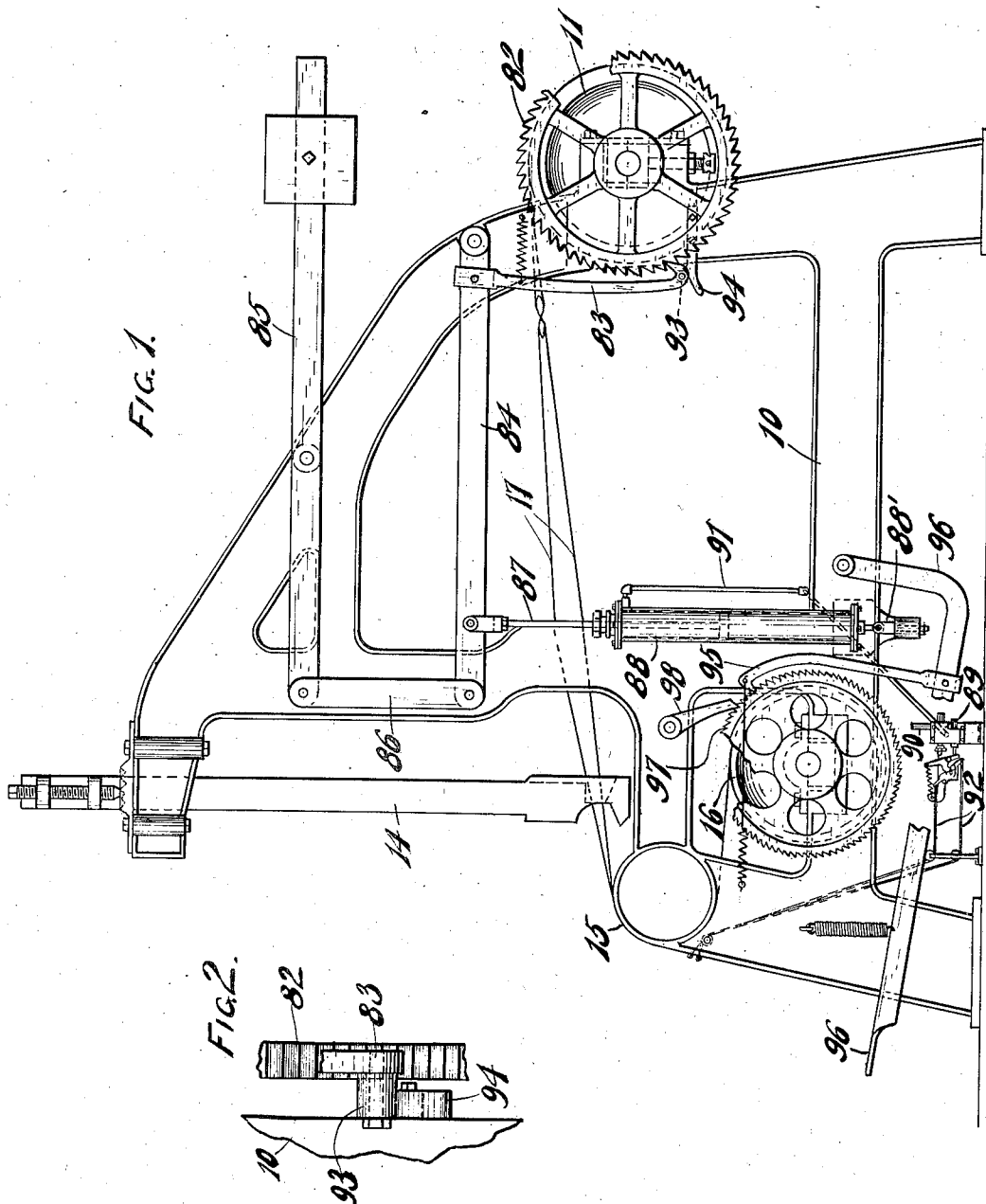


A. B. WEISSENBORN.
 LOOM TENSIONING DEVICE.
 APPLICATION FILED OCT. 5, 1910.

1,053,333.

