

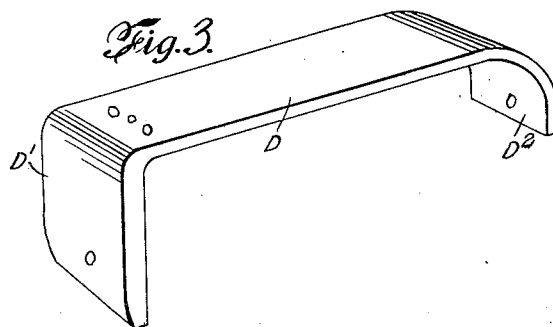
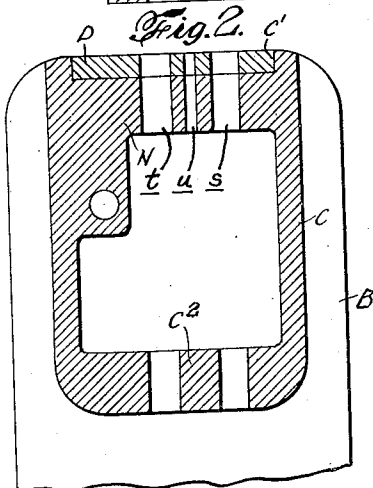
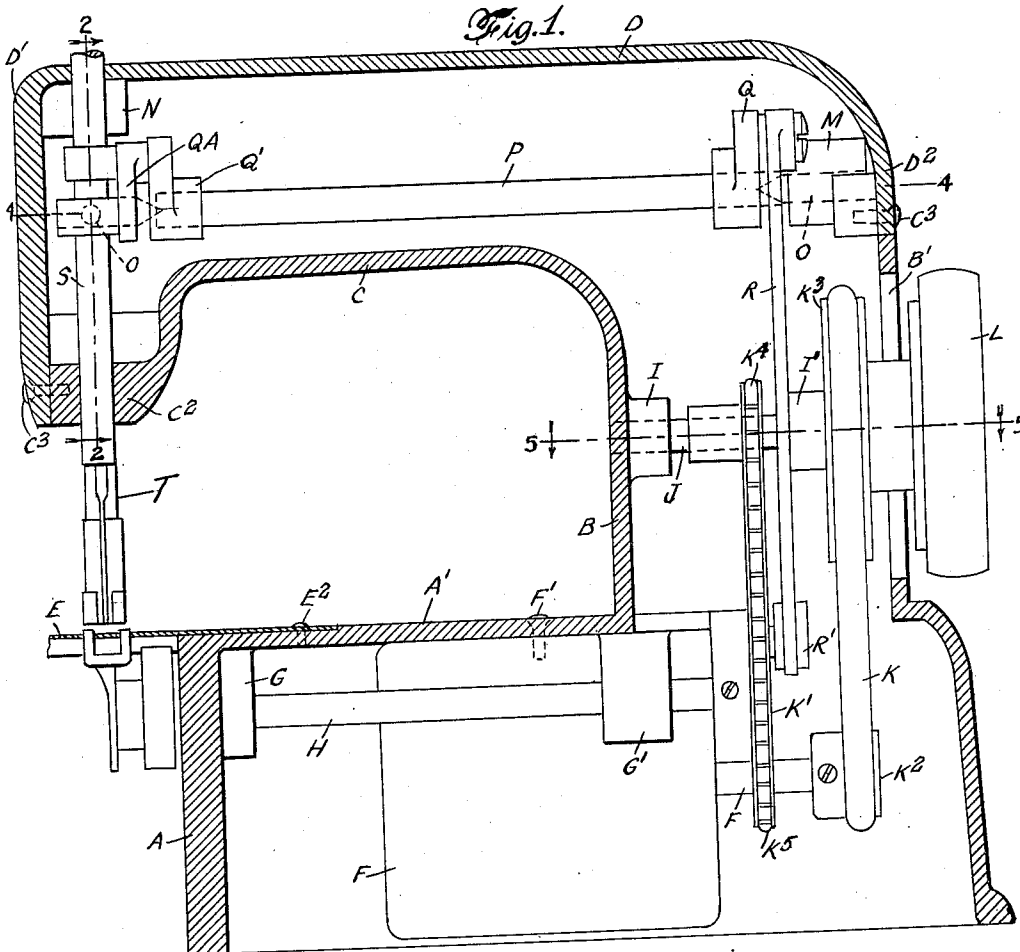
Oct. 17, 1950

