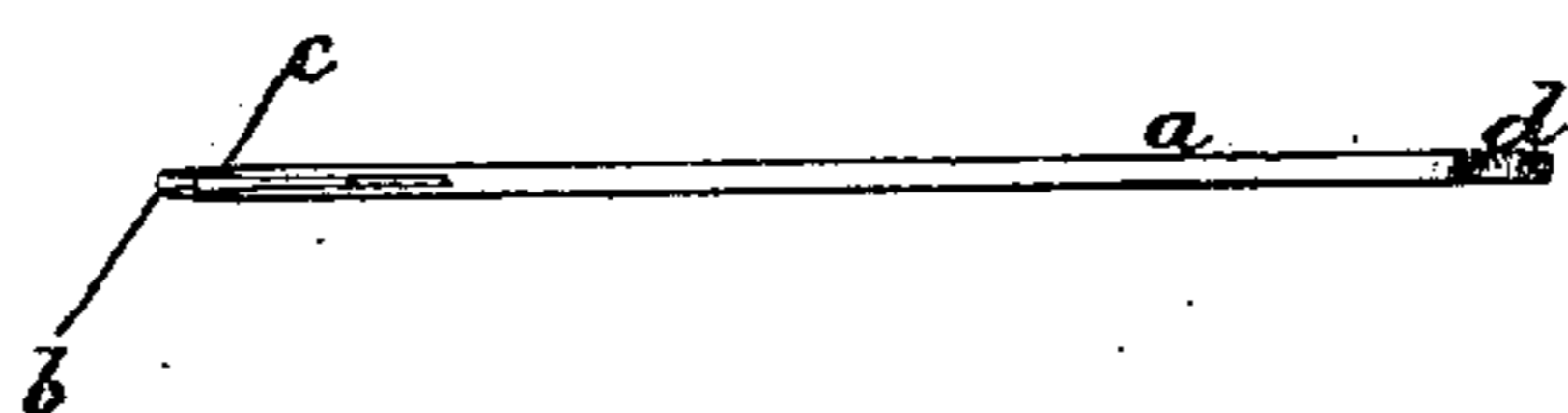


W. AIKEN.  
NEEDLE FOR KNITTING MACHINES.

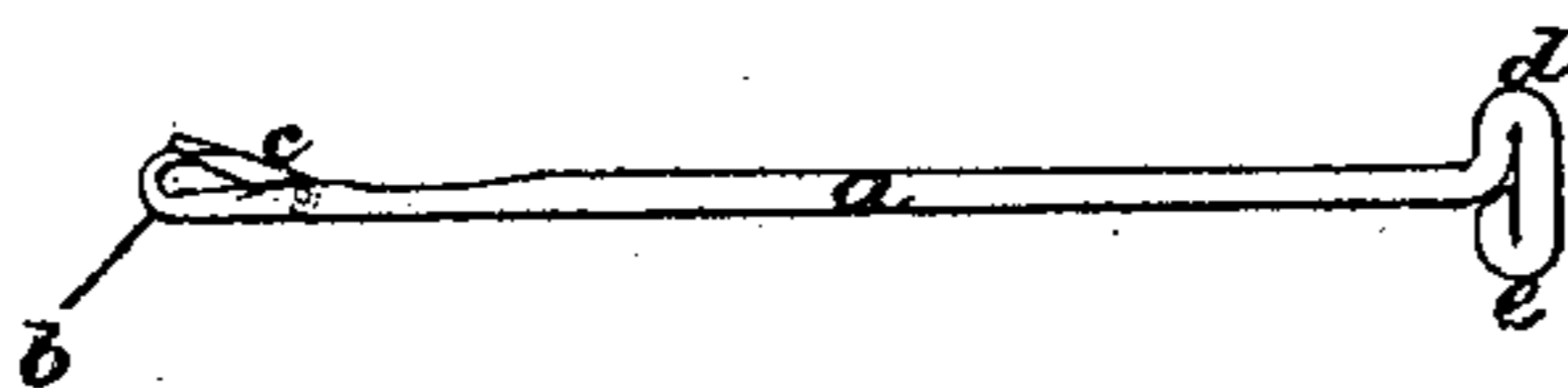
No. 42,824.

Patented May 24, 1864.

*Fig. 1.*



*Fig. 2.*



Witnesses.