Patented Feb. 18, 1913.

2 SHEETS—SHEET 1.



WITNESSES.

L. E. Thurner.
Laura A. Kelley

INVENTOR.

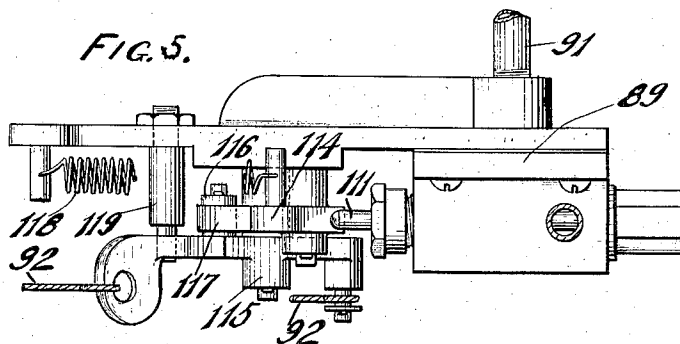
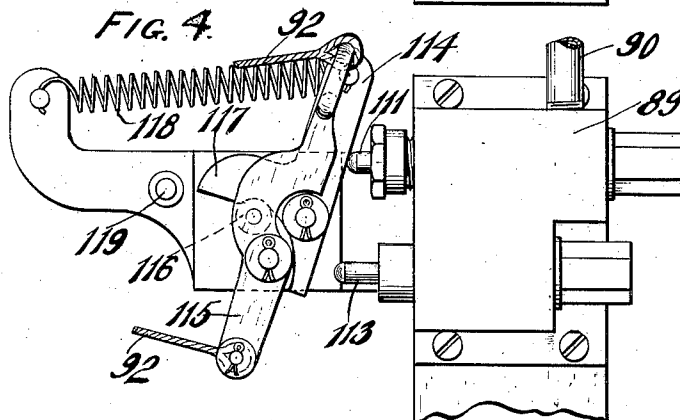
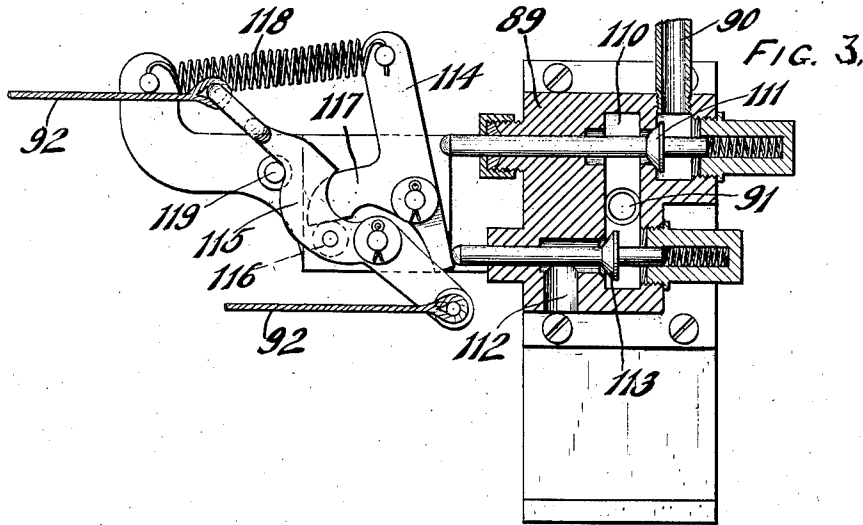
Albert B. Weissenborn.
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WITNESSES.

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UNITED STATES PATENT OFFICE.

ALBERT B. WEISSENBORN, OF APPLETON, WISCONSIN.

LOOM TENSIONING DEVICE.

1,053,333.

Specification of Letters Patent.

Patented Feb. 18, 1913.

Application filed October 5, 1910. Serial No. 585,508.

