

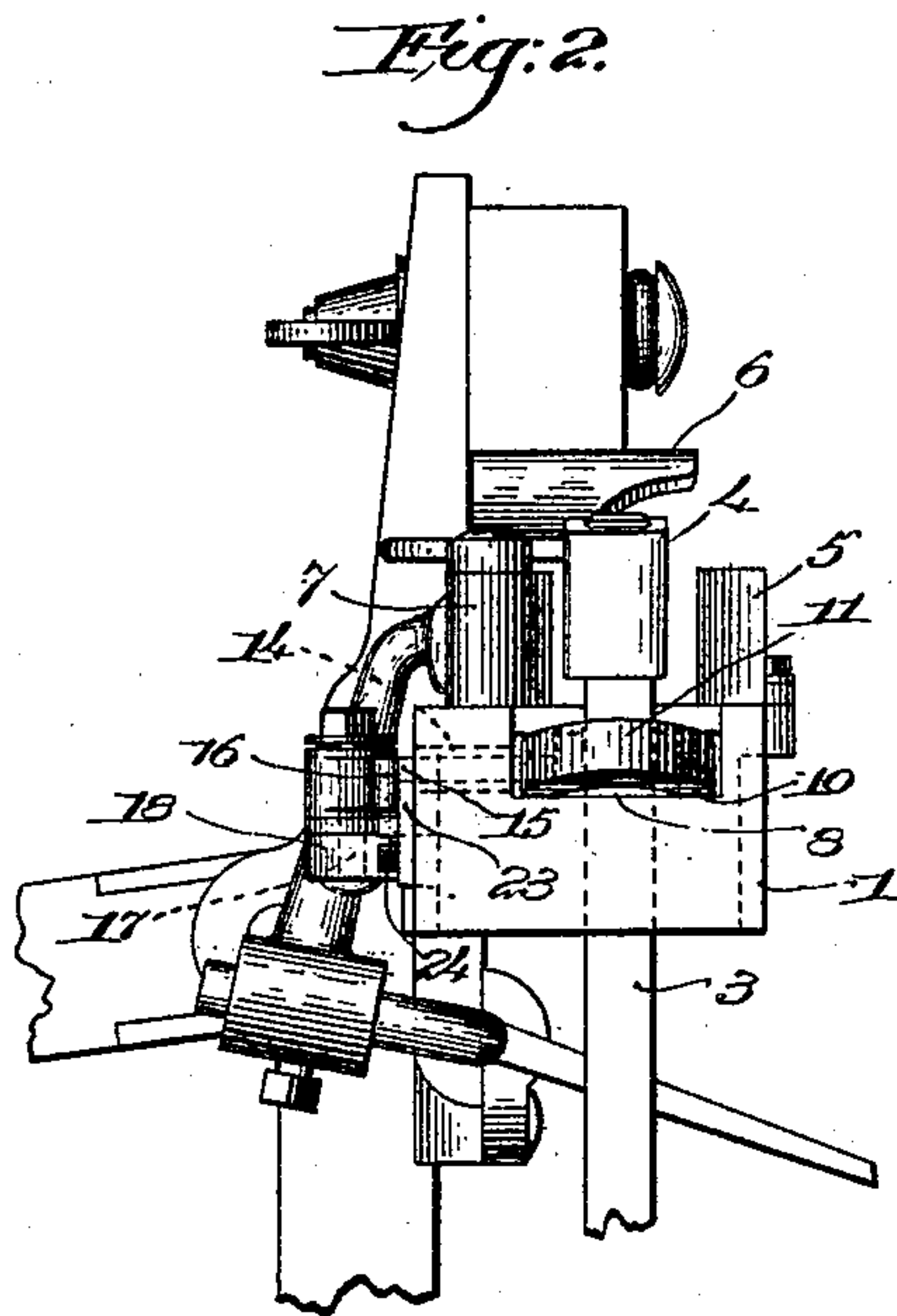
