

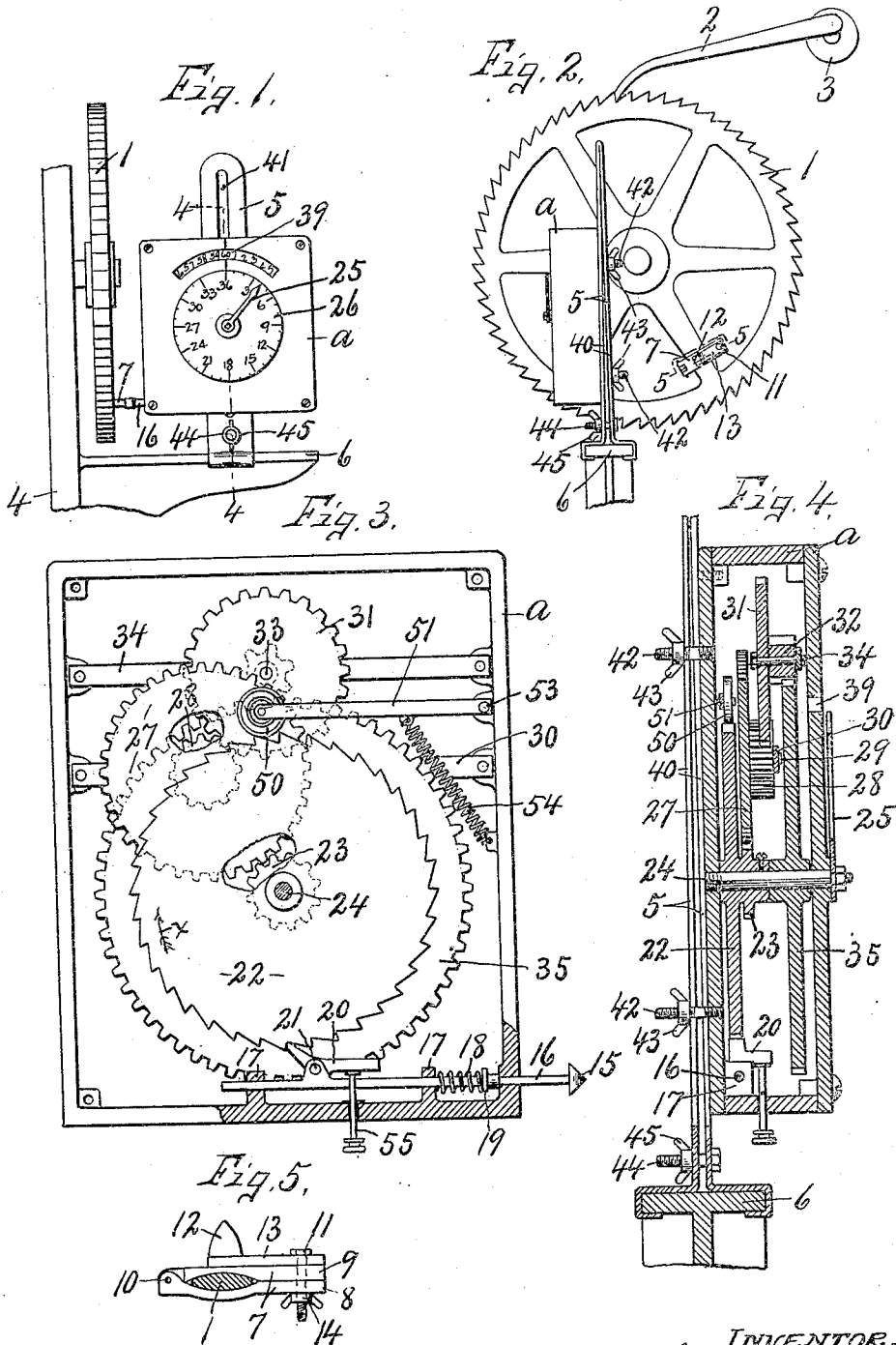
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LOOM.

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LOOM.

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To all whom it may concern:

Be it known that I, JOHN NAZARIAN, of Syracuse, in the county of Onondaga, in the State of New York, have invented new and useful Improvements in Looms, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to certain improvements in looms and refers more particularly to a counter mechanism actuated by the "pick wheel" for indicating the linear measurement of the woven fabric whereby the operator or attendant may readily ascertain at a glance the exact quantity of fabric reeled upon the take up roller.

