

Jan. 21, 1930.

L. W. NEWSOM

1,744,666

BENCH

Filed Jan. 22, 1929

Fig. 1.

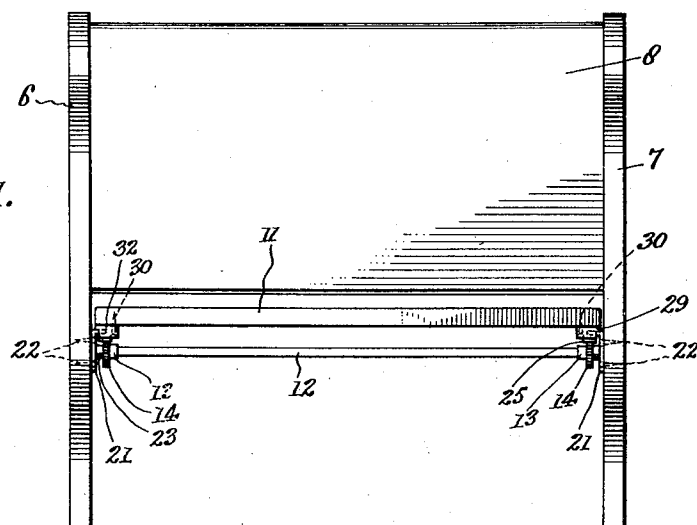


Fig. 2.

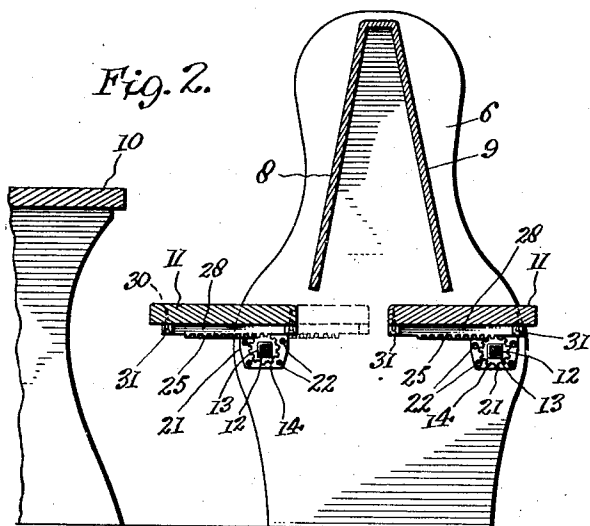


Fig. 4.

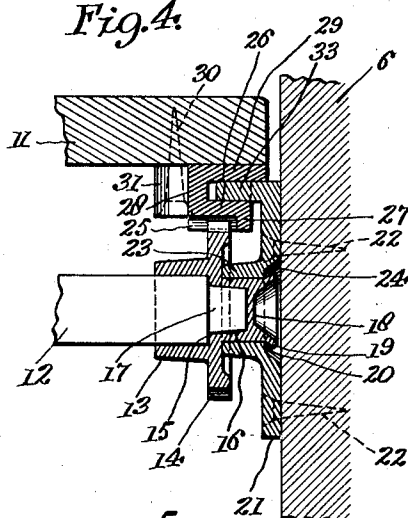


Fig. 5.

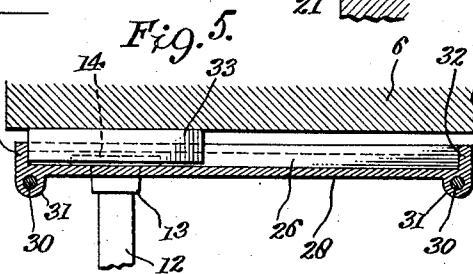
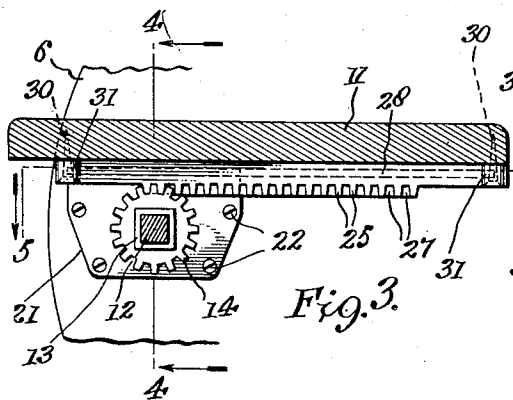


Fig. 3.



