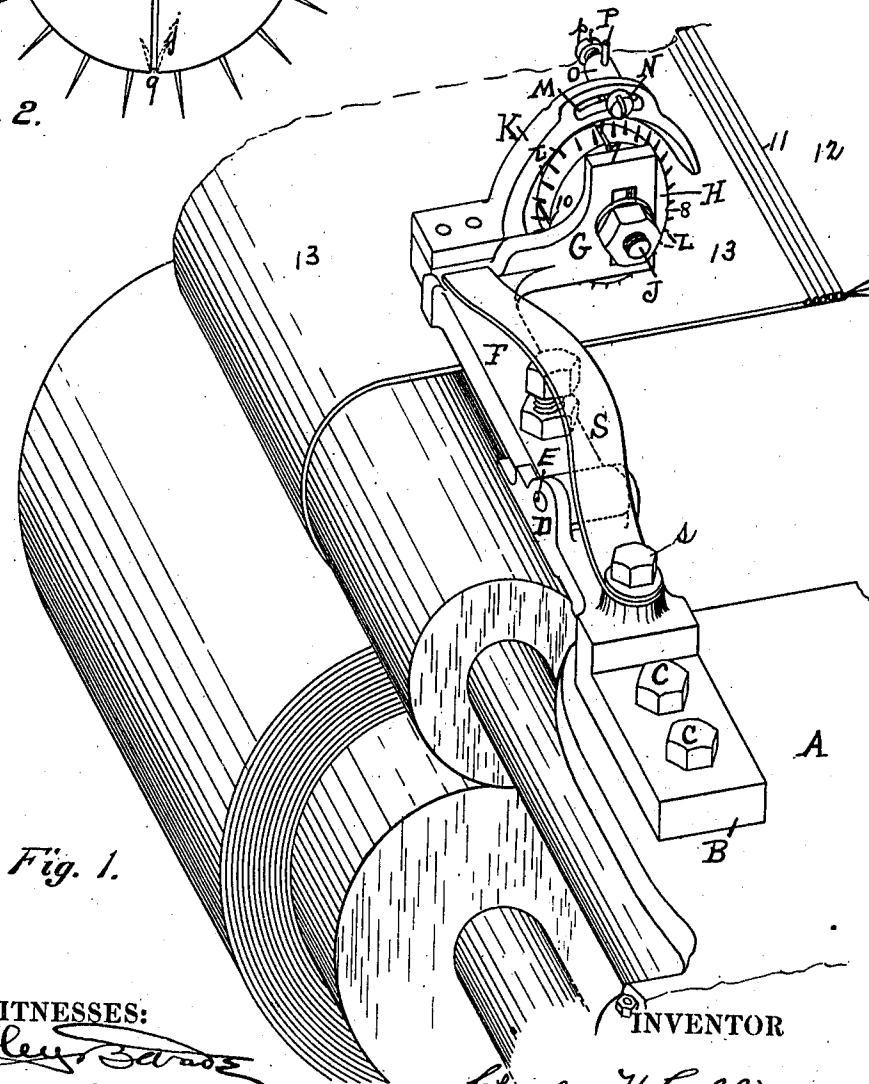
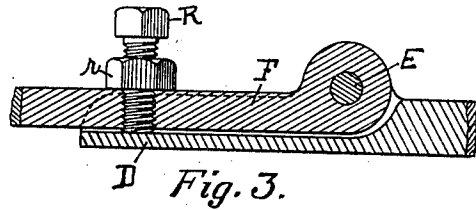


988,694.



WITNESSES:

WITNESSES:
~~Wesley, Sarah~~
Bentley, Carl.

INVENTOR

BY *Charles H. Collins,*
Frederick W. Cameron,
ATTY

UNITED STATES PATENT OFFICE.

CHARLES H. COLLINS, OF ALBANY, NEW YORK.

MATCHING DEVICE FOR WEAVING-MACHINES.

