

A. & S. WIDMER.
NARROW WARE LOOM.
APPLICATION FILED OCT. 8, 1904.

FIG. 1.

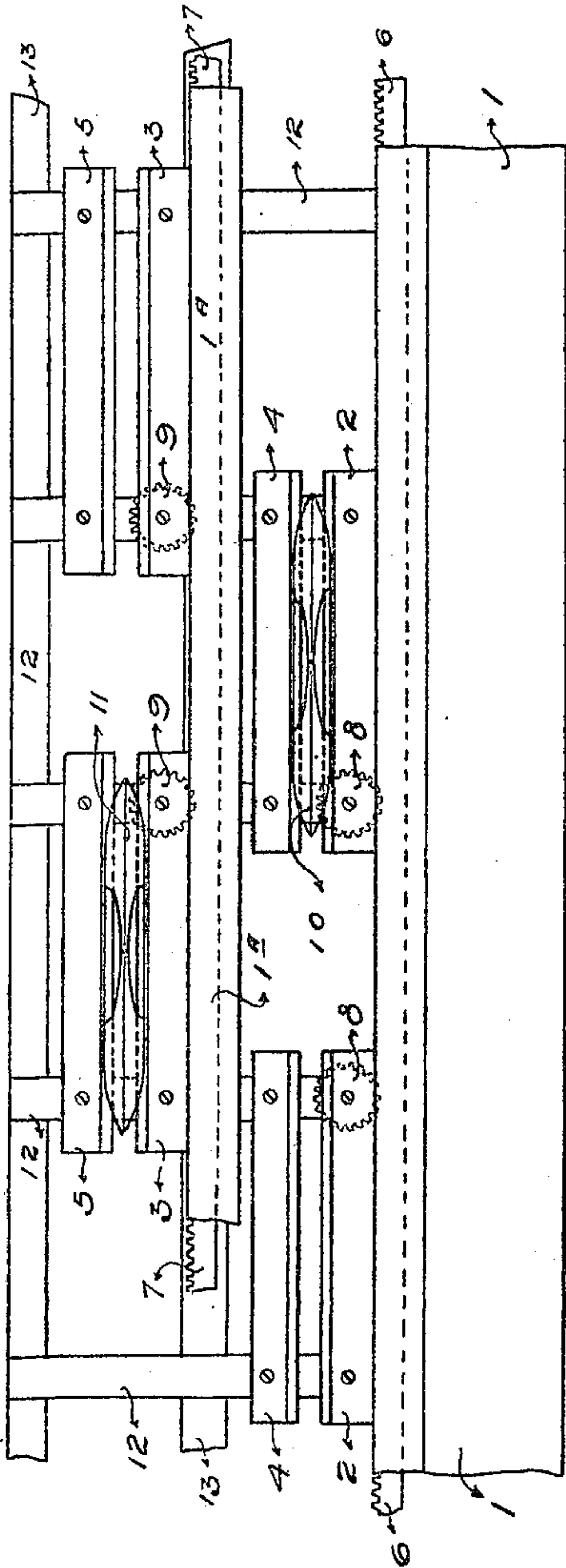


FIG. 2.

