

(No Model.)

2 Sheets—Sheet 1.

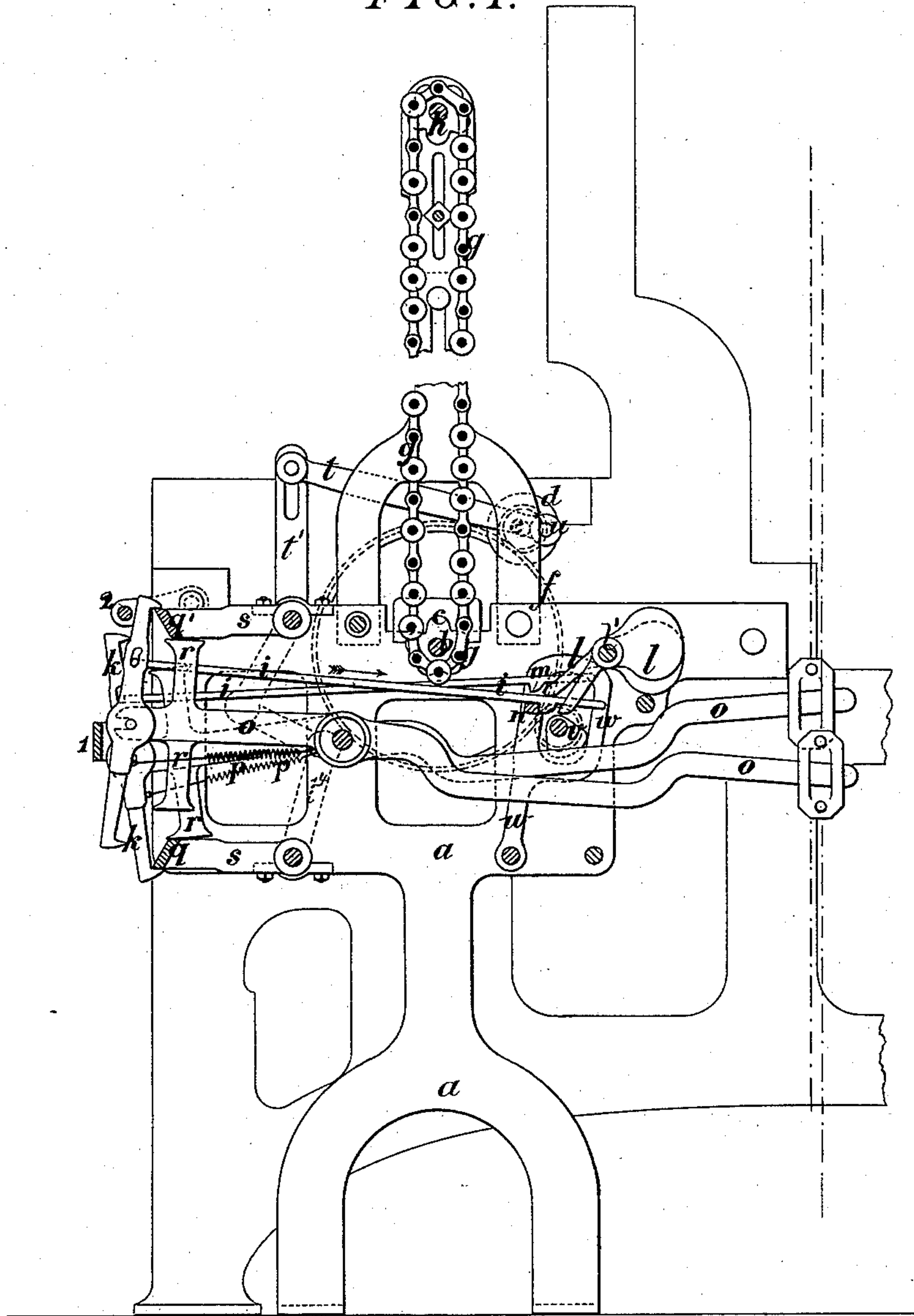
R. S., E., & R. COLLINGE.

SHEDDING MECHANISM FOR LOOMS.

No. 286,783.

Patented Oct. 16, 1883.

FIG:1.



WITNESSES.

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2 Sheets—Sheet 2.

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FIG: 2.

