A. A. MERRITT & G. H. NOBLE.

OVERSEAM SEWING MACHINE.

APPLICATION FILED JAN. 14, 1909.

967,804.

Patented Aug. 16, 1910.

2 SHEETS—SHEET 1.

Fig. 1.

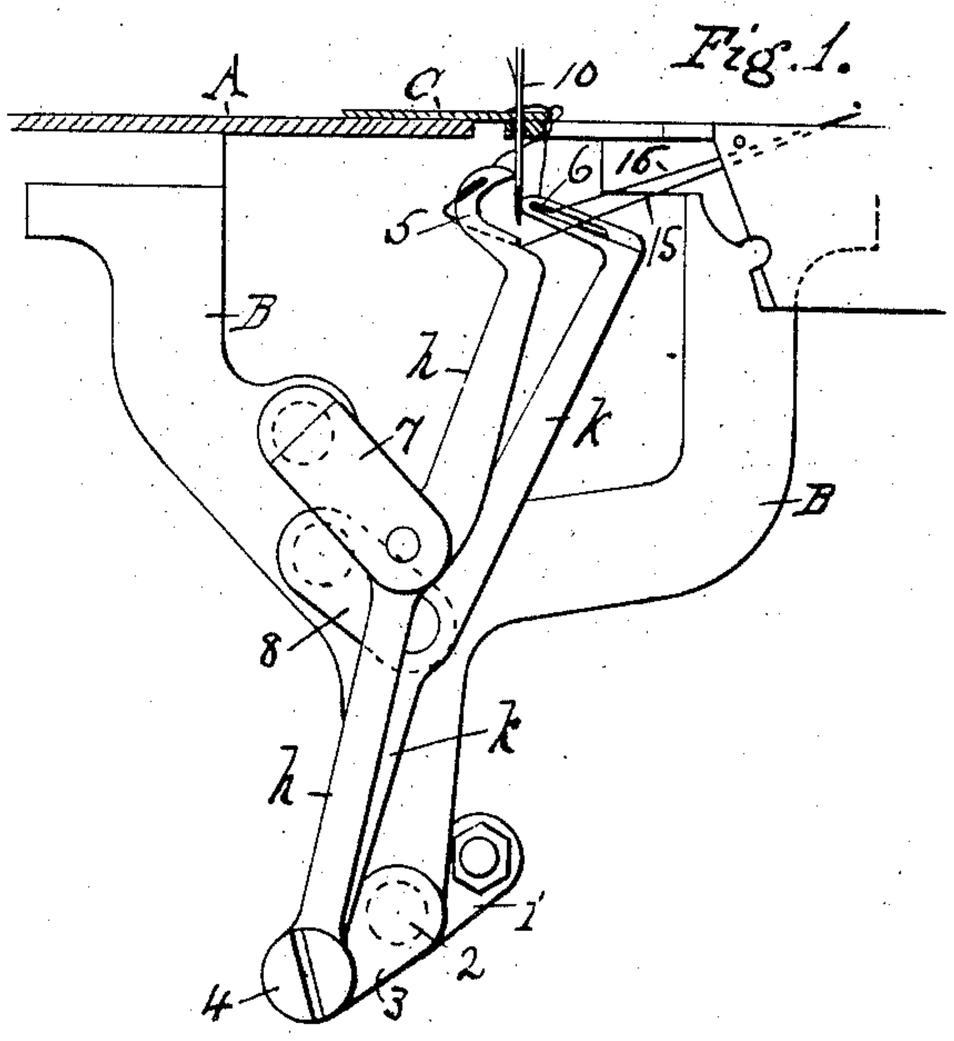



Fig. 2.

