April 14, 1942. D. H. CHASON 2,279,587

TREADLE

Filed Dec. 26, 1940 2 Sheets-Sheet 1

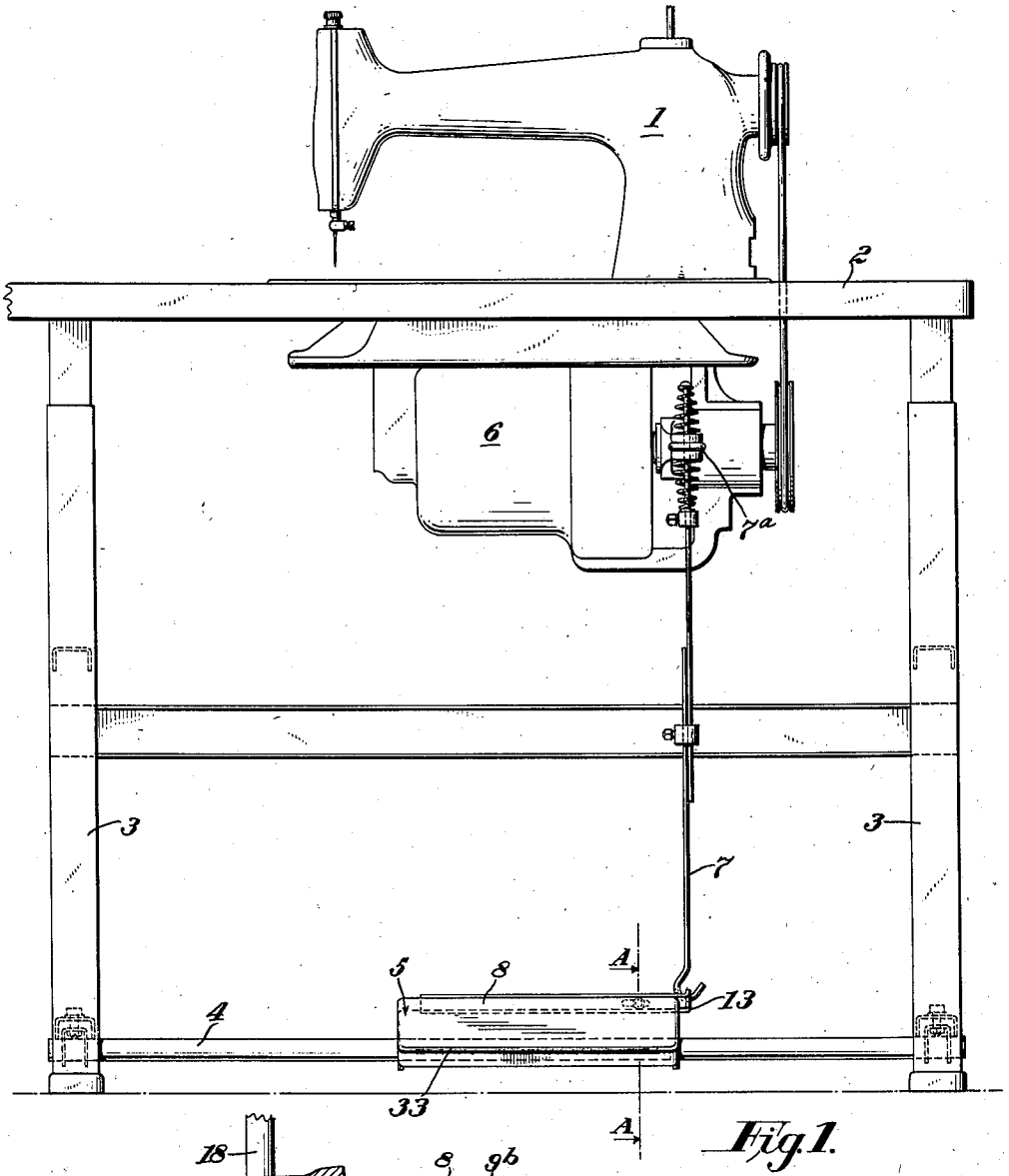


Fig. 1.

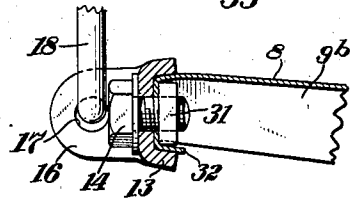


Fig. 3.

