

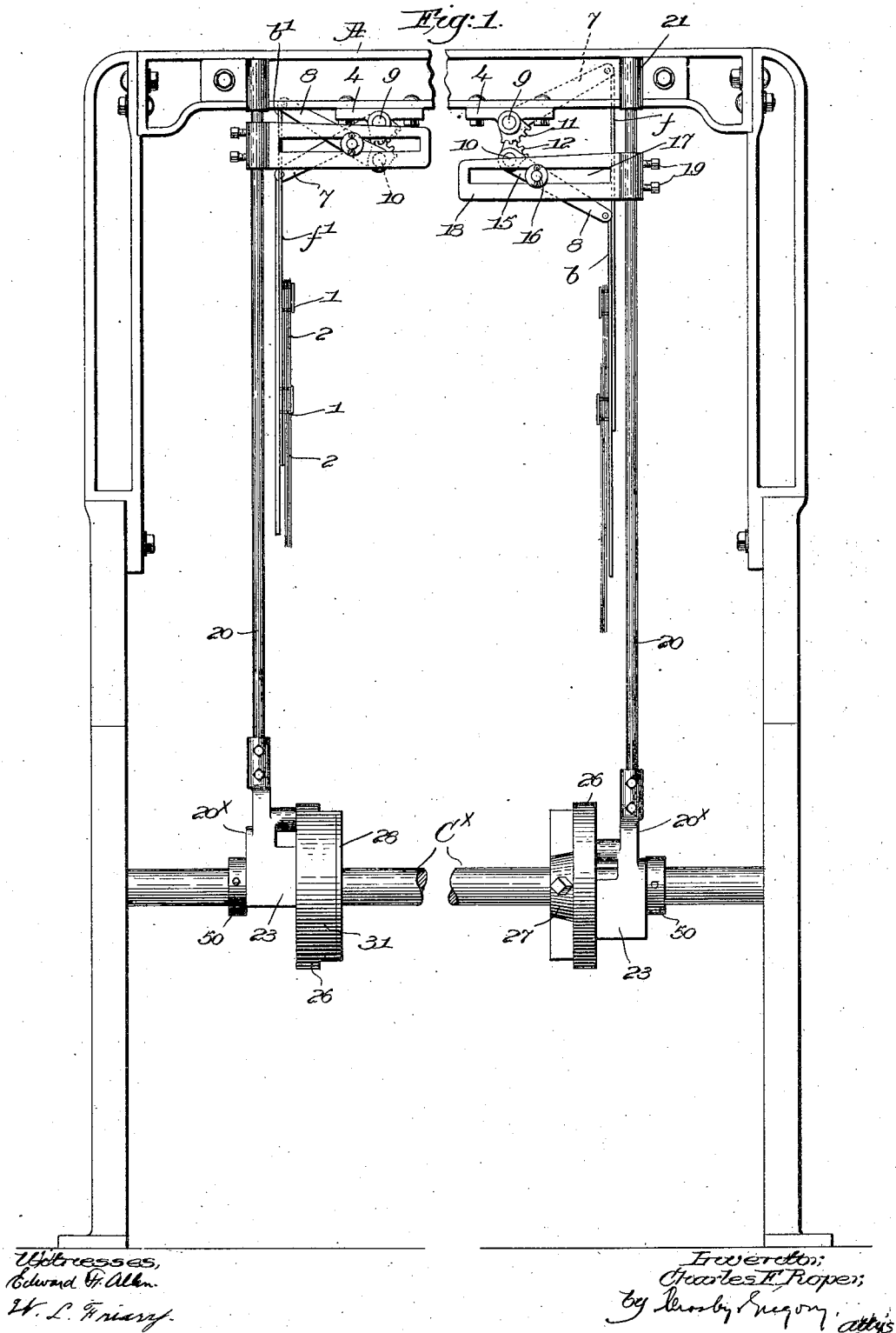
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PATENTED FEB. 19, 1907.

C. F. ROPER.
SELVAGE MOTION FOR LOOMS.

APPLICATION FILED JUNE 18, 1906.

2 SHEETS—SHEET 1.



UNITED STATES PATENT OFFICE.

