

Improved Independent Shuttle-motion Loom.

The advantages gained by making the motion of the shuttle independent of the velocity of the other parts of power looms, have already been fully set forth in these columns. These advantages are so manifest that inventors have for years sought to secure such a motion, and several have been illustrated in this journal within the past two years. We have now to add another, which secures the desired result in a very simple manner, combining several important features which are set forth below.

Fig. 1 is a perspective view of the loom with the improved shuttle-motion attachment, the details of which will be understood by referring to Fig. 2 in connection with the following description.

Power is communicated to the loom through the pulley, A, and shaft, B. The shaft, B, has formed thereon double cranks, which, through the medium of the connecting rods, C, give the required oscillation to the lay.

Through the medium of suitable gearing, D, rotation is imparted to the shaft, E. This shaft carries two cams, F, each of which has a hinged segment, G, which allows the motion of the primary shaft, B, and the shaft, E, to be performed in either direction without affecting the operation of the loom, and also permits the lay to be pushed back by the hand of the attendant at any portion of the revolution, without necessitating any re-adjustment of parts in starting the loom.

The cams, F, operate oscillating levers, H, pivoted at I, and having friction rollers pivoted to the ends which engage with the cams. The operation of the cams is to alternately thrust the back ends of the levers, H, inward at each revolution of the shaft, E. This alternately forces the opposite ends of the levers, H, outwards, against the lower ends of the vertical oscillating levers, J, against which the ends of the levers, H, press, but with which there is no positive connection by pivots or links attaching the two sets of levers to each other.

The forcing out of the lower ends of the levers, J, in the manner described, causes them to alternately stretch the coiled springs, K, the inner ends of which are respectively linked to the tops of the levers, J, and the other ends of which are attached to the undersides of the lay beam, as shown.

Each of the levers, J, is attached by a leather cord, L, leading from its upper end to the picker, M, situated at the end of the lay race, R, opposite the lever. Other cords, N, lead from the pickers over pulleys, O, down to double pulleys, P, attached to the frame of the loom, as shown, upon which the cords, N, wind, as other cords, T, are unwound by the inward motion

of the lower ends of the levers, J, to which they are attached.

The action of the movement is as follows: The revolution of the shaft, E, forces inwards one of the oscillating levers, H, thereby forcing outward the bottom of one of the levers, J, and forcing in its top so as to put tension in the spring to which it is attached. The opposite spring, being in this part of the movement released from tension, recoils, and drawing outward the top of the lever to which it is attached, and drawing inward the bottom of the same lever, imparts rotation to

stantly stopped by dogs, Q, which, by the use of the foot may be thrown into position to engage with the lower end of either of the levers, J, so as to prevent the recoil of the spring to which the lever is attached, and consequently the throw of the shuttle.

The advantages of an independent shuttle motion were specifically given in our article descriptive of Stever's Independent Shuttle-motion Loom, published on page 335, current volume, of the SCIENTIFIC AMERICAN.

It is claimed, however, that this loom gains an important advantage by dispensing with the semicircular picker-staff motion, and that the shuttle is on this account not nearly so likely to be knocked off the lay-race. It is also claimed that this movement is simpler and cheaper than any which has preceded it, while it fully attains all the other advantages secured in other independent shuttle movements.

The velocity of the throw of the shuttle is the same whether the picks be rapid or slow, and great rapidity is attainable. We are told that looms with this motion attached are now successfully run at a speed of 200 picks per minute without danger of too great strain upon the thread.

The movement can be attached at a cost of about \$3.50 to any power loom in market except the Lyall "Positive Motion Loom."