The "pick wheel" which is commonly employed in looms is provided with a number of teeth corresponding to the number of threads or fillers per inch in the fabric, and is actuated intermittently one tooth at a time by a suitable eccentric, pitman or pawl as each filler is inserted through the warp by the shuttles in the manner well known and not necessary to herein illustrate or describe, different "pick wheels" being employed according to the number of threads or fillers required per inch of the fabric.

My main object is to provide a simple, and practical counter mechanism actuated directly by the "pick wheel" at each revolution thereof to indicate the linear measurement in inches and yards or similar denomination of the woven fabric as it is wound upon the take up reel, not shown.

Another object is to provide for the horizontal and vertical adjustment of the counter mechanism to conform to the position of the actuating member thereon and also to conform to different sizes of "pick wheels".

A still further object is to provide means for releasing the counter mechanism so that it may be revolved in either direction for resetting when desired.

A still further object is to provide for the adjustment of the actuating member of the "pick wheel" to conform to the position of the coacting member of the counting mechanism.

Other objects and uses will be brought out in the following description.

In the drawings—Figures 1 and 2 are respectively front and side elevations of a "pick wheel" and my improved counter mechanism associated therewith. Fig. 3 is

an enlarged interior face view of the counter mechanism and its inclosing case. Fig. 4 is a sectional view taken on line 4—4, Fig. 1. Fig. 5 is an enlarged sectional view taken on line 5—5, Fig. 2.

In order to clearly demonstrate the practicability and operation of my invention I have shown the usual ratchet or "pick wheel" —1— of a loom as provided with a number of teeth corresponding to the number of threads or fillers per inch in the woven fabric, said ratchet or "pick wheel" being rotated one tooth space at a time as each filler is woven into the fabric in the manner well known, said "pick wheel" being actuated intermittently in the manner described by the usual pawl —2— and eccentric —3—.

The "pick wheel" —1— and counter mechanism presently described are mounted upon a suitable support —4— forming a part of the main supporting frame of the loom, the greater portion of the counter mechanism being arranged within a suitable inclosing case —a— which in turn is adjustably mounted upon an upright arm or bracket —5—, the latter being adjustably mounted upon a horizontally projecting arm —6— on the support —4—.

A clamp —7— is adjustably secured to one of the spokes of the "pick wheel" —1— as best seen in Figs. 2 and 5 and comprises essentially two clamping jaws —8— and —9— engaging opposite faces of the spoke and hinged together at —10— at one side of said spoke while the opposite ends are drawn together by a clamping screw —11— at the opposite side of the spoke as best seen in Fig. 2, said clamping screw also forming a pivot for an actuating member —12— for the counter mechanism.

The actuating member —12— is mounted upon one end of the lever —13— which is pivoted at its opposite end upon the pivotal bolt —11—, so that by loosening the clamping bolt the lever with the actuating member thereon may be adjusted around the pivot to the desired position or thrown out of action whenever desired and clamped in its adjusted position by a clamping nut —14— which also serves to frictionally engage the jaws —8— and —9— against opposite faces of the spoke of the pick wheel —1—.

By removing the clamping nut —14—, the jaws may be rocked apart upon their pivot

—10— and reclamped upon any one of the other spokes, the clamping means also serving to permit the adjustment of the actuating member radially along said spoke.

5 At each revolution of the "pick wheel" —1—, the actuating member —12— is moved into engagement with one end —15— of a push rod —16— which is guided in suitable bearings —17— within and preferably
10 upon the bottom of the casing —5—, said push rod being actuated inwardly against the action of a spring —18—, the latter being interposed between a shoulder —19— on the push rod —16— and the adjacent
15 bearing —17—.

A weighted pawl or dog —20— is pivoted at —21— to the inner end of the push rod —16— and is yieldingly held in engagement with one of the teeth of a ratchet wheel
20 —22— having a certain number of in this instance thirty six teeth and is secured to or formed integral with a comparatively small gear or pinion —23— having a predetermined number of in this instance —12—
25 teeth.

