(No Model.) 2 Sheets—Sheet 1.

A. WOOD.

LOOM SHUTTLE.

No. 588,935. Patented Aug. 24, 1897.

FIG. 2.

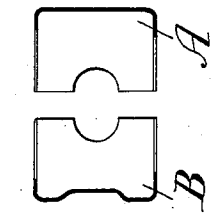


FIG. 1.

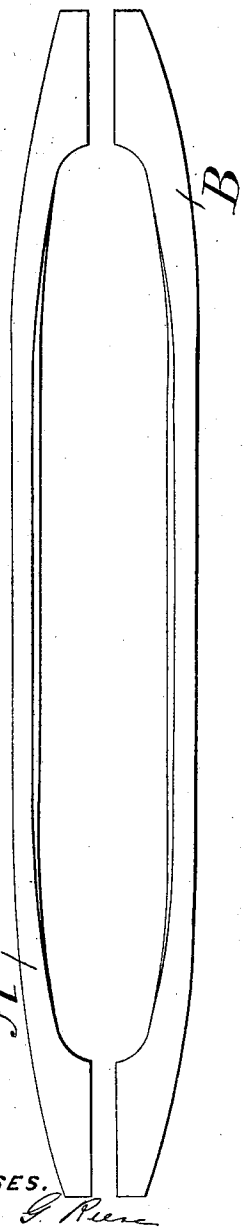


FIG. 3.

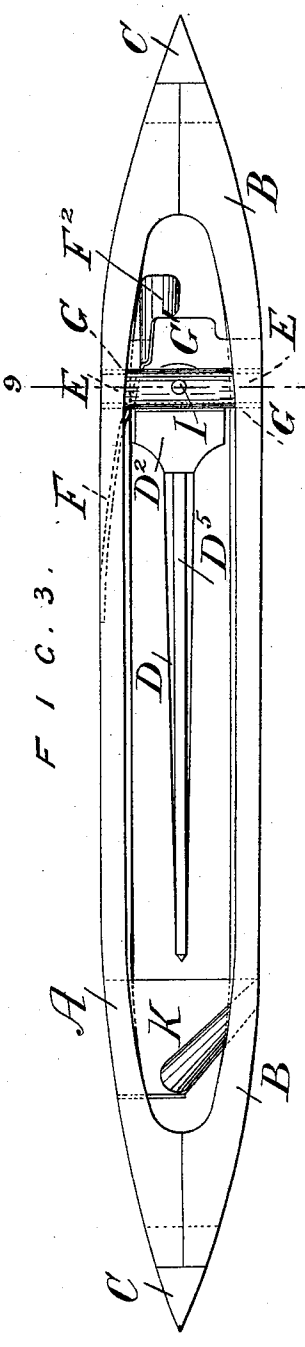
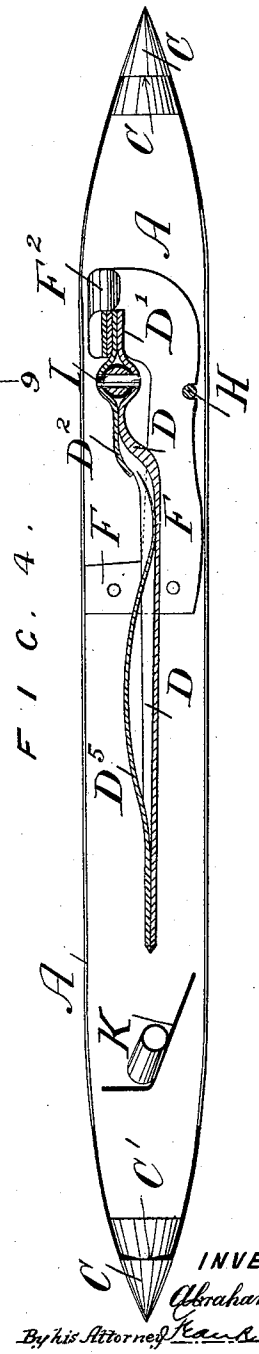


FIG. 4.



WITNESSES.

Archie G. Rice

L. Della McClure

INVENTOR.

Abraham Wood.

By his Attorney Frank L. Ayer

(No Model.) 2 Sheets—Sheet 2.

A. WOOD.

LOOM SHUTTLE.

No. 588,935. Patented Aug. 24, 1897.

FIG. 7.

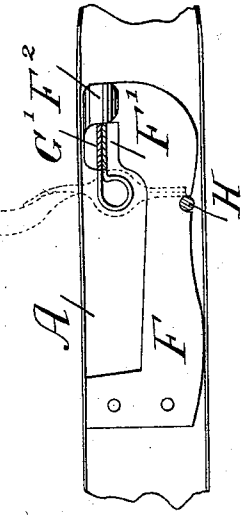


FIG. 8.

