

No. 609,156.

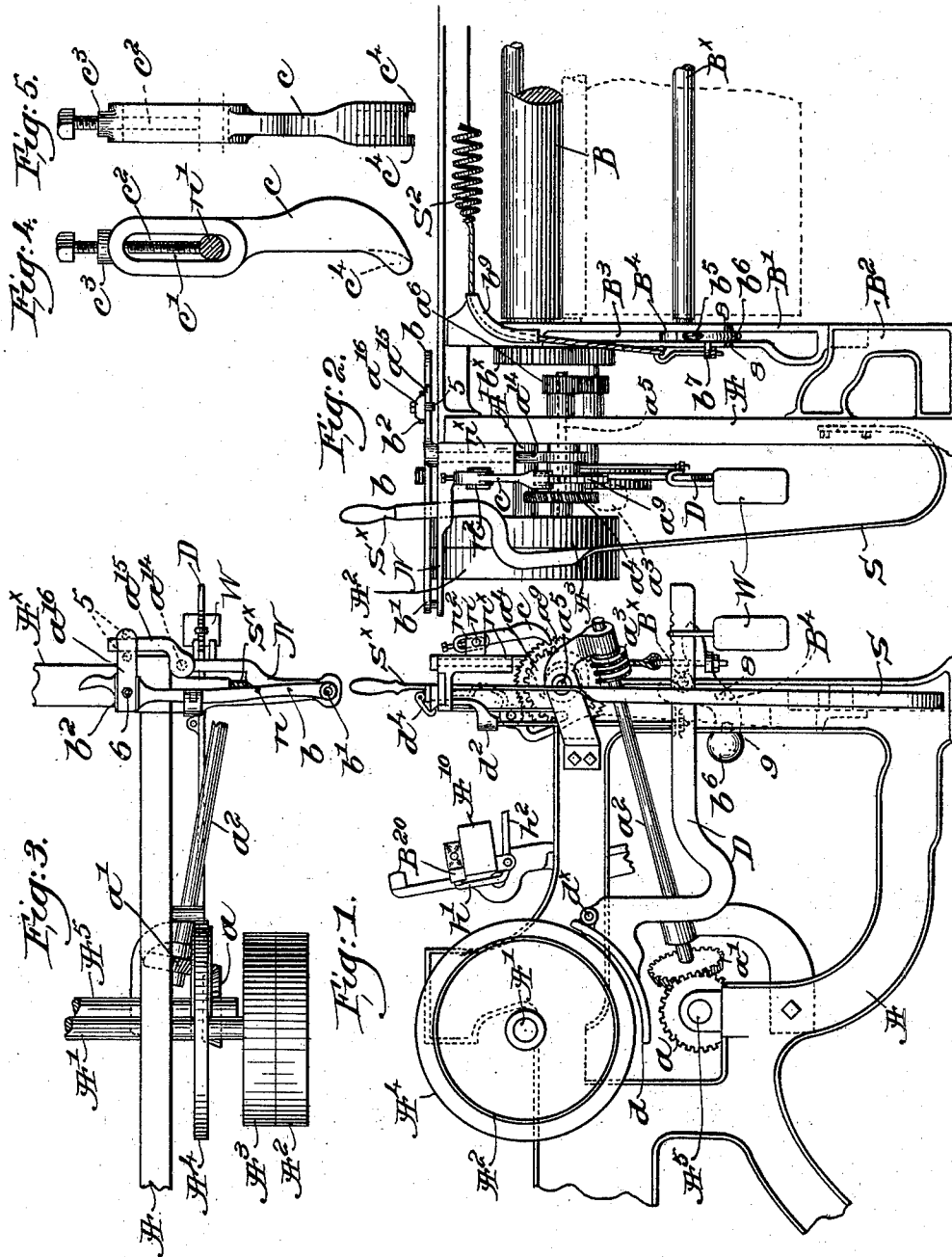
Patented Aug. 16, 1898.

J. T. MEATS.
LOOM.

(Application filed Jan. 15, 1898.)

(No Model.)

3 Sheets—Sheet 1.



Witnesses.

Thomas Drummond.
Edward F. Allen.

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3 Sheets—Sheet 2.

Fig. 6.