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SELVAGE-MOTION FOR LOOMS.

No. 844,404.

Specification of Letters Patent.

Patented Feb. 19, 1907.

Application filed June 18, 1906. Serial No. 322,134.

To all whom it may concern:

Be it known that I, CHARLES F. ROPER, a citizen of the United States, residing at Hope-
dale, in the county of Worcester and State of
Massachusetts, have invented an Improve-
ment in Selvage-Motion for Looms, of which
the following description, in connection with
the accompanying drawings, is a specifica-
tion, like letters on the drawings representing
like parts.

This invention has for its object the pro-
duction of a novel selvage-motion for looms
separate from and independent of the main-
shed-forming mechanism and so controlled
and arranged that either a plain or a tape
selvage may be woven without removing one
set of cams and substituting a different set.

I have herein shown two harness members
for the selvage-warps at each side of the
loom, each pair being so connected that a
positive motion is imparted to oppositely
reciprocate the selvage-harnesses, substan-
tially as in United States Patent No. 823,638,
granted to me the 19th day of June, 1906.
Herein, however, I have provided an actu-
ating-cam for each of the two pairs of selvage-
harnesses, the cams being of novel construc-
tion, in that each is provided with a reversible
portion, preferably a segment, the one face
being provided with a cam path or groove
which coöperates with the cam-path on the
main portion of the cam to form a plain sel-
vage, while the other face of the reversible
portion is grooved to complete the main cam-
path to produce a tape selvage. It will thus
be manifest that when the cams are once set
upon the cam-shaft of the loom the mere re-
versal of the change portions of said cams
effects a change from plain to tape selvage
weaving, or vice versa. This change can be
effected readily and with a very small loss of
time, obviating the tedious and troublesome
operation of removing one set of cams from
the shaft and replacing and accurately timing
another set.

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

I have herein shown the selvage-motion as
provided with metallic heddles, which also
serve as warp-stop-motion-controlling de-
tectors, substantially as in my said patent,
such heddles forming no part of my present

invention, however, and the invention is not
restricted to their use.

Figure 1 is a rear elevation, centrally
broken out, of a sufficient portion of a loom
with one embodiment of my present inven-
tion applied thereto. Fig. 2 is a front eleva-
tion of the upper part of the arch and the sup-
porting means for the two pairs of harness
members. Fig. 3 is an enlarged face view of
one of the actuating-cams adjusted for weav-
ing a plain selvage. Fig. 4 is a similar view,
but showing the cam adjusted to weave a
tape selvage. Fig. 5 is a sectional view on
the line 5 5, Fig. 4, looking down; and Fig. 6
is a detail in side elevation of one of the cam-
followers and the support therefor.

The arch A^x of the loom may support in
usual manner the main harness-frames, (not
herein shown,) and the shaft C^x may be the
usual cam-shaft of the loom.

In practice the front harness of the main
set has a shorter stroke than the one or more
behind it, and herein the back selvage-har-
ness of each pair is given a longer stroke in
order that the planes of the selvage-shed may
be substantially in alinement with the planes
of the main shed. Two oppositely-movable
and vertically-reciprocating harness members
for the selvage-warps are arranged at each
side of the main-shed-forming mechanism.

Referring to Fig. 1, the rods $f b$ and $f' b'$,
each having a lug 1 to support one or more
heddles 2 for the selvage-warps, constitute the
selvage-harnesses or harness members, as in
my patent referred to. The overhead con-
nection for each pair of harness members
with means to impart a differential reciproc-
ation thereto will be briefly described, only
one of such connections being referred to
specifically, as the two connections are alike.
Two brackets 4, bolted to the lower flange of
the arch at proper points, have each parallel
bearings transverse to the arch, which sup-
port rock-shafts 9 10, the former being longer
and extending forward beyond the front end
of the latter to properly position the two sel-
vage-harnesses. A rocker 7 is rigidly se-
cured to the front end of shaft 9, and a seg-
ment-gear 11 is secured to its rear end, the
rod f being pivotally connected to the said
rocker, a similar rocker 8 being secured to the
front end of shaft 10 and pivotally connected
with the rod b of the back selvage-harness,
while a gear 12 on the inner end of shaft 10

