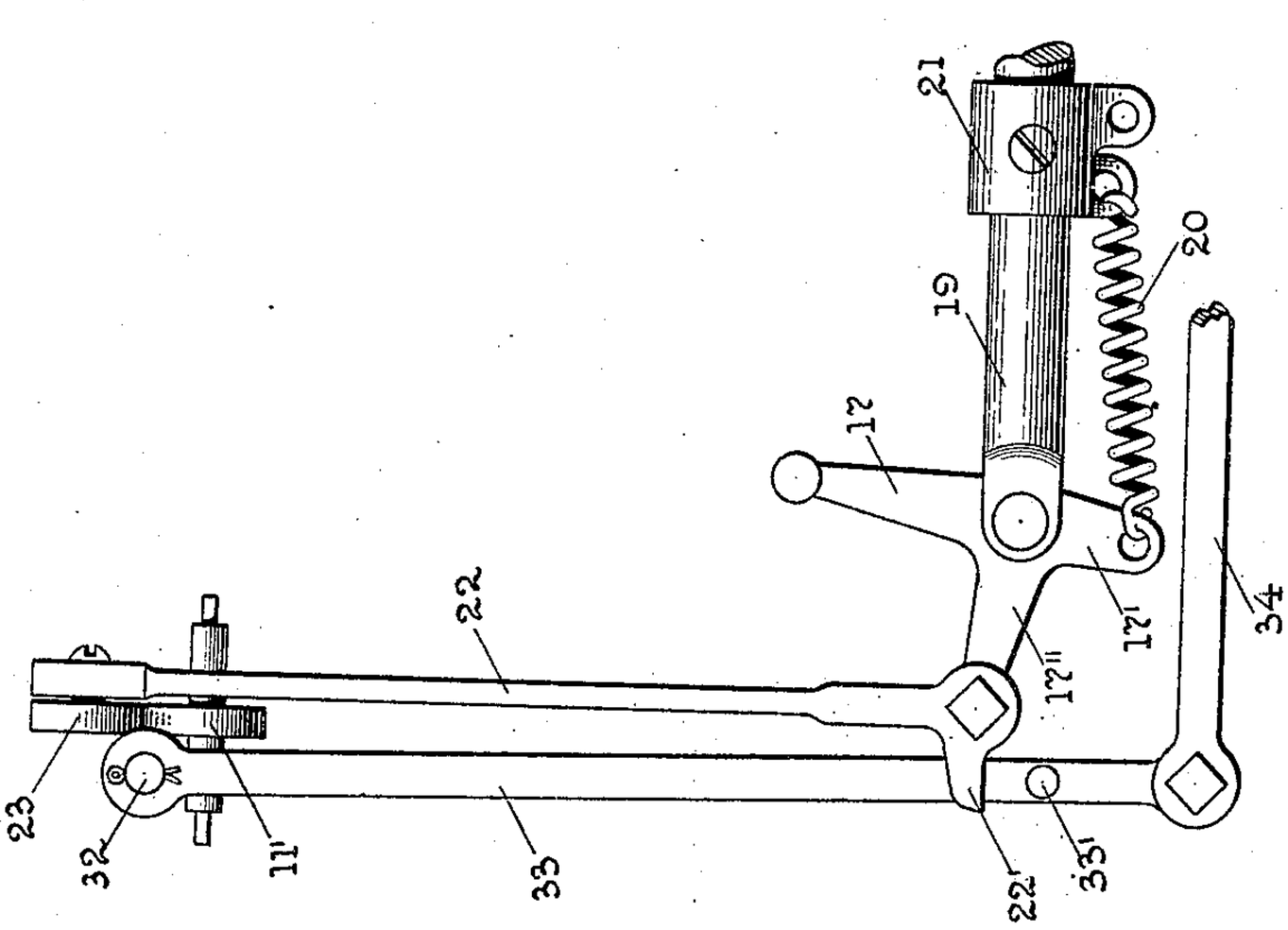


Fig. 2.



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UNITED STATES PATENT OFFICE.

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PATTERN MECHANISM FOR LOOMS.

No. 917,088. Specification of Letters Patent. Patented April 6, 1909.

Application filed June 20, 1906. Serial No. 322,504.

