Dec. 26, 1933. H. J. GOOSMAN 1,941,083

SEWING MACHINE

Filed Nov. 15, 1930 3 Sheets-Sheet 1

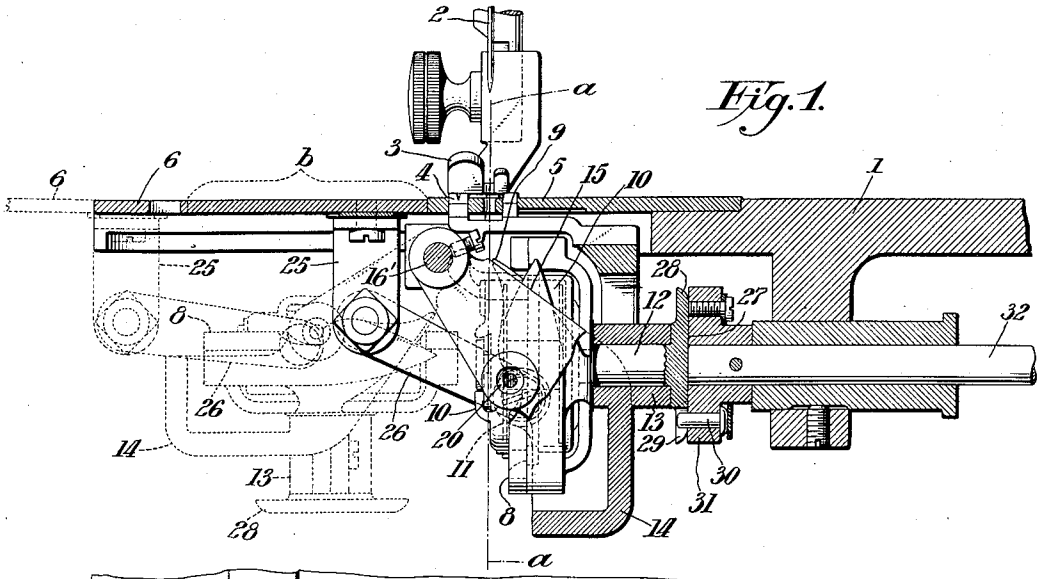


Fig. 1.

