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THE MANUFACTURE OF TURKISH TOWELING FABRICS.

This article will be explained by means of thirty-six illustrations.

Loom Motions.

(*Continued from July issue.*)

MOVABLE JOURNAL-BOXES.

Another system of producing terry loops on the loom is shown by means of Figs. 23, 24 and 24*a*, and of which Fig. 23 is an end or cross-sectional elevation of the loom with the movable journal-boxes and crank-shaft thrown fully back, as when partially beating up the filling. Fig. 24 is a cross-sectional elevation of it without the gears, showing the journal-boxes and crank-shaft thrown forward and the lay forced fully up.

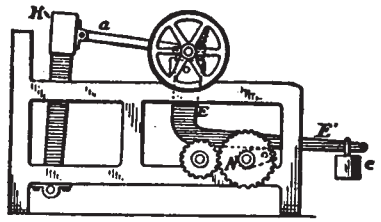

Fig. 23

Fig. 24*a* is a detail view showing one of the journal-boxes and part of its supporting lever, its adjusting screw, and the device for locking the lever and box in a forward position for the production of a plain fabric. (Letters indicating the different parts for reference are selected to correspond in all three diagrams.)

The method of operation of the loom thus forming the terry pile is as follows: The crank-shaft *A* when revolving, drives to and fro the lay *H* by means of the rods *a*, communicating with usually constructed cranks (not shown) and thus drives the picks partially up at each revolution, when it is thrown back, as illustrated in Fig. 23. In order to produce the terry loop the entire shaft *A* is, after two picks are inserted, thrown forward to a point where, when the cranks previously referred to arrive on a horizontal plane toward the lay *H*, the latter will be caused to make a full beat, driving the picks full up, producing the characteristic terry loop.

The shaft *A*, when it is desired that the loop shall be formed at every third pick, is arranged to revolve by a proper adjustment of the gearing three times, while the cam shaft *N* revolves once. When the cams *h* of the cam-shaft *N* are in any position other than an upright position, the lower arm *E'* is at rest, being borne down and held in that position by the weight *e*. As a natural consequence, by reason of the pivotal bearing at *g*, the knee of the arms *E E'* is thrown forward, while the journal-boxes *F* of the shaft *A*, being firmly fixed to the arms *E E'*, are thrown back, and the shaft *A*, while revolving in this position, produces by

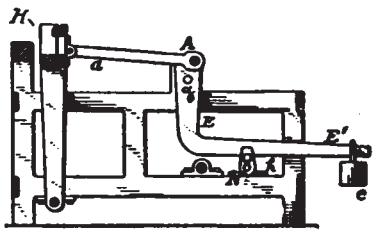

Fig. 24

means of the lay but a partial beat of the picks, one throw of the shuttle being made to each revolution of the shaft *A*. When, however, the cams *h* of the cam-shaft *N*, by the revolution of the shaft, begin to assume an upright position, pressing against the lower edge of the arms *E'*, the latter being gradually raised until they assume a horizontal position and thereby, by reason of the pivotal bearing *g*, throw the boxes *F*, adusted to the extreme upper ends of the arms *E* and containing the crank-shaft *A*, completely forward. Then the shaft, revolving to the proper point, produces a full beat of the lay and makes in the fabric the terry loop at the desired interval.

The length of the terry-loop is regulated by means of the screw *l*, adjusted to the journal-boxes *F*. By screwing down the screw the terry-loop is shortened by the shaft *A* being prevented from going as far back as it otherwise would by reason of the lower end of the screw coming in contact with the loom-frame, consequently allowing the short beats of the picks to be driven more nearly full up. When the screw *l* is screwed up, the arms *E'* fall fully down when released from the cam *h* and throw the shaft *A* full back, and

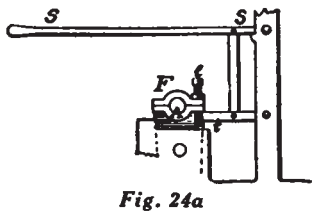

Fig. 24a

this produces an extremely long terry-loop. By this means a terry-loop of any desired length can be produced.

When it is desired to throw the terry devices out of operation and to weave a plain fabric, the lever *S*, connecting with the lug *t*, as shown in Fig. 24*a*, is depressed, the lug *t* thereby engaging the movable journal-box *F*, and, preventing the backward motion, holds it firmly in position and allows of the lay *H* beating full up at every revolution of the shaft *A*.

THE CROMPTON & KNOWLES TERRY MOTION.

This motion also produces the terry pile by means of a shorter beatup of the lay for a predetermined number of picks, and then moving it forward to its full beat, to beat up the previously loosely beaten up picks of filling and thus form the characteristic loops produced by means of the lightly weighted terry warp, to these fabrics.

Accompanying diagram, Fig. 25 shows this terry motion in its end elevation, showing also those parts of the loom to which the motion more particularly refers.

In order to prevent the lay from beating up its full stroke, two eccentrics (1) are secured to either end of rock shaft 2, receiving half a rotation within the bands 3 on the connectors 4, thus decreasing the length of the latter.