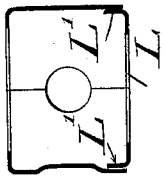


FIG. 9

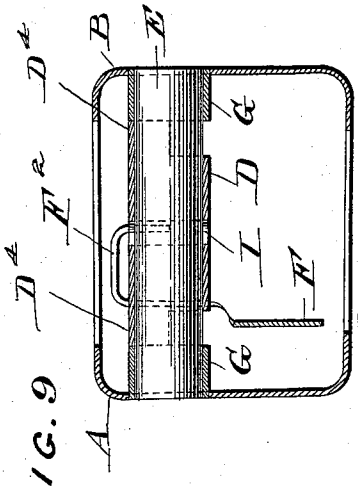


FIG. 5.

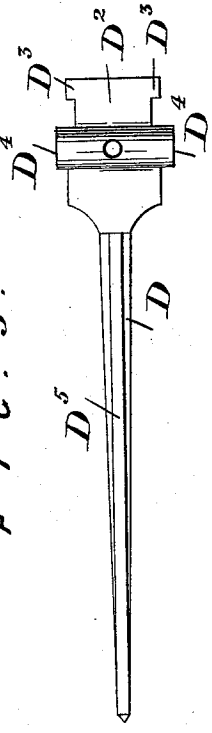
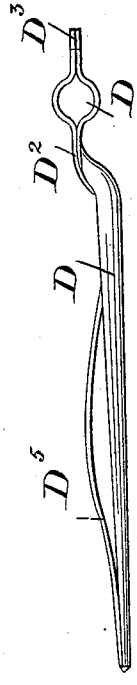


FIG. 6.



WITNESSES.

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UNITED STATES PATENT OFFICE.

ABRAHAM WOOD, OF RAMSBOTTOM, ENGLAND.

LOOM-SHUTTLE.

SPECIFICATION forming part of Letters Patent No. 588,935, dated August 24, 1897.

Application filed June 1, 1896. Serial No. 593,908. (No model.) Patented in England June 21, 1895, No. 12,066.

To all whom it may concern:

Be it known that I, ABRAHAM WOOD, jeweler, a subject of the Queen of Great Britain and Ireland, residing at 15 Bridge Street, Ramsbottom, in the county of Lancaster, England, have invented certain new and useful Improvements in Loom-Shuttles, (for which I have obtained a patent in Great Britain, No. 12,066, dated June 21, 1895;) and I do hereby declare the following to be a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My said invention relates to improvements in the manufacture of loom-shuttles and in the mounting and supporting of the tongues thereof.

My invention will be best understood by reference to the annexed sheet of illustrative drawings.

Figure 1 shows the two separate stamped halves A and B of the shuttle. Fig. 2 shows the said two separate halves in cross-section. Fig. 3 shows the complete shuttle formed of the two halves A B brazed together and fitted with eye and shuttle-tongue. Fig. 4 is a longitudinal section of Fig. 3. Figs. 5 and 6 illustrate the spring-tongue. Fig. 7 shows the bearing and spring for the tongue; Fig. 8, a cross-section illustrating the employment of a removable wearing portion; Fig. 9, a section on the line 9 9 of Fig. 3.

In carrying out my improved manufacture I press or stamp a strip or portion of sheet-steel by means of suitably-formed matrices or molds into a shape or form equivalent or corresponding to one half or side A of a shuttle, and by similar means I press or shape the other half B. These two sections are shown lying side by side and separate in Figs. 1 and 2. I then braze, fuse, or otherwise unite the two halves A B together, thus forming the complete hollow metallic shuttle-body shown in Figs. 3 and 4.

The tips C of the shuttle might be formed from the material of the shuttle itself, but I prefer to braze or otherwise secure solid tip-points C to or in the shuttle ends. When this is done, I form orifices at the shuttle ends to receive the said tips C. The tips are formed as most clearly shown in Fig. 4, the tip being checked midway, so as to present a shoulder C′. When the two halves of the shuttle are put together, the halves clip the tips at the checked portion, so that the tips are securely held, the checked shoulder preventing shifting in one direction and the inclined portion in the other direction. The shuttle-tongue D is also stamped from thin sheet-steel, and is formed with a flat sheet-metal butt D′, which may be folded on itself so as to lap over and embrace the cross pivot-pin E, upon which it is pivoted, but I prefer that the upper portion D^2 should be brazed or riveted to the said flat butt D′. By prolonging the front end of the upper portion D^2 and causing it to overhang, as clearly shown in Fig. 4, a recess is formed to receive the free end of the spring D^5, which is thus boxed in and shielded. The end of the shuttle-tongue butt is formed with a projection D^3, which works in contact with a flat spring F, secured to the inner side of the hollow metallic shuttle by means of rivets, as shown. A perforation or recess F′ (see Fig. 7) is formed in the said flat spring F, and when the tongue D is lying within the shuttle in its proper normal position, as shown, for example, in Fig. 4, the projection D^3 from the butt snaps into this recess or perforation F′ in the spring F, so that the tongue is held securely in its normal position.