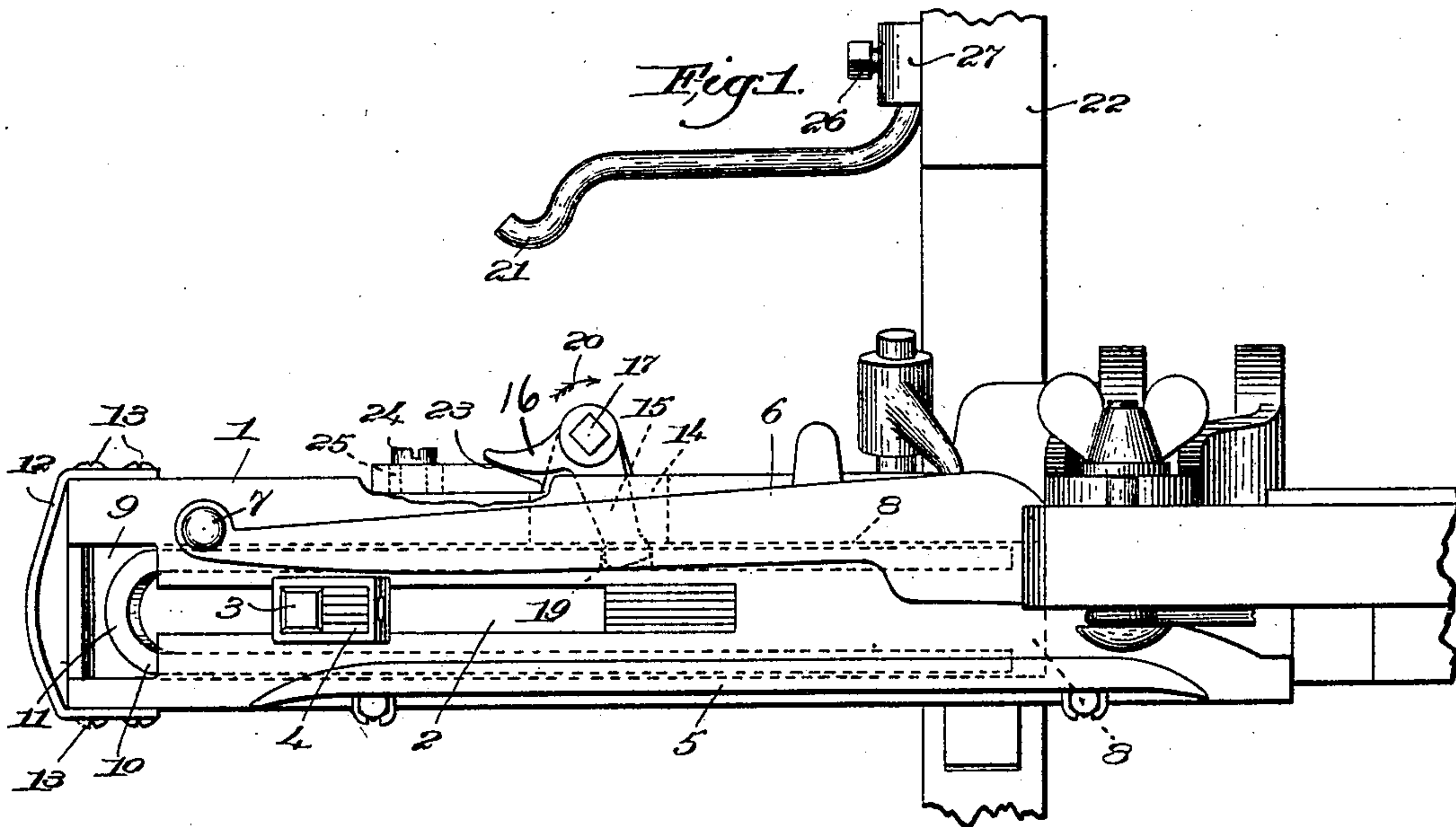
No. 680,623.