The ratchet wheel —22— and pinion —23— are coaxial and are secured to a shaft or spindle —24— which is journaled in the front and rear sides of the casing —1— and
30 carries at its front end an exterior hand or indicating finger —25—, the latter being movable around a dial —26— having a predetermined number of in this instance thirty six graduations corresponding to the number of teeth on the ratchet wheel —22—.
35

At each revolution of the "pick wheel" —1—, the actuating member —12— engages the head —15— of the plunger —16— thereby forcing the latter inwardly against the
40 action of the spring —18— a sufficient distance to cause the pawl —20— to rotate the ratchet wheel —22— one tooth space in the direction indicated by arrow —x— and produces a similar movement of the indicator
45 finger —25— one graduation space around the dial —26—, each space indicating one inch of woven fabric; that is each revolution of the "pick wheel" —1— indicates the number of threads per inch which has been
50 woven and this one inch linear measurement of the fabric is visually indicated on the dial —26— by the finger —25—.

The pinion —23— meshes with a somewhat larger gear —27— having a predetermined number of in this instance thirty six
55 teeth and rigidly secured to or formed integral with this gear and coaxial therewith is a somewhat smaller pinion —28— having a predetermined number of in this instance
60 twelve teeth, said pinion —28— and gear —27— being journaled upon a spindle —29— which is supported upon a cross bar —30— and extending from side to side of the casing —5— and secured thereto.

65 The pinion —28— meshes with a some-

what larger gear —31— having a predetermined number of in this instance twenty four teeth and rigidly secured to this gear —31— is a pinion —32— having a predetermined number of in this instance six teeth, 70 said gear —31— and gear —32— being coaxial and are secured upon a suitable spindle —33— which is secured upon a bar —34— similar to the bar —30— and secured to the main supporting frame or case —5—.
75

The pinion —32— meshes with a comparatively large gear —35— which is loosely mounted upon the spindle —34— and is, therefore, coaxial with the ratchet wheel —22—.
80

It will be noted from the foregoing description that by proportioning the gears and pinions in the manner previously described, each revolution of the ratchet wheel —22— will cause the movement of the gear 85 —35— one tooth space, said gear —35— extending across the inner side of a sight opening —39— and is provided upon its front face with a circular row of consecutive numerals numbering in this instance 90 from 1 to 60 although any other number may be employed.

I have described that at each revolution of the "pick wheel" which indicates the number of fillers or woof to the inch of 95 fabric woven causes the intermitting rotation of the ratchet wheel —22— one tooth space through the medium of the plunger —16— and pawl —20— and in view of the fact that there are thirty six teeth in this 100 ratchet wheel —22—, its complete rotation would indicate thirty six revolutions of the "pick wheel" and, therefore, represents thirty six inches or one yard of woven fabric with a predetermined number of fillers or 105 threads to the inch, such measurement being indicated by the complete revolution of the indicator finger —25— around the dial —26—.

The train of gearing transmitting motion 110 from the ratchet wheel —22— to the coaxial gear —35— is such that each complete revolution of the gear —23— causes the movement of the gear —35— one tooth space and inasmuch as there are in this instance 115 sixty teeth and sixty corresponding consecutive numerals upon this gear, the latter moving successively into registration with the sight opening —39— and each numeral indicates a yard, it is evident that the exact 120 linear measurement of the woven fabric may be ascertained at a glance at any period in the process of weaving.

If at any time it is desired to stop the counter mechanism while the loom is in action this may be done by loosening the 125 clamping nut —14— and turning the actuating member —12— to throw said actuating member out of operative registration of the head 130

—15— of the plunger —16— where it may be reclamped by tightening the clamping nut —14—.

In order that the head —15— of the plunger —16— may be properly registered to bring it into the path of movement of the actuating member —12— on the "pick wheel" —1—, the casing —5— is adjustable vertically upon the support —5— which is also adjustable horizontally upon the support —6— and for this purpose I provide a two member clamping device consisting of upright bars —40— having registering vertical slots —41— through which are passed clamping bolts —42—, the latter being secured into the back of the casing —5— and extended through the slots —41— where they are engaged by suitable clamping nuts —43— to firmly draw the casing against the adjacent face of the support —5— and frictionally hold it in its adjusted position.

The lower ends of the upright bars —40— forming the supporting frame —5— are deflected laterally in opposite directions and their extremities are then returned inwardly toward each other forming shoulders which interlock with opposite flanges on the support —6— upon which the lower end of the bracket —5— is clamped by a suitable bolt —44—, and nut —35—, the bolt passing through a suitable aperture in the base of the bracket —5—.

