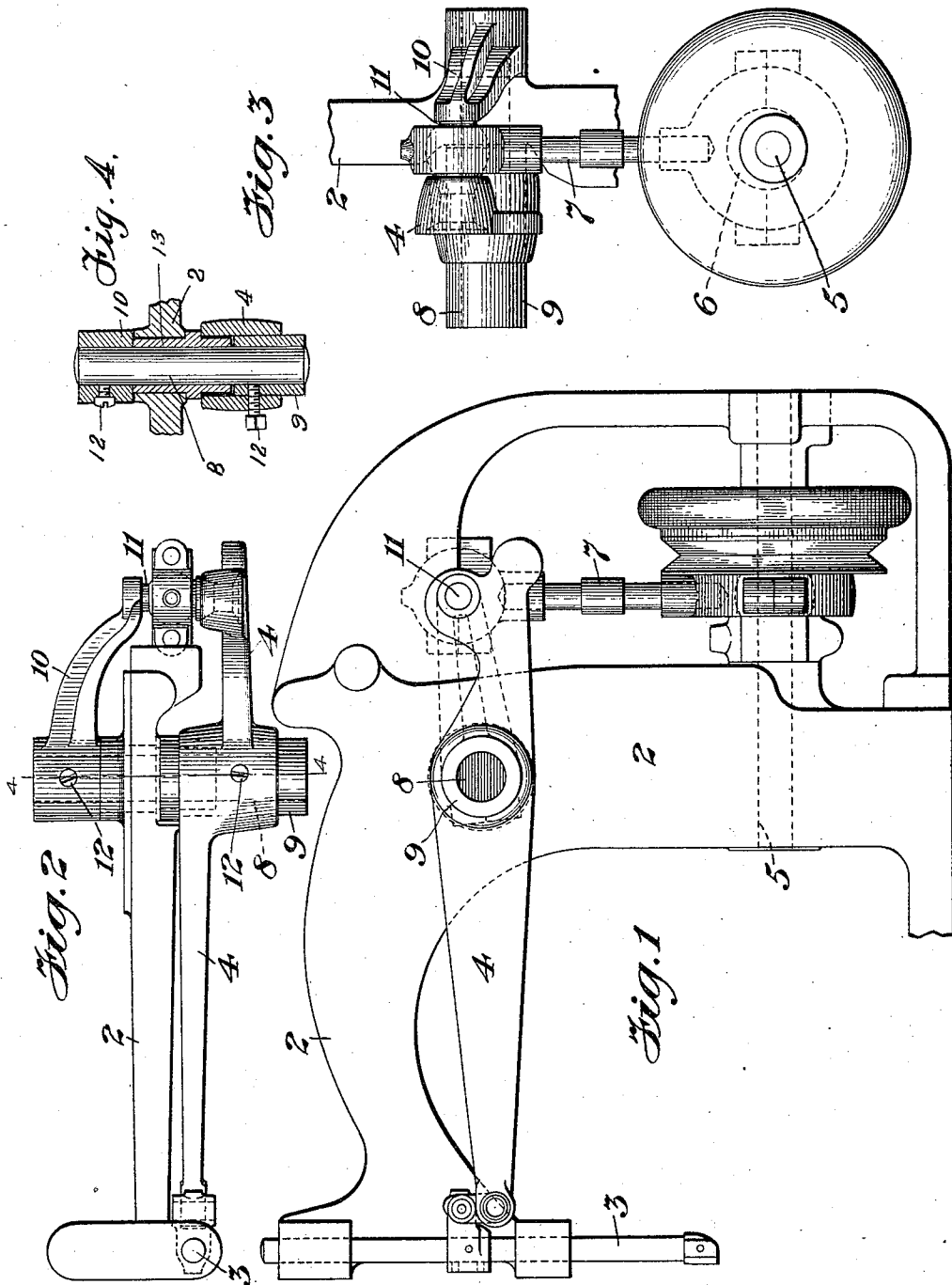


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SEWING MACHINE.  
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1,046,717.

Patented Dec. 10, 1912.



Witnesses:  
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# UNITED STATES PATENT OFFICE.

SATTERLEE T. ARNOLD, OF CLEVELAND, OHIO, ASSIGNOR TO THE STANDARD SEWING MACHINE COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF OHIO.