Inventor
Daniel H. Chason

Witness:
John H. Cave

By John F. Heine
Attorney

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TREADLE

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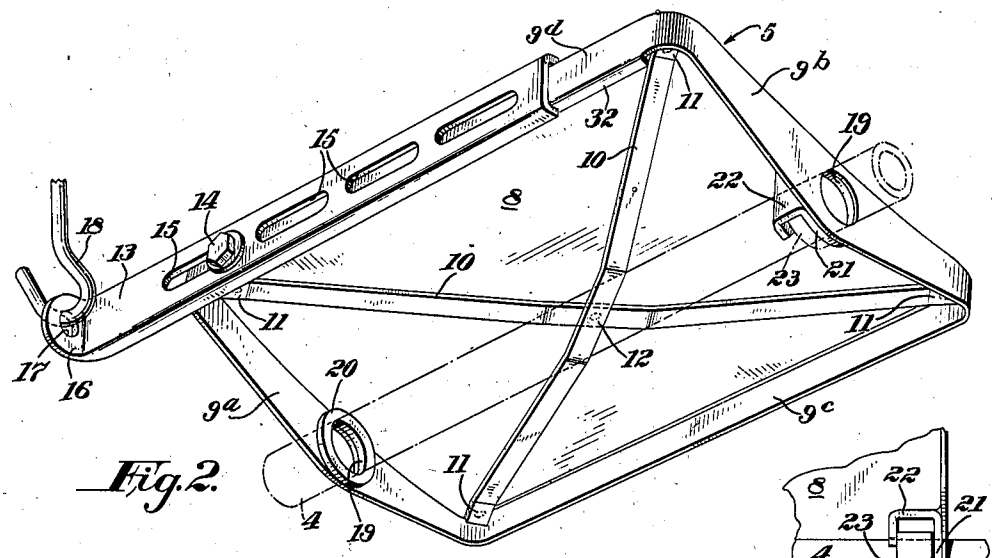


Fig. 2.

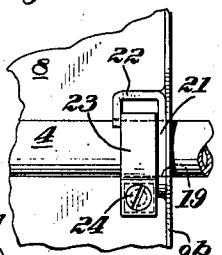


Fig. 4.

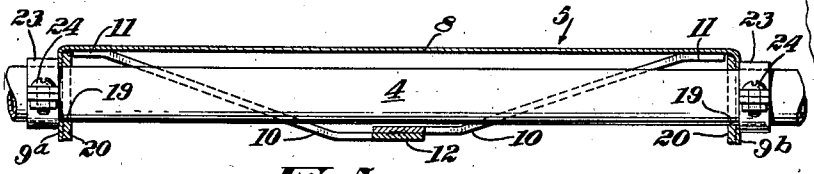


Fig. 5.

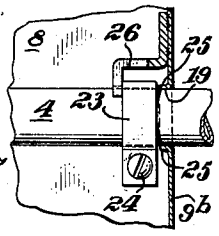


Fig. 6.

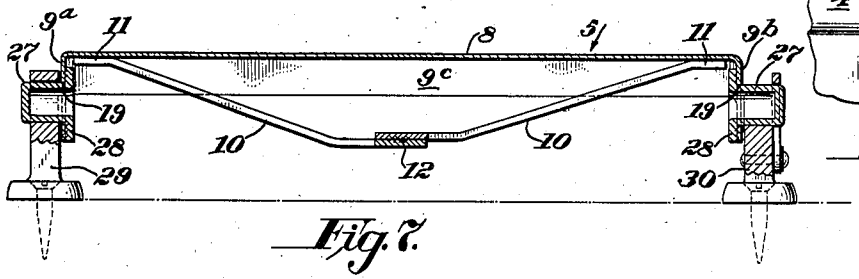


Fig. 7.

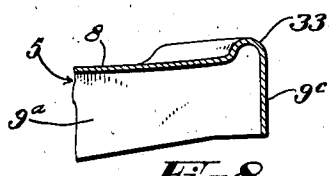


Fig. 8.

Inventor
Daniel H. Chason

Witness:
John H. Cave

By John F. Heine
Attorney

Patented Apr. 14, 1942

2,279,587

UNITED STATES PATENT OFFICE

2,279,587

TREADLE

Daniel H. Chason, Elizabeth, N. J., assignor to The Singer Manufacturing Company, Elizabeth, N. J., a corporation of New Jersey

Application December 26, 1940, Serial No. 371,706

17 Claims. (Cl. 74—561)

This invention relates to treadles and more particularly to that type of treadle used with sewing machines and the like equipment. The present invention may be used on a foot-powered machine in which case the treadle may be connected to a belt-wheel by the usual pitman-rod or it may be used on a power-driven machine and function as a foot-control treadle for the power source.