The upright arm or bracket —5— together with the inclosing case for the counter mechanism are adjustable horizontally along the support —6—, the base of the support —5— being frictionally clamped to said support —6— by the bolt —44— and nut —45— while the inclosing casing for the counter mechanism is adjustable vertically upon the support —5— and is held in its adjusted position by the clamping bolts —44— and nuts —45— thus permitting the head —15— of the plunger —16— to be properly adjusted relatively to the actuating member —12—, although this actuating member and clamp —7— upon which it is mounted may be adjusted radially upon one of the spokes if desired.

The ratchet wheel —22— and train of gearing driven thereby are held from undue vibration or movement after each operation by the plunger —16— and pawl —20— by a roller detent —50— which is mounted upon the inner end of a supporting arm —51— and engages the teeth of the ratchet wheel —22—, said supporting arm —51— being pivoted at —53— to one side of the casing and is drawn downwardly to yieldingly hold the roller against the ratchet wheel by a spring —54— as best seen in Fig. 3.

In order that the entire counter mechanism may be revolved in either direction freely for the purpose of resetting the same,

I provide means as a hand operated plunger —55— guided in a suitable aperture in the bottom of the case —a— and having its upper end resting against the under side of the weighted end of the pawl —20—, the lower end of the plunger —55— being exposed and provided with a suitable hand piece whereby it may be elevated to force the bit of the pawl —20— out of engagement with the teeth of the ratchet wheel —22—, it being understood that the pawl —20— and plunger —16— are free to move relatively to the lifting plunger —55—, the weighted end of the plunger simply resting and adapted to slide upon the upper face of said plunger —55—.

What I claim is:

1. A counter mechanism for looms comprising a casing provided with a dial having indications designating linear measurement of a woven fabric by inches and further provided with a sight opening at a point removed from the dial, a spindle journaled in said casing, a ratchet wheel carried by the spindle and adapted to intermittently operate the same, and connected to the spindle and associating with said dial and shifted in unison with the spindle, a gear rotatably mounted upon said spindle and having a series of indications for designating linear measurement of the woven fabric by yards, said last mentioned designations exposed through said sight opening, an operative connection between said ratchet wheel and said gear for operating the latter when the ratchet wheel is shifted, bearings arranged in said casing, a spring-controlled push rod extending in said casing and mounted in said bearings, a weighted dog pivotally connected to said rod and engaging said ratchet wheel for shifting the latter when the push rod is actuated in one direction, and a rotatable pick wheel arranged exteriorly of said casing and provided with means for intermittently engaging said push rod for shifting it to actuate the ratchet wheel.

2. A counter mechanism for looms comprising a casing provided with a dial having indications designating linear measurement of a woven fabric by inches and further provided with a sight opening at a point removed from the dial, a spindle journaled in said casing, a ratchet wheel carried by the spindle and adapted to intermittently operate the same, and connected to the spindle and associating with said dial and shifted in unison with the spindle, a gear rotatably mounted upon said spindle and having a series of indications for designating linear measurement of the woven fabric by yards, said last mentioned designations exposed through said sight opening, an operative connection between said ratchet wheel and said gear for operating the latter when the ratchet wheel is shifted, bearings arranged

in said casing, a spring-controlled push rod extending in said casing and mounted in said bearings, a weighted dog pivotally connected to said rod and engaging said ratchet wheel for shifting the latter when the push rod is actuated in one direction, a rotatable pick wheel arranged exteriorly of said casing and provided with a plurality of spokes, and a radially adjustable means mounted upon one of the spokes of said wheel and adapted to intermittently engage said push rod for actuating it to shift the ratchet wheel.

3. A counter mechanism for looms comprising a casing provided with a dial having indications designating linear measurement of a woven fabric by inches and further provided with a sight opening at a point removed from the dial, a spindle journaled in said casing, a ratchet wheel carried by the spindle and adapted to intermittently operate the same, and connected to the spindle and associating with said dial and shifted in unison with the spindle, a gear rotatably mounted upon said spindle and having a series of indications for designating linear measurement of the woven fabric by yards, said last mentioned designations exposed through said sight opening, an operative connection between said ratchet wheel and said gear for operating the latter when the ratchet wheel is shifted, bearings arranged in said casing, a spring-controlled push rod extending in said casing and mounted in said bearings, a weighted dog pivotally connected to said rod and engaging said ratchet wheel for shifting the latter when the push rod is actuated in one direction, a rotatable pick wheel arranged exteriorly of said casing and provided with means for intermittently engaging said push rod for shifting it to actuate the ratchet wheel, and a lifting plunger extending in said casing and engaging said dog and adapted to lift the dog out of engagement with the ratchet wheel when the plunger is shifted in one direction, the weighted end of said dog resting and adapted to slide upon the upper face of the plunger when the push rod is actuated.

