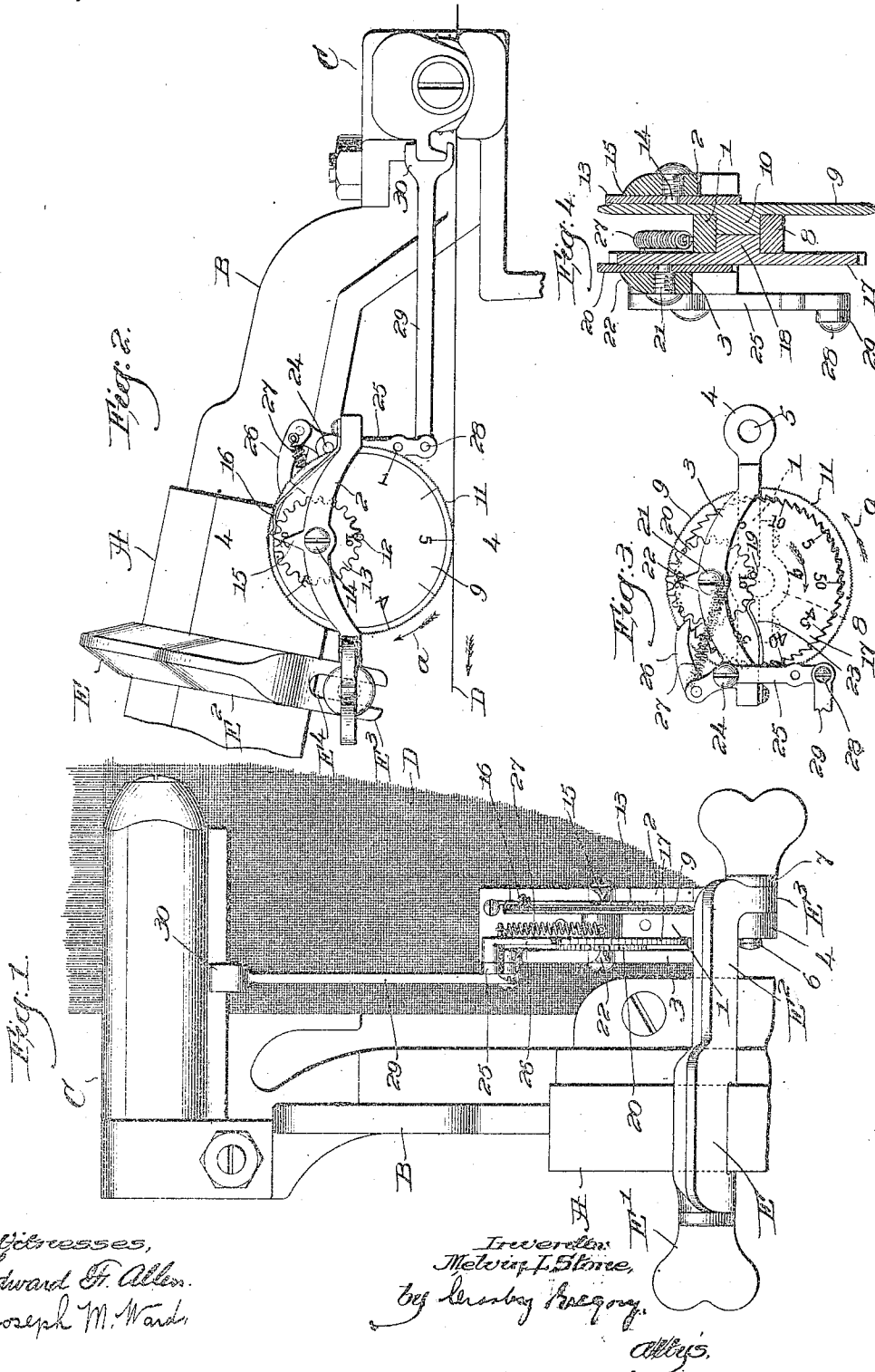


M. L. STONE.
 PICK COUNTER FOR LOOMS.
 APPLICATION FILED APR. 23, 1909.

943,049.

Patented Dec. 14, 1909.



UNITED STATES PATENT OFFICE.

MELVIN L. STONE, OF LEWISTON, MAINE, ASSIGNOR TO DRAPER COMPANY, OF HOPE-DALE, MASSACHUSETTS, A CORPORATION OF MAINE.

PICK-COUNTER FOR LOOMS.

943,049

Specification of Letters Patent.

Patented Dec. 14, 1909.

Application filed April 23, 1909. Serial No. 491,721.

To all whom it may concern:

Be it known that I, MELVIN L. STONE, a citizen of the United States, and resident of Lewiston, county of Androscoggin, State of Maine, have invented an Improvement in Pick-Counters for Looms, of which the following description, in connection with the accompanying drawing, is a specification, like characters on the drawing representing like parts.