To all whom it may concern:

Be it known that I, ALBERT B. WEISSENBORN, a citizen of the United States, residing in Appleton, in the county of Outagamie and State of Wisconsin, have invented new and useful Improvements in Loom Tensioning Devices, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

This invention has for its object to provide a wire loom or other loom with means for giving tension to the warp wires and for feeding the fabric to the cloth beam at intervals as the work progresses.

In the accompanying drawings I show an exemplifying structure embodying the invention, but it is to be understood that the invention is capable of embodiment in different forms.

In these drawings like characters of reference indicate the same parts in the different views.

Figure 1 is a side elevation of a loom constructed in accordance with this invention; Fig. 2 is a detailed view showing the pawl releasing means of the warp beam. Fig. 3 is a sectional view through the valve mechanism; Fig. 4 is a front elevation of the valve mechanism; and, Fig. 5 is a plan view thereof.

In these drawings 10 indicates a loom frame having a warp beam 11, a swinging lay 14, a breast beam 15 and a cloth beam 16, all of usual construction, except as hereinafter specifically mentioned.

The lay 14 may be swung by hand or any suitable power means may be provided for the purpose, and in the usual manner performs its functions of beating up the weft wire which has been left by the passage of the shuttle through the shed between the warp wires 17 formed by the shifting of the heddle frames, not shown.

In order to give tension to the warp wires and to feed the fabric onto the beam 16 as the work progresses, the warp beam 11 is provided with a ratchet wheel 82 engaged by a spring actuated dog 83 which is pivotally mounted on a lever 84 fulcrumed on the loom frame, there also being a weighted lever 85 fulcrumed on the loom frame and connected with the lever 84 by means of a link 86. By means of these connections the weight of the lever is utilized to give the dog 83 the tendency to move upwardly to

carry the warp beam with it in a direction to exert a force upon the warp wires and give them the desired tension. The lever 84 is also connected to a piston 87 which works in a cylinder 88 pivotally mounted on a bracket 88' on the frame 10, there being a valve mechanism 89 for admitting compressed air from a supply pipe 90 to the upper end of the cylinder through pipe 91. The valve mechanism 89 has cords 92 connected therewith and extending to the front of the loom, one of which on being pulled serves to open the valve connection for the compressed air while the other serves to close the same and open an exhaust. When the valve mechanism is opened in this manner, the compressed air forces the piston 87 downwardly and thereby counteracts the effect of the weight on lever 85 so as to lower the dog 83 and cause a roller 93 on the side thereof to ride down the inclined surface of a cam 94 which is fixed on the frame and thereby withdraw the dog 83 from engagement with the teeth of a ratchet wheel 82 and permit the warp beam to freely turn when the cloth beam 16 is turned to wind the fabric thereon.

The cloth beam 16 is turned by means of a dog 95 mounted on a spring lifted treadle 96, which dog engages the teeth of a ratchet wheel 97 on the beam 16 when the treadle is depressed, there being a pawl 98 engaging the ratchet wheel 97 to hold the beam 16 against turning backwardly. When the fabric has been fed onto the beam 16 to the desired extent, the valve mechanism 89 is closed by pulling on the other cord 92 and at the time of closing the supply of compressed air to the cylinder, it also opens an exhaust for the air contained in the cylinder so that the weight on lever 85 causes the parts to return to their former position, lifting the piston as well as engaging the dog 83 with the ratchet wheel 82 and turning the warp beam backwardly until the predetermined tension is given to the warp wires.

