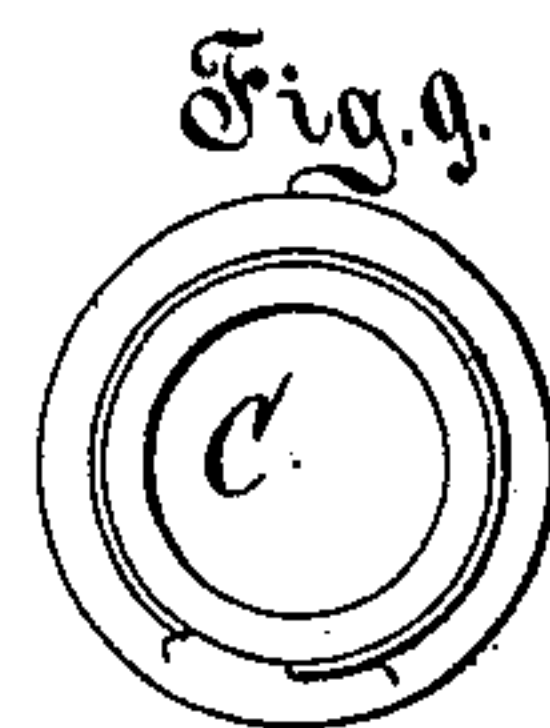
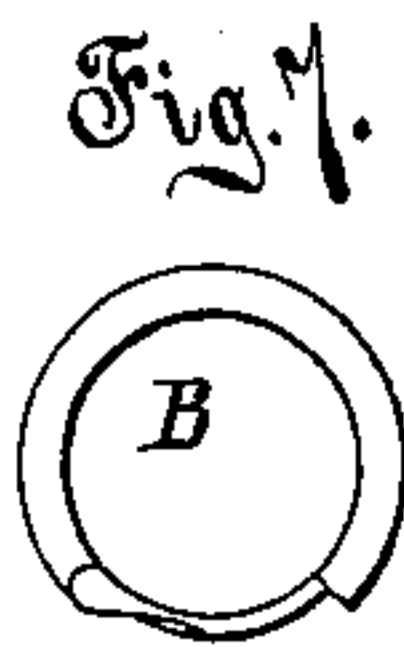
