

PRACTICAL DETAILS OF WEAVING.

Picking-Stick, Picker and Shuttle Checking Devices.

It soon becomes manifest, even to a casual observer of a power loom in operation, that its action is of a very irregular, spasmodical, and jerky character. The causes of this are equally manifest on examining the functions of the various parts of a loom, the chief of which are shedding, picking, and beating-up the weft. Each of these functions is performed intermittently and periodically, at regular intervals, with the result that there is considerable fluctuation in the energy required to drive a loom, thereby causing jerkiness in its action. Some loom-makers, recognizing the evil consequences arising from such variable action, weight the fly-wheels of a loom, which are adjusted in such a manner as to neutralize, or at least, minimize, its variable movement.

The influence of picking is not the least factor which contributes to the fluctuation of movement in a loom. The propulsion of a shuttle from one side of a loom to the other involves a sudden development of considerable force far in excess of what would be required to project it the same distance under unrestricted conditions. It is with the object of successfully overcoming the surplus energy of a moving shuttle that various checking devices and buffers are contrived. The great variety of these contrivances bears ample testimony to the difficulties which they are designed to overcome, and of the inadequacy of any single contrivance to meet the requirements of all types of looms. It is the purpose of the present article to describe a few varieties of these devices, and to compare their relative merits.

As just stated, the function of a checking device is to gradually overcome the energy stored in a moving shuttle, beyond what is required to ensure its transition from one shuttle-box to another, and so prevent unnecessary wear of pickers and shock to the shuttle, which would tend to displace weft contained in the latter.

The choice of a suitable checking device will largely depend on the particular construction of loom, as regards the kind of picking motion, speed of loom, and form of shuttle-boxes, rising and falling boxes, or revolving boxes or chambers. In any case, a checking device should be selected that will give a maximum efficiency with simplicity of construction.

One of the simplest and most effective checking devices, and one that is usually applied to ordinary narrow, over pick, single-box looms is illustrated in Fig. 1. It consists of a narrow strip of leather, A, passing through staples fixed on the lay front from one shuttle-box to the other. Each extremity of A is buckled to a tab of broader and stronger leather, B, the end of which is threaded upon the picker spindle, C. The straps are adjusted so that the distance between the extremities of the tabs is about two inches shorter than the distance between the inside of the shuttle-box ends, so as to gradually offer resistance to the progress of a shuttle, and prevent its concussion against an unyielding part. Short tabs of leather, D,

have one end threaded upon the box spindle, on the inside of the tab B, and the other end on the spindle outside the box end, for the purpose of preventing tab B from drawing too far inward. The constant friction of the latter upon the picker spindle tends to soon wear them out at that part.

By riveting a piece of buffalo hide on to the end of the leather tab that works on the spindle (in the manner indicated by dotted lines), it is made much more durable. Instead of employing a tab, D, to prevent the check-strap, A, from being drawn too far into the box, the check-strap itself is sometimes continued, and fastened on to the spindle end outside the shuttle-box, in a similar manner to the tab, D. This is not so satisfactory as the former method, as the tab, B, is not so well protected from concussion with the picker, and is, therefore, more liable to wear out; whereas the renewal of the smaller tab, D, could be made at less cost and trouble.

A novel device for checking a picker at the extremity of its forward stroke is also shown in Fig. 1. This consists of a strap, E, one end of which is attached to a leather buffer or stopper, F, upon the picker spindle; whilst the other end is attached to the periphery of a drum, G, containing a coiled spring, and supported upon a bracket in front of the lay. The spring causes the buffer to serve the purpose of a cushion, that gradually yields on being struck by the picker. By this means, the picker is saved from hard knocks and therefore lasts longer.

The usual device for stopping a picker at the extremity of its forward stroke, and one that is very satisfactory, is that shown in Fig. 2. This device consists of a stout leather strap, E, one end of which is secured to the front by means of a nut and bolt, or a coach-screw, whilst the other end is attached to a leather or buffalo stopper, F (in the manner shown), so that the stopper reaches within about three-eighths of an inch from the inner spindle bracket when the strap is at normal tension. By this means, the elasticity of the leather strap is analogous to the action of a spring and thereby provides a yielding stopper for the picker.

Fig. 2 also shows another method of fixing shuttle check-straps so as to effect economy in leather—an important consideration in a concern running a great number of looms. By this arrangement, an independent check-strap is employed for each shuttle-box. These are bolted to the rear of the breast-beam of the loom, in the manner indicated, instead of being connected by a strap extending across the lay front, as in Fig. 1. In the former arrangement, one check-strap is pulled inward on the arrival of the shuttle in the opposite box; whereas, in the present arrangement, both check-straps are pulled inward simultaneously on each backward stroke of the lay, thus relieving the picking motion of that effort, and putting the work directly on the crank shaft.

Fig. 3 is a simple checking device for a single-box under-pick loom. It consists of two leather straps so arranged that they act directly on the picking-stick on both the forward and backward strokes of the latter, respectively. The forward stroke of picking-stick, A, is checked by means of strap, B, bolted at the extremities to a bracket, C, fixed on the loom side, so as to produce a gradually yielding obstacle to the picking-stick. The progress of a shuttle, as it enters a box, is checked by means of a strap, D, one end of which is bolted to the lay front, and, after being passed around the picking-stick, the other end is bolted to the rear of the lay, as indicated. Strap D should be adjusted so as to prevent a picking-stick from coming in hard contact with the extremity of the slot in the base of the shuttle-box, otherwise the picker, E, will have less latitude as a yielding obstacle to a shuttle, and will, consequently, more quickly wear out.—Harry Nisbet, in Textile American.