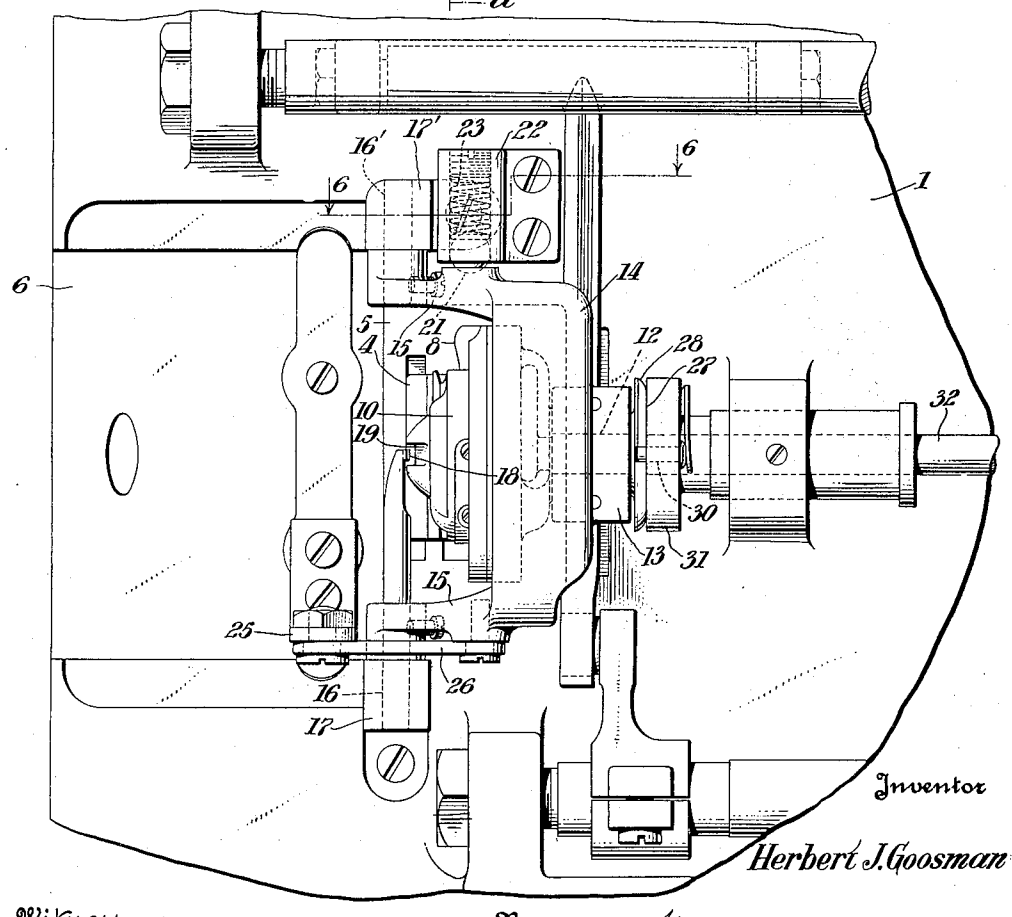


Fig. 2.

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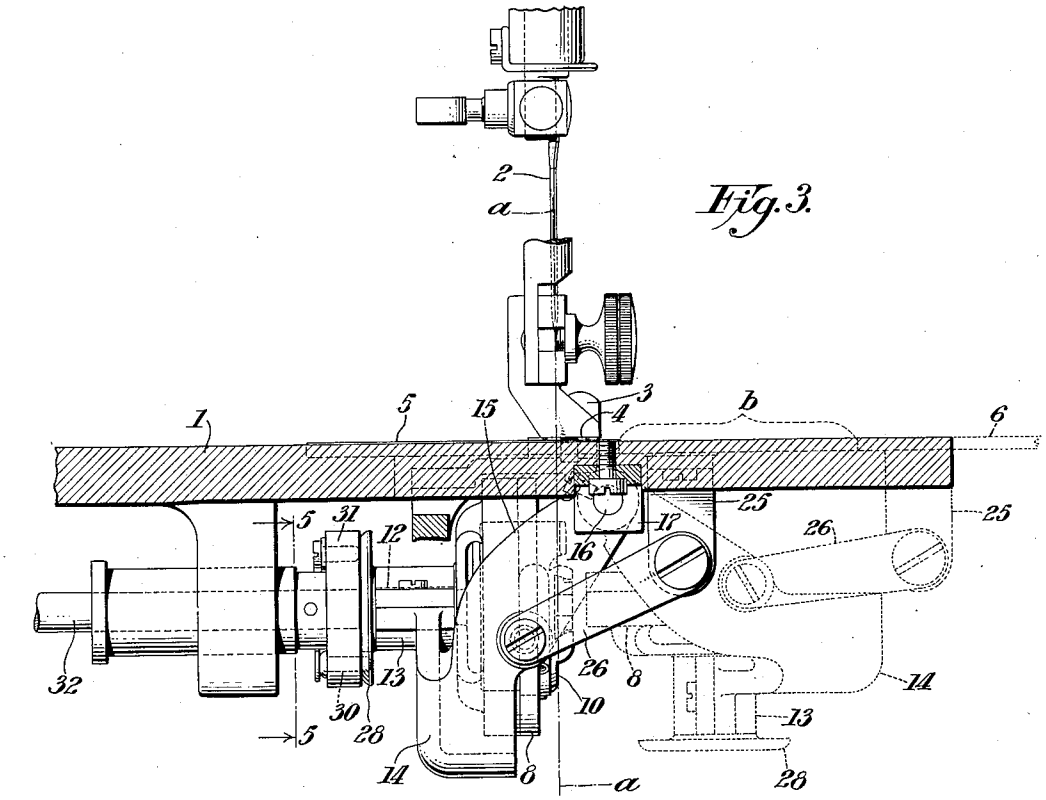


Fig. 3.

