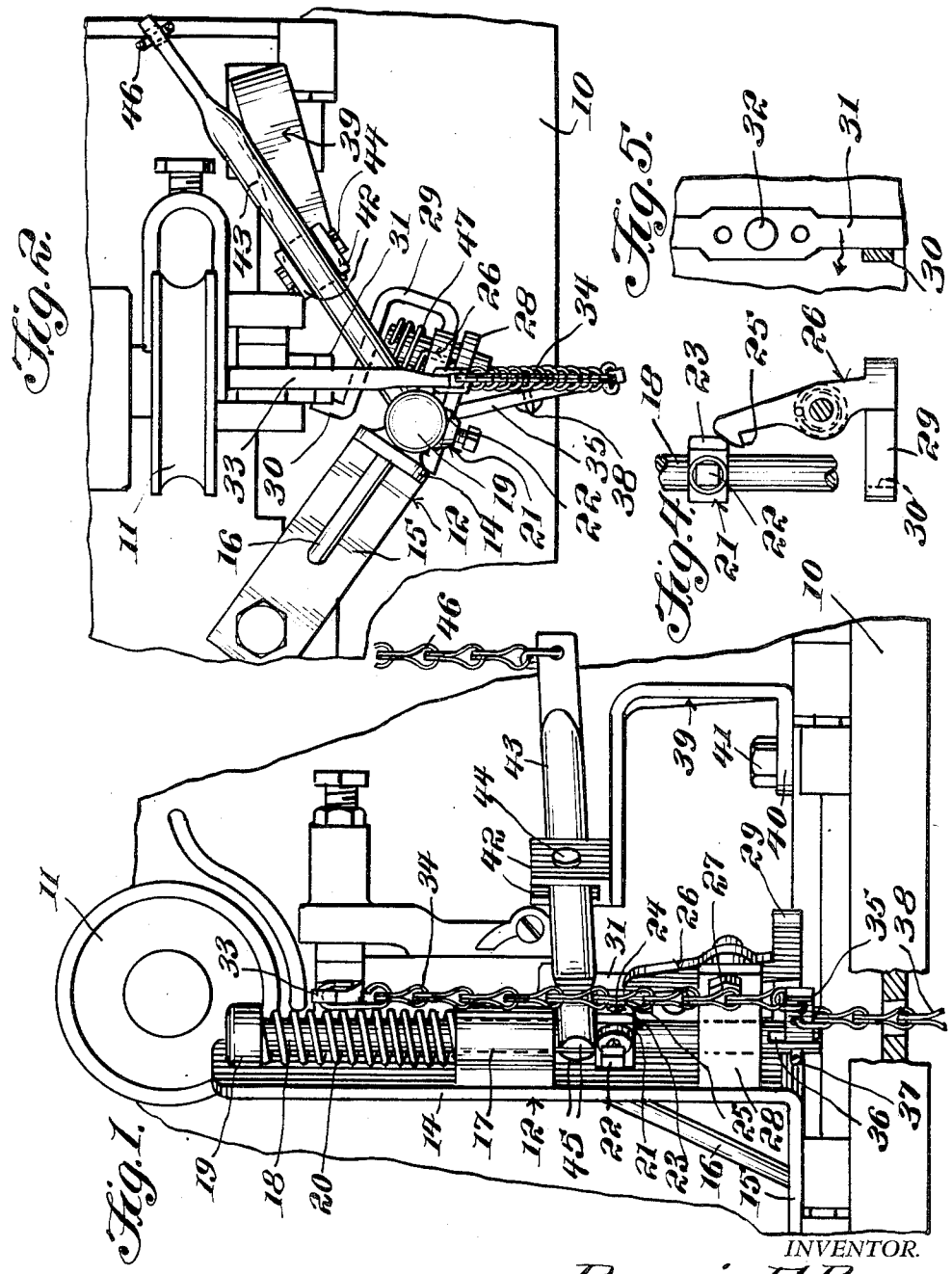
March 22, 1955 B. F. RENN 2,704,525

ATTACHMENT FOR SEWING MACHINE

Filed July 24, 1953 2 Sheets-Sheet 1

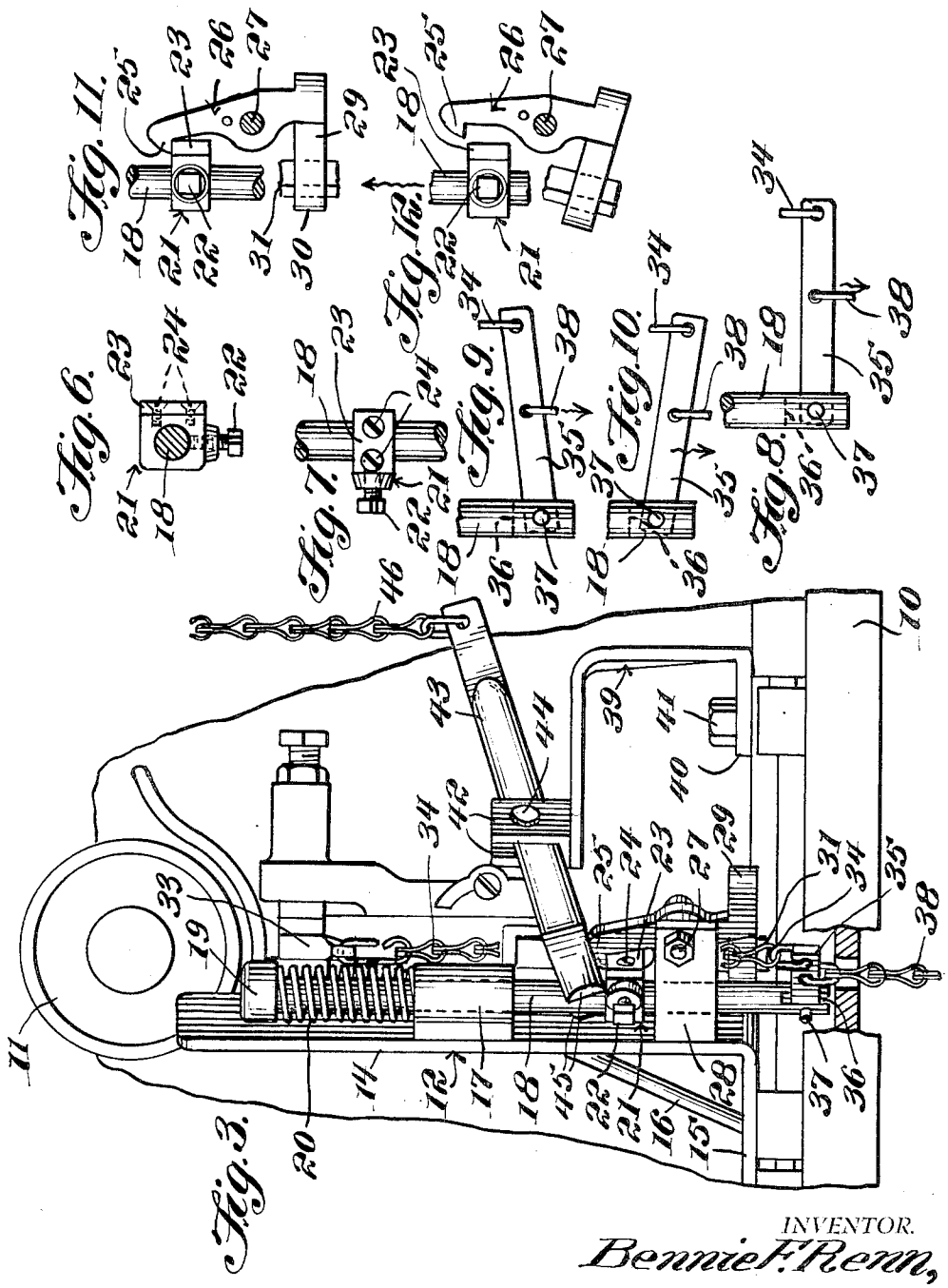


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ATTACHMENT FOR SEWING MACHINE

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ATTACHMENT FOR SEWING MACHINE

Bennie F. Renn, Jefferson City, Mo.