This invention has for its object the production of a simple and efficient device for counting the number of picks per inch in cloth as it is being woven, the construction of the device being such that by a simple calculation, taken from the readings of the instrument, it can be ascertained promptly whether or not the cloth is being woven according to requirements as to the number of picks per inch, or if it is desired to know how many picks are being put into a certain piece of cloth in process of being woven the information can be quickly and easily ascertained.

The pick counter embodying my invention can be applied to the loom and left in operation for a considerable time, or it can be taken from loom to loom in a weave-shed, by the proper person, and temporarily applied to see that the weaver is getting out the required kind of cloth.

I have so constructed the pick counter that the motion of the temple, as each pick is beaten in, will govern one indicating instrumentality, which gives the number of picks, while the longitudinal movement of the cloth being woven governs a second indicating instrumentality, the latter giving the movement preferably in inches, so that by dividing the number of picks indicated by one instrumentality by the number of inches indicated by the other instrumentality the number of picks per inch is quickly and easily ascertained.

The various novel features of my invention will be fully described in the subjoined specification and particularly pointed out in the following claims.

Figure 1 is a top plan view of a pick-counter embodying one form of my invention, mounted on the temple stand and in operative condition; Fig. 2 is a right-hand side elevation of the mechanism illustrated in Fig. 1, showing the member of the counter which is operated by the cloth being

woven; Fig. 3 is an opposite view of the counting mechanism to illustrate the parts which operate in accordance with the number of picks; Fig. 4 is a transverse sectional detail, enlarged, on the line 4-4, Fig. 2, looking toward the right.

Referring to Figs. 1 and 2 I have shown a portion A of a temple-stand, in which is mounted the reciprocating shank B of the temple C, all of usual and well known construction, the temple being moved forward by the lay on each forward stroke as the filling is beaten into the cloth D at the fell, so that the temple is moved on each pick. As I utilize this temple movement to ascertain the number of picks put into the cloth in a given length of time I conveniently mount the pick counter on the temple stand A, by means of a clamp E, partly embracing the stand and held fixedly thereon by a clamping nut E', Fig. 1, the clamp having an inward extension E² downturned at its end at E³ and slotted at E⁴, Fig. 2, for the ready attachment thereto of the counting and indicating mechanism.

A yoke-like frame, comprising a substantially straight center bar 1, and upcurved side-bars 2, 3, connected at their extreme ends, is provided with an eye 4 screw-threaded at 5 to receive an attaching screw 6 having a head shouldered at 7, the screw being passed into the slot E⁴ of the end of the clamp extension, with the end E³ between the eye 4 and the shoulder 7, see Fig. 1.

By setting up the screw the frame is securely attached to the clamp E and it can be raised or lowered, and also angularly adjusted relatively thereto, to bring the parts carried by the frame into proper operating position.

A cap 8 attached to the center bar 1, shown in dotted lines Fig. 3, provides, with the bar, a bearing for intumed studs at the centers of two rotatable disks, one of said disks 9 having the stud 10, as shown in Fig. 4, and having its periphery finely toothed at 11, as shown in Figs. 2 and 3, to rest upon the cloth D and be rotated by longitudinal movement thereof. This disk is mounted between the frame bars 1 and 2, and on its outer face is provided with an eccentric pin 12, Fig. 2, which intermittingly engages and advances a pinion 13 interposed between the disk and the bar 2 and mounted to rotate on a screw-stud 14 held in said bar.

The outer faces of the disk and pinion are graduated to form dials, as shown in Fig. 2, and conveniently the marked graduations on the disk indicate inches, one complete revolution thereof, as herein shown, corresponding to a 5-inch length of the cloth.

Each revolution of the disk advances the pinion 13 one tooth, and the pinion is shown as having 20 teeth, a fixed pointer 15 on the bar 2 being arranged for convenience in reading the graduated face of the pinion, while a light detent spring 16 prevents retrograde movement of the pinion.

Between the bars 1 and 3 a ratchet disk 17 is mounted, rotatable about its intumed center stud 18, Fig. 4, said disk having its outer face graduated to form a dial, see Fig. 3, and it is shown as provided with 50 ratchet teeth, and with an eccentric pin 19 adapted to intermittingly engage and rotate a pinion 20 interposed between the disk and the bar 3 and rotatably mounted on a screw-stud 21 in said bar. This pinion has 20 teeth, as herein shown, and its outer face is graduated, a pointer 22 on bar 3 cooperating therewith, while retrograde rotation is prevented by a spring detent 23.

