April 1, 1969 SHIGEAKI KURAMOCHI 3,435,789

TOY SEWING MACHINE

Filed Oct. 16, 1967

Fig. 1

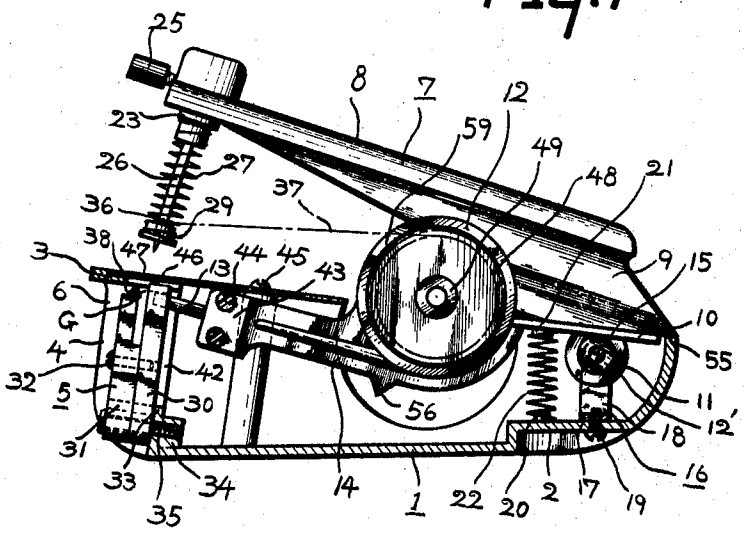


Fig. 3

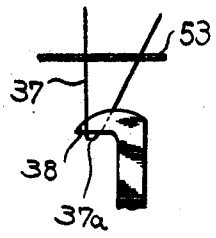


Fig. 4

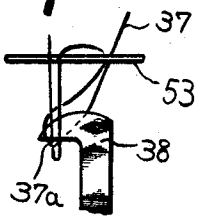


Fig. 5

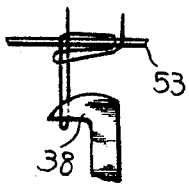


Fig. 6

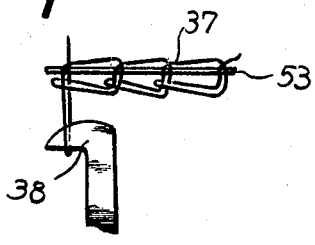
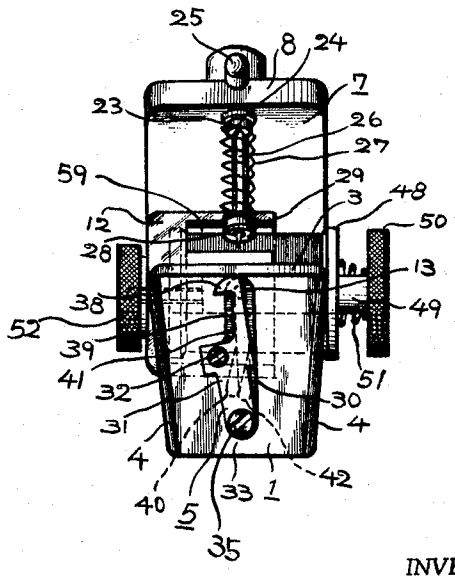


Fig. 2



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TOY SEWING MACHINE

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ABSTRACT OF THE DISCLOSURE

A toy sewing machine comprising a box-shaped frame body of which an upper surface is opened, a sewing hook member provided at the front of said frame body, a press operating body having a grip member pivoted rotatable freely at the rear end of said frame body, a compression spring inserted between said press operating body and frame body, a bobbin holding portion formed on said press operating body, a bobbin inserted into said holding portion, an operating lever engaging said sewing hook member protruded from the front of said bobbin holding portion, a needle fixed at the extremity of said press operating body, and a thread wound around said bobbin and passed through a thread bore of said needle. Said sewing hook member has a rotary operating piece and a hook piece pivoted so as to rotate freely on the frame body, said rotary operating piece having a slot inserting said operating lever therein comprised by an upper vertical portion and a lower inclined portion.

