F. M. ELLMS & J. MILLS.

Last-Block Fastener.

No. 201,100. Patented March 12, 1878.

Fig. 1

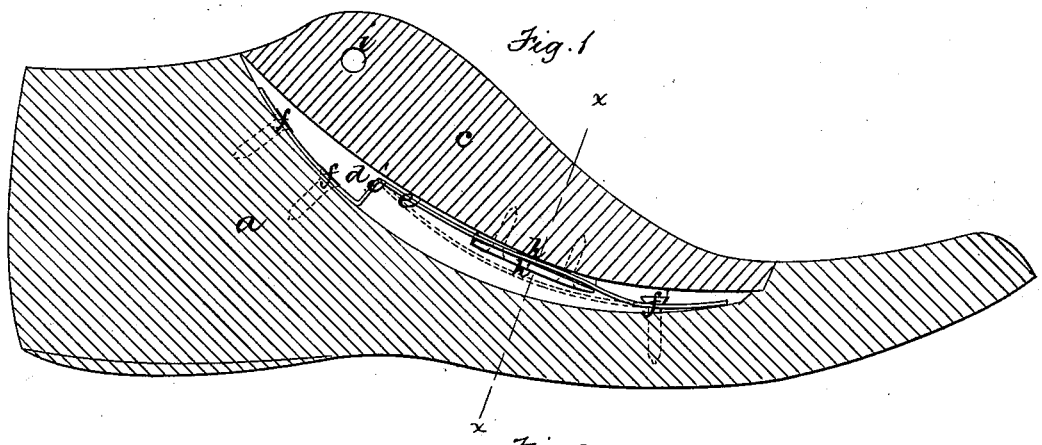


Fig. 2.

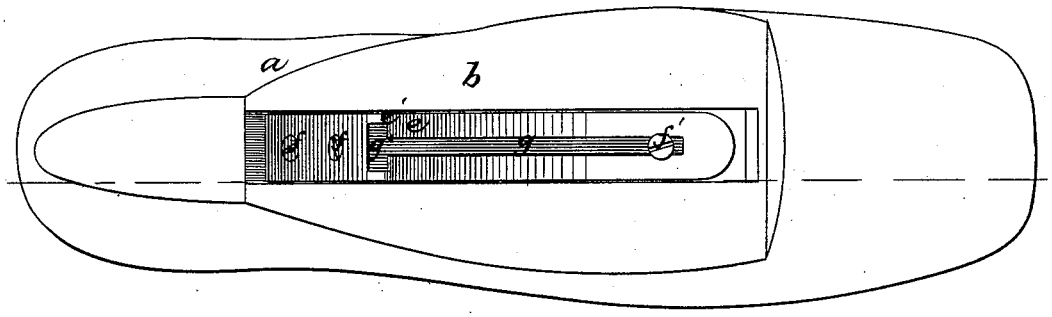


Fig. 3.

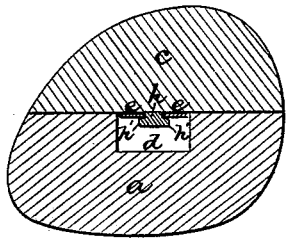


Fig. 4.

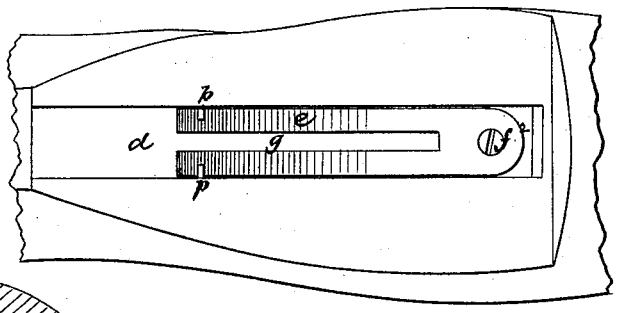
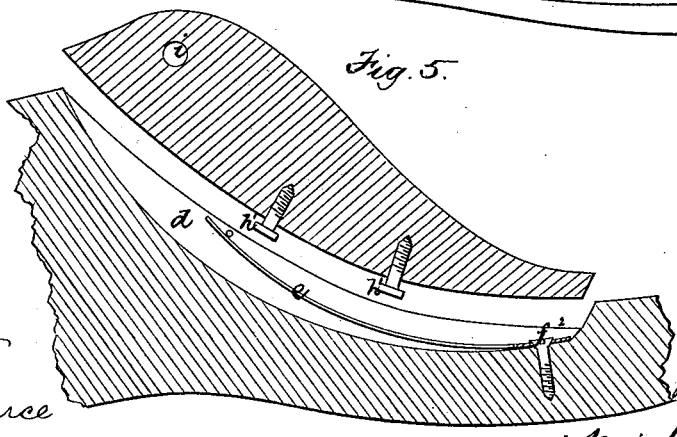


Fig. 5.



Witnesses.
W. F. Norton
Geo. H. Pierce

Inventors
F. M. Ellms
John Mills
by Attys.
Wright & Brown

UNITED STATES PATENT OFFICE.

FRANK M. ELLMS AND JOHN MILLS, OF STOUGHTON, MASSACHUSETTS.

IMPROVEMENT IN LAST-BLOCK FASTENERS.

