

No. 667,282.

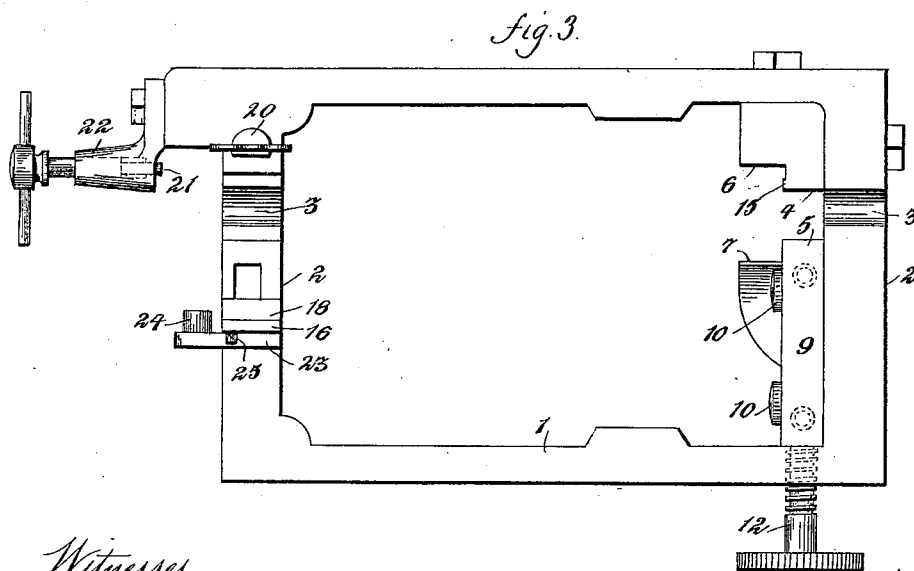
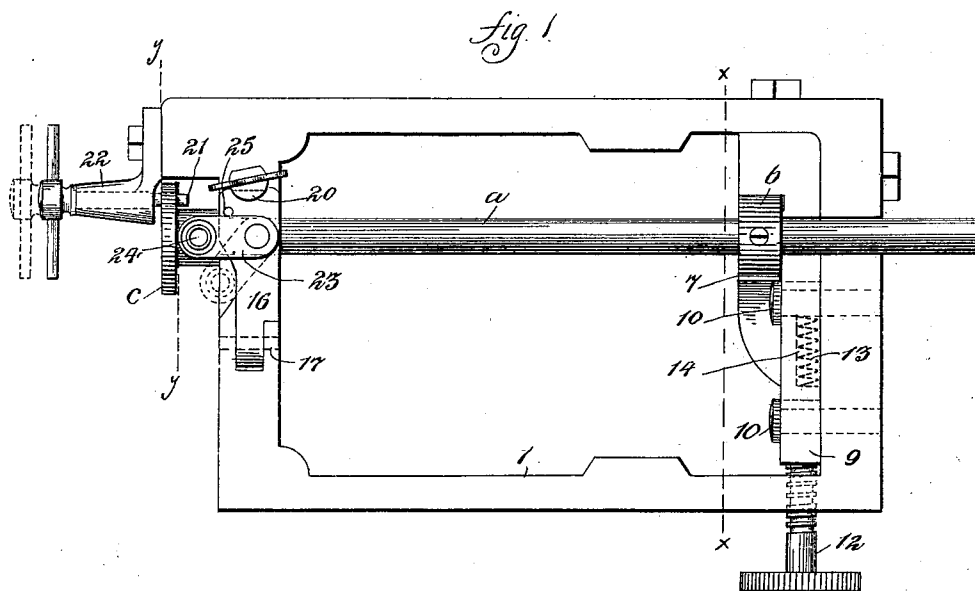
Patented Feb. 5, 1901.

W. M. AMMERMAN.
COMBINED GAGE AND JIG.

(Application filed June 8, 1900.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses
Geo. W. Taylor,
M. L. Corbett.

Inventor
William M. Ammerman
By Chas. F. Davis
att'y.

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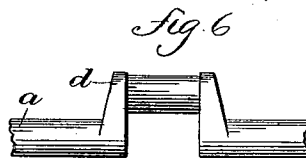
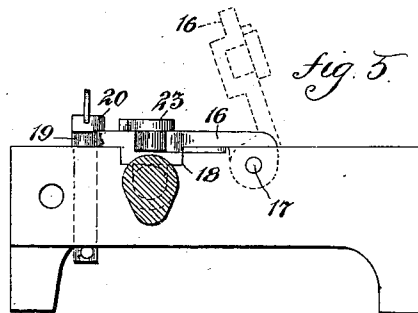
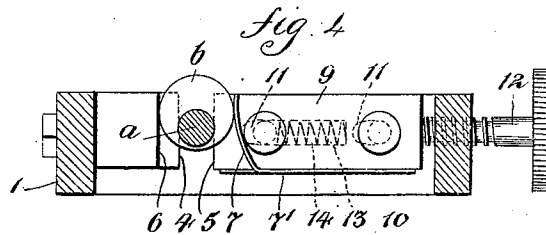
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(No Model.)

