No. 666,272.

Patented Jan. 22, 1901.

O. JANELLE.

FILLING SUPPLY LOOM.

(Application filed Feb. 20, 1900.)

(No Model.)

3 Sheets—Sheet 1.

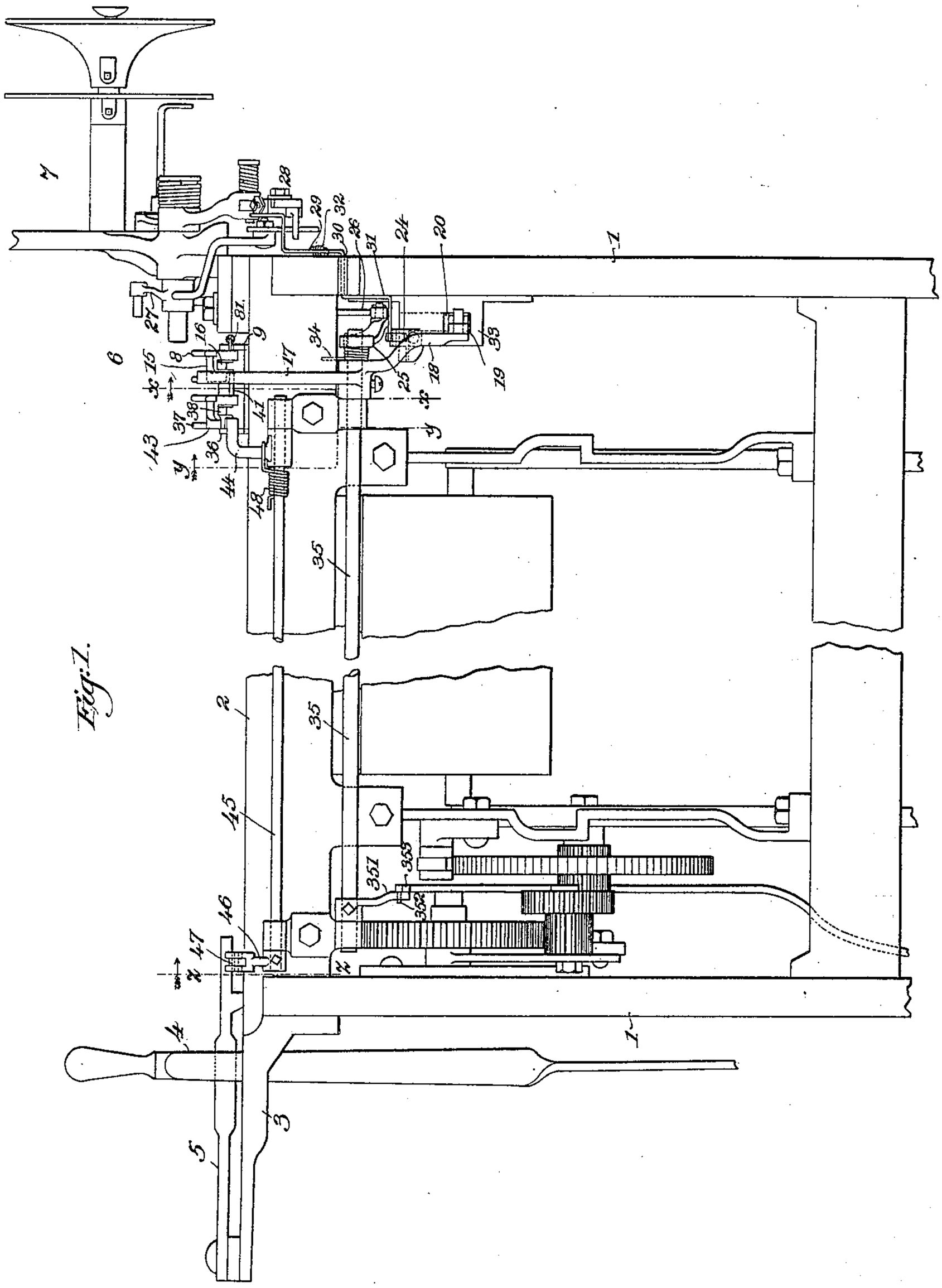


Fig. 1.

Witnesses:
John F. C. Brinkerk
Christiana Kitchmy

Inventor:
Oscar Janelle,
By his Attorneys,
Phillips & Anderson.

No. 666,272. Patented Jan. 22, 1901.

O. JANELLE.

FILLING SUPPLY LOOM.

(Application filed Feb. 20, 1900.)

(No Model.) 3 Sheets—Sheet 2.

Fig: 4.

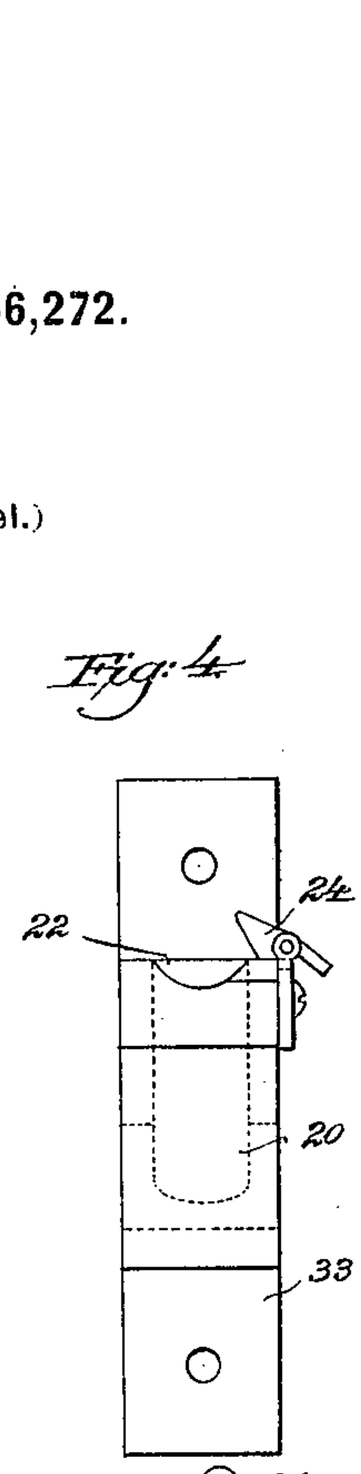


Fig: 3.

