C. L. Frink.

Shuttle.

No. 35,602. Patented Jun. 17, 1862.

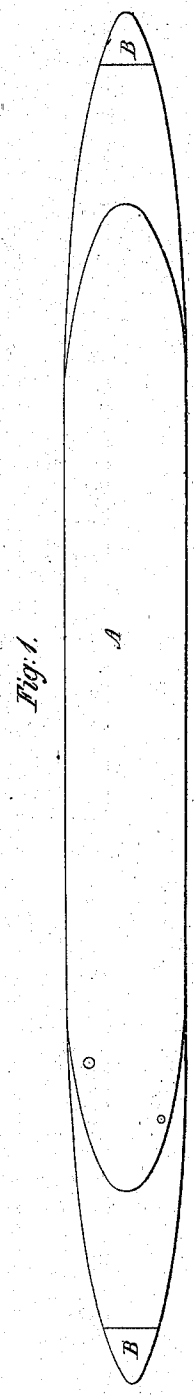

Fig. 1.

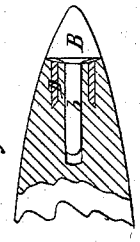

Fig. 2.

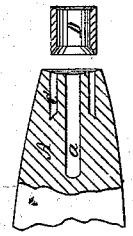

Fig. 3.

Fig. 5.

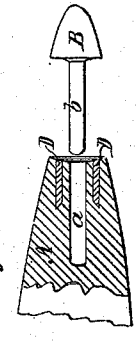

Fig. 4.

Witnesses:
James H. Ma[illegible]
J. Charles Smith

Inventor:
C. L. Frink
per Munn & Co
Attorneys

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

CHRISTOPHER L. FRINK, OF ROCKVILLE, CONNECTICUT.

IMPROVEMENT IN WEAVERS' SHUTTLES.

Specification forming part of Letters Patent No. **35,602**, dated June 17, 1862.

To all whom it may concern:

Be it known that I, CHRISTOPHER L. FRINK, of Rockville, in the county of Tolland and State of Connecticut, have invented a certain new and useful Improvement in Shuttles for Weaving; and I do hereby declare the following to be a full and exact description of the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a side elevation of the complete shuttle. Fig. 2 is a longitudinal section of one end of the same. Fig. 3 is a similar view without the tip and before the insertion of the metallic ferrule. Fig. 4 is a similar view with the ferrule applied and the tip ready to drive, as hereinafter described. Fig. 5 is an end view illustrating the application of the invention to a shuttle which has been split.

Similar letters of reference indicate corresponding parts in the several views.

It is well known that great difficulty is experienced from the liability of shuttles to split by the metal tip or point striking any hard substance when the shuttle is thrown out of the loom; also, it frequently happens that in entering the shuttle-box the shuttle will strike on the mouth of the box, thereby loosening the point and splitting the shuttle. In either case a shuttle of common construction is rendered entirely useless by the accident named.

The object of my invention is to so construct a shuttle that it cannot split in consequence of the violence referred to, and also to provide a means whereby a shuttle of common construction which has been split may be repaired and rendered thoroughly sound and good.

To enable others skilled in the art to which my invention pertains to fully understand and use the same, I will proceed to describe it and explain the manner of carrying it into effect.

The main body A of the shuttle is formed of wood, and may be of common construction, with the exception of its ends.

B B are the metal points, formed with shanks *b b*, which are driven into holes *a* in the center of each end of the shuttle in customary manner.

C is an annular cavity or groove which is formed in each end of the shuttle concentrically around the central hole, *a*, and about equidistant between it and the circumference of the end of the wood.

D is a ferrule, of brass, iron, or other metal, formed and adapted to accurately fit the cavity C. The said ferrule is made accurately cylindrical on its exterior. Its interior may taper very slightly from the front backward, or may be cylindrical for the greater part of its length; but at the extreme rear end it is reamed or beveled out, as clearly shown in Figs. 2, 3, and 4, so as to form a circular edge of diameter equal with the external diameter of the ferrule. The object of this peculiar construction will be shortly explained.

The manner of carrying out my invention in the construction of a new shuttle is as follows: The wooden part A of the shuttle being constructed in customary manner, and the cavities *a* and C formed in its ends, the ferrule D is first inserted and driven home, and the tip B afterward. In the case of a shuttle of common construction having been split at either end, the metal tip is taken out and the fractured end of the shuttle being (if necessary) temporarily compressed and held together, the annular cavity C is produced in the same way as with a new shuttle. The ferrule is then inserted in the manner before described, and the metal tip replaced. The shuttle will then be capable of resisting manifold more violence than when it was new, and will be equally efficient for use.

It will be observed that the construction of the ferrule is such as to preclude all danger of splitting the shuttle in the act of its insertion. The circular edge in front of the ferrule being of equal diameter with every part of the exterior, prevents any expansive action and causes the pressure to be exclusively inward. The use of the invention renders it impossible for the end of the shuttle to split while in use, or with any accident or violence to which it is subject; and the manner of inserting the ferrule beneath the surface does not interfere with the needful smoothness of the joint between the wooden body of the shuttle and the metal tip.

In applying the ferrule to a shuttle of common construction which has been split, the fractures are firmly drawn together and there held, so that a shuttle which must otherwise have been thrown away as worthless may be rendered entirely sound and used as well and as long as if no accident or violence had occurred.

An additional advantage of my invention is the protection afforded against the splitting of the ends of the shuttle in the act of driving the tips. By this means the shank *b* can be made to fit much more tightly without danger of injury to the shuttle, and the great inconvenience of the shuttle-points becoming loose is thus entirely overcome.

From the foregoing description it will be understood that the present improvement is intended to apply to shuttles in which the metal tip is attached by means of a central shank. One superiority of such shuttles over those in which the metal tip constitutes a cap inclosing the wood consists in their non-liability to work loose with the endwise concussion to which the shuttle is constantly subjected while in use. The cap must be secured by screws, pins, or other lateral fastenings. These hold the tips as much from being driven on as from coming loose, and consequently as the metal expands and the wood wears the cap becomes loose, and its edges and the heads of the screws project so as to catch upon the yarn while the shuttle is in use. The shanked tip, on the contrary, being held by compression within the wood, becomes tighter and tighter as it is driven in, and has no tendency to work loose with regular use, nor are any projections formed to catch the thread. The shanked tip, therefore, possesses great superiority; but shuttles of this kind as formerly constructed have been subject to fatal injury from a lateral blow upon the metal tip, splitting the end of the wood in which the shank is inclosed. This disadvantage is entirely overcome by my invention, for, inasmuch as the splitting of the wood can only occur by the lateral pressure of the shank, the ferrule having sufficient strength to resist this pressure effectually preserves the wood from injury. This is true as well in the case of a shuttle which has been split as with one to which the ferrule is originally applied. With a split shuttle the ferrule will hold the fractures together completely to the outside by the natural cohesion of the wood, and will also sustain any lateral pressure which can be produced by the shank, and thus protect the existing fractures from any violence which would cause them to open.

I claim as my invention and desire to secure by Letters Patent—

As a new article of manufacture, a shuttle provided at its ends with shanked metal tips B and metallic ferrules D, the latter fitting within annular cavities C beneath the surface of the wood, and all constructed, combined, and arranged in the manner and for the objects set forth.

CHRISTOPHER L. FRINK.

Witnesses:

ELI I. SMITH,

BENEZET H. BILL.