W. SIMMCHEN.

PATTERN CONTROLLED SHEDDING MOTION.

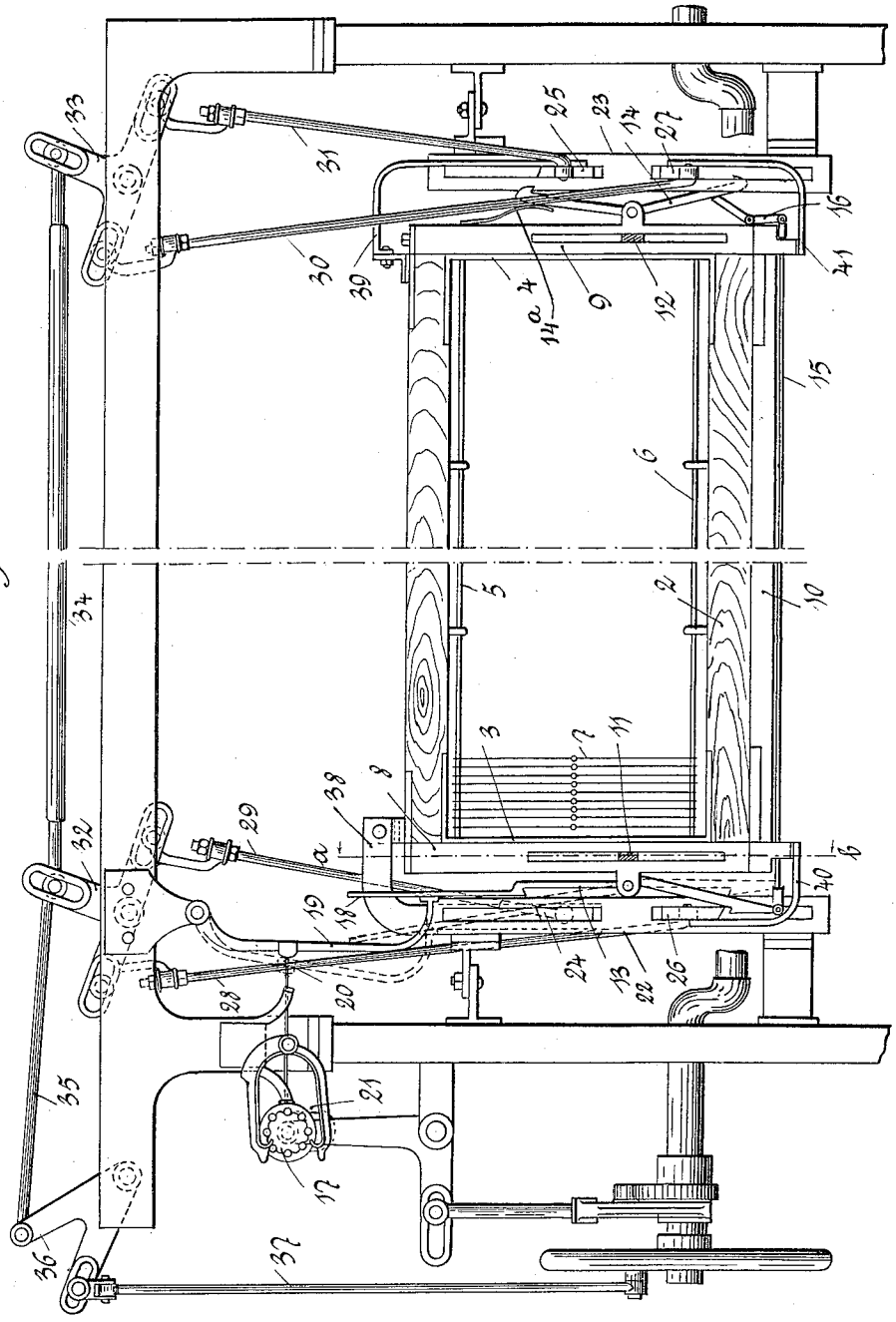
APPLICATION FILED JAN. 31, 1911.

1,064,556.

Patented June 10, 1913.

2 SHEETS—SHEET 1.

Fig. 1.



