

G. CUTHBERT & F. J. FEE.

METALLIC SHUTTLE.

APPLICATION FILED JUNE 17, 1909.

970,803.

Patented Sept. 20, 1910.

2 SHEETS—SHEET 1.

Fig. 1.

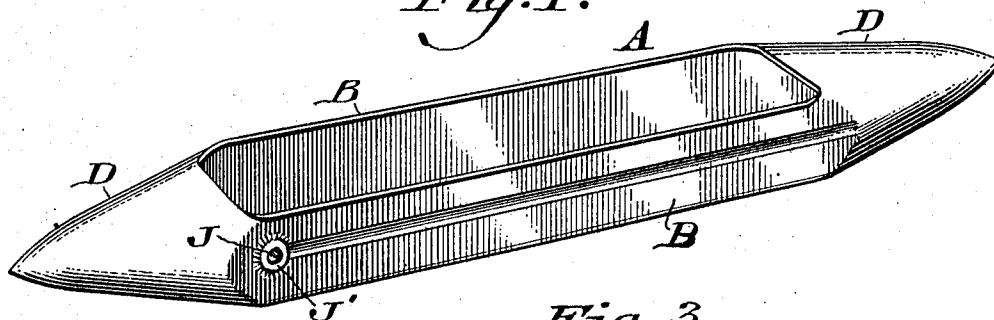


Fig. 3.

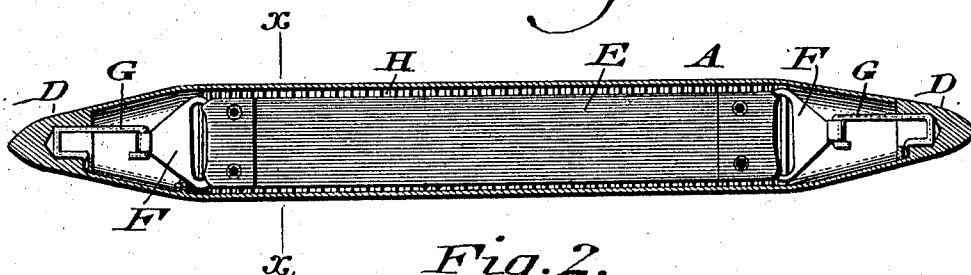


Fig. 2.

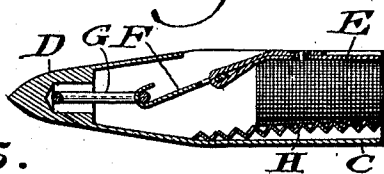


Fig. 5.

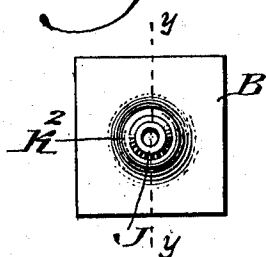


Fig. 6.

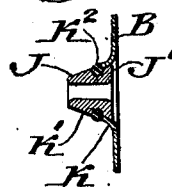
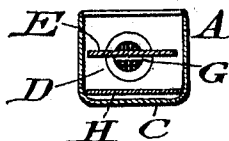


Fig. 4.



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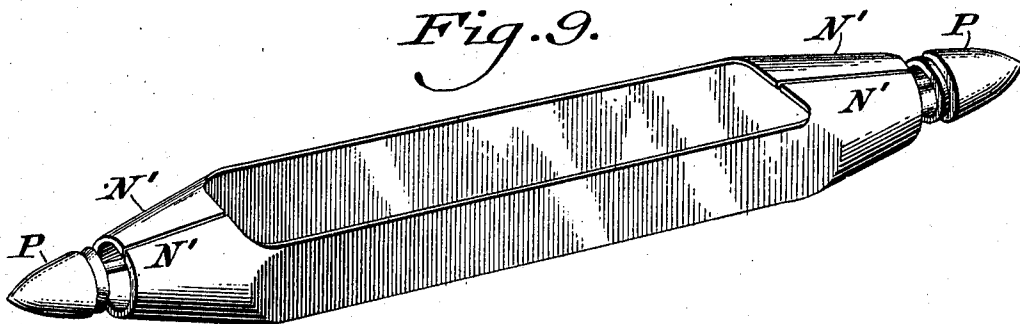
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2 SHEETS--SHEET 2.



