

No. 736,670.

PATENTED AUG. 18, 1903.

G. DE ZÓRAWSKI.
REED FOR LOOMS.

APPLICATION FILED SEPT. 26, 1902.

NO MODEL.

3 SHEETS—SHEET 1.

Fig. 1.

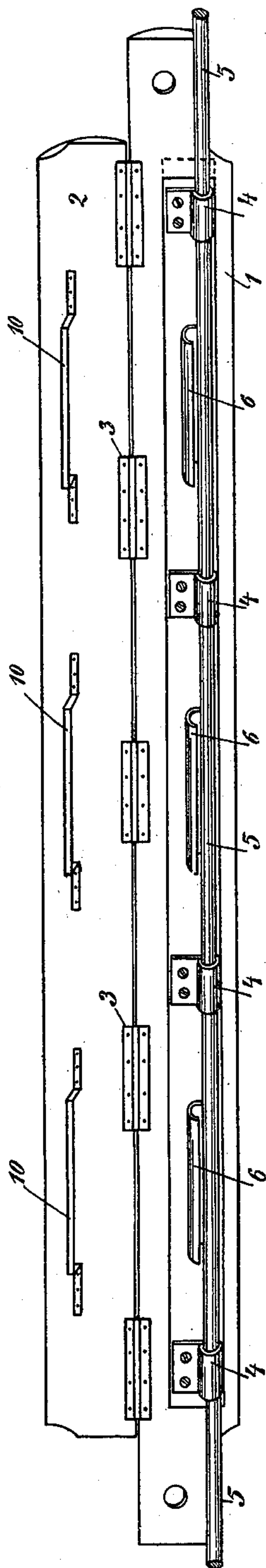


Fig. 2.

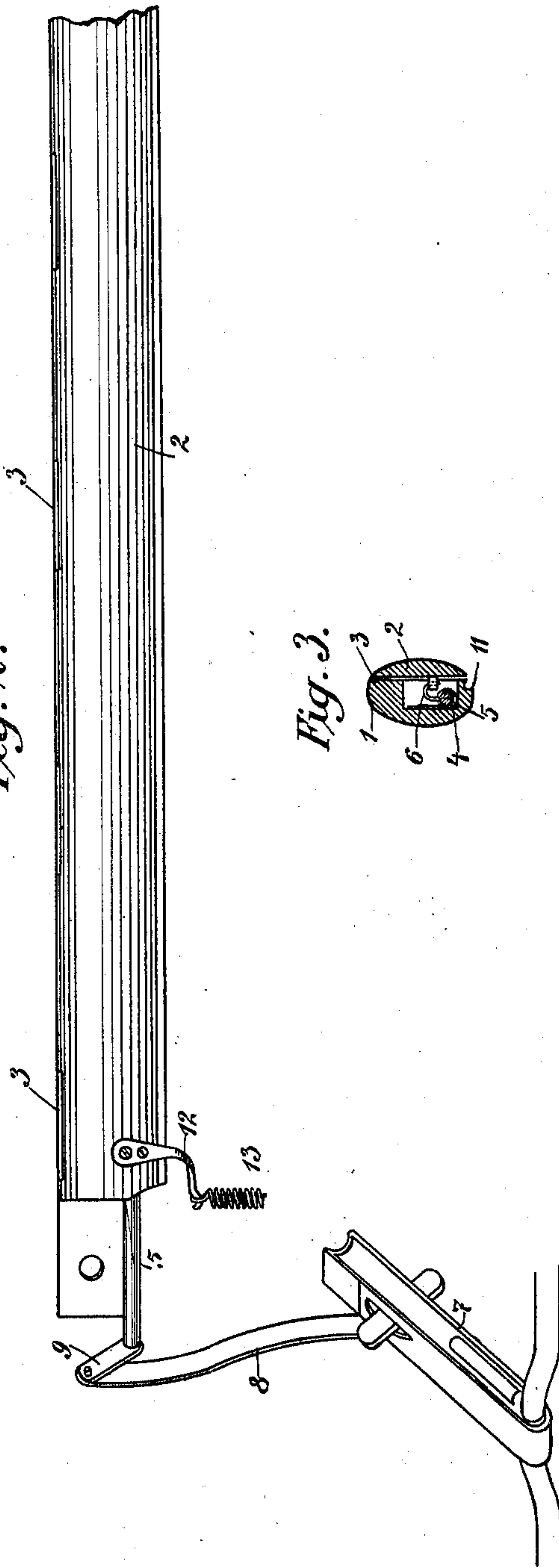
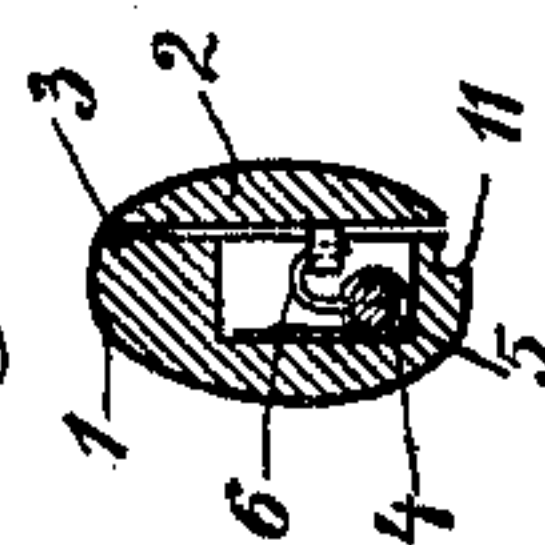


