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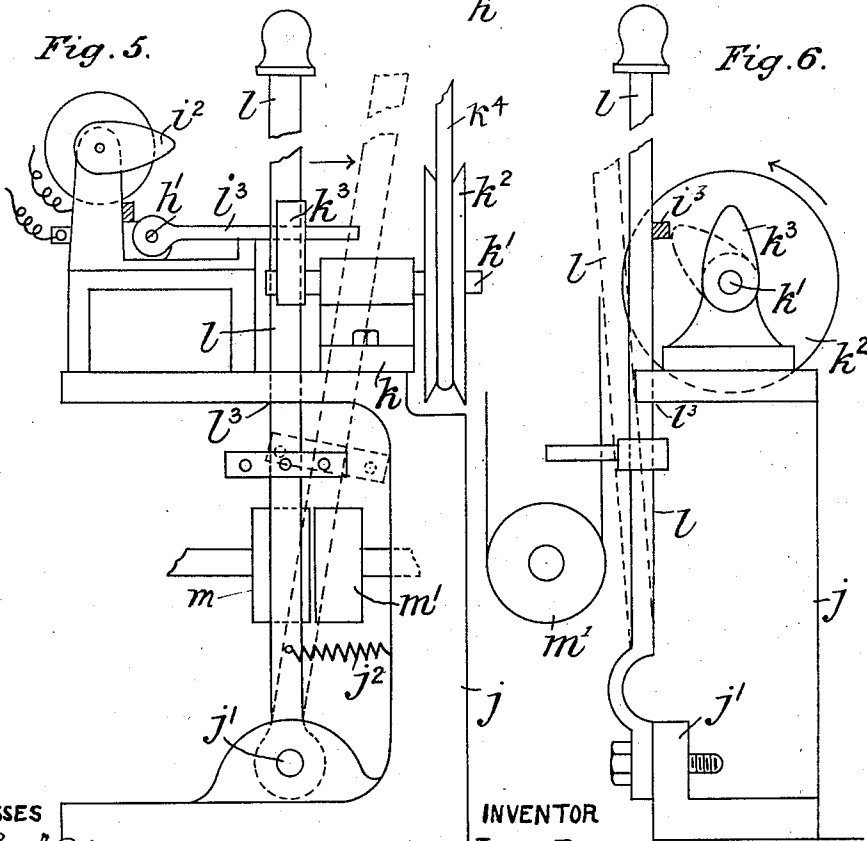
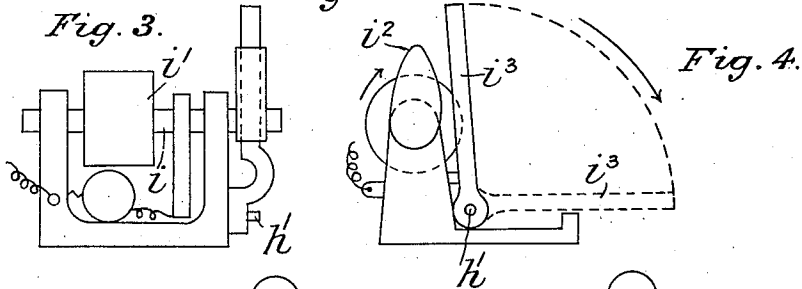
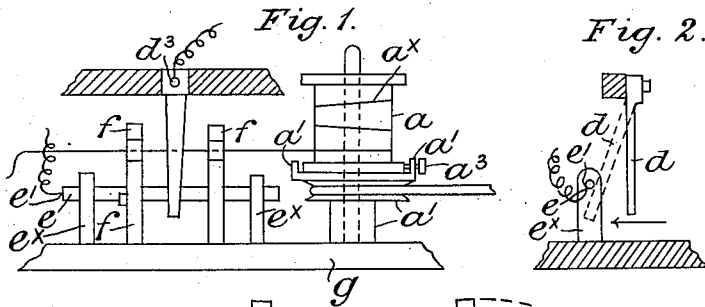
PATENTED MAY 26, 1908.

J. BEATTIE.

STOPPING GEAR FOR SEWING MACHINES.

APPLICATION FILED JULY 10, 1905.