## SEWING-MACHINE.

1,046,717.

Specification of Letters Patent.

Patented Dec. 10, 1912.

Application filed March 28, 1908. Serial No. 423,871.

*To all whom it may concern:*

Be it known that I, SATTERLEE T. ARNOLD, citizen of the United States, and resident of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Sewing-Machines, of which the following is a specification.

This invention relates particularly to that type of sewing machines in which the needle-bar is operated by a lever which is mounted on the arm of the machine and actuated from a cam or eccentric on the lower driving shaft through the medium of a pitman connection. In the operation of a machine of such type, the pitman, connecting with the lever adjacent to its rear end and at one side thereof, produces a certain torsional strain on the lever which, in the event of the machine being operated at a very high rate of speed, is liable to develop a break in the lever. To provide a simple and effective means for preventing liability of such break in the lever has been the object of my invention, and this object I secure by providing an auxiliary connection between the pitman and the shaft which is operative to relieve torsional strain on the lever.

Referring now to the accompanying drawings forming part of this specification, in which I have shown only so much of a sewing machine as is necessary to illustrate my invention, Figure 1 is a front elevation of a part of a machine embodying my invention. Fig. 2 is a top plan view of the same, Fig. 3 is a detail end view showing the connection between the driving shaft and the needle-bar lever, Fig. 4 is a sectional view on line 4—4 of Fig. 2.

Similar reference characters in the several figures of the drawings indicate like parts.

In said drawings, 2 indicates a part of the frame or so-called arm of the machine; 3, the needle-bar mounted to reciprocate in bearings at the front end of said frame; 4, the so-called needle-bar lever pivotally mounted on the frame 2 with its front end operatively connected to the needle-bar; 5, the driving shaft mounted in bearings at the lower part of the frame and provided

with a cam or eccentric 6; and 7 a pitman operatively connecting the cam or eccentric 6 with a pin 11 projecting from one side of the rear end of the lever 4 for imparting movement to the latter and the connected needle-bar. These several parts as set forth are of usual arrangement and operation; the said pitman, connected with the lever as hereinbefore mentioned, producing a certain torsional strain on said lever which is liable to develop a break in the lever when the machine is operated at a very high speed.

The needle bar lever 4 is shown as being mounted at the front of the frame 2 on a collar 9 carried by a shaft 8 extending through a bushing 13 seated in an opening in said frame. The lever 4 and collar 9 are fixed on the shaft 8 by means of a bolt 12 passing through said parts and abutting against the shaft. Mounted on the shaft 8 on the opposite side of the frame is the hub of a lever arm 10 which extends at its free end to a position opposite the rear end of the lever 4 and has connection therewith by the pin 11 with which latter, the pitman 7 connects by a ball and socket joint as shown. The lever-arm 10 is secured on the shaft 8 by means of a screw 12 as shown in Fig. 4, or other suitable means, so that when the arm 4 is rocked the lever arm 10 will move in unison therewith. The lever arm 10 in such described construction thus serves as an auxiliary connection between the pitman and the shaft, supporting the outer end of said pin and preventing torsional strain on the lever, as will be obvious.

As shown in the drawings the parts 4 and 10 are both rigidly attached to the part 8 by suitable means, such as the set screws 12, whereby they will all operate as one integral structure, but it will be understood that the same results would be obtained by having the shaft 8 stationary and the parts 4 and 10 loosely mounted to oscillate on it, the necessary rigidity between said parts 4 and 10 being provided for by connecting the pin 11 firmly at its ends to the ends of the aforesaid parts.

What I claim is:

1. In a sewing-machine, a frame, a needle-operating lever, a shaft on which said lever

is fixed extending through said frame and journaled therein, and a yoke formed by a rearwardly projecting arm on the needle-operating lever, an arm fixed on the end of the shaft on the opposite side of the frame, and a bearing pin connecting the two arms for the attachment of the operating mechanism.

2. In a sewing-machine, a frame, a needle-operating lever, a shaft on which said lever is fixed extending through said frame and journaled therein, a yoke oscillating said needle-operating lever comprising an arm projecting rearwardly from said lever, a second arm attached to the end of said shaft on the opposite side of the frame, and a bearing connection between the free ends of said arms, and an operating means engaging said yoke between its points of attachment to said shaft.