Inventor
Lewis W. Newsom

Wilkinson & Gustaf
Attorneys

UNITED STATES PATENT OFFICE

LEWIS W. NEWSOM, OF LOS ANGELES, CALIFORNIA

BENCH

Application filed January 22, 1929. Serial No. 334,217.

The present invention relates to improvements in benches, and has for an object to provide an improved seat or bench primarily designed to be used in dining alcoves or booths in private homes, apartments and restaurants.

Dining alcoves as now built are small and on this account difficult to get into and out of and they are quite generally uncomfortable to sit in.

It is another object of the invention to provide an improved seat or bench, which will afford ease in getting into and out of the seat and to provide comfort for the occupant of the seat.

A further object of the invention resides in providing an improved seat or bench constructed so as to avoid imposing any serious limitations on the architect who designs the benches and tables; and to provide an improved seat or bench that will be devoid of that "factory appearance", the mechanism being almost entirely hidden from view.

A still further object of the invention resides in providing an improved sliding seat or bench in which provision is made for simultaneously causing both ends of the bench to partake of the sliding movement to avoid jamming of the parts or any difficulty in the operation.

With the foregoing and other objects in view, the invention will be more fully described hereinafter, and will be more particularly pointed out in the claims appended hereto.

In the drawings, wherein like symbols refer to like or corresponding parts throughout the several views

Figure 1 is a front elevation of an improved seat constructed in accordance with the present invention.

Figure 2 is a vertical section taken substantially centrally therethrough, with one of the benches in the retracted, and the other in the extended position.

Figure 3 is an enlarged fragmentary section taken through a portion of one of the benches with the seat retired.

Figure 4 is a vertical section taken on the line 4—4 in Figure 3, and

Figure 5 is a horizontal section taken on the line 5—5 also in Figure 3.

Referring more particularly to the drawings 6 and 7 designate the end pieces and 8 and 9 the backs of a double bench construction. Although the invention is shown in the drawings as applied to a double bench, it will be understood that it is equally applicable to a single type of bench.

In Figure 2 the alcove table, with which benches of this type are usually associated, is indicated at 10. The space between the bench and table is usually very narrow. It is difficult to get into and out of this space, and for this reason I provide a slidable bench seat 11. Two such bench seats are shown in Figure 2 as cooperating respectively with the two backs 8 and 9.

Each bench seat or board 11 is preferably provided with an identical mechanism at opposite sides thereof, the mechanism being situated beneath the bench so as to be substantially concealed. The two mechanisms are coupled for conjoint movement by a shaft 12. This shaft is square or is provided with square end portions where it enters the square socket 13 of the pinion 14. Although it is not important that the shaft or socket be square, it is important that the pinion 14 at each end of the shaft be fixed thereto so that the motion of one pinion shall be communicated to the other. The pinion 14 is also preferably provided with a shouldered part 15 for receiving the end shoulder of the shaft 12 and with a tapered recess 16 for receiving the tapered tenon 17 on the end of the shaft 12. At its smaller end the tapered recess is closed by an end wall or diaphragm 18 and beyond the diaphragm is a bendable flange 19 adapted to be expanded, upset or riveted against a shoulder 20 on a plate 21 that is affixed as by screws or other fastenings 22 to the end pieces of the furniture.

The plate is formed with a substantially cylindrical bearing 23 extending out from the furniture end piece and acting as a bearing for the pinion 14, said pinion having a cylindrical portion external of the recess 16 and diaphragm 18 for being received rotatably within the bearing 23.