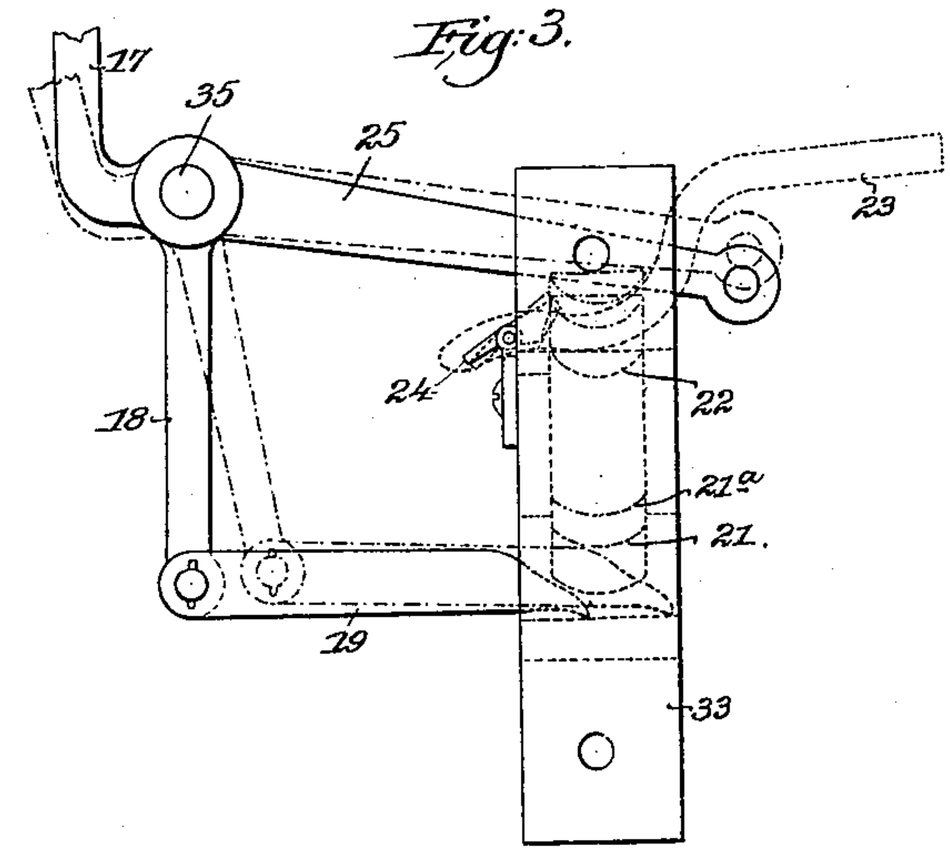
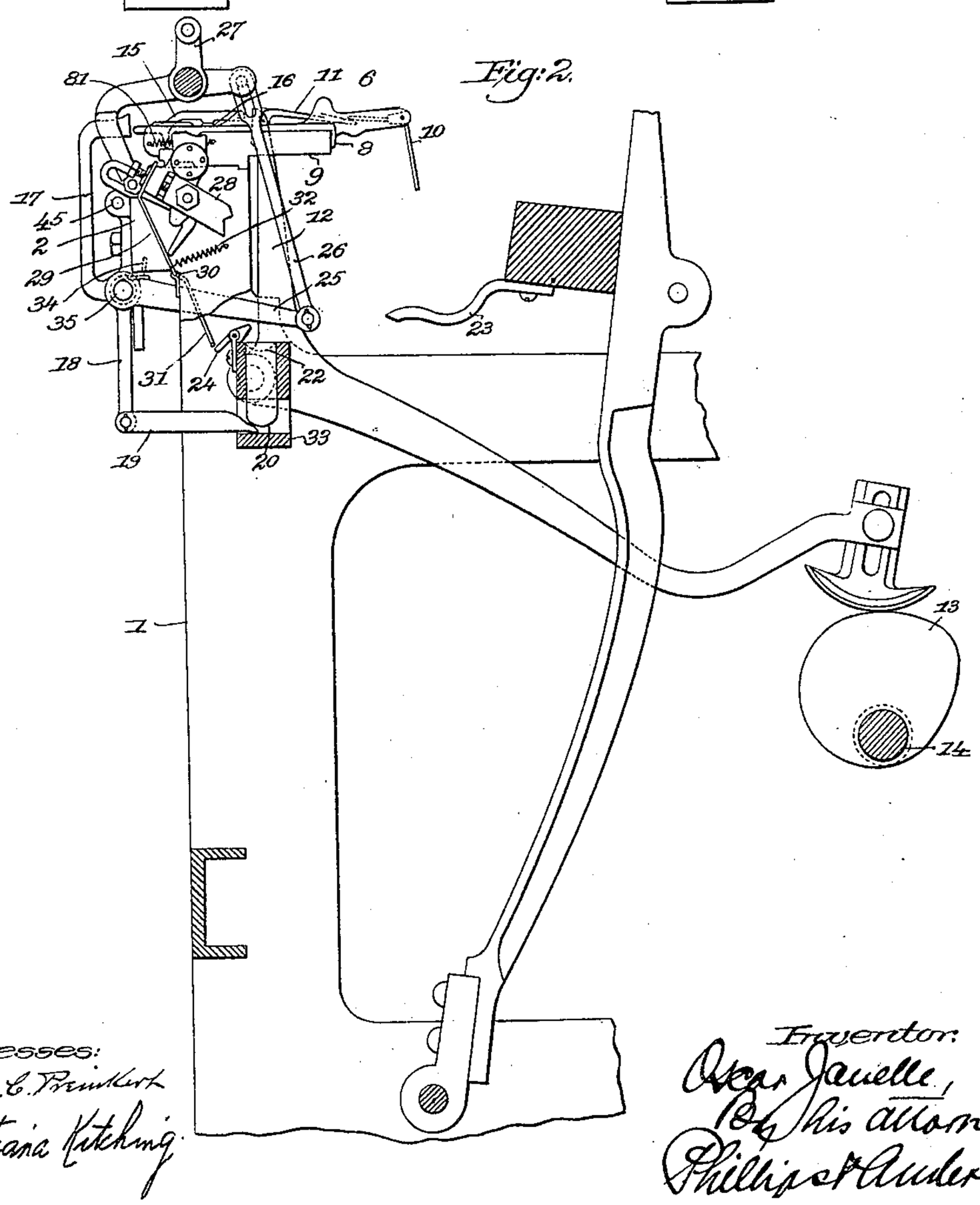


Fig: 2.