3 SHEETS—SHEET 1.



WITNESSES

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FIG. 9

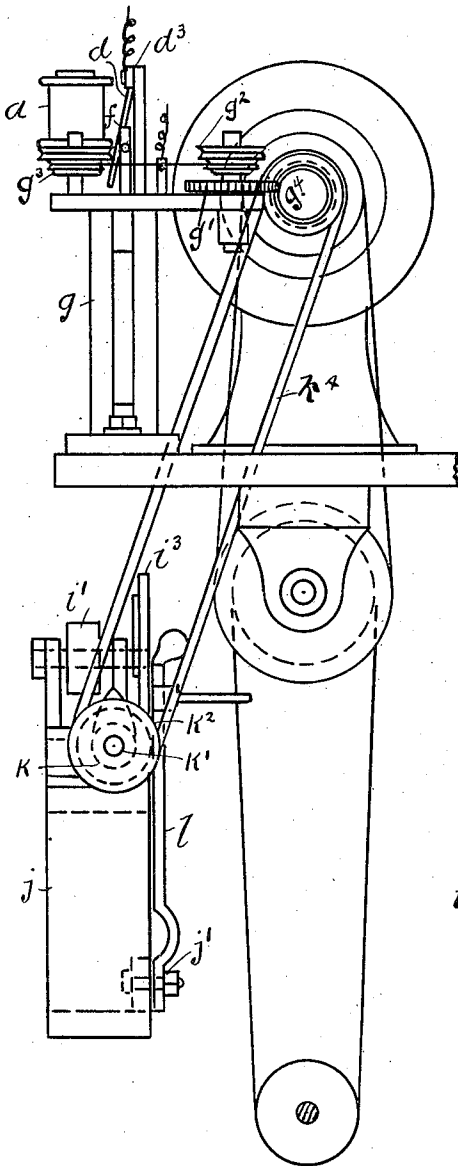


FIG. 10

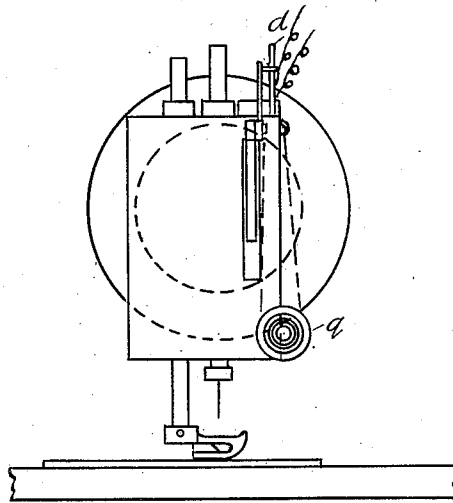
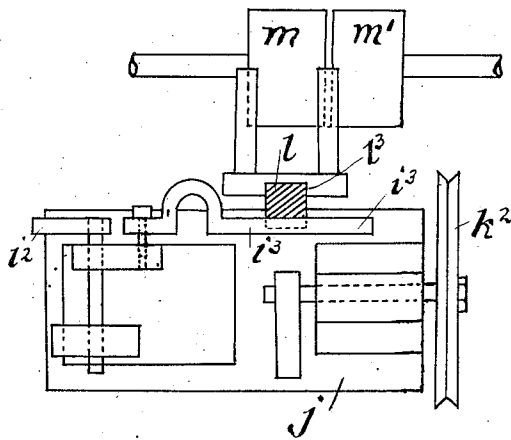