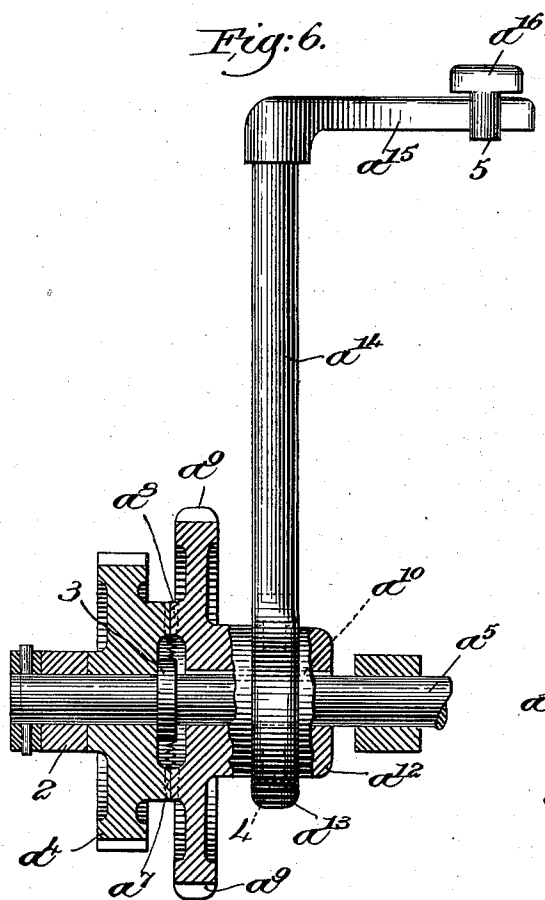


Fig. 7.

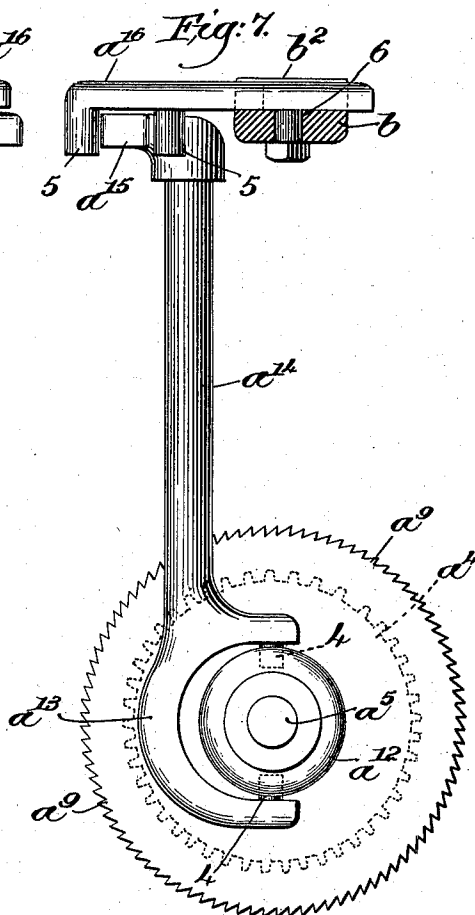


Fig. 8.

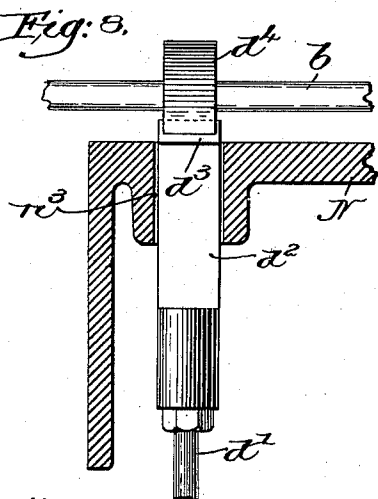
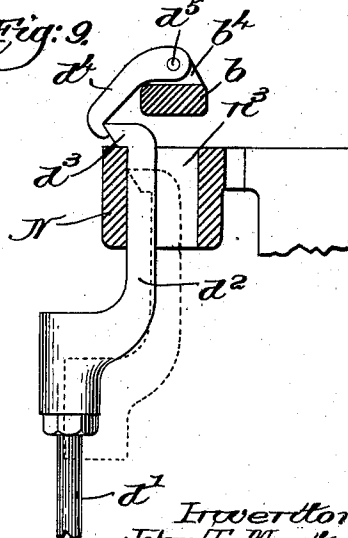


Fig. 9.



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No. 609,156.