2 Sheets—Sheet 2.



Witnesses
Geo. W. Taylor
M. L. Garrett

Inventor
William M. Ammerman
By Chas. F. Dane
his atty.

UNITED STATES PATENT OFFICE.

WILLIAM M. AMMERMAN, OF NEW HAVEN, CONNECTICUT, ASSIGNOR TO
EDWIN J. TOOF, OF SAME PLACE.

COMBINED GAGE AND JIG.

SPECIFICATION forming part of Letters Patent No. 667,282, dated February 5, 1901.

Application filed June 8, 1900. Serial No. 19,590. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM M. AMMERMAN, a citizen of the United States, and a resident of New Haven, in the county of New Haven, State of Connecticut, have invented a certain new and useful Combined Gage and Jig, of which the following is a specification, reference being had to the accompanying drawings, forming part thereof.

This invention relates to a combined gage and jig which is particularly adapted for use in effecting the proper relative positions on the driving-shaft of a sewing-machine of the needle-bar and looper actuating devices.

The upper driving-shaft of a sewing-machine is usually provided, adjacent to one end thereof, with a cam, eccentric, or crank as a means for actuating the looper through the medium of a suitable intermediate mechanism, and at its opposite or forward end such shaft is usually provided with a crank which communicates a vertical movement to the needle-bar through the medium of a pitman or a cam attached to said needle-bar. Therefore it is necessary, as will be obvious, that such needle-bar and looper actuating devices be in proper position on the driving-shaft relative to each other in order to insure the proper timing of the needle and looper in their co-operation in the formation of stitches. To provide a device that will positively insure such proper relative positions of the needle-bar and looper actuating devices on the sewing-machine driving-shaft is the object of my present invention, which object I secure by means of the novel construction and combination of parts hereinafter set forth in detail, and pointed out in the claims.

Referring to the accompanying drawings, Figure 1 is a plan view of a gage and jig embodying my invention, with a sewing-machine driving-shaft provided with the needle-bar and looper actuating devices placed in operative connection therewith. Fig. 2 is a detail plan view of the sewing-machine shaft. Fig. 3 is a plan view of the device shown in Fig. 1 with the sewing-machine shaft removed. Fig. 4 is a transverse cross-section through line *x x* of Fig. 1. Fig. 5 is an end view of the device through line *y y* of Fig. 1. Fig. 6 is a detail view to be hereinafter referred to.

In said drawings, 1 indicates the frame upon which the several parts of the device are supported, the same preferably consisting, as shown, of an open rectangular casting. This frame is provided in the upper surface of its end walls 2 2 with seats 3 3, which are adapted to receive the sewing-machine shaft; (indicated at *a*.)

Adjacent to one end the frame 1 is provided with two pairs of clamping-jaws, one pair consisting of a fixed jaw 4 and a movable jaw 5, and the other pair consisting of a fixed jaw 6 and a movable spring-jaw 7, the first pair of jaws being adapted to engage with and clamp the shaft and the other pair engage with and clamp the looper-actuating device located on such shaft, the said actuating device, as shown in Figs. 1, 2, and 4, being a cam or eccentric *b*.

The movable jaw 5, as herein shown, is formed by one end of a block 9, which is supported, in connection with the frame, so as to be capable of a horizontally-sliding movement relative thereto by means of two pins or screws 10 10, which latter extend through horizontally-elongated slots 11 11 in the said block and are supported at one end in the frame. An adjusting-screw 12 is passed through a screw-threaded opening in the frame 1 and is adapted to engage at its inner end with the block 9, so as to move the latter positively in one direction and force its end 5 against the shaft *a* after the latter has been located in the seats 3 3. A spring 13, which is seated in an opening or pocket 14 in the block 9, with one end bearing against one of the pins 10 and its other end against the block, serves to hold the latter against the end of the screw, whereby it will be caused to move with the latter as it is screwed back and forth.

The spring-jaw 7, as herein shown, is formed of heavy spring metal and is provided with a supporting-shank 7', which is attached to the under side of the block 9, whereby the jaw will be movable with the latter.

In the use of the device the shaft *a*, having the cam or eccentric *b* made fast thereon and the crank-disk *c* located loosely thereon, is placed in the seats 3 3, with the cam in position between the jaws 6 and 7 and against