To raise the tongue into a position which will admit of the cop being placed thereon—such a position, for instance, as is indicated in Fig. 7 of the drawings—I press the flat spring F toward the side of the shuttle and so release the projection D^3 on the butt from the recess F′. To facilitate this pressing aside of the spring F, I form it with a thumb-piece or curl F^2, upon which the thumb is placed to push the spring to one side. The tongue D can then be turned upon its pivot, and the sidelong pressure of the spring F on the projection D^3 holds the tongue at any position into which it may be turned. A cross-pin H prevents the tongue from being turned round farther than into the vertical position shown in Fig. 7. The said spring might be on one or both sides, in which latter case the projection D^3 is also on both sides, as shown in Fig. 5.

The bearing-bosses G to receive the pivot-pin E, which carries the tongue, may be separately brazed to the inner sides of the shut-

tle, but preferably they are made in one with a cross-piece G′, which is secured within the shuttle by brazing. In fixing this cross-piece I let the ends or one of the ends project through the sides of the shuttle, so that when brazed in position it remains very secure. When the cross-piece G′ is used, it serves as a cross-stop for the shuttle-tongue butt D′ and prevents the shuttle-tongue from being turned down beyond a certain point—viz., beyond the horizontal position shown in Fig. 4. The pivot-pin E is inserted from the outside through the bearing-bosses G and is fixed by a pin I, driven through the eye of the butt and through the pin E.

The eye of the butt D′ is formed with semicircular wings D^4, which project over the bearing-bosses. These wings D^4 therefore project over to conceal the joints formed in each side between the bosses and butt D′ to prevent the yarn from working therein. The eye through which the yarn is led from the cop on the shuttle-tongue D through the side of the shuttle may be formed by curling over one corner of a stay-piece K, fixed across the interior of the shuttle at the leading end, as plainly shown in Figs. 3 and 4. The ends of the eyepiece K may project through the sides of the shuttle, as in the case of the cross-piece G′, for the purpose of giving it a more secure hold. As the lower side of the shuttle might in course of time wear away, I could, if thought desirable, make the shuttle in the first instance with a removable shoe or sole secured to the under side of the shuttle and capable of being renewed when it became worn. This removable shoe or sole is illustrated in the sectional view, Fig. 8. The shuttle is made without the flat ledge on each side of the under side, and I make the separate sole L with upturned side flanges L′, which slip inside of the hollow shuttle and are brazed to the shuttle sides.

The advantages of such a shuttle as I have described are many. It may be no heavier and might be made lighter than the ordinary wooden shuttle. In prime cost it compares favorably with the wooden shuttle and lasts a much longer time. It does not warp, twist, or split like the wooden shuttle and travels over the ends with greatly less friction and with less risk of breaking and cutting the ends.

The light, thin material of which my improved shuttle is made leaves much more space in the interior of the shuttle and enables a much bulkier cop to be placed on the tongue.

Although, as already said, I at present consider thin sheet-steel to be the most suitable material from which to make my improved shuttle, any other sufficiently light, strong, and malleable metal might be used.

I claim—

1. In combination with a sheet-metal loom-shuttle body, of a pivot extending across the interior thereof, a shuttle-tongue mounted on said pivot, a projection on the butt of said tongue, and a spring having a recess in which said projection snaps when the tongue is in its normal position, said spring bearing with frictional contact against said projection when the tongue is moved out of its normal position, substantially as set forth.

2. In combination with a sheet-metal loom-shuttle body, of a pivot extending across the interior thereof, a shuttle-tongue mounted on said pivot, a projection on the butt of said tongue, a spring having a recess in which said projection snaps when the tongue is in its normal position, and a finger-piece on the spring for disengaging the same from said projection, substantially as set forth.

3. In combination with a sheet-metal loom-shuttle body, of a cross-piece secured therein and carrying two bosses, a pivot secured in said bosses, a shuttle-tongue mounted on said pivot, and semicircular wings on the tongue projecting over said bosses, substantially as set forth.

4. In combination with a sheet-metal loom-shuttle body, of a cross-piece secured therein and carrying two bosses, a pivot secured in said bosses, and a shuttle-tongue mounted on said pivot, the butt of said tongue engaging beneath said cross-piece when the tongue is in its normal position, substantially as set forth.

5. In and in combination with a shuttle-body of the indicated nature the stay-piece K having one side or corner curled upon itself so as to constitute an integral eye to lead the yarn from the cop, formed and applied substantially as described and as illustrated.

This specification signed and witnessed the 1st day of May, 1896.

ABRAHAM WOOD.

Witnesses:

JOSHUA ENTWISLE,

JAMES HAWORTH HILL.