

H. KOCH & J. J. MÜLLER.
 WARP STOP MOTION FOR LOOMS.
 APPLICATION FILED OCT. 16, 1913.

1,129,692.

Patented Feb. 23, 1915.

2 SHEETS—SHEET 1.

FIG. 1.

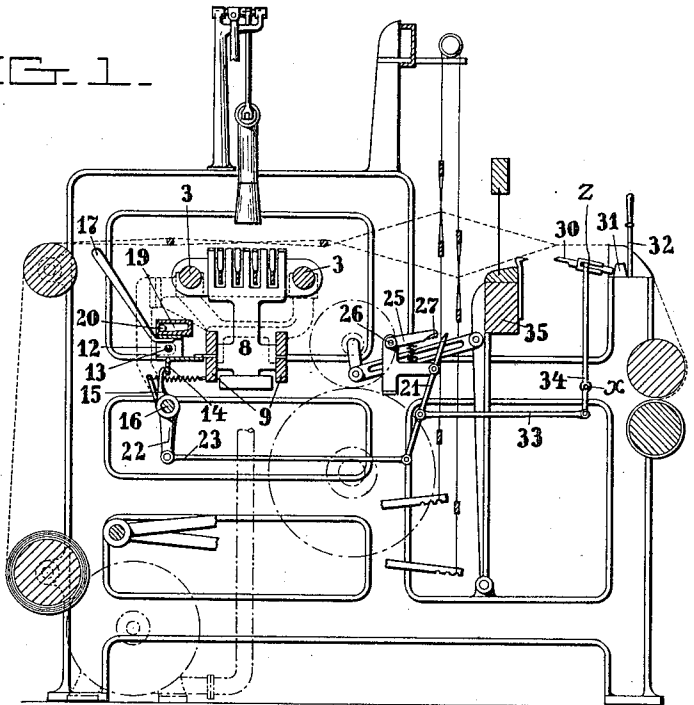
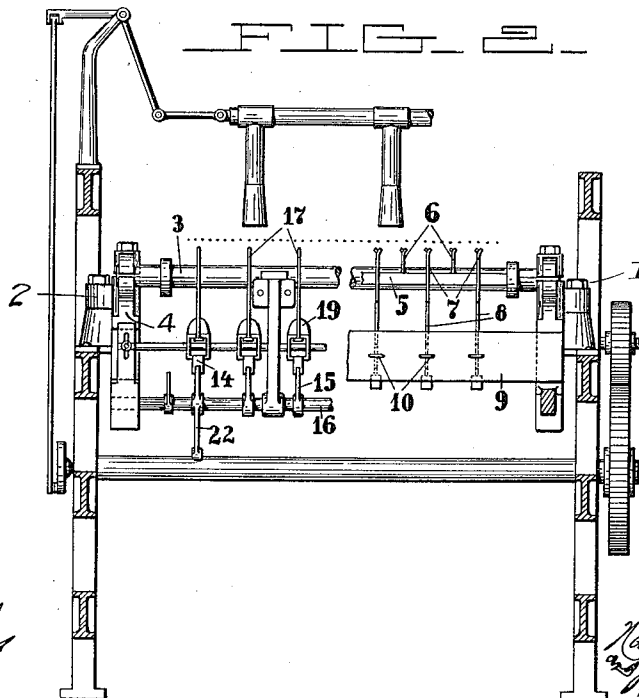


FIG. 2.



