

(No Model.)

4 Sheets—Sheet 1.

G. W. RHODES.

TAKE-UP MOTION FOR LOOMS.

No. 345,544.

Patented July 13, 1886.

FIG:1.

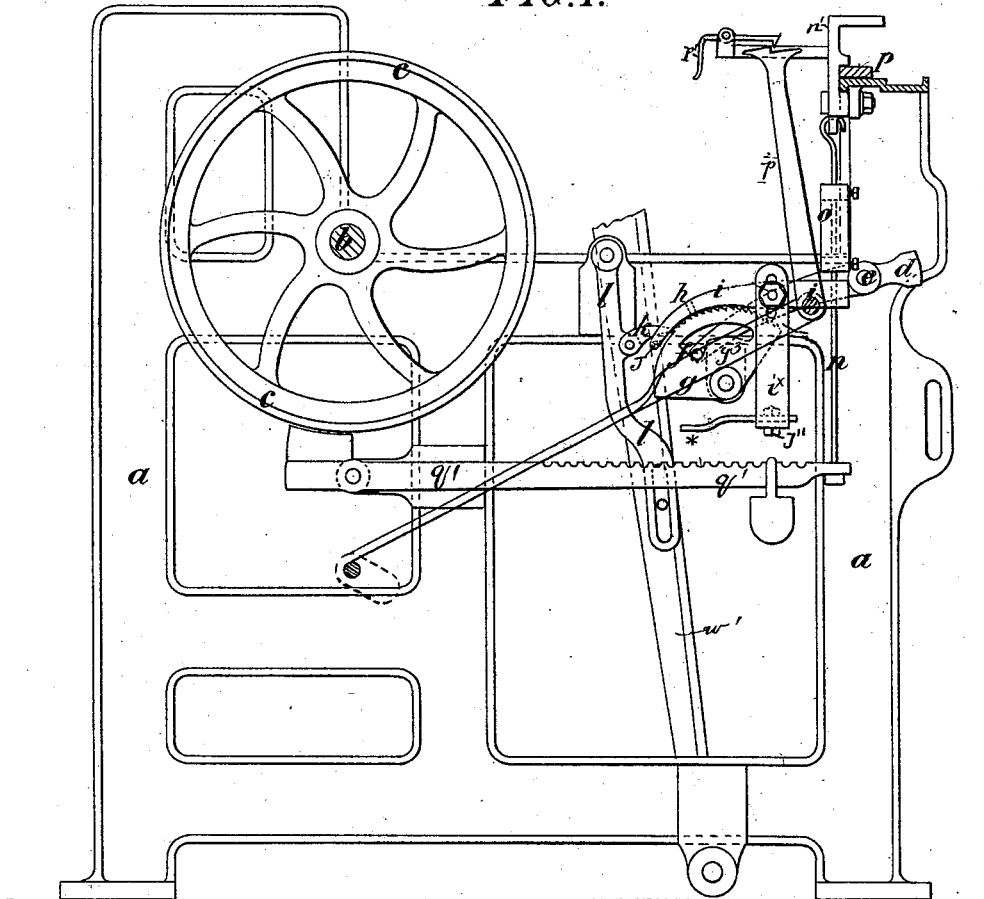
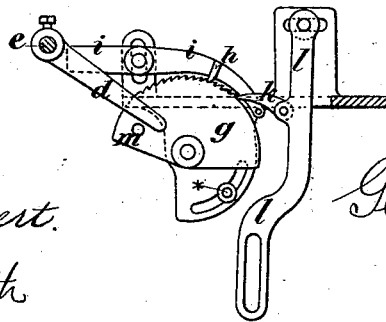


FIG:2.



Witnesses.

Henry Bossert.
Harry Smith

Inventor.

George Wood Rhodes
by his attorneys
Howson & Sons

(No Model.)

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FIG:3.