meshes with the gear 11. As in my patent referred to, the gear 12 is of less radius than gear 11, so that the rocker 8 will have the greater amplitude of movement, and the back selvage-harness connected therewith will be given the longer stroke. The selvage-harnesses are suspended from the rockers 7 and 8, which positively raise and depress them with a differential movement and in opposite directions by or through the positive connecting-gearing. Each gear 12 has secured to or forming part of it a crank-arm or actuator 15, provided with a crank-pin 16, Fig. 1, which passes loosely through an elongated slot 17 in a laterally-extended and substantially horizontal arm 18, adjustably secured by set-screws 19 to an adjacent vertically-reciprocating rod 20. One of these reciprocating members is located at each side of the loom, its upper end sliding in a tubular guide 21, bolted to the arch, and its lower end having a foot 20^x, bifurcated or forked at 22 (see Fig. 6) to embrace the cam-shaft C^x and be guided thereby, enlarged cheek-pieces 23 being formed on the sides of the fork to increase the bearing-surfaces and prevent any twisting of the rods 20, which are practically transmitters. As the latter rise and fall the crank-arms 15 will be rocked to turn the rock-shafts 10, and through the gearing the rock-shafts 9 will be turned oppositely to thereby effect the desired reciprocation of the selvage-harnesses, as will be manifest.

Owing to the long slots 17 in the arms 18 the brackets 4 can be moved toward or away from the center of the loom a considerable distance, thereby providing for lateral adjustment of the selvage-harnesses in weaving different widths of fabric.

I have pivotally mounted at 24 on each foot 20^x a switch-follower 25, (shown in face view Fig. 6 and crescent-shaped,) the follower rocking on its pivot, so that it can change its angular position with relation to the transmitter-foot on which it is mounted as it follows the cam-path of the actuator or controlling-cam, to be described.

Each actuator is shown as a partly-circular body portion 26, having a hub 27 and of sufficient thickness to receive the cam path or groove, the grooved face of the body being flush with the adjacent end of the hub 27, while a much thinner segmental part 28 projects from the hub at its opposite ends. (See Fig. 5.) The ends 29 30 of the body lie in radial planes and diverge from the hub, such ends, with the offset part 28, forming a segmental seat, into which fits the removable and reversible part or member 31 of the actuator, secured in position by suitable screws 32. The part 31 is of such thickness that when seated its face will lie flush with the grooved face of the main or body part 26, as shown in Fig. 5.

Referring to Figs. 3 and 4, it will be seen that the body portion 26 has on its face an incomplete crossed cam path or groove formed by an inner lobe 33 and an outer lobe 34 crossing between the opposed points 35 36. Both lobes are intersected by the ends 29 30 of the body portion, and the completion of the cam-path is effected by the reversible portion 31. One of the faces thereof has a single cam-groove 37 formed thereon; (see Fig. 3,) and when the portion 31 is in place one end of the groove 37 registers with the inner lobe 33 near the hub, its other end registering with the outer lobe 34 near the periphery of the actuator on opposite sides of the center. A complete cam-path is thereby formed substantially heart-shaped, the follower 25 traversing the same as the actuator is rotated by the cam-shaft, imparting to the selvage-harnesses the proper movement for a plain selvage—that is, each harness being raised one pick and lowered the following pick. To weave a tape or basket selvage, the part or member 31 is removed, reversed, and replaced, exposing its opposite face, which, as shown in Fig. 4, is provided with two concentric grooves or paths 38 39, the former completing the outer lobe 34 and the latter completing the inner lobe 33 of the body portion 26. When so adjusted, the switch-follower 25 traverses first one lobe and then the other, crossing from one to the other between the points 35 36 and giving the two up two down movement to each of the selvage-harnesses in order that the tape or basket selvage shall be made.

The change from one to the other selvage requires only the loosening of the fastenings 32 of each reversible member or segment 31, the removal and reversal thereof, and the replacement of the two segments in their respective seats, after which the fastenings are replaced without any change whatever in the main or body portions of either actuator. Such change is readily made and obviates the necessity of two sets of actuators or cams and the removal of one set and replacement of the other set on the cam-shaft, a tedious and dirty piece of work and requiring skilled labor to set or time the cams after they have been placed on the shaft.

