

No. 675,073.

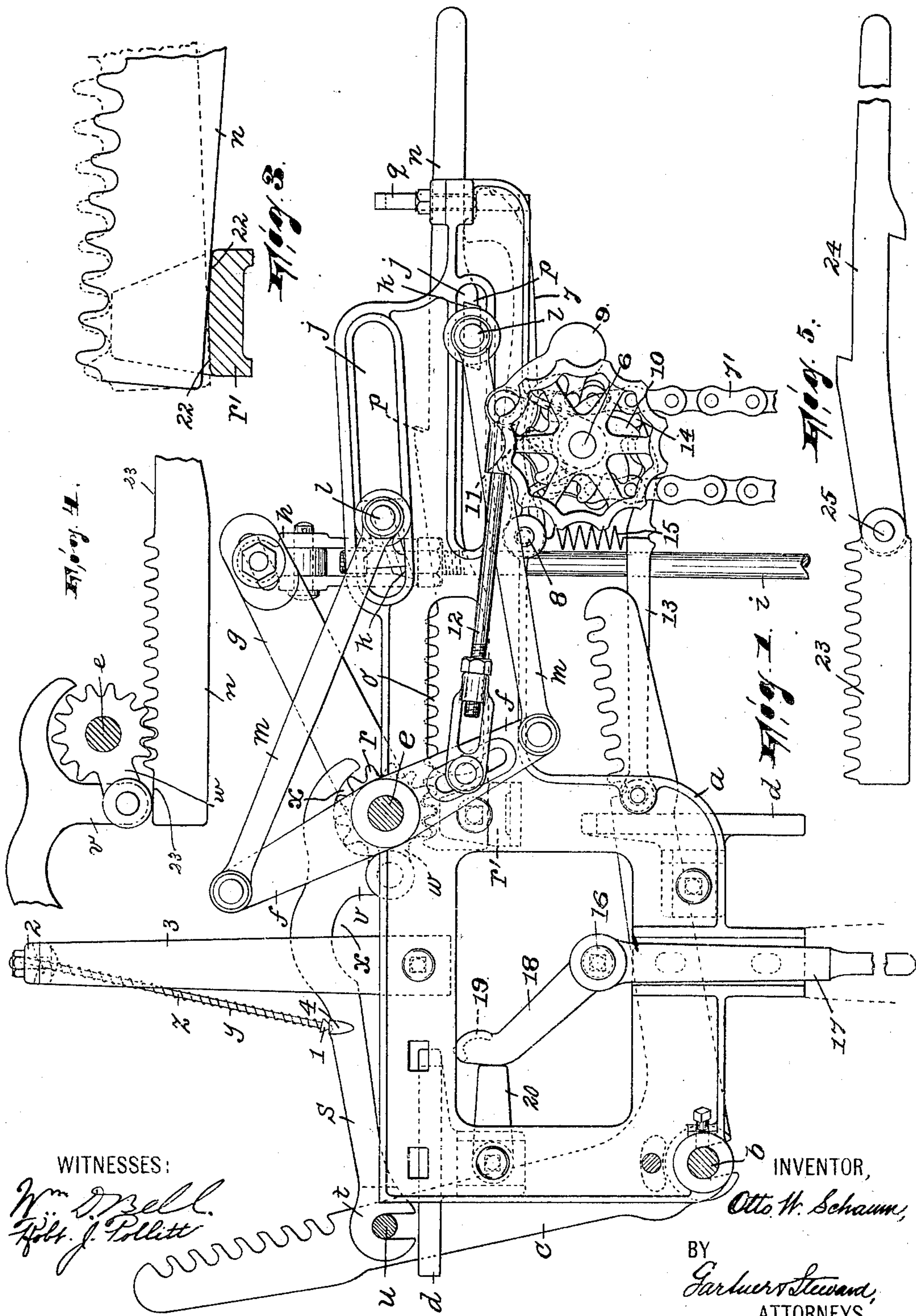
Patented May 28, 1901.

O. W. SCHAUM.
SHEDDING MECHANISM.

(Application filed Dec. 17, 1900.)

(No Model.)

