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S. & A. WIDMER.

SHUTTLE GUIDE FOR NARROW WARE LOOMS.

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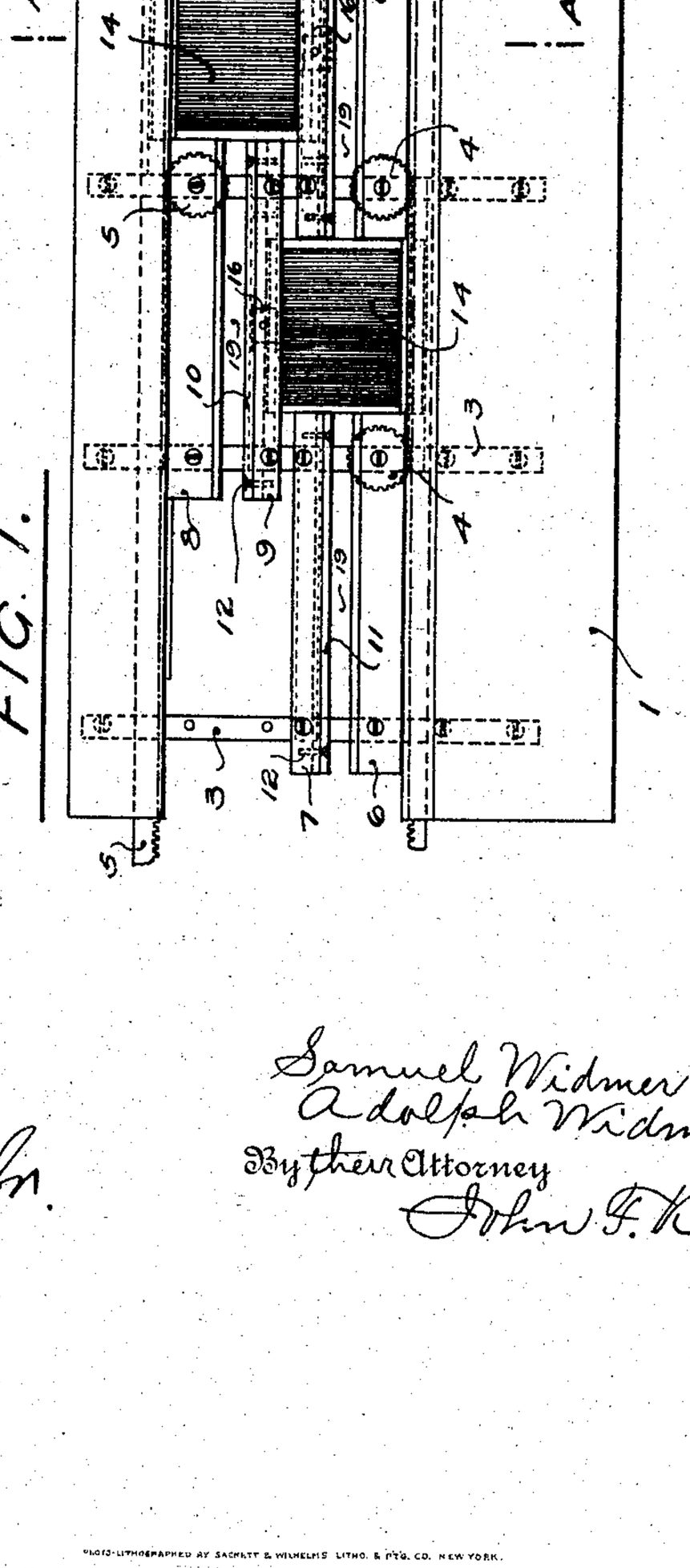

FIG. 1.

FIG. 2.

FIG. 3.