Application July 24, 1953, Serial No. 370,123

4 Claims. (Cl. 112—67)

This invention relates to a sewing machine, and more particularly to a mechanism for automatically and simultaneously raising and lowering the presser foot and actuating the starting lever of a sewing machine.

The object of the invention is to provide a sewing machine wherein a single attachment is provided for raising the presser foot and tripping or starting the sewing machine.

Another object of the invention is to provide a labor saving attachment wherein a single foot treadle can be used to operate both the work clamp and to start the stitching cycle.

Another object of the invention is to provide a servo control for sewing machines, bar tackers, button sewers, fly tackers, tick-tackers and the like, wherein a single pedal can be used for raising the presser foot and starting the sewing machine.

A further object of the invention is to provide a sewing machine attachment which is extremely simple and inexpensive to manufacture.

Other objects and advantages will be apparent during the course of the following description.

In the accompanying drawings, forming a part of this application, and in which like numerals are used to designate like parts throughout the same:

Figure 1 is an end elevational view of the sewing machine attachment, and showing the position of the parts when the sewing machine is not running.

Figure 2 is a fragmentary top plan view of the attachment.

Figure 3 is a view similar to Figure 1, but showing the position of the parts when the sewing machine is working or running.

Figure 4 is a view showing the locking dog in normal position when the sewing machine is not running.

Figure 5 is a fragmentary elevational view showing the thread cutting arm.

Figure 6 is a horizontal sectional view taken through the shaft and showing the clamp with the case hardened plate.

Figure 7 is a front elevational view of the clamp of Figure 6.

Figure 8 is an elevational view showing the equalizing arm in starting position.

Figure 9 is a view similar to Figure 8, but showing the initial position of the parts in the event that the chain leading to the presser foot stops moving.

Figure 10 is a view similar to Figure 8 but showing the position of the parts if the shaft stops moving first.

Figure 11 is a view showing the dog in latched or locking position with respect to the clamp.

Figure 12 is a view similar to Figure 11 but showing the parts in released position.

Referring in detail to the drawings, the numeral **10** designates the base or bed of the sewing machine which may be any type of sewing machine of conventional construction. The usual pulley **11** is provided, and the attachment of the present invention includes an L-shaped bracket **12** that may be made of any suitable material such as metal. The bracket **12** includes a vertically disposed portion **14** and a horizontally disposed portion **15**, Figures 1 and 3, and an inclined brace **16** extends between the portions **14** and **15** and is secured thereto in any suitable manner, as for example by welding. A bearing **17** is secured to the vertical portion **14** of the bracket **12** for a purpose to be later described.

Slidably mounted in the bearing **17** is a vertically

shiftable shaft **18** which is provided with a head or cap **19** on its upper end. A coil spring **20** is circumposed on the shaft **18** and is interposed between the head **18** and the bearing **17** for normally urging the shaft **18** into its raised position as shown in Figure 1.

Positioned on the shaft **18** below the bearing **17** is a clamp **21**, there being a set screw **22** for maintaining the clamp in place on the shaft. A case hardened plate **23** is secured to the clamp **21** by suitable screws or bolts **24**, Figures 6 and 7. The case hardened plate **23** is adapted to be engaged by a hook **25** on the upper end of a pivotally mounted dog **26**, Figures 11 and 12. The dog **26** is pivotally connected to a bracket **28** by means of a bolt and nut assembly **27** which extends through the bracket **28** that is secured to the vertical portion **14**, Figure 1. Formed integral with the lower end of the locking dog **26** or secured thereto is a yoke **29** of substantially U-shape, and the yoke **29** has a straight section or flat section **30** extending therefrom for a purpose to be later described. The flat portion **30** of the locking dog **26** is adapted to be engaged by a thread cutting arm **31** which is pivotally connected to the sewing machine by means of a pin **32**, Figure 5. Thus, when the thread cutting arm **31** moves over to engage the portion **30** the locking dog **26** will move from the position shown in Figure 11 to the position shown in Figure 12 so that spring **20** can move the parts from the position shown in Figure 3 to the position shown in Figure 1.