R. K. HOHMANN
SEWING MACHINE FRAME

2,526,481

Filed April 6, 1948

2 Sheets-Sheet 1



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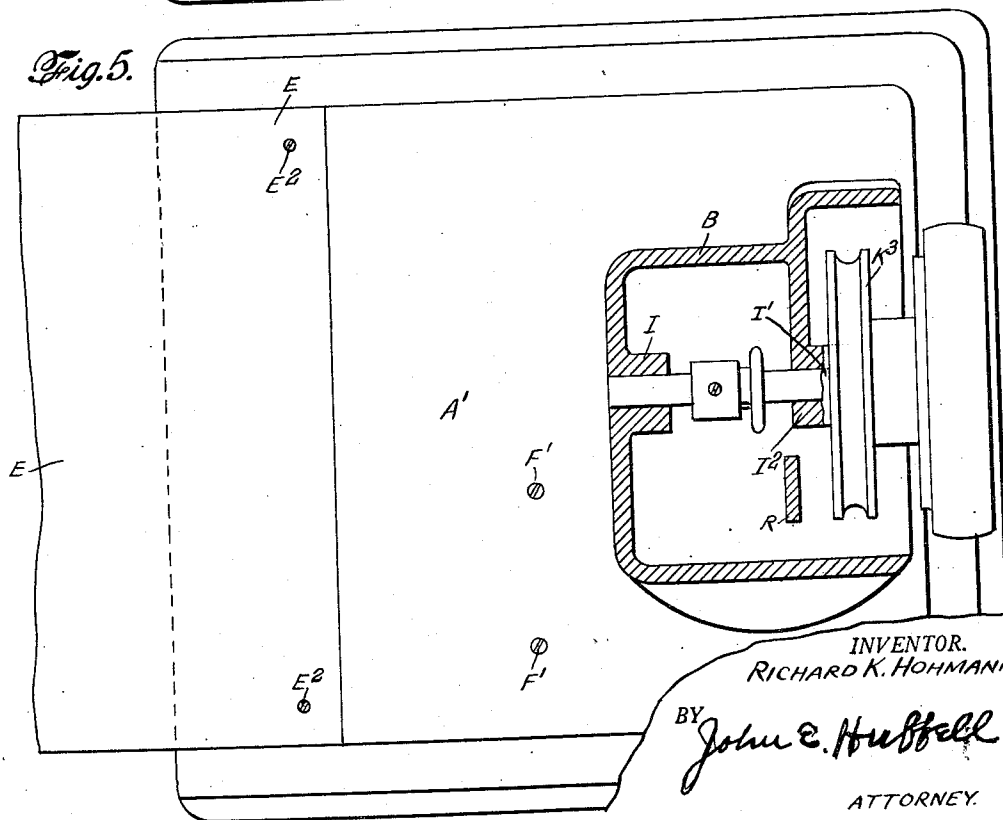
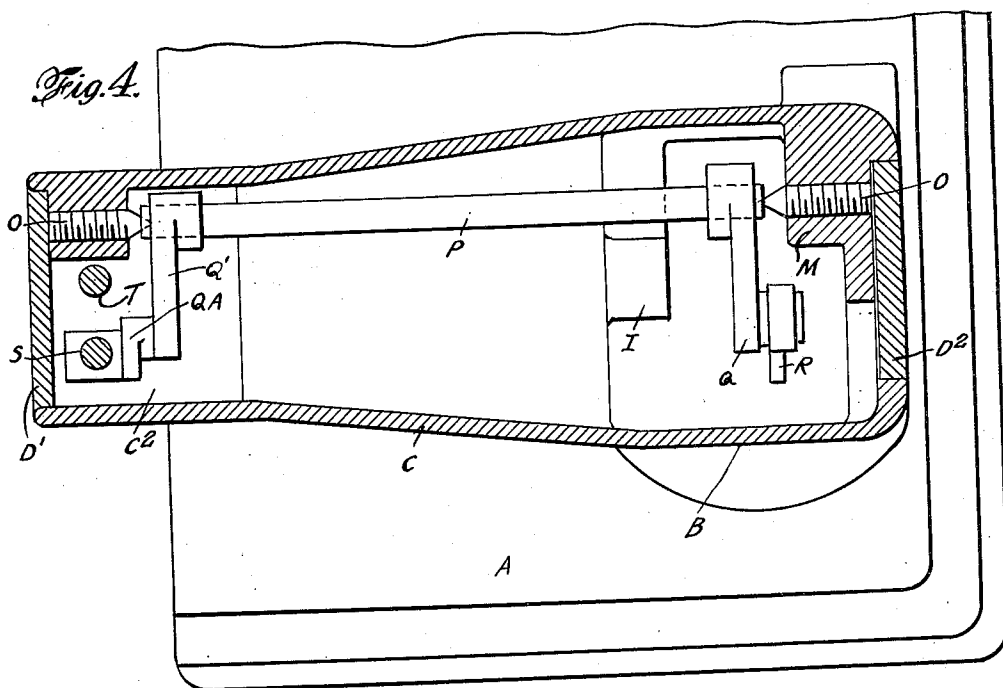
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UNITED STATES PATENT OFFICE

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SEWING-MACHINE FRAME

Richard K. Hohmann, Jamaica, N. Y.