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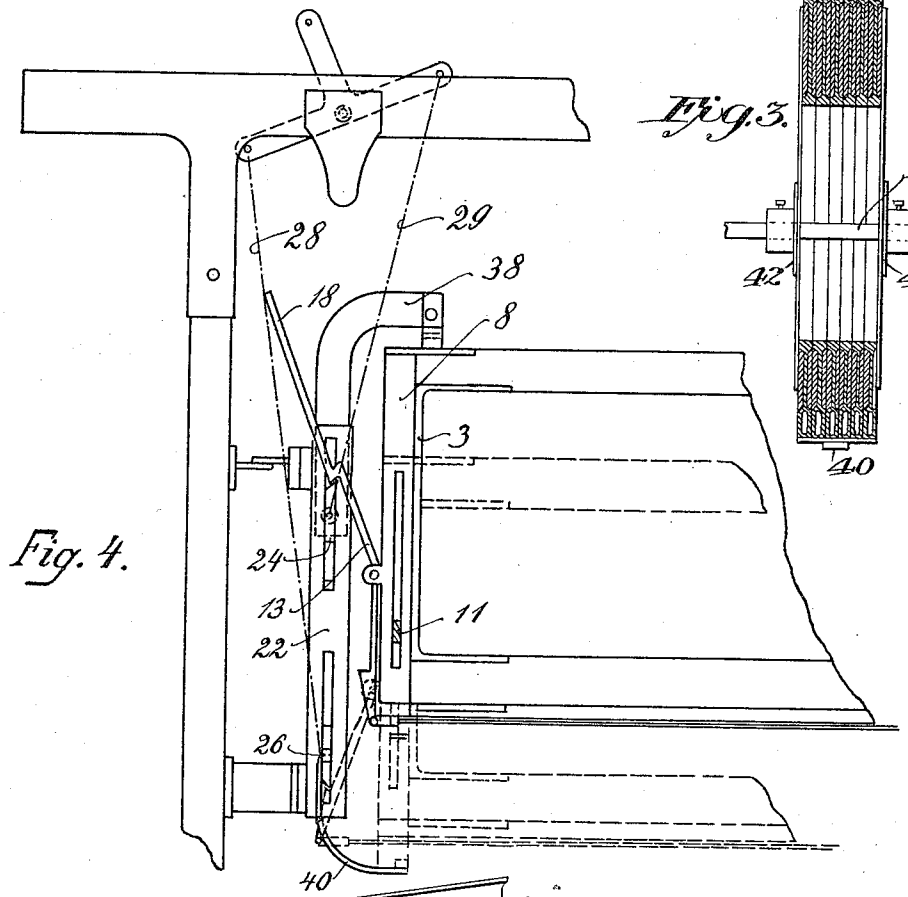

Fig. 4.

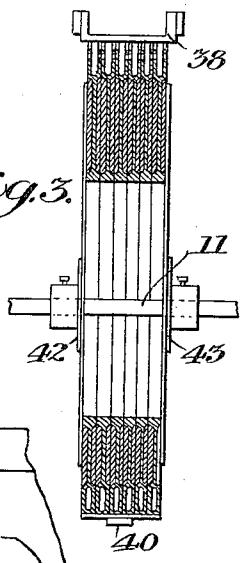

Fig. 3.

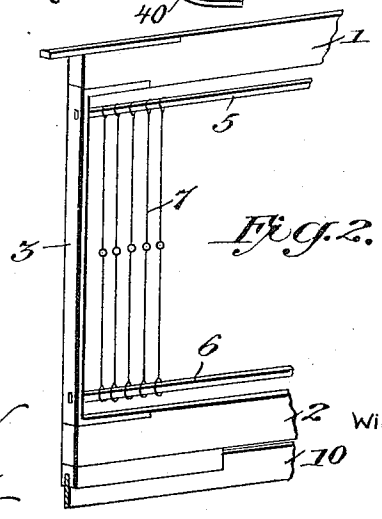

Fig. 2.

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WILHELM SIMMCHEN, OF AUSSIG-KLEISCHE, AUSTRIA-HUNGARY, ASSIGNOR TO THE FIRM OF C. WOLFRUM, OF AUSSIG, BOHEMIA, AUSTRIA-HUNGARY.

PATTERN-CONTROLLED SHEDDING-MOTION.

1,064,556. Specification of Letters Patent. Patented June 10, 1913.

Application filed January 31, 1911. Serial No. 605,774.

To all whom it may concern:

Be it known that I, WILHELM SIMMCHEN, manager, a subject of the King of Bohemia, the Emperor of Austria-Hungary, residing at No. 42 in the city of Aussig-Kleische a. d. Elbe, in the Kingdom of Bohemia, in the Empire of Austria-Hungary, have invented certain new and useful improvements in or connected with pattern-controlled shedding-motions, in which the lifting hooks are directly secured to their respective heddle-frames; and I 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.

This invention relates to improvements in or connected with pattern controlled shedding motion. The lifting hooks of the dobbies are thereby directly secured to their respective heddle frames. Up to the present the dobbies have been somewhat uncertain in their operation and difficult to work. These drawbacks are entirely obviated by the present invention.

According to the present invention one hook is fixed on each side of each heddle frame while the blades required for lifting and lowering the hooks are also arranged on each side of the heddle frames.

