

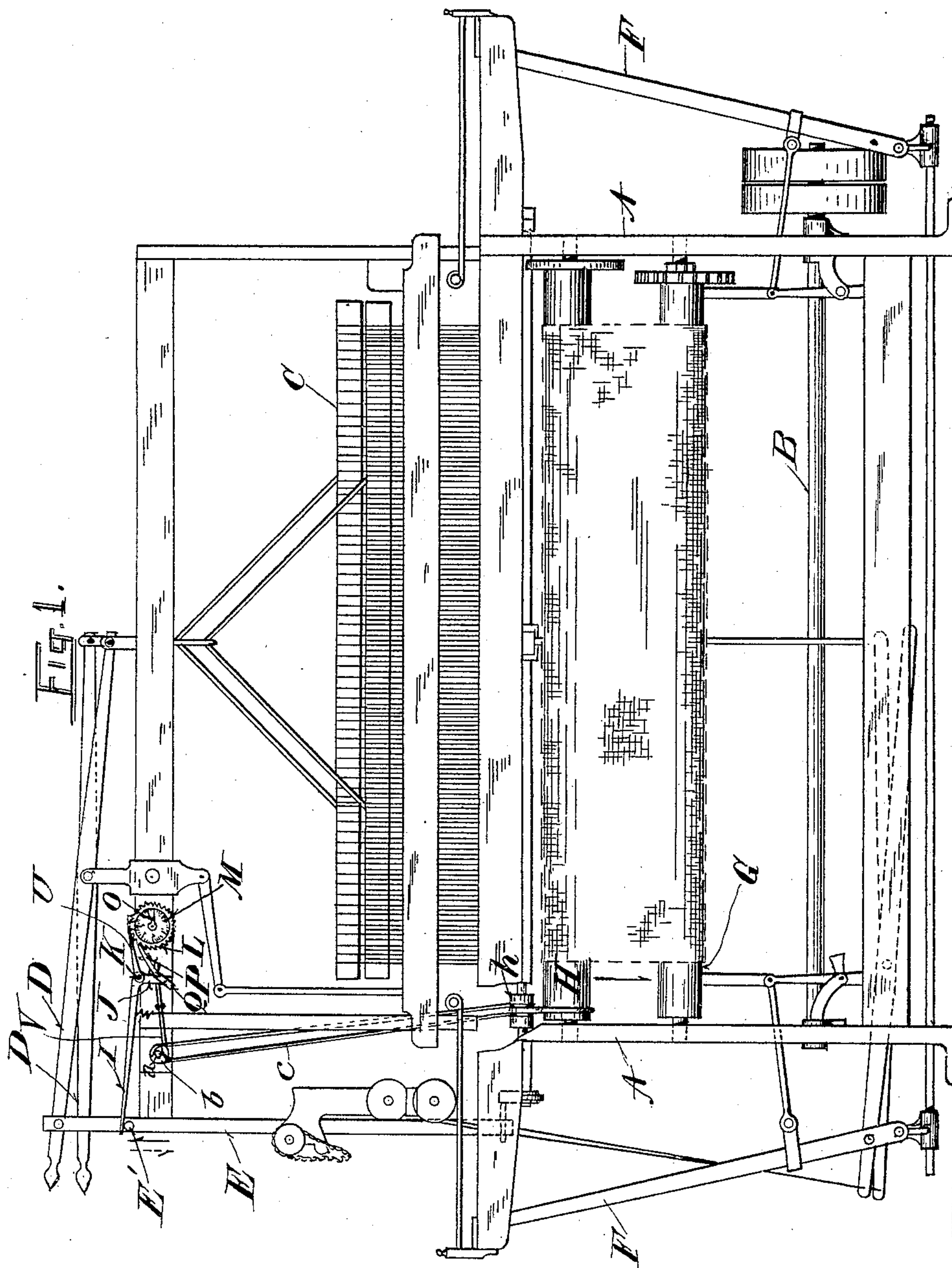
(No Model.)

2 Sheets—Sheet 1.

C. HOLDING.
REGISTER AND STOP MOTION MECHANISM THEREFOR FOR
WEAVING MACHINES.

No. 485,869.

Patented Nov. 8, 1892.



