

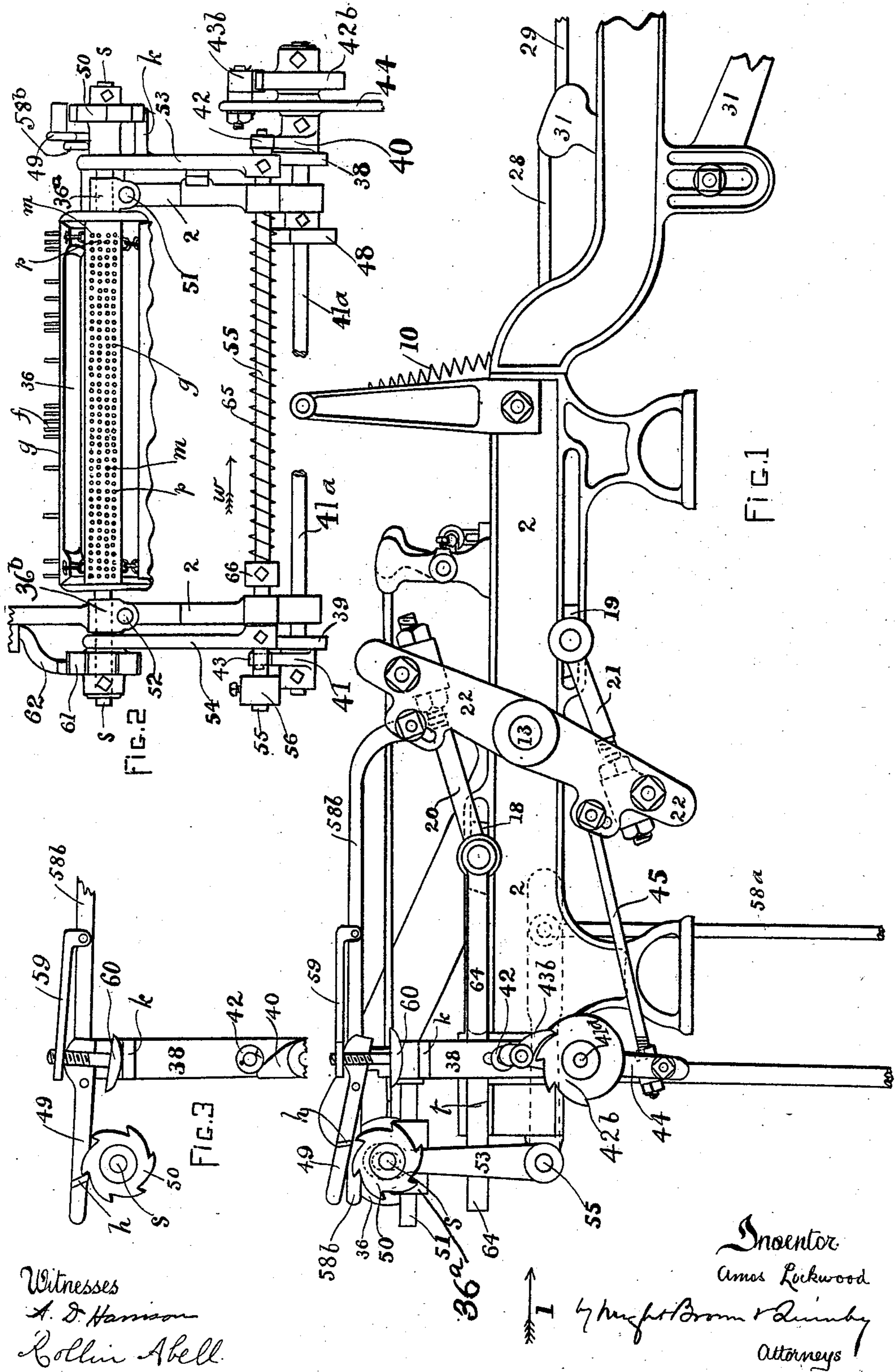
(No Model.)

3 Sheets—Sheet 1.

A. LOCKWOOD.
SHEDDING MECHANISM FOR LOOMS.

No. 539,278.

Patented May 14, 1895.