Fig. 3.



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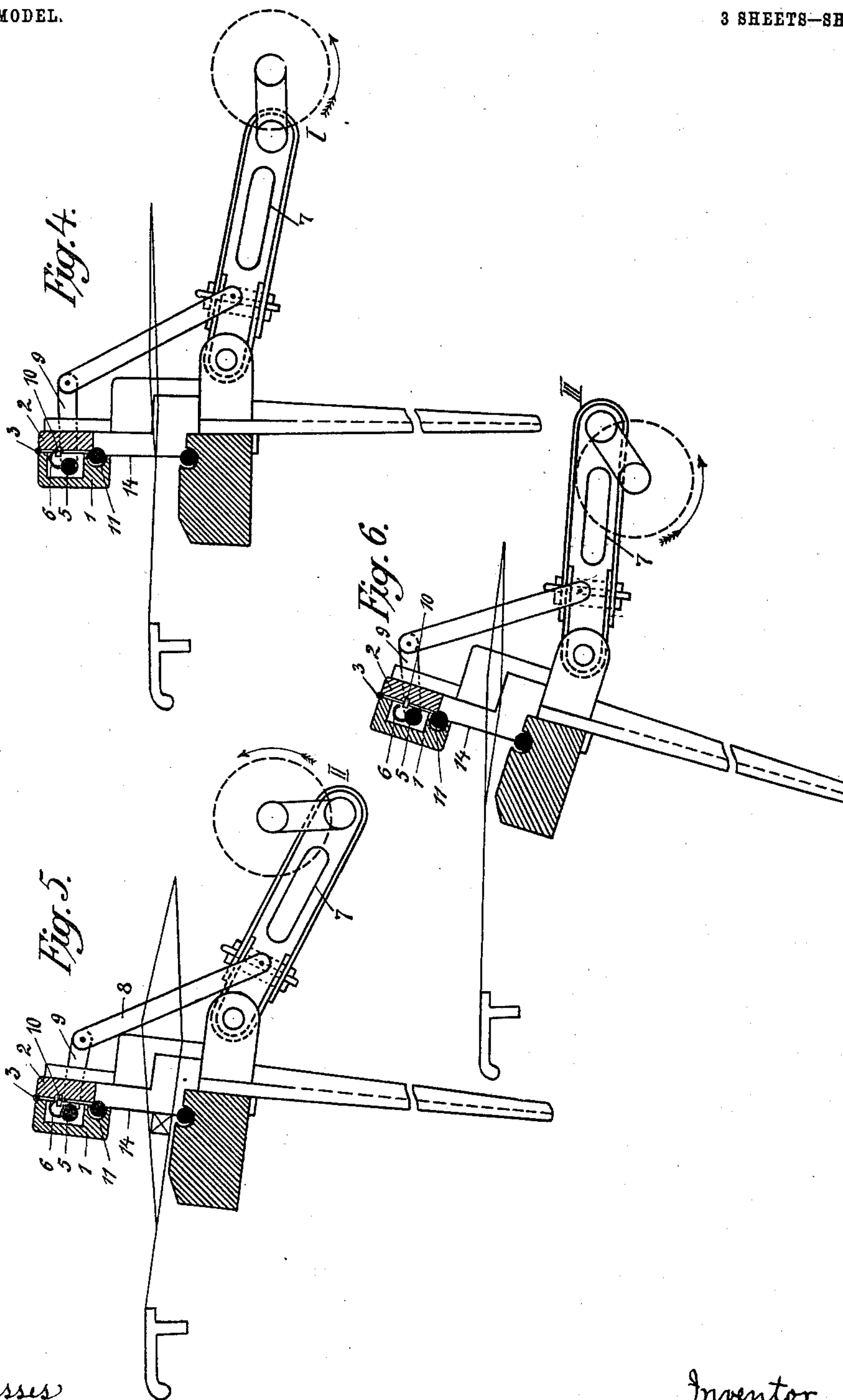
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3 SHEETS—SHEET 2.