WITNESSES
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J. E. Fenwick.

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(No Model.)

2 Sheets—Sheet 2.

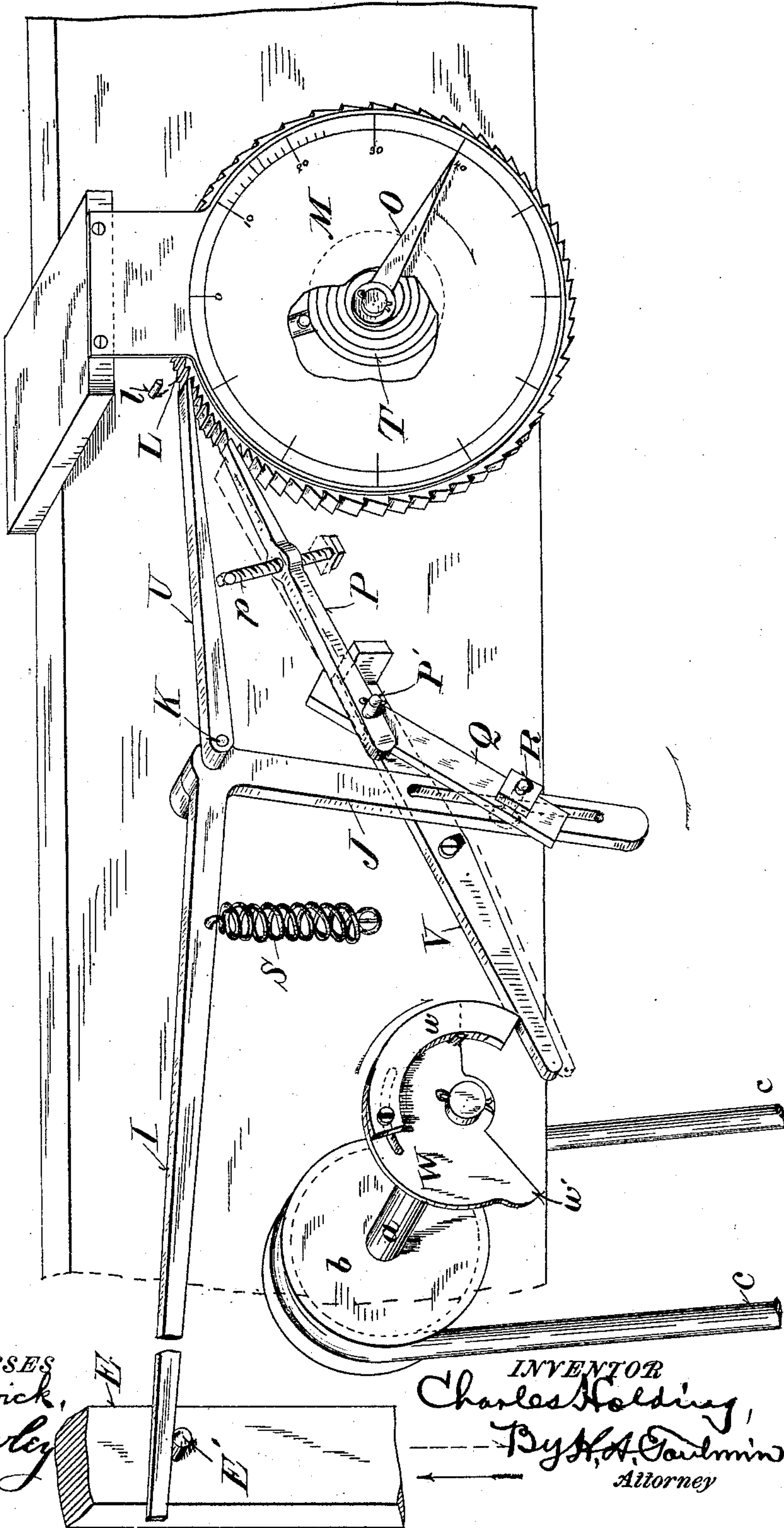
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FIG. 2.



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UNITED STATES PATENT OFFICE.

CHARLES HOLDING, OF URBANA, OHIO.

REGISTER AND STOP-MOTION MECHANISM THEREFOR FOR WEAVING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 485,869, dated November 8, 1892.