To all whom it may concern:

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

My invention relates to a pattern mechanism for looms, and more particularly to a multiplier mechanism, and the object of my invention is to provide a supplemental mechanism, adapted to be combined with a shuttle box pattern chain mechanism, and a multiplier pattern chain mechanism of well known construction and operation, by means of which a different number of picks of filling of any color or size used, may be inserted, without interfering with the use of the ordinary box pattern chain and multiplier pattern chain mechanisms, in the usual way.

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 portions of a shuttle box pattern chain mechanism, and a multiplier pattern chain mechanism, of well known construction and operation, and which are particularly shown and described in U. S. Letters Patents, No. 413,369, and No. 617,290, with my improvements combined therewith.

Referring to the drawings:—Figure 1 is a side view of a box pattern chain mechanism, and a multiplier pattern chain mechanism, of the class referred to, with my improvements applied thereto. Fig. 2 shows a part of the mechanism shown at the left in Fig. 1, detached, with some of the parts in another position, and, Fig. 3 corresponds to Fig. 2, but shows some of the parts in another position.

In the accompanying drawings, 1 is a detached portion of the frame of the head motion which supports the several parts of the box pattern chain, and the multiplier pattern chain mechanisms; 2 is a shuttle box pattern chain cylinder, fast on a sleeve 3 mounted on a shaft 4. The cylinder 2 has mounted thereon the box pattern chain 5, made up of links and bars carrying rolls and tubes, not shown, for the shuttle box indicator levers, not shown, in the ordinary way. Connected with the sleeve 3 is a star wheel 6, which is operated by a pin wheel 7 splined on a driven shaft 8. A sleeve 9 mounted on the shaft 4 has thereon the multiplier pattern chain cylinder 10, carrying the multiplier pattern chain 11, made up of links and bars carrying rolls and tubes in the ordinary way. Connected with the sleeve 9 is the star wheel 12, which is operated by a pin wheel 13 splined on the driven shaft 8. A longitudinally moving rod 14 is mounted in suitable bearings, and carries the forked arm 15, which engages an annular recess in the hub of the pin wheel 7, to move said pin wheel into and out of engagement with the star wheel 6. Also fast on the longitudinally moving rod 14 is a collar 16, having a notch 16′ therein to receive the upper end of a lever 17, pivoted on a stationary rod 19, supported in a bearing 1′ on the stand 1. A projection 17′ on the lever 17 has one end of a helically coiled retraction spring 20 attached thereto; the other end of said spring 20 is attached to a stationary collar 21 on the rod 19. A side extension 17″ on the lever 17, is connected, through a connector 22, with a lever 23 pivotally supported at one end in the usual way, and extending over the multiplier pattern chain 11. Through the rotary motion of the multiplier pattern chain 11, a ball, as 11′, or a tube, as 11″, will pass under the indicator lever 23, and through connector 22, move the lever 17, and with it the longitudinally moving rod 14, to carry the pin wheel 7 into or out of engagement with the star wheel 6, to cause the rotation of the box pattern chain cylinder 2, and the box pattern chain 5, in the usual way. A second longitudinally moving rod 24, mounted in suitable bearings, has attached thereto the forked lever 25, which engages an annular recess in the hub of the pin wheel 13. Also fast on the longitudinally moving rod 24 is a collar 26, having a recess 26′ therein to receive the upper end of a lever 27, pivoted at 28 on the stationary rod 19, and having a downward extension 27′ which is attached to one end of a helically coiled retraction spring 29. The other end of said spring 29, not shown, is attached to the bearing 1′ on the stand 1. Extending out from the lever 27 is a projection 27″, to which is attached the lower end of a connector 30; the upper end of the connector 30 is attached to an indicator lever 31, pivotally supported at one end in the usual way, and extending over the pattern

chain 5, and in this instance adapted to be engaged by an extended bar 5′ on said pattern chain. The rotary movement of the box pattern chain 5 will, through the engagement of the bar 5′ thereon with the lever 31, raise said lever, and through the movement of the connector 30 and lever 27, move the rod 24 to carry the pin wheel 13 into engagement with the star wheel 12, to rotate said star wheel and cause the revolution of the multiplier pattern chain 11. The lowering of the indicator lever 31 will, through connections to the pin wheel 13, move said pin wheel 13 to disengage it from the star wheel 12, and leave said star wheel and the multiplier pattern chain 11 at rest, all in the usual way. All of the above mentioned parts may be of the ordinary construction and operation.