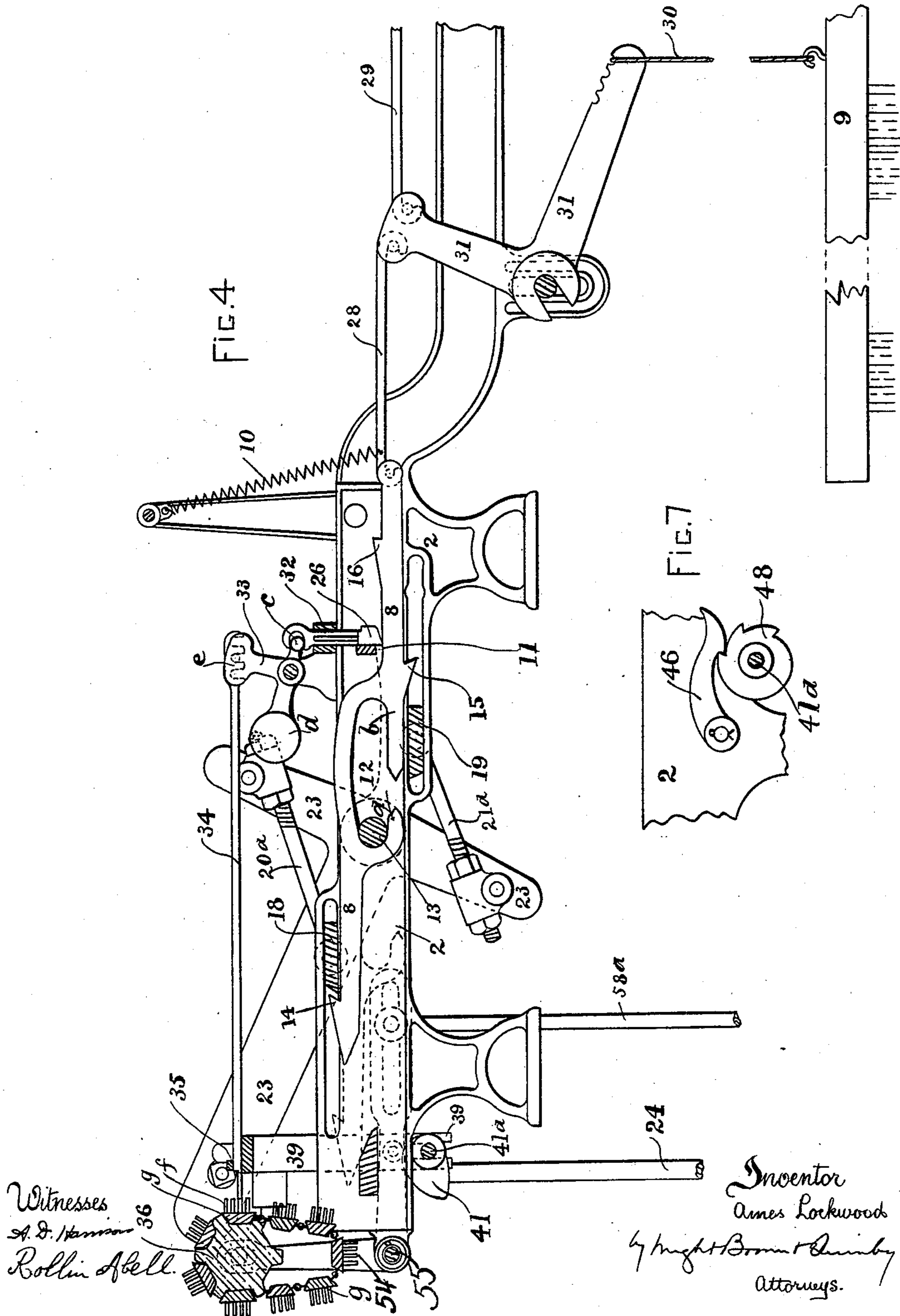
(No Model.)

3 Sheets—Sheet 2.

A. LOCKWOOD.
SHEDDING MECHANISM FOR LOOMS.

No. 539,278.

Patented May 14, 1895.



(No Model.)

3 Sheets—Sheet 3.

A. LOCKWOOD.
SHEDDING MECHANISM FOR LOOMS.

No. 539,278.

Patented May 14, 1895.