The numeral **33** designates the trip lever for starting the sewing machine in the usual manner, and the numeral **34** indicates a chain which extends between the trip lever **33** and an end of an equalizing arm **35**. The lower end of the vertically sliding shaft **18** is provided with a slot or cut-out **36** and an end of the equalizing arm **35** is pivotally mounted in the slot **36** by means of a pin **37**. A pull down chain **38** is connected to the equalizing arm **35**, and the pull down chain **38** may be manually actuated or it may be connected to a conventional foot treadle. Thus, by actuating such a foot treadle the pull down chain **38** can be moved to trip lever **33** to stop the sewing machine and also the presser foot can be lowered as later described in this application.

Mounted on the base of the sewing machine is a bracket **39** which has a bottom portion **40** secured to the sewing machine by a bolt or screw **41**. A pair of spaced parallel apertured ears **42** extend upwardly from the bracket, and a lever **43** is pivotally mounted between the ears **42** by means of a pin **44**. One end of the lever **43** is bifurcated as at **45** for slidably receiving the shaft **18**, the bifurcated end **45** being interposed between the clamp **21** and the bearing **17**. A chain **46** is connected to the other end of the lever **43**, and the chain **46** may be connected to the usual presser foot or clamping foot of the sewing machine. When the lever **43** is in the position shown in Figure 1 the clamp or presser foot is raised from the work, and when the parts are in the position shown in Figure 3 the pivotal movement of the lever **43** permits the presser foot to lower or rest on the work being sewed.

From the foregoing it will be seen that there has been provided an attachment for a sewing machine whereby a single foot treadle connected to the chain **38** can be used for simultaneously lowering the presser foot which is operatively connected to the chain **46** and for also actuating the trip lever **33** which energizes the sewing machine or starts the cycle of stitching. In use by pressing down on the treadle connected to the chain **38**, the equalizing arm **35** will be moved downwardly from the position shown in Figure 8 or from the position shown in Figure 1 to the position shown in Figure 3. As the arm **35** moves downwardly it pulls the shaft **18** downwardly and the shaft **18** carries the clamp **21** therewith. When the clamp **21** gets below the hook **25** of the locking dog **26**, the spring **47** urges the locking dog **26** from the position shown in Figure 12 to the position shown in Figure 11 so that the shaft **18** is maintained in its downward position as shown in Figure 3 during the sewing operation. When the parts are in the position shown in Figure 1 the lever **43** is maintained in a substantially horizontal position, but when the shaft **18** moves downwardly, the lever **43** is permitted to pivot in a counter-

clockwise direction so that the chain **46** permits the presser foot to drop onto the work at the same time that the trip lever **33** actuates the sewing machine. The spring **47** is circumposed on the bolt and nut assembly **27**, as shown in Figure 2 of the drawings, and one end of the spring **47** is arranged in engagement with a suitable aperture or opening in the bolt of the bolt and nut assembly **27**. The other end of the coil spring **47** is arranged in engagement with a suitable aperture or opening in the locking dog **26** as shown in Figure 4 so that the coil spring exerts a constant pressure on the locking dog **26**. After the completion of the sewing operation, the thread cutting arm **31** automatically moves over and engages the flat portion **30** on the yoke **29** to thereby pivot the dog **26** from the position shown in Figure **11** to the position shown in Figure 12 whereby the spring **20** returns the parts to the position shown in Figure 1. Thus, the lever **43** will be pivoted from the position shown in Figure 3 back to the position shown in Figure 1 so that the presser foot connected to the chain **46** will be automatically raised away from the work. Further, with the parts returned to the position shown in Figure 1 the trip lever **33** will de-energize the sewing machine at the same time.