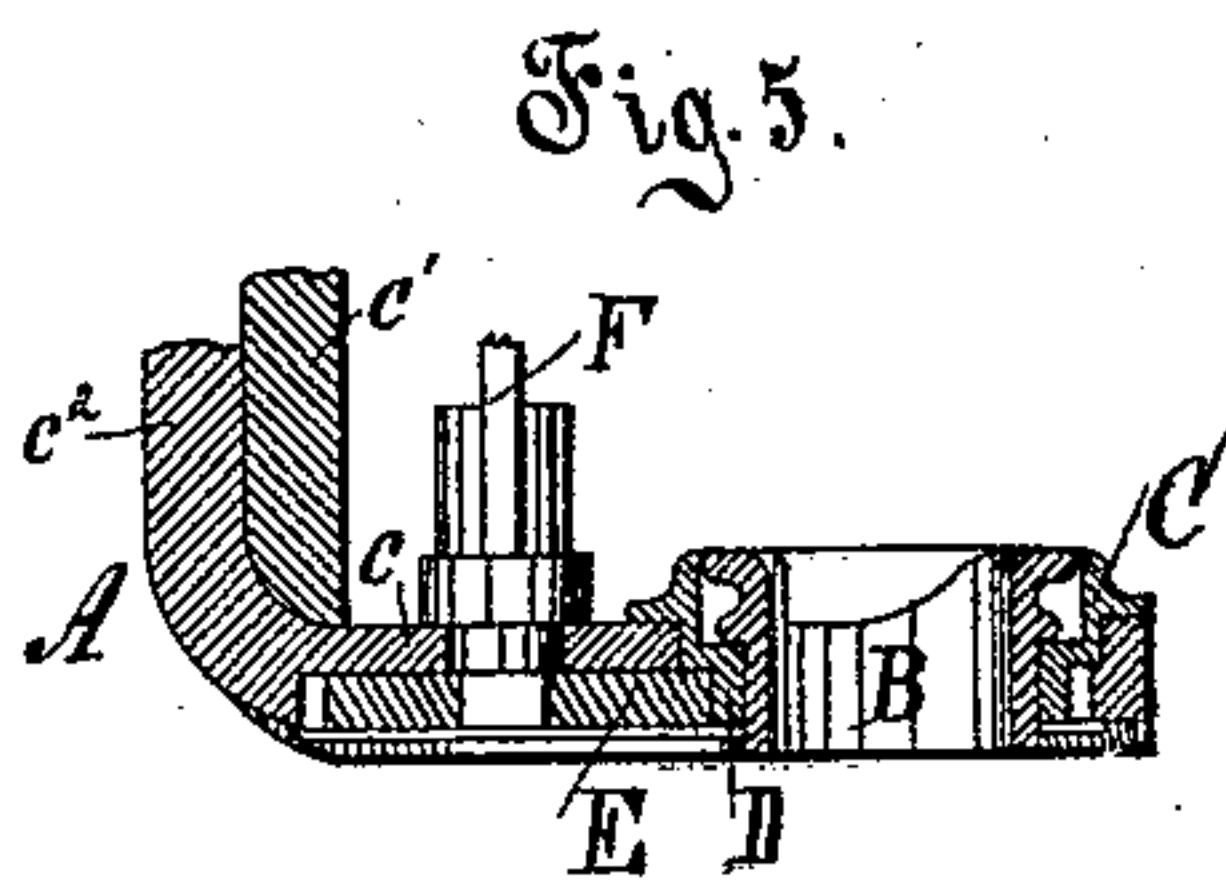
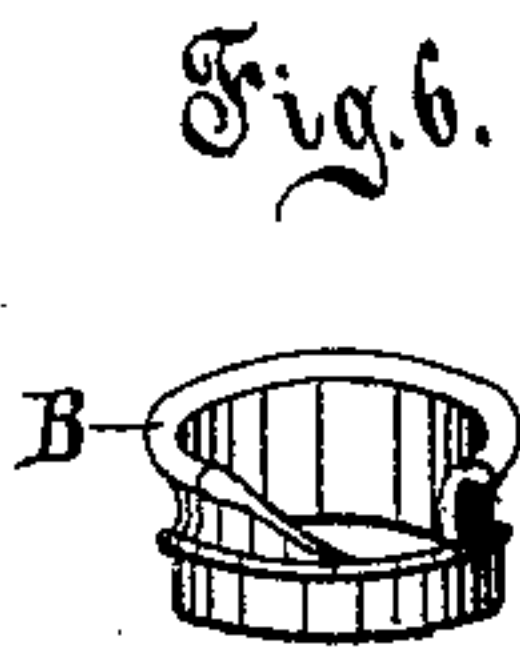