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UNITED STATES PATENT OFFICE.

GEORGE CUTHBERT, OF PHILADELPHIA, PENNSYLVANIA, AND FRANCIS J. FEE, OF COLLINGSWOOD, NEW JERSEY.

METALLIC SHUTTLE.

970,803.

Specification of Letters Patent. Patented Sept. 20, 1910.

Application filed June 17, 1909. Serial No. 502,678.

To all whom it may concern:

Be it known that we, GEORGE CUTHBERT and FRANCIS J. FEE, citizens of the United States, the former a resident of the city and county of Philadelphia, State of Pennsylvania, and the latter a resident of Collingswood, in the county of Camden, State of New Jersey, have invented a new and useful Metallic Shuttle, of which the following is a specification.

Our invention relates to a shuttle having a body of sheet metal and it consists in forming such body solid or seamless and jointless.

It consists further in hardening or tempering said body, as will be hereinafter described.

It consists also of a cop-retainer and tension device for the cop of novel construction, the same preventing "cop-waste."

It consists further of novel details of construction, as will be set forth and claimed.

For the purpose of explaining our invention, the accompanying drawing illustrates a satisfactory reduction of the same to practice, but the important instrumentalities thereof may be varied, and so it is to be understood that the invention is not limited to the specific arrangement and organization shown and described.

Figure 1 represents a perspective view of the body of a shuttle embodying our invention. Fig. 2 represents a longitudinal section of a portion of the shuttle. Fig. 3 represents a horizontal section of the shuttle. Fig. 4 represents a transverse section on line $x-x$, Fig. 3. Fig. 5 represents a side elevation of a detached portion. Fig. 6 represents a section thereof on line $y-y$. Figs. 7, 8 and 9 represent perspective views of steps in the manufacture of the shuttle.

Similar letters of reference indicate corresponding parts in the figures.

Referring to the drawing:—A designates a shuttle having a body composed of the sides B, the solid bottom C and the noses or tips D, and comprising a hollow shell formed of sheet metal, preferably steel, it being open at top and seamless and jointless throughout, whereby it is of strong and durable nature, and of light and inexpensive construction and has a smooth and unobstructing surface. Within the body is the cop-retainer E, which consists of a piece of elastic webbing on whose ends, are hooks F,

which are adapted to engage eyes or cross bars G, which are secured to the interior of the tips D. These cross bars are, as seen clearly in Fig. 3, limbs or shanks which are provided with lips which occupy recesses in the tips and are sprung thereinto. It will be noticed that the shanks of said bars partly occupy chambers in the interiors of the tips, and the walls of said chambers have said recesses extending laterally therein to receive said tips as above stated. On the bottom of the body is the corrugated plate or base H, which is deflected in such manner as to be resilient in its nature, it being noticed that the cop is adapted to rest thereon so as to be prevented from shifting or slipping, the cop being pressed by the base H against the retainer E, especially when the cop is about reduced to its last extremity, thus rendering it feasible to deliver the full and complete amount of the yarn of the cop and thus obviate "cop-waste."

J designates the eye of the shuttle, the same having a flange J' on its outer end and its body fitted in an opening in the side of the body, the wall of said end being punched in, forming the collar K, which tightly embraces said eye, the latter having also a peripheral groove K', in which is seated the ring K², whose diameter is greater than that of the collar K at the inner end thereof, so as to form a shoulder therewith, whereby the eye is firmly retained in position and prevented from displacement in outward direction, while the flange J' prevents inward displacement of the eye.