FIG. 5

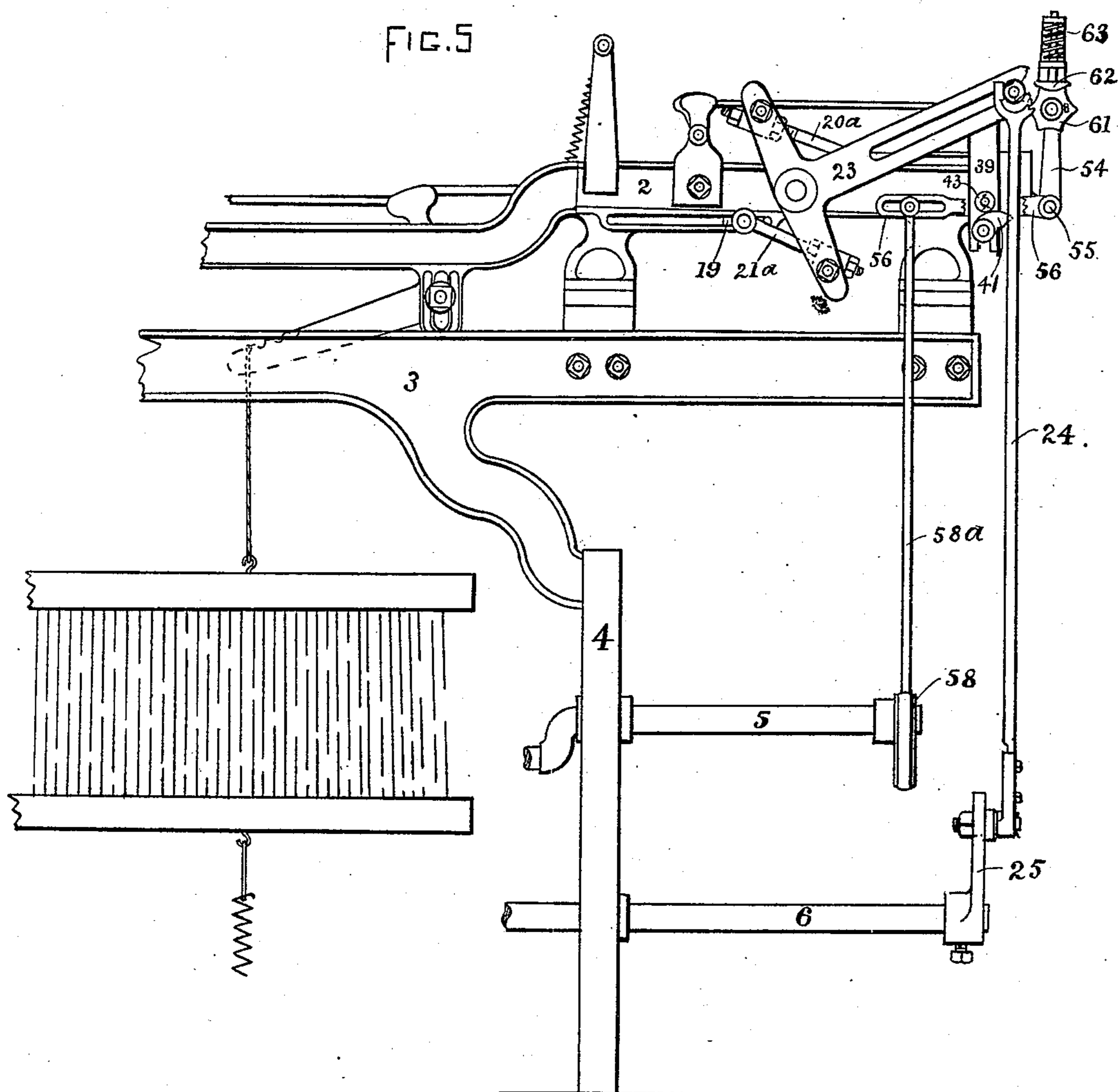
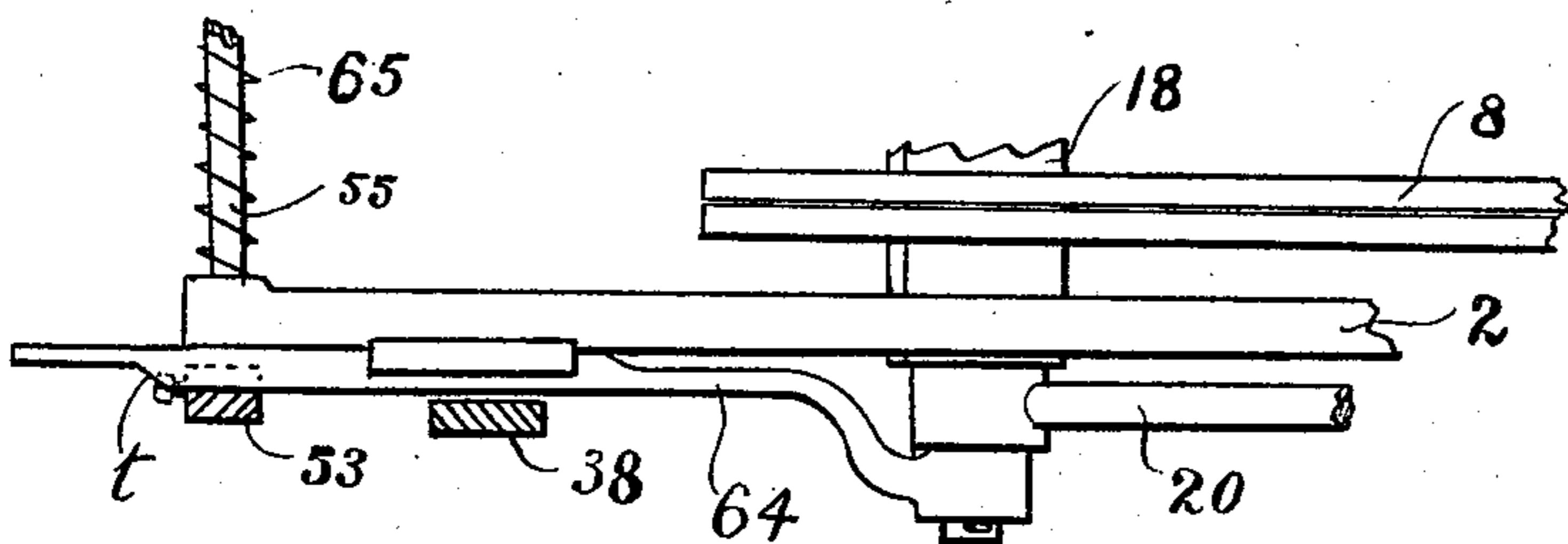