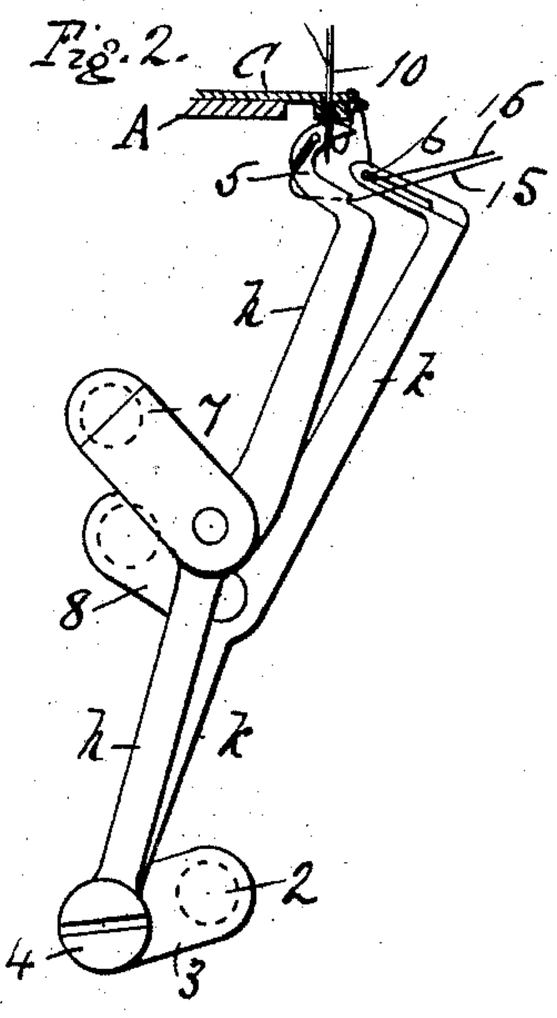



Fig. 3.

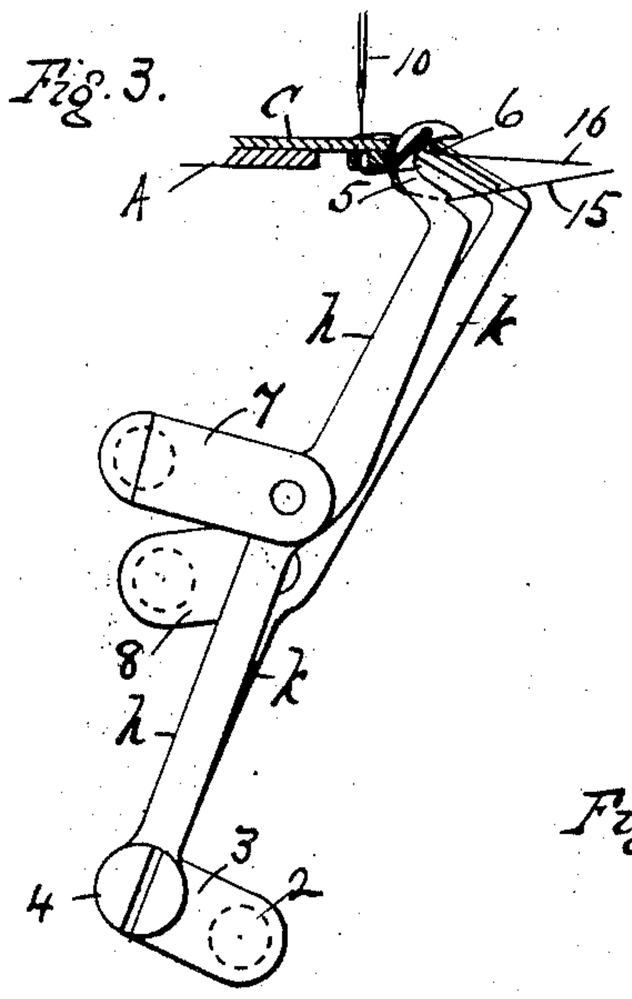



Fig. 4.

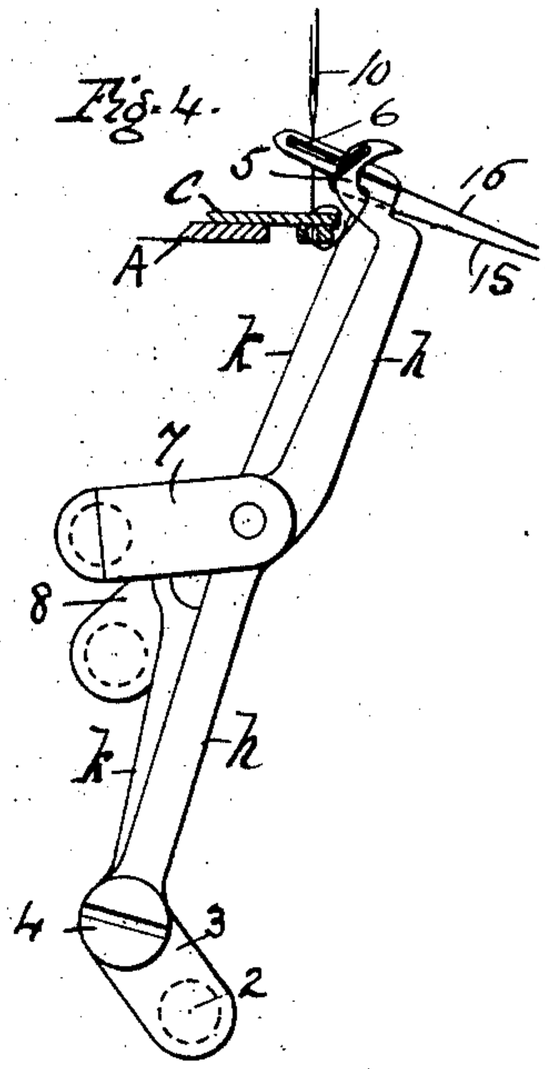
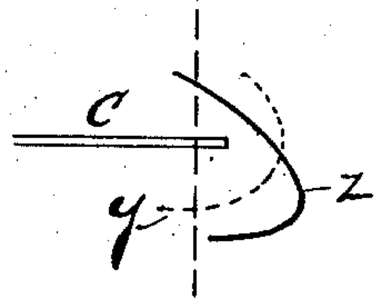