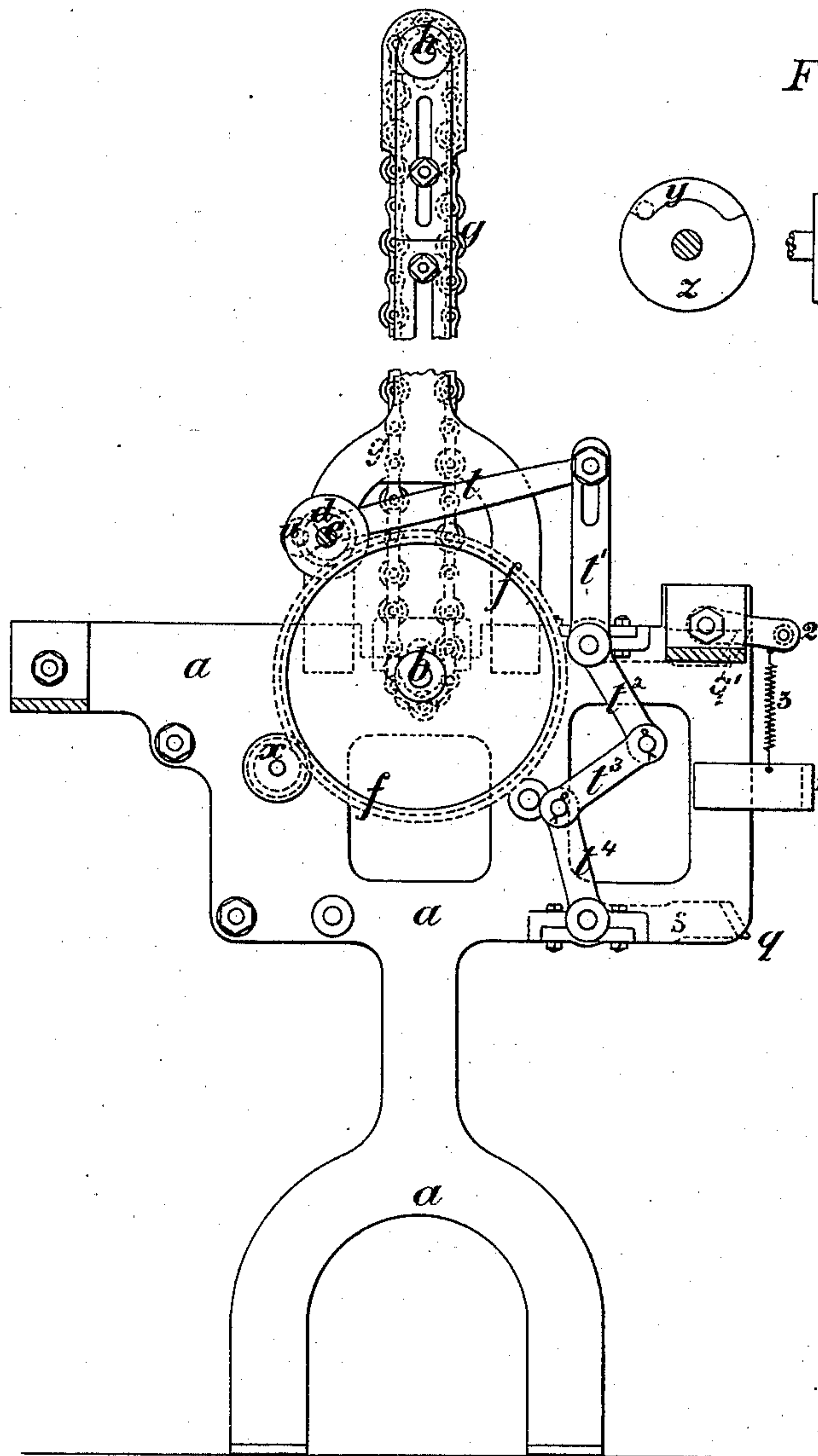
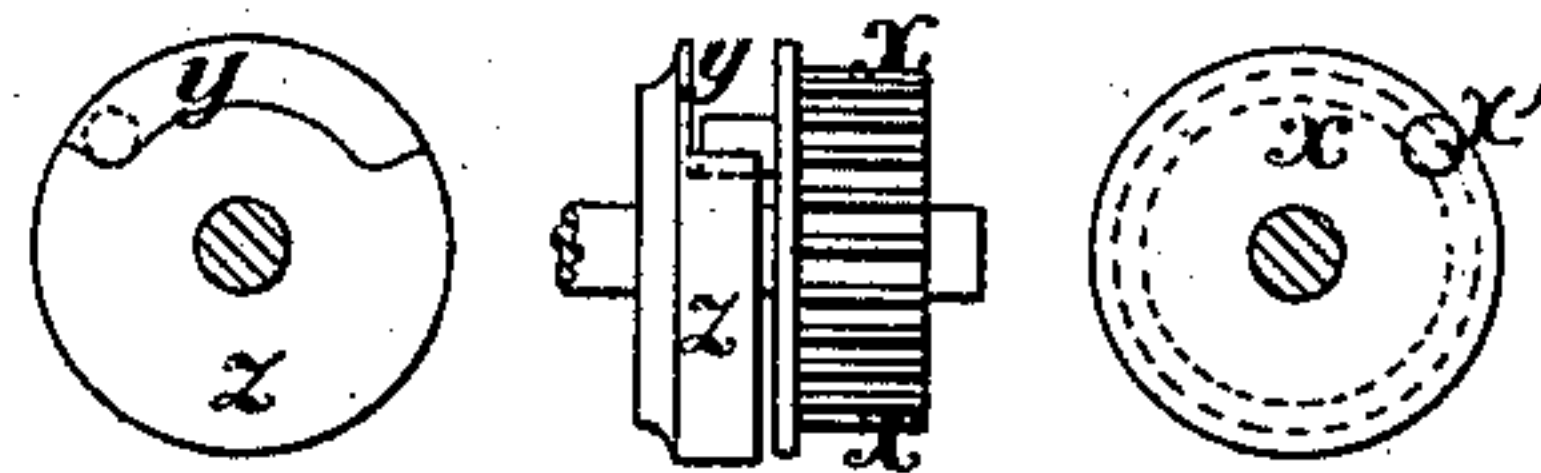