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H. A. Helling
H. Koch

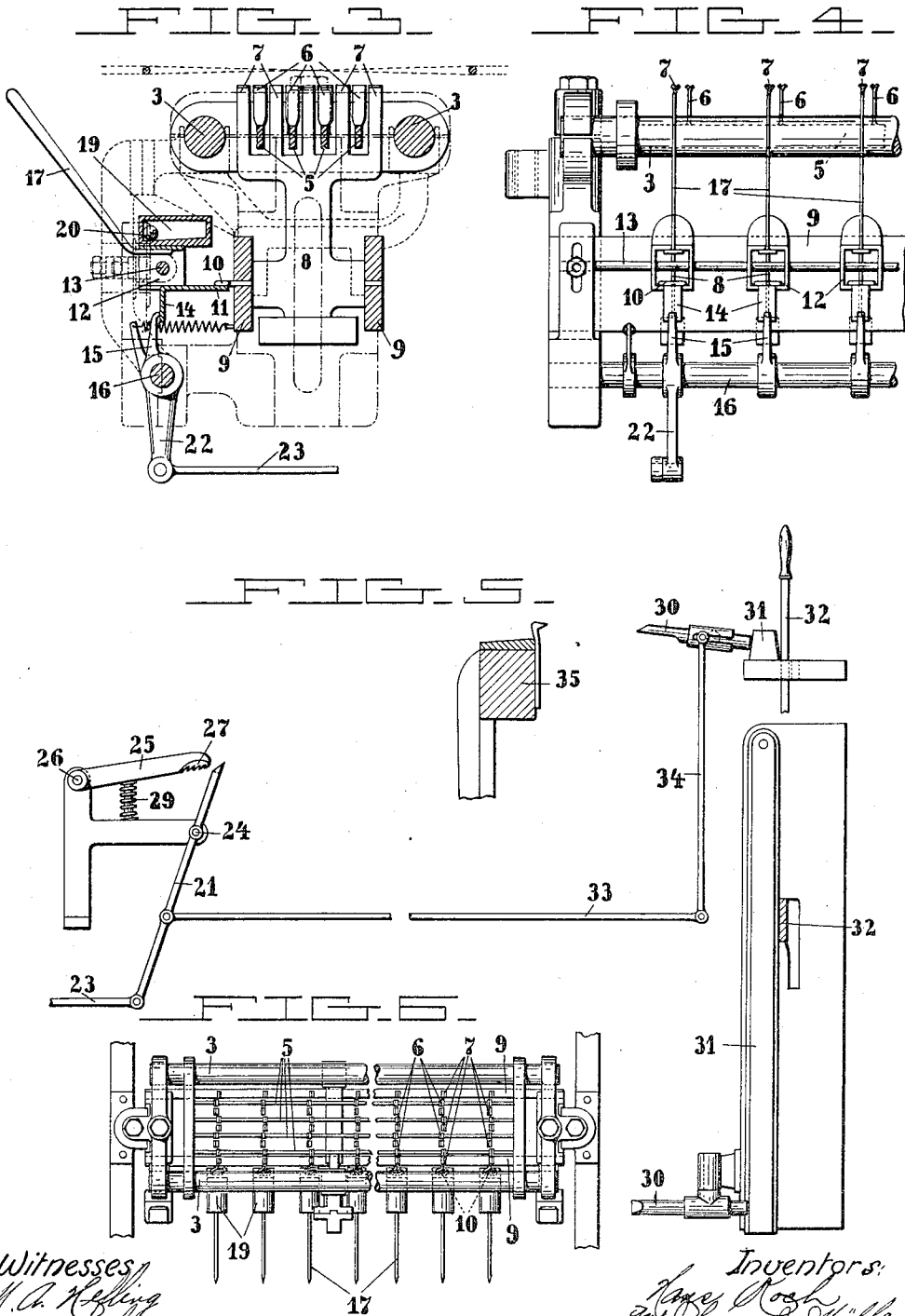
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UNITED STATES PATENT OFFICE.

HANS KOCH AND JOHANN JAKOB MÜLLER, OF DIETIKON, SWITZERLAND.

WARP STOP-MOTION FOR LOOMS.

1,129,692.

Specification of Letters Patent.

Patented Feb. 23, 1915.

Application filed October 16, 1913. Serial No. 795,603.

To all whom it may concern:

Be it known that we, HANS KOCH, manufacturer, and JOHANN JAKOB MÜLLER, engineer, both citizens of the Swiss Confederation, and residing at Dietikon, Canton Zurich, Switzerland, have invented certain new and useful Improvements in Warp Stop-Motions for Looms; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures marked thereon, which form a part of this specification.

Our invention relates to a warp-stop motion for looms having a nozzle traveling across the warp for distributing compressed air and adapted to blow broken threads on to two series of stopper-lamellæ arranged below the warp. One series of the lamellæ is moved to and fro across the other stationary lamellæ thus catching the ends of any broken threads blown toward them by the air and actuating the stopping mechanisms of the loom.

The object of our invention is to improve the form of the lamellæ and the means influenced thereby for actuating the stopping mechanism of the loom.

Our invention consists in the construction and combination of parts hereinafter fully described and claimed and shown in the accompanying drawings:

Figure 1 is a sectional elevation of the loom provided with the warp stop motion; Fig. 2 is a cross-sectional elevation on line A—B of Fig. 1; Fig. 3 shows a cross section through the device with the lamellæ; Fig. 4 shows a side view of the device shown in Fig. 3; Fig. 5 shows the retaining pawl; Fig. 6 is a plan view.

Similar numbers refer to similar parts throughout the specification.

In the frame of the loom two plates 1, 2 are arranged which are adjustable in vertical direction. The plates 1, 2 are provided with bearings in which two rails 3 are arranged running parallel each other. The rails 3 are movable in their axial direction and they are interconnected by two stays 4. In the stays 4 rods 5 are arranged which are rigidly connected with said stays 4 and which run parallel to each other and to the