Application April 6, 1948, Serial No. 19,277

7 Claims. (Cl. 112-258)

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The general object of the present invention is to provide an improved sewing machine frame especially adapted for, though not restricted to use as the frame of a light weight portable sewing machine of the small size commonly known as a "little girl" sewing machine such as the machine which is disclosed and claimed in my co-pending application Serial No. 19,275 filed of even date herewith.

A specific object of the invention is to provide a frame having its arm portion formed with an opening extending along the entire top of the arm and comprising a depending portion at the front end of the arm, and preferably at the rear end of the arm also, and normally closed by a cover member comprising a body portion at the top of the arm and a depending front end portion, and preferably comprising a rear end depending portion when said opening includes a portion at the rear end of the arm. In the preferred form of the invention, the depending cover portion at the front end of the frame arm is arranged to serve as a front face for the vertically elongated end portion of the arm in which the needle and presser bars of the sewing machine are mounted.

A further specific object of the invention is to form the portion of the frame arm at the margin of said arm opening to provide a recessed seat for the cover member in which the latter may be readily positioned, and in which it may be detachably secured by screws or other simple securing means. The provision of the frame arm with the opening and detachable cover therefor as described, facilitates assembly, inspection, cleaning and repair of all of the sewing machine mechanism mounted in the arm and standard portions of the frame.

In the preferred form of the invention, particularly when embodied in small size sewing machines, the frame is an aluminum casting and particularly a hard aluminum casting, with internal bosses, webs and wall thickening pads suitably disposed to provide bearings, and to give additional frame strength and rigidity where needed, and a further specific object of the invention is to provide bosses or thickening parts in the arm portion of the frame arranged to support aligned trunnion pivots forming effective supporting and bearing means for the rotatable needle bar shaft mounted in said arm.

The various features of novelty which characterize my invention are pointed out with particularity in the claims annexed to and forming a part of this specification. For a better under-

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standing of the invention, however, its advantages and specific objects attained with its use, reference should be had to the accompanying drawing and descriptive matter in which I have illustrated and described a preferred embodiment of the invention.

Fig. 1 is a sectional elevation of my improved sewing machine frame, the section being taken on the line 1-1 of Fig. 2;

Fig. 2 is a fragmentary sectional elevation, the section being taken on the line 2-2 of Fig. 1;

Fig. 3 is a perspective view of a cover member;

Fig. 4 is a plan section on the line 4-4 of Fig. 1; and

Fig. 5 is a plan section on the line 5-5 of Fig. 1.

The sewing machine frame shown in the drawing comprises a hollow base A open at its bottom, a hollow standard B extending upward from the base A at one end of its workbed portion A', and a hollow arm portion C connected to the upper end of the standard B and overhanging the workbed A'. In the form shown, the frame portions A, B and C are integral portions of a casting advantageously made of so-called hard aluminum.

The arm C is formed with an opening C' comprising a body portion extending along the top of the arm for substantially the full length and width of the arm, and comprising depending front and rear end portions. The opening C' is normally closed by a cover member D comprising a body portion extending along the top of the arm, a depending front face portion D' closing the front end portion of the opening C', and a depending portion D² closing the rear end portion of said opening. At its needle bar end, the arm C is formed with a thickened wall portion C² below the level of the main bottom portion of the arm C and constituting the bottom wall of the needle head chamber portion of the frame.

The portion of the hollow arm C at the margin of the opening C' is shaped to form a recessed seat for the cover member D in which the latter is accurately positioned so that said member may be detachably secured in place by simple securing means such, for example, as are formed by a separate screw C³ extending through the lower end of each of the cover end portions D' and D² and into a threaded socket in a corresponding boss or web portion of the frame arm. The outer surface of the cover member may be substantially flush with the outer surface of the adjacent marginal portion of the frame arm, and the adjacent edges of the cover members and arm are advantageously shaped, as shown, to facilitate the movement of the cover member into its closing

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position and to give a pleasing appearance to the outer edge of the joint between said member and frame arm.

A workbed extension E in the form of a steel plate is detachably connected by screws E² to the end of the workbed portion A' of the base A remote from the standard B. The base portion of the frame provides space for an electric driving motor F, which is shown as having its frame connected by screws F' to the top or bed plate portion A' of the base A. The base A is formed with a thickened reinforcing pad or boss G at the inner side of its front wall, and with a boss G' intermediate the ends of the base member, and with aligned bearing passages in said bosses for the hook shaft H of the sewing machine.