the adjacent fixed wall 15 of the frame. The block 9 is then moved forward by the screw 12 until the spring-jaw 7 engages with the cam *b* and clamps it between the same and the fixed jaw 6, and the movable jaw 5 engages with the shaft *a* and clamps it between the same and the fixed jaw 4, the said spring-jaw 7 being arranged to first act upon the cam and locate the same in contact with the fixed jaw 6 prior to the clamping of the shaft between the jaws 4 and 5. In this manner the shaft and its attached cam may always be locked in the same predetermined position relative to the frame and its fixed parts. After the shaft and its attached cam have been locked against rotary movement in the position described the forward end of the shaft is then secured in position in its seat by means of a vertically-swinging latch-arm 16, which latter is hinged at one end in connection with the frame by means of a hinge or pivot pin 17 and on its under side is provided with a projection 18, which is adapted to fit within the upper end of the seat 3 and against the shaft when the latch-arm is swung downward into locking position, as shown in Fig. 5. The latch-arm 16 is adapted to be held in its lowered position by means of a catch device, which latter consists, as herein shown, of a pin 19, which is seated within an opening in the frame and provided with a laterally-projecting lip 20 at its upper end, which is adapted to be turned over and engage with the upper surface of the latch, as shown. After the shaft has been clamped and secured in connection with the frame, as described, the end of a sliding pin 21, which is supported in a fixed bracket-arm 22 on the frame 1, is then entered into the hole or opening in the crank-disk, which is adapted to receive the crank-pin. In this manner the crank-disk is positively held in a fixed position on the shaft relative to the cam *b* thereon. A hole or opening may now be drilled or reamed through the hub of the crank-disk and into the shaft to receive a tapered pin for uniting such parts. With the cam and crank not held in locked position relative to each other on the shaft while such hole is being drilled for the fastening-pin it will be obvious that in the event of a slight deviation of the drill from its proper path, as is very liable to occur, the angle of the hole is so changed that in driving the fastening-pin through the same to unite the parts the crank will be thrown out of its proper position relative to the cam, and such variation, even though very slight, often becomes so exaggerated in the timing of the needle and looper as to interfere with their proper coöperation in the formation of stitches. With the shaft, cam, and crank all positively held in a fixed position relative to each other, however, as provided for by my improved device, during the drilling of the hole in the crank-disk, hub, and shaft it will be obvious that the several

parts will be in proper position relative to each other when secured together.

As a guide for the drill in reaming out the hole in the crank-disk hub I have provided a swinging arm 23, which is pivotally connected at one end with the latch-arm 16 and adjacent to its opposite end provided with a bushing 24, seated therein to receive the drill. When ready for drilling, the free end of the arm 23 is swung around to a position against a stop-pin 25 on the latch-arm, so as to locate the bushing 24 in position over the hub of the crank-disk, as shown in Figs. 1 and 5. After the drill has been properly started the arm 23 is then preferably swung out of the way, as indicated by dotted lines in Fig. 1, after which the hole or opening is then reamed out to receive the tapered fastening-pin.

In some instances the shaft *a* is provided with a crank, as indicated at *d* in Fig. 6, in lieu of a cam as a means for actuating the looper; but such crank may be held between suitable gripping-jaws in the same manner as the cam is in the device illustrated.

The proper distance between the cam and the crank-disk on the shaft is secured by first seating the shaft in the frame with the cam against the wall 15 of said frame, after which the crank-disk is set up with its hub abutting against the adjacent front wall of the frame, as shown in Fig. 1.

Having thus set forth my invention, what I claim, and desire to secure by Letters Patent, is—

1. A device of the character described, comprising a frame having seats adapted to receive a shaft which is provided with two actuating devices, one being fast and the other loose thereon, a pair of jaws for engaging with said fast actuating device and holding the same and the connected shaft in a stationary position, and means for engaging with the second or loose actuating device and holding the same in a fixed position relative to the first-mentioned actuating device, for the purpose set forth.

2. A device of the character described, comprising a frame having seats adapted to receive a shaft which is provided with two actuating devices, one being fast and the other loose thereon, a pair of jaws for engaging with said fast actuating device and holding the same and the connected shaft in a stationary position, one of said jaws being fixed and the other yielding and adjustable, and means for engaging with the second or loose actuating device and holding the same in a fixed position relative to the first-mentioned actuating device, for the purpose set forth.

3. A device of the character described, comprising a frame having seats adapted to receive a shaft which is provided with two actuating devices, one being fast and the other loose thereon, two pairs of jaws, one being adapted to engage with said fast actuating device and the other with the shaft, means for

holding the shaft within its seats, and means for engaging with the second or loose actuating device and holding the same in a fixed position relative to the first-mentioned actuating device, for the purpose set forth.

5 4. A device of the character described, comprising a frame having seats adapted to receive a sewing-machine driving-shaft which is provided with a looper-actuating device made fast thereon and a needle-bar-actuating crank supported loosely thereon, means for engaging with the looper-actuating device at the rear end of the shaft and holding the same and the said connected shaft in a stationary position, a movable latch-arm for holding the forward end of the shaft in position within its seat, a movable drill-guide carried by said latch-arm, and a sliding pin for entering an opening in the crank-disk and holding the same in a stationary position relative to the

shaft and the said looper-actuating device, for the purpose set forth.

5. A device of the character described, comprising a frame having seats adapted to receive a shaft which is provided with two actuating devices, one being fast and the other loose thereon, a pair of jaws for engaging with said fast actuating device and holding the same and the connected shaft in a stationary position, means for engaging with the second or loose actuating device and holding the same in a fixed position relative to the first-mentioned actuating device, and means for insuring a uniform space or distance between said actuating devices, for the purpose set forth.

WILLIAM M. AMMERMAN.

Witnesses:

CHAS. F. DANE,
M. L. FORREST.