R. B. GOODYEAR.

Shedding Mechanism for Looms.

No. 166,928. Patented Aug. 24, 1875.

Fig. 1.

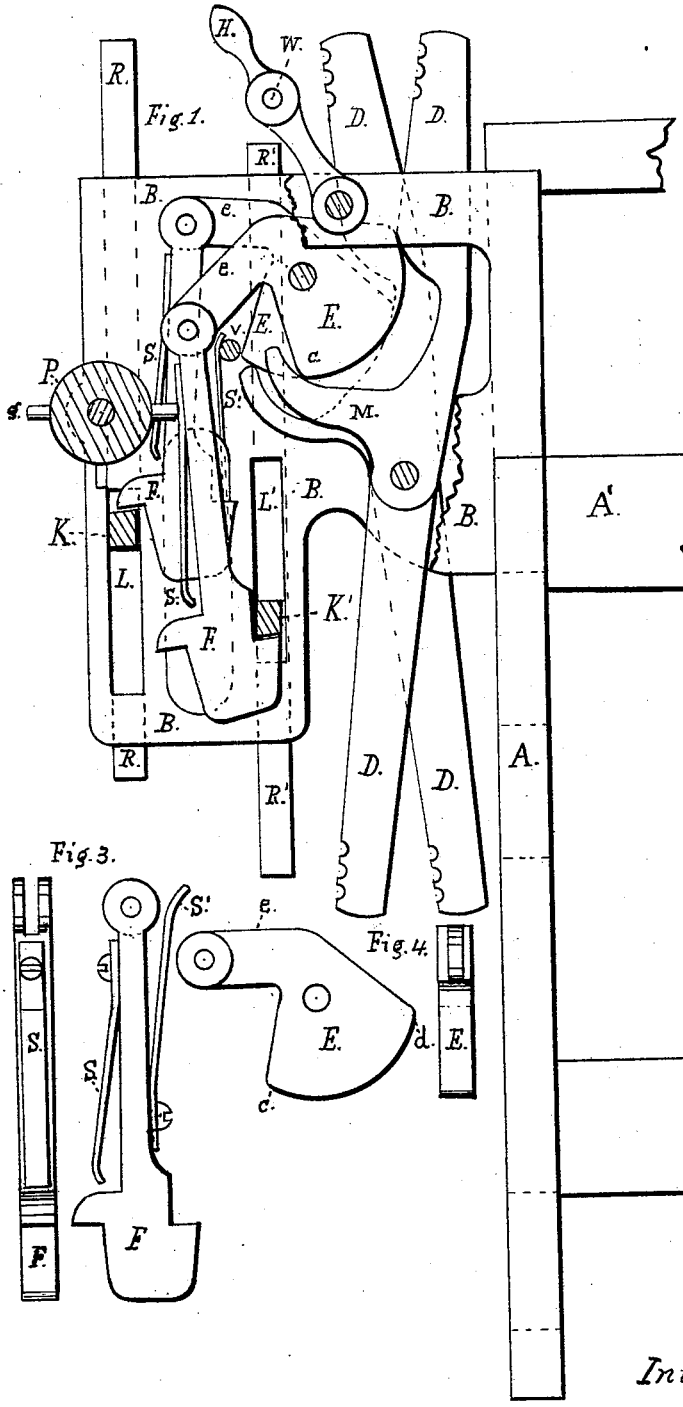

Fig. 2.

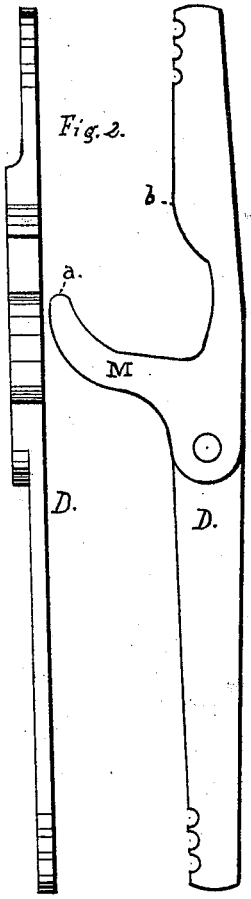

Fig. 3.

Fig. 4.

Inventor;

R. B. Goodyear,
Per. John Thim,
Atty.

Witnesses,
William A. Marcus.
Geo. W. Lehman

UNITED STATES PATENT OFFICE.

ROBERT B. GOODYEAR, OF PHILADELPHIA, ASSIGNOR OF ONE-HALF HIS RIGHT TO WOLFENDEN, SHORE & CO., OF CARDINGTON, PA.

IMPROVEMENT IN SHEDDING MECHANISMS FOR LOOMS.

Specification forming part of Letters Patent No. **166,928**, dated August 24, 1875; application filed June 15, 1875.

To all whom it may concern:

Be it known that I, ROBERT BURNS GOODYEAR, of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in Power-Looms for operating the Heddles, and called an "Open Shed Harness-Motion," which improvement is fully set forth in the following specification, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The nature of my invention consists in the combination, with the jacks and vertical levers, of a series of lever-cams, which, after giving the heddles a full movement up or down, will be held in that position as long as desired, and until the jacks are acted upon by the pattern device; also, constructing the jacks with elliptic springs, one of which is acted upon by the pattern device, and is to prevent breakage, as will be hereafter described.

