

# *E. Gross, Shuttle.*

*No 73.955.*

*Patented Feb 4. 1868.*

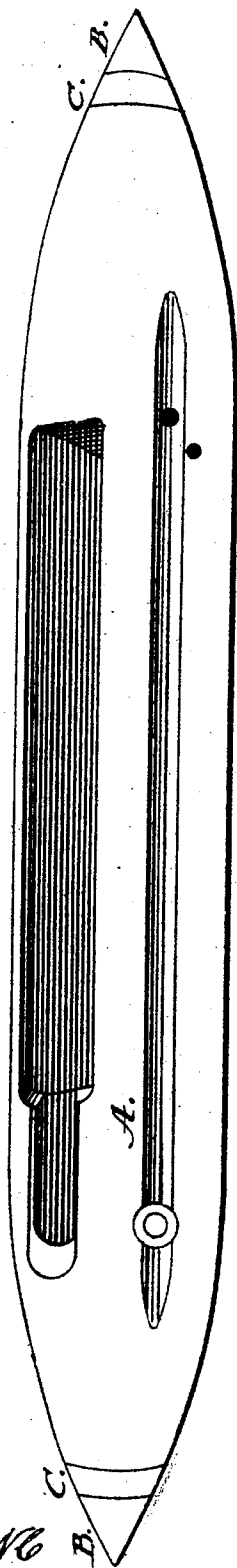


*Fig. 1.*

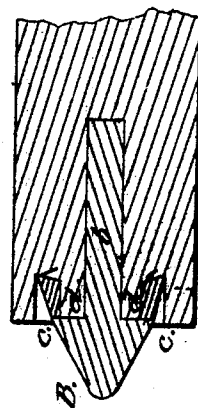


*Fig. 3.*

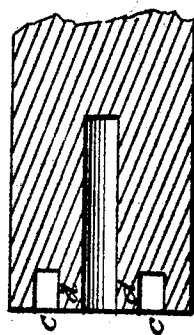


*Fig. 2.*

*Geo H. Mc*

*Inventor,  
E. Gross  
By his Atty. Thos H. Dodge.*

# United States Patent Office.

E. CROSS, OF SOUTHBRIDGE, MASSACHUSETTS.

*Letters Patent No. 73,955, dated February 4, 1863.*

## IMPROVEMENT IN SHUTTLES FOR LOOMS.

*The Schedule referred to in these Letters Patent and making part of the same.*

### KNOW ALL MEN BY THESE PRESENTS:

That I, E. Cross, of Southbridge, in the county of Worcester, and Commonwealth of Massachusetts, have invented certain new and useful Improvements in Shuttles for Power-Looms; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and in which—

Figure 1 represents a perspective view of my improved shuttle.

Figure 2 represents a longitudinal section of one end of the block as it appears in the process of manufacture, and

Figure 3 represents a similar section after the tip and the tip-shield and ferrule have been applied to the end of the block, as will be fully explained hereafter.

To enable those skilled in the art to which my invention belongs to make and use the same, I will proceed to describe it more in detail.

In the drawings, A represents the body of the shuttle, which may be made in any of the well-known styles of manufacture, so far as relates to the central portion of the shuttle, and also so far as the cop or bobbin-holding device is concerned.

My improvements have reference to the mode of holding and shielding the tip and compressing the wood about the shank of the tip; and my invention consists, first, in a peculiar combination of a metal-tip shield with the tip and end of the shuttle; and, second, in the peculiar form of construction of the shield, whereby it is made to shield and hold the tip in place, while at the same time preventing the end of the shuttle from splitting out.

In the construction of my shuttle, the block is bored out at each end, as seen at *a*, to receive the shank *b* of the tip B. A circular groove, *c*, is then cut in each end of the block, leaving a core, *d*, between the hole *a* and the groove *c*, upon which the tip-shield C is driven, as shown in fig. 3. As the tip-shield C is contracted a little at the outer end, the core *d* is compressed when the tip-shield is driven on. Again, the inner face or edge *l* of the shield is concave, so that when driven down it draws the ends of the fibres of the wood which form the bottom of the groove *c* in, as indicated in fig. 3. The shield C may be driven on first, and then the stem of the tip driven in, or the shield may be driven part way on and then the shank of the tip inserted and the tip driven down until it forces the shield to its position shown in fig. 3. After the tip and shields have been applied, as described, the ends of the shuttle are turned off, as shown in fig. 1.

By my improvements the end of the shuttle-wood is prevented from splitting out, while the tip is held in a very secure manner. Again, by constant use, the wood of the shuttle next to the tip is often worn off or broken away, so that the base of the tip has to be ground off to prevent the breaking of the warp-threads. Such grinding off of the base of the tip, however, prevents its being used in the construction of new shuttles. By the use of the shield C the tips are not ground off, the grinding coming upon the shields, so that the tips can be used in several new woods.

Having described my improved shuttle, what I claim therein as new and of my invention, and desire to secure by Letters Patent, is—

The combination, with the tip and wood of the shuttle, of an interposed shield, C, arranged, with relation to the tip and the shuttle-wood, substantially as and for the purposes set forth.

E. CROSS.

Witnesses:

PETER COTE,

F. W. BOTHAM.