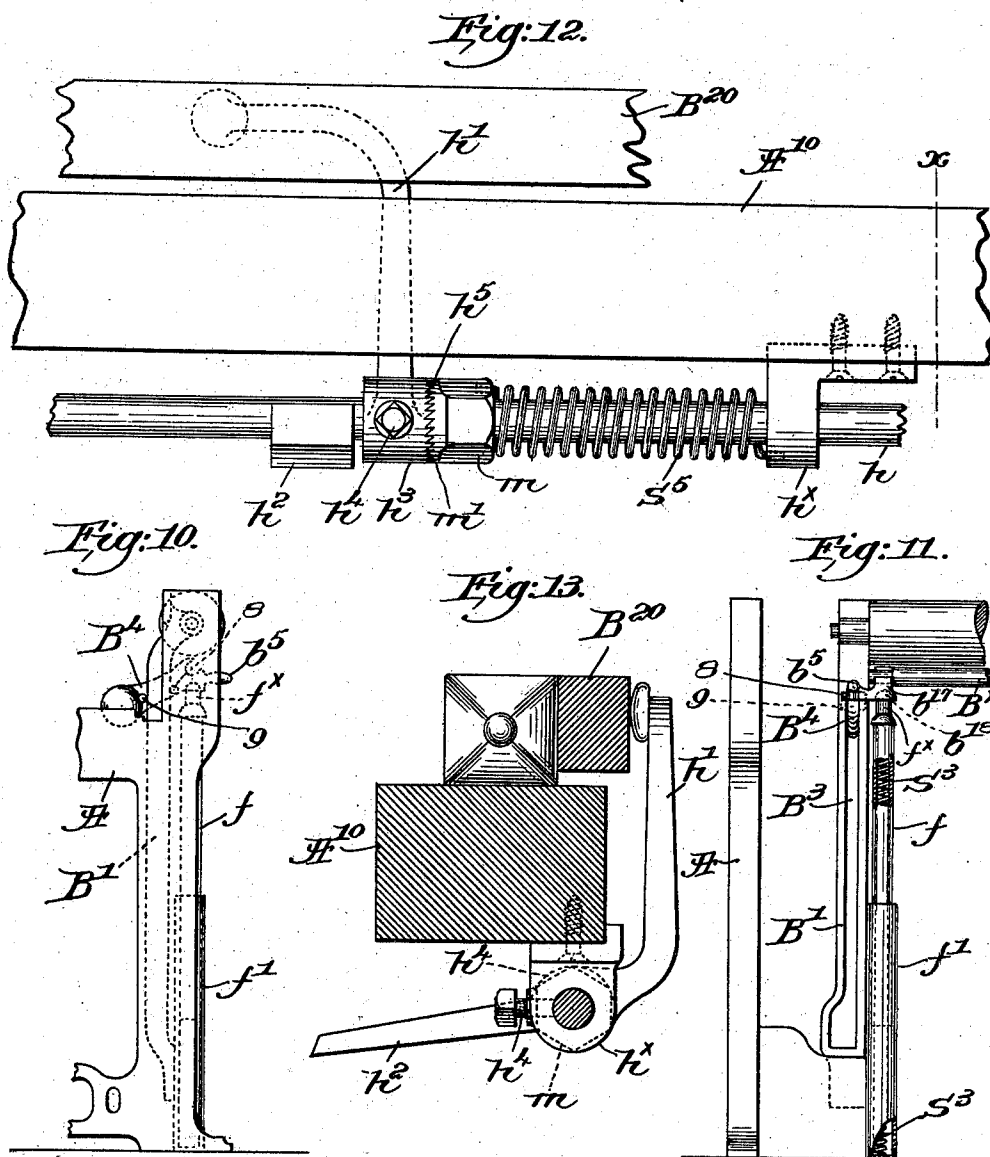
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(Application filed Jan. 15, 1898.)

(No Model.)

3 Sheets—Sheet 3.



Witnesses.

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UNITED STATES PATENT OFFICE.

JOHN T. MEATS, OF TAUNTON, MASSACHUSETTS, ASSIGNOR TO THE MASON MACHINE WORKS, OF SAME PLACE.

LOOM.

SPECIFICATION forming part of Letters Patent No. 609,156, dated August 16, 1898.

Application filed January 15, 1898. Serial No. 666,743. (No model.)

To all whom it may concern:

Be it known that I, JOHN T. MEATS, of Taunton, county of Bristol, State of Massachusetts, have invented an Improvement in Looms, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

This invention relates more particularly to that part of the loom mechanism called the "take-up," whereby the cloth is taken up as it is woven; and one of the principal objects of my invention is to provide means for preventing the operative from turning the take-up faster than the normal speed, such practice resulting in the production of thin places in the cloth, while the increase in the length of cloth woven inures to the benefit of the operative. Attempts have been made to prevent such tampering with the take-up mechanism; but so far as I am aware the practical operation of such devices does not effect the desired object and the take-up can be speeded by the operative without stopping the loom.