2 Sheets—Sheet 1.



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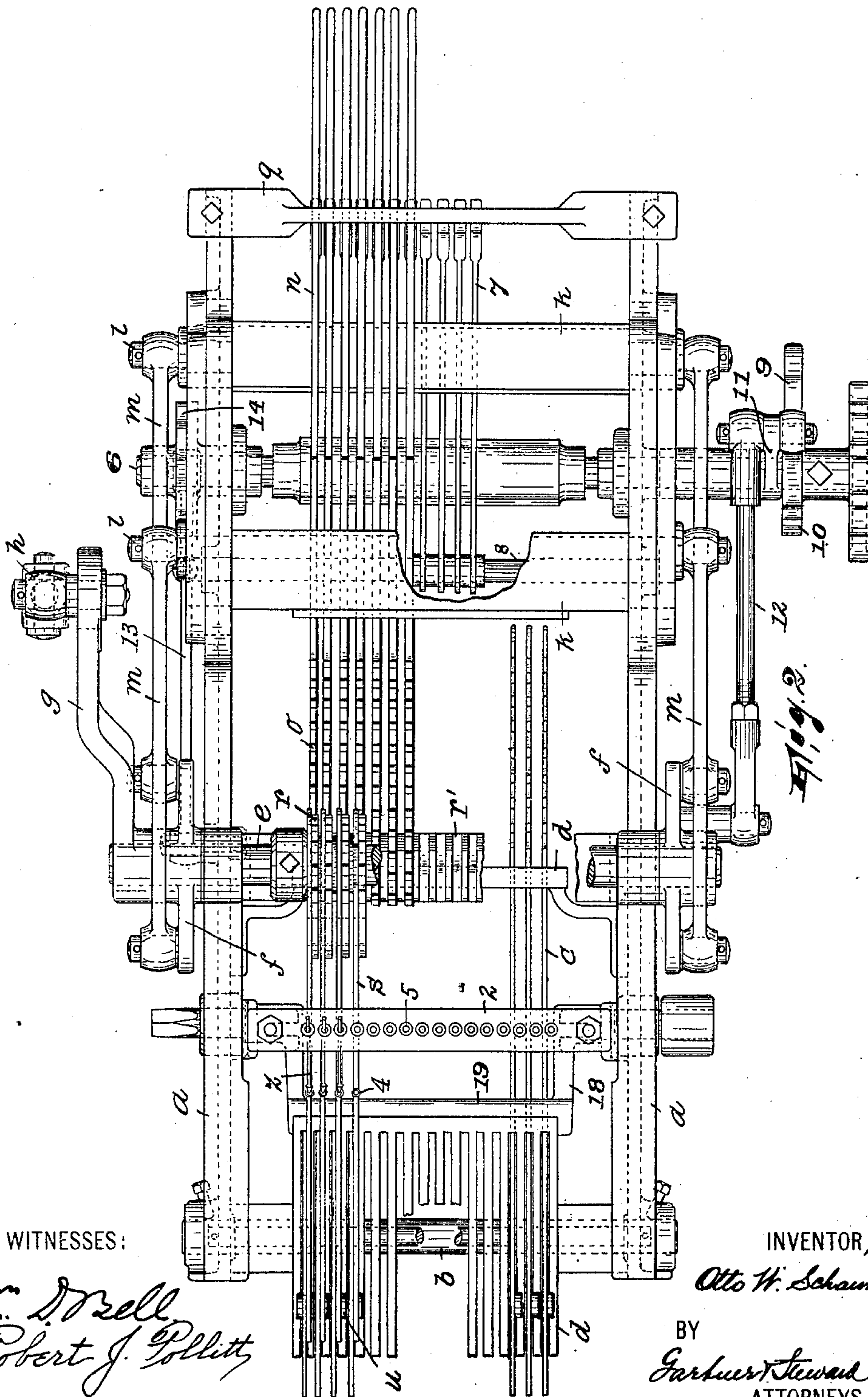
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(No Model.)

2 Sheets—Sheet 2.



WITNESSES:

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SHEDDING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 675,073, dated May 28, 1901.

Application filed December 17, 1900. Serial No. 40,073. (No model.)

To all whom it may concern:

Be it known that I, OTTO W. SCHAUM, a citizen of the United States, residing in Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Shedding Mechanisms; 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, reference being had to the accompanying drawings, and to letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to shedding mechanism for looms, and it has reference particularly to that class of mechanism of this nature wherein the general movement of the parts is one which has a horizontal direction. This class of shedding mechanism is well illustrated in the patent to E. Ingraham, No. 503,375, dated August 15, 1893.

Besides the general object of providing a machine of this nature which will be simple and durable in construction the special object of this invention is to provide a shedding mechanism of the kind referred to which shall be more compact and the connection between whose parts and whose operation generally shall be more positive and direct than in machines of this nature at present in use.