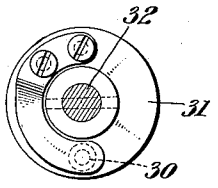


Fig. 5.

Fig. 4.

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SEWING MACHINE

Filed Nov. 15, 1930 3 Sheets-Sheet 3

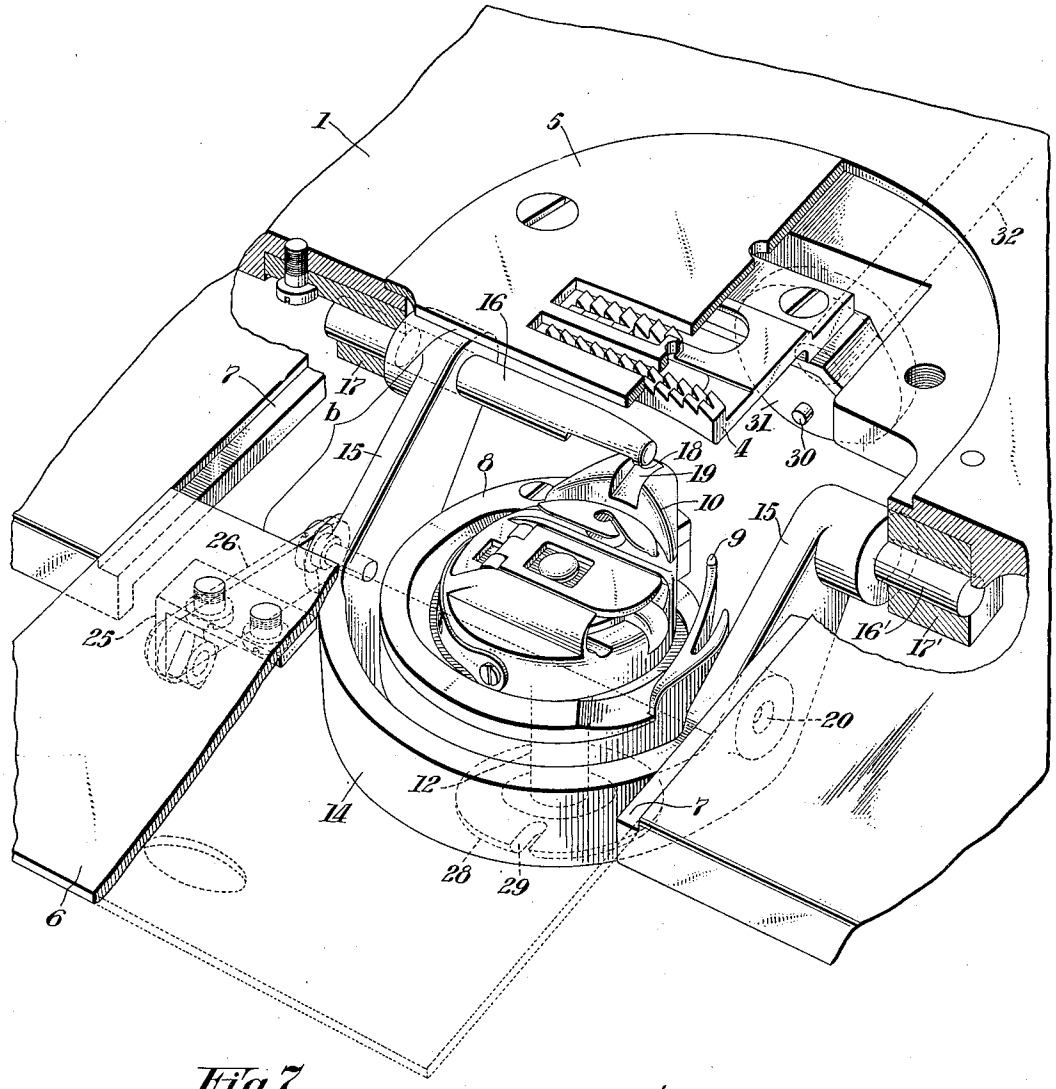


Fig. 7.