By the application to the loom of my present invention, to be hereinafter described, the weaver cannot speed the take-up abnormally without at once stopping the loom, the take-up mechanism being so connected with stopping means for the loom that the former cannot be thrown out of gear without affecting the operation of the latter.

I have also devised novel devices whereby the cloth is wound by contact with and underneath the take-up roll, the operative being enabled to remove the cloth-roll at any point of its downward movement as it is wound without the exertion required to unduly compress a spring or springs, as has been common heretofore.

Various other novel features of my invention will be hereinafter described in the specification and particularly pointed out in the claims.

Figure 1 is a partial left-hand side elevation of a loom with my invention embodied therein. Fig. 2 is a partial front elevation thereof. Fig. 3 is a plan view of some of the devices shown in Figs. 1 and 2, to be described. Figs. 4 and 5 are enlarged views, in side and

front elevation, of the let-back pawl, of novel construction. Figs. 6 and 7 are enlarged views, partially in section and in side elevation, respectively, of the clutch forming a part of the connections between the take-up and stopping means. Figs. 8 and 9 are front and side views, enlarged, of a portion of the controlling means for the loom-brake. Figs. 10 and 11 are side and front views of modified devices at the loom side for yieldingly supporting the cloth-roll. Fig. 12 is an enlarged front view of a portion of the lay to show a novel device for regulating the pressure exerted upon the shuttle by the shuttle-binder; and Fig. 13 is a transverse sectional view thereof on the line xx , Fig. 12, looking to the left.

The loom-frame A , breast-beam A^x , the main driving-shaft A' , having fast and loose pulleys A^2 A^3 thereon, and a brake-disk A^4 may be and are substantially all of well-known or usual construction, the take-up mechanism being actuated in usual manner from either the cam or the crank-shaft of the loom, and herein I have shown a bevel-gear a on the cam-shaft A^5 , in mesh with a similar gear a' , fast on an intermediate shaft a^2 , suitably supported and provided at its outer end with a worm a^3 , but shown in Fig. 1. The worm is in mesh with and positively drives the worm-gear a^4 , rotatably mounted on a shaft a^5 , (see Fig. 6,) supported in suitable bearings on the loom side, said shaft having fast thereon at its inner end a pinion a^6 , which drives the gearing between it and the gear b^x , fast on the shaft of the take-up roll B .

As shown in Fig. 6, collars 2 3 prevent the worm-gear a^4 from moving longitudinally on the shaft a^5 , said gear having on its inner face a clutch member a^7 (shown as toothed or serrated in Fig. 6) to at times coöperate with a similar clutch member a^8 , secured to or forming a part of the holding or detent wheel a^9 , longitudinally movable on the take-up-actuating shaft a^5 and keyed thereto, as at a^{10} , to rotate with it.

The hub a^{12} of the detent-wheel a^9 has an annular groove therein to be entered by lugs 4 of a yoke-like foot a^{13} on a vertical rock-shaft a^{14} , Figs. 1, 2, 6, and 7, mounted in an

upright bearing n^x , shown in Figs. 1 and 2 as depending from the holding-plate N, provided with the usual holding-notch n for the shipper-lever S^x .

5 A knock-off lever b , pivoted at b' on the holding-plate N, (see Figs. 1, 2, and 3,) operates in usual manner to throw the shipper out of the holding-notch upon failure of the filling, the inner end of the lever engaging the
10 usual weft-fork plate. (Not shown.) When the filling fails, the knock-off lever is actuated in usual manner, swinging to the right, Fig. 3, releasing the shipper, which is thrown by its controlling-spring S, actuating the belt-
15 shipper (not shown) to ship the belt and stop the loom.

The upper end of the rock-shaft a^{14} has fast thereon a laterally-extended arm a^{15} , connected by a link a^{16} with the knock-off lever
20 b , the link having downturned projections 5 to embrace the arm, while at its other end said link is permanently secured to a seat b^2 on the knock-off lever by a suitable bolt 6.