Witnesses:
John F. C. Printkert
Christiana Kitching.

Inventor:
Oscar Janelle,
By his attorneys,
Phillips & Anderson

No. 666,272. Patented Jan. 22, 1901.

O. JANELLE.

FILLING SUPPLY LOOM.

(Application filed Feb. 20, 1900.)

(No Model.) 3 Sheets—Sheet 3.

Fig. 5.

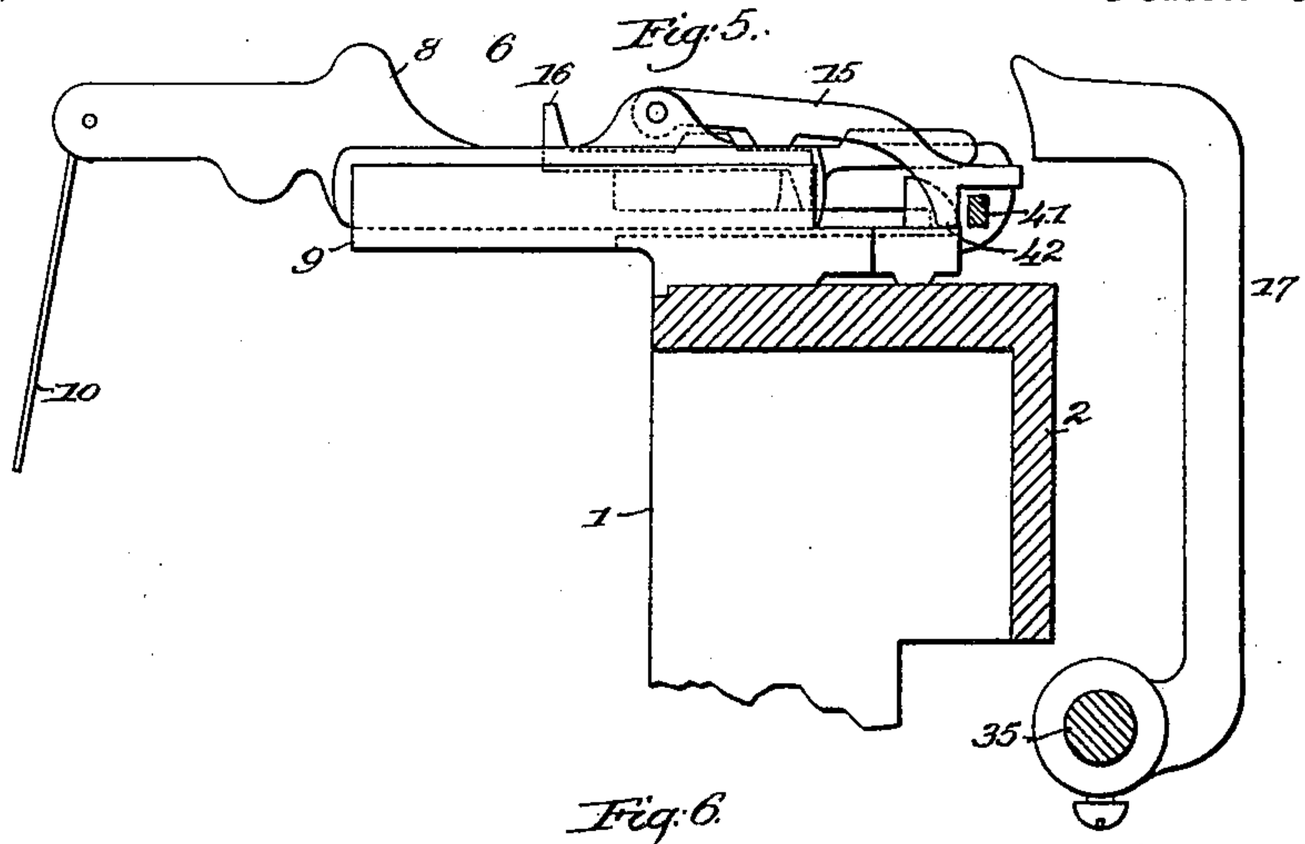


Fig. 6.

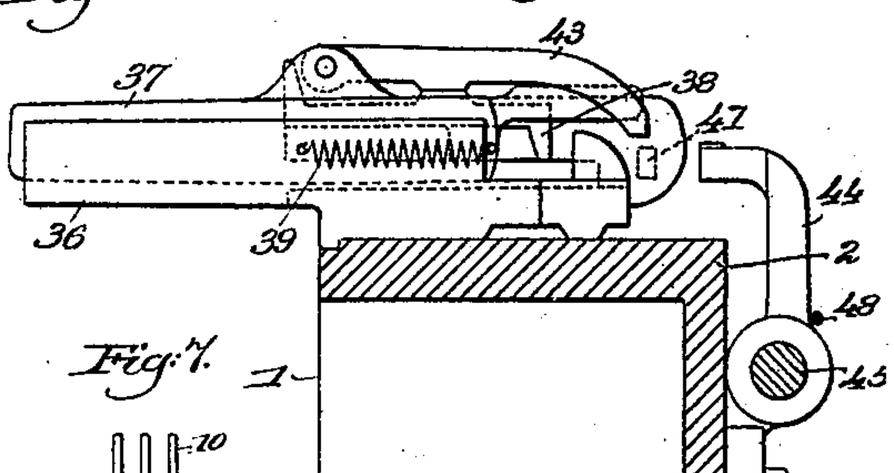


Fig. 8.

