May 31, 1960 J. L. BRYSON 2,938,972

CUT OFF DEVICE FOR ELECTRICALLY OPERATED MACHINES

Filed June 19, 1959

Fig. 1

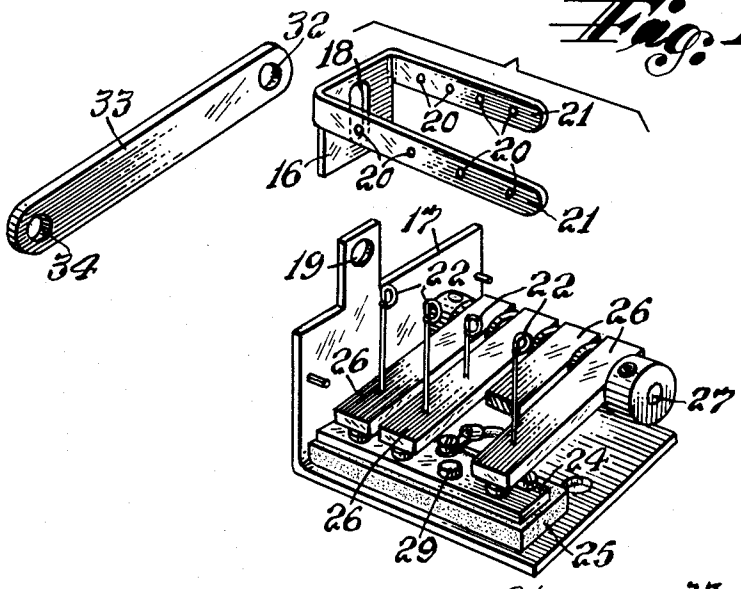


Fig. 2

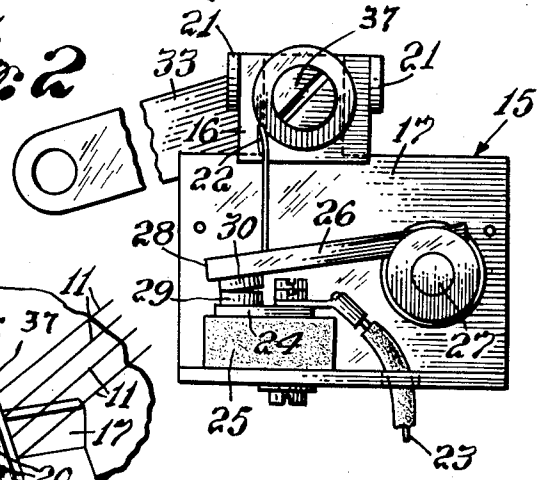
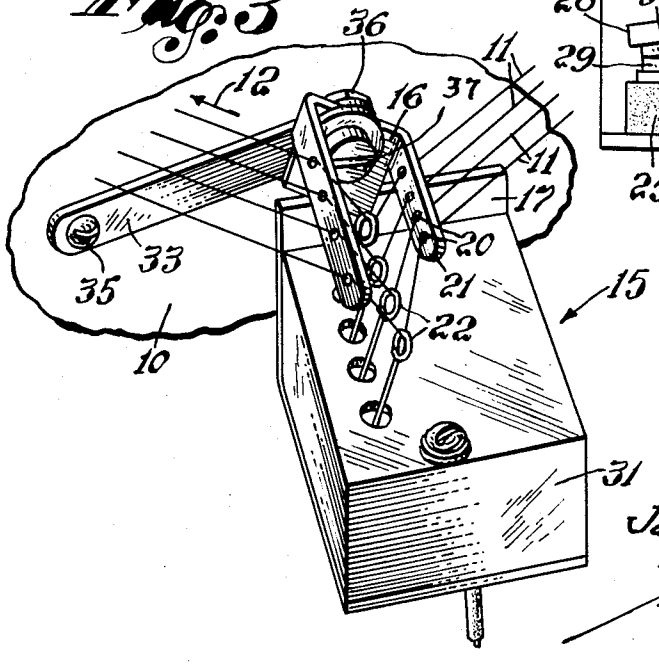


Fig. 3



INVENTOR.
James L. Bryson
BY
Harry Lemmer
ATTORNEY

United States Patent Office 2,938,972 Patented May 31, 1960

2,938,972

CUT OFF DEVICE FOR ELECTRICALLY OPERATED MACHINES

James L. Bryson, Clifton, N.J., assignor to Bryson Manufacturing Co., Inc., Clifton, N.J., a corporation of New Jersey

Filed June 19, 1959, Ser. No. 821,422

6 Claims. (Cl. 200—61.18)

This invention relates to electrically operated machines such as sewing machines having thread advanced, usually under tension, from a source of supply, such as spools, to needle and/or loop members for the sewing operation.

It has been necessary for operators of a bank of such machines to continually check the thread passing through the machines to observe thread breakage so as to stop the machine involved. The present invention provides a practical, highly efficient device which will automatically cut off operation of the sewing machine upon the breaking of any of the threads used in the operation thereof, and will maintain the machine inoperative until the thread is effectively repaired or replaced.

Examples of practical devices embodying the invention are described below and in the accompanying drawings; the invention is not limited thereto, but covers all other forms coming within the scope or purview of the disclosure herein.

