No. 840,196. PATENTED JAN. 1, 1907.

J. BIM.

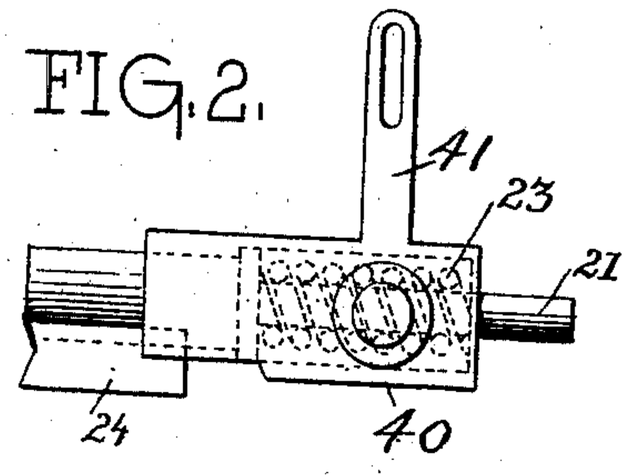
WARP STOP MOTION FOR LOOMS.

APPLICATION FILED JAN. 10, 1905.

2 SHEETS—SHEET 1.

FIG. 1

FIG. 2.



Attest
A. M. Kelly.
Wm. E. Mooney.

Inventor
Josef Bim
By his atty
J. Rothwell

No. 840,196. PATENTED JAN. 1, 1907.

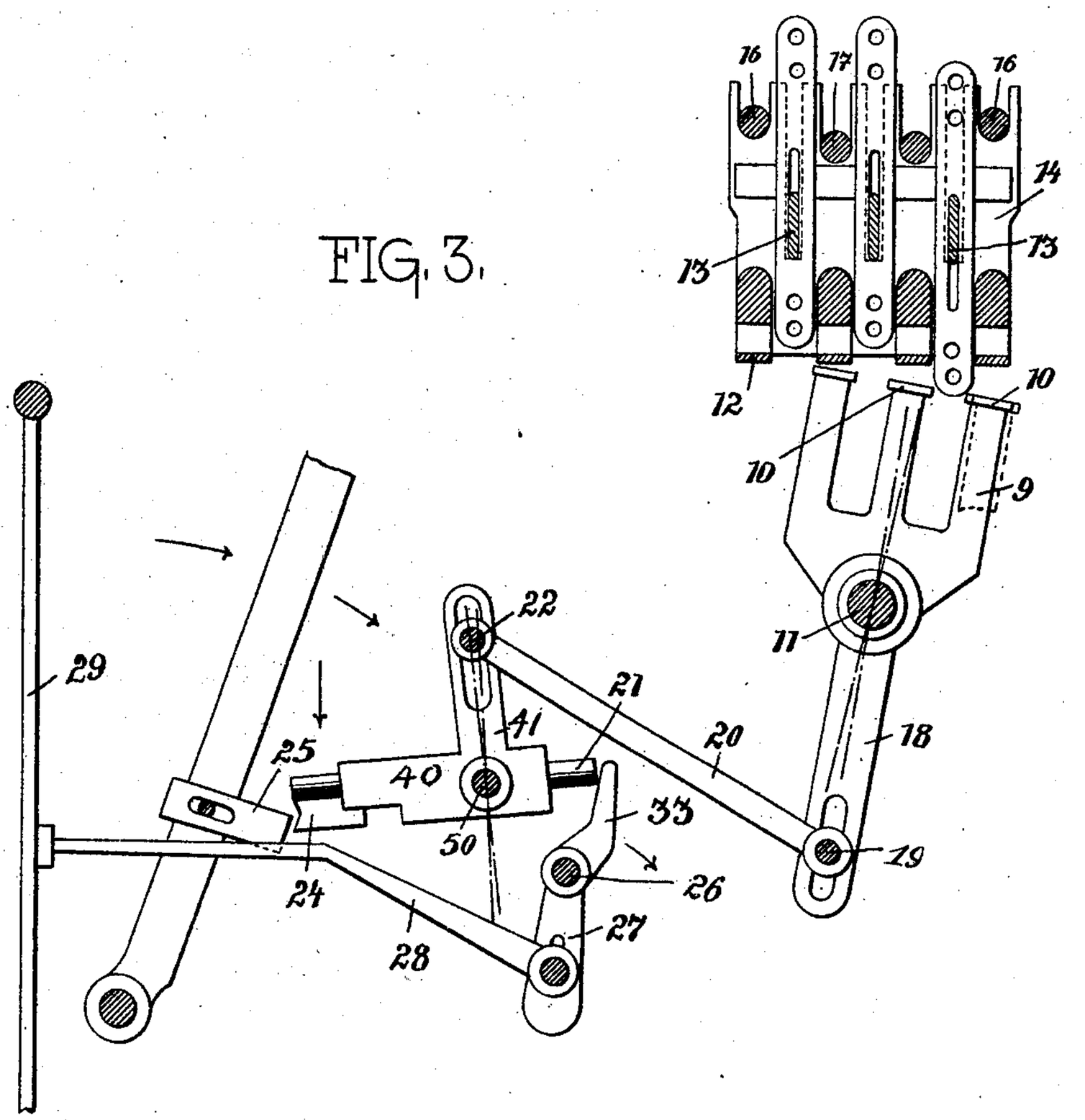
J. BIM.

