

**989,061.**

2 SHEETS-SHEET 1.

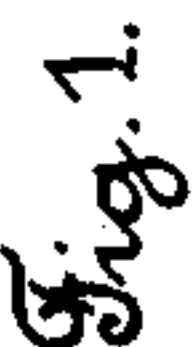


Fig. 2.

Witnesses  
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Fig. 3.

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SHEDDING MECHANISM FOR LOOMS.  
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Patented Apr. 11, 1911.

2 SHEETS—SHEET 2.

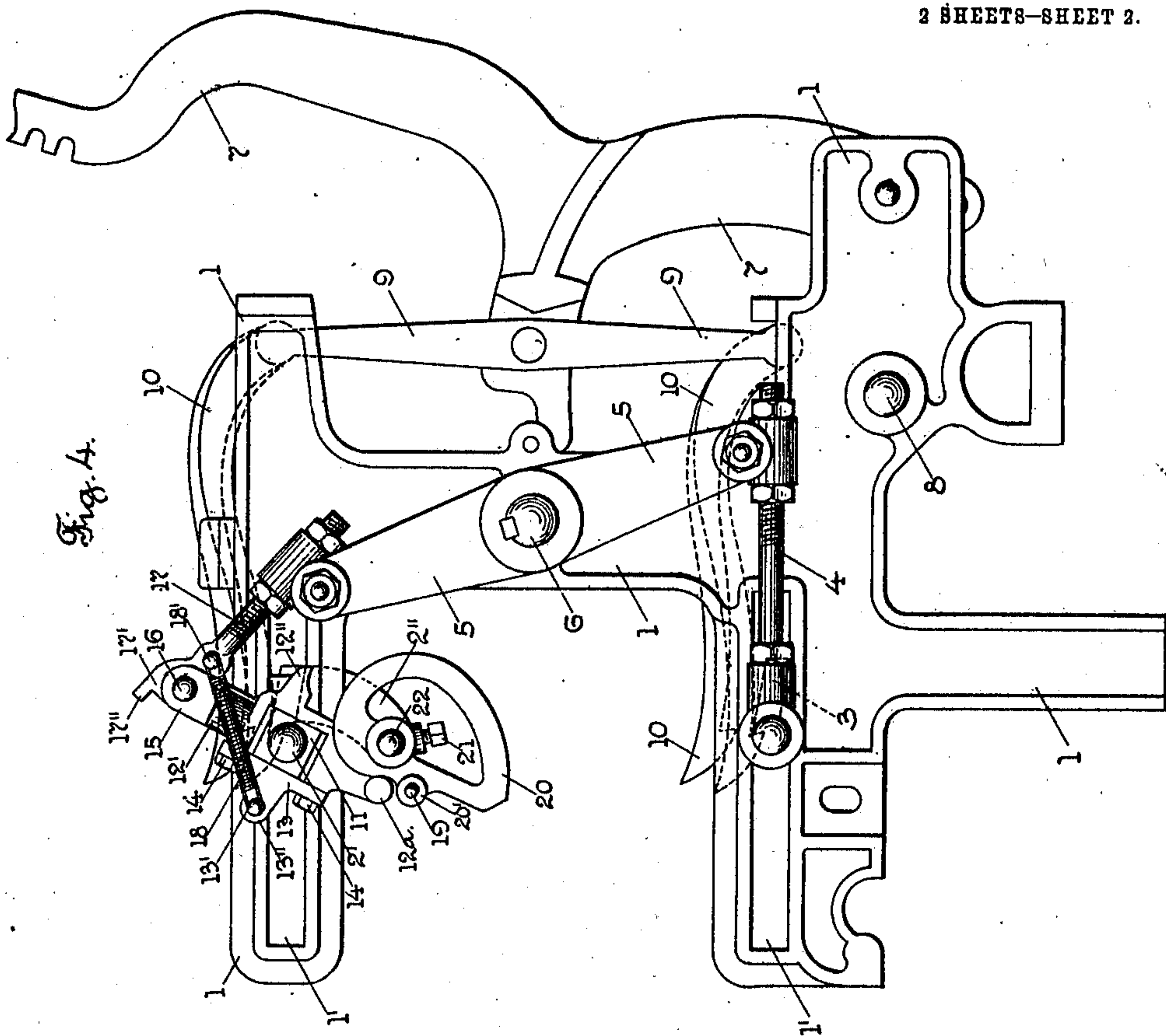


Fig. 4.