As shown in the drawings:

Fig. 1 is an exploded perspective view, partly fragmentary of parts of a device embodying the invention,

Fig. 2 is a partly fragmentary side elevational view thereof, in assembled relation but without the covering member for the plate, and

Fig. 3 is a perspective view of the device applied to a sewing machine in the normal operation of the latter while the threads thereof remain unbroken.

In the drawings (Fig. 3) an electrically operated sewing machine is designated at **10**, said sewing machine having a source of supply for movement of one or more threads **11** (in the direction of the arrow **12** and under tension) to the needle or looper of the machine. The device **15** of this invention is interposed between the source of supply and the point of stitching and comprises a bracket member **16** and plate **17** having apertures **18**, **19**, respectively (Fig. 1) through which a pin **37** passes (Fig. 3) so that said bracket and plate members may be rotated to thus predetermine the path of the thread through the apertures **20** in the spaced arms **21** which extend in parallel spaced relation from the bracket and through the intermediate thread loop members **22**. By rotating the bracket **16** relative to the intermediate loop members **22**, the "drag" or tension exerted on the thread may be readily adjusted to specific or desired conditions. The invention permits the electric circuit to remain closed while the threads **12** remain unbroken. However, when any one or more of the threads break, the device immediately opens the electric circuit. This end may be achieved by placing the parts **17**, **23** in series with the power circuit for the machine or through use of switch, solenoid or other electrical energizing means whose circuit is controlled by the parts **17**, **23**.

The conductor **24** is (Fig. 2) mounted on an insulator **25** on plate **17**, the latter being electrically connected with the wire **23** only when a thread breaks, permitting the finger **26** to which the loop **22** for the broken thread

in question is secured, to drop (Fig. 2 position) into contact with conductor **24**. The fingers **26** are pivotally mounted, at one end, on the stub shaft **27** which is fixed at one end to plate **17** and extends therefrom. Conductor member **24** is preferably mounted on plate **17** in spaced parallel relation to the stub shaft **27** and at a lower point on the plate than said shaft so that the free ends **28** of the fingers **26** will tend to rotate by gravity onto the conductor **24**. The latter may be provided with contacts **29** (Figs. 1 and 2) and the fingers **26** may have complementary contacts **30** (Fig. 2) to save wear and tear. A cover **31** may be provided for the device (Fig. 3). The aperture **18** of bracket member **16** may be vertically elongated so as to permit the member **16** to be not only rotated on pin **37** but also vertically shifted thereon relative to the plate **17** to further adapt the device to various conditions of use. Pin **37** may be directly mounted on the sewing machine or, as shown in the drawings, passed through the aperture **32** at one end of a rod **33** which may be pivotally and fixedly mounted at the other end **34** by bolt **35** (Fig. 3) threaded to the machine **10**. The pin **37** (Figs. 2 and 3) may be a bolt, which may be tightened with a nut **36** after relative adjustment of the parts to the desired position, to hold them in that position.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A cut off device for connection with the electric circuit for operation of a sewing machine, said device adapted to be positioned between the source of supply of thread for said machine and the needle to which said thread is supplied, said device comprising a bracket arms extending from said bracket, means to secure said bracket to said sewing machine, a plate means to secure said plate to said machine, a stub shaft fixed, at one end, to the plate and extending therefrom parallel to said arms, a conductor member secured to said plate in spaced relation to the stub shaft, a contact finger pivotally secured at one end to the stub shaft and normally rotating thereon into contact, at the other end, with said conductor member, a thread loop member secured to said finger and extending upwardly therefrom, thread receiving apertures provided in said bracket arms, so that a thread of said machine may be passed through one bracket arm through the loop member of the finger and through the other bracket arm, to normally hold said finger out of contact with said conductor member, said parts being so juxtaposed that and, on breaking of said thread, the finger will rotate into contact with said conductor member, so that said conductor member and said plate may be electrically connected to the operating circuit for the sewing machine and, on movement of said contact finger into contact with the conductor member, the said electric circuit will be interrupted until the broken thread is replaced or repaired so that the finger may be lifted by the replaced thread out of engagement with the conductor member.

2. In an automatic cut off device as set forth in claim 1, a contact stud on said conductor member to be so engaged by the finger when the latter pivotally moves to a position for engagement with said conductor member.

3. In an automatic cut off device as set forth in claim 1, means for rotatably securing said bracket to said sewing machine.

4. In an automatic cut off device as set forth in claim 1, said means for securing the plate and bracket members to the sewing machine comprising a rod secured to said sewing machine, said bracket and plate being provided with apertures, and a pin passing through said apertures and secured to said rod to thereby independ-

ently rotatably adjustably secure said bracket to said rod.

5. In an automatic cut off device as set forth in claim 4, said aperture so provided in said bracket member being vertically elongated to enable the bracket member to be vertically adjusted relative to the plate.

6. In an automatic cut off device as set forth in claim 1, said means for securing the plate to the sewing machine comprising means for pivotally securing said rod at one end to said machine at a predetermined point, an aperture provided at the other end of said rod, said bracket and arms being provided with apertures and a

pin passing through the apertures of the rod bracket and plate members to secure the bracket and plate members to said rod in the means to secure said bracket and plate members to said rod at desired relative predetermined positions.

References Cited in the file of this patent

UNITED STATES PATENTS

1,721,291	Beachen	July 16, 1929
2,752,444	Vossen	June 26, 1956