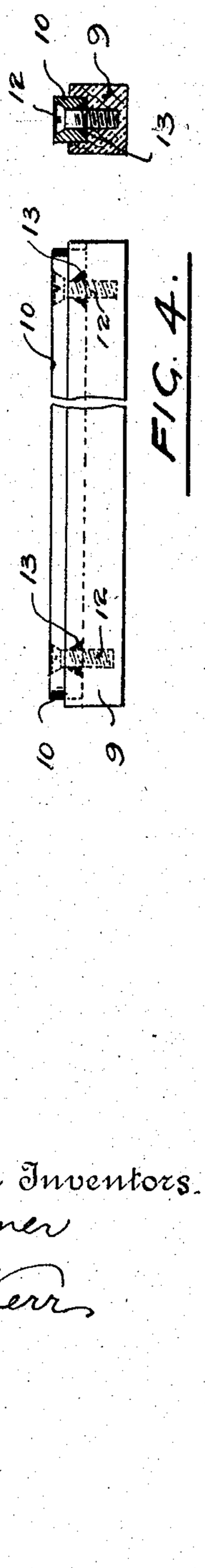

FIG. 4.

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No. 781,256. Patented January 31, 1905.

UNITED STATES PATENT OFFICE.

SAMUEL WIDMER AND ADOLPH WIDMER, OF PATERSON, NEW JERSEY.

SHUTTLE-GUIDE FOR NARROW-WARE LOOMS.

SPECIFICATION forming part of Letters Patent No. 781,256, dated January 31, 1905.

Application filed August 5, 1903. Renewed July 23, 1904. Serial No. 217,845.

To all whom it may concern:

Be it known that we, SAMUEL WIDMER and ADOLPH WIDMER, citizens of the United States, residing at Paterson, in the county of Passaic and State of New Jersey, have invented certain new and useful Improvements in Shuttle-Guides for Narrow-Ware Looms, of which the following is a specification, reference being had therein to the accompanying drawings.

Our invention relates to looms, especially to that class of looms known as a "double-decker ribbon-loom;" and the object of our invention is to provide an improved raceway or guide for the shuttles which carry the weft through the warp-shed in weaving.

In the double-decker looms now in use pinions project through openings in one side of the raceway to engage the rack in the ribbon-shuttle and the other rail of the raceway is provided with a shoulder which fits into a longitudinal slot or groove in one side of the ribbon-shuttle. In practice it has been proven that particles of dyestuff, chemical, or mineral substances which are used in dyeing silk fall from the silk in the weaving thereof and accumulate between the shuttle and the raceway or guide and cause a friction, which wears away the longitudinal slot in the shuttle and the lip or shoulder on the side of the raceway to such an extent as to interfere with the operation of the loom and to necessitate the replacing of the rail and the regrooving of the longitudinal slot in the shuttle, all of which entails a great expense and loss of time to the manufacturer. Our invention will obviate these serious objections, and thereby work a great saving to the manufacturer by prolonging the life of the shuttle and the raceway or guide therefor. To remedy this common cause of complaint in looms of that class, it is necessary to substitute a new side rail in the raceway and to level up the bed of the longitudinal slot or groove in the shuttle. The particles of dyestuff are of such a gritty nature that the hardwood used in the construction of these looms is not able to resist the grinding caused thereby in the rapid operation of the loom.

The invention consists of a shoe of steel or of other hard metal or material secured to the side of the raceway, which fits snugly in the longitudinal slot or groove in the shuttle and serves as a guide therefor. This shoe is removable and reversible, and consists of a longitudinal strip suitably secured to the side of the raceway and is preferably fitted into a recess in the side rail of the raceway.

The particles of the gritty substance above mentioned do not affect injuriously either our shoe or the shuttle which rides thereon and is guided thereby.

We do not wish to limit ourselves to any particular metal or substance in the construction of our shoe, but wish to cover not only a steel shoe, but a shoe of paper or other suitable substance which is adapted to accomplish the desired object of our invention.

In the drawings, in which like numerals indicate like parts, Figure 1 is a front view of a part of a batten of a double-decker narrow-ware loom embodying our invention; Fig. 2, a section of the same on the line A A in Fig. 1; Fig. 3, detailed views of devices for securing the reed to the batten; Fig. 4, detailed views of our removable reversible guiding-shoe for shuttles.