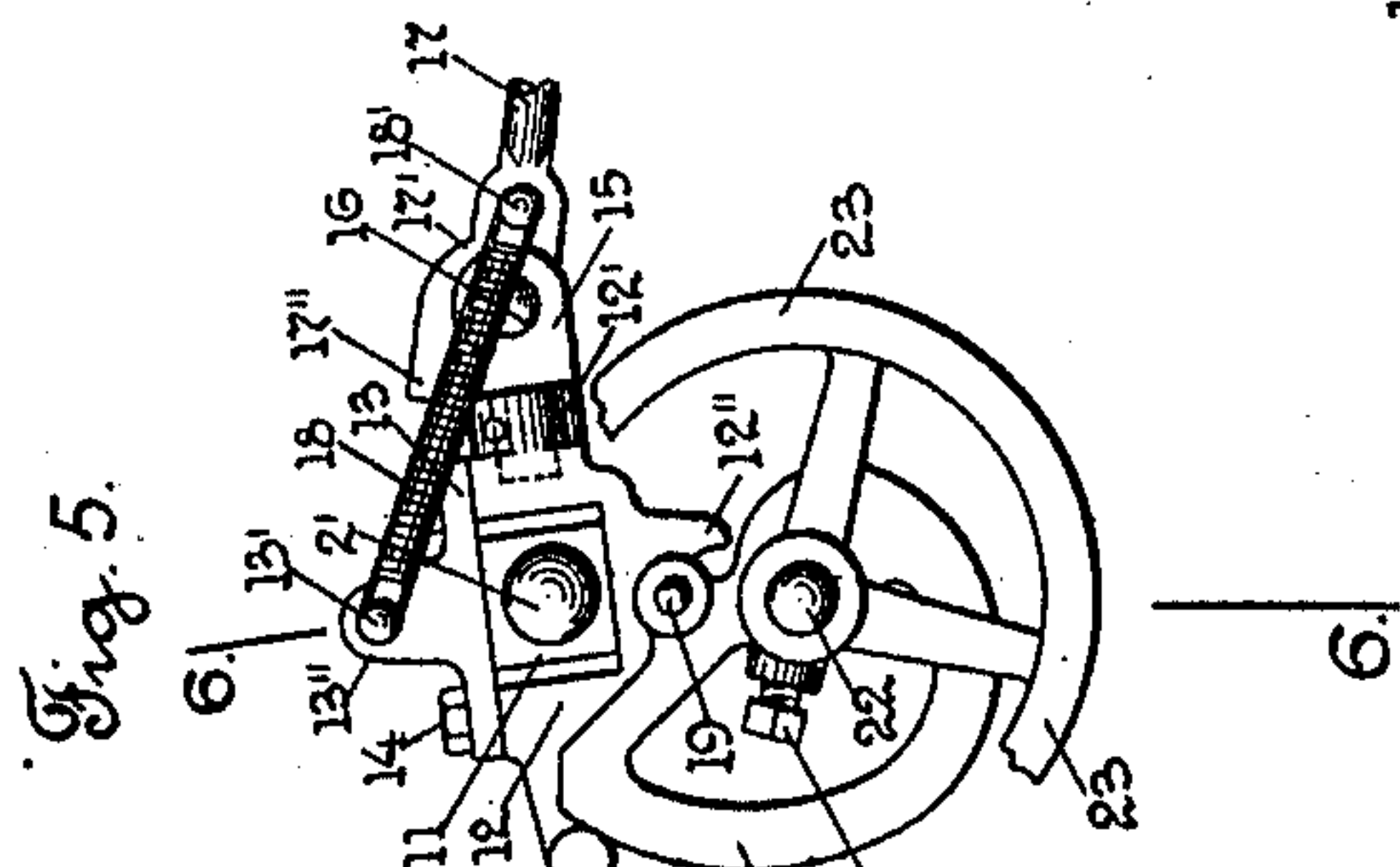


Fig. 5.