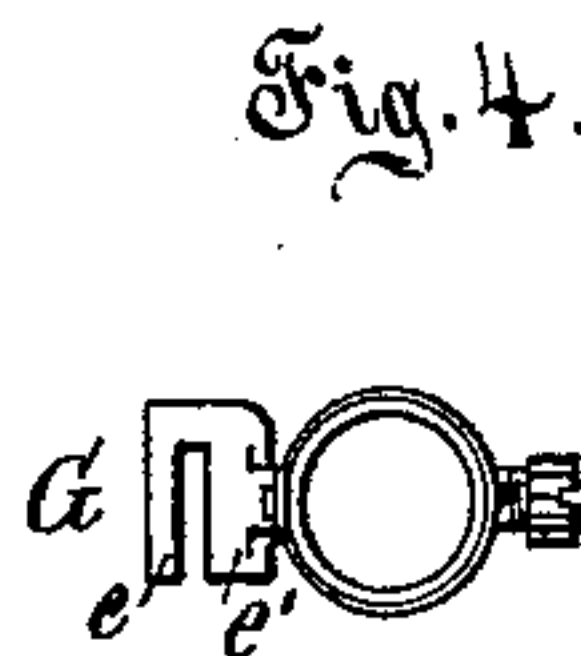
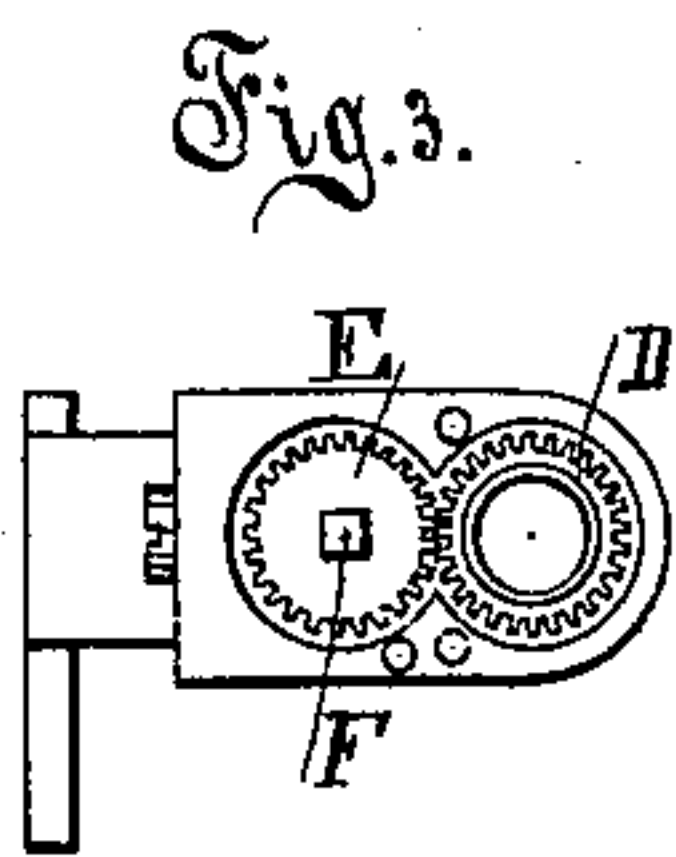