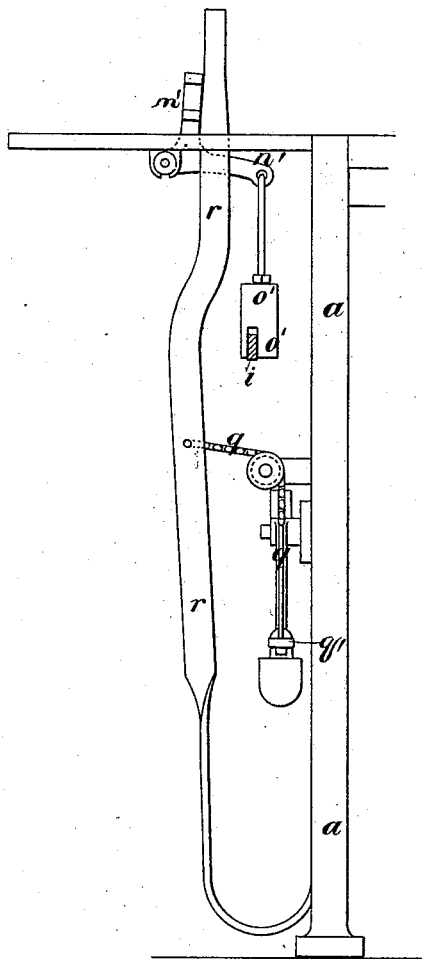
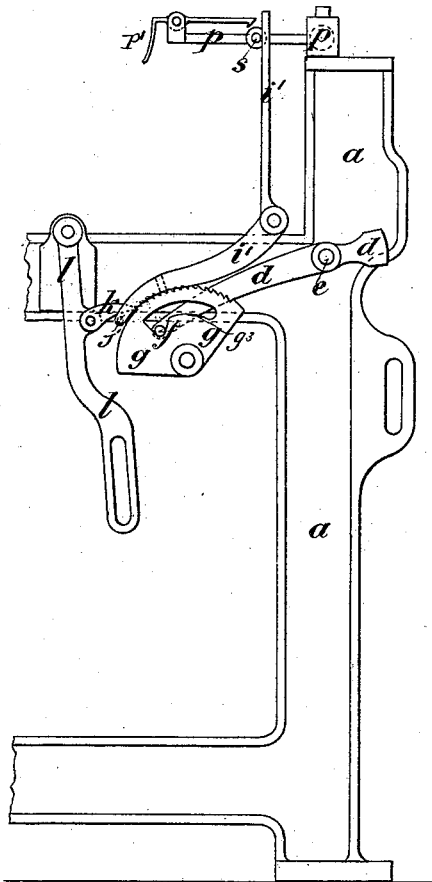


FIG:4.



Witnesses.

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Inventor.
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(No Model.)