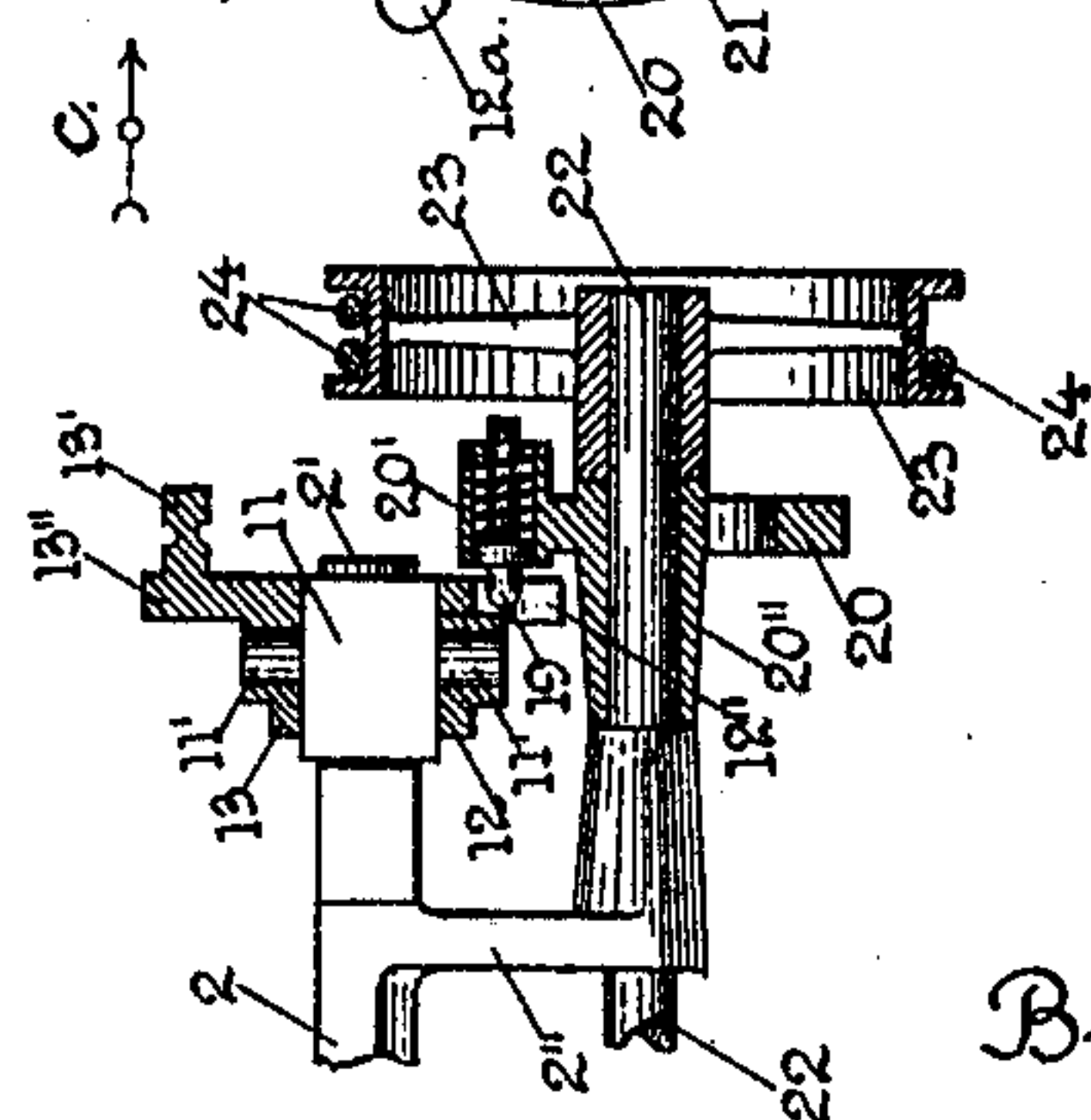


Fig. 6.

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# UNITED STATES PATENT OFFICE.

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## SHEDDING MECHANISM FOR LOOMS.

989,061.

Specification of Letters Patent.

Patented Apr. 11, 1911.

Application filed July 2, 1910. Serial No. 570,036.

*To all whom it may concern:*

Be it known that I, EPPA H. RYON, a citizen of the United States, residing at Waltham, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Shedding Mechanism of Looms, of which the following is a specification.

