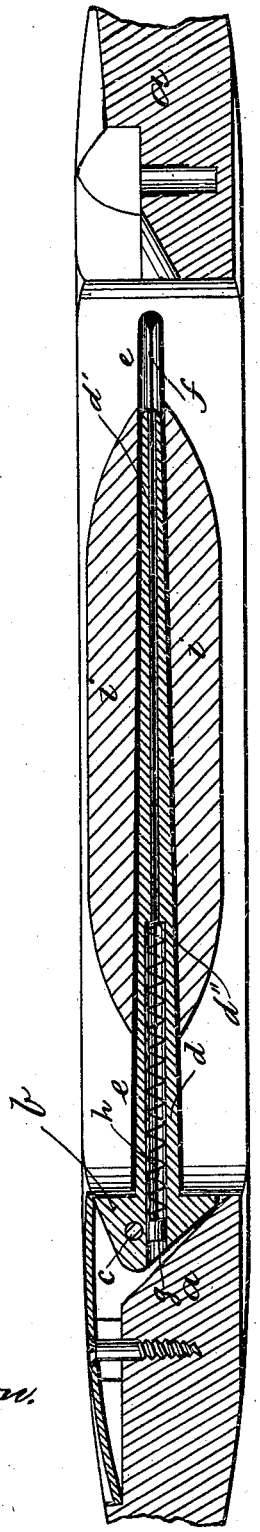
D. H. CHAMBERLAIN.

LOOM-SHUTTLE.

No. 188,281. Patented March 13, 1877.



Witnesses:

Henry Chadbourn.

F. Allen

Inventor:

Dexter H. Chamberlain

by

Albert G. Andrews.

his atty.

UNITED STATES PATENT OFFICE.

DEXTER H. CHAMBERLAIN, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO HIMSELF AND WILLIAM H. IRELAND, OF SAME PLACE.

IMPROVEMENT IN LOOM-SHUTTLES.

Specification forming part of Letters Patent No. **188,281**, dated March 13, 1877; application filed January 8, 1877.

To all whom it may concern:

Be it known that I, DEXTER H. CHAMBERLAIN, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Loom-Shuttles; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

My invention relates to improvements in loom-shuttles; and consists, in combination with the ordinary hinged head in a loom-shuttle, of a tubular metallic spindle, made in one piece with or secured to the head aforesaid, and a movable tapering metallic tube or sleeve, located outside of the tubular metallic spindle. To the outer and closed end of the said tapering metallic sleeve, and on the inside of the same, is secured a slender rod or metallic wire, that passes through the hollow metallic spindle. The rear end of said rod or wire is provided with a hub or head, between which and a support in the hollow metallic spindle is located a compressible coiled spring. The cop is placed upon the outside of the hollow, tapering, and movable metallic tube, by which arrangement the said metallic tube, and the cop upon it, is at liberty to move forward when that end of the shuttle which is not attached to the spindle is struck by the picker; and by this arrangement the breaking of the cop is effectually prevented, thus saving a great deal of unnecessary waste.

There are several advantages in my invention over the ordinary devices for preventing the breaking of cops, one of which is, that the only movable part of my invention is the very light tapering tube on which the cop is secured. Since this tube is so light, even a very slight blow on the shuttle end will set the said light and hollow tapering tube in motion, which is a great advantage over the ordinary ones, in which, generally, the whole of the heavy spindle has to be set in motion to accomplish the desired result, and in such case, when the blow on the shuttle is not sufficient to overcome the inertia of the whole spindle mass, the cop will break before such inertia can be overcome. This is obviated in my invention, where the spindle proper is stationary, and provided with a very light and hollow case, on which the cop is secured, and which hollow tube, and its cop are movable and yielding as soon as a blow, whether slight or powerful, is given to the shuttle.

Another advantage of my invention is, that when the movable tapering cop-tube is on its seat on the hollow spindle it forms, as it were, a solid piece with the same; but as soon as the cop-tube is released, ever so little, it is free to move somewhat to either side of the hollow spindle, by which the outer end of the cop-tube will automatically direct itself to the very spot on the shuttle end on which the blow is given; and as the shuttle-point is not always in a line with the center of the spindle, it will be seen that by this arrangement the cop-tube will always move centrally toward the point of the shuttle, even if the latter should be out of true with the center of the spindle and cop-tube. This is also a great advantage over ordinary spindles, as the cop is very liable to break, even if it is yielding, if the blow is struck on one side of the center line of the cop and its spindle, without any provision for a yielding motion sidewise.

On the accompanying drawing is shown a central longitudinal section of a shuttle with my improved spindle.

a represents an ordinary shuttle, and *b* its head, the latter being hinged at *c*, as shown. *d* represents the hollow tapering metallic spindle, secured to the head *b* in its rear end. *e* represents the movable hollow tapering cop-tube surrounding the metallic spindle *d*, and having in its forward end secured the end of a light rod or wire, *f*, that passes through the central hole *d'* in the spindle *d*, and is provided in its rear end with a small head or hub, or nut, *g*, between which and the end of the central chamber *d''* is located a compressible spring, *h*, as shown. *i* represents the cop.

It will thus be seen that the cop and its cop-tube *e*, with its central wire or rod *f*, are

the only parts that are free to move forward when a blow is given to the shuttle, the rest being stationary; and as soon as the blow is over, the cop and its tube and rod are automatically returned to their proper relative positions by means of the spring *h* acting on the enlargement *g* on the end of the rod or wire *f*.

Having thus fully described the nature, construction, and operation of my invention, I wish to secure by Letters Patent, and claim—

1. The combination, with the hollow spindle *d d' d''*, provided with a head, *b*, of the movable tapering cop-tube *e*, provided with the rod or wire *f g* and the spring *h*, as and for the purpose set forth and described.

2. In a shuttle, the combination of a stationary spindle, *d*, with a yielding cop-tube, *e*, as and for the purpose set forth.

In testimony that I claim the foregoing as my own invention I have affixed my signature in presence of two witnesses.

DEXTER H. CHAMBERLAIN.

Witnesses:
ALBAN ANDRÉN,
HENRY CHADBOURN.