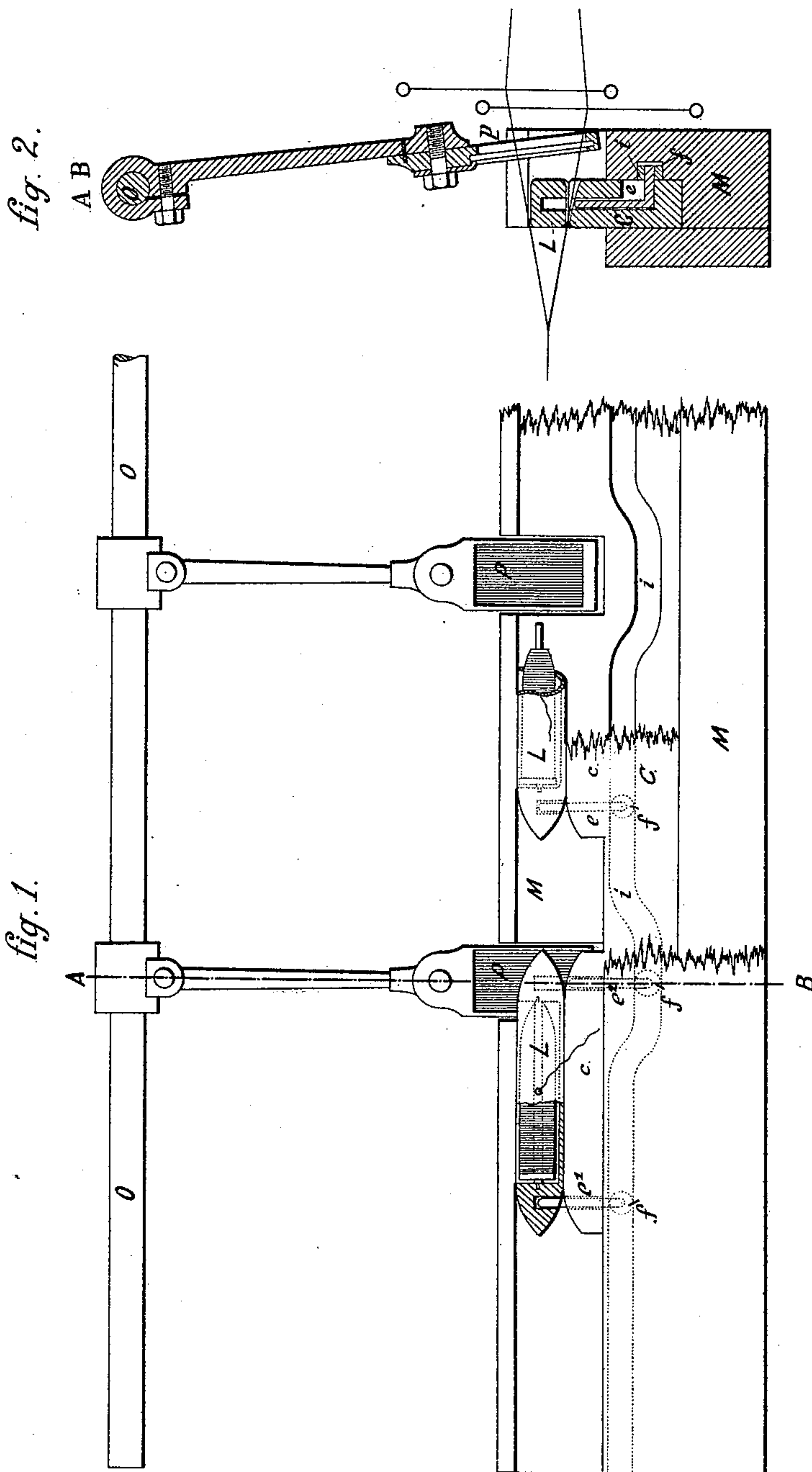


(No Model.)

A. MORAES.
NARROW WARE LOOM.

No. 403,769.

Patented May 21 1889.



WITNESSES.

Leonardo Moreira de Costa
A. De Mattos

INVENTOR

Augusto Moraes

UNITED STATES PATENT OFFICE.

AUGUSTO MORAES, OF LISBON, PORTUGAL.

