A. BARTHOLF.

Sewing Machine.

No. 19,823. Patented April 6, 1858.

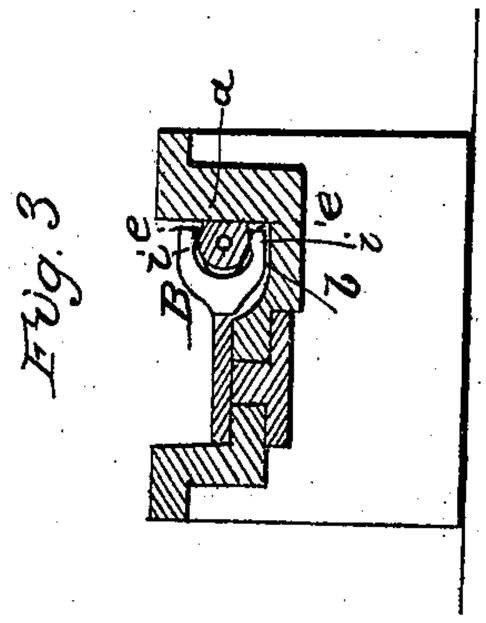

Fig. 3

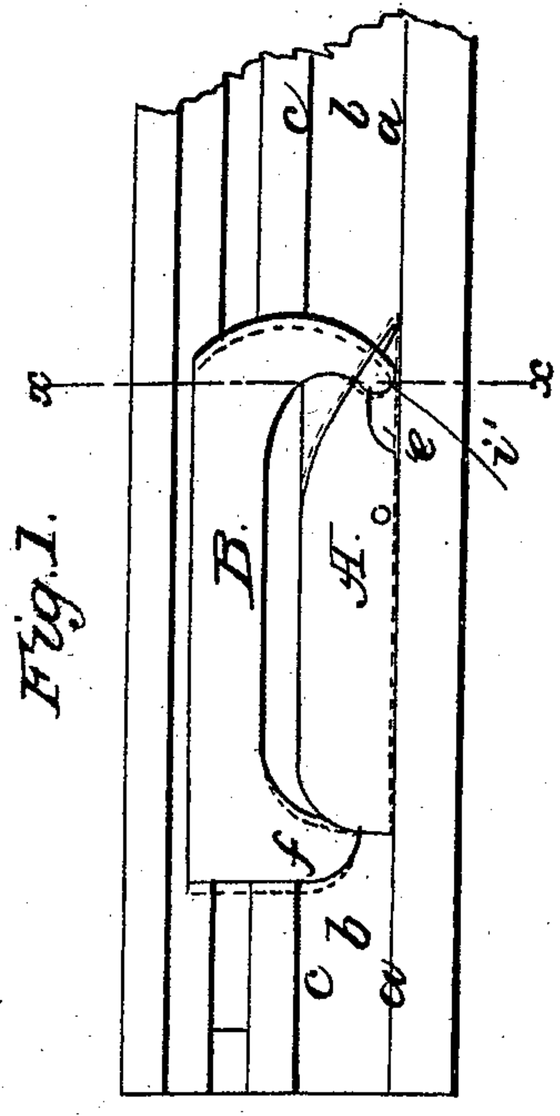

Fig. 1.

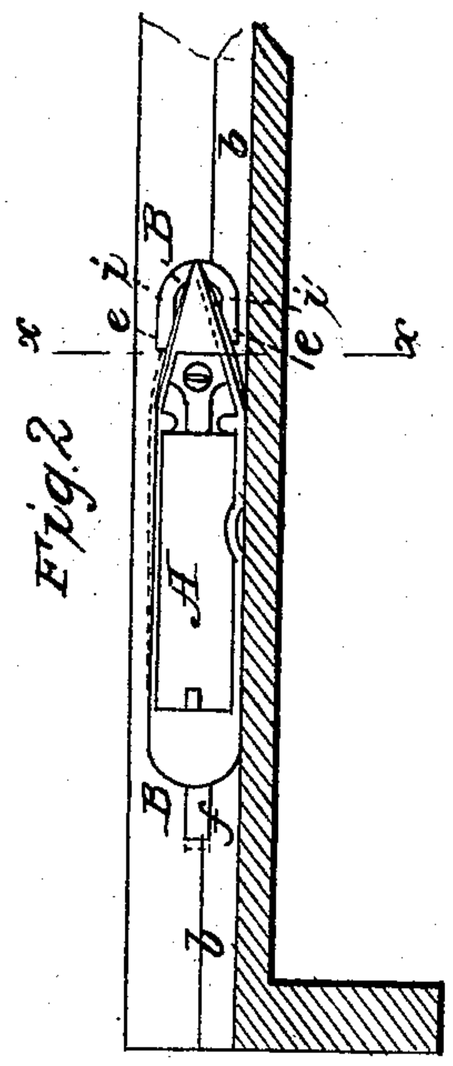

Fig. 2

UNITED STATES PATENT OFFICE.