The standard B is formed with internal bosses I and I' for a horizontal intermediate or counter shaft J. The boss I is integrally connected to and projects inwardly from the front wall of the standard B. The boss I' is integrally connected to and supported by a web portion I² projecting from the portion of the standard wall at the rear of the bosses I and I'. The intermediate or counter shaft J is connected to the motor shaft F' by one driving belt K, and is connected to the hook shaft H by a second driving belt K'. The belt K is shown as a rubber belt running over a grooved pulley K² carried by the motor shaft F' and over a grooved pulley K³ carried by the shaft J, and the belt K' is shown as a sprocket chain running over a sprocket wheel K⁴ secured to the shaft J and a sprocket wheel K⁵ secured to the hook shaft.

The frame arm C is provided with internal bosses M and N at its rear and front ends which are formed with registering openings or sockets receiving aligned trunnion pivot pins O. The pivots O are axially adjustable in the respective bosses M and N, and may be secured by set screws in different longitudinal adjustments. The pivots O support an oscillating needle bar shaft P. Adjacent its rear end, the shaft P carries a crank arm Q connected by a link R to a crank pin R' carried by the sprocket K⁴. Adjacent its front end, the shaft P carries a second crank arm Q' connected through a link QA to a vertical needle bar S extending through aligned openings s in the thickened bottom wall C² in the boss N and in the cover plate D. The boss N, the thickened bottom wall portion C² of the arm and the cover member D are also formed with aligned openings t for a presser bar T alongside the needle bar S. The boss N and cover member D are also formed with aligned vertical passages u to receive an unillustrated vertical pin intermediate the needle bar S and presser bar T and having its lower end secured to the needle bar. As is fully disclosed in said co-pending application, Serial No. 19,275, the pin received in the passage u is adapted as the needle bar approaches the upper limit of its movement, to interrupt once during each stitch forming operation the clamping pressure on the needle thread normally exerted by a thread clamp (not shown) which may be mounted on the arm C.

The sewing machine frame construction illustrated is characterized by its comparative simplicity and by the relatively inexpensive manner in which it may be formed and machined. The provision of the frame arm C with the extended opening C' illustrated and described, permits ready access to substantially all the sewing machine mechanism mounted in the frame above the workbed level. The free access to the inte-

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rior of the arm thus provided, facilitates the initial assembly of the mechanism mounted in the frame, and the inspection, adjustment and repair of the mechanism, and particularly of the needle bar shaft P mounted on the adjustable pivots O. Advantageously and as shown, the front face of the front end portion D' of the cover member D is convex so that the upper and lower ends of said face are closer than is the central portion of the face to the needle bar axis. This gives a desirable path of movement of the thread as it passes down to the needle in front of the cover portion D' from the top of the needle bar. Inclination of the lower portion of the front face of the part D' toward the needle axis and the resultant reduction in the distance between the lower end of said front face and the needle axis is especially important as it reduces the bending force to which the needle is subjected in each stitch tightening operation.

Certain novel features of sewing machine mechanism disclosed but not claimed herein, are claimed in my above-mentioned, concurrently filed, prior application, Serial No. 19,275.

While in accordance with the provisions of the statutes, I have illustrated and described the best form of embodiment of my invention now known to me, it will be apparent to those skilled in the art that changes may be made in the form of the apparatus disclosed without departing from the spirit of my invention as set forth in the appended claims, and that in some cases certain features of my invention may be used to advantage without a corresponding use of other features.

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

1. A sewing machine frame comprising a base portion, an uprising hollow standard portion and an elongated horizontal arm portion terminating at its free end in a needle bar chamber and formed with an opening extending along the entire top of the arm and with an opening at the front side of the said chamber, and a separable cover member for said openings comprising a body portion closing the opening extending along the top of the arm and a depending portion closing the opening at the front side of said chamber.

2. A sewing machine frame as specified in claim 1, in which the portion of the frame arm at the margin of said openings is shaped to form a recessed seat for said cover member.

3. A sewing machine frame as specified in claim 2, in which the major portion, at least, of the cover member is substantially flush with the outer surface of the adjacent portion of the arm.

4. A sewing machine frame as specified in claim 1, in which the front end of the arm is vertically elongated and provided with upper and lower needle bar and presser bar bearings, and in which the depending portion of the cover member forms a front face for substantially all of the front end of the arm.

5. A sewing machine as specified in claim 1, in which the lower portion of the front face of the depending portion of the cover member is inclined toward the needle bar axis.

6. A sewing machine frame as specified in claim 1, in which the said opening at the top of the arm comprises a depending portion at the rear end of the arm and in which said cover includes a depending portion at its rear end adapted to close said depending opening portion.

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7. A sewing machine frame as specified in claim 1, comprising frame portions within the arm adjacent its opposite ends with registering passages for aligned trunnion pivots adapted to pivotally support a needle bar shaft longitudinally disposed in the arm and accessible for longitudinal adjustment in said passages when said cover member is removed.

RICHARD K. HOHMANN.

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