NARROW-WARE LOOM.

SPECIFICATION forming part of Letters Patent No. 403,769, dated May 21, 1889.

Application filed June 21, 1888. Serial No. 277,843. (No model.) Patented in Portugal March 14, 1888, No. 1,225, and in England May 5, 1888, No. 6,718.

To all whom it may concern:

Be it known that I, AUGUSTO MORAES, a citizen of Portugal, residing at Lisbon, in the Kingdom of Portugal, have invented a new and useful Improvement in Narrow-Ware Looms, (for which I have obtained a patent in Portugal, No. 1,225, dated March 14, 1888, and in Great Britain, No. 6,718, dated May 5, 1888,) of which the following is a specification.

This invention relates to the means for operating the shuttle in weaving-loom, and particularly in looms for weaving ribbons. In accordance therewith the shuttle-box is made independent of the lays or battens in place of partaking of their oscillating movements.

The accompanying drawings illustrate the invention as applied to a ribbon-loom; but it is also applicable to other looms.

Figure 1 is a face view, partly broken away, of so much of the loom as is necessary to illustrate the invention; and Fig. 2, a cross-section of the same at the line A B.

The shuttle-box M is separate from the lays or battens P, which, as heretofore, vibrate with the shaft O, and is fixed to the machine-frame, and the shuttles L, in place of the ordinary double movement, have only a reciprocation across the warp. This reciprocation is given to the shuttles L by a rule, C, which is reciprocated by any suitable means, and which carries the shuttles with it by means of the pins e' e^2 , that enter holes in the ends of each shuttle. The rule is provided with a number of elevated rests, c , which move within the rule, and on which the shuttles L are supported. These pins e' e^2 play in holes in the rule C, and are each provided at the bottom with a projection, which engages a cam-groove for reciprocating the pins at proper times, the projection, as shown, being formed by the outwardly-bent lower portion forming a journal for the roller f , which runs in the groove i in the shuttle-box M. The groove i is so bent (indicated in dotted lines, Fig. 1) that it draws down the pins e' e^2 sufficiently to clear the shuttle at the time the corresponding ends of said shuttles are passing

through the shed of the warp for placing the weft therein. This position is shown for the pin e' at the left of Fig. 1 and in Fig. 2. When the pin e^2 is withdrawn from the shuttle, the latter continues to be moved in the same direction by the pin e' , which in turn is withdrawn after the pin e^2 has been reinserted by the action of the groove i . Thus the shuttle is constantly subjected to the action of one at least of the pins.

By supporting the shuttle upon rests on the movable rule, instead of in stationary ways, there is no danger of cramping, even with a comparatively short shuttle. Were the shuttle supported in stationary ways, the projecting part at every passage of the shuttle would have to be supported by the portion which remains in the ways, and as this projecting part must be enough longer than the shed in weaving, the shuttle should be considerably longer, in order that the supporting portion, when the shuttle is about to enter the ways in the opposite side of the shed, may have sufficient bearing to resist the action of gravity tending to draw down the said projecting part. Of course, the longer the shuttle the longer must be the traverse of the reciprocating rule. By supporting the shuttle upon the rests of the movable rule the friction which would be developed by movement over the bottom of stationary ways is avoided.

It is not considered necessary to describe the other parts of the mechanism, which may be of any ordinary or suitable description, and which have no direct relation to the invention. The lay or lays receive their vibration from the shaft O, and the rule C, which communicates the to-and-fro motion to the shuttle, is put in motion by any suitable organ for transmitting or transforming motion, such as a crank, eccentric, lever, and so on.

The accessory dispositions, as well as the material, proportions, and dimensions of the organs for carrying out the invention, may be modified or varied as may be desired.

I claim as my invention or discovery—

The combination, with the lay or lays, of the stationary shuttle-box provided with a

cam-groove, a shuttle or shuttles in said box,
and the reciprocatory rule provided with an
elevated rest or rests movable therewith, on
which the shuttle or shuttles are supported,
5 provided with projections which engage said
cam-groove, substantially as described.

In testimony whereof I have signed this

specification in the presence of two subscrib-
ing witnesses.

AUGUSTO MORAES.

Witnesses:

LEONARDO MOREIRA,
A. DE MATTES.