The primary object of this invention is the provision of an inexpensive sheet-metal treadle which, although made of light materials, is strong and rigid and will not warp under the stresses of use.

Another object of the invention is to provide a treadle of such design that it may be adapted to the various types of commercial and family sewing machines now in use.

The invention, both in structure and in operation, as well as additional objects thereof, will be best understood from the following description taken in conjunction with the accompanying drawings in which:

Fig. 1 is a front elevation of a machine stand upon which a sewing machine is mounted and to which one form of my invention is applied.

Fig. 2 is a bottom perspective view of the preferred form of the treadle.

Fig. 3 is a fragmentary section of the treadle taken substantially along line A—A of Fig. 1.

Fig. 4 is an enlarged fragmentary bottom plan view of a portion of the treadle shown in Fig. 2.

Fig. 5 is a longitudinal section of a modified form of treadle.

Fig. 6 is an enlarged fragmentary bottom plan view similar to Fig. 4 but showing another modified form of treadle.

Fig. 7 is a longitudinal section showing a further modified form of treadle.

Fig. 8 is a fragmentary section of the forward edge portion of the treadle taken substantially along line A—A of Fig. 1.

Referring more specifically to the drawings, the invention is disclosed in connection with a sewing machine 1 mounted upon the machine stand 2 which is secured upon legs 3. Suitably strung between the legs 3 is a rod or tube 4 upon which the treadle 5 is rockably mounted. The treadle 5 in Fig. 1 is shown as connected to an electric under-driver or power-transmitter 6 by means of a hooked rod 7 which connects with the clutch-controlling arm 7a thereof. A power device of this type is represented in U. S. Patent No. 2,048,501, dated July 21, 1936.

Each form of the invention comprises an unbroken rectangular sheet-metal platform 8 having a downturned marginal flange 9, comprising the end portions 9a and 9b, the front portion 9c and the rear portion 9d, extending thereabout, thus forming an inverted pan-like element. Two crossed truss-bars 10 extend diagonally across the bottom of the platform 8 and are spot-welded, or otherwise fixed, to the four corners 11 of the platform 8. As shown most clearly in Figs. 5 and 7, the truss-bars 10 are bowed downwardly from the platform 8 and they are spot-welded together, or otherwise secured, at their common junction point 12.

The provision of the peripheral flange 9 and the truss-bars 10 lends great strength and rigidity to the treadle, thus preventing warping and twisting thereof under the stresses of use, while permitting the treadle to be constructed of relatively light-weight material.

As best shown in Figs. 1 and 3, the forward top edge of the treadle is provided with a bead portion 33 extending slightly above the level of the platform 8 and formed in the platform material. The bead extends only along the front edge of the treadle and it is coextensive with the flange portion 9c. Provision of the bead is for the purpose of preventing the operator's foot from slipping off the treadle platform 8.

On the rear edge portion of the platform 8 an extension arm 13 is adjustably secured to the flange portion 9d by means of a bolt 14 and nut 31, as best shown in Fig. 3. The bolt 14 extends through one of the elongated apertures 15 and an aperture provided in the flange portion 9d. This flange portion 9d is formed with an inturned extension 32 which, with the portion 9d, provides a seat for the extension arm 13. The free end 16 of the arm 13 is provided with an aperture 17 by means of which the hook portion 18 of the rod 7 is secured thereto.

In the embodiment of the invention illustrated in Figs. 1 to 4, inclusive, the end flanges 9a and 9b of the platform 8 are provided with oppositely aligned apertures 19 adapted to receive the rod or tube 4 upon which the treadle is rockably supported. A bearing ring 20 is secured, preferably by welding, to the inner side of the end flange 9a coaxially with one of the apertures 19 in order to provide a broader bearing surface for tube 4. Secured in a like manner to the opposite end flange 9b is a bearing ring 21 provided with an inverted U-shaped extension 22. A split or strap-like thrust-collar 23 is secured to the tube 4 between the bearing ring 21 and the extension 22

by means of a bolt 24. Thus the axial movement between the treadle and tube 4 is prevented.