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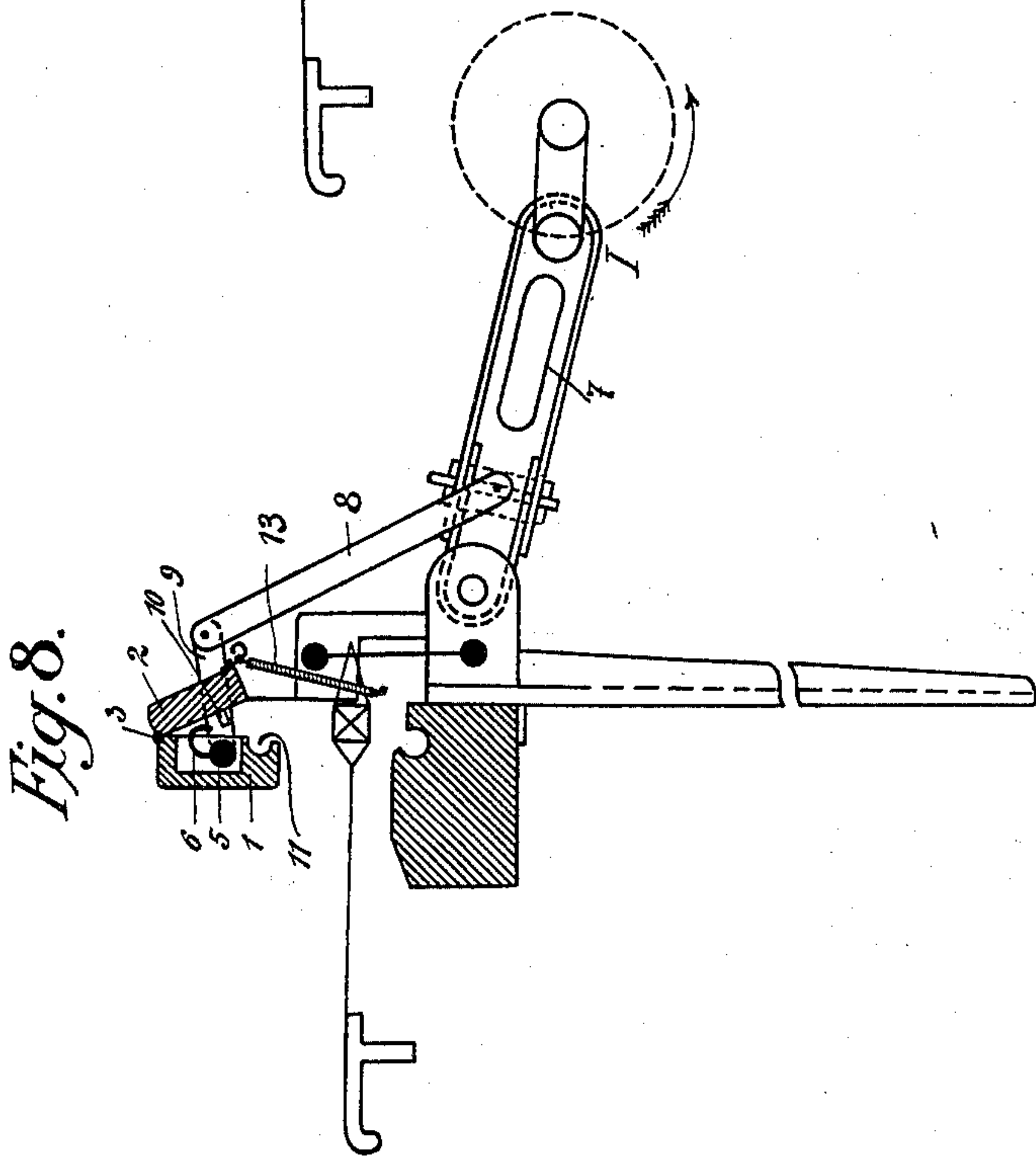