4 Sheets—Sheet 3.

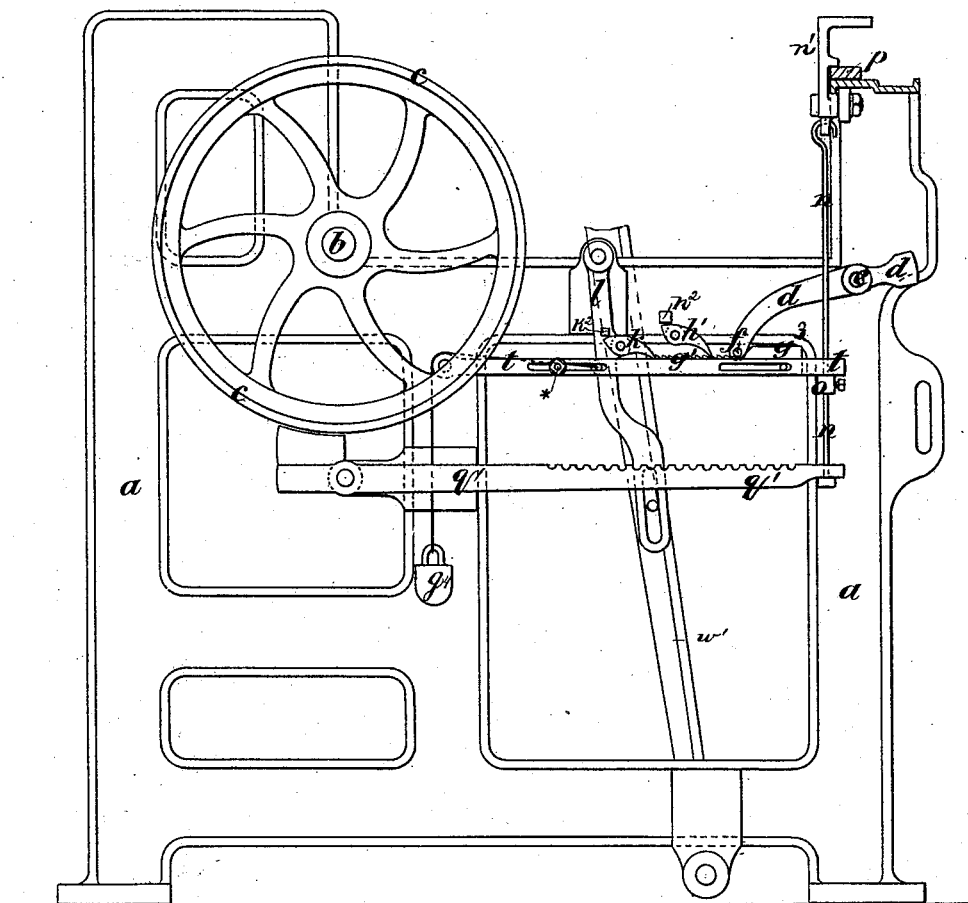
G. W. RHODES.

TAKE-UP MOTION FOR LOOMS.

No. 345,544.

Patented July 13, 1886.

FIG:5.



Witnesses.

Henry Bassett.
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Inventor.

George Wood Rhodes
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Howson & Sons

(No Model.)

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TAKE-UP MOTION FOR LOOMS.

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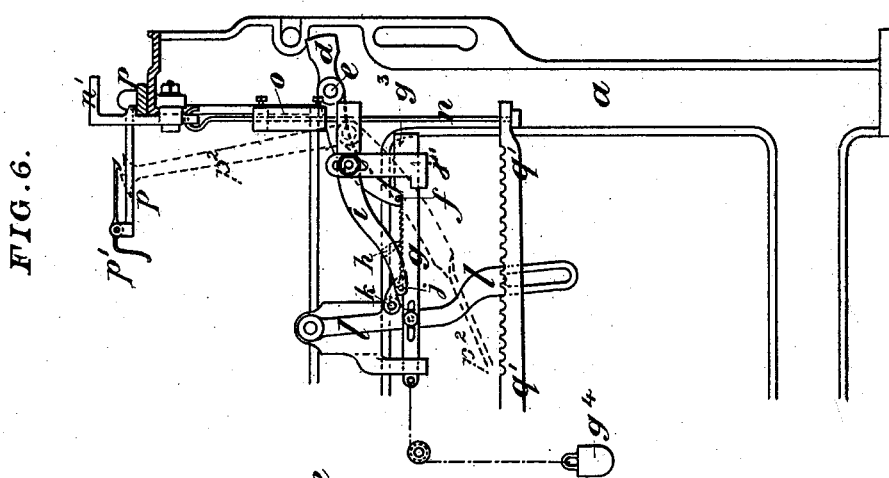


FIG. 6.

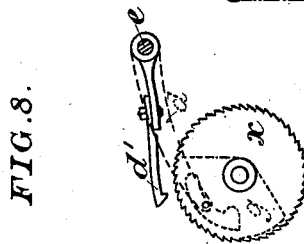


FIG. 8.