I will now describe my improvements combined with the parts above described. Extending over the multiplier pattern chain 11 is an indicator lever 32, pivotally supported at one end, and which, in the revolution of the pattern chain 11, is adapted to be engaged by a half ball 11‴ thereon, and raised by said ball 11‴. The lever 32 has attached thereto the upper end of a connector 33, carrying a pin or stud 33′ near its lower end. The lower end of the connector 33 is connected, through a connector 34, with an angle or bell crank lever 35, pivoted at 36 on a stand 37. A helically coiled retraction spring 38 is attached at one end to one arm of the angle or bell crank lever 35, and at its other end, in this instance, to the collar 21. The other arm of the angle or bell crank lever 35 is connected, through a connector 40, with one end of an indicator lever 41, which is pivotally supported at its other end, and extends over the box pattern chain 5, and is adapted in this instance to be engaged by a half ball 5″ thereon. The pin 33′ on the connector 33, is adapted to be moved into and out of the path of a projection 22′ on the connector 22.

The operation of my improvements, in connection with the shuttle box pattern chain, and the multiplier pattern chain mechanisms shown in the drawings, and above described, will be readily understood by those skilled in the art, and briefly is as follows:—During the revolution of the box pattern chain 5, a half ball 5″ thereon, (there may be two or more half balls 5″,) comes under the indicator lever 41, said lever 41 will be raised, and through connector 40 will move the angle or bell crank lever 35, and through connector 34 will move the connector 33 to the right, Fig. 1, to bring the pin 33′ under the projection 22′ on the connector 22, as shown in Fig. 2. And at the same time the extended bar 5′ raises the indicator lever 31 for the multiplier pattern chain, in the usual way, and moves through intermediate connections the pin wheel 13 into engagement with the star wheel 12, preparatory to rotating the multiplier pattern chain. The box pattern chain 5 remains stationary, and it will be understood that the shuttle box called by the box chain will remain stationary in line with the race-way, and the shuttle of that box will be operated. The revolution of the multiplier pattern chain 11 will bring a half ball 11‴ thereon, (there may be two or more half balls 11‴) under the indicator lever 32, see Fig. 3, and will raise the connector 33, and through the engagement of the pin 33′ thereon with the projection 22′ on the connector 22, see Fig. 3, will raise said connector 22, and move the angle lever 17 and the rod 14, to carry the pin wheel 7 into engagement with the star wheel 6, to put into operation the box pattern chain, the same as if the roll 11′ had moved the indicator lever 23. Now, if another half ball 5″ comes under the indicator lever 41, on the next bar of the pattern chain 5, but there is no extended bar 5,′then the pin wheel 7 will remain in operative position, and the box pattern chain 5 continues to operate as long as half balls 5″ come under the lever 41, and the multiplier pattern chain 5 remains at rest until an extended bar 5′ comes under the indicator lever 31. In case a half ball 5″ passes out from under the indicator lever 41, and said lever is allowed to drop, then the box pattern chain and the multiplier pattern chain will operate in the usual way.

The advantages of my improvements will be readily appreciated by those skilled in the art. They are of very simple construction, and may be readily applied to multiplier pattern chain, and box pattern chain mechanisms of ordinary and well known construction, and by means of my improvements a different number of picks of filling of any color or size used, preferably a less number of picks, may be put into the fabric, without interfering with the use of the ordinary box pattern chain, and multiplier pattern chain mechanisms, in the usual way.

It will be understood that the details of construction of my improvements may be varied if desired.

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

1. In the pattern mechanism of a loom, the combination with a shuttle box pattern chain, and a multiplier pattern chain, and connections intermediate said chains, to put one chain into operation, and the other chain out of operation, of a supplemental indicator lever for the multiplier pattern chain, connections intermediate said lever and a supplemental indicator lever for the box pattern chain, and said supplemental indicator lever for the box pattern chain, adapted to move

a pin or stud on one of said connections into and out of operative position, and said pin in its operative position adapted to engage a projection and said projection, on a connection of the regular multiplier pattern chain indicator lever, to cause, through intermediate connections, the movement of the box pattern chain.

2. In a pattern mechanism of a loom, the combination with a shuttle box pattern chain, and a multiplier pattern chain, and intermediate connections, of a supplemental mechanism combined with the shuttle box pattern chain and the multiplier pattern chain, and comprising an indicator lever for the shuttle box pattern chain, and an indicator lever for the multiplier pattern chain, and connections intermediate said levers, and pattern indicating surfaces for said levers, the indicating surfaces for each of said levers being under each lever at the same time, to start the shuttle box pattern chain.

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