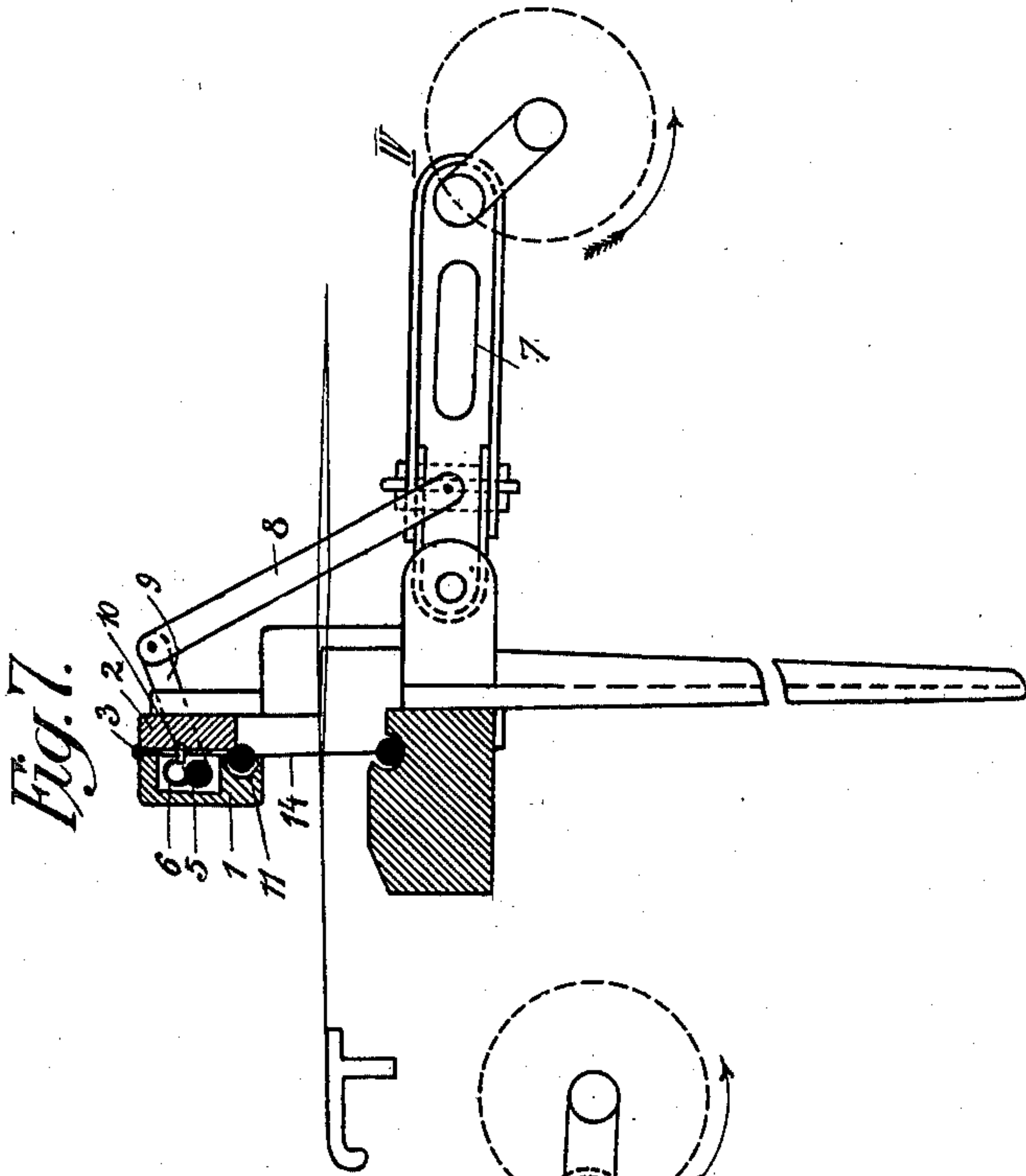
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NO MODEL.