Disclosure

This invention relates to a toy sewing machine, more particularly to a toy sewing machine having a rotary operating piece with an aperture comprising an upper vertical portion and a lower inclined portion.

Hitherto, many kinds of toy sewing machines have been proposed. These toy sewing machines, however, have disadvantages such that the assembly is difficult and the construction is complicated as well as the operation lacks stability.

It is, therefore, one object of this invention to provide a toy sewing machine simple and easy in assembly and construction and which has good stability in operation.

It is another object of this invention to provide a toy sewing machine having a rotary operating piece with an aperture comprising an upper vertical portion and a lower inclined portion.

It is a further object to provide a toy sewing machine comprising a box-shaped frame body of which an upper surface is opened, a sewing hook member provided at the front of said frame body, a press operating body having a grip member pivoted rotatable freely at the rear end of said frame body, a compression spring inserted between said press operating body and frame body, a bobbin holding portion formed on said press operating body, a bobbin inserted into said holding portion, an operating lever engaging said sewing hook member protruded from the front of said bobbin holding portion, said operating lever being guided along a vertical groove provided through a front plate of said frame body, a needle fixed at the extremity of said press operating body, a holding member through which a needle guide bore is provided, a thread wound around said bobbin and passed through a thread bore of said needle, and

a compression spring connected between the extremity of said press operating body and said holding member, said sewing hook member having a rotary operating piece and a hook piece pivoted so as to rotate freely on the frame body, said rotary operating piece having a slot with said operating lever inserted therein comprised by an upper vertical portion and a lower inclined portion.

Further and other advantages of this invention will become apparent hereinafter from the description and in the drawing, in which:

FIG. 1 is a side view of the apparatus according to the invention in vertical section;

FIG. 2 is a front view of the apparatus of this invention; and

FIGS. 3 to 6 are schematic views for explaining the operation of the apparatus according to the invention, respectively.

In describing the preferred embodiment of the invention illustrated in the drawing, specific terminology will be resorted to for the sake of clarity. It is not intended, however, to be limited to the specific terms so selected, and it is to be understood that each specific term includes all technical equivalents which operate in a similar manner to accomplish a similar purpose.

Turning now to the specific embodiment of the invention selected for illustration in the drawing, numeral **1** generally designates a box-shaped frame body made of a synthetic resin. At the rear bottom portion of the frame body **1** a horizontal concave stage **2** projected inwardly is formed. Upper and side plates **3** and **4** are provided integrally with the frame body **1** at the front of the frame body **1**. A spacing portion **6** for enclosing a sewing hook member **5**, as described later, is provided at the front of the frame body **1**.

A press operating body **7** made of a synthetic resin is comprised by a grip member **8** formed in a horizontal plate, a supporting portion **9** in a vertical plate form protruded rearwardly from the lower surface of said grip member **8**, a base plate **10** protruded on both sides of said supporting portion **9** for covering the rear of an opening portion of said frame body **1**, a pivot portion **11** protruded downwardly from said base plate **10**, a cylindrical bobbin holding portion **12** formed at the front of said supporting portion **9**, and a fitting portion **14** of an operating lever **13** protruded from the front of said bobbin holding portion **12**.

A supporting shaft **15** provided through a hole **12'** of said pivot portion **11** of said press operating body **7** is supported by a bearing piece **16** so as to rotate freely. This bearing piece **16** is constructed by bottom portion **17** and a bearing portion **18** supporting both ends of said supporting shaft **15**. The bottom portion **17** of the bearing piece **16** is fixed to the inner surface of the concave stage portion **2** of said frame body **1** by a screw **19**. Stoppers **20** and **21** are provided on the inner surface of the concave stage portion **2** of the frame body **1** and the lower surface of the base plate **10** of the supporting portion **9** facing said concave stage portion **2** opposite each other, respectively, to which both ends of a coil-shaped compression spring **22** are engaged in such a way that the operating body **7** is biased upwardly by the force of said spring **22**.