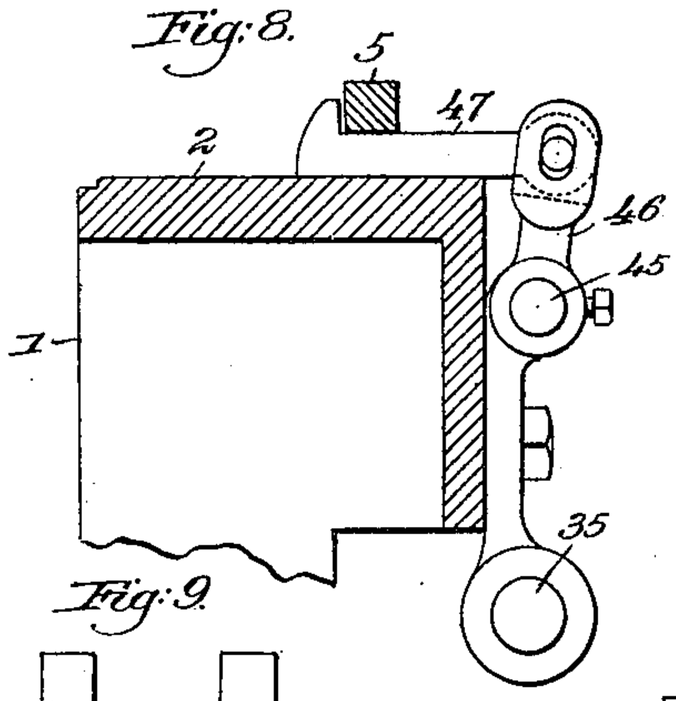


Fig. 7.

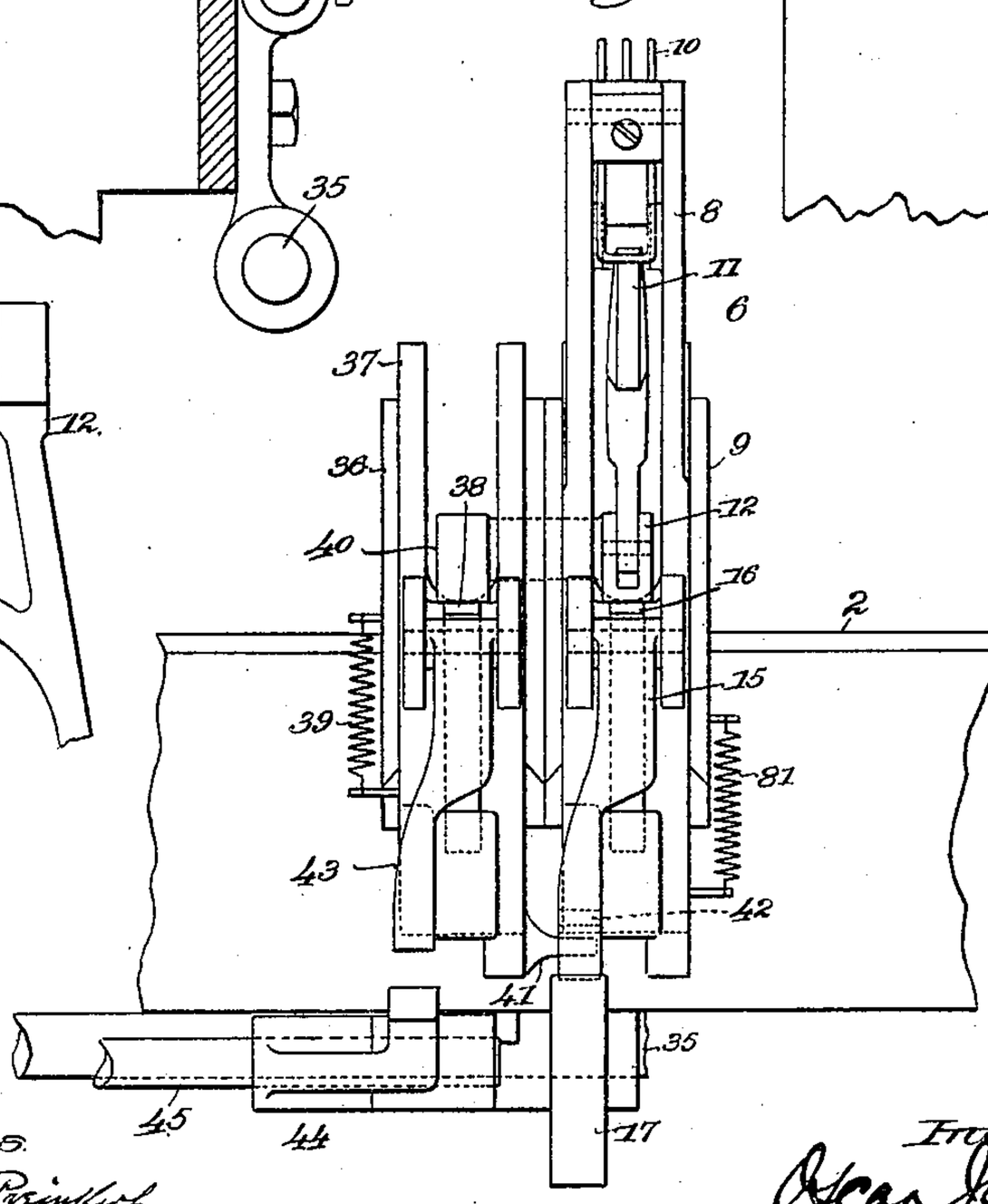
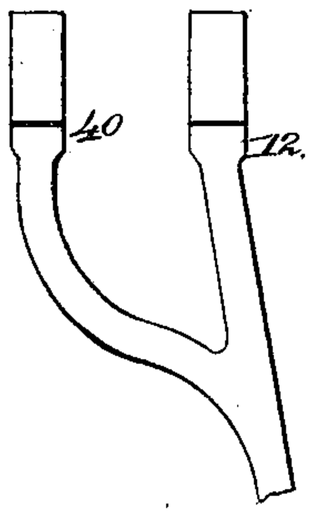


Fig. 9.