The invention consists in a shedding mechanism constructed substantially as will be hereinafter described and finally embodied in the clauses of the claim.

In the accompanying drawings, Figure 1 is a side view of my improved shedding mechanism. Fig. 2 is a top plan view of the mechanism. Fig. 3 is a view of a certain detail of the invention. Fig. 4 is a modified form of a certain detail, and Fig. 5 is a view showing in side elevation a modified form of a certain combined hook and rack constituting a portion of the invention.

The frame of the machine consists of two side frames *a*, which are connected and strengthened by the usual cross-pieces or girths, as also by certain shafts and other parts hereinafter to be referred to.

At one end of the machine and in the lower portion thereof is mounted a shaft *b*, upon which are fulcrumed the harness-jacks *c*, said

jacks being guided in slotted plates *d*, which connect and brace the side frames. In the upper portion of the frame is journaled a rock-shaft *e*, carrying pairs of cranks *f* near both ends and also at one end an arm *g*, to which through a suitable coupling *h* a shaft *i* is connected, the said shaft being suitably reciprocated from some moving part of the loom. Each side frame is penetrated by substantially parallel guideways *j*, which are substantially horizontally disposed. In these guideways move knives *k*, having trunnions *l* at their ends, the trunnions of each knife being pivotally connected by rods *m* with one of the pairs of cranks *f*. The knives are adapted to engage and longitudinally reciprocate a series of combined hooks and racks *n*. Each of these combined hooks and racks consists of an integral bar having the upper edge of its rear portion formed with rack-teeth *o*, while its forward portion is provided on its upper and lower edges with oppositely-disposed projections *p* for the knives to engage. The forward extremities of said combined hooks and racks are guided in a slotted plate or grid *q*, mounted in the frame, while their rear ends work in a guide *r'* of inverted comb-like form, which traverses the frame, being preferably disposed beneath and parallel with the shaft *e*.

Under actuation of the knives *k* the combined hooks and racks are adapted to rotate corresponding pinions *r*, which are freely journaled on the shaft *e* and whose teeth the teeth of the rack portions engage.

s designates the vibrator-levers. Each vibrator-lever has its rear end formed into the shape of a hook *t*, which engages a projection *u* of its jack. The forward portion of said vibrator-lever is provided with a downwardly-extending arm *v*, which is pivotally connected with an arm *w*, forming an integral projection of the corresponding pinion *r*, and on both sides of said arm *v* the vibrator-lever is provided in its under edge with recesses *x*, adapted to receive and approximately fit the uppermost portion of the pinion. Each vibrator-lever is normally pushed downwardly by a spiral spring *y*, (not shown in Fig. 2,) which is coiled about a rod *z* and is compressed between a stop or head 1 on the lower end of said rod and a cross-bar 2, connecting the upper

ends of uprights 3. It should be remarked that the head 1 of the rod is of conical shape and rests in a seat 4 on the top of the vibrator-lever, while the other end of said rod projects through an orifice 5 in said cross-bar, which orifice is of conical shape, so as to permit free universal movement of the rod.

6 denotes a shaft which connects the side frames, being horizontally disposed under the combined hooks and racks. Over this shaft extends a pattern-chain 7', having the usual "risers" and "sinkers" for actuating the fingers 7, which raise and lower the corresponding combined hooks and racks into operative engagement with the knives. These fingers are pivotally sustained at one end on a shaft 8, while their other ends are guided in the grid *g*. The shaft is rotated intermittently by a pawl 9, which engages a ratchet 10 which said shaft carries, said pawl being pivotally carried at the end of a crank 11, loosely arranged on said shaft. The crank and also one of the cranks *f* are joined by a connecting-rod 12. In order to lock the shaft in each of its step-by-step movements, the usual lock-lever 13, suitably fulcrumed in the frame and engaging a peripherally-notched wheel 14 on the shaft 6, is provided, said lever being maintained in contact with the notched wheel by means of a spring 15.

16 designates a rock-shaft carrying a crank 17 for operating it and two inwardly-projecting arms 18, which are connected by a bar 19. In this is afforded a means for leveling the several combined hooks and racks, which is accomplished by simply forcing the bar 19 into contact with the rear ends of all the latter. 20 is simply a stop for this leveling device.

It is preferred that each combined hook and rack be integral, as already stated. If this is so, the rest portion 21 of each comb-like guide *r'* should be beveled off on both sides, as at 22. Thus as the combined hook and rack is raised or lowered at its forward end the relative disposition of the pinion and rack will remain true and constant.

