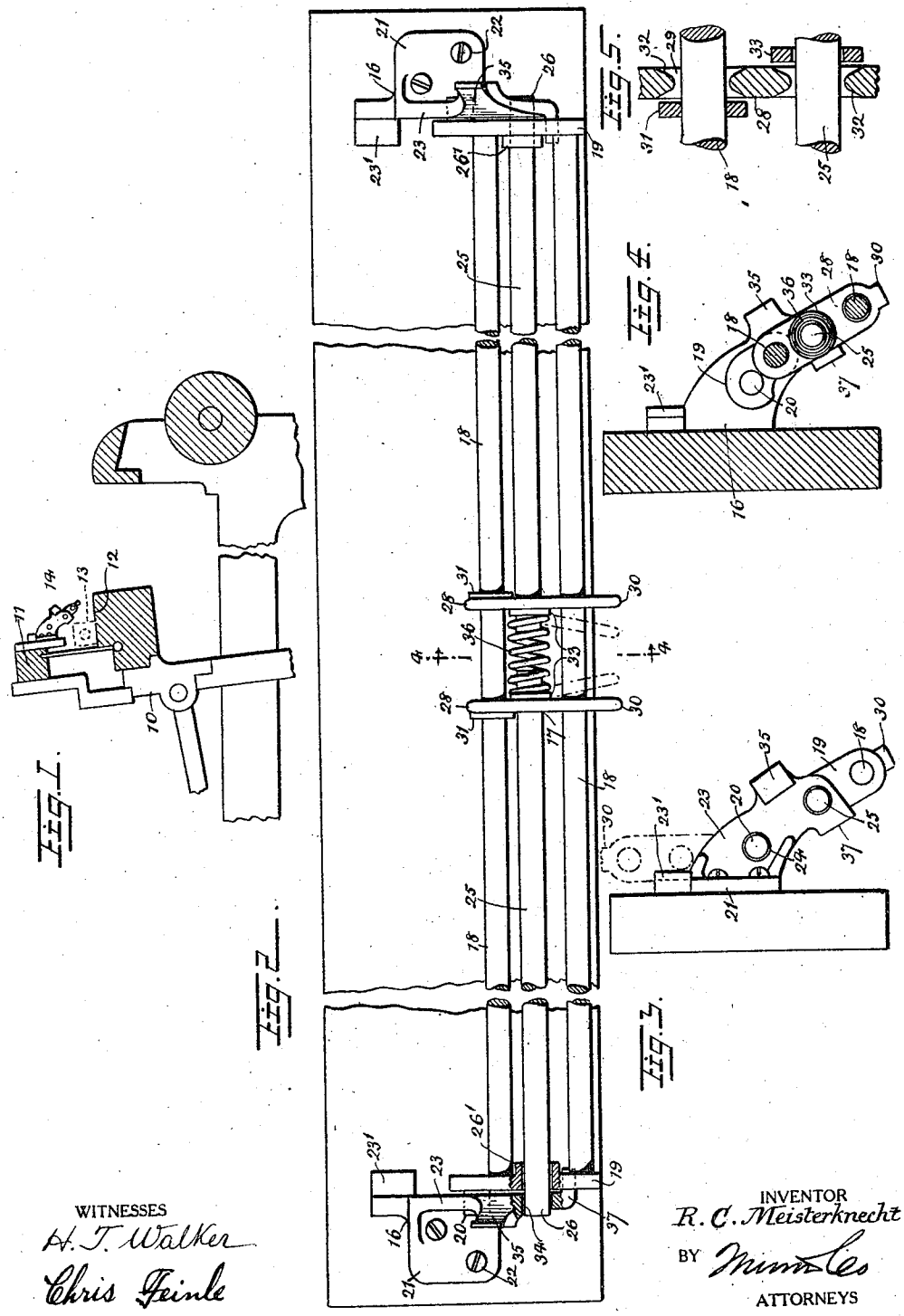
Nov. 30, 1926. 1,609,263

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SHUTTLE GUARD

Filed March 29, 1926



WITNESSES

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Patented Nov. 30, 1926. 1,609,263

UNITED STATES PATENT OFFICE.

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SHUTTLE GUARD.

Application filed March 29, 1926. Serial No. 98,275.