A. BARTHOLF, OF NEW YORK, N. Y.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. **19,823,** dated April 6, 1858.

To all whom it may concern:

Be it known that I, ABRAHAM BARTHOLF, of the city, county, and State of New York, have invented a new and useful Improvement in Sewing-Machines; 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 part of this specification, in which—

Figure 1 is a plan view of the shuttle, shuttle-driver, and part of the raceway of a sewing-machine, illustrating my invention. Fig. 2 is a longitudinal section of the raceway and longitudinal view of the face of the shuttle or that side which works next the needle. Fig. 3 is a transverse section of the shuttle, the driver, and the raceway in the plane indicated by the line *x x* in Figs. 1 and 2.

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

This invention relates only to sewing-machines in which a shuttle is used. Its object is to reduce the friction of the shuttle in the raceway without the use of oil, and thereby to avoid the dirtying of the shuttle-thread, which is a source of great trouble in sewing delicate or light-colored work when oil is used in the raceway.

The invention consists in a certain construction of the shuttle and driver which tends to prevent the shuttle hugging the raceway in its retreat, which, it should be observed, is the part of its movement in which, under the most common construction of the shuttle and driver, it is caused to hug the raceway most closely.

To enable others to make and use my invention, I will proceed to describe its construction and operation.

a b c is the raceway, whose transverse section is of the usual form, the side *a* next the needle being flat, and part of the bottom *b* being flat also, but the other side, *c*, uniting with the bottom in a concave form, as shown in the transverse section, Fig. 3.

A is the shuttle, which is flat on the side which works next the needle, and otherwise formed in the usual manner, except that its tapering portion, which terminates in the point, is beveled laterally on the top and bottom toward the flat side, as shown in Figs. 1, 2, and 3, and indicated by *e e*.

B is the shuttle-driver, which is formed with a single claw, *f*, at the end that is opposed to the heel of the shuttle, but with two claws, *i i'*, at the other end, to embrace the tapering portion of the shuttle. In the above respects the driver resembles one kind of driver heretofore employed, but not in the form of its claws *i i'*, these being turned in toward each other and beveled on the inside to fit the two lateral bevels *e e* of the shuttle, as shown in Fig. 3, as well as beveled to fit the taper of the shuttle, as shown in Fig. 2.

By giving the taper portion of the shuttle which terminates in the point a lateral bevel on the top and bottom, in the manner above described, and giving a corresponding compound bevel to the claws *i i'*, the said claws, during their action upon the shuttle to drive it in a backward direction, are caused to draw its point away from flat side *a* of the raceway in the manner represented in red outline in Fig. 1, so that the shuttle only touches the side *a* close to its heel. I will observe, however, that it is not necessary to draw the shuttle as far away as it is represented in Fig. 1, which is somewhat exaggerated to illustrate the operation more clearly; but all that is required is to draw it away far enough to prevent its hugging, which it is obvious may be controlled by forming the back parts of the claws *i i'* so as to serve as a bearing to the shuttle as soon as its point ceases to touch the side *a* of the raceway.

The above-described construction of the shuttle and prongs *i i'* of the driver does not at all affect the shuttle in its forward movement through the loop, in which movement, produced by the claw *f*, it lays in the raceway in the usual manner, as indicated in black outline in Figs. 1 and 2. Another feature in the construction of the claws *i i'* consists in so forming them that when the backward movement of the driver B commences, at which time the whole length of the shuttle, except the taper portion terminating in its point, rests on the bottom of the raceway, the lower claw, *i*, will strike the shuttle a little before the upper claw, *i'*, which construction is illustrated in Fig. 2. The effect of this will be that the lower claw will act as a wedge under the lower inclined portion of the shuttle and raise its point slightly in the manner represented in red outline in Fig. 2 before the upper claw strikes it, and after the upper claw also has struck the shuttle the lower claw will continue to hold it

up in the same manner and cause it, during the whole of its backward movement, to rest on the bottom of the raceway only at its heel; or, in other words, prevent it hugging the bottom of the raceway.

It is proper to observe that it is not necessary for the prevention of the shuttle hugging the side of the shuttle-race to adhere strictly to the particular form of bevel herein represented at *e e*, as I have successfully employed the form of a hollow curve, by which the same result has been produced, and which I regard as equivalent.

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

1. The combination of the taper portions of the shuttle and the forked portion of the shuttle-driver which acts upon it to drive it back, in a manner, substantially as described, so that the said portion of the driver bears upon the top and bottom of the shuttle with a tendency to draw it away from or prevent it hugging the side of the raceway.

2. Giving the two claws *i i'*, which produce the backward motion of the shuttle, a relative form, substantially as herein described, by which the shuttle is prevented hugging the bottom of the raceway, as herein set forth.

ABM. BARTHOLF.

Witnesses:
HENRY T. BROWN,
W. TUSCH.