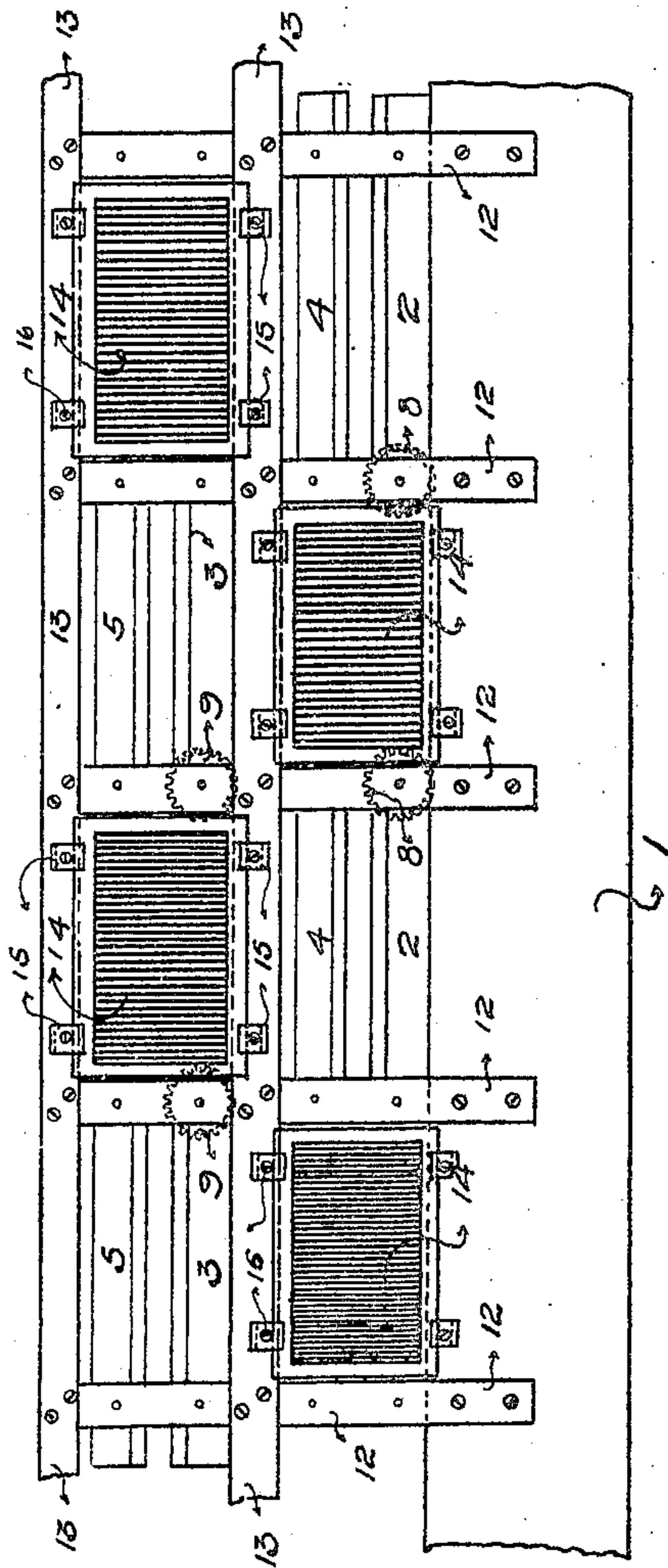


FIG. 3.

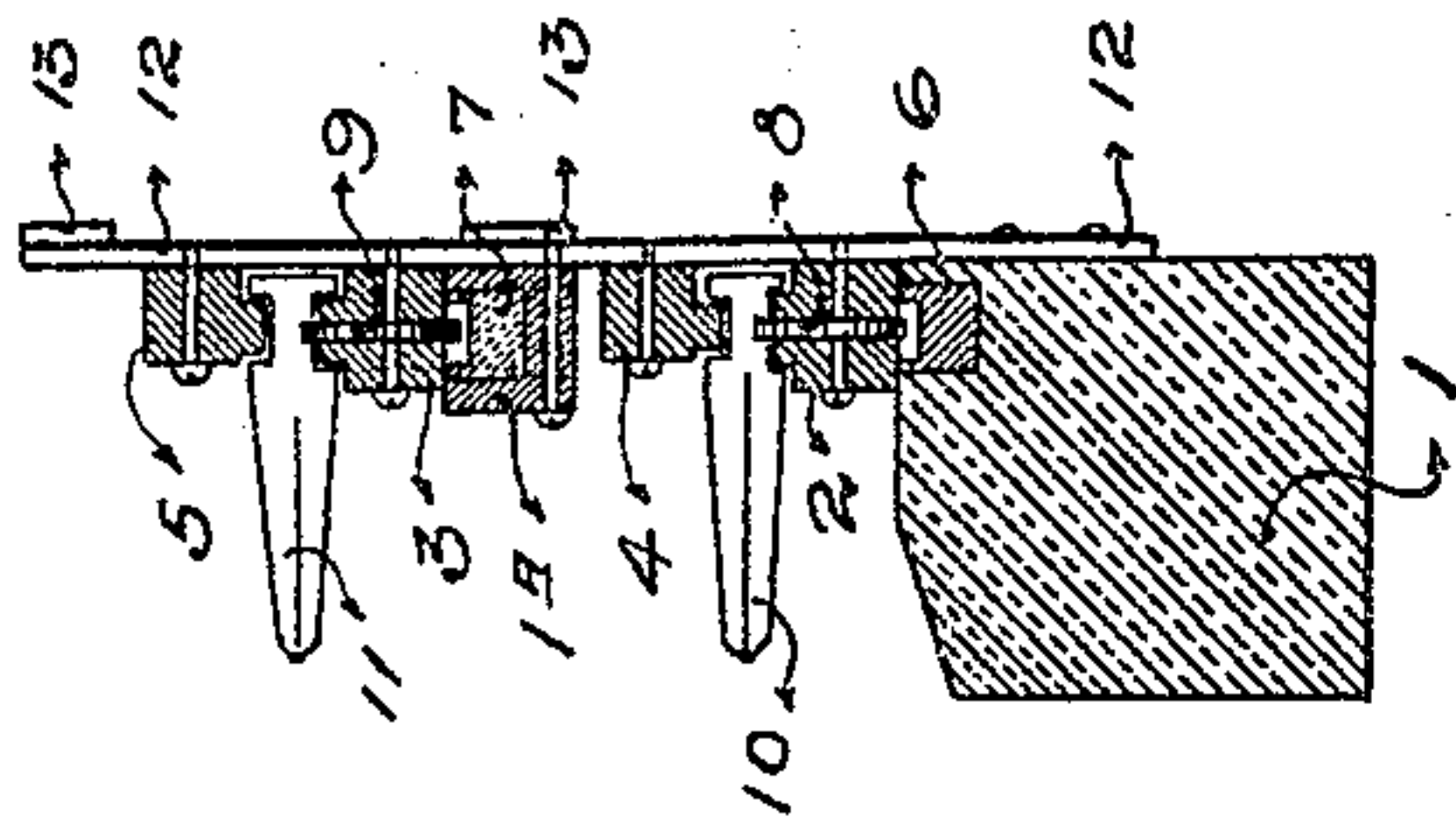
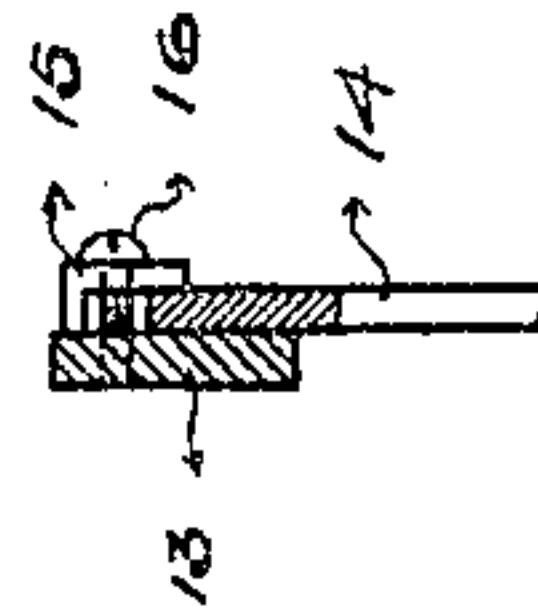