In the modification of the combined hook and rack shown in Fig. 5 the rack portion 23 and the hook portion 24 are pivotally connected, as at 25, instead of being integrally formed. This construction presents an advantage over the other one in that its rack portion can have a true rectilinear movement notwithstanding the fact that the hook portion must vibrate. In this case, of course, the necessity for beveling the top of the portion 21 of the guide *r'* would be obviated. In operation the shaft *i* being raised and lowered the knives will be reciprocated. At the same time the pattern-chain will be moved along step by step, so as to actuate the fingers 7, and thus bring the corresponding combined hooks and racks into operative engagement with the knives. The reciprocation of the knives will produce, therefore, reciprocations in the combined racks and hooks,

which latter will transfer their motion to the corresponding jacks through the medium of the pinions *r* and the vibrator-levers *s* in an obvious manner. In each extreme movement of a combined hook and rack, and consequently of the corresponding pinion, vibrator-lever, and jack, these parts are securely locked against movement except by said combined hooks and racks, this being due to the fact that the pivotal connections between the vibrator-levers and the pinions are at this time firmly maintained by the vibrator-levers resting on the pinions at or a little past the dead-center.

In the modification illustrated in Fig. 4 instead of the locking action being produced because the pivotal connections between the pinions and vibrator-levers are maintained at or a little past the dead-center by the said vibrator-levers resting on the pinions said locking action is produced by constructing the rack so as to afford stops 23, against which the arms of the pinions may impinge to limit the motion. In this modification, of course, it is not essential that the vibrator-levers be constructed so as to take against the tops of the pinions.

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

1. In a shedding mechanism, the combination, with the frame, of harness-jacks, reciprocating combined hooks and racks arranged in said frame, a rock-shaft, reciprocating knives operatively connected to said rock-shaft and adapted to engage the hook portions of said combined hooks and racks, means for moving the hook portions of said combined hooks and racks into engagement with the one or the other of said knives, pinions journaled on said shaft and engaging the rack-teeth of the combined hooks and racks, and levers connecting said pinions and the jacks, substantially as described.

2. In a shedding mechanism, the combination, with the frame and the jacks, of pinions, and vibrator-levers pivotally connected to said pinions and the corresponding jacks each having a portion thereof projecting over the corresponding pinion, the points of connection between said vibrator-levers and the pinions being eccentric in the latter and the distance between the projecting portion of each vibrator-lever and its point of connection with the pinion being less than the diameter of the circle in which said point tends to move, substantially as described.

3. In a shedding mechanism, the combination, with the frame and the jacks, of pinions having radial arms, vibrator-levers pivotally connected to said jacks at one end and having downwardly-extending arms pivotally connected to the arms of said pinions, each vibrator-lever projecting over the corresponding pinion and the distance between the point of pivotal connection between said arms and the body portion of said vibrator-lever

being approximately equal to the extreme radius of the body portion of said pinion, substantially as described.

4. In a shedding mechanism, the combination, with the frame and the jacks, of pinions, vibrator-levers pivotally connected to said pinions and the corresponding jacks and each having a portion thereof projecting over the corresponding pinion, the point of connection between said vibrator-lever and the pinion being eccentric in the latter and the distance between the projecting portion of said lever and its point of pivotal connection with the pinion being less than the diameter of the circle in which said point tends to move, and springs pressing said vibrator-levers toward the pinions, substantially as described.

5. In a shedding mechanism, the combination, with the frame, of reciprocating members having rack-teeth, pinions journaled in said frame and engaging the teeth of said members, means for operatively connecting said pinions with the harness, and a leveling device fulcrumed in said frame in alinement

with said members and adapted to engage the ends thereof, substantially as described. 25

6. In a shedding mechanism, the combination, with the frame, of reciprocating combined hooks and racks arranged in said frame, a rock-shaft, reciprocating knives operatively connected to said rock-shaft and adapted to engage the hook portions of said combined hooks and racks, means for moving said combined hooks and racks into engagement with one or the other of said knives, pinions journaled on said shaft and engaging the rack-teeth of the combined hooks and racks, and means for operatively connecting said pinions with the harness, substantially as described. 30 35 40

In testimony that I claim the foregoing I have hereunto set my hand this 22d day of November, 1900.

OTTO W. SCHAUM.

Witnesses:

FRANK H. MASSEY,
MORTIMER A. JONES.