3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

GUSTAV DE ZÓRAWSKI, OF OZORKÓW, RUSSIA.

REED FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 736,670, dated August 18, 1903.

Application filed September 26, 1902. Serial No. 124,984. (No model.)

To all whom it may concern:

Be it known that I, GUSTAV DE ZÓRAWSKI, a subject of the Czar of Russia, residing at Ozorków, Russian Poland, Russia, have invented certain new and useful Improvements in Reeds for Looms; 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.

The present invention relates to looms generally; and its object is to substitute a combined fast and loose reed device for the controlling mechanism hitherto employed, which latter in consequence of their complicated nature are a cause of many interruptions in working, breakages, and repairs and also form a source of danger to the operators, often injuring the fingers of the same.

The invention consists in the features and combination and arrangement of parts hereinafter described, and particularly pointed out in the claims.

In order to render the present specification easily intelligible, reference is had to the accompanying drawings, in which similar numerals of reference denote similar parts throughout the several views.

Figure 1 is a side elevation of the lay opened to show the coupling device. Fig. 2 is a perspective view of the same, showing the operating mechanism. Fig. 3 is a cross-section through the lay; and Figs. 4 to 8 represent a series of cross-sectional elevations of the lay and its adjoining parts, showing the positions of the latter at different points of the stroke of the lay, as hereinafter set forth.

As will be seen from Figs. 1 to 3, the top of the lay is made in two parts according to the present invention, the said parts being hinged together and comprising the partly-recessed fixed part 1 and the movable part or cover 2, hinged together at 3. A shaft 5 is mounted in the part 1 in bearings 4 and capable of rotation therein, the said shaft being provided at certain intervals with hooks 6. The shaft 5 is rocked by the driving-crank 7 for the lay. With this object in view an arm 8 is attached at a suitable point to the crank-shaft 7 and linked, by means of a member 9 or in any other suitable manner, to the shaft 5, so as to rock the same. The movable part 2 of the

lay is provided with a set of eyes or loops 10, corresponding in position with the hooks 6 and adapted to receive the latter when the two parts of the lay are closed one on the other, as shown in Fig. 3. If now the crank and with it the above-described coupling is set in motion, the movable part 2 of the lay, as previously mentioned, will be locked to the fixed part of the same by the hooks 6 during the beating-up operation and the whole of the return stroke of the lay and will be unlocked during the first part of the forward movement of the lay, as will now be more particularly explained with reference to Figs. 4 to 8.

Fig. 4 illustrates the position of the parts during the beating up of the weft by means of the reeds 14. At this point the crank is in the position I and the lay is in a substantially vertical position. The coupling device is locked by the lever mechanism 8 and 9—i. e., the hooks 6 of the shaft 5 are in engagement with the eyes 10 of the movable part of the lay, so that parts 1 and 2 are locked together. The lower bar of the reeds 14 is retained in the usual manner, while the upper bar is held in position between the parts 1 and 2 of the lay, so that at this period of the stroke the whole device operates as with a fixed reed-frame and possesses all the advantages accruing from this arrangement over that with loose or detachable reeds. In this position of the parts it is of course assumed that the shuttle has passed through the shed without hindrance or stoppage. As the return movement of the lay commences the crank, as shown in Fig. 5, takes the position II, and the coupling device—i. e., the shaft 5 with the hooks 6—will be moved by the lever mechanism 8 and 9 to force the hooks 6 still farther through the eyes 10. At this moment the shuttle commences its movement through the shed. In this position, as in Fig. 4, the reed-frame is rigidly held in position. As soon, however, as the crank 7 reaches the position III (shown in Fig. 6) the shaft 5 will begin to be rocked backwardly and will slowly detach the hooks 6 from the eyes 10. If now the shuttle sticks in the shed, the further movement of the crank into the position IV (shown in Fig. 7) will cause pressure to be exercised on the reeds 14 by the said shuttle, which pressure will be immediately trans-