Witnesses.
John F. C. Reinkert
Christiana Kitchenig

Inventor.
Oscar Janelle,
By his attorneys,
Phillips & Anderson,

UNITED STATES PATENT OFFICE.

OSCAR JANELLE, OF MANCHESTER, NEW HAMPSHIRE, ASSIGNOR TO STEPHEN N. BOURNE, TRUSTEE, OF SAME PLACE.

FILLING-SUPPLY LOOM.

SPECIFICATION forming part of Letters Patent No. 666,272, dated January 22, 1901.

Application filed February 20, 1900. Serial No. 5,876. (No model.)

To all whom it may concern:

Be it known that I, OSCAR JANELLE, a citizen of the United States, residing at Manchester, in the county of Hillsborough and State of New Hampshire, have invented certain new and useful Improvements in Automatic Filling-Supply Looms; 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.

The present invention relates to an improvement in automatic filling-supply looms.

In my application filed January 2, 1900, Serial No. 52, I referred to the objectionable production of thin stripes in weaving by known types of automatic filling-supply looms resulting from the breaking of the weft at a little distance from the thread-eye of the shuttle, which prevented the filling-supply detector from indicating the absence of weft, and I described in that application the invention by which I overcame that objection. Broadly stated, that invention consisted in providing the loom with filling stop mechanism which operates when the filling-supply detector fails to indicate the absence of weft to stop the loom. Such stopping of the loom, however, although it prevents the occurrence of thin stripes, diminishes the production of the loom; and one of the objects of the present invention is to reorganize and improve the automatic filling-supply loom, to prevent the objectionable production of thin stripes in weaving, and at the same time to decrease the number of stoppings of the loom. By thus decreasing the frequency of the stoppings of a single loom the number of looms that can be tended by one weaver is increased and the cost of production of cloth is diminished.

It sometimes happens that the thread-eye of the self-threading shuttles which are used in the bobbin-changing types of automatic filling-supply looms gets out of order by becoming clogged with lint or otherwise and that as a consequence the shuttle fails to thread itself on the first shot after the putting in of a new bobbin, and so on the next shot in the opposite direction the filling breaks. Thereupon of course the filling-supply mechanism is set in motion again by the filling-detector and a new bobbin is forced into the shuttle, only to break the filling again on the second shot, exactly as before. The putting in of new bobbins into the shuttle continues until the shuttle-eye again receives the thread or until the filling-supply mechanism is exhausted of bobbins. This action results in the laying of a number of wefts in one shed, thus producing what is known as a "thick place" in the cloth.

It is another object of the present invention to reorganize and improve the automatic filling-supply loom to prevent the objectionable production of thick places in weaving.

The present invention consists in an automatic filling-supply loom having provision for preventing the occurrence of thin stripes and thick places in the cloth.

The present invention contemplates providing an automatic filling-supply loom with a filling-detector on the side of the warp from which the thread-eye of the shuttle is the more distant when the shuttle is boxed on the same side of the warp and with a filling stop mechanism.

My invention contemplates providing an automatic bobbin-supply loom with filling stop mechanism operating to stop the loom when the shuttle fails to thread itself.

My invention contemplates providing an automatic filling-supply loom with filling stop mechanism having provision for stopping the loom after three immediately successive operations of the filling-detector.

My invention also contemplates certain other features and details of construction hereinafter described, and pointed out in the claims.

The present invention is broad and generic in character, as I believe I am the first to make an automatic filling-supply loom having the filling-detector located on the side of the warp from which the thread-eye of the shuttle is the more distant when the shuttle is boxed on the same side of the warp, combined with filling stop mechanism. I believe I am the first to make an automatic filling-supply loom having stop mechanism operating to stop the loom to prevent thick places. I believe I am the first to make an

automatic filling-supply loom having filling stop mechanism operating to stop the loom after three immediately successive operations of the filling-detector.

It is to be noted that the present invention, except where in the claims I have limited it to an automatic bobbin-supply loom, is equally adapted to either of the well-known forms of automatic filling-supply looms—that is to say, it is applicable to those which operate by changing the shuttle as well as to those which operate by changing the bobbin. My invention is susceptible of embodiment in many different forms without departing therefrom and is in no sense limited to the specific construction shown in the accompanying drawings and specifically described in this specication.

As in my former application, the specific embodiment of the present invention is shown as adapted to the well-known Northrop loom. In this loom the thread-eye of the shuttle is the more distant from the warp when the shuttle is boxed at the filling-supply mechanism side of the loom and because it is a self-threading shuttle and the thread must be drawn into the thread-eye thereof on the first shot of the shuttle after a new bobbin has been inserted therein. So, therefore, in the illustrated embodiment of my invention the filling-detector is mounted on the same side of the loom as the filling-supply mechanism. The stop mechanism is shown as deriving its initial movement from the filling-detector; but it is to be understood that my invention is not limited to such construction, as it would be within the purview of my invention to make the filling stop mechanism independent of the filling-detector which sets the filling-supply mechanism in operation. Connections are provided between the take-up mechanism and the filling-supply mechanism to stop the take-up when the filling-supply mechanism is set in motion.

In the accompanying drawings, Figure 1 is a front elevation of a portion of a Northrop loom reorganized and modified in accordance with my invention. Fig. 2 is a side elevation of the loom looking from the filling-supply-mechanism side with parts of the loom omitted. Figs. 3 and 4 are enlarged detail views hereinafter referred to. Fig. 5 is a sectional side elevation taken on the line $x\,x$ of Fig. 1 looking in the direction of the arrow. Fig. 6 is a sectional side elevation on the line $y\,y$ of Fig. 1 looking in the direction of the arrow. Fig. 7 is a plan view of the filling-detector mechanism. Fig. 8 is a sectional side elevation on line $z\,z$ of Fig. 1 looking in the direction of the arrow, and Fig. 9 is a front elevation of the upper part of the weft-hammer.

I have shown in the drawings only so much and such parts of the well-known Northrop loom as are necessary for a clear understanding of the coöperation therewith of my improvement.