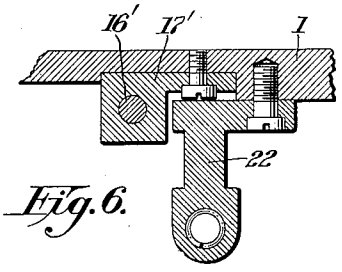


Fig. 6.

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UNITED STATES PATENT OFFICE

1,941,083

SEWING MACHINE

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Serial No. 495,813

15 Claims. (Cl. 112—181)

This invention relates to sewing machines, more particularly of the flat bed type having a loop-taker turning about a horizontal axis, and has for an object to provide for ready access to such a loop-taker.

With the above and other objects in view, as will hereinafter appear, the invention comprises the constructions, combinations and arrangements of parts hereinafter more particularly described and claimed.

The features of the invention and the advantages attained thereby will be readily understood by those skilled in the art from the following detailed description of a preferred embodiment of the invention, taken in connection with the accompanying drawings, in which Fig. 1 is a vertical sectional view through the stitching point of a sewing machine embodying the invention; looking in the direction of feed. Fig. 2 is a bottom plan view of the parts shown in Fig. 1. Fig. 3 is a rear side elevation of the parts shown in Fig. 1. Fig. 4 is a front end elevation of the parts. Fig. 5 is a section on the line 5—5, Fig. 3. Fig. 6 is a section on the line 6—6, Fig. 2, and Fig. 7 is a perspective view of the loop-taker in bobbin-removing and -replacing position.

1 represents the bed of a sewing machine having a reciprocating needle 2, presser-foot 3, feed-dog 4, throat-plate 5 and cover-slide 6 which is mounted as usual in the slide-ways 7 in the bed 1 and is shiftable from closed or full-line position, Figs. 1, 2 and 3, to open or dotted line position, Figs. 1, 3 and 7, to expose an opening *b* in the bed 1 for access to the loop-taker 8.

The loop-taker 8 is in the form of a cup-shaped rotary hook having a loop-taking beak 9 and supporting the usual stationary thread-case 10 in which the usual lower thread-mass or bobbin 11 is removably mounted; the construction of the rotary hook, thread-case and bobbin, herein illustrated, being substantially in accordance with the disclosure of the patent to Diehl et al., No. 1,146,406, of July 13, 1915.

The loop-taker 8 is carried by the loop-taker shaft 12 which is journaled horizontally in a bearing 13 in the U-shaped bracket 14, the upwardly extending legs 15 of which have fixed to their upper ends the alined hinge-pins 16, 16', which hinge-pins are journaled, respectively, in the bearing brackets 17, 17' fixed to the under side of the bed 1. The hinge-pin 16 is extended and formed at one end with a rotation-restraining tongue 18 which enters the usual rotation-restraining notch 19 of the thread-case 10.

The bracket 14 is formed at one side with a depression or recess 20, Fig. 4, which is entered by a spring-pressed ball 21 carried by the bracket 22 fixed to the bed 1. The ball 21 yieldingly retains the bracket 14 in full line or sewing position. The bore 23 in the bracket 22 is slightly reduced at its end 24 so as to be smaller than the ball 21 and hold the ball in the bore 23 when the bracket is swung out of sewing position.