The forked ends of the transmitters 20 rise and fall between the faces of the adjacent actuators and collars 50 on the cam-shaft.

My invention is not restricted to the precise construction and arrangement shown and described, as the same may be modified or changed in various respects without departing from the spirit and scope of my invention.

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

1. In a selvage-motion for looms, in combination, two selvage-harnesses at each side

of the loom, a connection between and to cause opposite reciprocation of the harnesses of each pair, two actuators, transmitting means between each actuator and one of the connections, and means on each actuator to cause the said actuators to operate the harnesses to weave plain or tape selvage.

2. In a loom, a shed-forming mechanism for each selvage, combined with a separate actuating device for each mechanism, and means, including a variable member forming a part of each actuating device, to cause said actuating devices to operate the shed-forming mechanisms to weave plain or tape selvage.

3. In a selvage-motion for looms, in combination, two selvage-harnesses at each side of the loom; a positive connection between and to cause opposite reciprocation of the harnesses of each pair, two rotatable actuators, means on and to vary each actuator to cause plain or tape selvage to be woven, and transmitting means between each actuator and one of the harness connections.

4. In a loom, a rotatable shaft, a shed-forming mechanism for each selvage, combined with a reciprocating transmitter operatively connected with each mechanism, and two actuators on the shaft to reciprocate the transmitters, each actuator comprising a main or body portion and a reversible portion, whereby by reversal of the latter portions said actuators can operate the shed-forming mechanisms to weave different kinds of selvage.

5. In a loom, a shed-forming mechanism for each selvage, including two positively-connected and oppositely-movable harness members for the selvage-warps, and means to cause a differential movement of the connected harness members, combined with an actuator for each mechanism, each actuator comprising a main portion having on its face a crossed and incomplete cam-path, and a reversible portion having on one face a double cam-path to complete the two lobes of the crossed path on the main portion, and on its opposite face a path to complete an uncrossed path, and transmitting means between each actuator and one of said shed-forming mechanisms, said means including a follower to traverse the cam-path of the adjacent actuator.

6. In a loom, separate shed-forming mechanism for each selvage, an actuator for each mechanism, each actuator having a removable, reversible portion, whereby a plain or a tape selvage may be woven, and a reciprocating transmitter between each actuator and one of said mechanisms.

7. In a loom, separate shed-forming mechanism for each selvage, an actuator for each mechanism, each actuator having a cam-path thereon, means to vary or change the cam-path to weave plain or tape selvage, a follower cooperating with the cam-path of each actuator, and a transmitter for each of said shed-forming mechanisms, the followers being mounted on the transmitters.

8. In a loom, a cam-shaft, two selvage-harnesses at each side of the loom, a positive, differential connection between each pair of harnesses, a rocker-arm on each connection, a vertically-reciprocating transmitter operatively connected with each rocker-arm, to operate the same, and an actuating-cam for each transmitter, fast on the cam-shaft, each cam having a reversible segment, the main portion of each cam having incomplete inner and outer lobes of a crossed groove, one face of the segment being grooved to complete both lobes and the other face having a groove to connect one end of the outer lobe with the end of the inner lobe on the opposite side of the center, forming a single, uncrossed path, whereby by reversal of the segments plain or tape selvage can be woven.

9. In a loom, separate shed-forming mechanism for each selvage, actuating means therefor, including two cam-grooved actuators, and means to vary the contours of said cam-grooves whereby tape or plain selvage may be woven.

10. In a loom, separate shed-forming mechanism for each selvage, combined with an actuator for each having a variable cam-path, means to change or vary said cam-paths, a reciprocating transmitter cooperating with each actuator, and a rocking connection between each transmitter and one of said shed-forming mechanisms.

11. In a loom, separate shed-forming mechanism for each selvage, and operating means for each mechanism including a crank-actuator and transmitting means provided with a slotted arm cooperating with the crank-actuator, whereby the weaving of different widths of fabric is permitted.

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

CHARLES F. ROPER.

Witnesses:

E. D. BANCROFT,
O. H. LANE.