Fig. 5 discloses a modified form of treadle. This form has a platform construction similar to that above described but in this latter form the end portions 9a and 9b of the flange have bearing rings 20 secured, preferably by welding, coaxially with both apertures 19. A thrust collar 23 is made fast to the tube 4 adjacent to the outer face of each of the end portions 9a and 9b of the flange, and thus no relative movement is permitted between the treadle 5 and the tube 4, lengthwise of the latter.

Fig. 6 illustrates another modified form of my invention. In this form the general structure of the treadle is like that of the preferred form with the exception that different bearing surfaces are provided between the treadle 5 and the tube 4. In lieu of the ring bearings 20 and 21 shown in Figs. 2, 4 and 5, the portions 25 of the flange elements 9a and 9b surrounding the two apertures 19 are turned inward to provide bearing surfaces upon which the treadle 5 is supported. A bracket 26 is fixed, preferably by welding, to the inner side of flange portion 9b adjacent the aperture 19. Secured to the tube 4 between the offset portion of the bracket 26 and the inturned flange portion 25 is a split strap thrust-collar 23. As in the forms hereinabove described, collar 23 permits no relative movement between the treadle 5 and the tube 4, lengthwise of the latter.

A further modification of my invention is illustrated in Fig. 7 and again the platform construction is like that of the preferred form of my invention. In this form the platform 8 is provided with apertures 19 in which cup-shaped trunnions 27 are mounted. These trunnions 27 are formed with circular flanges 28 which are secured, preferably by welding, to the inner face portions of the marginal flange elements 9a and 9b. The outboard portions of the trunnions 27 are adapted to be rockably supported in two floor brackets 29 and 30 which may be secured to the floor by suitable means.

Thus it will be understood from the foregoing that my invention provides a treadle and several modifications thereof which are designed to produce strong and rigid structures, but which are fabricated of light materials.

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

1. A sheet-metal treadle having a substantially flat platform, a downturned marginal flange extending thereabout, and crossed truss-bars extending diagonally across the bottom of said platform and being secured to the under side thereof.

2. A sheet-metal treadle comprising an unbroken, substantially flat platform having a downturned marginal flange extending thereabout, and crossed truss-bars extending diagonally across the bottom of said platform, said truss-bars being secured to said platform near their ends and being spaced from the bottom of said platform intermediate their ends.

3. A sheet-metal treadle having a substantially flat platform, a downturned marginal flange extending thereabout, and crossed truss-bars extending diagonally across the bottom of said platform, said truss-bars being secured to said platform near their ends and bowed away from said platform intermediate their ends and secured together at their point of crossing.

4. A sheet-metal treadle comprising a substantially flat unbroken platform having a downturned marginal flange extending thereabout, the rear portion of said platform having an inturned edge section extending from said downturned marginal flange, crossed truss-bars extending diagonally across the bottom of said platform, and an extension arm adjustably secured to said rear portion of said platform.

5. A sheet-metal treadle comprising a substantially flat platform having a downturned marginal flange extending thereabout, crossed truss-bars extending diagonally across the bottom of said platform and secured thereto, and pivotal means to support said platform.

6. A sheet-metal treadle having a substantially flat platform, a downturned marginal flange extending thereabout, crossed truss-bars extending diagonally across the bottom of said platform and being secured thereto near the ends thereof and secured together at their point of crossing, said truss-bars being bowed away from said platform intermediate their ends, and pivotal means to support said platform, said means having an axis located between the bottom of said platform and the bowed portions of said crossed truss-bars.

7. A sheet-metal treadle comprising a substantially flat platform having a downturned marginal flange extending thereabout, crossed truss-bars extending diagonally across the bottom of said platform, said truss-bars being secured to said platform near the ends thereof and bowed away therefrom intermediate their ends, and pivotal means including bearing elements carried by said downturned flange to support said platform, the axis of said supporting means being located between said platform and the bowed portions of said truss-bars.

8. A sheet-metal treadle comprising a substantially flat rectangular platform having a depending flange extending about its marginal portion, said depending flange having aligned and oppositely disposed apertures, two crossed truss-bars extending diagonally across the bottom of said platform and connecting the corners thereof, and pivotal supporting means mounted in said oppositely aligned apertures.

9. A sheet-metal treadle comprising a substantially flat rectangular platform having a depending flange extending about its marginal portion, said flange being provided with aligned and oppositely disposed apertures, two crossed truss-bars extending diagonally across the bottom of said platform and connecting the corners thereof, said bars being secured to said platform near their ends and bowed away therefrom intermediate their ends, and pivotal means to support said platform, said means being adapted to be mounted in said aligned apertures so that the pivotal axis of said treadle is located between the bottom of said platform and the bowed portion of said crossed truss-bars.