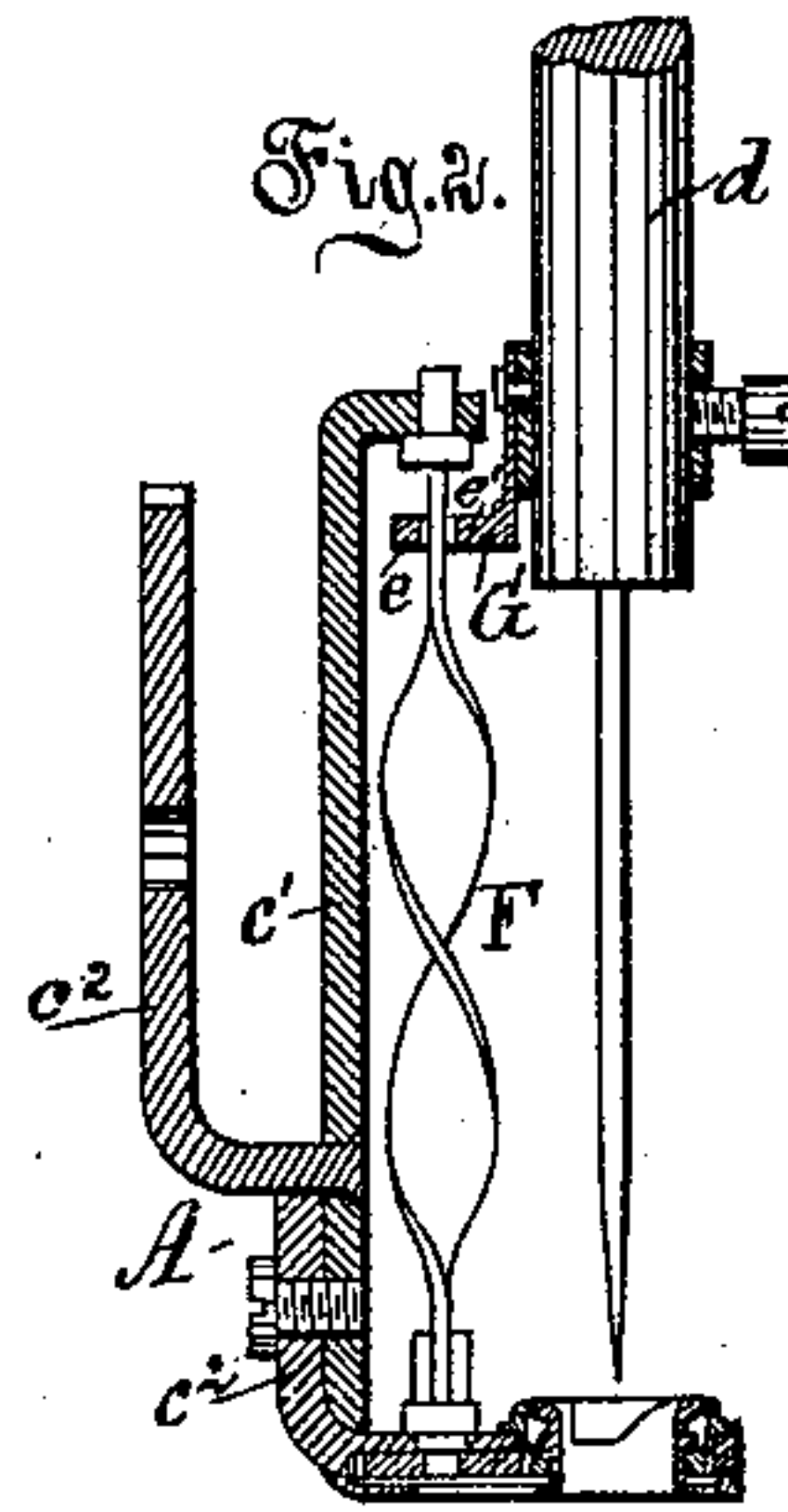
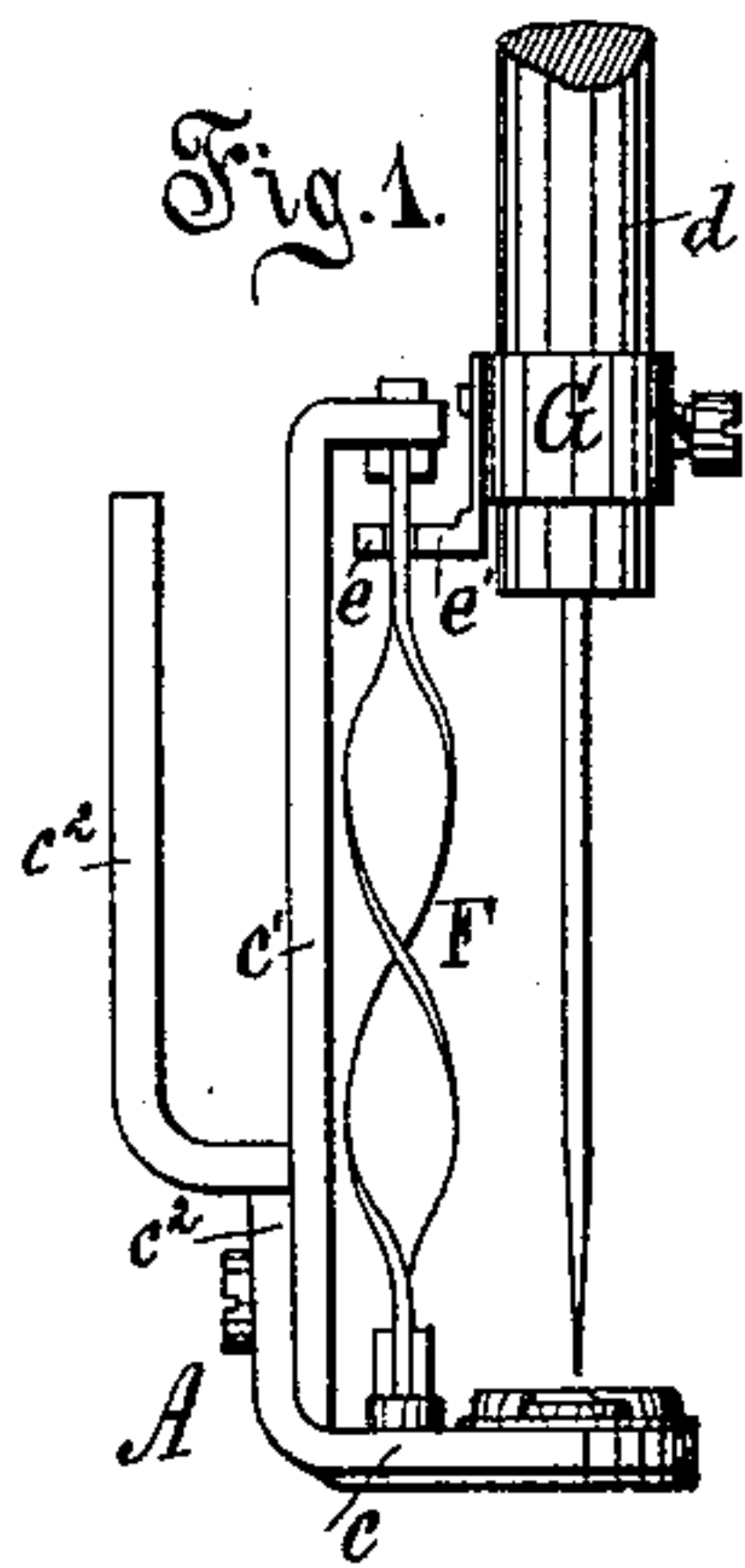