mitted to the rearward movable part 2 of the lay, the lower edge of which retains the upper reed-bar in position. As meanwhile the hooks 6 have been unlocked from the eyes 10, so the further or continued movement of the parts will have the effect that the upper bar of the reeds 14 will spring out of the lay, as will be readily understood on reference to Fig. 8. In this case the device operates after the manner of a loom with loose reeds, the latter being capable of being thrown out with extraordinary facility, and thus acting as a very sensitive weft-fork mechanism to effectually prevent a breakage of the warp-threads under all circumstances. If the shuttle has passed properly through the shed without hindrance, the crank passes on to the position I of Fig. 4 with the effect previously described, and the whole series of operations will be repeated.

From the above description it will be readily understood that the present combined fast and loose reed device forms a simple and effective substitute for the complicated and dangerous mechanisms hitherto employed for the purpose, and the result in the present case is due in no small measure to the derivation of the power for operating the coupling device from the crank of the lay-operating mechanism.

In order to enable the upper bar of the reeds to fit properly in the upper part of the lay, the fixed part 1 of the latter is provided with a groove 11, as may be seen at Fig. 3, the bar being held in the same by the lower edge of the movable part 2. The lower bar of the reeds is mounted in the manner customary in fixed reed devices.

In order to prevent the movable part from opening unintentionally on the movement of the lay, and thus possibly preventing the proper engagement of the hooks 6 with the eyes 10 when the parts are not locked, a spring 13 is provided, having one end attached to a hook 12 and the other connected to the foot part of the lay. Thus if the shuttle sticks it will only have to overcome the slight tension of this spring on the forward movement of the lay in order to throw open the movable part 2 of the lay and eject the upper bar of the reeds.

A stopping mechanism for the lay of any suitable construction may be employed simultaneously with the above-described fast and loose reed device in order to stop the lay when the shuttle sticks.

As will be seen from the above description, the durability of the device is almost unlimited and the construction itself of the most simple nature. The durability depends entirely on the nature of the materials employed, since the device is subjected to practically no wear and tear.

It is obvious that the construction of the coupling, as also the particular driving mechanism from the lay-crank, may be varied in

a number of ways without departing from the spirit of the present invention.

I claim as my invention—

1. In a loom the combination of a lay having a rigid and a movable part adapted to hold the upper reed-bar between the same and means actuated from the lay-operating crank to periodically lock said parts together and unlock the same during the stroke of the lay substantially as described.

2. In a loom the combination of a lay having a rigid and a movable part adapted to hold the upper reed-bar between the same and means actuated from the lay-operating crank to periodically lock said parts together during the beating-up operation and the return stroke of the lay substantially as described.

3. In a loom the combination of a lay having a rigid and a movable part adapted to hold the upper reed-bar between the same and means actuated from the lay-operating crank to periodically lock said parts together and to unlock the same at the beginning of the lay-stroke while the shuttle is traversing the shed substantially as described.

4. In a loom, the combination of a lay having a fixed upper box, a cover hinged to the upper part of the same, a coupling within the said box to couple the cover to the same and means operated by the lay-operating crank to periodically lock and unlock said coupling during the stroke of the lay substantially as described.

5. In a loom the combination of a lay having a fixed upper box and a cover hinged at the top to the rear of the same, means for supporting the upper reed-bar between said cover and box, a rotary shaft having a series of hooks thereon mounted within said box, and a series of eyes on said cover in which said hooks engage, and means actuated by the driving-crank of the lay to rock said shaft and lock and unlock said coupling-hooks periodically during the stroke of the lay substantially as described.

6. In a loom the combination of a lay having a fixed upper box and a cover hinged at the top to the rear of the same, means for supporting the upper reed-bar between said cover and box, a rotary shaft having a series of hooks thereon mounted within said box, and a series of eyes on said cover in which said hooks engage, and means actuated by the driving-crank of the lay to rock said shaft and lock and unlock said coupling-hooks periodically during the stroke of the lay and a spring to normally hold the cover against the box substantially as described.

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

GUSTAV DE ZÓRAWSKI.

Witnesses:

FAU BGTBOWSKI,
WACTAW FRZEPICCKI.