It will be obvious from the foregoing that
25 if the take-up-actuating shaft a^5 be speeded up by the operative manually to improperly increase the length of the cloth being woven the clutch member a^8 will be moved to the right, Fig. 6, rocking the shaft a^{14} to swing
30 the arm a^{15} forward, such movement of the latter acting at once through the knock-off lever b to effect the stoppage of the loom. It will also be obvious that when the knock-off lever is actuated by failure of the filling the
35 clutch mechanism will be operated to release the take-up roll from continued operation, and in connection with the take-up I may use an adjustable "let-back" pawl, (shown separately in Figs. 4 and 5,) which operates to let
40 back the take-up roll a predetermined amount whenever the detent-wheel a^9 is unclutched from the actuating-gear a^4 .

The pawl c is longitudinally slotted at its upper end at c' to receive loosely a pin n' , carried by ears n^2 , between which the pawl slides,
45 said ears being erected on the depending bearing n^x . An adjusting-screw c^2 is extended through a threaded boss c^3 on the end of the pawl and into the slot c' , and the amount which
50 the pawl will let back is regulated by the position of the inner end of the said screw, it being evident that the pawl will hang down by its weight as far as permitted by the screw, which then bears on the pin n' . The greater
55 the play permitted the pawl between the end of the screw and the adjacent end of the slot the greater the amount let back. To prevent the pawl from leaving the detent-wheel a^9 when the latter is moved sidewise to throw it
60 out of gear, I have provided the pawl with flanges c^4 , which extend over each side of said detent-wheel, while permitting the lateral movement of the latter.

The brake-sheave A^4 is adapted to be engaged by a brake-shoe d , Fig. 1, upon release
65 of the shipper, said brake-shoe being mount-

ed on a bent lever D, fulcrumed on the loom side at d^x near the periphery of the sheave, the long arm of the lever D extending to the front of the loom and having mounted upon
70 it an actuating-weight W, as herein shown. A releasing-rod d' is attached to the lever D, and at its upper end said rod has a catch d^2 , Fig. 9, the lip d^3 of which normally engages the upper edge of an opening n^3 in the hold-
75 ing-plate N, the shank of the catch passing up through said opening.

The knock-off lever b has an ear b^4 thereon, straddled by the bifurcated end of a dog d^4 , pivoted on the ear by a pin d^5 , the hook-like
80 end of the dog engaging the preferably beveled end of the lip of the catch d^2 , as clearly shown in Fig. 9, when the loom is running. While the catch engages its support the lever D is held lifted, maintaining the shoe d
85 away from the sheave A^4 ; but when the weft fails the releasing movement of the knock-off lever b acts through the dog d^4 to disengage the lip of the catch from the plate, releasing the catch and permitting the weight to rock
90 the lever D and apply the brake.

The journals of the take-up roll B are mounted in upright standards B' , one of which is shown in Fig. 2, within the loom sides, secured to the breast-beam A^x and to brackets
95 B^2 , said standards being longitudinally slotted at B^3 to form guides for sliding supports B^4 for the journals of the cloth-roll B^x . Each support is shown as a plate extended through the slot B^3 and provided at its front end with
100 a projecting handle b^5 , the rear end having an enlargement or weight b^6 at the back of the standard, while a lateral ear b^7 is formed on the support at the base of the handle. Pins or lugs 8 and 9 extend oppositely from
105 each side of the support and bear upon the front and back faces of the standard, the pins being so placed that when the front end of the support is lifted it is cramped or clamped, as it were, on the standard.
110

A strong spring S^2 below the breast-beam has attached to the end thereof a cable or other flexible member b^8 , which passes over a guide b^9 on the standard B' , at its upper end,
115 and thence to the lug b^7 on the cloth-roll support B^4 , to which it is suitably attached. The spring holds the cloth-roll up under the take-up roll B, and as the roll of cloth increases in diameter it pushes the supports down along the standards, the increasing weight of the
120 cloth being provided for by the increasing tension of the spring. The spring acts to lock the supports on the standards at any point until the tension of the spring is overcome either by sufficient weight or pressure
125 brought upon the cloth-roll or upon the handles b^5 of the supports.

Whenever it is desired to remove the cloth-roll at any point of its travel, a slight pressure upon the handles b^5 overcomes the spring-
130 tension, releasing the supports, so that the supports can be moved downward as far as

desired. The pressure upon the handles being removed, the tension of the spring at once acts to again lock the supports B^4 at the desired point, so that the removal of the cloth-roll is permitted at any desired place in its travel along the standards. This capability of removal at any point is a novel feature, so far as I am aware, and a very valuable feature of my invention.

In Figs. 10 and 11 I have shown a modified form of support for the cloth-roll, the modification, however, consisting in the manner of applying the spring to the sliding automatic locking-supports B^4 , the latter being of the form and character hereinbefore described and operating in the same way on the slotted upright standards B' , and it may be noted in this connection that the slot at the lower end of each standard is enlarged, as shown in Figs. 2 and 11, to permit the withdrawal from or the insertion of the support into the slot.