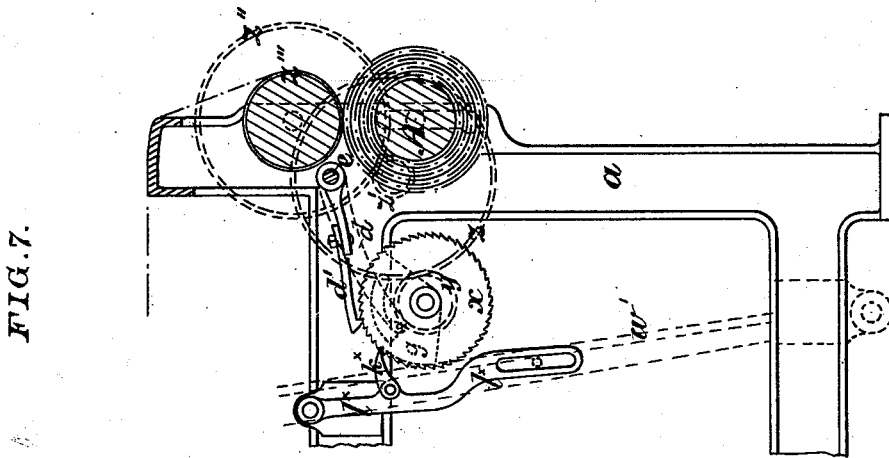


FIG. 7.

Witnesses:
William D. Gomer
John E. Parker

Inventor:
Leo W. Rhodes
by his Attorneys
Howson & Smp

UNITED STATES PATENT OFFICE.

GEORGE WOOD RHODES, OF MANCHESTER, COUNTY OF LANCASTER,
ENGLAND.

TAKE-UP MOTION FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 345,544, dated July 13, 1886.

Application filed March 18, 1885. Serial No. 159,288. (No model.) Patented in England June 13, 1884, No. 8,909, and in Germany March 12, 1885, No. 34,271.

To all whom it may concern:

Be it known that I, GEORGE WOOD RHODES, a subject of the Queen of Great Britain and Ireland, and residing at Manchester, county of Lancaster, England, have invented certain Improvements in Take-Up Motions for Looms, (for which I have obtained British Patent No. 8,909, dated June 13, 1884, and German Patent No. 34,271, dated March 12, 1885,) of which the following is a specification.

This invention relates to that part of the loom known as the "taking-up motion."

When weaving with the ordinary loom, if the weft breaks or the shuttle becomes empty the "weft-fork motion" throws the driving-strap of the loom onto the loose pulley; but the loom runs on for a few picks without weft before the weft-fork motion actually stops the loom, and as the taking-up motion works with the rest of the mechanism, when the weft begins to be thrown in again a "crack" or space is left across the cloth, which has been moved by the said taking-up motion beyond the reach of the "beat-up" of the reed. This may, however, be obviated by the weaver, if he lifts the top catch by means of the trigger, hereinafter referred to, from the taking-up ratchet-wheel, so that the latter will remain stationary; but in so doing he is liable to form a too closely woven "bar" across the cloth, if he allows the loom to put in too many picks before replacing the catch. The trigger is a light lever mounted on the trigger-bar or catch-rod of the loom. The end of the trigger comes up in front of the weft-fork lever, and is actuated thereby when the weft breaks, in order to lift the retaining-catch of the taking-up motion.

The object of my invention is to prevent the formation of these cracks or bars by simple and automatic mechanism, which will be readily understood on reference to the accompanying drawings, and the following explanation thereof.

Figure 1 is an elevation, partly in section, of so much of a power-loom as is necessary to illustrate my invention. Figs. 2 and 3 are views of modifications, hereinafter referred to. Figs. 4, 5, and 6 are views of other modifications. Fig. 7 is a sectional elevation of the taking-up motion of a loom, the main parts of

my invention being indicated in dotted lines; and Fig. 8 is a view showing the retaining-catch and ratchet-wheel, the former being raised by the falling of the quadrant, hereinafter referred to, (indicated by dotted lines,) and consequent lifting of the lever, hereinafter referred to, (also indicated by dotted lines.)

a a is part of the framing of the loom; *b*, the crank-shaft, and *c c* one of the fly-wheels. At the side of the loom opposite the side of the taking-up motion I mount in place of the trigger a lever, *d d*, fastened on the end of a rod, *e e*, passing across the loom, and on the other end of this rod is the ordinary retaining-catch, *d'*, Fig. 7, of the taking-up motion; but I dispense with the trigger altogether.