To cause this half rotation of the eccentrics 1 as are fast on the rock shaft 2, an upwardly extending lever 5 is provided, the same having its hub fast on the shaft 6, and its upper end provided with a pin 7, which extends in the path of and is adapted to be engaged by a hook lever 8. The latter has a hub 9 loosely mounted on a stud 10, as is secured to the loom frame, and is connected at its free end, through a wire 11, with some pattern indicating mechanism on the loom (not shown) which automatically causes the raising and lowering of said hook lever 8 at predetermined intervals.

In the operation of the loom, when the lay moves to its rear position, and the hook lever 8 is automatically lowered, extension 12 will engage pin 7 and on the next forward stroke of the lay, the lever 5

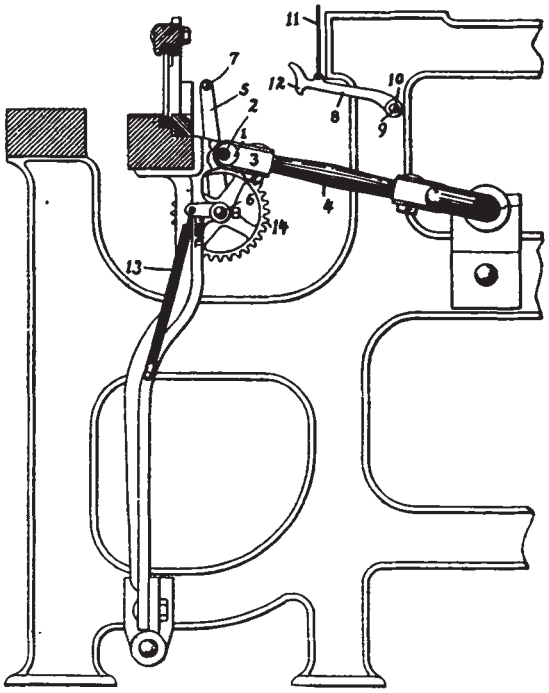

Fig. 25

will be held by the hook extension 12, in turn causing the partial rotation of the shaft 6, against the action of spring 13, and also the partial rotation of the gear 14, and the pinion fastened to shaft 2 (not shown) and which pinion is in mesh with the gear 14, and the rotation of the shaft 2, and the eccentric 1 fast thereon, so that said eccentric will receive a half rotation, from the position shown in our illustration.

With the eccentric 1 in this position, the amount of the forward movement of the lay will be diminished, and this diminished forward stroke of the lay may be continued for several picks as desired, and until, according to the indication of a pattern surface, the hook lever 8 is automatically raised to release the lever 5.

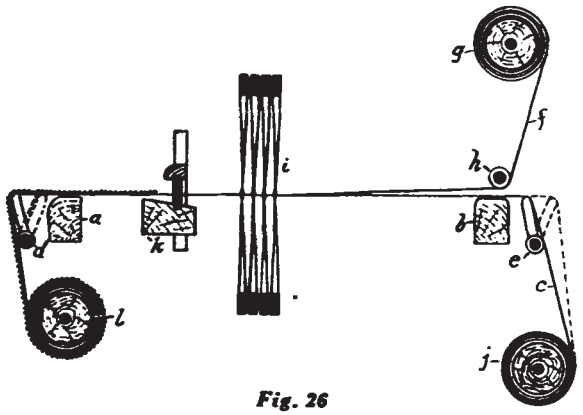

Fig. 26

When this is the case, said lever 5 through the operation of the spring 13, is caused to return to its normal forward position, by the partial rotation of the shaft 6; and through the partial rotation of the gear 14 and the pinion on the rock shaft 2, the latter will be rotated, and the eccentric 1 thereon rotated to the position shown in our illustration, in which position the lay will then move forward its full stroke, as shown in our illustration, to beat up the loops of the terry warp.

MOVABLE FRONT AND BACK RAILS.

Another method of loom construction for terry weaving is shown in Fig. 26 in its section. In the same, we find placed before the breast beam *a* and after the whip roller *b* of the ground warp *c*, movable (front and back) rails *d* and *e*. The pile warp *f* comes from beam *g*, and passes around whip roller *h* to the harness *i*, the ground warp *c* passing from beam *j* to the harness *i*.

Front and back rails *d* and *e* are suitably connected by means of a rod (not shown) and work in unison. They are at the proper moment, for the three (or more) picks of the repeat of the terry loop, turned forwards as shown by *full* lines in illustration, carrying the cloth forward with it. Since the lay *k* as carries the reed is made to work uniform throughout the entire process of weaving, the reed does then not come close to the fell of the cloth, the picks inserted leaving an open space formed by the warp-threads. As soon as the proper number of picks (three or more, as form the terry lop and its interlacing to the fabric structure) are inserted, front and back rails *d* and *e* are automatically moved back (see *dotted* position) and when the reed in its regular beating-up motion by the lay *k* then reaches the fell of the cloth and in turn drives the three or more picks of the repeat of the terry weave inserted, up to the fell of the cloth, in turn producing the characteristic loop to the pile warp-threads. *l* indicates the cloth beam.

The three motions thus explained, illustrate three ideas in the construction of terry looms: First, the reed is moved; second, the lay is moved, and third, the fabric is moved; all changes produce the same result as to the formation of the loop.

(To be continued.)