At the extremity of said operating body **7**, a metallic needle holding member **23** is fixed. A needle bore **24** is provided on the lower surface of said holding member **23**. A threaded bore communicated with the needle bore

24 is formed on the front surface of said holding member 23 at a right angle to the direction of said needle bore, and a stopper 25 is threaded into said threaded bore, of which the tip end is engaged to a fixing end of a needle 26 inserted into said needle bore 24 so as to press hold said needle 26.

To the periphery of the lower edge of the needle holding member 23 one end portion of a coil-shaped compression spring 27 is fixed, and the other end portion of which is fixed to a holding member 29 made of synthetic resin through which a needle guide bore 28 is provided. The tip end portion of the needle 26 fixed to said needle holding member 23 is projected through the needle guide bore 28 of the holding member 29.

Said sewing hook member 5 is pivoted so as to rotate freely in the spacing portion 6 of said frame body 1 in the right and left directions, that is, at a right angle to the longitudinal direction of the frame body 1. This hook member 5 is constructed by a rotary operating piece 30 and a hook piece 31 which are combined by a screw 32, the lower end portions of said hook piece 31 and rotary operating piece 30 being pivoted so as to rotate freely on a thick portion 34 formed on the lower side of a front plate 33 of the frame body 1 by a screw 35.

The upper end of said hook piece 31 is provided with a hook portion 38 which stops, on a rising operation of the needle, a sewing thread 37 passing through a threaded bore 36 provided through said needle 26. On said rotary operating piece 30, there is provided a slot 41 comprising a vertical portion 39 at the upper side and an inclined portion 40 at the lower side, said slot 41 being engaged with the tip end portion of said operating lever 13 through a vertical groove 42 provided through the front plate 33 of said frame body 1.

A gap G through which the tip end portion of the needle 26 can move is formed vertically between the rotary operating piece 30 and the hook portion 38 of the hook piece 31.

Said operating lever 13 is fixed to the tip end of the fitting portion 14 of said operating body 7 by screws 44 via two fitting pieces 43 fixed to the rear end of the operating lever 13, the tip end of said fitting portion 14 of said operating body 7 being held between both of the fitting pieces 43.

The front of the upper opening portion of said frame body 1 is coated by a metallic covering plate 46 fixed thereto by a screw 45, said covering plate 46 having a hole 47 through which said needle 26 can travel.

The bobbin holding portion 12 of said operating body 7 is formed cylindrically, of which one side is opened, so as to hold a bobbin 48 and on the upper side portion of which a hole 59 for drawing out a thread 37 from the bobbin is formed. Knobs 50 are fixed to each end of a supporting shaft 49 provided through the rotary center of said bobbing for holding the bobbin 48 inserted into the bobbing holding cylindrical portion, a coil-shaped compression spring 51 inserted with the supporting shaft 49 is provided between the inner side of the knob 50 and the outer side of the bobbing 48, and a threaded portion 52 provided on the supporting shaft 49 is threaded to said bobbin holding cylindrical portion 12, so that it is prevented from drawing out the thread 37 excessively by the spring 51.