rails 3. On the rods 5 teeth 6 are fixed at regular distances apart. The teeth 6 of the rods 5 form rows between which the ends of a broken warp thread may fall on to the rods 5. Between the teeth 6 and the rods 5 there are teeth 7 of movable lamellæ 8. The lamellæ 8 the number of which corresponds to the number of rows of teeth 6 are journaled in two parallel rails 9, each of the lamellæ having two pinions. The rails 9 are rigidly fixed to the plates 1, 2. On one of the pins of each lamellæ there is fixed outside the rails 9 a cross pin 10. Below each cross pin 10 there is a plate 11 forming part of a frame 12. The frames 12 are loosely mounted on a common rod 13 fixed in the plates 1, 2. Each of the frames 12 is provided with an arm 14 projecting downward, which arm 14 abuts against a lever 15 fixed to shaft 16. The shaft 16 is rotatably mounted in the plates 1, 2 and carries a lever 15 for each of said frames 12. Each frame 12 is provided with a pointer 17 projecting upwardly against the warp. The pointer being very thin may easily pass through the warp without injuring the warp threads, indicating the position of a broken warp thread. The frames 12 have each a chamber 19 and in the chamber a ball 20. The ball 20 presses by its own weight the plate 11 against the cross pin 10 until the latter is rotated together with the corresponding lamella. As soon as the lamella rotates, the cross pin depresses the plate 11 and the frame 12 is tilted. The ball 20 will run to the opposite end of the chamber 19. The pointer 17 passes through the warp and the arm 14 swings the shaft 16 the rotation of which is transferred to a double-armed lever 21, by means of a lever 22 fixed to the shaft 16 and a rod 23 interconnecting the lever 22 with the lever 21. The lever 21 is pivoted at 24 to the frame of the loom, one arm of which lever is linked to the said rod 23 and the other arm projects below a pawl 25 pivoted at 26 to the frame of the loom. The pawl 25 is serrated at 27 and the free end of arm 28 of lever 21 is beveled to engage the incisions at 27. On the pawl 25 the one end of a coiled spring 29 is fixed the other end of which is attached to the frame of the loom, the spring 29 tends to draw the pawl down thus locking the lever 21, whenever the latter passes below the pawl. The lever 21 is connected to a swing

lever 30 which is pivoted to the lever 34 and having its free end loosely mounted on the frame adjacent the lever 31. The lever 32 forms part of a stop-mechanism of the loom which mechanism may be of any known construction and is not shown in the drawings. The connection between lever 1 and swing lever 30 is made through medium of pivoted levers 33 and 34. The lever 34 is pivoted to the frame as at *x* and has its upper end pinned to a slot *z* of the lever 30. The movement of the upper end of the lever 34 to the right will raise the end of the lever 30, while a movement of the upper end of the lever 34 to the left will lower the free end of the lever 30 into engagement with the lathe 35. As the upper portions of the lever 21 are brought into engagement with the pawl 25 the upper end of the lever 34 is moved to the left, depressing the end of the lever 30 sufficiently to engage the lathe 35, thereby actuating the levers 31 and 32.

To move the lamellæ 6 to and fro a drive is employed consisting in a crank 36 which is connected with the rods 3 by means of a pitman 37. The crank 36 may be driven from the crank-shaft of the loom by any suitable gears. The throw of the crank is slightly greater than the distance between two consecutive teeth 7. If a thread has been blown between the teeth 7 and 6 the reciprocating teeth 6 will push the same against the teeth 7 and the lamella 8 will swing about its pivot. The cross pin 10 on the lamella 8 presses the plate 11 downwardly, the frame 12 tilts on the rod 13 and the pointer 17 passes through the warp. At the same time the arm 14 rotates the shaft 16 and lever 21 is brought below the pawl 25 and is locked. The lever 21 pushes the swing lever 30 out of the way of the lathe 30 and the stop-mechanism of the loom is actuated and the loom is set at rest. The loom can not be set in action again until the lever 21 is brought out of engagement with the pawl 25. The ball 20 holds the frame 12 in its tilted position and the pointer 17 must be pressed down by the operator of the loom to bring the ball 20 and the frame 12 in their original position. The nozzle for delivering the air is moved transversely to the warp and parallel to the same by any suitable means.

Without limiting ourselves to the form

of parts as shown in the drawings, we claim as our invention:

1. In a warp stop motion for looms the combination of a nozzle for the distribution of compressed air, adapted to oscillate transversely over the warp, one series of lamellæ adapted to oscillate below the warp, means for oscillating said series of lamellæ, one series of lamellæ rotatably mounted below the warp, frames adapted to be tilted by the last mentioned lamellæ, a hollow in each of said frames, a ball in each of said frames adapted to hold by its weight the frame in one of two positions, a pointer on each frame adapted to pass through the warp, means influenced by the frame for actuating the stopping mechanism of the loom.

2. In a warp stop motion for looms the combination of a nozzle for the distribution of compressed air, adapted to oscillate transversely over the warp, two plates adjustably arranged in the frame of the loom, parallel rails connected with each other slidably mounted in the said plates, lamellæ fixed to said rails in rows parallel to the warp, means for oscillating the said lamellæ, two rails fixed to the plates, lamellæ rotatably mounted in said rails, teeth on said lamellæ projecting beyond the first said lamellæ, a cross pin fixed to one pin of each of said rotary lamellæ, a shaft, a frame for each rotary lamellæ rotatably mounted on a rail, a plate on each frame engaging said cross pin, a hollow in each frame, a ball in each hollow, a downwardly projecting arm on each frame, a shaft, an arm fixed on said shaft for each frame, a lever fixed to said shaft, a double armed lever journaled in the frame of the loom and linked to said lever, a pawl adapted to retain said double armed lever, a stop lever, a swing arm pivoted to said stop lever, means to connect said swing arm to said double armed lever substantially as described and for the purpose set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

HANS KOCH,
JOHANN JAKOB MÜLLER.

Witnesses:

ARTHUR EBINGER,
CARL GUAUR.