My invention relates to the shedding mechanism of a loom of the dobby type, and more particularly to a harness leveling mechanism, combined with the dobby shedding mechanism.

The object of my invention is to provide a harness leveling mechanism of simple construction and operation, and adapted to be applied to and combined with the ordinary parts of a dobby shedding mechanism, by means of which all of the harnesses may be evened, and the warps brought into the same plane, gradually, as the operator pulls a rope on a rope-wheel, for the purpose of picking out, or repairing.

My invention consists in certain novel features of construction of my improvements as will be hereinafter fully described.

I have only shown in the drawings a detached portion of a dobby shedding mechanism with my improvements applied thereto, sufficient to enable those skilled in the art to understand the construction and operation thereof.

Referring to the drawings:—Figure 1 is a front view of a dobby shedding mechanism with my improvements applied thereto. Fig. 2 is a side view of my improvements, shown at the left in Fig. 1, detached, and looking in the direction of arrow *a*, same figure. Fig. 3 is a plan view of my improvements, shown at the left in Fig. 1, looking in the direction of arrow *b*, same figure. Fig. 4 corresponds to Fig. 1, but shows the opposite position of my improvements when the harnesses are leveled. Fig. 5 shows my improvements in the position when my leveling device begins to operate, and, Fig. 6 is a section, on line 6, 6, Fig. 5, looking in the direction of arrow *c*, same figure.

In the accompanying drawings, 1 is a portion of a dobby frame, having the two horizontal openings 1' therein for the horizontal reciprocating lifter bars or knives 2 and 3. The lower lifter bar 3 is connected, through

the connector 4, with the lower end of the rocker lever 5 fast on a shaft 6, which is suitably mounted in bearings on the frame 1. The lever 5 has a rocking motion communicated thereto through mechanism, not shown, in the usual and well known way. The harness jacks or levers 7 are pivotally mounted at their lower ends on a transverse rod 8, and each jack 7 has pivotally mounted thereon the connector or hook lever 9, which has pivotally attached to each end thereof, a hook 10 having a hooked end extending over and adapted to engage the outer edge of the upper and lower lifter bars 2 and 3. All of the above mentioned parts may be of the usual and well known construction and operation.

I will now describe my improvements.

Instead of the ordinary connector, similar to the connector 4 for the lower lifter bar 3, I provide a jointed or hinged collapsible connection for the upper lifter bar 2, at each end thereof, which is made in this instance as a "toggle" lever, so-termed, and consists of a block 11 which is loosely mounted on the journal 2' on the lifter bar 2. The block 11 has the stud 11' extending downwardly and upwardly therefrom, to loosely receive the main part of the part 12 of the toggle lever, and the cap 13, which is secured to the part 12 by bolts 14.

A swivel head 15, see Fig. 3, is suitably connected to the tubular portion 12' on the part 12, and has a pin 16 to receive the end 17' on the connector 17, thus forming a connection between the upper end of the rocker lever 5 and the upper lifter bar 2, see Figs. 1 and 2. The end of the head 17' on the connector 17 is provided with an abutting surface 17'', see Fig. 4, to engage the end of the swivel head 15 and limit the downward movement of the parts at their hinged connection 16.

A helically coiled contraction spring 18 is attached at one end to a pin 18' on the connector 17, and at its other end to a pin 13' on a projection 13'' on the cap 13. The spring 18 extends preferably in a plane above the plane of the hinge joint 16, between the parts 15 and 17, when said parts are in their extended positions, as shown in Fig. 1, and acts to hold the parts of the connection extended. A projection or lug



12'', which extends from the part 12, is adapted to be engaged by a pin 19, see Fig. 1, which is in this instance yieldingly held in a boss 20' on a cam 20, said cam 20 has its hub 20'', see Fig. 2, secured by a set screw 21 on the transversely extending shaft 22, which shaft is loosely mounted in arms 2'' extending downwardly from its lifter bar 2.

Preferably at the front of the dobby, the end of the shaft 22 has secured thereon a rope wheel 23, which is provided with a rope 24, preferably extending transversely across the loom, for the purpose of being grasped by the operator, in order to operate the harness evener 11.