G. E. HART.
Embroidering Attachment for Sewing-Machines.

No. 200,452.

Patented Feb. 19, 1878.



Witnesses:

T. E. Clark

W. F. Clifton

Inventor:

George E. Hart

By *J. F. Kitch*
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UNITED STATES PATENT OFFICE.

GEORGE E. HART, OF NEWARK, NEW JERSEY, ASSIGNOR TO AMASA MASON, OF NEW YORK, N. Y.

IMPROVEMENT IN EMBROIDERING ATTACHMENTS FOR SEWING-MACHINES.

Specification forming part of Letters Patent No. **200,452**, dated February 19, 1878; application filed December 31, 1877.

To all whom it may concern:

Be it known that I, GEORGE E. HART, of the city of Newark, in the State of New Jersey, have invented an Improved Braid-Making and Embroidering Sewing-Machine Attachment, of which the following is a specification, reference being had to the accompanying drawings, in which is shown, in—

Figure 1, a side elevation of the said attachment embodying my invention. Fig. 2 is a vertical central section of the same; Fig. 3, a bottom view of the same with the bottom plate removed, exposing to view the interior mechanism; Fig. 4, a plan of the forked arm G, (seen in Figs. 1 and 2;) Fig. 5, an enlarged sectional view of the lower part of Fig. 2; and Figs. 6, 7, 8, and 9, detailed views of the laying-hub and loop-carrier.

The entire mechanism whereby the braid-making and embroidering are accomplished is combined with, and carried by, what is known as the "presser-foot" of a sewing-machine, and is therefore adapted to be employed on the sewing-machines in general use.

A represents a presser-foot, which carries the devices whose special office is to throw the braid-making and embroidering thread, so as to form with it the desired stitch. The form of the same which is used is represented, consisting of a fixed laying-hub, B, and rotary reciprocating loop-carrier C, being the same in form and operation as are described and shown in Letters Patent of the United States No. 183,330, dated October 17, 1876, and for the construction and operation of said hub and loop-carrier reference is made to said patent.

D and E are two gears, the former being on an annulus surrounding and formed on or secured to the carrier C, and the latter a toothed wheel or disk secured on the shaft F. This shaft F is arranged to rotate in bearings at its ends, the lower one being in the lower or horizontal part *c* of the presser-foot, and the upper one in the bracket *c'*, or arm secured to or formed on the said foot. This shaft is formed of a flat bar, which is twisted, as shown in the drawings, thus forming a long-pitched screw.

G is an arm, to be secured upon the needle-bar, a piece of which needle-bar is intended

to be represented at *d*. This arm is forked at its outer end, as shown in the drawings, the two parts or fingers *e e'* being adapted to embrace the bar or shaft F, and fitted to slide loosely up and down the same over the twist or screw, thereby imparting to it a reciprocating rotary motion, as the needle-bar is vertically reciprocated in the act of sewing. By these means the loop-carrier C has given to it the requisite reciprocating rotary motion, the same being communicated to it from the said shaft F through the gears D E.

The several parts are so proportioned and adapted that the precise motion is given to the said loop-carrier that is required, as described in the said before-named patent; and this any competent mechanic will know how to accomplish.

The necessary cessation of motion of the loop-carrier, after being rotated by the upward movement of the needle-bar and before it commences its reverse rotation, is accomplished by leaving a portion of the shaft F at its upper end plane, as at *f*.

In place of the twisted or screw shaft F and forked arm G, if preferred, the shaft may be a cylinder having a spiral groove or slot, with a pin in the arm G working in said slot or groove.

The advantages of my improvement are obvious. The devices have a positive motion, are simple and not liable to get out of order in use, and it gives the opportunity of making the presser-foot quite thin, thereby enabling the operator to plainly see his work.

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

In combination with the presser-foot A, carrying the bracket *c'*, and the fixed laying-hub B and loop-carrier C, the spirally-grooved shaft F, adapted to be operated by a projection upon the needle-bar of a sewing-machine, and the gears D and E, all constructed and arranged to operate substantially as and for the purpose specified.

Witness my hand this 28th day of December, 1877.

GEORGE E. HART.

Witnesses:

F. A. JORGENSEN,
CHAS. W. HOWELL.