2 Sheets--Sheet 1.

R. B. GOODYEAR.

Shedding Mechanism for Looms.

No. 163,064. Patented May 11, 1875.

Fig 1

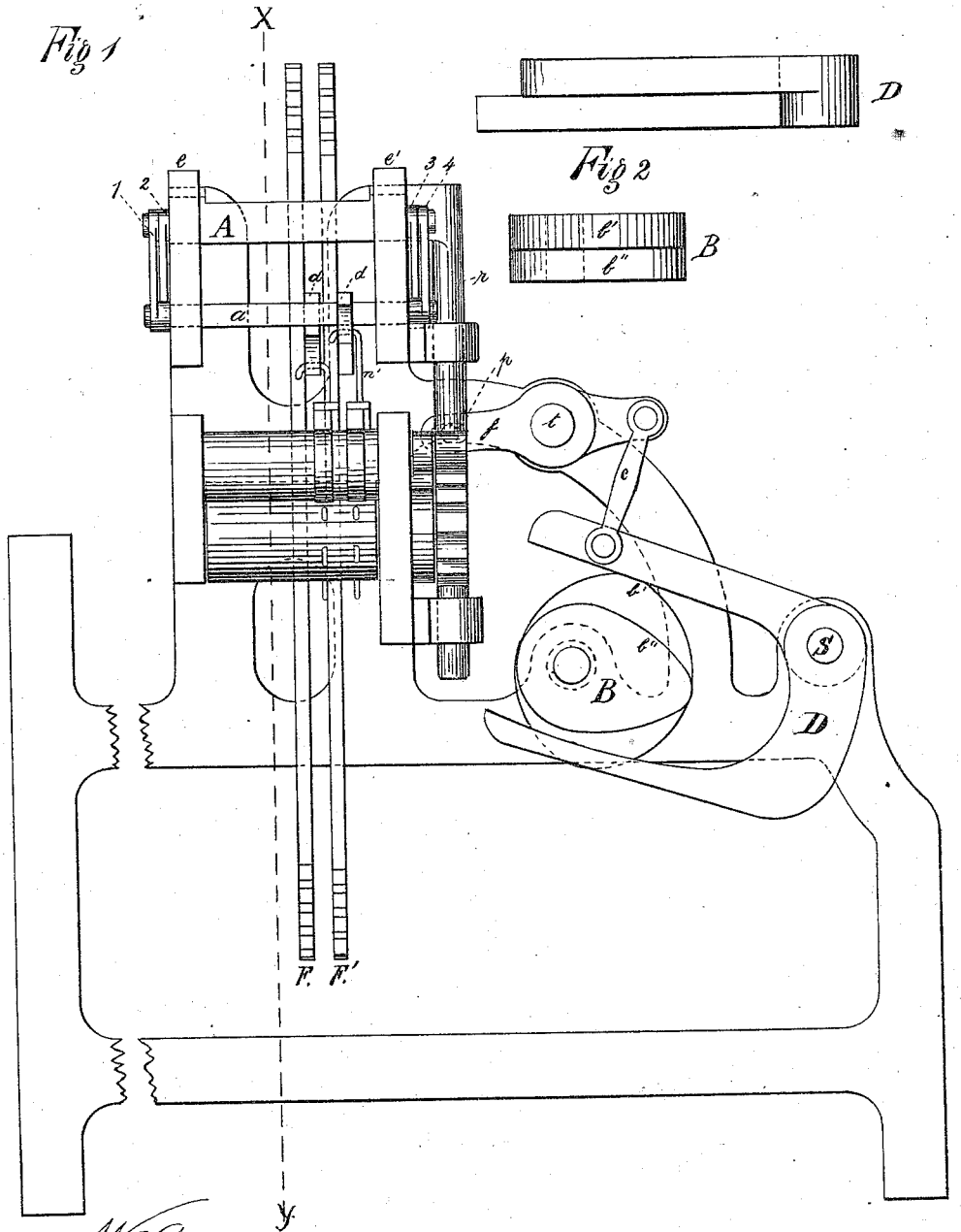

Fig 2

Witnesses
Geo. H. George Jr
Jos. Perkins

Inventor
Robt B Goodyear

2 Sheets--Sheet 2.

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Fig 1

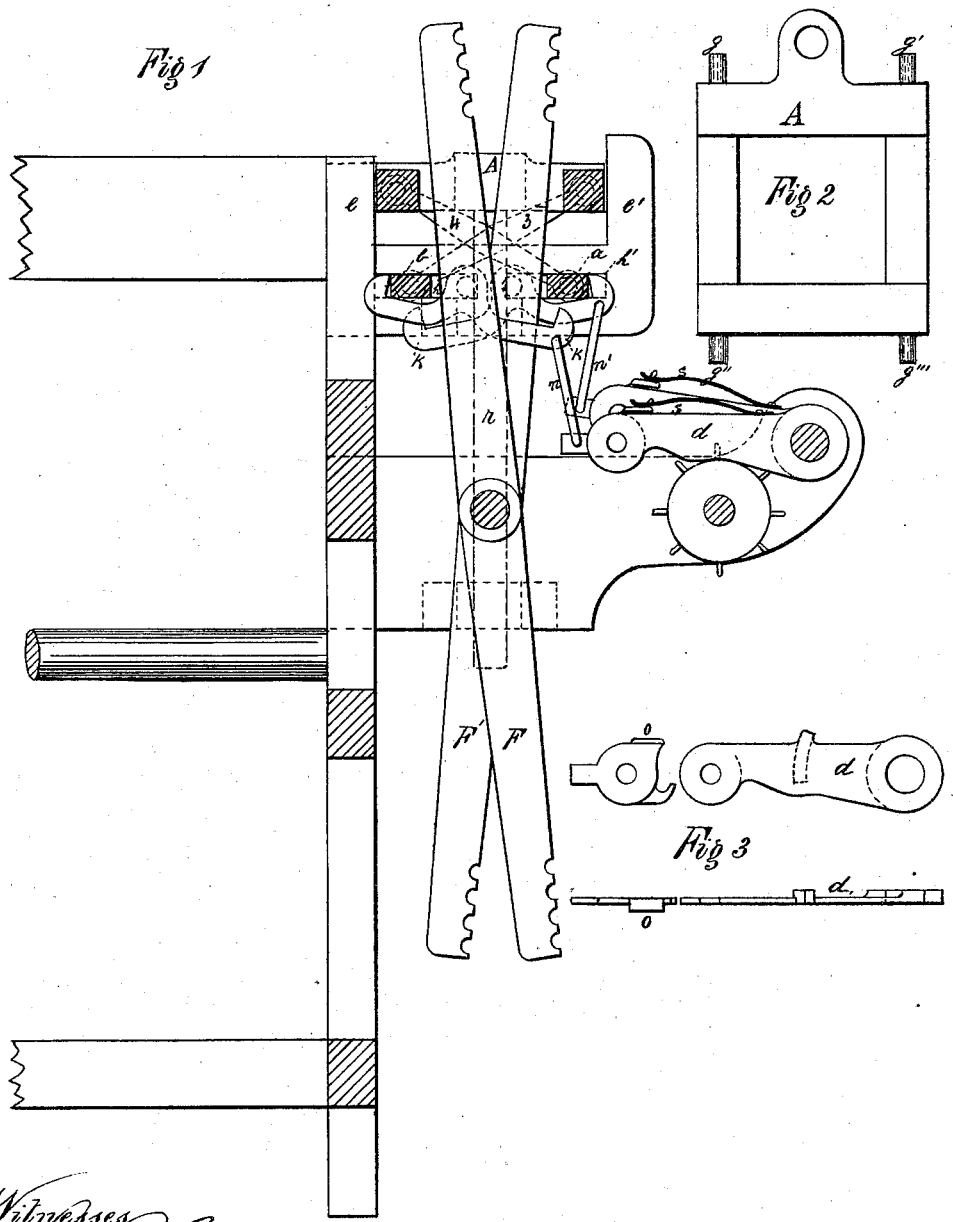

Fig 2

Fig 3

Witnesses
Geo. Geo. Georges Jr.
J. S. Perkins

Inventor
Robert B. Goodyear

UNITED STATES PATENT OFFICE.

ROBERT BURNS GOODYEAR, OF WILMINGTON, DELAWARE, ASSIGNOR OF ONE-HALF HIS RIGHT TO WOLFENDEN, SHORE & CO., OF CARDINGTON, PENNSYLVANIA.

IMPROVEMENT IN SHEDDING MECHANISMS FOR LOOMS.

Specification forming part of Letters Patent No. **163,064**, dated May 11, 1875; application filed March 16, 1875.

To all whom it may concern:

Be it known that I, ROBERT BURNS GOODYEAR, of Wilmington, in the county of New Castle and State of Delaware, have invented certain Improvements in Power-Looms for Operating the Heddles, and called a "Harness-Motion," of which the following is a specification:

The object of my invention is to construct a power-loom with a simple motion for operating the heddles, which shall be governed by a pattern roller or chain, by which means it can be readily altered to weave different twills and figures.

