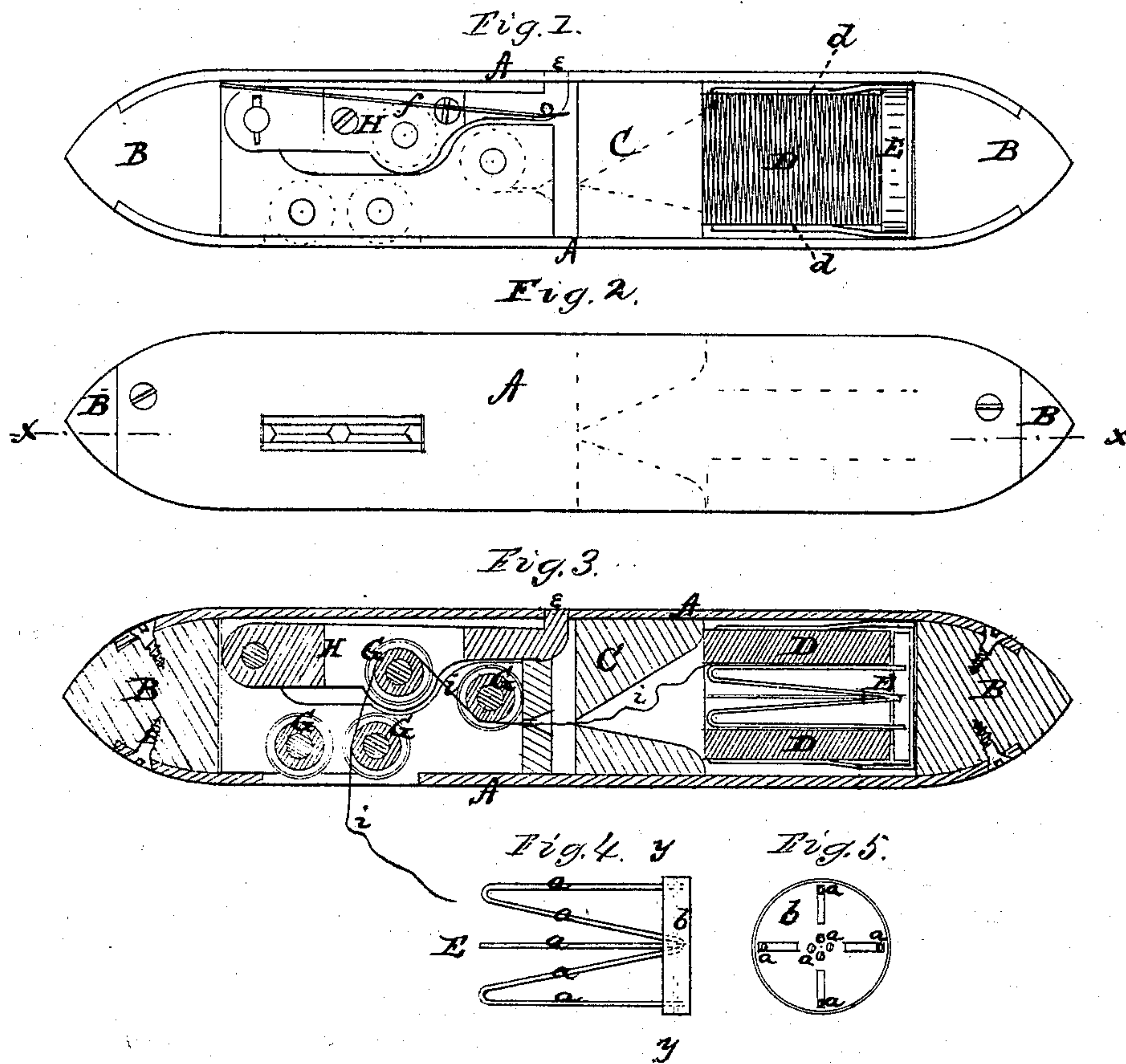


C. K. SAWYER & G. F. WRIGHT.

Loom-Shuttles.

No. 135,446.

Patented Feb. 4, 1873.



Witnesses.

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Inventor's.