FIG. 7



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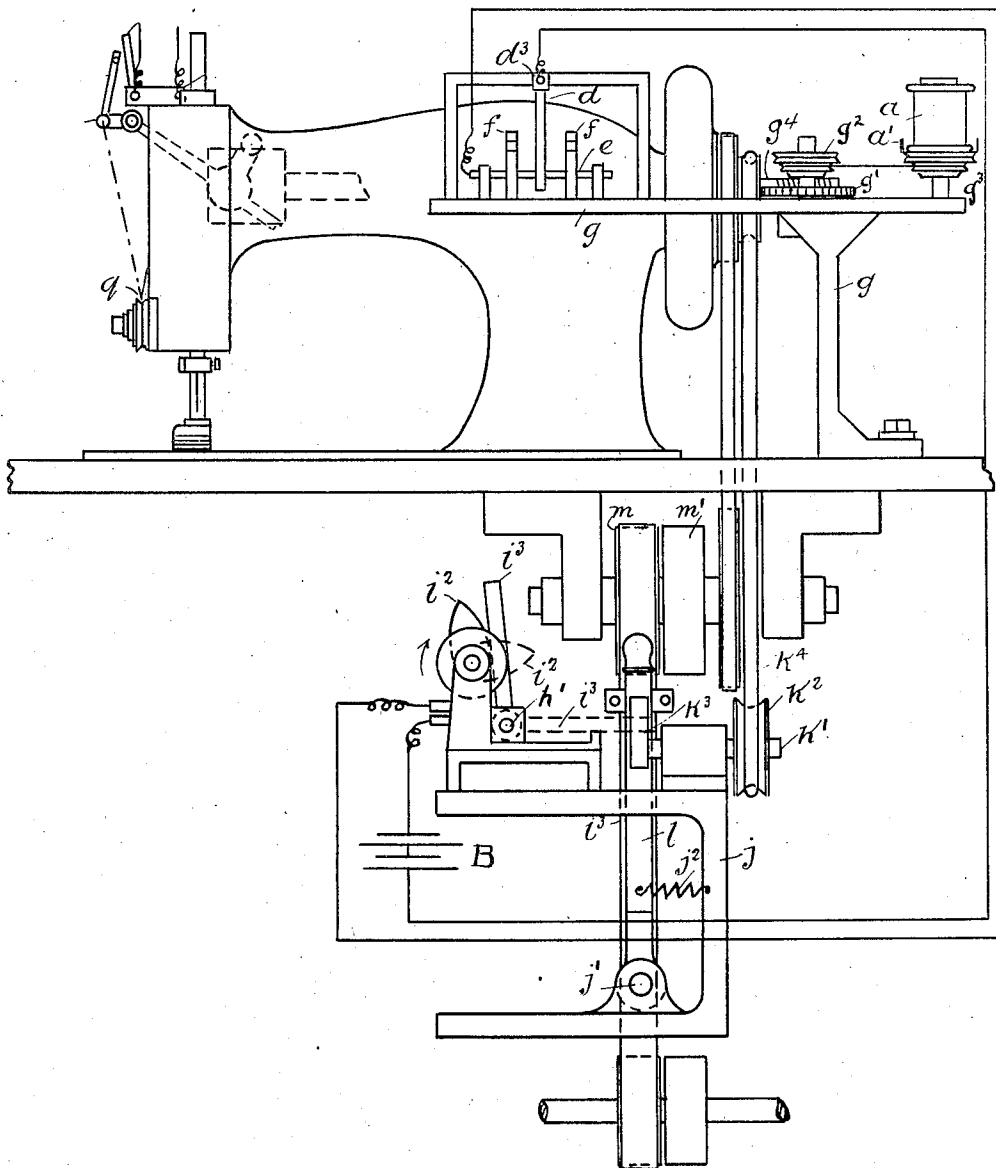
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3 SHEETS—SHEET 3.

FIG. 8



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UNITED STATES PATENT OFFICE.

JAMES BEATTIE, OF PENDLETON, NEAR MANCHESTER, ENGLAND.

STOPPING-GEAR FOR SEWING-MACHINES.

No. 888,957.

Specification of Letters Patent.

Patented May 26, 1908.

Application filed July 10, 1905. Serial No. 269,069.

To all whom it may concern:

Be it known that I, JAMES BEATTIE, a subject of the King of Great Britain and Ireland, and residing at Swan street, Pendleton, near Manchester, in the county of Lancaster, England, have invented new and useful Improvements in Stopping-Gear for Sewing-Machines, of which the following is a specification.

This invention relates to improvements in stopping gear for sewing machines and the like, when the top or needle thread breaks, or when the top thread-spool runs empty.

The main objects of the invention are to effect economy in manufacture by enabling one operator to work several machines at the same time, and to produce good work in the material sewn.

In the accompanying drawings, Figure 1 is a front elevation showing the bobbin or a spool with a spring lever device, for making an electric contact on a sewing machine, also thread guides, and feed mechanism for the bobbin; Fig. 2 is an end elevation of the small spring lever shown in Fig. 1 for making the electric contact; Fig. 3 is a side view, and Fig. 4 an end view of small electric motor with cam attachment and falling lever; Fig. 5 is a front view, Fig. 6 a side view, and Fig. 7 a plan view of the bracket carrying the electric motor and strap fork displacing gear; Fig. 8 is a front view, Fig. 9 an end view, and Fig. 10 an opposite end view of a sewing machine with the parts hereinbefore mentioned applied thereto.

Referring to Figs. 1 and 2, a bracket *g* is provided to carry the thread guides *f* and spring lever *d* of resilient material, also bobbin disk and pulley *a'*, and contact rod *e*. One end of the rod *e* is connected to an electric wire at the point *e'*, the other end of the wire being connected to a small electric motor as *i'*, Figs. 3 and 8. The bracket *g* may be secured to the overhanging arm of the sewing machine or on the machine table, as desired.

The operation is as follows:—The machine is threaded up by fixing the top bobbin *a* on the disk *a'* and securing it firmly with the small screws *a³* or the like; the thread is then carried through thread guides *f*, passing the spring lever *d* which is connected to an electric wire at the point *d³* which is insulated; the other end of the wire is connected to a battery *B*, Fig. 8, or other source of electric current; the thread is then carried to the "tension" and thence to the take up lever

and needle of the sewing machine. The top thread is made to feed up to the material being sewn, independent of the action of the ordinary feed, but at a slower rate of speed, or substantially equal thereto by the rotation of the bobbin disk and pulley *a'*.