FIG. 6



Witnesses
A. D. Hanson.
Rollin Abell.

Inventor.
Ames Lockwood
by Knight Brown & Dunbar
Attorneys

UNITED STATES PATENT OFFICE.

AMOS LOCKWOOD, OF HALIFAX, ENGLAND.

SHEDDING MECHANISM FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 539,278, dated May 14, 1895.

Application filed June 16, 1894. Serial No. 514,750. (No model.)

To all whom it may concern:

Be it known that I, AMOS LOCKWOOD, a subject of the Queen of Great Britain, residing at 38 Willow Bank, King's Cross, Halifax, in the county of York, England, have invented new and useful Shedding Mechanism for Looms, of which the following is a specification.

My invention relates to loom-shedding-mechanism of the class whereby the healds or heddles in looms are raised or operated in one direction while other means as springs, or weights are required for effecting the return movement, and the objects of my invention are the production of such mechanism in a comparatively inexpensive manner that shall be compact in its arrangement, durable in its construction and shall perform its functions efficiently; while the peg-lags or pattern cards used for governing or controlling its movements are each enabled to bear or carry a pattern surface for indicating thereon at each pick or shot of weft or for two, four or more picks or shots of weft as may be desired.

These objects I attain by the mechanism illustrated in the accompanying sheets of drawings forming part of this specification, of which—

Figure 1 is a front elevation of the mechanism apart from a loom. Fig. 2 is an end elevation of a portion of said machine as seen in the direction indicated by the arrow 1. Fig. 3 shows a portion of the pattern mechanism in detail, as hereinafter explained. Fig. 4 is a vertical section of the mechanism shown by Fig. 1. Fig. 5 is a back view of a portion of a loom, reduced scale, with my improved mechanism applied thereto. Fig. 6 is a top view of certain parts of the mechanism, (same scale as Figs. 1 to 4,) as hereinafter described. Fig. 7 is a fragmentary elevation looking from the opposite side of the machine to that seen in Fig. 1.

Similar figures and letters of reference indicate similar parts throughout the several views.

The parts marked 2 represent the framework of the machine, while those marked 3, 4, 5 and 6 represent respectively the top rail, end frame, top shaft and low shaft of the loom.