In operation, the bobbing 48 is inserted into the cylindrical portion 12 of the operating body 7 so as to rotate freely. One end of the sewing thread 37 wound around the bobbin 48 is drawn out to thereby insert into the thread bore 36 of the needle 26. In this state, a cloth 53 to be sewed is placed on the covering plate 46 on said frame body 1 and the operating body 7 is pushed to the covering plate 46 against the force of the spring 22 by hand, so that the operating body 7 is rotated centering around the supporting shaft 15 and the holding member 29 provided on the operating body 7 presses and holds the cloth 53 to be sewed on the covering plate 46 via the

spring 27. According to the reduction of the spring 27 the tip of the needle 26 is protruded through the cloth 53 to be sewed from the hole 47 of the covering plate 46 to the spacing portion 6 in the frame body 1. At this time, the operating lever 13 protruded from the operating body 7 is descended along the aperture 41 of the rotary operating piece 30 and the groove 42 of the front plate 33 of the frame body 1, the tip end of said operating lever 13 reaches the inclined portion 40 of the aperture 41 of the rotary operating piece 30 when the tip of the needle 26 reaches the gap G between the hook piece 31 and the rotary operating piece 30, and the rotary operating piece 30 with the hook piece 31 is rotated in a clockwise direction as shown in FIG. 2.

When the operating body 7 is released from pressure, it is returned upwardly by action of the springs 22 and 27. On the return operation of the operating body 7, the needle 26 as well as the operating lever 13 are ascended and the rotary operating piece 30 is rotated in a counterclockwise direction as shown in FIG. 2, and the hook portion 38 on the hook piece 31 is hung on the sewing thread 37 as shown in FIG. 3, so that said sewing thread is drawn out of the bobbin 48 successively corresponding to the ascending of the needle 26. When the frame body 1 is moved slightly to the left with regard to the cloth 53 to be sewed in FIG. 1 and the operating body 7 is lowered as described above, same operation as described above may be repeated and the tip end of the needle 26 is inserted into an annular portion 37*a* formed by the sewing thread 37 which is hung previously on the hook portion 38 as shown in FIG. 4, and then the hook portion 38 is released from the sewing thread 37 and another portion of the sewing thread 37 engaging with the needle 26 is hung on the hook portion 38 as shown in FIG. 5, thereby effecting the sewing successively as shown in FIG. 6.

At the rear end of the operating body 7, an upper limit stopper 55 engaging with the upper edge of the frame body 1 is formed as well as a lower limit stopper 56 engaging with the bottom of the frame body 1 is formed at the lower side of the bobbin holding portion 12.

The present invention is simple and easy in assembly and construction and has good stability in operation because the operating lever 13 of the operating body 7 is engaged with the aperture 41 of the rotary operating piece 30 comprising the vertical portion 39 and the inclined portion 40, so as to rotate the operating piece 30 intermittently and to effect the sewing.

What I claim is:

1. A toy sewing machine comprising a box-shaped frame body of which the upper surface is opened, a sewing hook member provided at the front of said frame body, a press operating body having a grip member, means pivotally connecting said press operating body to rotate freely at the rear end of said frame body, a compression spring inserted between said press operating body and frame body, a bobbin holding portion formed on said press operating body, a bobbin inserted into said holding portion, an operating lever, means connecting said operating lever to said sewing hook member protruding from the front of said bobbin holding portion, a front plate in said frame body having a vertical groove therein, said operating lever being guided along said vertical groove provided through said front plate, a needle fixed at the extremity of said press operating body, a holding member through which a needle guide bore is provided, a thread wound around said bobbin and passed through a thread bore of said needle, and a compression spring connected between the extremity of said press operating body and said holding member, said sewing hook member having a rotary operating piece and a hook piece, means pivotally connecting said hook member so as to rotate freely on the frame body, said rotary operating piece having a slot receiving said operating lever therein comprised by an upper vertical portion and a lower inclined portion.

2. A toy sewing machine as defined in claim **1**, in which said bobbin holding portion is comprised by a cylindrical portion, of which one side is opened for holding said bobbin and on the upper side portion of which a hole is formed for drawing out the thread from the bobbin, a supporting shaft provided through the rotary center of said bobbin for holding the bobbin inserted into said cylindrical portion and threaded into said cylindrical portion, a knob fixed to one end of said supporting shaft, and a coil-shaped compression spring inserted between the inner side of said knob and the outer side of said bobbin.

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