The loom is provided with a filling-supply mechanism and a filling-detector mounted on the side of the warp from which the thread-eye of the shuttle is the more distant when the shuttle is boxed on the same side of the warp, stop mechanism for stopping the loom, and connections between the stop mechanism and the filling-detector, including a stop-delaying device operating to delay the stopping of the loom until after the third absence of weft has occurred, thereby giving the necessary time for the filling-supply mechanism to act.

The frame 1 supports the operative parts of the loom. The breast-beam 2 has a projection 3, which affords a guide for the shipper-lever 4 and a support for the knock-off lever 5. The filling-detector mechanism 6 is mounted on the same side of the loom as the filling-supply mechanism 7 and consists of a slide 8, mounted in a guide 9, secured to the breast-beam. On the rear end of the slide is mounted a weft-fork 10, which in the absence of weft is engaged by the hook 11, carried by the weft-hammer 12, which is operated in the usual manner by the cam 13 on the cam-shaft 14. Pivotally mounted upon the slide 8 is the pawl 15, normally supported in the position shown in Fig. 2 by the wedge-block 16 in substantially the manner described in the patent to Northrop, No. 529,943. Upon the first forward movement of the slide 8, due to the absence of weft, the pawl 15 engages the lever 17 and turns it upon its support and at the same time the wedge 16 is pushed from under the pawl 15. Upon the second forward movement of the slide 8, the wedge 16 having been removed from under the pawl 15, as stated, the end of the pawl will pass below the end of the lever 17 and fail to engage therewith. The slide 8 is normally held in the position shown in Fig. 2 by the spring 81, which corresponds to the spring 21^a of my former application. The downwardly-extending arm 18 is secured to or integral with the lever 17 and carries upon its lower end a wedge 19, which when the lever 17 is oscillated by the slide 8 will be forced under a lifter 20, which will be lifted thereby into the position indicated at 21 in Fig. 3. The upper end of the lifter carries a lateral projection 22, which when the lifter has been raised to the position 21 will be engaged by the hook 23, mounted upon the lay, and the lifter will be raised to the position 21^a. (Shown in Fig. 3.) The first upward movement of the lifter is for the purpose of raising it into position to be engaged by the hook 23 of the lay on the next beat thereof. When so raised by the hook 23 the lifter will be caught by the pawl 24 and will be held in its raised position. Loosely mounted upon any suitable part of the machine is the lever 25, which is normally held in the position shown in Fig. 2 by the spring 34 and which carries on its end the slotted link 26, which operates in the usual manner to permit the lever 27 to

be moved by the spring of the filling-supply dog 28. This motion of the filling-supply dog 28 brings it into position to be engaged by the bunter on the lay, so that the bunter will on the next forward beat of the lay engage said dog and operate the filling-supply mechanism to insert a new bobbin in the shuttle. When the filling-supply dog 28 is engaged by the bunter on the lay and moved forwardly thereby, its forward end will engage the lever 29, pivoted to the framework at 30, and cause its opposite end 31 to engage the tail of the pawl 24 and release the lifter and permit it to drop. A spring 32 normally holds the downwardly-extending end of the lever 29 away from contact with the pawl 24. The lifter 20, its support 33, and the pawl 24 are shown in Figs. 3 and 4, and the support for the lifter 20 is shown as secured to the right-hand side of the frame 1 in Fig. 1. The lever 17 may be pivoted upon any suitable support on the frame; but I prefer to mount it upon the detector-shaft 35, which extends across the loom and upon the opposite end of which is mounted the dog 351, which engages the pin 352 on the pawl-carrier 353, and when the lever is oscillated by the filling-detector mechanism it will at the same time rock the shaft 35 and lift the pawl-carrier and disengage the pawl of the take-up mechanism in substantially the manner described in the patent to Northrop, No. 610,636.

If the lever 17 is mounted upon some support other than the rock-shaft 35, the devices actuated by the lever for disengaging the pawl of the take-up mechanism will be correspondingly modified.

The filling-supply mechanism 7 is constructed substantially as shown in the patent to Northrop, No. 568,455, the lever 27 corresponding substantially to the lever shown in Figs. 5 and 6 of said patent, the function of which lever is to permit the filling-supply dog to be raised by its spring into position to be engaged by the bunter on the lay.

I provide the loom with a stop mechanism and connections including a stop-delaying device set in motion by a filling-detector and operating to stop the loom in the event of three immediately successive absences of weft. The stop mechanism is set in motion on the third immediately successive absence of weft on the side of the warp from which the thread-eye of the shuttle is the more distant when the shuttle is boxed on the same side of the warp. In the loom of the drawings the filling-detector which indicates this absence of weft is the same detector which operates to set the filling-supply mechanism in motion. I prefer the illustrated construction, for the reason that I am enabled to make one weft-detector operate both the filling-supply mechanism and the stop mechanism, thus simplifying the loom, reducing the number of its parts, and the liability of those parts to get out of order. By reason of the fact that the filling-detector, which sets the filling-stop mechanism in motion, is mounted on the side of the warp from which the thread-eye of the shuttle is the more distant when the shuttle is boxed on the same side of the warp the presence of a trailing thread would not prevent the weft-detector from indicating the absence of weft.

The particular construction which I have adopted for the above purpose is as follows: I have mounted upon the breast-beam of the loom alongside of the guide 9 another guide 36, similar to the guide 9, and I have mounted in it a slide 37, similar to the slide 8, but unprovided with a weft-fork. It carries a wedge 38, similar in all respects to the wedge 16, and the slide is normally held in the position shown in Fig. 6 by the spring 39. The wedge 38 is operated in the same manner as the wedge 16 by an auxiliary weft-hammer 40, which is attached to and moved with the weft-hammer 12. (See Fig. 9.) Upon the front end of the right-hand side of the slide 37 is a laterally-projected lug 41, which is shown in plan in Fig. 7, in side elevation (dotted) in Fig. 6, and in section in Fig. 5, and which projects into the path of motion of a catch 42, depending from the lower side of the pawl 15. The slide 37 is provided with a pawl 43, which is normally supported by the wedge 38, and which when the wedge is pushed from under the pawl 43 on the first forward movement of the slide 37 falls, so that its front end may engage devices for stopping the loom. As above stated, any suitable stop mechanism may be used for stopping the loom; but I prefer to mount a lever 44 in front of the pawl 43, the end of which will be engaged by the pawl 43 when the pawl is permitted to fall by the withdrawal of the wedge from under it, and which is normally supported in a position too low to be engaged by the pawl 43 in its raised position. The lever 44 is mounted upon a rock-shaft 45, carried by suitable bearings in front of the breast-beam and which extends across the front of the loom and bears upon its opposite end a lever 46, which projects upwardly therefrom, and to which is secured a hook 47, which when the rock-shaft is oscillated by the lever 44 will engage the knock-off lever 5 and knock off the loom. A spring 48 normally holds the rock-shaft 45 and the levers 44 and 46 secured thereto in the position shown in Figs. 5 and 8.