FIG. 4.



Witnesses
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UNITED STATES PATENT OFFICE.

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

NARROW-WARE LOOM.

No. 807,524.

Specification of Letters Patent.

Patented Dec. 19, 1905.

Application filed October 8, 1904. Serial No. 227,694.

To all whom it may concern:

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

Our invention relates to narrow-ware looms, and particularly to battens employed in double-decker looms for weaving narrow fabrics.

The objects of our invention, in the main, are to produce a double-decker batten carrying improved shuttle-races and supports therefor, consisting of a skeleton frame carried by the lay-beam of the batten, which frame is adapted also to carry the reeds, without regard to the thickness of the reed, by reason of a simple device employed for securing the reeds to the said frame.

The object of our improved shuttle-race for a double-decker narrow-ware loom is to improve and increase the product of the loom and to increase or prolong the life of the batten.

The arrangement and construction of our batten render it less ponderous and more adaptable for the purposes designed. The staggered arrangement of the upper and lower tiers of shuttle-blocks and reeds does away with the objections to having one warp over the other, and besides allowing an economical disposition of two tiers of alternating reeds and shuttle-blocks it permits a freer access to the warps and harness. Moreover, in the two tiers of alternating reeds and shuttle-blocks the shuttle-blocks, as shown in Fig. 1, overlap, the reeds occupying in each tier the spaces intervening, so that in both tiers all the room the length of the loom is utilized, there is no waste space, more shuttles may be used, and more goods can be produced. The shuttles move from one pair of blocks to the next adjacent pair, the forward end of each moving shuttle being engaged by and riding on the wheel or pinion in the adjacent shuttle-wheel block which carries the shuttle clear through the warps in going in either direction.

It is obvious that less power is required to drive the shuttles from below, as there is less friction, and also that the fine grindings or filings produced by driving them from above, owing to the friction of the shuttle and block,

not only add to the wear and tear of said parts, but said grindings and filings also would fall down and get among the warp and harness and there cause more trouble and wear and tear.

The upper portion of double-decker battens as they are now constructed wear out much more rapidly than the lower portion, and by constructing a batten for double-decker looms as shown in our drawings accompanying this specification the upper portion will last as long as the lower part, the upper shuttle-race being an exact duplicate of the lower one.

Our upper tier of shuttles are operated independently of those in the lower tier.