In the construction shown in Figs. 10 and 11 the lateral lug or ear b^7 is omitted, and instead the support has on its inner side an ear b^{17} , cut out or recessed, as at b^{18} , (see dotted lines,) to receive the reduced and convexed tip f^x of a tube f , which slides telescopically in a tubular guide f' , suitably secured to the standard B' , the tubes f and f' containing a spring S^3 , one end of which bears against the upper end of the tube f , the lower end of the spring resting on the bottom of the tube or guide f' . As the weight of the cloth on the roll B^x increases the supports B^4 will descend, as hereinbefore described, and the tube f will telescope into its guide f' , gradually compressing the spring S^3 . By depressing the handles b^5 of the supports, as before described, the support is unlocked and can be readily pushed down far enough to permit the supports to again automatically lock at any point on the standard, so that the roll of cloth may be removed when desired.

The salient feature in the cloth-roll-supporting mechanism in either construction shown is the capability of the removal of the roll at any point of its travel and the automatic locking of the roll-supports on their upright guides.

In Figs. 12 and 13 I have shown a convenient device for regulating the tension of the shuttle-binder spring, the lay A^{10} being shown as provided with the usual rock-shaft h , mounted in bearings h^x , depending from the lay, said rock-shaft carrying the usual binder-finger h' , only one of which is herein shown, which act upon the shuttle-binder B^{20} . The rock-shaft h carries the dagger h^2 for the anti-smash or protective mechanism, of usual form, and the hub h^3 of the shuttle-binder finger h' is held securely in adjusted position on the rock-shaft by means of a suitable set-screw h^4 . The hub h^3 is toothed or serrated at one end, as at h^5 , (see Fig. 12,) to engage the correspondingly-toothed end m' of a nut m , rotatably mounted on the rock-shaft, and to which

one end of the controlling-spring S^5 is attached, the other end of the spring being attached to one of the brackets h^x , as herein shown. In order to vary the tension of the spring and thereby the pressure of the binder upon the shuttle, it is only necessary to rotate the nut m in one direction or the other to tighten or loosen the spring. This is a very convenient and ready means for varying the tension.

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

1. In a loom, take-up mechanism, means to positively actuate it, stopping means for the loom, and connections between said stopping means and the take-up mechanism, operative when the latter is moved in advance of its actuating means, to stop the loom.

2. In a loom take-up mechanism, an actuator to positively operate said mechanism, a connecting-clutch, stopping means for the loom, and devices intermediate said means and the clutch, to operate the former and stop the loom when the clutch is released, as by movement of the take-up in advance of its actuator.

3. In a loom, take-up mechanism, including a movable clutch member, positively-operated actuating means for said take-up, including a cooperating clutch member, advance movement of the take-up releasing the clutch, and stopping mechanism for the loom, connected with the movable clutch member and operated by release of the clutch.

4. In a loom, take-up mechanism, means to positively actuate it, a clutch to connect said actuating means and the take-up; movement of the latter in advance of said means releasing the clutch, and stopping means for the loom, controlled by release of the clutch to effect stoppage of the loom.

5. In a loom, the cloth-roll, movable supports therefor, guides for said supports, having plane surfaces over which the supports move and upon which they are automatically locked, at any point, and a controlling-spring for and to act upon said supports and normally maintain the cloth-roll in position, said supports being unlocked when the spring-tension is overcome.

6. In a loom, the cloth-roll, movable supports therefor, guides having plane surfaces upon which said supports move, and means to lock the supports at any point on their guides, whereby the cloth-roll may be removed at any point of its downward movement.

7. A cloth-roll support, a guide having plane surfaces upon which it is movable, means carried by the support to lock the same at any point of its movement, and a spring to yieldingly sustain the support and to hold it locked upon the guide until the tension of the spring is overcome.

8. In a loom, the cloth-roll, movable supports therefor provided with projections

which straddle the guides, guides upon which
said supports are adapted to slide and rock-
slightly relatively thereto, and spring-con-
trolled means to act upon said supports ex-
5terior to the guides, to normally cramp the
supports upon the guides at any point thereon
and maintain the cloth-roll in position.

In testimony whereof I have signed my
name to this specification in the presence of
two subscribing witnesses.

JOHN T. MEATS.

Witnesses:

GEO. E. BAKER,
P. R. BOSWORTH.