4. A counter mechanism for looms comprising a casing provided with a dial having indications designating linear measurement of a woven fabric by inches and further provided with a sight opening at a point removed from the dial, a spindle journaled in said casing, a ratchet wheel carried by the spindle and adapted to intermittently operate the same, and connected to the spindle and associating with said dial and shifted in unison with the spindle, a gear rotatably mounted upon said spindle and having a series of indications for designating linear measurement of the woven fabric by yards, said last mentioned designations exposed through said sight opening,

an operative connection between said ratchet wheel and said gear for operating the latter when the ratchet wheel is shifted, bearings arranged in said casing, a spring-controlled push rod extending in said casing and mounted in said bearings, a weighted dog pivotally connected to said rod and engaging said ratchet wheel for shifting the latter when the push rod is actuated in one direction, a rotatable pick wheel arranged exteriorly of said casing and provided with a plurality of spokes, radially adjustable means mounted upon one of the spokes of said wheel and adapted to intermittently engage said push rod for actuating it to shift the ratchet wheel, and a lifting plunger extending in said casing and engaging said dog and adapted to lift the dog out of engagement with the ratchet wheel when the plunger is shifted in one direction, the weighted end of said dog resting and adapted to slide upon the upper face of the plunger when the push rod is actuated.

5. A counter mechanism for looms comprising a casing provided with a dial having indications designating linear measurement of a woven fabric by inches and further provided with a sight opening at a point removed from the dial, a spindle journaled in said casing, a ratchet wheel carried by the spindle and adapted to intermittently operate the same, and connected to the spindle and associating with said dial and shifted in unison with the spindle, a gear rotatably mounted upon said spindle and having a series of indications for designating linear measurement of the woven fabric by yards, said last mentioned designations exposed through said sight opening, an operative connection between said ratchet wheel and said gear for operating the latter when the ratchet wheel is shifted, bearings arranged in said casing, a spring-controlled push rod extending in said casing and mounted in said bearings, a weighted dog pivotally connected to said rod and engaging said ratchet wheel for shifting the latter when the push rod is actuated in one direction, a rotatable pick wheel arranged exteriorly of said casing and provided with means for intermittently engaging said push rod for shifting it to actuate the ratchet wheel, a revoluble detent engaging said ratchet wheel to prevent vibration thereof and to further prevent back rotation, and a yieldable supporting means for said detent.

6. A counter mechanism for looms comprising a casing provided with a dial having indications designating linear measurement of a woven fabric by inches and further provided with a sight opening at a point removed from the dial, a spindle journaled in said casing, a ratchet wheel carried by the spindle and adapted to intermittently operate the same, and connected

to the spindle and associating with said dial and shifted in unison with the spindle, a gear rotatably mounted upon said spindle and having a series of indications for designating linear measurement of the woven fabric by yards, said last mentioned designations exposed through said sight opening, an operative connection between said ratchet wheel and said gear for operating the latter when the ratchet wheel is shifted, bearings arranged in said casing, a spring-controlled push rod extending in said casing and mounted in said bearings, a weighted dog pivotally connected to said rod and engaging said ratchet wheel for shifting the latter when the push rod is actuated in one direction, a rotatable pick wheel arranged exteriorly of said casing and provided with a plurality of spokes, radially adjustable means mounted upon one of the spokes of

said wheel and adapted to intermittently engage said push rod for actuating it to shift the ratchet wheel, and a lifting plunger extending in said casing and engaging said dog and adapted to lift the dog out of engagement with the ratchet wheel when the plunger is shifted in one direction, the weighted end of said dog resting and adapted to slide upon the upper face of the plunger when the push rod is actuated, a revoluble detent engaging said ratchet wheel to prevent vibration thereof and to further prevent back rotation, and a yieldable supporting means for said detent.

In witness whereof I have hereunto set my hand this 4th day of April 1908.

JOHN NAZARIAN.

Witnesses:

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C. M. McCORMACK.