Application filed February 24, 1892. Serial No. 422,641. (No model.)

To all whom it may concern:

Be it known that I, CHARLES HOLDING, a citizen of the United States, residing at Urbana, in the county of Champaign and State of Ohio, have invented certain new and useful Improvements in Registers and Stop-Motion Mechanism Therefor for Weaving-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to certain new and useful improvements in registers and stop-motion mechanism therefor for weaving-machines.

My improvements relate to mechanism for indicating the number of threads of woof applied to the warp-threads during a certain predetermined distance—such as an inch—in the construction of the fabric, whereby the operator may know whether the machine be working properly and may regulate it to secure the desired number of threads per inch. To this end my improvements have reference to a registering-disk and means to operate it in unison with the shuttle; have reference to ratchet mechanism for said registering-disk adapted to be adjusted in its action thereon, have reference to a trip mechanism to stop said registering-disk after a certain known distance in the construction of the carpet or other fabric has been traversed and the number of threads registered, have reference to an adjustable cam for stopping said register and maintaining it at rest temporarily before its return to zero, and have reference to other points hereinafter described and claimed.

In the accompanying drawings, on which the same reference-letters indicate the same or corresponding parts, Figure 1 represents an elevation of a weaving-machine of the ordinary or any approved construction with my improvements applied thereto, and Fig. 2 an enlarged view in perspective of my improvements and adjacent parts of the machine.

In the operation of weaving carpets or other fabrics it is desirable to know without stopping the machine or counting the threads on a certain distance just how many woof-threads are applied during said distance to the warp-threads, whereby the machine may be regulated to weave the desired number of

threads per inch. By my improvements this will be indicated to the operator at suitable intervals, whereby the operation of the machine may be rendered uniform and the resulting output of standard and uniform degree of excellence. I have illustrated one form of weaving-machine and the application of my device thereto, though it will be understood that my improvements are equally applicable to other and improved forms of weaving-machines.

Referring to the drawings, the letter A designates the frame of a weaving-machine operated by the driving-shaft B, whereby the harness C is raised and lowered through the levers D and reciprocating rod E acting in unison with the shuttles thrown by the strikers F, whereby the woof-thread is carried between the warp-threads in the operation of weaving. The completed carpet or fabric is wound on the carpet-roll G from the feeding-roll H. I have connected my improvements to the engine-motion or reciprocating rod E; but it may be applied to other parts of the machine operating in unison or corresponding with the shuttle. In the style illustrated the bell-crank-lever arm I is engaged with a pin E' on the rod E to operate the other lever-arm J, the levers I J being pivoted at K in order to rotate a registering-disk or ratchet-wheel L, provided with a suitable dial-plate M, on which the points corresponding to said ratchet-teeth are indicated by a pointer O, carried by said disk L, or otherwise. A pawl mechanism forms the operative connection between said lever-arm J and ratchet-wheel and is preferably adjustable, consisting of a pawl P, adapted to engage at one end with the ratchet-wheel and pivoted at the other end to an adjustable piece Q, secured by a bolt-and-slot connection or otherwise with the lever-arm J. By adjusting the piece Q up or down in the slot and varying the angle of the same with the lever-arm J the influence of the pawl on the ratchet-wheel may be varied, as desired, to rotate it more or less, as the distance of the pivot-point P' is varied with regard to the pivot K of the levers I J, and a longer or shorter stroke results. A coil-spring S in the preferred construction acts to keep the lever-arm I in connection with the recip-

rocating part of the engine-motion E, whereby at every stroke the ratchet-wheel L will be moved one notch, corresponding to one throw of the shuttle. The ratchet and its registering-pointer is thus carried around to show the number of threads successively, the dial-plate M being preferably stationary, as shown in Fig. 2. A coiled spring T is coiled about the shaft of the ratchet register-wheel L and has one end fixed to the framework, while the other end is fixed to said shaft to rotate it and its wheel over toward the left in the figure when the detent U, pivoted at K, (or elsewhere,) is raised by the pawl P.