This invention relates to a device incorporated in the lay of a loom for preventing the shuttle from accidentally jumping out of the shuttle race and causing injury to parts of the loom and also prevent possible injury to an operator attending the loom. In accordance with this object of the invention the reed bar of the lay is provided with one or more devices so as to be disposed above the shuttle race. Each of the devices is so constructed as to be readily responsive to the movement of the reed bar to cause the guard member of the device to drop to guarding position in which it will be locked against movement. Thus provision is made for insurance against possible injury to the loom or operators since the guard member will always be in guarding position when the loom is in operation.

Another object of the present invention is to provide a shuttle guard which will be simple of construction, reliable in operation, and which will be comparatively inexpensive.

The nature of the present invention and its distinguishing features and advantages will appear when the following specification is read in connection with the accompanying drawing, in which—

Figure 1 is a sectional view of a portion of a lay with the shuttle guard of the present invention secured in place, the same being shown in end elevation.

Fig. 2 is an elevation of the shuttle guard on an enlarged scale with portions being broken away, the shuttle guard being attached to a movable support such as a reed bar, portions of which are also broken away, and the guard member being shown locked in a guarding position.

Fig. 3 is an end elevation of the reed bar and shuttle guard attached thereto, the guard member being shown in guarding position in full lines and in an unguarding position in dot and dash lines.

Fig. 4 is a sectional view taken substantially on the line 4—4 of Fig. 2.

Fig. 5 is a sectional view of one of the details.

In practice one or more shuttle guards of the present invention will be employed in conjunction with the lay of any type of loom so as to be disposed above the shuttle race of the lay. In the drawing a portion of a lay of a loom is indicated at 10 which includes a reed bar 11 and a shuttle race 12. The shuttle is indicated at 13 in dot and dash lines. In order to prevent the shuttle from jumping out of the shuttle race as it travels to and fro there is provided the type of shuttle guard 14, one or more of which, as stated, may be used but only one of which is shown in the present instance, which must be considered to extend substantially the entire length of the shuttle race. The shuttle guard 14, generally stated, comprises a guard element 15 which is supported for swinging or pivotal movement by fixtures or brackets 16, and guard element locking and releasing means 17. The guard element 15 comprises rods 18 which are connected to and are held in spaced relation by end members 19. Each of the end members 19 carries a stud 20 near one end thereof. Each of the fixtures or brackets 16 is of angular construction to provide a part 21 having holes therein for the accomodation of fastening elements such as screws 22 for effecting the attachment of the bracket, and a supporting part 23 having a hole 24. Two brackets 16 are employed for supporting the guard element 15. The brackets 16 are similar in construction and when attached to the reed bar 11 with the holes 24 respectively of the parts 23 of the brackets in alignment, the studs 20 are disposed respectively in the holes 24 to thus support the guard element 15 for swinging or pivotal movement to a guarding position and an unguarding position. Each of the brackets 16 includes a stop member 23′ into contact with which the related end member 19 of the guard element moves to thus limit the extent of movement of the guard element toward the reed bar 11 and to hold the guard element in a position in which it leans slightly to one side of a plane transecting a line through the axes of the studs 20. It follows that when the guard element 15 is in an unguarding position as shown in dot and dash lines in Fig. 3, movement of the reed bar 11 will cause the guard element to move on its studs 20 to a guarding position as shown. The locking and releasing means 17 hereinbefore mentioned automatically operates to control the movement of the guard element 15 as it moves to a guarding position, and also serves to lock the same in the

guarding position. The means 17 includes rods 25 each of which has a locking portion 26. Each of the rods 25 is supported for longitudinal movement by virtue of a bearing 26' on its related end member 19 and a bearing portion 27 formed on a lever 28. Each lever 28 has spaced holes 29 therein for accommodating the rods 18 respectively, the levers 28 being loose on the rods 18. Each of the levers 28 has a manipulating handle 30. Collars or the like 31 on one of the rods 18 limits the movement of the levers 28 away from each other. The portions of each lever 28 at the holes 29 are chamfered or beveled as at 32, as shown most clearly in Fig. 5 so as to permit the levers 28 to be brought toward each other by manipulating the handles 30 to the positions shown in dot and dash lines in Fig. 2. Each of the rods 25 has a collar or the like 33 secured thereto in virtue of which the rod will move longitudinally when its related lever 28 is moved to the dot and dash position. The locking portion 26 of each rod 25 is movable into and out of a hole 34 in the part 23 of its related bracket. The part 23 of each bracket is provided with a cam member 35 with which the locking portion 26 coacts in the movement of the guard element to its guarding position to cause the rods 25 to move longitudinally or endwise toward each other. A spring 36 which encircles end portions of the rods 25 and which is disposed between the collars 33 serves for projecting the locking portions 26 of the rods 25 respectively into the holes 34 when the locking portions 26 are in registration with the holes 34. A stop member 37 on the part 23 of each bracket 16 is in the path of movement of the end member 19 related thereto, and both of the stop members 37 limit the movement of the guard element 15 downwardly and also insure the registration of the locking portions 26 respectively with the holes 34. When it is desired to release the guard element 15 so that it may be moved to an unguarding position it is only necessary to manipulate the handles 30 of the levers 28 to cause the withdrawal of the locking portions 26, whereupon the guard element may be moved to the position shown in the dot and dash lines in Fig. 3.