Figure 1 is a front elevation of my improvements, and such other parts of a loom-frame as is necessary to show the attachment of my improvements. Fig. 2 is a view of my improved vertical levers. Fig. 3 is a view of one of the jacks. Fig. 4 is a view of one of the lever-cams.

Similar letters in the drawings refer to like parts.

A represents a part of a loom side, to which the frame B is fastened. A′ is a section of the breast-beam; B, the frame, in which the harness-motion is mounted. A part is broken away so as to show more plainly the arrangement of my improvements. The frame B has slots L L′, in which slide the lifter K and depressor K′. The lifter and depressor are fastened to the vertical rods R R′, and receive motion from a crank or cam on the main shaft, and are so connected that they move in opposite directions—that is, when the lifter moves up the depressor will move down.

This arrangement is common in fancy looms, and is well known, and will, therefore, not require further explanation here. I will confine myself to what is new, and such parts as are required to fully explain the construction and operation of my invention.

D is the vertical lever, and is constructed, as shown in Fig. 2, with an arm, M, and is hung on a shaft fixed at the side of the loom-frame, as is shown by a section in Fig. 1. The heddles are connected in the usual manner by cards directly to the vertical levers. E is the lever-cam. The form of construction is plainly shown in Fig. 4. A series of these cams are fitted to work on a shaft fastened to the frame B. (Shown by a section in Fig. 1.) These cams are connected to the jacks by a joint, as shown in Fig. 1. The method of constructing the jacks is clearly shown in Fig. 3, and are constructed with two elliptic springs, S S′. The spring S′ is for pressing the jack to the pattern-roller P or pin *g*. The spring S, on the left of the jack, is for the pins *g* to act upon, and their object is to prevent breakage if the pattern-roller is moved when the depressor K′ is not in proper position for the hooks of the jacks to catch upon the depressor K′. The pattern-roller P is constructed, as usual, with movable pins, and may be operated in the usual manner from the main loom-shaft, or from the lifting-rod R′. As described, a pattern-roller may be used, but I prefer to use the well-known roller-chain. At the top of the frame B is a lever, marked H, to which is attached a round rod or bar, W. This lever is fitted on a stud (shown in section) fastened to the frame B. The bar W extends across the series of lever-cams E. Its object will be explained hereafter.

The operation of my improvement is as follows: Motion is communicated, as is before described, to the lifter K and depressor K′, so that they will move in opposite directions, and the pattern being arranged on the roller P by means of the movable pins *g*, the roller P is made to move when the lifter K is down and the depressor K′ is up, and the pin *g* will force the jack to the right and hook it to the depressor K′, and where the pin *g* is left out of the roller the spring S′, pressing against the bar *v*, (shown in section, Fig. 1,) will force the jack to the left and hook it to the lifter K. K will raise its jack, and K′ will depress its jack. These jacks are connected by a joint to the lever-cams, and when the jack is drawn down the cam E is moved to the right, and when raised it is moved to the left. The face of the

cam acts against this arm M and the part of the vertical lever marked *b*, Fig. 2. It will be seen that when the jack is drawn down the cam, oscillating to the right, will force the top of the vertical lever to the right, and will depress the heddle connected to it. The jack that is raised will oscillate the cam to the left, and, by acting on this arm M, will force the top of the lever to the left, and the heddle connected to it will be raised, and the heddles will remain in this position as long as is desired, and will not be moved by the lifter and depressor until the jacks are acted upon by the pins in the pattern-roller, which will be readily understood by any one who understands the operation of the pattern-roller and jacks. Should the roller move before the depressor K′ is up the pin *g* will act upon the spring S′, and it will give, and when the depressor is at its proper height the spring S′ will force the jack so it will be hooked on the depressor, and no breakage will occur.

When threads are broken in the warp, and to readily draw them through the heddles, it is desirable to move the heddles to one level. This may be done by turning the loom until the lifter K is down and the depressor is up, when the weaver draws down the lever H at top of the loom, and the round bar W will press against all of the arms *e* of the jacks that are up, and will press them down level with the others, and the heddles will all be drawn to one level. If desired, this arrangement may be so constructed as to raise to one level by making the bar W to act under the arms *e* of the cams E. In this arrangement the weight of jacks and heddles will be required to be raised, and that will be objectionable, owing to the weight.

I claim—

1. The jacks F, constructed with springs S S′, in combination with the pin V and lifter and depressor bars K K′, as described, and for the above purpose.

2. In an open-shed harness-motion, for the purpose of giving the heddles a full movement in either direction up or down, and holding them in that position as long as desired, the combination of the vertical lifting and depressing bars K K′, vertical jack F, provided with the springs S S′, lever-cam E, and vertical lever D, substantially as described.

ROBT. B. GOODYEAR.

Witnesses:

W. N. MARCUS,

JOHN SHINN.