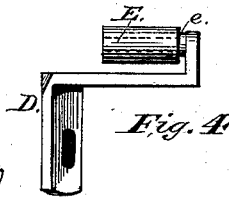
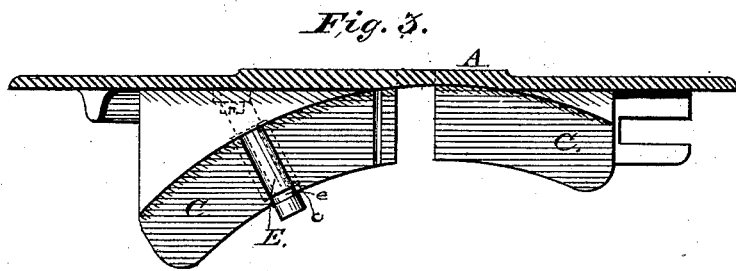
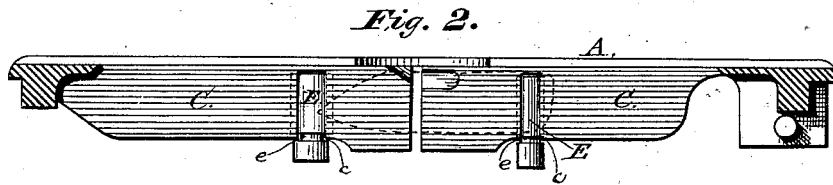
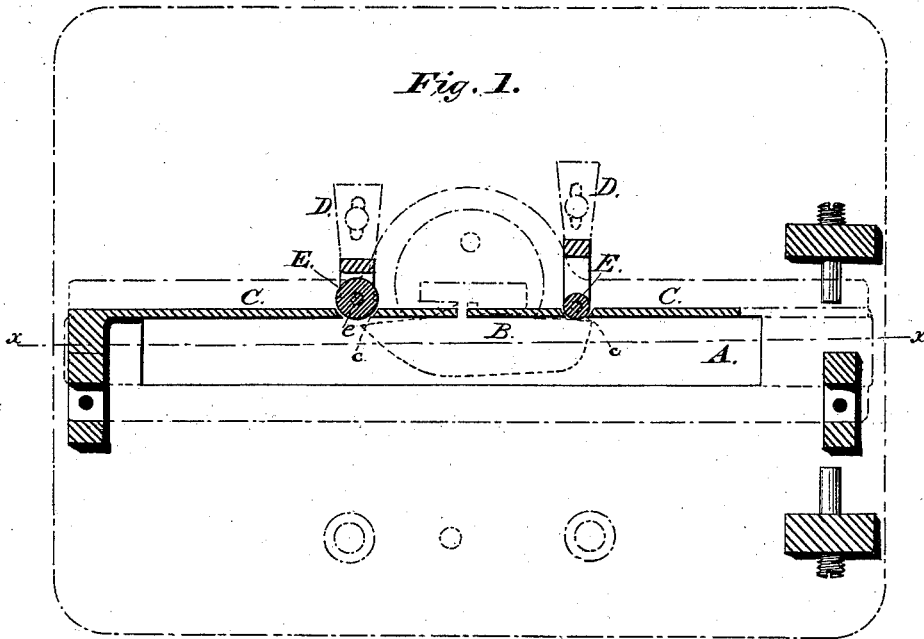


J. M. FAIR & W. HINZE.  
Shuttle-Race for Sewing-Machines.

No. 209,877.

Patented Nov. 12, 1878.



Witnesses:

J. C. Brecht  
J. A. Rutherford

Fig. 4.

Inventors.

John M. Fair,  
William Hinze,

By James L. Norris  
Attorney.

# UNITED STATES PATENT OFFICE.

JOHN M. FAIR AND WILLIAM HINZE, OF BUFFALO, NEW YORK.

## IMPROVEMENT IN SHUTTLE-RACES FOR SEWING-MACHINES.

Specification forming part of Letters Patent No. **209,877**, dated November 12, 1878; application filed September 25, 1878.

*To all whom it may concern:*

Be it known that we, JOHN M. FAIR and WILLIAM HINZE, both of Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Shuttle-Races for Sewing-Machines, of which the following is a specification:

This invention relates to certain improvements in shuttle-races for sewing-machines, its object being to lessen the friction of the shuttle against the front side of the race, lessen the noise of the same in its reciprocations, and facilitate its passage through the loop of the middle thread.

To this end our invention consists in the combination, with the front side of the shuttle-race, of one or more friction-rollers, journaled in adjustable bearings secured to the cloth-plate of the machine in such position that their peripheries may be set just beyond the plane of the front side of the shuttle-race through a slot or slots therein, so that the shuttle in its passage shall travel over said rollers, as more fully hereinafter set forth.

In the drawings, Figure 1 represents a horizontal sectional view, taken just below the cloth-plate, of a sewing-machine, through the shuttle-race thereof; Fig. 2, a longitudinal section through the shuttle-race on the line *x x* of Fig. 1, and Fig. 3 a longitudinal section of a modification of our invention applied to a sewing-machine having a curved shuttle-race. Fig. 4 is a view of a bracket carrying the bearing of the friction-roller and adapted for adjustable attachment to the under side of the bed-plate of the machine.

The letter A represents the cloth-plate of a sewing-machine of the ordinary construction, and C is the front wall of a shuttle-race, in which the shuttle B is adapted to reciprocate by any approved means. The front wall of the shuttle-race is slotted transversely at one or more points, as shown at *c*. The letter D represents adjustable hangers secured to the under side of the cloth-plate, one opposite each slot in the front side of the shuttle-race.

The letter E represents a friction-roller

mounted on a fixed bearing, *e*, secured to or forming part of the adjustable hangers, in such position that its periphery may be adjusted to desired position beyond the outer plane or face of the front wall of the shuttle-race in such manner that the shuttle in its reciprocations may pass transversely against these rollers, having a rolling frictional contact therewith. One or more of said friction-rollers may be employed, as may be found desirable.

In order to prevent the point of the shuttle in its passage over the rollers from grooving the same or becoming injured, the friction-rollers may be made slightly concave in longitudinal section, so that the point of the shuttle will never come in contact with said rollers, the broad part alone being allowed to bear upon said rollers. But for ordinary shuttles having perfectly flat faces, or having their points beveled outward from their faces, we have found perfectly cylindrical rollers to answer very well, and not become abraded or grooved by the shuttle.

It is obvious that, by the construction shown, the wear of both shuttle and race is diminished, a freer movement is obtained, and there is less friction on the loop around the shuttle, as the rollers bear the shuttle off to a considerable extent from the front wall of the race, and the loop-thread is therefore not rubbed between the said wall and shuttle-face, and the wear of the whole lower connection of machine is materially lessened.

What we claim is—

In combination with the shuttle-race of a sewing-machine, one or more friction-rollers, over which the shuttle is adapted to traverse, substantially as and for the purpose specified.

In testimony that we claim the foregoing we have hereunto set our hands in the presence of the subscribing witnesses.

JOHN M. FAIR.  
WM. HINZE.

Witnesses:

C. E. WORLEY,  
JOHN ELLIOTT.