Before passing to a description of the operation of the loom as a whole it will be observed that the absence of weft indicated by the filling-detector will cause the weft-hammer to engage the weft-detector and move the slide 8 forward, the first forward motion of the slide causing the pawl 15 to engage the lever 17, and thereby to set the filling-supply mechanism in operation. This same forward movement of the slide 8 will remove the wedge 16 from under the pawl 15 and the pawl will drop. On the next successive forward move-

ment of the slide (which will necessarily occur because the filling-supply mechanism has not yet had time enough to operate to put a new bobbin in the shuttle) the pawl 15 will be in its lower position, having fallen by reason of the withdrawal from under it of the wedge 16, and will be in the position shown in Fig. 5, and the outer end of the pawl will pass beneath the end of the lever 17 without touching it or imparting any motion to it. On the first forward movement of the slide 8 the pawl 15 was in its raised position, and so the catch 42 passed over the lug 41 of the slide 37 without touching it and without imparting any motion to said slide; but on the second forward movement of the slide 8 the pawl 15, being in its lower position, as shown in Fig. 5, the catch 42 will engage the lug 41 on the slide 37 and impart to said slide a forward movement coincident with the forward movement of the slide 8. In other words, the second absence of weft (and the third, too, as will presently appear) will cause both slides 8 and 37 to move forward together. The wedge 38 normally supports the pawl 43 in its raised position, as shown in Fig. 6, and the end of the pawl normally passes over the end of the lever 44 without engagement therewith. The first forward movement of the slide 37 (which is coincident with the second forward movement of the slide 8) will cause the wedge 38 to be withdrawn from under the pawl 43, and on the second forward movement of the slide 37 (which is coincident with the third forward movement of the slide 8 and which indicates a third successive absence of weft) the slide 37 will be carried forward with the slide 8, and as the pawl 43 was permitted to fall on its previous forward movement the end of the pawl will on this movement engage the end of the lever 44 and through the means described stop the loom. The weft-hammer 12 and the auxiliary weft-hammer 40, carried thereby, operate in identical manners to restore the wedges 16 and 38 to their normal positions in precisely the same manner that the weft-hammer operates to restore the wedge in the construction shown in the patent to Northrop, No. 529,943, above referred to.

It should be observed in connection with the said patent to Northrop, No. 529,943, that while it shows and describes a loom embodying a filling-detector, a filling-supply mechanism, and connections therebetween and while it also embodies stop mechanism and connections between the filling-detector and the stop mechanism which include a stop-delaying device operating to prevent the stopping of the loom until after the second absence of weft, and therefore until after the filling-supply mechanism had had time to provide a new supply of filling, that loom is nevertheless clearly to be distinguished from my invention because it differs therefrom in the following important respects: First, the filling-detector is mounted on the opposite side of the warp from mine, and so that loom would fail to indicate the breaking of the weft when there was a trailing thread; second, the stop-delaying device delays the stopping of the loom for only one weft absence, and, third, that loom in event of the failure of the shuttle to thread itself would continue in operation until the filling-supply mechanism was exhausted, thus causing a thick place in the cloth.

The operation of my improved loom above described is as follows: Let it be assumed that the loom is running properly and weaving cloth and that thereupon the bobbin in the shuttle becomes exhausted or the filling breaks. Whether there is or whether there is not a trailing thread is entirely immaterial to the operation of the loom above described, because the thread-eye of the shuttle is the more distant from the warp, and therefore from the filling-detector, when the shuttle is boxed on the same side of the loom with the filling-detector. The absence of weft will be indicated by the filling-detector, and the weft-hammer will move the slide 8 forward, so that its pawl will engage the lever 17, and thereby force the wedge 19 under the lifter 29, so that upon the next beat of the lay the hook 23 will engage the lateral projection 22 on the lifter and raise the lifter above the pawl 24, which will hold it in its raised position, thereby lifting the lever 25 (and holding it in its elevated position) and lifting the slotted link 26, so that the lever 27 will be permitted to be oscillated by the filling-supply dog 28 to bring it into position to be engaged by the bunter on the lay, and then the filling-supply mechanism will force the new bobbin into the shuttle on the appropriate beat of the lay when the shuttle is under the filling-supply mechanism. If the filling broke or became exhausted during the traverse of the shuttle toward the filling-supply-mechanism side of the loom, the shuttle would fail to receive a new bobbin the first time it entered the shuttle-box under the filling-supply mechanism, but would receive a new bobbin the next time it entered said shuttle-box. So under these circumstances there would be at least two, and possibly three, dead-picks. If the filling broke or became exhausted during the motion of the shuttle toward the box at the side of the loom opposite the filling-supply mechanism there would be at least three, and possibly four, dead-picks. These dead-picks would not, however, be objectionable, for the reason that the take-up is stopped when the filling-supply mechanism is thrown into operation. During the second forward movement of the slide 8 the pawl 15 will pass below the end of the lever 17 and fail to engage therewith, this movement occurring when the lay moves forward to bring the shuttle under the filling-supply mechanism to receive a new bobbin. It will be observed that the beat of the lay which carries the hook 23 under the lateral projection of the lifter 20 will occur when the shuttle is at the oppo-

site end of the lay from the filling-supply mechanism, so that the rising of the filling-supply dog into position to be engaged by the bunter on the lay will occur during the backward movement of the lay, when the shuttle is thrown toward the filling-supply mechanism side of the loom, and that the next beat of the lay will cause the bunter to engage the filling-supply dog, and thereby force a new bobbin into the shuttle. If the shuttle threads correctly, there will be but two successive absences of weft opposite the filling-detector, and at the third time the weft-fork will be oscillated by the filling and the weft-hammer will fail to engage it and so the slide 8 will remain stationary. The weft-hammer 12 and its auxiliary hammer 40 will engage the wedges 16 and 38, respectively, and force them under the pawls 15 and 43, respectively, thereby restoring the mechanism to its normal condition; but if there should then occur a third absence of weft then the slides 8 and 37 will be moved forward together, the pawl 43 being in its lowered position, which would then engage and oscillate the lever 44 and stop the loom, so that if the thread-eye of the shuttle should become clogged or for any reason the shuttle should fail to thread itself properly the loom would be stopped immediately and the occurrence of a thick place would be prevented.