I wish to stop the register after a certain distance—such as an inch—of the carpet has been woven, maintain the register temporarily at rest to show the number of threads woven in that inch of the carpet, and then start the register again automatically to register another portion of the carpet. This I accomplish by means of a trip mechanism consisting of a trip-arm V, adapted to engage at one end with the pawl P when actuated at the other end by a cam W, mounted on a shaft *a* and rotated by a pulley *b* through driving cords or connections *c*, receiving motion over a guiding-pulley *h* from the driving-roll H, Fig. 1, whereby a corresponding motion is given to the cam for every inch of travel of the carpet or fabric over the roll H. This cam W has a segment *w*, adjustable by screw-and-slot connections with the cam-head to increase or diminish the length of the bearing-surface on the periphery of the cam, which depresses the trip V to the dotted position, thus raising the pawl P out of engagement with the ratchet, as shown by dotted lines, and stopping the rotation of the wheel L, which is held by its spring T against the detent U, and the pointer remains stationary on the dial. The operation of the lever-arm J is continual; but the pawl P will now slide back and forth on the trip-arm V without affecting the register. It will maintain this inoperative position while the cam rotates in the direction of the arrow, Fig. 2, and brings a projection *w'* in contact with the trip-arm, lifting the pawl P yet higher and engaging with the detent U by an adjustable screw *p*, thus freeing the ratchet-wheel and allowing the return of the pointer to zero on the dial under the influence of the spring T.

The instant the projection *w'* slips off from the trip-arm V the pawl P and the detent return to their engagement with the ratchet-wheel and begin to count the number of threads woven in the following interval, during which the cam rotates out of contact with the trip-arm. The counting continues till the segment *w* again engages with the trip-arm to stop the register by throwing the pawl P out of engagement. Thus it will be seen that at regular intervals during the operation of weaving a registering mechanism is thrown into action to count the number of threads

woven during the passage of a certain length—such as an inch—of the fabric, that the register is automatically stopped at the end of such distance to show the number of threads woven therein, that it maintains such registering position for the observation of the operator without interfering with the action of the machine, and is again thrown into engagement automatically to count the threads at a succeeding point of the carpet.

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

1. In a weaving-register, the combination, with a moving part, of a register having figures, operative connections between said register and said moving part, and an adjustable cam rotated corresponding to the movement of the fabric and adapted to engage with said operative connections to stop said register after a certain length of fabric has been woven to show the number of threads woven in such distance.

2. The combination, with a moving part of a weaving-machine moving according to the travel of the carpet being woven, of a lever operatively engaged by said part, a toothed register-wheel, a spring to return said wheel to zero, an adjustable pawl carried by said lever and normally acting to rotate said register-wheel, a detent for said wheel, and a rotatable cam acting intermittently on said lever to throw out the pawl and detent simultaneously and allow the return of the register-wheel to zero.

3. In a weaving-indicator, the combination, with a moving part of the machine and a figure-indicator having a normal tendency to return to zero, of a detent to resist said normal tendency, operative connections between said indicator and said moving part of the machine, and an adjustable cam operated in unison with the travel of the carpet or other fabric and adapted to stop said indicator after a certain distance or length of the carpet or other fabric has been woven and to disengage said detent and indicator to allow the return of the latter to zero.

4. The combination, with a moving part of the weaving-machine moving according to the travel of the carpet being woven, of a lever operatively connected to said part, an adjustable pawl carried by said lever, a toothed register-wheel operated by said pawl, and a rotatable cam operatively connected to said pawl and consisting of a notched disk-segment W, having a projection *w'* at one side of the notch and an adjustable portion *w* at the other side of the notch and adapted to vary the shape of the disk portion and size of the notch, enlarging one while diminishing the other, and vice versa, substantially as and for the purpose described.

5. In a weaving-register, the combination, with a driving-drum for the warp-threads, of a rotatable cam connected therewith to oper-

ate at a corresponding speed and consisting
of a cam-head having a bearing-surface, a seg-
ment portion adapted to increase the length
of said bearing-surface and adjustably con-
5 nected to said head, a projection from said
bearing-surface at one end, a registering
mechanism and operative means therefor,
and mechanism adjacent to said cam adapt-

ed to be acted on by said bearing-surface and
cam projection, substantially as described. 10

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

CHARLES HOLDING.

Witnesses:

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JAMES C. DAWLEY