The present attachment provides a completely automatic mechanism so that the work clamp or presser foot and stitching cycle can be started by one treadle at the same time. The attachment can be used on Singer sewing machines, bar tackers, button sewers, fly tackers, tick-tackers and the like. Ordinarily these machines require two foot pedals for raising the foot and tripping or starting the machine but with the present attachment both operations are accomplished with the use of only one foot pedal. After the machine has completed the sewing operation and upon the thread cutting operation of the machine, the thread cutting bar **31** moves to release the catch or dog **25**. The case hardened portion or plate **23** which is engaged by the hook **26** insures that there will be no excessive wear on this part.

After the completion of the sewing operation, the thread cutting bar **31** is moved to pivot or unlock the dog **26** from the clamp **21**. The dog **26** when in the position shown in Figures 3 and 11 serves to maintain the parts down as shown in Figure 3 during the sewing cycle. After the completion of the sewing cycle, the thread cutting bar **31** moves over and trips the dog **26** to permit the spring **20** to move the shaft **18** and lever **43** back to the position shown in Figure 1. When the sewing machine is not operating, the equalizing arm **35** is horizontal as in Figure 8. In the event that the chain **46** resists downward movement while the shaft **18** moves downward as in Figure 9, continued downward pulling on the equalizing arm **35** by means of the chain **38** will then pull the chain **34** downward so that the presser foot and trip lever will eventually be actuated. Similarly, as shown in Figure 10 if the chain **34** moves downward ahead of the shaft **18**, continued downward pulling on the arm **35** by the chain **38** will result in eventual downward movement of the shaft **18**. The trip lever **33** may be used for starting the motor that operates the sewing machine. The mechanism of the present invention can be used on various types of conventional sewing machines as for example the mechanism can be used on the following types of Singer sewing machines. Machines of the bar tacker Class 69–5; tacker Class 114–31; button sewer—fly tacker Class 69 18669–26.

I claim:

1. In a sewing machine, a base, an L-shaped bracket secured to said base, a bearing secured to said bracket intermediate the ends thereof, a shaft slidably mounted in said bearing, a head mounted on the upper end of said shaft, a coil spring circumposed on said shaft and interposed between said head and bearing, a body member secured to said base, a lever pivotally connected to said body member and provided with a bifurcated end for slidably engaging said shaft, a clamp secured to said shaft and spaced below said lever, a chain connected to an end of said lever, and adapted to be connected to a presser foot, a pivotally mounted dog provided with a hook on its upper end mounted for movement into and out of engagement with said clamp, there being a slot in the lower end of said shaft, an equalizing arm extending into said slot and pivotally connected to said shaft, a chain having its lower end connected to said arm and its upper end adapted to be connected to a trip lever for starting the sewing machine, and a pull chain connected to said arm intermediate its ends.

2. The apparatus as described in claim 1, and further including a spring arranged in engagement with said dog.

3. The apparatus as described in claim 1, and further including a case hardened plate secured to said clamp and adapted to be engaged by the hook on said dog.

4. In a sewing machine, a base, a bracket secured to said base, a bearing secured to said bracket intermediate the ends thereof, a shaft slidably mounted in said bearing, a head mounted on the upper end of said shaft, resilient means circumposed on said shaft and interposed between said head and bearing, a body member secured to said base, a lever pivotally connected to said body member and slidably engaging said shaft, a clamp secured to said shaft and spaced below said lever, a chain connected to an end of said lever, and adapted to be connected to a presser foot, a pivotally mounted dog provided with a hook on its upper end mounted for movement into and out of engagement with said clamp, there being a slot in said shaft, an equalizing arm extending into said slot and pivotally connected to said shaft, a chain having its lower end connected to said arm and its upper end adapted to be connected to a trip lever for starting the sewing machine, and a pull chain connected to said arm intermediate its ends.

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