What is termed the ordinary feed is the manner in which the thread is pulled from the bobbin as the machine is sewing. The function of the extra independent feed is to cause the contact member to make the contact when the top thread breaks or is cut by the knife in the presser foot. The top thread always breaks at some point between the needle and tension *g*, so that ordinarily the thread would not slacken between the tension and the bobbin, thereby permitting a contact to be made between the rod *e* and lever *d*. This difficulty is avoided by putting the extra or independent feed upon the top thread, in the manner described, thereby causing the thread to slacken and the spring member *d* to contact with the rod *e* when the top thread breaks. This independent feed is arranged so as never to overtake the ordinary feed of the sewing machine, but to be substantially equal thereto. The top bobbin may be driven by a friction driven cord; or any suitable feed gear, as desired, for instance, such as shown, which I will now describe. The bobbin *a* is driven by a worm *g⁴* and wheel *g'*, Fig. 9. The worm is preferably located at the end of the main sewing machine shaft. The worm wheel *g'* is mounted upon a vertical spindle, which carries three or more small graduated grooved pulleys *g²*, one of which is geared with the bobbin pulley *g³*, Fig. 8, by means of an endless cord. I do not wish to confine myself to using this particular form of gearing to effect the feed of the top thread, for obviously any suitable form may be used so that when the top thread breaks, at any point between the needle and the tension, the independent feed causes the top thread to slacken between the tension and bobbin, allowing the small spring lever to spring back to the position indicated by dotted lines in Fig. 2, and contact with the rod *e* carried in insulated bearings *e^x*.

Upon the shaft *i* is mounted a cam *i²*, Fig. 5, and, therefore, when the spring lever *d* comes into contact with the rod *e* the circuit is closed and the small electric motor starts, causing the cam *i²* to rotate with it. This cam comes into contact with a lever *i³*, piv-

5 oted at h' Figs. 4 and 5, causing it to fall between the strap fork lever l and another cam k^3 . This cam k^3 , Fig. 6, is mounted on the shaft k' carried on bearings in the bracket k , the shaft k' being rotated by the pulley k^2 which is driven by a strap k^4 from the sewing machine, or it can be driven continuously from another source of power, if desired. When the lever i^3 is in the upright position indicated in Fig. 4, the cam k^3 , Fig. 6, revolves harmlessly, but when it falls to the horizontal position, as shown in dotted lines, it falls between the rotating cam k^3 and the strap fork lever l , forcing the latter out of its retaining notch Fig. 7. The electric motor and strap fork displacing gear may be mounted upon a standard bracket j under the sewing machine table and supported therefrom or from the floor. A lug is formed in the bracket j , Fig. 5, to which the strap fork lever l is pivoted at j' . Therefore, when the lever l is forced out of its retaining notch, the spring j^3 , Fig. 5, one end of which is secured to the lever l and the other to the bracket j , pulls it over to the position shown in dotted lines, shifting the strap onto the loose pulley m' , thereby stopping the machine.

30 To start the machine the thread is carried through the guides f , Fig. 1, and tension g , and then pulled tight, thereby breaking the contact, the lever i^3 lifted to its upright position, the strap fork lever l moved back into the retaining notch l^3 , Fig. 5, moving the strap on the rotating pulley m , whereby the machine is started.

What I claim and desire to secure by Letters Patent is:—

1. In combination with a sewing machine, having a needle, and operating means, means 40 for stopping the operating means when the bobbin thread breaks, comprising a spring contact member, an electric circuit, a motor therein having a motor shaft, an electric contact point located between the needle and 45 the upper bobbin for completing the circuit with the spring contact member on the breaking of a thread, whereby the motor is started, a cam on the motor shaft, a lever actuated by said cam, and means for throwing 50 the operating means of the machine out of gear on the actuating of said lever.

2. In a sewing machine having a tension, a needle and operating means, means for stopping the machine when a thread breaks or 55 gives out, comprising an electric circuit, and a contact between said tension and the thread supply, a motor started on completing the circuit through said contact, and means operated by the motor for throwing 60 the operating means out of gear, in combination with a feed mechanism for feeding the thread to cause a slack between said tension and the thread supply.

In testimony whereof I have signed my 65 name to this specification, in the presence of two subscribing witnesses.

JAMES BEATTIE.

Witnesses:

JNO. HUGHES,
 J. ERNEST HUGHES.