The above-described loom operates to throw the filling-supply mechanism into operation whenever the filling becomes broken or exhausted and entirely irrespective of whether there be a trailing thread or not. By this means thin stripes are prevented. This loom has provisions which will stop it in the event of the failure of the shuttle to thread itself properly, and so thick places will be prevented.

Having thus described my invention and the specific form in which I have embodied it, I claim as broadly new and desire to secure by Letters Patent of the United States—

1. In an automatic filling-supply loom, the combination with filling-supply mechanism, of a filling-detector mounted on the side of the warp from which the thread-eye of the shuttle is the more distant when the shuttle is boxed on the same side of the warp, connections between the filling-supply mechanism and the filling-detector, stop mechanism, and connections between the filling-detector and the stop mechanism, substantially as described.

2. In an automatic bobbin-supply loom, the combination with bobbin-supply mechanism, of a filling-detector mounted on the same side of the loom, connections between the bobbin-supply mechanism and the filling-detector, stop mechanism, and connections between the filling-detector and the stop mechanism, substantially as described.

3. In an automatic bobbin-supply loom, the combination with bobbin-supply mechanism, of stop mechanism, a filling-detector mounted on the same side of the loom, and connections between the stop mechanism and the filling-detector operating to set the stop mechanism in operation on a weft absence on the first shot of the shuttle toward the bobbin-supply mechanism after an operation of said bobbin-supply mechanism, substantially as described.

4. In an automatic filling-supply loom, the combination with filling-supply mechanism, of a filling-detector mounted on the side of the warp from which the thread-eye of the shuttle is the more distant when the shuttle is boxed on the same side of the warp, connections between said filling-supply mechanism and filling-detector, stop mechanism, and connections between the filling-detector and the stop mechanism including a stop-delaying device for setting the stop mechanism in operation, substantially as described.

5. In an automatic bobbin-supply loom, the combination with bobbin-supply mechanism, of a filling-detector mounted on the same side of the loom with the bobbin-supply mechanism, connections between the bobbin-supply mechanism and the filling-detector, stop mechanism, and connections between the stop mechanism and the filling-detector including a stop-delaying device, for setting the stop mechanism in operation, substantially as described.

6. In an automatic bobbin-supply loom, the combination with bobbin-supply mechanism, of stop mechanism, a filling-detector and connected mechanism operating automatically to set the bobbin-supply mechanism in operation on the first weft absence, to disconnect said bobbin-supply mechanism from the filling-detector on the second immediately successive weft absence, and to set the stop mechanism in operation on the third immediately successive weft absence, substantially as described.

7. In an automatic bobbin-supply loom, the combination with bobbin-supply mechanism, of stop mechanism, a filling-detector and connected mechanism operating automatically to set the bobbin-supply mechanism in operation on the first weft absence, to prepare the stop mechanism for operation on the second immediately successive weft absence and to set the stop mechanism in operation on the third immediately successive weft absence, substantially as described.

8. In an automatic bobbin-supply loom, the combination with bobbin-supply mechanism, of a filling-detector mounted on the same side of the loom, stop mechanism and connected mechanism operating automatically to set the filling-supply mechanism in operation on the first weft absence and to set the stop mechanism in operation on a weft absence on the first shot of the shuttle toward the bobbin-supply mechanism after an operation of said bobbin-supply mechanism, substantially as described.

9. In an automatic bobbin-supply loom, the combination with bobbin-supply mechanism,

of a filling-detector mounted on the same side of the loom with the bobbin-supply mechanism, connections between the bobbin-supply mechanism and the filling-detector including a catch, stop mechanism and connections between the stop mechanism and the filling-detector including a slide, a pawl, pivotally attached thereto, a wedge normally supporting the pawl so that the first movement of the slide will be inoperative to set the stop mechanism in operation, the said slide having a projection adapted to be engaged by said catch on the second immediately successive weft absence, substantially as described.

10. In an automatic filling-supply loom, the combination with filling-supply mechanism, of stop mechanism, a filling-detector, a slide supporting said detector, a pawl pivotally mounted on said slide, and provided with a downwardly-extending catch, a wedge, a lever and connections between the lever and the filling-supply mechanism, the said pawl being adapted to engage the said lever on the first movement of the slide and to pass thereunder on the second movement of the slide, an auxiliary slide having a projection on its side adapted to be engaged by the catch on the said pawl, a pawl pivotally mounted on said auxiliary slide, a wedge, a lever adapted to be engaged by said last-named pawl on the second reciprocation of the auxiliary slide and connections between said lever and the stop mechanism, substantially as described.

11. In an automatic bobbin-supply loom, the combination with bobbin-supply mechanism, of a filling-detector, a lifter, mechanism connecting the filling-detector and the lifter for raising the lifter a short distance, the said lifter being provided with a projection, the lay, a hook on the lay adapted to engage the projection on the lifter after it has been raised the said short distance and lift it to its full height, a pawl to hold said lifter in its elevated position, connections between the filling-supply mechanism and the lifter operative to set the filling-supply mechanism in motion when the lifter is raised to its full height and means to trip the pawl operated by the filling-supply mechanism, substantially as described.

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

OSCAR JANELLE.

Witnesses:
SHERMAN E. BURROUGHS,
HENRY N. HURD.