The above lever *d d* is provided at its end with a projection, *f*, which is acted upon by a cam or projection, *g*, in or on a rack, *g g*. In the construction shown in Figs. 1, 2, 4, 7, and 8, this rack is in the form of a pivoted quadrant, while in the construction shown in Figs. 5 and 6 it is in the form of a sliding bar. This rack *g g* is made plain at one end, and is so weighted that it has always a tendency to move in one direction, but in the construction shown in Figs. 1, 2, 4, and 6 is prevented from so doing by a catch, *h h*, forming part of or attached to a lever, *i i*, pivoted on the loom-side. This catch-lever *i i* is prolonged and provided with a projection, *j*, which passes immediately beneath a catch, *k k*, upon a lever, *l l*, similar to the "pusher" *k^x* and "monkey-tail" *l^x* of the taking-up motion (see Fig. 7) on the other side of the loom, and actuated by a projection from the adjacent lathe-sword *w* in a similar manner.

The taking-up motion (see Fig. 7) consists of a lever, *l^x*, known as the "monkey-tail," (carrying a pawl or pusher, *k^x*,) which is actuated by a projection from the lathe-sword *w*, and which revolves the ratchet-wheel *x*, tooth by tooth. This ratchet-wheel actuates a pinion, *y*, in gear with a toothed wheel, *z*, which, through the pinion *z'* and wheel *z''*, drives the emery-roller *z'''*, and the latter rolls the cloth onto the beam by frictional contact. This motion, however, forms no feature of my invention, being the mechanism usually employed in looms for weaving. I have illustrated this motion separately in Fig. 7, dotting

in the quadrant *g* and lever *d*, as it is impossible to illustrate my improvement and the taking-up motion in one view without confusion. When the loom is weaving, the catch
 5 or pawl *k* (which, for the sake of illustration, I will call the "second" pusher) works upon the plain part of the rack *g*; but when the loom is stopped by the weft breaking and causing the weft-fork lever *p* to stop the loom
 10 in the usual way by means of the weft fork *p* and vibrating hammer *p*², it is lifted by the projection *j* on the catch-lever *i i*, before named, said lever being moved by piece *o* on the brake-rod *n*. The movement of lever *i*, which lifts
 15 pusher *k*, also lifts the catch or pawl *h*, and allows the rack *g g* to be moved back for a certain distance. This is regulated by an adjustable stop, *, which is adjustably secured by a nut, *j*², to the bracket *i*^{*} in Fig. 1. As
 20 the quadrant or slide rack moves, the cam or projection *g*³ lifts the lever *d d* on the rod *e e*, which carries the catch *d'* of the taking-up motion, Fig. 7. This catch *d'* is thereby lifted from its ratchet-wheel, as shown in Fig. 8, and
 25 thus instantly stops the taking up of the cloth. Instead of the cam or projection above referred to, I sometimes fix a pin, stud, or projection, *m*, on the side of the quadrant or rack, *g*, as shown at Fig. 2, which will produce the
 30 same effect.

The catch-lever *i* and the second pusher, *k*, are replaced, when the loom is started again, by their own weight on being released by the
 lifting up of the brake-rod *n n*, and return the
 35 rack *g g* to its original position, tooth by tooth, and as the projection *g*³ forms part of the rack the catch *d'* of the taking-up motion is allowed to fall into position again after a certain number of picks have been made, this number
 40 varying according to the number of teeth allowed to pass beneath the second pusher, *k k*, or, in other words, according to the position of the adjustable stop above named.

The lifting of the catch-lever *i i* and second
 45 pusher, *k k*, may be effected by a projection or weights, *o o*, on the brake-rod *n n*, which is suspended from the usual bell-crank lever, *n'*, and is connected to the weighted brake-lever, *q'*, for the fly-wheel *c*. This rod *n*, when
 50 released by the weft-fork lever *p p*, descends, and by the projection *o* pushes down the forward end of said catch-lever *i i*.