FIG: 3.



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UNITED STATES PATENT OFFICE.

RICHARD SCOTT COLLINGE, EDWARD COLLINGE, AND ROBERT COLLINGE,
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SHEDDING MECHANISM FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 286,783, dated October 16, 1883.

Application filed July 15, 1882. (No model.)

To all whom it may concern:

Be it known that we, RICHARD SCOTT COLLINGE, EDWARD COLLINGE, and ROBERT COLLINGE, residing at Oldham, in the county of Lancaster, Great Britain, and subjects of the Queen of Great Britain and Ireland, have invented Improvements in Shedding Mechanism for Looms, of which the following is a specification.

10 This invention relates to that class of shedding mechanism for looms wherein double catch-levers are employed in connection with alternately rising and falling knives, such catch-levers being drawn, when required, into
15 position to be acted upon by such knives by the action of a pattern-chain or similar mechanism, the double catch-levers being carried by or otherwise connected with the harness-levers which work the healds, so as to shed
20 the warp-threads in the manner required for each pick of the weft.

The object of the invention is to construct a more simple and efficient apparatus than that hitherto employed, and which can be
25 readily adapted to alter the position of the healds any required number of times, in order to weave any desired number of picks to the round.

Such being the nature and object of our said
30 invention, we will now proceed to describe in detail the manner in which the same is to be or may be performed or carried into practical effect; and in order that the same may be clearly understood we have annexed hereunto
35 two sheets of drawings illustrative thereof, and have marked the same with figures and letters of reference corresponding with those in the following explanation thereof.

40 Figure 1 represents in partly sectional elevation a part of the end frame of a loom with our invention shown as applied thereto; and Fig. 2 is a view of the reverse side of the apparatus, or that next to the loom-frame.

On a frame, *a a*, fixed to one side of the
45 loom we mount a barrel, (consisting of a shaft, *b b*, having a stud-wheel, *c c*, at each end,) so as to be capable of revolving in suitable bearings, said barrel being driven by means of a pinion, *d d*, on the crank-shaft *ee* of the loom,
50 in gear with a toothed wheel, *f f*, on the barrel-shaft *b*, so as to move one face of the bar-

rel for every pick of the loom. On this barrel works an endless chain, *g g*, consisting of rods or lags provided with bowls, pegs, or other projections, somewhat similar to those
55 of a "Dobby," the said chain being held in place by passing over a freely-revolving barrel, *h h*, mounted above. Beneath the lower barrel we mount a series of long slight bars, *i i*, (one for each heald,) such bars being piv-
60 oted at one end to double catch-levers *k k*, and held up in an almost horizontal position at the other end by a series of weighted levers, *l l*, mounted loosely upon a rod, *l'*, each bar passing through a slot in its respective
65 weighted lever. These weighted levers *l l* hold the horizontal bars *i i* in such a position that the bowls, pegs, or projections on the pattern-chain *g g* come into contact with them as the pattern-barrel revolves, and, by overcoming the action of the weighted levers *l l*, cause
70 the said bars *i i* to be depressed. On the under side of each of these bars is a catch or tooth, *m*, which, when the bar is depressed by the pattern-chain, is caught by a knife or rail,
75 *n*, (which is constantly working to and fro,) and is pulled thereby in the direction of the arrow, Fig. 1. Each of these bars *i i*, as before mentioned, is connected to the upper arm of one
80 of a series of double catch-levers, *k k*, pivoted at the center, and each carried at one end of a long harness-lever, *o o*, the other end of which is connected, in the usual manner, to one of the healds of the loom. The lower arm of each double
85 catch-lever *k k* is connected by a spring, *p p*, to its harness-lever *o o*. This spring draws the lower arm of the said catch-lever inward into a position to be engaged by the under side of a horizontal bar or knife, *q q*, stretching across
90 the frame and constantly moving up and down. As this knife *q q* descends it pulls down all those catch-levers which are in a position to be engaged by it, and thus causes their respective harness-levers to lower the corresponding healds; but when a bowl or other
95 projection on one of the rods or lags of the pattern-chain *g g* comes in contact with its horizontal bar *i i* the latter is pressed downward, so as to bring its tooth or projection *m* into position to be caught by the bar *n* as it
100 oscillates, and this bar pulls the horizontal rod *i i* in the direction of the arrow and disen-