Specification forming part of Letters Patent No. **201,100**, dated March 12, 1878; application filed January 26, 1878.

To all whom it may concern:

Be it known that we, FRANK M. ELLMS and JOHN MILLS, both of Stoughton, in the State of Massachusetts, have invented certain Improvements in Last-Block Fasteners, of which the following is a specification:

This invention relates to that class of last-block fastenings in which a spring-plate is applied to the last under the block, and engages with a stud or projection on the under side of the block to hold the block upon the last.

Heretofore, in fastenings of this class, the spring-plate has been attached to the last at one end only, its opposite end being free to rise and fall, so that it will not hold the block positively and firmly down to the last, but its tendency to yield at one end will render the block liable to be displaced or lifted accidentally. Another difficulty with this class of fastenings has been that the stud or projection on the block engaging with the spring has heretofore been circular, like the head of a screw. This form causes the stud or projection to act as a pivot, on which the block is liable to turn, especially when allowed to be displaced or lifted by the yielding of the spring.

Our invention has for its object to provide a fastening of the above-named class in which the objections recited will be overcome; and to this end it consists in a last-block fastener consisting of a spring-plate attached or secured to the last at both ends, and an oblong stud, or its equivalent, applied to the under surface of the block, and adapted to engage with the plate between the points where the latter is attached or secured, as I will now proceed to describe.

In the drawings forming a part of this specification, Figure 1 represents a longitudinal section of a last-block provided with my improvement. Fig. 2 represents a top view of the same without the block. Fig. 3 represents a section on line *x x*, Fig. 1. Fig. 4 represents a top view, and Fig. 5 a section of a modification.

Similar letters of reference indicate corresponding parts.

In the drawings, *a* represents the last, which is provided with the usual curved seat *b*, on which the last-block *c* rests when in position. We provide the seat *b* with a longitudinal recess, *d*, and in this recess we locate a spring-plate, *e*, which is rigidly connected to the last at one end by screws *f f*, and is held against the last at the other end by a screw, *f*, passing through a longitudinal slot, *g*, in the plate, the screw *f* holding the end of the spring against the last, but permitting it to move longitudinally to some extent. The spring *e* is bent to form a shoulder, *e'*, near the point where it is attached by the screws *f f*, and in this shoulder is an opening, *g'*, which communicates with, and is wider than, the slot *g*, as shown in Fig. 2. The recess *d* is of such depth that the shoulder *e'* does not project beyond the seat *b*, as shown in Fig. 1.

To the under side of the block *c* we attach a lug, *h*, which is provided with two flanges, *h' h'*. This lug is of such form in cross-section, and is so located with reference to the spring *e*, that when the block is placed on its seat and moved along the same longitudinally toward the toe the flanges *h'* of the lug will pass through the opening *g'* in the shoulder of the spring *e*, and, by a continued movement of the block, said flanges will pass under the spring on each side of the slot *g*, the neck of the lug *h* moving in said slot, as shown in Fig. 3. As the block is moved along toward the toe of the last the flanges *h'* force upwardly the portion of the spring bearing upon them, the resulting flexure of the spring causing it to exert a strong downward pressure upon the flanges *h'*, the pressure becoming greater the farther the block is moved down, so that by the time the block is in its proper position the spring will exert sufficient downward pressure on the flanges *h'* to hold the block with the desired firmness against outward and endwise displacement, the bearing of the neck of the lug *h* against the sides of the slot preventing lateral displacement. The fastening thus effected is sufficiently secure to answer all requirements, and is at the same time sufficiently yielding to enable the block to be withdrawn by a hook inserted in a hole, *i*, in the usual manner.

The lug *h*, when made in one piece, should be longer than it is wide, to prevent its acting as a pivot, and enabling the block to turn. If desired, two lugs or fillister-headed screws may be used, as shown in Fig. 5, the heads of

the screws forming the flanges h', and operating as above described.

It will be seen that it is necessary that the spring should be rigidly attached to the last at one end, and be held down, yet enabled to move longitudinally, at the other end, to permit the described flexure by the flanges h', and to prevent the spring from yielding or springing outwardly at one end, and thus allowing the block to be displaced. It is also necessary that the spring should stand out at one end, so that the flanges h' can pass under it.

We do not limit ourselves, however, to the construction of the spring shown in Figs. 1 and 2, as the shoulder e and its opening may be omitted, as shown in Figs. 4 and 5, in which case the spring should be rigidly attached to the last at f^2 and unattached at its opposite end, the spring being bent to stand out from the bottom of the recess at its unattached end.

To prevent the block from being moved away from the last by the yielding of the spring at one end when constructed as shown in Figs. 4 and 5, we preferably provide the last with pins $p\ p$, extending partly across the recess d over the free end of the spring, and forming stops to limit the outward movement of said free end.

We claim as our invention—

A last-block fastener consisting of a spring-plate, e, attached or secured to the last at both ends, and a stud, h, or its equivalent, applied to the under surface of the block, and adapted to engage with the plate e between the points where the latter is attached or secured, substantially as set forth.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

FRANK M. ELLMS.
JOHN MILLS.

Witnesses:
JABEZ TALBOT, Jr.,
LEMUEL H. SOUTHURTT.