988,694.

Specification of Letters Patent.

Patented Apr. 4, 1911.

Application filed July 20, 1910. Serial No. 572,824.

To all whom it may concern:

Be it known that I, CHARLES H. COLLINS, a citizen of the United States of America, residing at No. 10 Jay street, Albany, in the county of Albany and State of New York, have invented certain new and useful Improvements in Matching Devices for Weaving-Machines, of which the following is a specification.

10 My invention relates to matching devices for weaving machines, and the object of my invention is to provide an adjustable device operated by the movement of the fabric to be matched, together with such elements and combinations as are hereinafter more particularly set forth and claimed. I accomplish these objects by means of the mechanism illustrated in the accompanying drawing, in which:

20 Figure 1 is a perspective view of my apparatus as applied to a loom. Fig. 2 is an elevation of the front side of my wheel. Fig. 3 is a section through a portion of the arm F and plate D, the adjusting bolt R being shown in elevation.

25 Similar letters refer to similar parts throughout the several views.

To the frame, A, of the loom I attach the bracket, B, by means of suitable pins or bolts, C, C, the bracket being provided with a plate, D, which projects forward of the frame, A, and to which is hinged at E, the arm, F, which carries at its end the block, G, in which is mounted the spike wheel, H, on a suitable stud or bolt, J. Secured to the arm, F, is the hood, K, extending over the top and sides of the wheel, H, for the purpose of protecting the operator from the spikes, L, on the periphery of the wheel.

40 In the hood, K, above the wheel, H, when the hood is in position, I place a slot, M, which is cut through the hood on the curve of a circle, the center of which is the center of the wheel, through which slot extends the bolt, N, engaging with the end of the arm, O, carrying the pointer, P. The arm, O, has an adjusting screw, *p*, for holding in position the pointer, P. The adjusting bolt, N, is for the purpose of securing the arm, O, and therefore the pointer, P, in proper position in reference to the wheel, H. The arm, F, also carries the adjusting bolt, R, which extends through the arm, F, and engages with the plate, D, of the bracket.

55 The nut, *r*, is placed on the bolt, R, at the top of the arm, F, by means of which bolt

and nut I can raise or lower the arm, F, from the plate, D, as desired.

To the bracket, B, I secure by the bolt, *s*, or in any suitable manner one end of the spring plate, S, which engages the end of the arm, F, the resiliency of the spring tending to force the arm, F, in contact with the plate, D. In this manner the bolt, R, when it is screwed into the arm, F, so far as to cause the end of the bolt to project beyond the under side of the arm, will engage with the plate, D, and cause the arm, F, to be raised above the plate, D, which will lift the wheel, H, against the tension of the spring plate, D.

I show in Fig. 2 an arrow, *h*, the head being marked, *j*, and on the periphery of the wheel I place the grooves, 7, 8, 9 and 10 at equal distances apart. Instead of grooves I may simply draw a black or colored mark across the periphery of the wheel or in any suitable way designate same on the wheel so that it may be seen readily by the weaver, denoting the position of the wheel when it has rotated a certain predetermined degree.

The operation of my device is as follows:—The wheel is mounted in such vertical position that considering the length of the projection of the spikes, L, into the rug, the movement of the rug will cause the wheel, if nine inches in circumference, to make sixteen revolutions in twelve feet, the usual length of a rug; or to make as many revolutions as may be required. Sometimes it is necessary to weave the rug a few wires longer than it is expected to be when in use, for the reason that it will, because of its texture, or composition, shrink a certain amount. To provide for this or for any other reason for making the length of the rug different from what it would otherwise be, the wheel, H, may be raised so that the spikes, L, do not project so far through the rug and in this raised position held by the bolt, R, and spring plates, S, whereby the movement of the rug will make the movement of the wheel slower than it would be if the spikes projected farther through the rug. When a new rug is to be woven the wheel being mounted on the old rug, 13, preferably about four and one-half inches from the first wire, 11, of the new rug, 12, the arrow head, *j*, on the wheel, H, is placed in conjunction with the pointer P. When the wire, 11, reaches the arrow head, *j*, by