Patented Aug. 13, 1901.

C. F. ROPER.
SHUTTLE CHECKING MEANS FOR LOOMS.

(Application filed May 20, 1901.)

(No Model.)



Witnesses,
Edward H. Allen,
Adolph B. Haise

Inventor,
Charles F. Roper,
by Wesley Ferguson,
att'y.

UNITED STATES PATENT OFFICE.

CHARLES F. ROPER, OF HOPEDALE, MASSACHUSETTS, ASSIGNOR TO DRAPER COMPANY, OF SAME PLACE.

SHUTTLE-CHECKING MEANS FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 680,623, dated August 13, 1901.

Application filed May 20, 1901. Serial No. 61,019. (No model.)

To all whom it may concern:

Be it known that I, CHARLES F. ROPER, a citizen of the United States, and a resident of Hopedale, county of Worcester, State of Massachusetts, have invented an Improvement in Shuttle-Checking Means for Looms, of which the following description, in connection with the accompanying drawings, is a specification, like numerals on the drawings representing like parts.

This invention has for its object the production of means for checking and stopping the shuttle of a loom at a substantially definite place in the shuttle-box, so that the shuttle will be in proper position on the beat-up and ready for the next shot across the lay.

In another application, Serial No. 16,052, filed by me May 9, 1900, I have utilized the mechanical principle whereby if a moving body is brought into engagement with a movable body at rest the latter will under certain conditions take up or absorb the momentum of the moving body at the instant of rest, so that the latter will be brought to rest and the body which was at rest will be moved. The movable body in my said application is a pivotally-mounted weight which swings on its fulcrum by the momentum transferred from the shuttle, bringing the latter to rest at the moment of impact, gravity returning the said movable body to initial position.

Herein the momentum-absorbing body is arranged to slide in a substantially horizontal path by the impact of the shuttle, and means are provided for returning it to initial position thereafter.

Figure 1 is a top or plan view of one end of the lay of a loom provided with a shuttle-box, a picker, and the shuttle-checking means embodying one form of my invention. Fig. 2 is a left-hand end elevation of the parts shown in Fig. 1, the limiting device for the check being omitted; and Fig. 3 is a side elevation, partly broken away, of the momentum-absorbing movable member or check.

The lay 1, longitudinally slotted at or near its end, as at 2, Fig. 1, for the staff 3 of the picker 4, the front wall 5 of the shuttle-box, the overhanging top plate or guard 6, and the binder 7 may be and are all of usual or well-known construction, the picker being

actuated by any suitable means (not shown) to effect the flight of the shuttle, each shuttle-box being provided with checking means, and in Fig. 1 the picker is shown in position to receive the impact of the incoming shuttle.

In accordance with my present invention the lay beneath the shuttle-box is provided with a longitudinal and substantially horizontal guideway or recess 8, shown in Fig. 1 as extended from about the inner end or entrance of the shuttle-box outward to the end of the lay, the top of the guideway being cut away at its outer end, as at 9. Within this guideway I mount the momentum-absorbing member 10, shown as an elongated U-shaped piece of metal of suitable weight to cooperate with the shuttle, the legs of said member extending into the guideway at opposite sides of the slot 2, its head 11 being slightly bent up (see Fig. 3) and extending across the path of the picker and beyond the same. Across the outer open end of the guideway I have arranged a limiting device or stop, which is conveniently made as a strap 12, of leather or other suitable material, secured at its ends to the lay, as at 13, the stop being located in the path of the head of the member 10, as clearly shown in Fig. 1.

In Fig. 1 the picker and the sliding member 10 are shown in their relative normal positions—that is to say, in the positions assumed when the shuttle enters the box—and when the entering shuttle engages the picker it moves the latter to the left, viewing Fig. 1, until either the picker or its staff—and in the present instance of my invention the staff—is brought into engagement with the sliding member 10, and at the instant of impact the momentum of the shuttle is transmitted through the intermediate member or picker to the sliding member 10, the shuttle and picker being brought to a full stop while the said member 10 slides outward, due to the momentum taken up or absorbed by it. The shuttle is thus brought to rest at the proper point in the shuttle-box and the picker is in proper position to start on its inward stroke or throw when the shuttle is to be shot across the lay at the next pick. The outward sliding movement of the momentum-absorbing member 10 is limited by the stop or strap 12

in the present embodiment of my invention, and it will be manifest that as the movement of the member 10 is in a substantially horizontal plane means must be provided for setting or maintaining it in initial or operative position after the shuttle has been thrown from the shuttle-box, inasmuch as the said member 10 would otherwise remain inert and inoperative at the outer end of its range of movement.

