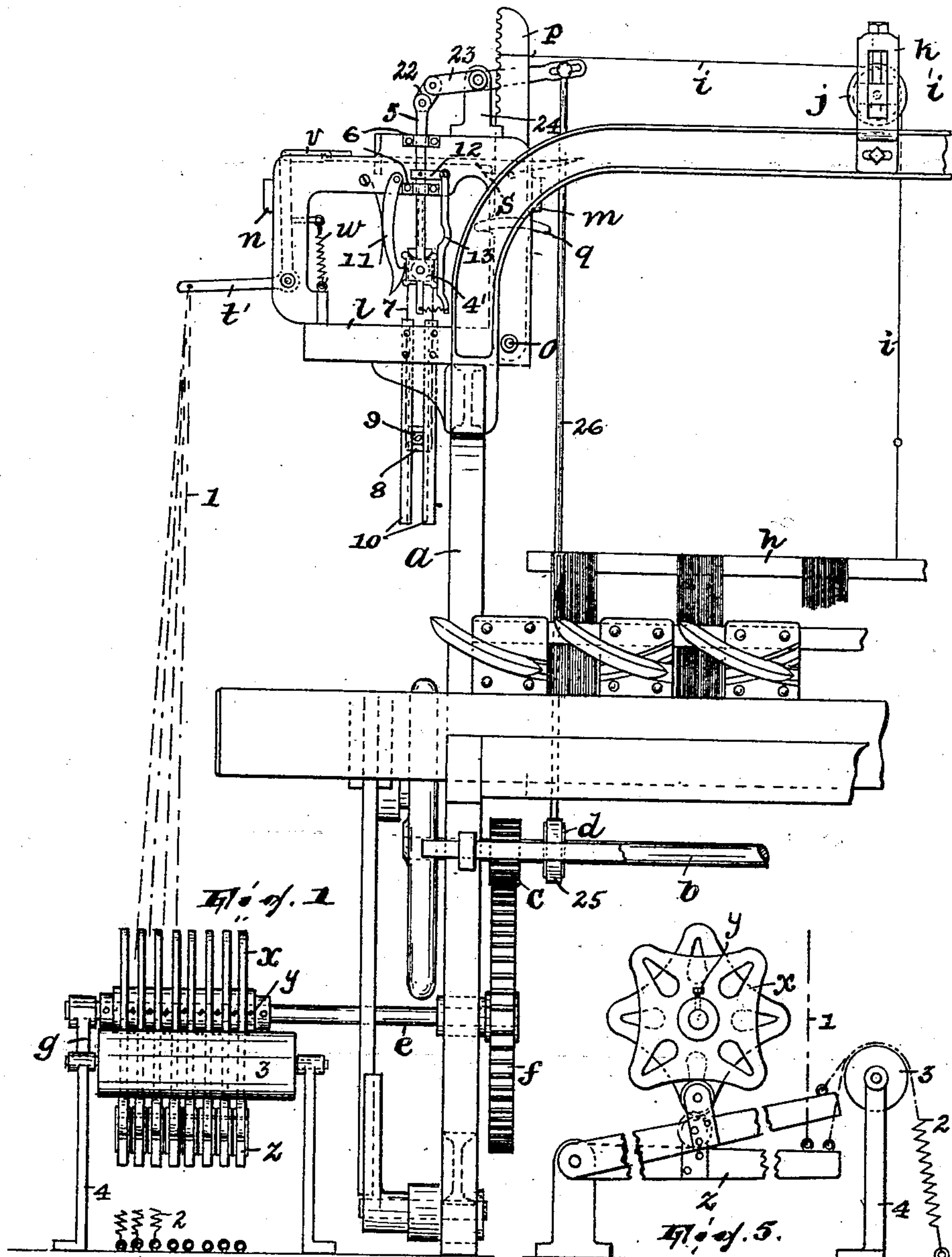


921,772.

2 SHEETS—SHEET 1.



Mr. Zell.
Elio Kaufmann.