Our construction will work a saving of much money in time, in character of the product of the loom, and in cost of repairing and replacing battens, because of the decreased wear and tear with our battens.

In the drawings, in which similar numerals of reference indicate like parts, Figure 1 is a front view of our improved batten. Fig. 2 is a back view of same. Fig. 3 is a vertical cross-sectional view through the batten, and Fig. 4 shows the device for securing the reed to the frame carried by the batten. Only one pinion is shown in each wheel-block; but as many as desired may be employed.

The shuttle is of the ordinary construction, having a longitudinal groove in its upper side and in its other side a similar groove, in which is secured a tooth or rack portion.

1 designates the lay-beam of the batten, from which rises the skeleton frame consisting of the vertical members 12 and the horizontal members 13.

14 represents the reeds, which are secured removably to or on said frame by means of the straps 15 and screws 16. The bottom and top shuttles are indicated, respectively, by the numerals 10 and 11, and they are operated in identically the same manner—namely, by a rack operating pinions located in the wheel-block located beneath the shuttle, which pinions in turn engage the rack or tooth portion in the bottom of the shuttle.

The reciprocating rack 6 engages and operates the pinions 8, which in turn engage the rack on the bottom of the shuttle 10 and operate the same in its race, which comprises the upper depending guide member 4, which enters the longitudinal slot in the top of the shuttle 10, and the lower wheel-block member 2, which forms a guide and carrier for the

said shuttle and a bearing for the pinions 8. The race members 2 and 4 are secured to the vertical frame members 12 as and where desired.

5 A beam of light construction 1^a is secured to the frame, and on it is carried a reciprocating rack 7, adapted to engage the pinions 9 in the wheel-block 3. Said wheel-block 3 forms a guide and carrier for the shuttle 11 and together with the depending member 5 forms a
10 race for said shuttle. Thus in our double-deck batten for narrow-ware looms we communicate motion to both the lower and upper series of shuttles by means of pinions located beneath the shuttles and mutually en-
15 gaging the said shuttles and the racks located beneath said pinions and carried by the lay-beam.

The superstructure carried by our batten
20 is lighter and more open, thus rendering greater facilities for investigating and manipulating working parts of the loom.

To those acquainted with the art of weaving by double-decker narrow-ware looms
25 the immense saving accomplished by our invention will be apparent at a glance, as it is well known that the method in vogue of driving the shuttles from above in looms of this kind is the cause of great and rapid wear.

30 When the shuttle is driven from above, both the groove in the shuttle and the guide or lower race member on which it travels are rapidly worn by the friction to such an extent as to become inoperative, and this is ob-
35 viated by our invention.

Our reed-securing device permits the use of reeds of various thicknesses, which cannot be done in other battens where the securing device is not adjustable to the varying thick-
40 nesses of reeds.

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

1. The combination with the batten and a
45 skeleton frame carried thereby, of two series of shuttle-races secured to said frame, alternately arranged, in horizontal planes, two series of shuttles adapted to be driven in the upper and lower races, rack-operated pin-
50 ions in the lower member of each shuttle-

race to drive said shuttles, a rack beneath the wheel-block of the lower raceway to operate its pinions, and a rack arranged on said frame beneath, and adapted to operate, the pinions in the lower member of the upper
55 race, substantially as described.

2. In a double-decker batten for narrow-ware looms, two rows of shuttle-races arranged in horizontal, parallel, planes, intervening reed-spaces alternating with the shut-
60 tle-races in each row, each race being directly above or below a reed-space, pinions in the lower member of each race and shuttles, provided with a longitudinal groove having a rack, adapted to be actuated in
65 said races by the revoluble pinions in the lower members of the upper and lower races, in combination with independently-operating rack-bars adapted to drive the upper and lower pinions respectively, substantially as
70 described.

3. In a double-decker narrow-ware loom, two rows of shuttle-races, a race in one row being indirectly opposite a race in the other row, and pinions revoluble in the wheel-
75 block or lower member of each race, in combination with two rows of shuttles, each having a longitudinal groove and rack in the bottom thereof, and two rack-bars, one located beneath each series of wheel-blocks, to re-
80 volve said pinions and communicate a reciprocating motion to the shuttles in the respective races, substantially as set forth.

4. In a double-decker narrow-ware loom, the combination of two rows of alternating
85 shuttle-races and reeds, the reeds in one row being opposite the races in the other row, with shuttles having a bottom longitudinal groove and rack, pinions in the lower member of each race to engage and actuate the
90 shuttles, and a rack below each row of pinions to operate the same, substantially as set forth.

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

ADOLPH WIDMER.
SAMUEL WIDMER.

Witnesses:

JOHN F. KERR,
RICH WEINMANN.