I have herein shown the lay as provided with a transverse slot 14, extended from the back of the lay horizontally toward and intersecting the rear wall of the guideway 8, and in this slot 14 is extended one end, as 15, of a bell-crank lever 15 16, fulcrumed at 17 on a suitable bracket 18, secured to the back of the lay, the arm 15 extending into the guideway 8 and also into a socket 19, formed in one of the legs or side extensions of the momentum-absorbing member 10. (See Figs. 1 and 3.) When the said member 10 is slid outward, as has been described, the bell-crank will be rocked on its fulcrum in the direction of the arrow 20, Fig. 1, and as the lay goes back a bunter 21, herein shown as an arm secured to a fixed part of the loom-frame 22, will engage the arm 16 and as the lay completes its backward movement will swing the bell-crank in the direction opposite to the arrow 20, restoring it to the position shown in Fig. 1. The slot-and-pin connection which I have shown between the arm 15 and the momentum-absorbing member operates to return said member to initial position, such as is shown in Fig. 1, the rocking of the bell-crank by or through the action of the bunter 21 positively sliding the member 10 inward in the guideway to proper position ready for the next entrance of the shuttle into the shuttle-box. A stop 23 is adjustably mounted on the lay by means of a set-screw 24, extended through a slot 25 in the stop, the latter having a beveled face to extend between the back of the lay on the bell-crank arm 16 to limit the swinging movement of the latter in a direction opposite to the arm 20. The bunter 21 is also shown as adjustably held by means of a set-screw 26 in a socket 27, and by adjusting the bunter and the stop 23 the inward or initial position of the sliding movement-absorbing member can be adjusted. The weight of the said member 10 is such that in connection with the friction thereof upon the guideway and the friction due to the rotative movement of the bell-crank the shuttle and picker will be stopped substantially at the instant of impact with the sliding momentum-absorbing member.

I prefer to make the sliding member or check substantially as herein shown, as the balance thereof is better preserved, and its movements are readily guided, and it will be noted that in the present embodiment of my invention I have provided readily and accurately controllable means for maintaining or setting the check at initial position instead

of utilizing the force of gravity, as in my prior application hereinbefore referred to.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a loom, picking mechanism, means, including a slide member, to take up the momentum of the shuttle and stop the latter in a substantially definite place, and a setting instrumentality to positively return said means to initial position after each stoppage of the shuttle.

2. In a loom, the lay, a picker, a longitudinally-slidable shuttle-check carried by the lay and arranged to take up the momentum of the shuttle transmitted through the picker stopping the shuttle at a substantially definite place, and means to return the shuttle-check to initial position after each stoppage of the shuttle.

3. In a loom, the lay having a shuttle-box, a picker, a horizontally-slidable momentum-absorbing shuttle-check carried by the lay to cooperate with the picker and stop the shuttle at a substantially definite place in the shuttle-box, and means to set the shuttle-check in initial position after the inward stroke of the picker.

4. In a loom, the lay, a picker, a movable shuttle-check mounted to slide longitudinally on the lay and having a part in the path of the picker, the momentum of the shuttle being transmitted by the picker to the shuttle-check, sliding the latter outward and stopping the shuttle at a substantially definite place, and means to engage the shuttle-check and return it to initial position.

5. In a loom, the lay, a picker, a U-shaped shuttle-check mounted on the lay to slide in a substantially horizontal path and having its closed outer end in the path of the picker, to take up the momentum transmitted from the shuttle through the picker and stop the shuttle at a substantially definite place, and means to engage and slide the shuttle-check inward to initial position after the inward stroke of the picker.

6. In a loom, a picker, a longitudinally-movable sliding check in its path and adapted to take up and be slid outward by impact of the shuttle on the picker, thereby stopping the shuttle at a substantially definite place, and means to engage and slide the check inward to initial position after the inward stroke of the picker.

7. Shuttle-checking means for looms, comprising a sliding momentum-absorbing member movable in parallelism to the shuttle-path, an impact member interposed between the momentum-absorbing member and the shuttle, to transmit the momentum of the latter to said absorbing member, leaving the shuttle at rest in a substantially definite place, and a device to return the absorbing member to initial position after its movement due to the transmitted momentum of the shuttle.

8. In a loom, a picker, the lay, a longitudi-
nally-slidable check thereon having a part lo-
cated beyond and in the path of the picker
when moved outward by impact of the shut-
5 tle, the momentum of the shuttle and picker
being transmitted by the latter to the check,
sliding the latter outward while the shuttle
and picker are brought to rest at a substan-
tially definite place, and means operated by
10 or through the backward beat of the lay to
return the check to initial position.

9. In a loom, picking mechanism, means,
including a slide member, to take up the mo-

mentum of the shuttle and stop the latter in
a substantially definite place, a device to limit 15
outward movement of the slide member, and
a setting instrumentality to positively return
said member to initial position.

In testimony whereof I have signed my
name to this specification in the presence of 20
two subscribing witnesses.

CHARLES F. ROPER.

Witnesses:

GEORGE OTIS DRAPER,
ERNEST W. WOOD.