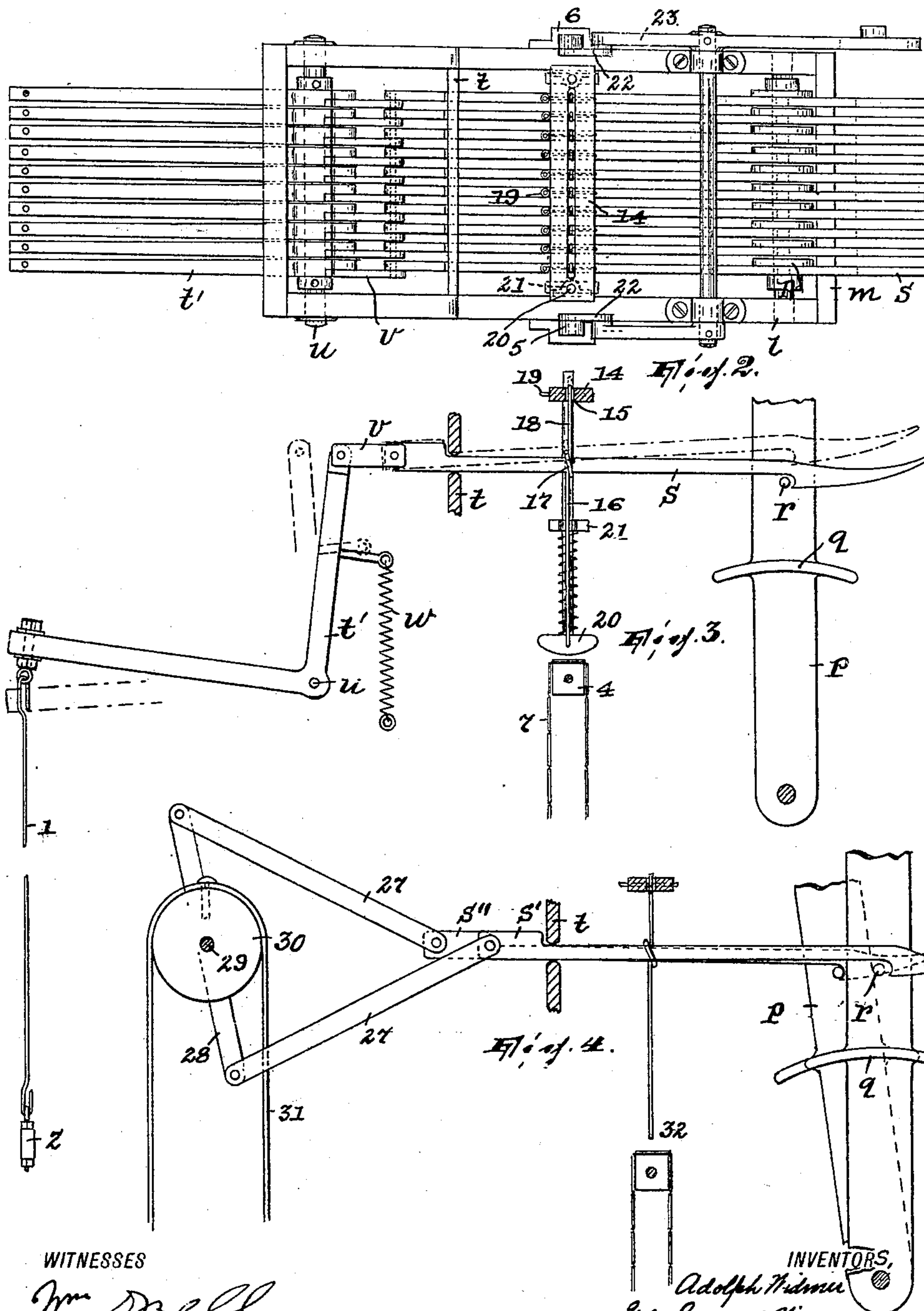
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 SHEDDING MECHANISM FOR LOOMS.
 APPLICATION FILED JULY 6, 1908.

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Patented May 18, 1909.

2 SHEETS—SHEET 2.



WITNESSES

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SHEDDING MECHANISM FOR LOOMS.

No. 921,772.

Specification of Letters Patent.