3. In a sewing-machine, a frame, a shaft mounted to rock in said frame and projecting laterally from each side thereof, a needle-operating arm fixed on one end of said shaft and projecting forwardly, and an operating yoke for rocking said shaft comprising an arm fixed on each end of said shaft and extending rearwardly, and a bearing pin between the free ends of said yoke arms for the attachment of the operating means.

4. In a sewing-machine, a frame, a shaft mounted to rock in said frame and projecting laterally from each side thereof, a needle-operating lever fixed on one end of said shaft and projecting forwardly, and having an integral arm extending rearwardly and beyond the edge of said frame, a second arm fixed on the opposite end of said shaft extending rearwardly and inclined toward the first named rearwardly-extending arm, and a bearing pin between the free ends of said arms for the attachment of operating means, said arms and bearing pin forming a yoke embracing the rear of the frame and preventing torsional strain on said needle operating lever.

5. In a sewing-machine, an overhanging frame arm, a shaft journaled in said arm and projecting laterally from each side thereof, a needle-operating lever fixed on one end of said shaft on one side of the frame arm and being provided with a rearwardly projecting lever, a second rearwardly projecting lever fixed on the opposite end of the shaft and on the other side of the frame, a bearing pin between the ends of said levers and between their attachments to said shaft, and actuating means operatively engaging said bearing pin.

6. In a sewing-machine, an overhanging frame arm, a shaft journaled in said arm and projecting laterally from each side thereof, a needle-operating lever fixed on one end of said shaft on one side of the frame arm and being provided with a rear-

wardly projecting lever, a second rearwardly projecting lever fixed on the opposite end of said shaft and on the other side of the frame inclined with relation to each other and extending beyond the frame, a bearing pin connecting the free ends of said levers, an actuating device, and a pitman operatively connected with said bearing pin and the actuating device.

7. In a sewing-machine, the combination with a frame arm, a shaft journaled in said frame arm and extending on each side thereof, a needle-operating lever fixed on one end of said shaft and having a rearward extension projecting beyond the frame arm, a lever mounted on the opposite end of said shaft extending rearwardly and toward the rear extension of the needle-operating lever, a bearing pin connecting the ends of said levers, an actuating device, and a pitman operatively connecting said actuating device with said bearing pin.

8. In a sewing-machine, a frame arm, a shaft journaled in said frame arm and projecting from opposite sides thereof, a needle-operating lever, having a hub fixed on one end of said shaft and also having an integral arm extending rearwardly from said hub beyond the frame arm, a lever fixed on the opposite end of said shaft and extending rearwardly toward the arm on the opposite side of the frame arm, a bearing pin connecting said rearwardly extending arm and said last named lever and forming with them a yoke extending around the frame arm and serving to relieve said needle operating lever from torsional strain when actuated by power applied to said bearing pin.

9. In a sewing machine, a frame arm, a shaft journaled in said frame and projecting beyond opposite sides thereof, a needle-operating lever fixed on one end of said shaft, an arm projecting rearwardly from said needle-operating lever, a rearwardly projecting lever fixed on the opposite end of said shaft, a pin between said rearwardly projecting parts, and actuating means attached to said pin.

10. In a sewing-machine, a frame arm, a shaft journaled in said frame arm and projecting from opposite sides of the same, a needle operating lever fixed to one end of said shaft, said lever having an arm projecting rearwardly, an actuating device for said lever, and an auxiliary connection comprising an inclined arm between said actuating device and said shaft to which it is fixed, said auxiliary connection serving to relieve the lever from torsional strain.

11. In a sewing machine, a frame, a needle operating lever pivoted on said frame and provided with a rearwardly extending arm, a pin projecting from one side of said arm,

actuating means flexibly attached to said  
pin, and a second rearwardly extending arm  
pivotally mounted on the frame in the same  
axial line with the needle operating lever  
5 and rigidly connected at its free end to said  
pin.

Signed at Cleveland, in the county of

Cuyahoga, and State of Ohio, this 6th day  
of March A. D. 1908.

SATTERLEE T. ARNOLD.

Witnesses:

F. J. VEMING,  
L. F. ALLAN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,  
Washington, D. C."