10. A sheet-metal treadle having a substantially flat platform, a downturned marginal flange extending thereabout, said flange being provided with oppositely disposed and aligned apertures, crossed truss-bars extending diagonally across the under side of said platform, and means including a supporting bar pivotally mounted in said aligned apertures to support said platform.

11. A sheet-metal treadle comprising a substantially flat platform, a downturned marginal flange extending thereabout and having aligned apertures in its end portions, crossed truss-bars

extending across the bottom of said platform, and pivotal means including a supporting bar and bearing elements to support said platform, said bearing elements being mounted on said flange concentrically with said apertures and said bar being journaled in said apertures and bearing elements.

12. A sheet-metal treadle comprising a substantially flat platform and a downturned marginal flange extending thereabout, said flange being provided with aligned apertures, crossed truss-bars extending diagonally across the bottom of said platform and being secured thereto near their ends and bowed away therefrom intermediate their ends, pivotal means including a supporting bar and bearing elements to support said platform, said bearing elements being mounted on said downturned flange concentrically with said apertures, said bar being journaled in said apertures and bearing elements, and means to prevent relative axial movement between said treadle and said tube comprising a thrust-collar fixed to said bar adjacent to at least one bearing element.

13. A treadle having a substantially flat rectangular platform and a downturned marginal flange extending thereabout, said marginal flange being provided with aligned apertures in the end portions thereof, crossed truss-bars extending diagonally across the bottom of said platform and being secured thereto near their ends and secured together at their crossing point, said bars being bowed away from said platform intermediate their ends, pivotal means including a supporting bar and ring bearings to support said platform, said ring bearings being mounted on said downturned flange concentrically with said apertures and said supporting bar being journaled in said apertures and ring bearings with its longitudinal axis located between the bottom of the platform and the bowed portion of the truss-bars, and means to prevent relative axial movement between said treadle and said bar comprising a thrust-collar fixed to said bar adjacent to one ring bearing, and an extension fixed to one ring bearing and adapted to lock said collar in place against said ring bearing.

14. A sheet-metal treadle comprising a substantially flat platform, a downturned marginal flange extending thereabout, said marginal flange being provided with aligned apertures, the portions of the marginal flange which define said apertures being formed out of the planes of said flange portions and adapted to function as bearing surfaces, crossed truss-bars extending diagonally across the bottom of said platform, and pivotal means to support said platform including a supporting bar journaled in said aligned apertures and extending between said platform and crossed truss-bars.

15. A treadle having a substantially flat rectangular platform and a downturned marginal flange extending thereabout and provided with aligned apertures in the end portions thereof, the portions of the marginal flange which define said apertures being formed out of the planes of said flange and adapted to function as bearing surfaces, crossed truss-bars extending diagonally across the bottom of said platform, said bars being secured to said platform near their ends and together at their crossing point and being bowed away from said platform intermediate their ends, pivotal means including a supporting bar to support said platform journaled in said apertures with its longitudinal axis located between the bottom of said platform and the bowed portion of said truss-bars, means including a thrust-collar fixed to said bar adjacent to one bearing surface to prevent lengthwise movement between said treadle and said bar, and an arm fixed to said marginal flange and adapted to hold said collar in place against said bearing surface.

16. A sheet-metal treadle having a substantially flat rectangular platform, a downturned marginal flange extending thereabout, crossed truss-bars extending diagonally across the bottom of said platform, said bars being secured to said platform near their ends and secured together at their crossing point, said bars being bowed away from said platform intermediate their ends, and means including bearing trunnions upon which said platform is pivotally mounted, said trunnions being mounted upon the opposite end portions of said marginal flange.

17. A sheet-metal treadle having a substantially flat platform, a downturned marginal flange extending thereabout and provided with aligned and oppositely disposed apertures in the end portions thereof, crossed truss-bars extending diagonally across the bottom of said platform, said bars being secured to said platform near their ends and together at their crossing point and being bowed away from said platform intermediate their ends, and means including bearing trunnions and floor brackets upon which said platform is pivotally mounted, said bearing trunnions being cylindrical in form and provided with circular flanges, said trunnions being mounted within said marginal flange apertures with their circular flanges secured to said marginal flanges, said trunnions adapted to be journaled within said floor brackets with their common longitudinal axis located between the bottom of said platform and the bowed portion of said truss-bars.

DANIEL H. CHASON.