WARP STOP MOTION FOR LOOMS.

APPLICATION FILED JAN. 10, 1905.

2 SHEETS—SHEET 2.

FIG. 3.



Attest
R. M. Kelly.
Wm. E. Mooney.

Inventor
Josef Bim
By his Atty
Thos. Hubbard

UNITED STATES PATENT OFFICE.

JOSEF BIM, OF VIENNA, AUSTRIA-HUNGARY, ASSIGNOR TO UNION BANK, OF VIENNA, AUSTRIA-HUNGARY.

WARP STOP-MOTION FOR LOOMS.

No. 840,196. Specification of Letters Patent. Patented Jan. 1, 1907.

Application filed January 10, 1905. Serial No. 240,430.

To all whom it may concern:

Be it known that I, JOSEF BIM, textile engineer, a subject of the Emperor of Austria-Hungary, residing at Vienna, Kolingasse 19, Austria-Hungary, have invented new and useful Improvements in Warp Stop-Motions for Looms, of which the following is a specification.

This invention relates to a warp stop-motion for looms by means of which when a break in the warp-threads occurs the drops or detectors carried by the warp-threads sink and hold a feeler-bar or other check-piece fast, upon which a striker-block, which can come into contact with the knock-off mechanism of the loom, is brought into such a position that it is struck by a bunter seated on the slay, and so brings about the stopping of the loom. In all previous devices of this kind the detector-drops remain in contact with the check-piece or feeler-bar until the loom comes to a standstill, which has for result that the drops are often bent, and consequently unfit for further use.

In order to safeguard the drops as much as possible, the present invention provides that as soon as the striker-block comes into contact, upon the breaking of the thread, with the bunter on the slay it brings first the check-pieces or feeler-bars which are held fast by the fallen drops out of engagement with these drops. Only after this action does the striker-block come into the position which brings about the stopping of the loom.

One form of the invention is shown in the accompanying drawings, in which—

Figure 1 is a section through the detector-drop device in connection with the sword-arm of the slay. Fig. 2 is an elevation of the striker-block in detail, and Fig. 3 is a sectional elevation of a part of the whole mechanism.

The reciprocating sword-arm 1, Fig. 1, of the slay carries with it, by means of a connecting-link 2, an arm 5. The arm 5 is provided with a slot 4, in which a stud 3 of the connecting-link 2 is adjustably fixed. The arm 5 is loosely pivoted on the shaft 11. An arm 8 is firmly secured to the shaft 11 and is connected with the arm 5 by means of a spring 7.

When the slay swings back, it carries with it the arm 5, by means of the connecting-link 2, and the arm 8, by means of the spring 7, and thus causes the shaft 11 to rock when the said shaft is not securely held in its position of rest. Should this latter be the case, then the arm 5 alone swings back, causing the spring 7 to stretch, while the arm 8 and the shaft 11 remain in their position of rest. As a rule, however, the arm 8 is carried along with arm 5 by means of the spring 7 and returns to its original position, as does also shaft 11, when the arm 5 swings forward. This return of arm 8 is caused by the pin 6 of arm 5 resting against said arm 8.

The shaft 11 carries in the usual way forked arms 9, equipped with feeler-bars 10, which are moved back and forth under the fixed bars 12 by means of the rock-shaft 11. These feeler-bars constitute a rocking frame having lateral clutching parts. When one of the warp-threads breaks, the drop belonging to it, which rests in the ordinary way in the frame 13 16 17, sinks down and checks the motion of the feeler-bars 10, and thereby the motion of the shaft 11. The parts or rods 16 may act as lease-rods, as shown in Fig. 1. The rods 16 and 17 acting as guides for the drops 15 and rods 16 acting also as lease-rods for the warps are so employed that the warps which sustain the left-hand drops 15 of Fig. 1 pass above the left-hand rod 16 and the warps which sustain the right-hand drops 15 in Fig. 1 pass above the right-hand rod 16 and the warps which sustain the middle drops 15 pass above both the rods 16. When the sword-arm 1 of the slay swings back after this, only the arm 5, by means of the connecting-link 2, is carried along with it and the spring 7 is stretched. In that moment, however, in which the motion of the shaft 11 is checked the striker-block 24 is in the position shown in Fig. 3. The striker-block is carried in a rocking frame 40, in which it is adapted to slide, and this frame is rocked by an arm 41, which is in turn moved by a link 20. The pivoted frame 40 and arm 41 constitute a carrier for the striker-block. The striker-block 24 possesses a pin 21, which is surrounded by a spiral spring 23, Fig. 2. The spring 23 is arranged within the rocking frame 40 and tends to press the pin 21 outward into the position shown in Fig. 3.