Fig. 6 shows my invention applied to a sliding rack, *g g*, provided with a cam or projection, *g*³, and weighted by the retractor-weight
 55 *g*⁴. The other parts are similar to the apparatus already specified, and being similarly lettered need no further explanation.

In looms where it is desirable to have the
 60 brake independent of this improved taking-up apparatus I dispense with the brake-rod *n n* and the projection thereon, and simply hang a weight, *o' o'*, Fig. 3, on the ordinary crank-lever, *n' n'*, to which the said rod was attached,
 65 and the falling of this weight will lift the catch-lever *i i*. (See Fig. 3.) In this case I

connect the brake-lever *q' q'* by a chain, *g*, passing over a pulley to the ordinary setting-on rod, *r r*, which is cranked for that purpose, as shown in Fig. 3; or the said catch-lever
 70 may be in the form of a bell-crank, *i' i'*, (see Fig. 4,) and its upper end may be pushed back by a projection, *s s*, from the weft-fork lever *p p* itself, the brake-lever in this case being worked as usual. A modification of my in-
 75 vention, without departing from the essential features thereof, may be constructed, as shown in Fig. 5, by dispensing with the catch-lever *i i* and mounting a sliding rack, *g'*, upon a pivoted lever, *t t*, formed with suitable slides or
 80 slots therein, and provided with a stop, against which the sliding rack *g g* is pulled by the weight *g'* whenever it is released from the action of the catches *k* and *h'*. The free end
 85 of the lever *t t* rests upon a collar or projection, *o o*, on the brake-rod *n*, and on the falling of this rod when the weft breaks the said lever *t t* drops sufficiently to carry the rack
 90 out of reach of the pawls or catches *k* and *h'*, which are prevented from following by corresponding stops, *k² h²*, on the monkey-tail *l* and frame. The sliding rack *g* is then pulled along
 by the weight *g'* until arrested by the stop *, when the projection *g*³ will come beneath and
 95 raise the lever *d*, and consequently the retaining-catch *d'* of the taking-up motion, Fig. 7, as before explained.

The projection *g*³ must evidently be made sufficiently raised to lift the lever *d*, notwithstanding the lever *t t* is lowered out of reach
 100 of the catches *k* and *h'*. The retaining-catch *h'* is then a simple pawl pivoted to the loom-side, instead of being a lever, and it and the second pusher, *k*, will be prevented by the stops *h² k²* from following the rack as it is lowered.
 105

I claim as my invention—

1. The combination of the retaining-catch *d'* of the take-up motion of a loom, the lever *d*, rod *e*, and a rack, *g*, having a cam or projection for raising the said lever *d*, with devices,
 110 substantially as set forth, for holding and releasing the said rack *g* and the lathe-sword, and devices, substantially as specified, controlled by said sword, for returning the rack
 115 to its position, all substantially as and for the purpose described.

2. The combination of the retaining-catch *d'* of the take-up motion of a loom, the lever *d* and connecting-rod, and a quadrant, *g*, having
 120 a cam or projection for raising the said lever *d*, with devices, substantially as set forth, for holding and releasing the quadrant, and with the lathe-sword, and devices, substantially as specified, controlled by said sword, for returning
 125 the quadrant to its normal position, all substantially as described.

3. The combination of the retaining-catch *d'* of the take-up motion of a loom, the lever *d*, rod *e*, and rack *g*, having a cam or projection
 130 for the lever, with the lathe-sword, lever *l*, operated thereby and carrying a pusher, *k*, and

devices, substantially as described, for retaining and releasing the rack, all substantially as described.

4. The combination of the retaining-catch *d'*
5 of the take-up motion of a loom, rod *e*, lever *d*,
and rack having a cam or projection for the
lever, with the lathe-sword, lever *l*, operated
thereby and carrying a pusher, *k*, to act on the
rack, a retaining-lever, *i*, to act on the pusher
10 and rack, and devices, substantially as set

forth, for raising the said lever *i* to release the
rack, all substantially as described.

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

GEORGE WOOD RHODES.

Witnesses:

CHARLES DAVIES,
GEORGE DAVIES.