Fig. 6




WITNESSES

L. H. Grote

William Cobb

INVENTORS.

Arthur A. Merritt

George H. Noble

BY

Howson and Howson

ATTORNEYS

A. A. MERRITT & G. H. NOBLE.

OVERSEAM SEWING MACHINE.

APPLICATION FILED JAN. 14, 1909.

**967,804.**

Patented Aug. 16, 1910.

2 SHEETS—SHEET 2.

Fig. 5

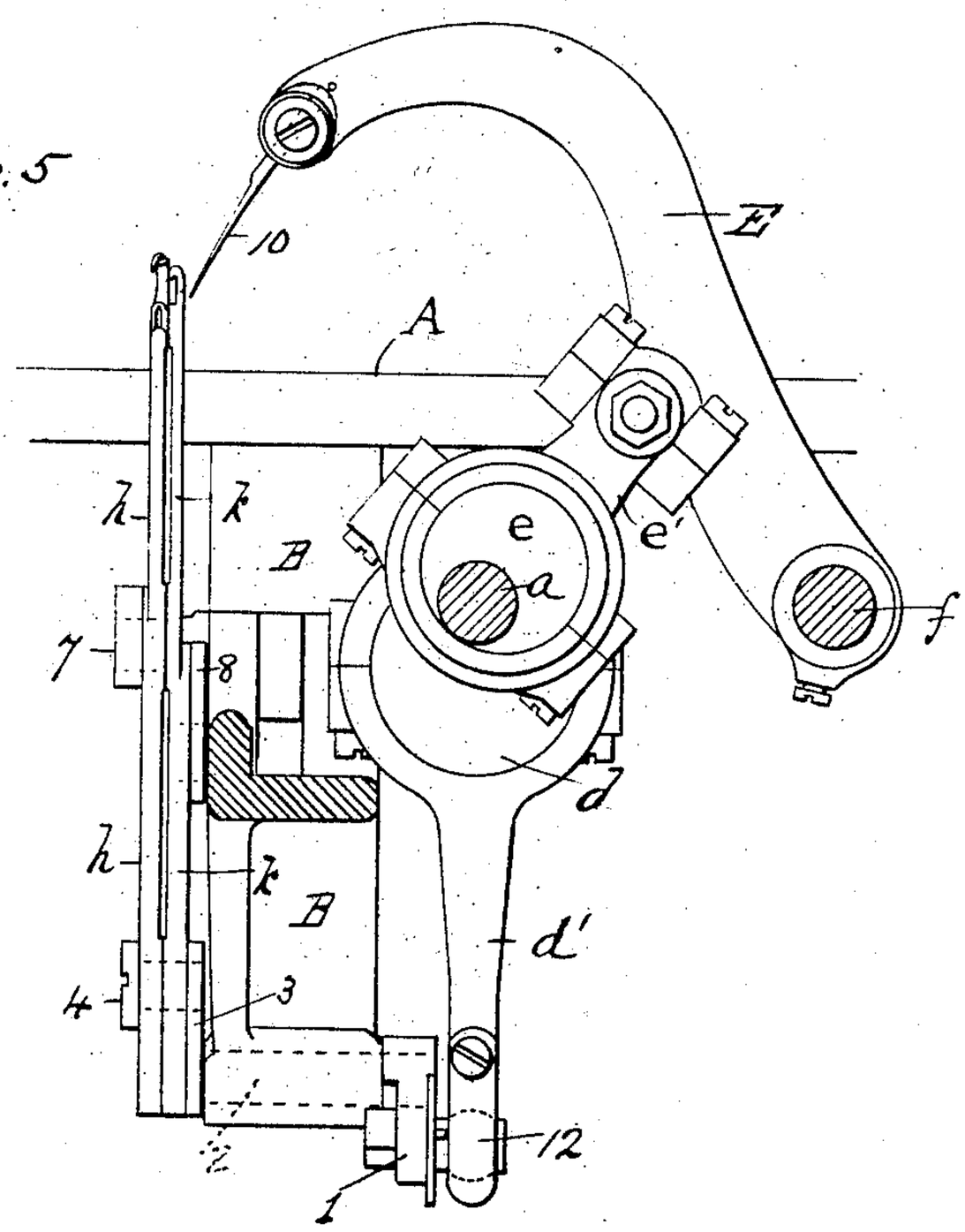



Fig. 7.

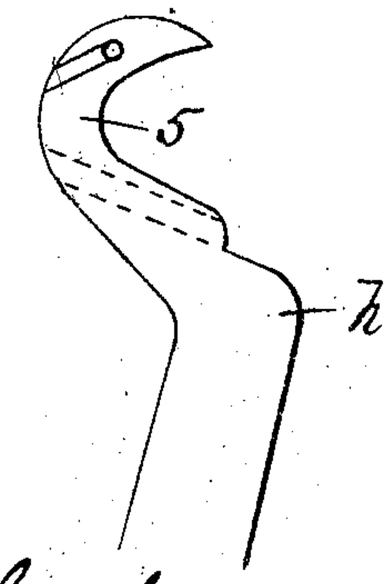
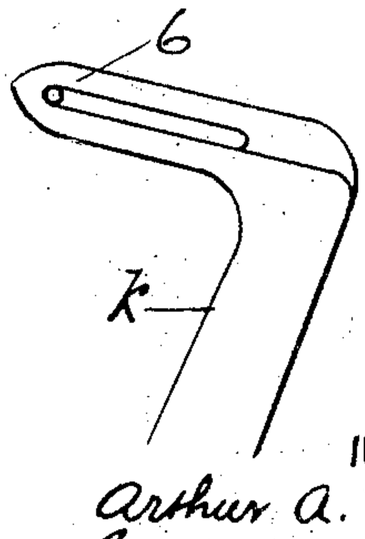



Fig. 8.




WITNESSES

L. H. Grote

William Abbe

INVENTORS

Arthur A. Merritt

George H. Noble

BY

Howson and Howson

ATTORNEYS

# UNITED STATES PATENT OFFICE.

ARTHUR A. MERRITT, OF WORCESTER, MASSACHUSETTS, AND GEORGE H. NOBLE, OF PROVIDENCE, RHODE ISLAND, ASSIGNORS TO WILLCOX AND GIBBS SEWING MACHINE COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

## OVERSEAM SEWING-MACHINE.

967,804. Specification of Letters Patent. Patented Aug. 16, 1910.

Application filed January 14, 1909. Serial No. 472,286.

*To all whom it may concern:*

Be it known that we, ARTHUR A. MERRITT and GEORGE H. NOBLE, both citizens of the United States of America, residing in the city of Worcester, in the county of Worcester, in the State of Massachusetts, and in the city of Providence, in the county of Providence, in the State of Rhode Island, respectively, have invented certain new and useful Improvements in Overseam Sewing-Machines, of which the following is a specification.

This invention relates to overseam sewing machines, more particularly to that type in which a reciprocating eye-pointed needle is combined with two thread-carrying loopers to form an overseam stitch of the buttonhole stitch character out of three threads.

The main object of the invention is to construct an overseamer of simple construction adapted to do work of this character at high speed.

In the accompanying drawings this invention is shown as embodied in an overseam sewing machine of the same general construction as those illustrated in the Willcox and Borton Patents Nos. 472,094 and 472,095, April 5th, 1892.

Figure 1 is a vertical sectional view of sufficient of the executive elements and frame of the machine to illustrate the invention; Figs. 2, 3, and 4 are views showing the same executive elements in successive positions in the formation of the stitch; Fig. 5 is a vertical section in a plane at right angles to the section, Fig. 1, but showing the moving parts in the position, Fig. 4; Fig. 6 is a diagram illustrating the paths of movement of the needle and looper parts; Figs. 7 and 8 are enlarged views of the loopers.