On Fig. 1 the parts 1 and 2 of the batten are connected by the connecting-strips 3, and 4 and 5 are the rack and pinions for driving the lower and upper shuttles. The lower shuttles are guided in a raceway consisting of the bars 6 and 7 and the upper shuttles are guided and driven in the raceway consisting of the bars 8 and 9. On the bars 9 are secured our reversible and removable guide-shoes 10, and on the bars 7 are secured similar guide-shoes 11. Said shoes are secured to the bars 7 and 9 by screws 12 or other suitable means, and the shoes are provided with countersunk openings on top and bottom to receive said screws. A member 15, connecting the strips 3, and a clamp 16, connected by a screw 17, constitute a means for holding a reed 14, and reeds differing in thickness may be held thereby.

The shuttle 18 is of the usual construction used in narrow-ware looms having a longitudinal groove or slot on one side and a longitudinal groove provided with a rack on the

other side and is operated in the space 19, the pinions 5 engaging the rack portion of the shuttle and the longitudinal grooved or slotted portion receiving the guide-shoes 10 or 11, as the case may be, upon which shoe the shuttle is guided during its operation.

We find a very superior advantage in having a raceway for the shuttles one side of which consists of the wooden bar 6 or 8 and the other side consisting of the wooden bars 7 and 9, provided with our metallic guide-shoe, owing to the hard smooth surface of the shoes. Our shoes are preferably secured in a cut-out portion of said bars 7 and 9, as indicated by the dotted line in Fig. 4 and as shown by the sectional detail view in said figure. Our shoe is not necessary on the bars 6 or 8, because the pinions 4 and 5 project through slots in said bars and engage the rack portion of the shuttles, and consequently the shuttles on the rack-portion side are not in like frictional contact in said bars as the longitudinally-slotted portion is in contact with the guide-shoe.

The present construction of guiding-bars for the shuttles consists of a bar having integral therewith a projecting lip or shoulder to fit in the longitudinal slot or groove and the shuttle, and in a short time the upper surface of said lip or shoulder and the bed of the groove in the shuttle become so worn by the gritty particles which accumulate on said shoulder as to interfere with the proper operation of the shuttle and in some cases to make it inoperative. In all cases the injured or worn bar has to be replaced by an entirely new one and the bed of the groove in the shuttle has to be leveled up. As the hard smooth surface of the shoe is the essential feature thereof, any other material having those requisites may be substituted for the steel shoe without departing from the spirit or scope of our invention.

In narrow-ware looms our reed-holding device is of practical utility, as reeds vary in thickness and our clamping device can accommodate the different reeds, which obviates the necessity of blocking or filling up space to tighten the reeds in their holdings.

It is thought that the operations of a narrow-ware loom shown in the drawings suffice to illustrate our invention and its utility.

With this description of our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a narrow-ware loom, a reversible guide-shoe for a shuttle-race, provided with a smooth hardened surface, substantially as set forth.

2. In a narrow-ware loom, the combination with the shuttle, of a reversible guide-shoe having a smooth hardened surface upon which the shuttle may be reciprocated, substantially as set forth.

3. In a narrow-ware loom, the combination with the batten, shuttle-operating mechanism, and a shuttle, of a shuttle-guide bar and a reversible metallic guide-shoe having a smooth and hardened surface upon which the shuttle may be reciprocated, substantially as set forth.

4. In a narrow-ware loom, the combination with the framework of a batten, and a shuttle, of races for the shuttle comprising a reversible metallic strip upon which the shuttle is adapted to slide, substantially as set forth.

5. In a narrow-ware loom, the combination with a shuttle and a race for the same, of a reversible metal shoe secured to said race upon which the shuttle is adapted to ride, substantially as set forth.

6. In a narrow-ware loom, a guide for a shuttle provided with a reversible metal shoe, substantially as set forth.

7. In a narrow-ware loom, the combination with a shuttle, of guides for the same and a reversible metal shoe secured to the lower guide upon which the shuttle slides, substantially as set forth.

8. In a narrow-ware loom, the combination with a batten, a shuttle, and means for operating the shuttle of a reversible metal shuttle-race upon which the shuttle may be reciprocated substantially as set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

SAMUEL WIDMER.
ADOLPH WIDMER.

Witnesses:
MINNIE L. DILL,
JOHN F. KERR.