Patented May 18, 1909.

Application filed July 6, 1908. Serial No. 442,020.

To all whom it may concern:

Be it known that we, ADOLPH WIDMER and SAMUEL WIDMER, citizens of the United States, residing in Paterson, Passaic county, New Jersey, have invented a certain new and useful Improvement in Shedding Mechanisms for Looms; and we 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, reference being had to the accompanying drawings, and to characters of reference marked thereon, which form a part of this specification.

Our present invention relates to means for operating the harness in looms.

One of the objects of our invention is to provide an improved harness operating mechanism which may be used interchangeably for weaving complicated patterns as well as simple patterns, for instance hat bands, it being well known that a manufacturer having his loom equipped for weaving variegated patterns in ribbons, and therefore employing with said looms jacquard machines, cannot weave simple patterns, as in hat bands, without either continuing the jacquards in use as the shedding mechanism of the looms, which is too expensive for such a purpose, or removing the jacquards and substituting a simpler type of shedding mechanism.

Our improved shedding mechanism is so constructed that the different shafts of the harness can be made to move in succession, instead of all together, as in jacquard machines, whereby if there is any tendency for loose fibers on the threads of the warp to bind two or more threads in the warp together, the same will be overcome and the threads kept clear of each other.

Other objects will be apparent to those skilled in the art.

The invention will be found fully illustrated in the accompanying drawings, wherein,

Figure 1 is a front view thereof and of so much of a ribbon loom as it is necessary to show in order to illustrate the invention; Fig. 2 is a plan view of certain reciprocating hooks, levers which they actuate and which are attached to the harness, levers for reciprocating the hooks, and certain parts of the pattern mechanism controlling the hooks; Fig. 3 is an enlarged view in front elevation of one of said hooks, a part of its

reciprocating means, the lever controlled by the hook, and the pattern mechanism, certain parts being shown in section; Fig. 4 is a front view somewhat similar to Fig. 3 except that it illustrates a modification and shows two levers and two hooks controlling the same; and, Fig. 5 is a view in side elevation of a part of the means for reciprocating the hooks, the same being shown as adapted to the modification illustrated in Fig. 4.

In the drawings, *a* is the loom, *b* a rotating shaft therein carrying a pinion *c* and an eccentric *d*, and *e* another rotating shaft carrying a gear *f* meshing with pinion *c* and projecting laterally from the loom, having its outer end journaled in an auxiliary bracket *g*.

h is the harness, only the left-hand end of which is shown, and *i* designates cords by which the harness is operated and which extend over pulleys *j* arranged for vertical adjustment in the brackets *k*.

The frame of the loom comprises in its upper part a frame-structure *l* including two rectangular brackets connected by the horizontal braces *m* and *n*. On a horizontal shaft *o* in the frame structure *l* is fulcrumed a series of upwardly extending levers *p* notched at their upper ends on the outside to receive the cords *i*; movement imparted to any lever will effect a greater or less movement of its cord *i* according to the notch in the lever occupied by said cord, as will be obvious. The pull of the harness normally maintains the levers *p* against the brace *m*. Each lever has a curved rib *q* acting to properly space it from its neighbor; above said rib it has a laterally projecting stud *r*.

s designates a series of hooks corresponding in number to the levers *p* and adapted to engage the studs *r* thereof. These hooks reciprocate in a grid *t* of the frame-structure *l* and each is connected with one arm of a bell-crank lever *t'*, fulcrumed in said frame-structure on the shaft *u*, by a link *v*, the bell-crank lever normally acting to force the hook inwardly by virtue of a spring *w* connecting it with the frame-structure *l*.

On the shaft *e* is arranged a series of cams each of which may be fixed thereto by a set screw *y* or otherwise, so as to be rotatively adjustable. Against these cams from beneath bear cam levers *z*, each lever being connected to a corresponding bell-crank lever *t'* by the links *1*; to insure regular contact of the levers with the cams, a wire spring *2*

connects each lever with the floor, an uncoiled part of the spring being extended over a roller 3 journaled in a bracket 4. In view of the foregoing it will be obvious that on the rotation of the cams and consequent actuation of cam-levers z the hooks s will be reciprocated and will oscillate their corresponding harness levers p if they are engaged with the latter. The hooks s are movable upwardly out of the way to engage the studs r in the grid t as a fulcrum, the links v permitting this movement. To effect the rise and fall of the hooks, to suit the particular weave desired, a pattern mechanism which we will now describe may be employed.