Frederick Curtis

H. P. Hale, Jr.

Walter Aiken  
by his attorney  
R. H. Eady

# UNITED STATES PATENT OFFICE.

WALTER AIKEN, OF FRANKLIN, NEW HAMPSHIRE.

## IMPROVEMENT IN KNITTING-MACHINE NEEDLES.

Specification forming part of Letters Patent No. 42,824, dated May 24, 1864.

*To all whom it may concern:*

Be it known that I, WALTER AIKEN, a resident of Franklin, in the county of Merrimack and State of New Hampshire, have invented a new and useful Improvement in Needles for Knitting-Machines; and I do hereby declare the same to be fully described in the following specification and represented in the accompanying drawings, of which—

Figure 1 denotes a top view, and Fig. 2 a side view, of a needle constructed with my said improvement.

The nature of my invention consists in a knitting-machine needle as made with two projections extending in opposite directions from its shank, substantially and for the purposes as hereinafter set forth.

In the drawings, *a* denotes the shank of the needle, which at its front end is provided with a hook, *b*, and a closing tongue, *c*, the needle in such respects not differing from those in common use. The shank *a* has two projections, *d* *e*, one of which projects from and above the shank, while the other extends from and below it, the same being formed either by bending the shank around in manner as shown at *d* *e*, or by any other mode by which such may be accomplished.

The upper projection, *d*, is for effecting, in connection with a cam, the necessary longitudinal movements of the needle while it may be in use in the knitting-machine. The purpose of the auxiliary projection *e* is to steady the needle and prevent it from twining laterally, the said projection *e* when in use extending into a groove or depression of the needle-sustaining groove, usually made in the needle-carrying plate of the knitting-machine.

I am aware that it has been customary to construct the needle with but one projection to its shank, such projection extending up from the rear part or end of the shank and serving both to steady the needle and to aid in effecting its longitudinal movements; in which case steadying ledges or surfaces raised above the general top surface of the needle-plate were essential to the correct operation of this single projection. My improvement enables such an arrangement of these steadying ledges or surfaces to be dispensed with, which is an advantage in the construction of the needle-plate and the parts over it, grooves

sunk in the needle plate and below its top surface being used to receive the lower projections, *e*, of the needles. The upper projections extend into the cam-plate, and this enables the cam-plate to be brought down quite close to or so as nearly to touch the shanks of the needles.

The improved needle costs no more to make than one of the old kind. The object sought by it is not only diminution of friction in the running of the machine, but the preservation of the needle-plate or the plate on which the needles slide. In using the old form of needle, or that which has a single projection, the cam to move it has to be applied from an eighth to a quarter of an inch above the shank of the needle, in which case the strain or leverage of the cam on the needle is such as not only to often break off the projection from the shank in the direction in which the needle may move, or by its pressure at right angles to such direction to break down the steadying ledge.

In the new needle the cam is applied close down to the shank, and consequently the strain or leverage tending to break the cam projection *d* from the shank *a* is not more than half what it is when there is but one projection to the shank. Furthermore, by the application of the cam close to the shank the needle is not only steadied to better advantage, and by the cam-plate, but it is moved much easier or with less friction longitudinally and not crowded so hard laterally as when it has but one projection. The reason why it is moved with less friction longitudinally is that, instead of the needle-shank bearing its whole or nearly its entire length on the lower part of the supporting-groove, it is the lower end of the projection *e*, if anything, which rests on the bottom of its groove, and thus the moving surfaces causing friction are very much diminished.

In fine straight machines having the needle-slots parallel the spaces or walls between the needles are of necessity very thin, and when made for the needle having but one projection are constantly liable to be broken or injured, so much so as to be often a source of great annoyance and expense. By throwing the friction or lateral pressure on a projection extending down from the needle and only half

the distance which the single projection of the old needle extends above the shank, the chance of breakage or bending of the wall will be diminished one-half at least. The preservation of these fine steel needle bars or walls is a matter of much importance, and by the use of the improved needle not only is this accomplished, but the needles will last much longer than those of the old form. In the curved or "round machines" the needle-walls, by being slightly wedge-shaped, are stronger than those used in the "straight ma-

chines," but the operation of the needle with each is the same.

I claim—

The improved knitting-machine needle as made with two projections, *d e*, extending in opposite directions from its shank *a*, substantially as and for the purposes hereinbefore specified.

WALTER AIKEN.

Witnesses :

GEORGE L. SANBORN,  
E. G. WALLACE.