the rotation of the wheel, if the adjustment is correct it should be in conjunction with the arrow head as shown by dotted lines in Fig. 2; should, however, the arrow head, *j*, not be in exact accord with the wire, 11, the pointer, P, should be adjusted in the slot, M, of the hood, K, by moving it the distance equal to that between the wire, 11, and the arrow head, *j*, on the rug, which is the difference between the distance traversed by the rotation of the wheel through an arc of 180° and the position of the wire, 11, after the movement of the rug sufficient to thus rotate the wheel. The direction of the movement of the pointer, P, in the slot will depend on whether the wire, 11, is forward or behind the arrow head, *j*, when the wheel has rotated 180°. Thereafter the weaver will know whether or not the points on the design tally with the position of the wheel during its revolution under the direction of the movement of the rug. If the arrow head, *j*, shows when it reaches the pointer, P, that the pattern is being woven in too fast or too slow, then the weights on the weaving mechanism are adjusted to cause the machine to weave faster or slower to make the pattern meet the speed and requirements shown to be perfect by the wheel. By having the points 8 and 10, on the periphery intermediate of the points, 7 and 9, the weaver can keep informed as to whether the weaving mechanism is working the pattern too slowly or too quickly during every two and one-quarter inches of the pattern woven.

Where I have spoken of rugs as the article to be woven, I intend to be understood as meaning carpets or other articles as well as rugs, and I do not intend to limit myself to the size of the wheel, H, nor to the particular mechanism for regulating the pointer. The spikes, L, on the wheel are preferably staggered so that they will not track between threads, but will invariably contact with the goods.

It will be understood that the spikes on the wheel acting on the carpet or rug cause the working diameter of the wheel to be dependent upon the length of the spike in the goods; for instance, if the points just engage the goods the diameter is the distance across the wheel from the point of one spike to the point of the spike opposite on the wheel, while if the spike passes through the goods and projects from the other side the diameter in connection with the work is not so

much, the degree of penetration and of projection can be regulated by the adjusting screw and therefore the speed of the wheel in relation to the goods controlled.

What I claim as my invention and desire to secure by Letters Patent, is:—

1. A matching device comprising a wheel; spikes projecting from the periphery thereof; a means for adjustably mounting said wheel so that the spikes may project through the goods; a means for adjusting the vertical position of the wheel in reference to the goods; a means for indicating to the weaver when the wheel has rotated a certain predetermined degree.

2. In a matching device for weaving machines, the combination of a wheel provided with spikes projecting from its periphery; an arm; a means for adjustably mounting said wheel on said arm; a bracket to which said arm is hinged; a means connected with said arm for regulating the degree of penetration of said spikes; a pointer mounted adjacent to said wheel; a means for regulating the position of said pointer.

3. In a matching device for weaving machines a spiked wheel; a means for mounting said wheel so that the spikes shall penetrate the goods and a positive rotation of the wheel be assured by the movement of the goods; a means for adjusting the vertical position of the wheel and therefore the degree of penetration of the spikes in the goods; a means on the wheel for indicating to the weaver when it has rotated a certain predetermined degree.

4. In a matching device for weaving machines, a wheel; spikes projecting from the periphery thereof; a mark on the face of the wheel extending from the periphery toward the center of the wheel; a mark across the periphery of the wheel; a means for adjustably mounting said wheel above the work in a loom; a means for raising and lowering said wheel in reference to the work and holding the same in its desired position; a pointer mounted adjacent to said wheel; a means for radially adjusting said pointer in reference to the wheel.

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

CHARLES H. COLLINS.

Witnesses:

BEULAH CARLE,
FREDERICK W. CAMERON.