A card-cylinder 4' is journaled in the vertically movable rods 5 guided in the brackets 6 attached to the sides of the frame-structure, and over this cylinder extends the endless strip of cards 7, the strip being kept taut by an idler-cylinder 8 journaled in bearings 9 which move between the guides 10 depending from the frame structure. The usual spring actuated pawl 11 is employed to turn the cylinder on each downward movement thereof, and one of the rods 5 may carry an arm 12 from which depends a spring actuated nogger 13 to hold the cylinder against rotation during the rise thereof. Above the hooks s is a needle board 14 having holes 15 for the needles 16 each of which has a bend 17 therein receiving a hook s and its upper end forming a loop 18 receiving a pin 19 extending through the needle-board. To cause the cards to follow the cylinder downwardly, we provide the spring-actuated pressers 20 moving in the guides 21 secured to the inner faces of the frame-structure. The rods 5 are connected at their upper ends by links 22 to a lever 23 which is fulcrumed in a bracket 24 and which is connected with an eccentric strap 25 on the eccentric d by a pitman 26. In view of the foregoing, as the hooks are reciprocated they are moved, according to the pattern, in and out of position to engage the studs r on the harness-levers, each hook thus either actuating its harness-lever or leaving it in contact with the brace m .

It will be understood that the cams x may be variously formed relatively to each other, although ordinarily they will be all alike. Again, if it is desired to weave a plain taffeta, the operation of the pattern mechanism may be dispensed with and alternate cams x shifted so that one-half of the cams, when the rest have operated to draw the corresponding hooks s outwardly, will leave the other hooks in their extreme inward position; every other shaft in the harness will then rise when the remainder are being depressed. Or the same effect may be secured by the construction shown in Fig. 4, where the hook s' and s''

are connected by links 27 with the opposite ends of a lever 28 on a shaft 29 on which is a pulley 30 receiving a band 31 whose ends may be connected to adjoining cam-levers. In this instance, the cams x will be arranged with the high part of each cam alternating with the low parts of its neighbors, so that the rocking of shaft 29 will be effected. A pattern mechanism 32, substantially like that already described and shown in Fig. 4, may be employed to vary the weave effect.

Our arrangement makes it possible to adjust the operation of the harness so that the shafts will not all begin their rise at once; this may be done by rotatively adjusting the cams so that certain of them will operate to depress their cam levers a little previously to the others.

Having thus fully described our invention, what we claim as new and desire to secure by Letters Patent is:

1. In a loom, the combination of the frame, the harness, and means for operating the harness comprising harness-levers, hooks fulcrumed in the frame, means for reciprocating the hooks substantially longitudinally, said hooks being movable on their fulcrums into and out of position to engage said levers in the reciprocation of said hooks, and a pattern mechanism controlling the pivotal movement of said hooks, substantially as described.

2. In a loom, the combination of the frame, comprising a grid, the harness and means for operating the harness comprising harness-levers having their fulcrums substantially parallel with the grid, hooks fulcrumed in the grid, means for reciprocating the hooks, said hooks being movable in the grid into and out of position to engage said harness-levers in the reciprocation of said hooks, and a pattern mechanism controlling the pivotal movement of the hooks, substantially as described.

3. In a loom, the combination of the frame, the harness, the harness levers, hooks fulcrumed in the frame, said hooks being movable transversely into and out of position to engage the harness levers, a pattern mechanism controlling the transverse movement of the hooks, a system of rotary cams, and means, operative from said cams, for reciprocating the hooks, substantially as described.

In testimony, that we claim the foregoing, we have hereunto set our hands this 29th day of June, 1908.

ADOLPH WIDMER.
SAMUEL WIDMER.

Witnesses:

WM. D. BELL,
JOHN W. STEWARD.