In these views, A is the bed plate of the machine, and *a*, Fig. 5, is the driving shaft carrying eccentrics or cams to impart motion to all the moving parts. Thus in Fig. 5, the shaft *a* carries an eccentric *e* having its eccentric strap and link $e^1$ pivotally connected to the needle arm E, which oscillates about a fixed center *f*. The outer end of this needle arm E carries the usual curved eye-pointed needle 10. In this machine the looping means coöperating with this reciprocating needle 10 to form the overseam stitches consist of two pivoted looper elements having their operative ends traveling in parallel planes diagonal to the line of the needle's movement, but describing two curved paths around the edge of the cloth C, those curved paths intersecting each other in such a way that the first looper element may pass its loop of thread through the loops of thread carried by the needle when the latter is below the cloth, and subsequently the second looper intersecting the path of the first looper after the latter has passed partly around the edge of the cloth, will pass the second looper thread through the first looper thread and (thereafter) into the path of the needle above the cloth, to form the three-thread overseam stitch, in the well-known manner described in the Lindley and Taylor British Patent No. 215, January 25th, 1864.

The two thread-carrying looper elements 5 and 6 are mounted upon or are formed on the upper ends of shanks *h* and *k*, respectively, lying closely side by side in vertical planes (Fig. 5) on the underside of the cloth plate A. These shanks are both mounted upon the same pivot pin 4 of a crank arm 3 on a short crank shaft 2, which is mounted in a bearing in the lower end of a bracket B, secured to the underside of the bed plate. At the opposite end of this shaft 2 from the crank arm 3 is a crank arm 1, (Figs. 1 and 5) to which is pivotally connected with the usual ball joint 12 the connecting rod $d^1$ (Fig. 5) with its strap embracing, and actuated by, the eccentric *d* on the main shaft *a*.

The oscillating movements imparted to the two looper shanks *h* and *k* through the crank shaft 2 are guided and controlled by links or radius arms 7 and 8, respectively, swinging on centers in the bracket B, so that the loopers 5 and 6 are caused to oscillate in two parallel planes diagonal to the line of the needle's movement (Fig. 5), the paths of travel of these two loopers intersecting each other, as indicated in the diagram, Fig. 6. This diagram is taken as looking at the parts as Figs. 1 to 4, C indicating the cloth, while *x* indicates the needle path, *y* indicates the path of looper 5, and *z* indicates the path of looper 6. In these drawings it has been thought best for the sake of clearness and simplicity to omit all illustration

of the parts of the machine not strictly pertaining to the present invention, such as the feed motion, presser foot, take-ups and tensions, as they may be of any suitable construction. Illustrations of adaptable devices of that character are found in the patents hereinbefore referred to.

From the foregoing explanations, it will be understood that the three-thread stitch is formed in the following manner, starting with the parts in the positions shown in Fig. 1:—The needle 10 has descended through the cloth C and is beginning to rise again, and as it does so, it forms a loop of its own thread on the rear side of the needle, and the hooked end of the looper 5 passes into this loop, as the looper moves to the right as indicated in Fig. 2. As the looper continues to move to the right and upwardly in the curved path *y*, Fig. 6, it thrusts its own loop of thread 15 through the needle thread, and at the same time pulls the needle loop over toward the edge of the cloth, while the needle rises, Fig. 3. At the same time the looper 6 has been traveling in the same general direction on its path *z*, Fig. 6, and when the looper 5 has risen a certain distance around the edge of the cloth C the looper 6 crosses the path of the looper 5 and thrusts its loop of thread 16 through the loop carried by the looper 5 and moves into a position in front of the needle to carry that loop of the second looper over into the path of the now descending needle 10, Fig. 4, so that the needle then carries its thread down through that loop of the looper 6 and through the cloth to the position, Fig. 1, again, and so on.

We claim as our invention—

1. In an overseam sewing machine, the combination of a reciprocating eye-pointed needle with two loopers, means for reciprocating the loopers in parallel planes, diagonal to the line of the needle's movement and separate radius rods pivotally connected to the respective loopers to control and guide their reciprocating movements in two curved paths intersecting each other.

2. In an overseam sewing machine, the combination of a reciprocating eye-pointed needle with two loopers, a common crank shaft to which the shanks of the two loopers are both connected, and two radius rods pivotally connected to the respective looper shanks to control and guide the travel of the loopers in two curved paths, intersecting each other.

3. In an overseam sewing machine, the combination of a reciprocating eye-pointed needle with two thread-carrying loopers, means for reciprocating the loopers in parallel planes, diagonal to the line of the needle's movement and separate radius rods pivotally connected to the respective loopers to control and guide their reciprocating movements in two curved paths intersecting each other to form a three-thread overseam.

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

ARTHUR A. MERRITT.
GEORGE H. NOBLE.

Witnesses:
H. A. W. HAYWARD,
JOHN T. CRANSHAW.