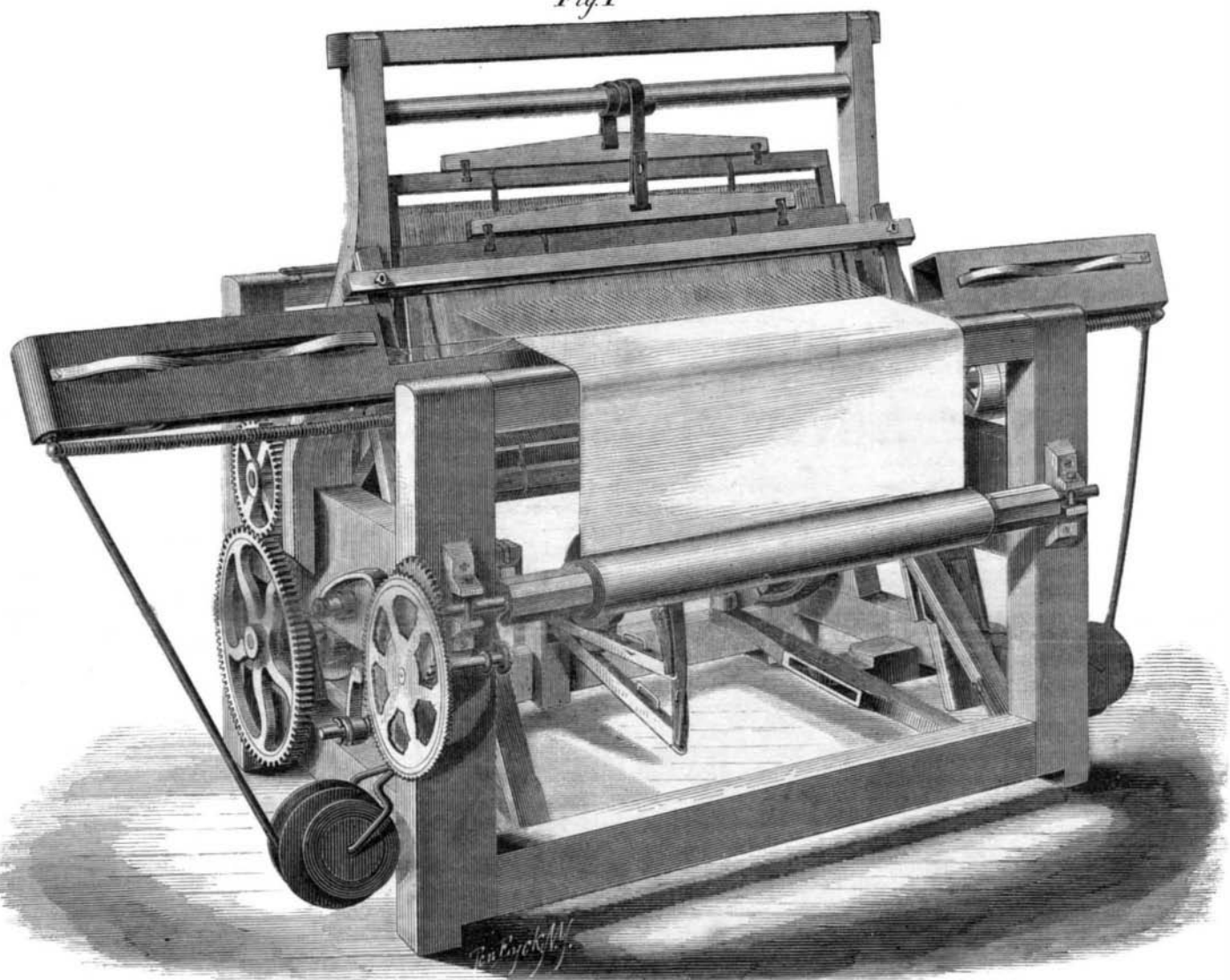
The springs may be adjusted to different tensions to suit the character of the textures to be woven. Thus a uniformity in textures unattainable on the old looms, is always secured.

The pickers being self-sustaining and having a downward tendency in their movement, always maintain an upright position and always strike the shuttle at right angles directly in the line of their motion, giving greater stability of movement and allowing a high speed without danger of breakage.

The reversibility of the cams without interfering with the operation of the pickers, secures the advantage that in stopping the loom to mend a thread of the warp, the lay may be moved back while the mending is done, and if the pitmans or connecting rods, C, are on the dead center, it is not necessary, as in old looms, to move the power wheel by hand to get the pitmans off the center. The work proceeds from the point at which it stopped, when the loom is again started.

All the machinery is attached to the loom itself—no part to the floor; and the heavy surging motion of old looms is avoided, as well as much of their noise. Patented Dec. 13, 1870, by E. P. Terrel. Patents have also been applied for in all the foreign countries. For further information in reference to the sale of the patent for the United States, address F. M. Hamilton, West Liberty, Logan Co., Ohio, or Alexander A. C. Klauke, Box 48 Washington, D. C.

Fig. 1



TERREL'S INDEPENDENT SHUTTLE-MOTION LOOM.

the double pulley, P, by unwinding the cord, T, which rotation winds upon the pulley the cord, N, and draws back the picker, M, to the rear end of the shuttle box, ready to make its stroke the moment the spring to which it is attached by the cord, L, is released by the let-off portion of the cam, F.

This simultaneous action of the movement at the opposite

ends of the lay is alternated at each revolution of the shaft, E, so that while one spring is under stretch the other is making its recoil, and not only making the stroke of the picker at the other end of the lay, but also drawing back the picker which made the last stroke ready for the next alternate stroke, and so on.

If a thread break, the motion of the shuttle, S, may be in-

Fig. 2