It will be observed that, in the full line or sewing position of the parts, the hook-shaft 12 is disposed horizontally; the hook-beak 9 rotating in a vertical plane. Also, the hook-body 8 and thread-case 10 are disposed mainly at one side of the vertical plane *a—a*, Fig. 1 passing through the path of reciprocation of the needle 2 and disposed in the line of feed. The axis of the hinge-pins 16, 16' is disposed on the other side of the plane *a—a*. It results from this construction that, when the bracket 14 is swung about its hinges, the hook 8 and thread-case 11 are carried out from under the throat-plate 5, across the plane *a—a*, and are tilted from a vertical to a readily accessible horizontal position, Fig. 7, with the open side of the hook uppermost, exposing the thread-case 10 for removal of the usual bobbin-holding element thereof.

The cover-slide 6 preferably has secured to it a downwardly extending post 25 which is connected by means of a link 26 to the bracket 14. When the cover-slide 6 is shifted from closed to open position to expose the opening *b* in the bed 1, the hook 8 and thread-case 10 are swung from sewing position to dotted line position directly below and facing the opening *b*, where the thread-case is readily accessible for removal of the bobbin 11. When the cover-slide 6 is shifted to closed position, the hook 8 and parts carried thereby are automatically restored to sewing position.

The hook-shaft 12 is formed at one end with a flat face 27 and flange 28 in which is cut a notch 29. The notch 29 is normally entered by the spring-pressed coupling pin 30 mounted in the flanged end 31 of the usual loop-taker driving shaft 32 journaled below the bed 1. When the bracket 14 is in sewing position, the flat face 27 of the flange 28 is in contact with the face of the flange 31, and the shafts 12 and 32 are in alinement and are coupled together by the pin 30. This type of coupling permits the bracket 14 to be shifted at any time, with the hook 8 in any position. Furthermore, it is not necessary that the hook 8 be in any particularly timed position when the bracket 14 is returned to sewing position. If the notch 29 is not in register

with the pin 30, the flange 28 will simply press the pin to the right, Fig. 1. When the machine is started in the usual manner to draw the bobbin-thread up through the needle-hole in the throat-plate, preparatory to sewing, the pin 30 will find the notch 29 and enter the latter, thereby coupling the shaft 12 to the shaft 32 in properly timed relation.

The invention is not to be understood as limited to the form and arrangement of parts disclosed herein as this disclosure is merely illustrative of a preferred embodiment of the invention. Nor is the invention to be understood as limited in all of its aspects to a lock-stitch sewing machine.

Having thus set forth the nature of the invention, what I claim herein is:—

1. A sewing machine having, in combination, a reciprocating needle, feeding mechanism, a loop-taker disposed mainly at one side of the vertical plane of the needle in the line of feed, a bracket in which said loop-taker is journaled, said bracket being hinged to swing on an axis disposed on the other side of said vertical plane to carry said loop-taker from operative position to an easily accessible position.

2. A sewing machine having a bed formed with an opening, a cover-slide closing said opening, a throat-plate alongside said cover-slide, a reciprocating needle operating through said throat-plate, a loop-taker having a beak operating in vertical plane below said throat-plate, and means for swinging said loop-taker from operating position to a readily accessible position below said opening.

3. In a lock-stitch sewing machine having a lower thread-mass, a reciprocating needle, a bed, a throat-plate fixed to said bed, a cover-plate slidably mounted in said bed alongside said throat-plate, a loop-taker having an operative position below said throat-plate, and means for moving said loop-taker laterally of its operative position to a readily accessible position below the opening exposed by the cover-plate, to facilitate removal and replacement of the lower thread-mass.

4. In a lock-stitch sewing machine having a lower thread-mass, a reciprocating needle, a bed, a throat-plate fixed to said bed, a cover-plate slidably mounted in said bed alongside said throat-plate, a loop-taker having an operative position below said throat-plate, driving means for said loop-taker and means connected to said cover-plate for disconnecting said loop-taker from its driving means and for moving said loop-taker laterally of its operative position to a readily accessible position below the opening exposed by the cover-plate, to facilitate removal and replacement of the lower thread-mass.