gages the lower end of the catch-lever $k k$ from its knife q , and pulls the upper catch of the said lever into position to be engaged by a similar knife, q' , moving in the reverse direction to the knife q , (as hereinafter described, causing its corresponding harness-lever to be raised with its respective heald. Thus it will be seen that each double catch-lever is moved at every pick of the loom either up or down, carrying with it the end of its harness-lever, and thus actuating the heald connected with said lever. On each harness-lever $o o$, near to the double catch-lever, are two projections, $r r$, the length of which is such that as one edge of each of the knives $q q'$ rises or falls close against one of these projections there is just sufficient room for the other edge to be caught by one end of the catch-levers $k k$, and the knife or bar q or q' is thus held almost in a positive grip between the catch $k k$ and the projection r , (see Fig. 1,) which insures very steady and even working of the apparatus.

The up-and-down motion of the knives q and q' is effected as follows: Each knife is carried by an arm, $s s$, at each end, fixed on a shaft which is connected by levers and links to a crank-pin, u , fixed in the spur-pinion d , before mentioned. On the end of the shaft carrying the upper knife, q' , is an arm, t' , connected by the rod t to the crank-pin u on the pinion d , and on the same shaft is an arm, t'' , Fig. 2, connected by a link, t^3 , to an arm, t^4 , on the shaft carrying the lower knife, q , so that the two shafts are operated simultaneously from the same source. As this pinion d revolves with the crank-shaft it causes the knives q and q' to alternately approach to and recede from each other at each revolution. This alternate approaching and receding of the knives may, however, be obtained in any other convenient manner.

The oscillation of the knife or rail n , which acts on the horizontal bars $i i$, is caused by the action of cams or tappets v , working in the open slots of the levers w , to which the ends of the knife or rail n are attached, the cams being keyed or otherwise fixed on a shaft driven by a spur-pinion, x , in gear with the pattern-barrel wheel $f f$. The spur-pinion x (see detached views, Fig. 3) is mounted loosely on its shaft, and is provided with a pin or projection, x' , working in a slot or notch, y , on a face-plate,

z , keyed or otherwise fixed on the shaft and revolving with the latter, so that when it is required to reverse the loom the pin or projection x' moves from one end of the slot y to the other without imparting any motion to the pinion z , thus allowing the crank-shaft to make about a quarter or one-third of a revolution backward before acting on the cam v , and thus the rods $i i$ are not pulled back until the loom has arrived at the required position. The reverse action takes place when the loom is again moved forward.

1 1 is a band or guard to keep the catch-levers $k k$ in place at the center, and 2 2 is a roller mounted on arms pivoted to the frame, to prevent the upper catches from coming away from the knife q' when being raised up, 3 3 being spiral springs, to give a certain amount of elasticity to the roller 2.

We claim—

1. The combination of knives $q q'$ and means for operating the same, double catch-levers k , rods i , and devices, substantially as set forth, for reciprocating the rods as required, with a pattern-chain, driving mechanism, and harness-levers o , having projections r , between which and the catch-levers k the knives are adapted to be caught and held, substantially as set forth.

2. The combination of harness-levers $o o$, catch-levers $k k$, carried thereby, and springs p , with knives $q q'$, and means, substantially as set forth, for operating the knives and controlling their engagement with the catch-levers, arms carrying a roller, 2, and springs 3, as and for the purpose described.

3. The combination of harness-levers, catch-levers k , and knives $q q'$, and devices, substantially as described, for operating the same, with rods i , weighted levers l , knife n , reciprocating mechanism for said knife, and pattern-chain and driving mechanism for acting on said rods, all substantially as set forth.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

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EDWARD COLLINGE.

ROBERT COLLINGE.

Witnesses:

GEORGE DAVIES,

CHARLES DAVIES.