At its inner or rear end the frame has fulcrumed thereon at 24 a pawl-carrier 25 provided with a pawl 26 at its upper end, to engage the teeth of the ratchet disk 17, a spring 27 attached at one end to the pawl and at its other end to the bar 1 of the frame serving to keep the pawl in engagement with the ratchet teeth and also to effect the operating stroke of the pawl-carrier. The lower end of the latter has pivotally connected with it at 28 a link 29 provided with a recessed or bifurcated head 30, Figs. 1 and 2, to engage a part of the temple C, as shown.

The frame is fixedly attached to the clamp E so that the teeth 11 of the disk 9 will engage the cloth D, as in Fig. 2, whereby the longitudinal movement of the cloth being woven will rotate the said disk in the direction of arrow *a*, Figs. 2 and 3, and each inch of cloth woven will effect a corresponding angular movement of the disk. The disk and pinion 13 thus constitute an instrumentality actuated and governed by the cloth as it is woven to indicate the length of cloth so woven, in inches, as herein shown.

As the pawl-carrier 25 is operatively connected with the temple each forward movement of the latter, when a pick of filling is beaten in, will retract the pawl 26, and the spring 27 moves the pawl forward, so that the disk 17 will be advanced in the direction of arrow *b*, Fig. 3, one tooth for each pick. Thus the ratchet disk 17 and its cooperating pinion constitute an instrumentality actuated and governed by the movement of the temple at each pick to indicate the number of picks made in a given period. Inasmuch as said instrumentalities are operating con-

temporaneously, it will be manifest that while one is measuring the length of the cloth being woven the other will be measuring or counting the number of picks in such length of cloth, so that by dividing the indicated number of picks by the indicated length of cloth woven, in inches, the number of picks per inch in the cloth is at once ascertained. Thus if the one instrumentality indicates a length of three inches, and the other instrumentality indicates 180 picks, the number of picks per inch in the cloth is 60. For a short time test the graduations on the disks themselves will often be sufficient for the required information, but in weaving fine cloth, or where a longer test is made, the graduated pinions 13 and 20 come into use.

If the pick counter is left on the loom it can be readily thrown out of operation by loosening the screw 6 and turning up the frame to disengage the disk 9 from the cloth, and the link 29 can be disengaged from the temple.

To test the action of different looms the whole apparatus is removed by loosening the clamp screw E' and removing the clamp E with the attached counting mechanism, and applying the same to one loom after another.

Changes or modifications in details of construction and arrangement may be made by those skilled in the art without departing from the spirit and scope of my invention as set forth in the claims annexed hereto.

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

1. The combination, with a reciprocating temple, and its stand, of a pick counter mounted on said stand and comprising two instrumentalities arranged side by side, one instrumentality including a rotatable member operated by the cloth being woven, to indicate the length of cloth so woven, the other instrumentality including a rotatable member, to indicate the number of picks put into the cloth, and means connected with and operated by reciprocation of the temple to actuate the rotatable member of said latter instrumentality.

2. In a loom, in combination, a temple adapted to be moved at each pick, an instrumentality operatively connected with the temple to indicate the number of picks put into the cloth, and an instrumentality operated by the cloth being woven to indicate the length of the cloth woven in a given length of time, the indication of the former instrumentality when divided by the indication of the latter instrumentality giving the number of picks in the cloth per unit of length.

3. A mechanical pick counter for looms, comprising two separate and independent instrumentalities arranged side by side and

operated contemporaneously, the one by the longitudinal movement of the cloth as it is woven, and the other by a moving part of the loom at each pick, respectively, said latter instrumentality being controlled wholly by such moving part, and a supporting frame on which both of said instrumentalities are mounted.

4. In a pick counter for looms, a frame adapted to be attached to a fixed part of the loom, two coaxial disks rotatably mounted on the frame, one of the disks having a toothed periphery to engage the cloth being woven, ratchet teeth on the other disk, a pawl coöperating therewith, a pawl-carrier, means to effect the actuation of the latter on each pick, and means whereby said disks indicate, respectively, the length of cloth woven and the number of picks therein, in a given period.

5. A pick counter for looms, comprising two coaxially mounted disks one of which is adapted to engage and be rotated by the cloth being woven, said disk being gradu-

ated in inches, a reciprocating temple moved on each pick, and means operatively connected with the temple to intermittently effect angular movement of the other disk, said other disk being graduated to indicate picks, the contemporaneous operation of the disks indicating the number of picks in the cloth and the length in inches of the cloth woven.

6. A pick counter for looms, comprising a support, separate means wholly independent of each other and carried by said support, to indicate contemporaneously the number of picks in, and the length of, a piece of cloth woven in a given period, and means to detachably connect said support with a fixed part of the loom.

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

MELVIN L. STONE.

Witnesses:

FLORENCE B. CASLE,
DANA S. WILLIAMS.