C. K. Sawyer & Geo. F. Wright

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UNITED STATES PATENT OFFICE.

CALEB K. SAWYER AND GEORGE F. WRIGHT, OF CLINTON, MASS.

IMPROVEMENT IN LOOM-SHUTTLES.

Specification forming part of Letters Patent No. 135,446, dated February 4, 1873.

To all whom it may concern:

Be it known that we, CALEB K. SAWYER and GEORGE F. WRIGHT, of Clinton, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Shuttles for Weaving Wire-Cloth and other Fabrics; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon which form a part of this specification.

Our invention relates particularly to shuttles for looms for weaving wire-cloth; and it consists, first, in the use of rawhide in the construction of a shuttle in combination with a cop of wire and tension mechanism; second, in the combination, with a hollow cop of wire, of an appropriately adjusted spring-friction on the inner walls of said cop that shall allow the wire to escape freely and without kinking during the flight of the shuttle in the loom; third, in the use of spring-jaws to seize the cop on the outside to hold it firmly until the whole cop of wire is discharged from the inside.

In order to enable others skilled in the art to which our invention appertains to make and use the same, we will now proceed to describe its construction and operation, referring to the annexed drawing, in which—

Figure 1 is a plan or top view of the shuttle embodying our invention. Fig. 2 is a side elevation of the same. Fig. 3 is a horizontal section of the same through line *x x*, Fig. 2. Fig. 4 is a side view of the spring-friction; and Fig. 5 is a vertical section of the same through line *y y*, Fig. 4.

A A represent the side walls of the shuttle, which, with the bottom, are made of rawhide. B B are wooden end pieces, and C a middle stay to which the rawhide is firmly secured by screws. These end pieces and middle stay may also be made of rawhide or of any other suitable material, the object being to give not only lightness, but also strength, toughness, and durability to the shuttle; hence, in the selection of material for these pieces we prefer to make them also of rawhide or of wood. D represents the hollow cop of wire, with the self-adjustable spring-friction device E acting upon the inner walls of the same. This spring-

friction device is composed of a round flanged disk or box, *b*, fitting over the end of the cop of wire and provided with wire springs *a a*, arranged in the manner shown in Figs. 4 and 5, or in any other suitable manner to answer the same purpose and act upon the inner walls of the cop its entire length. Within the shuttle are arranged spring-jaws *d d* between which the cop of wire is placed, said jaws seizing it on the outside and holding it firmly until the whole cop of wire is discharged from the inside.

It will thus be seen that there is a continual spring-pressure both on the inside and outside of the cop until the whole of it is discharged. G G are grooved rollers arranged within the shuttle, and around which the wire *i* passes and is thereby straightened during the flight of the shuttle. These rollers may be made of any suitable material, but we prefer to use rawhide for this purpose, because thereby they become very light, and at the same time durable, which is very desirable in a shuttle which starts and stops so quick. One of the group of rolls G is placed within a lever, H, which is pivoted at one end and provided with an elbow, *e*, at the other. *f* is a delicate spring arranged to operate upon the lever H in such a manner that it will yield to the wire while it is being drawn out, thereby bringing the elbow within or flush with the back face of the shuttle; but when the wire is all drawn out this spring throws the elbow *e* out, which then strikes the stop-motion attachment of the loom.

When this shuttle is being thrown through the warp in the loom the wire is drawn out from the inside of the cop under the gentle pressure of the spring-friction, and is straightened by passing around the rolls, one of which acts upon the lever and spring, as above described, to prevent the elbow of said lever from operating upon the stop-motion of the loom.

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

1. A shuttle made in whole or in part of rawhide, and having combined with it a cop of wire and tension mechanism, substantially as and for the purpose herein set forth.

2. The friction device consisting of box or

disk *b* provided with spring-wires *a a*, and used in combination with a hollow cop, substantially as and for the purpose herein set forth.

3. In combination with the above, the spring-jaws *d d*, as and for the purpose set forth.

In testimony that we claim the foregoing as

our own we affix our signatures in presence of two witnesses.

C. K. SAWYER.
GEO. F. WRIGHT.

Witnesses:

ABRAM WRIGHT,
CHRISTOPHER C. STONE.