In carrying out our invention in the formation of the body of the shuttle, we employ the blank L, the same consisting of a flat plate of sheet metal with laterally-extending wings M therein, see Fig. 7. The plate is bent-up in the longitudinal direction thereof, as in Fig. 8, when the opposite edges of each pair of wings M are brought together, as at N, Fig. 9, producing the shape of the body of the shuttle, with tubular portions N' which comprise the inner portions of the end noses, the outer terminals of said portions being adapted to leave openings into which are partly introduced the tips P, which close the same and whose outer portions comprise with said portions N' the complete noses. The inner portions of said tips comprise reduced necks

which are hollow or recessed, forming comparatively thin walls which enter the outer ends of the tubular portions N', and on which said portions are subsequently seated as most apparent in Fig. 9. The edges N and the surfaces where the tips contact with the body as formed, are now subjected to a welding operation, whereby said edges are closed, and the tips connected with said body comprise the extreme ends of the noses D, the metal of the body at said edges fusing, as does also the contacting metal of the body and tips, this fusing being possible owing to the thin walls of the recessed necks of the tips, as the heat employed is well adapted to pass through said necks to soften the same and occasion the proper fusing with the tubular portions N', whereby the joints of the edges and those of the body and tips disappear, and the body and tips and consequently the noses become practically solid, as most plainly shown in Fig. 2, where it will be seen that the body of the shuttle is seamless and jointless, while the bottom of the body is solid forming a jointless, edgeless, strong and durable member on which the shuttle moves or runs. The tips P while comprising the terminals or points of the body, have their outer ends solid rendering them effective for the severe work to which they are subjected while their necks sustain the tubular portions N' and strengthen the same from within the body, preventing collapse thereof. The body is then hardened or tempered and after subjected to finishing touches, when it will be ready for use.

It will be noticed that the hardening or tempering of the body will not affect or change the jointless or seamless nature of the members of the same, as the original joints or seams have disappeared by the fusion of the adjacent walls of the same and the homogeneous nature of the tips and body, and so there are no joints or seams liable to open and fracture the body, as would be the case when the joints or seams are simply brazed or soldered, this latter being also true when the shuttle is in use, the blows on the same causing the noses and decks to disintegrate all of which is obviated by our construction.

Having thus described our invention, what we claim as new and desire to secure by Letters Patent, is:—

1. In a shuttle, a body formed of a single piece of sheet metal comprising sides, a bottom and a tubular end portion, and a tip, the latter having on its inner end an internally-recessed neck which occupies said end

portion, said tip being fused jointless and seamless with said portion.

2. In a shuttle, a sheet metal body composed of sides, a bottom and tubular end members, the material composing said members being fused unbroken and jointless continuities circumferentially and comprising the inner portions of the noses of the shuttle, and tips on said end members interiorly-recessed, having necks on their inner portions, the same entering said end members, said tips comprising the outer portions of the noses, the materials of said end members and tips being fused unbroken and jointless continuities of each other in the longitudinal direction of the shuttle.

3. A shuttle having a body formed of a single piece of sheet metal comprising a bottom, sides, and a tubular end member, and a tip having its outer end solid and its inner portion composed of an interiorly-recessed neck occupying said member, the wall of said neck being fused jointless and seamless with said member.

4. A shuttle having in the body thereof a resilient base on which a cop is adapted to be seated, said base being corrugated and arched upwardly.

5. A shuttle having in the body thereof a resilient base on which a cop is adapted to be seated, said base being corrugated and arched upwardly, combined with a cop retainer against which said base is opposed.

6. A shuttle having in the body thereof a corrugated upwardly arched resilient device on which a cop is adapted to be seated without liability to shift in longitudinal direction, and an elastic retainer connectible with the body and occupying a position over said device.

7. In a shuttle, a body having a collar thereon, and an eye which is adapted to be embraced by said collar, said eye having a peripheral groove, and a shoulder piece of greater diameter than said collar adapted to occupy said groove against said collar.

8. In a shuttle, a body, tips thereon, a cop-retainer, and means for attaching said retainer to said tips, the same consisting of a shank with angularly disposed engaging portions on the ends thereof, one of said portions occupying a chamber in said tip and having a lip which occupies a laterally-extending recess in the wall of said chamber.

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Witnesses:

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