In accordance with my invention I employ a series of sliding bars 8, corresponding in number with that of the heald shafts 9 that are to be operated. These bars 8 are mounted so that at one end they are supported by the springs 10 which always raise or tend to raise, them up to or into contact with the crossbar 11, while by appropriately formed parts or openings 12 with hooks *a* and *b* in or about their central parts, taking over the cross shaft 13, they are properly held in a desired horizontal position. On each of these sliding bars 8 are formed three other hooks or catches 14, 15 and 16, those at 14 and 15 for laying hold of the reciprocating draw-bars 18 and 19 (sliding in the well known manner in the framework 2) by which they are operated, and which (said draw-bars 18 and 19) are moved or operated by the well known rods 20, 21, 20^a and 21^a, levers 22, and 23 fixed upon the shaft 13, connecting rod 24 and crank 25 by this latter being fixed upon the low shaft 6, while the third hook 16 is for contact with a latch or holding catch 26 which retains it when moved for holding its respective heddle 9 in its raised or elevated position as well as operates it as hereinafter described. It is to be noted that the same pivotal movement of the lifting bars on the shaft 13, takes both sets of catches, 14—15 into or out of position for engagement with both draw-bars. These sliding bars 8 are coupled, either by the well known cords which are conducted over grooved pulleys or by equally well known rod and jack lever connections 28, 29, 30, and 31, to the heddle 9. The hooks 14 and 15 are held by the spring 10 out of position for laying hold of their draw-bars 18 and 19 until the said bars 8 are moved or forced down by their holding catches 26 (in accordance with the pattern surface as hereinafter described) in which position they are shown by Fig. 4, by which they are thus brought into contact with one or other of the draw-bars 18 or 19 which happens to be in position for receiving or acting upon the same. The draw-bar 18 being the one at present shown in this position on the movement of which the heddle 9 attached thereto will be raised to its highest position in which position it may be retained by its holding catch 26 laying hold of the hook 16 until this catch 26 is again freed from same

by the pattern surface indicating upon it, the said catch being relieved of the gravitating tendency of the heddle by the action of the draw-bar against one of the hooks, 14 or 15.

5 The holding catches 26 are mounted to slide in the guide rail 32 and have their upper ends formed for receiving the arms *c* of the operating levers 33 which when free are moved by their weighted arms *d* to raise same into
10 their highest positions, while to their arms *c* are coupled the connecting rods 34 which extend horizontally therefrom, through the grate 35 to present their extremities for contact with the pattern surface on the barrel 36
15 by which means when this said pattern surface is presented to said rods 34 such of these latter are moved as the pattern surface is prepared to move them by having pegs *f* in the lags *g* which pass around same in the well
20 known manner and in turn cause the holding catches 26 to move to position for engagement with the bars 8 as above described.

The grate 35, through which the rods 34 pass and operate, is mounted upon the arms
25 38 and 39 which are arranged to slide upon the framework, so that by the cams 40 and 41 mounted upon the rotary shaft 41^a, to act upon the bowls or pulleys 42 and 43 mounted upon said arms 38 and 39, this grate 35 is thereby
30 caused to rise to a desired elevated position from which as the cams 40 and 41 are further revolved, it falls by gravity causing the cams to move to a normal position. The other part of the motion of the shaft 41^a and its rotary
35 cams 40 and 41, is effected by the partly toothed ratchet wheel 42^b which is intermittently acted upon by the pawl 43^b mounted upon the lever 44 operated by the rod 45 coupled to the reciprocatory lever 22, the po-
40 sition it assumes at each of such successively intermittent movements being maintained by the holding catch 46 acting in connection with a correspondingly partly toothed ratchet wheel 48. (Shown in detail Fig. 7.)

45 When the cams 40 and 41 assume their positions for the grate 35 to be in its lowest position, the extremities of the rods 34 are in position for the lowest row of pegs *f* on the peg-lag *g* to be presented to them, while at each
50 successive movement of said cams these same extremities are raised to the next succeeding row of pegs until the last row is reached on which after this row has been presented to same, the pawl 49 is brought into contact with
55 the ratchet wheel 50 or shaft *s* of barrel 36 so that on the barrel 36 being caused to recede at this time, it is caused also to turn the next peg-lag into position at the same time the grate 35 will have descended to its lowest po-
60 sition.