5. A sewing machine having, in combination, a reciprocating needle, a loop-taker, a thread-case supported within the field of action of said loop-taker, a bracket in which said loop-taker is journaled, a hinge-pin supporting said bracket for swinging movement between operative position and easy-threading position, said hinge-pin having a portion cooperating with the thread-case to restrain the latter from rotation.

6. A sewing machine having, in combination, a reciprocating needle, a loop-taker, a loop-taker driving shaft, a bracket in which said loop-taker is journaled with its shaft operatively connected with said driving shaft, said bracket being movably mounted to carry said loop-taker from operative position to a more readily accessible position, and mean for automatically coupling said shafts together in properly timed relation.

7. A sewing machine having, in combination, a reciprocating needle, a loop-taker, a loop-taker driving shaft, a bracket in which said loop-taker is journaled with its shaft operatively connected with said driving shaft, said bracket being movably mounted to carry said loop-taker from operative position to a more readily accessible position, and means for automatically coupling said shafts together in properly timed relation, said means including a spring-pressed pin carried by one of said shafts and adapted to enter a recess in the other shaft.

8. A sewing machine having, in combination, a bed, a reciprocating needle, a loop-taker journaled on a horizontal axis to rotate in a vertical plane when in sewing position, a bobbin carried by said loop-taker, said loop-taker being swingable out of sewing position to a position below said bed at an angle to sewing position, for convenience in removing and replacing the bobbin.

9. A sewing machine having, in combination, a bed, a reciprocating needle, a throat-plate, a loop-taker disposed below said throat-plate and having a loop-taking beak operating in a substantially vertical plane, a bobbin mounted within the field of action of said loop-taker, a cover-slide adapted to expose an opening in said bed at one side of said throat-plate for access to said bobbin, and means for shifting said loop-taker from sewing position to a position directly under said opening for convenience in removing said bobbin.

10. A sewing machine having, in combination, a bed, a reciprocating needle, a U-shaped bracket swingably mounted below said bed, a loop-taker journaled in said bracket intermediate the legs of the latter, a cover-slide, and a connection between said cover-slide and said bracket to swing the latter and the loop-taker from sewing position to a more readily accessible position.

11. A sewing machine having, in combination, a reciprocating needle, feeding mechanism, a loop-taker disposed mainly on one side of the line of seam-formation, actuating means connected to said loop-taker, and means for disconnecting said loop-taker from its actuating means and shifting it to a position on the opposite side of the line of seam formation for convenient access.

12. A sewing machine having a bed formed with an opening, a cover-slide for said opening, a loop-taker, actuating means for said loop-taker, and means under control of said cover-slide for disconnecting said loop-taker from its actuating means and shifting it to a position of convenient access.

13. In a machine of the class described, the combination of, a loop-taker shiftable from an active to an inactive position, a driving shaft therefor, a coupling comprising two disks one of which is movable with the loop-taker to inactive position, a spring-pressed pin in one of said disks, said pin being adapted to enter an opening in the other of said disks when said loop-taker is in its active position, and means for yieldingly holding said loop-taker in its active position.

14. A sewing machine having, in combination, a bed, a reciprocating needle, a loop-taker having a beak operating in a vertical plane, a bobbin carried by said loop-taker, a bracket in which said loop-taker is operatively mounted, and a pivot connecting said bracket to said bed and disposed above and adjacent the operative po-

sition of the loop-taker, whereby said bracket is swingable upwardly between sewing position and bobbin-removing position.

15. A sewing machine having, in combination, a bed formed with an opening, a cover-slide closing said opening, a reciprocating needle, a loop-taker having a beak operating in a vertical plane, a bobbin carried by said loop-taker, a bracket in which said loop-taker is operatively mounted, said bracket being stationary relative to said bed while the machine is in operation, a hinge-connection between said bracket and bed, and means under control of said cover-slide for swinging said loop-taker, bobbin and bracket upwardly about said hinge-connection to carry said loop-taker and bobbin from sewing position to a more readily accessible position below the opening in said bed.

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