The first part of my invention consists in the method of constructing the cross-head or yoke and device for opening and closing the lifter and depressor, which, in turn, operate the upright lever-jacks. The second part of my improvement consists in the method of constructing the lever-fingers that convey the movement of the pattern roller or chain to the hooks.

In describing my invention, reference is made to the accompanying drawings making a part of this specification.

Figure 1, Sheet 1, is an elevation of a loom side with my improvements. Fig. 2, Sheet 1, is a plan view of the shedding-cam and yoke. Fig. 1, Sheet 2, is a front elevation, in section, through line *x y* in Fig. 1, Sheet 1. Fig. 2, Sheet 2, is a view of cross-head A. Fig. 3, Sheet 2, are details of the lever-finger.

Similar letters in the drawings refer to like parts.

B is the shedding-cam, and is fastened to the main or crank shaft of the loom, and is constructed double. The part *b'* is for opening the harness, and one-third at least of its periphery is a true circle, and gives a perfect dwell to the heddles when open for the passage of the shuttle. The part marked *b''* is for closing the harness, and is constructed to give a dwell just sufficient for the fingers to act on the hooks in the upright levers and hook them to the lifter or depressor, as controlled by the pattern on the roller or chain. D is the yoke, and is constructed in form as shown in the drawing, and is fitted on a stud, S, which is fastened to the loom side, being connected to lever *f* by connection *c*. The lever *f* is fitted on stud *t*, which is fastened to the loom side, and one end of the lever *f* is connected to the vertical lifting-rod *r*, in which is a stud or pin, *p*, (see dotted lines in Fig. 1, Sheet 1,) which is made to work freely in a slot in the end of the lever *f*. The upper end of the vertical lifting-rod *r* is fastened to the cross-head A, which is constructed with four fixed studs or journals, *g g' g'' g'''*. (See Fig. 2, Sheet 2.) This cross-head is made to freely move in the guides *e e'*, and is connected to lifter *a* and depressor *b* by the cross-arms or connections 1 2 3 4, the lifter *a* and depressor *b* being fitted to slide horizontally in the slots *h h'*. (See Fig. 1, Sheet 2.) F F' are the upright lever-jacks, on which are pivoted double hooks *k k*, connected to the lever-fingers *d* by wire connections *n n'*. The fingers *d* are constructed as shown in detail, Fig. 3, Sheet 2, and are made in two parts, connected by a hinge-joint that opens only one way. An elliptic spring, *s*, (see Fig. 1, Sheet 2,) keeps the joint closed by pressing the lug *o* against the back of the finger, but allows it to open in the opposite direction. By means of this joint in finger *d* the weaver, when finding the pattern after the filling has been broken, can turn the chain-roller in either direction without regard to the position of the upright levers and hooks, as the joints will open to accommodate the fingers to the roller or pins of pattern device; and when the levers are drawn together by the lifter and depressor the springs will close the joints, and the fingers will connect the proper hooks to the lifter or depressor for the next correct movement of the heddles. Without these joints the upright levers require to be in a certain position when the chain-roller is turned, or a derangement of the parts, and sometimes a breakage, occurs.

For operating the fingers, a cylinder-roller with movable pins may be used for making small patterns; but I prefer the well-known roller-chain which is in general use. The heddles are connected to the upright levers by straps or cords, in the usual manner.

The operation of my improvements is as follows: The cam B on the main crank-shaft gives to the yoke D a movement, which is communicated to the lever *f*, and through this lever to the lifting-rod *r* and the cross head A. When the cross-head A is drawn down the cross-arms 1, 2, 3, and 4 will force the lifter *a* and depressor *b* open or in opposite directions, and thereby open the levers F F′; and when it rises it will draw them together and close the levers, which puts the hooks in position to be changed by the pattern-chain to the lifter or depressor, as is desired, for the next movement of the heddles.

I claim—

1. The combination of cross-head or yoke A, cross-connections 1, 2, 3, and 4, lifter *a*, depressor *b*, and hooks *k k* upon the lever-jacks F F′, as and for the above-described purpose.

2. The hinged lever-finger *d*, spring *s*, and hooks *k k*, in combination with a pattern roller or chain, as described, and for the purpose specified.

ROBERT B. GOODYEAR.

Witnesses:

W. N. MARCUS,

JOHN SHINN.