From the foregoing it will be apparent that there has been described a shuttle guard embodying structural features which allows the guard element thereof to be moved to a guarding position and an unguarding position; that when the guard element is in an unguarding position to permit access to the shuttle race for any reason whatsoever it will be subjected to the action of the reed bar 11 when the loom is in operation to cause the guard element to move to a guarding position thus insuring protection at all times; and that the shuttle guard will be effectively locked and will not of itself ever be able to become unlocked.

It is to be understood that the invention is not restricted to the precise arrangement of parts shown and described, as details of construction may be modified and rearranged without departing from the spirit of the invention, the scope of which is limited only by the terms of the appended claims.

I claim:

1. The combination with the lay of a loom, of a guard element supported above the shuttle race for movement to a guarding position and an unguarding position, means automatically operable in response to the movement of the guard element to a guarding position for locking the guard element in its guarding position, and independent means for unlocking said guard element to permit the same to be moved to an unguarding position.

2. In a loom, the combination with the reed bar of a shuttle guard arranged above the shuttle race, said shuttle guard comprising a guard element mounted for movement to a substantially vertical position and free to move to a guarding position from the vertical position in response to the movement of the reed bar, locking means for locking the guard element in its guarding position, said locking means including movable rods each having a locking portion which engages a part fixed to said reed bar; and means for moving the rods to retract their locking portions to unlocking positions to permit the guard element to be moved to an unguarding position.

3. In a loom, the combination with the reed bar of a shuttle guard arranged above the shuttle race, said shuttle guard comprising fixed brackets, a guard element swingingly mounted on said brackets for movement to a substantially vertical position and free to swing to a guarding position from the vertical position in response to the movement of the reed bar, members having locking portions which coact respectively with portions of said brackets for effecting the movement of said members in one direction against the action of means having a normal tendency to urge said members in an opposite direction to cause the projection of the locking portions into holes respectively in portions of said brackets to lock the guard element in a guarding position, and means for retracting the locking portions from said holes to permit the movement of the guard element to an unguarding position.

4. A device of the class described, comprising fixtures, a guard element supported for swinging movements by the fixtures so as to be movable to a guarding position and

an unguarding position, locking portions carried by said guard element, said fixtures having holes in portions thereof respectively, means on the fixtures which coacts with said locking portions in the movement of the guard element to a guarding position to cause the movement of the locking portions to unlocking positions, means for effecting the movement of the locking portions to locking positions in said holes respectively when said locking portions are in registration respectively with said holes, and independent means for retracting said locking portions from said holes.

5. A device of the class described, comprising fixtures, a guard element supported for swinging movements by the fixtures so as to be movable to a guarding position and an unguarding position, locking portions carried by said guard element, said fixtures having holes in portions thereof respectively, means on the fixtures which coacts with said locking portions in the movement of the guard element to a guarding position to cause the movement of the locking portions to unlocking positions, means for effecting the movement of the locking portions to locking positions in said holes respectively when said locking portions are in registration respectively with said holes, means insuring the registration of said locking portions with said holes, and independent retracting means which permits the locking portions to move to locking positions and which serves for retracting said locking portions from said holes.

6. A device of the class described, comprising fixtures, a guard element supported for swinging movements by the fixtures so as to be movable to a guarding position and an unguarding position, locking portions carried by said guard element, said fixtures having holes in portions thereof respectively, means on the fixtures which coacts with said locking portions in the movement of the guard element to a guarding position to cause the movement of the locking portions to unlocking positions, means for effecting the movement of the locking portions to locking positions in said holes respectively when said locking portions are in registration respectively with said holes, and independent means for retracting the locking portions from said holes to permit the guard element to be moved to an unguarding position.

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