The construction of the valve 89 for controlling the flow of compressed air to and from the cylinder 88 is shown in Figs. 3, 4 and 5, wherein a valve chamber 110 has the cylinder pipe 91 connected with it and communicates with the compressed air supply pipe 90 through the opening of a spring pressed valve member 111 which has its valve stem projecting from the casing. This valve chamber 110 also communicates with an ex-

haust opening 112 through the opening of a spring pressed valve member 113 which likewise has its valve stem projecting from the casing. A spring retracted lever 114 is pivotally mounted on the casing in a position to engage and open either of the valves 111 and 113, according to whether it is in one extreme position or the other, and an operating lever 115 which is also pivotally mounted on the casing carries a roller 116 to engage a cam hook-like projection 117 on the lever 114 and cause the throw of said lever 114 against the action of its spring 118. When this throw is completed, the parts are in the position shown in Fig. 3 and remain so by reason of the engagement of the hook portion of projection 117 with the roller 116 of the operating lever, and in this position of the parts the operating lever depresses the stem of valve 111 to hold it open and admit compressed air from the supply pipe 90 to the cylinder. The cords 92, previously referred to, are connected to the respective ends of the operating lever 115 and the movement just described was produced by the pulling upon that cord 92 which connects with the lower end of said operating lever. While the parts are in this position a pull upon the other cord 92 causes the roller 116 to ride out of the hook-like portion of projection 117 and the spring 118 forcibly returns the parts to their normal position, as shown in Fig. 3, allowing the valve 111 to be seated by the action of its spring and forcing valve 113 off of its seat so as to open the cylinder to the exhaust and permit the compressed air to pass therefrom. The parts are brought to rest by the engagement of the operating lever 115 with a stop post 119.

I desire it to be understood that this invention is not limited to any specific form or arrangement of parts except in so far as such limitations are specified in the claims.

What I claim as new and desire to secure by Letters Patent is:

1. In a loom, a warp tension means comprising a ratchet wheel on the warp beam, a lever, a dog pivotally mounted on the lever and engaging the ratchet wheel, a weighted lever connected with the first mentioned lever, a suitably operated compressed air cylinder having connection with one of the levers for counteracting the effect of the weight and causing the dog to ride over the teeth of the ratchet wheel, and means for automatically withdrawing the dog from the path of the teeth of the ratchet wheel when the dog is moved by the operation of the compressed air cylinder.

2. In a loom, a warp tension device, com-

prising a ratchet wheel on the warp beam, a lever, a dog pivoted to the lever and engaging the ratchet wheel, a weighted lever connected with the first mentioned lever, a cam in the path of the dog to release the dog from the ratchet wheel when moved in one direction, a suitably operated compressed air cylinder having a piston connection with the first mentioned lever for producing such movement to disengage the ratchet connection of the warp beam when the warp is being drawn off therefrom.

3. In a loom, a warp tension device, comprising a ratchet wheel connected with the warp beam, a lever, means for moving the lever in one direction, a dog on the lever engaging the ratchet wheel, a cam engaged by the dog for disengaging it from the ratchet wheel when the lever is moved in another direction, and a pressure cylinder having a piston connection with the lever for producing such movement.

4. In a loom, a warp tension device comprising a ratchet wheel on the warp beam, a lever, means for moving the lever in one direction, a dog on the lever engaging the ratchet wheel, means for disengaging the dog from the ratchet wheel upon a movement of the lever in the opposite direction, a pressure cylinder having a piston connection with the lever for producing such movement thereof, and a valve for controlling the supply of fluid pressure to the pressure cylinder and consisting of a casing containing a valve chamber, a connection leading therefrom to the cylinder, a compressed air exhaust connection for the valve chamber, spring pressed valves controlling said connections and projecting from the casing, a spring actuated lever engaging the valves in its different positions, a hook-like cam projection on the lever, and a suitably moved operating lever adapted to engage the cam projection of the other lever and to force it to move against the action of its spring for changing the position of the valves, said operating lever becoming engaged by the hook portion of the cam projection to lock the parts in this position, and a movement of the operating lever in the opposite direction serving to release it from the hook-like portion of the cam projection to permit the spring of the other lever to restore the parts to their former position and again change the position of the valves.

In testimony whereof, I affix my signature, in presence of two witnesses.

ALBERT B. WEISSENBORN.

Witnesses:

FRED. V. HEINEMANN,
ALBERT H. MAGUIRE.