When the shedding mechanism is operating normally the parts are in the position shown in Fig. 1. When it is desired to even the harnesses and bring the warp threads into one plane, to pick out, or for any other purpose, the rope wheel 23 on the shaft 22, and also the cam 20, are rotated in one direction, indicated by the arrow in Fig. 1, to bring the pin 19 on the cam 20 into engagement with the projection 12'', see Fig. 5, causing the toggle lever 12 and connector 17 to move on their hinge joint 16 toward each other. When the toggle joint is thus broken, a stud or extension 12<sup>a</sup> on the lever 12, engages the outer cam surface on the cam 20, and travels on said cam surface, as the operator pulls the rope 24 on the rope wheel 23 on the shaft 22, which rotates said shaft and the cam 20 thereon, to gradually allow the outer end of the toggle lever 12, to move downwardly, thus retarding the motion of the collapsible connections 12 and 17. Through the action of the contraction spring 18, in co-action with the weight of such harnesses as may be at the time connected with the lifter bar 2, the parts are gradually brought into the position shown in Fig. 4, in the manner above stated. The upper lifter bar 2 is moved inwardly, and allows the hooks 10 and the harness jacks 7 to move inwardly, from the position shown at the left in Fig. 1, to the position shown in Fig. 4, and the harnesses attached to said jacks are lowered into the same plane as the other harnesses. A helically coiled torsion spring 25, which encircles the shaft 22, see Figs. 2 and 3, acts to rotate the shaft 22 and cam 20, in the direction opposite from that indicated by the arrow in Fig. 1. When the loom is started again, the cam 20 is rotated by the spring 25. The surface of said cam 20, which acts upon the extension 12<sup>a</sup> of the toggle lever 12, moves the stud or extension 12<sup>a</sup> upwardly, and in connection with the rocker lever 5, the top of which moves toward the center of the loom as the loom is started, returns the parts to their extended position shown in Fig. 1. The pin 19 is allowed to yieldingly pass the projection 12''.

I have only shown in the drawings, the collapsible connections on one side of the dobby, but it will be understood that the same collapsible connections are on the other side of the dobby.

It will be understood that the details of construction of my improvements may be varied if desired.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In a dobby shedding mechanism of a loom, the combination with harness jacks, a lifter bar or knife, collapsible connections from said lifter bar to said harness jacks, levers to impart a reciprocating movement to said lifter bar, connections from said lifter bar to said levers, of means, including a cam mounted on a rotary shaft and manually operated, and engaging with said collapsible connections, to retard the motion of the same, to cause said lifter bar to gradually approach said levers when the levers are at rest, and the loom is stopped.

2. In a dobby shedding mechanism of a loom, harness jacks, hooks connected therewith, a lifter bar, reciprocating levers to operate the same, and collapsible connections between said lifter bar and said levers, and means, manually operated to cause said connections to collapse, and allow said lifter bar to move toward said reciprocating levers, and means, including a cam mounted on a rotary shaft, and engaging with said collapsible connections, to retard the movement of said lifter bar.

3. In a dobby shedding mechanism of a loom, harness jacks, a lifter bar, and connections from said bar to said harness jacks, a rotary shaft mounted on and movable with said lifter bar, reciprocating levers, and collapsible connections from said levers to said lifter bar, cams mounted on said rotary shaft and engaging with said collapsible connections to retard the movement of said collapsible connections, and devices, manually operated, to cause the collapse of said connections.

4. In a dobby shedding mechanism of a loom, harness jacks, a lifter bar, and connections from said bar to said harness jacks, a rotary shaft mounted on and movable with said lifter bar, reciprocating levers, and collapsible connections, having swivel joints, from said levers to said lifter bar, and cams mounted on said rotary shaft and engaging with said collapsible connections to retard the movement of said collapsible connections, and devices, manually operated, to cause the collapse of said connections.

5. In a dobby shedding mechanism of a loom, harness jacks, a lifter bar, and connections from said bar to said harness jacks, a rotary shaft mounted on and movable with said lifter bar, reciprocating levers and col-



lapsible connections from said levers to said  
lifter bar, cams mounted on said rotary shaft  
and engaging with said collapsible connec-  
tions to retard the movement of said col-  
5 collapsible connections, and devices manually  
operated to cause the collapse of said con-  
nections, and the rotation of said shaft, and

a spring to return said shaft to its normal  
position.

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

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