In order that the invention may be fully understood reference will now be had to the accompanying drawings in which:—

Figure 1 is a front view of a loom with the present invention applied to a center shed device. For the sake of clearness the slay together with other parts which are not affected by the present invention are omitted. Fig. 2 is a perspective view of a portion of a heddle frame. Fig. 3 is a section through the machine on the line *a*—*b* of Fig. 1. Fig. 4 is a view of a part of the loom showing the heddle frames in their lowest and highest position.

The heddle frames consist of two wooden rails 1 and 2 which are connected together at each end by metal strips 3 and 4. Mounted in these strips are two metal rods 5 and 6 upon which the healds 7 are mounted. Guide frames 8, 9 and 10 are provided for the heddle frames. These guide frames consist of two parts 8 and 9 which are firmly connected together by the bottom rail 10. These guide frames may be either made entirely of wood or may be constructed according to the present invention with a vulcanized fiber covering.

In order to prevent side play on the part of the guide frames 8, 9 and 10 these latter are provided with slots through which the fixed guide rods 11 and 12 pass.

The formation of the shed is effected by the hooks 13 and 14 which are movably connected to the side pieces 8 and 9 of the frame and are interconnected by a small rod 15 and lever or connecting piece 16. The hook 13 which is on the same side as the card or lag cylinder 17 is provided with a prolongation or extension 18 against which the needle lever 19 rests. Each of the needle levers is controlled by means of the card or lag 21 by a needle 20. On each side of the loom there are arranged lifting blades frames 22 and 23 in which upper shed blades 24 and 25 and lower shed blades 26 and 27 are mounted in slots. These blades are supported by suspension rods 28, 29, 30 and 31 which latter are connected up to the oscillating levers 32 and 33 as shown. These latter are themselves connected by a connecting rod 34 which extends over the whole width of the loom. The operating of the lifting blades takes place from the usual picking shaft by means of a connecting rod 37, bell crank lever 36 and connecting rod 35. In order that the amount of lift of the blades may be adjusted suitable slots are provided in the levers 32 and 33 while the lift rods 28, 29, 30 and 31 are capable of being adjusted as to length.

The action of the machine is as follows:—

The leaf spring 14ª fixed to each heddle frame, (shown at the right hand Fig. 1), by pressing upon the upper end of the hook 14 acts upon the lower part of the hook 13 by means of the double armed lever 16 and the wire or rod 15, thus always keeping contact between the upper part of the hook 13 and the needle lever 19. Thus it is possible to control two sets of hooks each arranged at either side of the loom by one single pattern device. In the beating up position of the slay all the heddle frames are in the mid position as shown in Fig. 1. At the same time the card or lag 21 is pressed against the needles 20 by the cylinder 17. When or where there is no hole in the card 21 the needle lever 19 acts upon the hook on the prolongation 18 of the hook 13 and presses this latter sidewise into the path of

the lower shed blade 26. When and where the card 21 is pierced the corresponding needle will enter into the cylinder 17 and the needle lever remain in the dotted position shown in the drawings. The hooks 13 will then lie in the path of the upper shed blade 24. Owing to the small rod 15 a motion corresponding to that of the hook 13 is imparted to the hook 14. When the slay comes back from its beating up position the blades 24 and 25 are drawn up while the blades 26 and 27 are drawn down and the heddle frames are forced into either the upper or lower shed by the hooks engaging with the respective blades as shown by Fig. 4. In addition to the blades 24, 25, 26 and 27 there are arranged further guide blades 38, 39, 40 and 41 which after the completion of the shed lead the heddle frames back into their mid position. For this purpose the guide blade 38 is rigidly fixed to the shed blade 24, the guide blade 40 to the shed blade 26 at one side of the heddle frames, and the guide blade 39 to the shed blade 25, the guide blade 41 to the shed blade 27 respectively at the other side of the heddle frames. When, therefore, the shed blades 24—27 are going to their mid position they are pressing upon the heddle frames by means of the outer end of the guide blades and bring the heddle frames back to the mid position also respectively. The manner of working is particularly pointed out by Fig. 4 of the drawings where the moment is illustrated when the respective guide blades pressing upon the upper or lower edge of the heddle frames will bring the same back to the mid position. In this Fig. 4 two heddle frames are shown. In order to prevent any oscillation of the heddle frames suitable adjustable blades 43 and 42 (Fig. 3) are provided.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. In a dobby the combination of heddle frames, hooks articulated at opposite sides of the heddle frames, the hooks of the one side being connected to the hooks of the other side respectively and one single pattern device controlling the two sets of hooks by actuating the set of hooks of the one side.

2. In a dobby the combination of heddle frames, hooks articulated at opposite sides of the heddle frames, the hooks of the one side being connected to the hooks of the other side respectively by rods articulated to the lower ends of the respective hooks and leaf springs actuating the one set of hooks to bring the upper ends of the hooks in engagement with the respective shed blades.

In testimony whereof, I have affixed my signature, in presence of two witnesses.

WILHELM SIMMCHEN.

Witnesses:
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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."