The barrel 36 is supported in bearings 36^a, 36^b, which are caused to reciprocate upon the horizontal bearing pins 51 and 52, by means of the levers 53 and 54 attached to the shaft
65 55 being caused to oscillate by the lever 56 also secured thereto being coupled by the rod

58^a to the eccentric 58 carried by the top shaft 5, and this reciprocatory motion is at such a rate as to cause said barrel to present its pattern surface to the rods 34 for each shot of
70 weft, while to prevent said barrel from being partly rotated at each of its said reciprocatory movements the pawl 49 is pivoted to the hinged piece 58^b coupled to the lever 22 by which it is reciprocated and another part 59
75 also hinged to the piece 58^b is caused to rest upon the pawl at one end so that its engaging end *h* is held clear of the wheel 50 until it has to engage therewith which is, as before
80 stated, on the grate 35 reaching its highest position. This relieving of the pawl 49 from the weight of the part 59 is effected at the desired time by a projecting piece *k* formed on the arm 38, coming in contact with the quadrant piece 60 adjustably mounted upon said
85 part 59 as said arm 38 is rising to its highest position by which the part 59 is lifted from resting upon the pawl 49 so that its end *h* is allowed to descend into contact with its wheel 50 as shown by Fig. 3. 90

In order that as large a number of holes as possible may be made in the peg-lags *g* for the reception of the pegs *f* so that each lag may thus be made to carry considerable of a
95 pattern surface additional holes *p* are made in the spaces intervening between those holes *m* which are arranged to be the same distance from each other as are the bars 8 and to enable peg-lags having such an arrangement of the pattern holes made in them to be used in
100 connection with my movable rods above described, I impart a slight axial movement to the barrel 36 by which it is brought from having the holes *m* (see Fig. 2) in line with the
105 ends of the rods 34, to have the holes *p* in line with them. To effect this movement the shaft *s* of the barrel 36 is arranged to freely rotate within the slots formed in the ends of the levers 53 and 54 while said ends are closely
110 pressed against by the ratchet wheel 50 on one side and the star or leveling and adjusting wheel 61 (which by the T-piece 62 and spring 63 adjusts the barrel 36 in its required position) on the other side, these two wheels
115 being rigidly fixed upon said shaft *s*, so that on the sliding bar 64 being moved along with and by the draw-bar 18 its inclined part at *t* causes the lever 53 to move the desired distance in the directions indicated by the arrow
120 *w*, bringing with it its shaft 55, its other lever 54, the wheel 50 and consequently the barrel 36, while on the withdrawal of this inclined bar 64 the spring 65 pressing against the framework 2 at one end and the hoop 66 rigidly fixed on the shaft 55 at the other, the re-
125 turn movements of these parts is effected, this lateral movement of the pattern surface in each direction being effected at such a time relatively with the time of moving of the other parts as will enable the two series of
130 holes *m* and *p* to be brought into operation in each successive row alternately. By these

means lags carrying indicating pegs for two or more changes in the movements of the shedding mechanism may be employed.

Throughout the above description peg-lags are referred to as the pattern surface. However I wish it to be understood that I am perfectly aware that the well known pattern-cards may be substituted for these peg-lags.

This being the nature and object of my said invention, what I claim is—

1. In a shedding mechanism for looms, the combination of draw-bars, means for reciprocating them, sliding bars fulcrumed between the draw-bars and having catches on opposite edges and at opposite sides of the fulcrum so that the same pivotal movement of the lifting-bars takes both sets of catches into or out of position for engagement with both sets of draw-bars, means for holding the sliding-bars normally out of engagement with the draw-bars, pattern-devices for moving said sliding-bars into engagement with the draw-bars, and suitable connections between the sliding-bars and the heddles.

2. In a shedding mechanism for looms, the combination of draw-bars, means for reciprocating them, sliding-bars having catches for engagement with the draw-bars and holding-shoulders, the said sliding-bars being fulcrumed between the draw-bars, latches bear-

ing on the sliding-bars and designed to engage the holding-shoulders thereof, pattern-devices for moving said latches against the sliding-bars to engage the latter with the draw-bars, and suitable connections between the sliding-bars and the heddles, and yielding means applied to said connections and exerting themselves to produce engagement of the holding shoulders with the latches.

3. In a shedding mechanism for looms, the combination of draw-bars, means for reciprocating them, sliding-bars having catches for engagement with the draw-bars and holding-shoulders, the said sliding-bars being fulcrumed between the draw-bars, latches bearing on the sliding-bars and designed to engage the holding-shoulders thereof, bell-crank levers engaged with said latches, push-rods connected with said levers, pattern-devices to act against said push-rods, and suitable connections between the sliding-bars and the heddles, and yielding means applied to said connections and exerting themselves to produce engagement of the holding shoulders with the latches.

AMOS LOCKWOOD.

Witnesses:

FRED HAMMOND,
SAMUEL HEY.