An arm 18 is firmly seated on shaft 11 and

is pivotally connected, by means of pin 19, with a link 20, while a pin 22 of the link 20 engages in a slot of the carrier 40 of the striker-block 24. The bunter 25, Fig. 3, comes into contact with the striker-block 24 when the position represented in Fig. 3 is attained and pushes the striker-block 24 backward, so that pin 21 of striker-block 24 displaces the crank-lever 33 27, that is pivoted at 26, and through the agency of the connecting-link 28 brings about a displacement of the knock-off lever 29, whereby the loom is stopped.

Before pin 21 is pushed so far backward by the striker-block 24 as to bring about the checking of the loom the whole intermediate mechanism swings on its pivot 50 in the direction of the slay and by this motion carries the fork 9 in such manner with it that the feeler-bars 10 come into the position shown by dotted lines in Fig. 3, so that in this moment the drops on the feeler-bars 15 come out of contact and leave the feeler-bars free. In this way the drops are protected and suffer no strain from the strong pressure of the pin 21 when it is pushed backward by the bunter 25.

What I claim, and desire to secure by Letters Patent, is—

1. In a stop-motion for looms, the combination of the slay, a rock-shaft, power-transmitting connections between the slay and rock-shaft, having a yielding connection whereby the motion of the rock-shaft may be arrested without stopping the slay, a frame carried by said rock-shaft and having longitudinal bars, a series of drops carried by the warp-threads and adapted when they fall to engage said bars and temporarily arrest the rock-shaft, a knock-off device, actuating devices between the shaft and knock-off device, and means for moving said frame and its bars out of engagement with the operative drop when the knock-off device has been actuated.

2. In a stop-motion for looms, the combination of the slay, a rock-shaft, power-transmitting connections between the slay and rock-shaft having a yielding connection whereby the motion of the rock-shaft may be arrested without stopping the slay, intermediate devices controlled by the drops for arresting the movement of the rock-shaft, a series of drops carried by the warp-threads, and adapted when they fall to arrest said intermediate devices for stopping the rock-shaft, the spring-block 24, adapted to be actuated by the slay, a knock-off device, lever devices actuated by the block to operate said knock-off device, and intermediate connections between the rock-shaft and block for moving it into position to be actuated by the slay when the rock-shaft is arrested.

3. In a stop-motion for looms, the combination of the slay, a rock-shaft, power-transmitting connections between the slay and rock-shaft, having a yielding connection whereby the motion of the rock-shaft may be arrested without stopping the slay, a frame carried by said rock-shaft and having longitudinal bars having lateral clutching parts, a series of drops carried by the warp-threads and adapted when they fall to engage the lateral clutching parts of said bars and temporarily arrest the rock-shaft, a knock-off device to stop the loom, and actuating devices between the rock-shaft and knock-off device consisting of a pivoted part connected to the rock-shaft to move it and be moved by it as the case may be during its operation, and means acting on the pivoted part to simultaneously operate the knock-off device and rock the pivoted part, whereb the lateral clutching parts of the frame are moved away from the drops in the act of stopping the loom.

4. In a stop-motion for looms, the combination of the slay, a rock-shaft, power-transmitting connections between said slay and rock-shaft, having a yielding connection whereby the motion of the rock-shaft may be arrested without stopping the slay, a series of drops normally supported by the warps, a movable frame secured to the rock-shaft adapted to strike the drops when dropped for arresting the movement of the rock-shaft, a knock-off device, and actuating devices between said rock-shaft and knock-off device to actuate the latter when the shaft is stopped and simultaneously move the movable frame away from the drops.

5. In a stop-motion for looms the combination of the slay, a rock-shaft, power-transmitting connections between the slay and rock-shaft, having a yielding connection whereby the motion of the rock-shaft may be arrested without stopping the slay, a frame carried by said rock-shaft and having longitudinal feeler-bars, a series of drops carried by the warp-threads and adapted when they fall to engage said feeler-bars and temporarily arrest the rock-shaft, a knock-off device, and actuating devices between the shaft and knock-off device consisting of the pivoted frame connected with the rock-shaft so as to rock in unison with it, a striker-block 24, 21 to operate the knock-off device, and a bunter to move the striker-bar to operate the knock-off device and simultaneously oscillate the rock-shaft to relieve pressure upon the drops by the feeler-bars.

6. In a stop-motion for looms, the knock-off devices, and means for operating the feeler-bars and moving them out of contact with the drops simultaneously with the operation of the knock-off devices consisting of a pivoted frame a spring-actuated pin 21 and striker-block 24, combined with the drops,

the feeler-bars, a movable bunter which simultaneously drives the striker-block and pin forward to operate the knock-off devices and rocks the pivoted frame, and connecting devices between the pivoted frame and feeler-bars for moving the feeler-bars out of contact with the drops before the loom is stopped.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

JOSEF BIM.

Witnesses:
ERNST ROHNERS,
O. W. LOBEL.