The shoulder 20 is made internally of the bearing 23 and spaced from the adjacent surface of the end piece 6, as shown in Figure 4, leaving an annular chamber 24 in which to receive the upset rim portion of the flange 19. The end of the bearing 23 abuts against one side of the pinion 14 and it is disposed in substantial alinement with the socket wall 13. The end of the bearing 23 supports the pinion at one side and the shouldered end 15 of the shaft 12 supports the pinion at the opposite side. Moreover, the engagement of the socket 13 and recess 16 form elongated bearing surfaces for the pinion which will prevent any sidewise motion or wobbling thereof.

Each pinion 14 is arranged to engage rack teeth 25. These teeth are carried by the rack bar 26 having the down-turned rib 27 at one side thereof between the pinion 14 and the plate 21. The rack bar 26 is carried by a flange 28 depending from one side of a bar 29 which fits against the underside of the bench board 11 at or near each end thereof.

As shown in Figures 4 and 5, the rack bar assembly, including the rib 27, flange 28 and bar 29, is secured to the bench by the screws or other fastenings 30, which pass through bosses 31 on the end portions of the rack bar assembly.

The rack bar assembly, as shown in Figure 5, is also provided with the end stops 32 projecting across the space between the bars 26 and 29 and the flange 28. This space is open at the side adjacent the end piece of the furniture to receive the guide flange 33 projecting from the upper edge of the plate 21 and entering between the bars 26 and 29. This flange has an extended bearing on the bars, and it will insure the proper support for the bench 11 in its sliding movement and will avoid the weight from devolving upon the teeth of the pinion 14 and the rack teeth 25.

In the operation of the device, the seat 11 is simply pushed back and forth to the positions shown in full and dotted lines in Figure 2. When the seat 11 occupies the dotted line position in Figure 2, or the full line position, shown for the seat at the right, then the seat is retired out of the way and it does not obstruct the small space between the bench and the table 10, but leaves this space open and free for the occupant to walk into and out of in going to and leaving a place at the table. Once the occupant has arrived opposite the assigned place at the table the bench 11 is simply pulled out to the full line position, shown for the left seat in Figure 2, whereupon ample seating room is afforded and a comfortable seat provided.

In moving, the seat 11 will be supported mainly upon the stationary fixed flange 33 of the plate 21 which may be made substantial for this purpose. This will avoid undue

wear on the teeth of the pinion and rack and it will constantly keep the teeth in good condition so that they will not be apt to jam. The provision made for preventing any sidewise or wobbling motion in the pinion 14 will also contribute to this result. The jamming of the seat will also be prevented by reason of the fact that the motion at one end of the seat will be transmitted equally to the other end of the seat through the shaft 12. Any canting of the seat or movement of one end relative to the other will be thus avoided and the easy sliding movement of the seat at all times will be assured. The construction of the parts will allow for easy manufacture and ready assembly. The rib 27 will keep the parts of the unit from coming apart after the pivot portion 19 is riveted in the bearing.

It is obvious that various changes and modifications may be made in the details of construction and design of the above specifically described embodiment of this invention without departing from the spirit thereof, such changes and modifications being restricted only by the scope of the following claims.

What is claimed is:—

1. In a bench, a sliding seat, a rack bar assembly affixed to said seat and having a space therein, a plate secured to the bench and having a guide flange entering said space, a hollow bearing projecting out from said plate and having a space and a shoulder at its inner portion, a pinion meshing with said rack bar and having a socket at one side and a bearing portion at the opposite side with a flange adapted to be over-turned against the shoulder of said bearing, and a shaft fitted in said socket of the pinion.

2. In a bench, a slidable seat, a rack bar assembly secured to each end of the seat and having a space, a fixed plate on each end of the bench having a guide flange for entering the space in the rack bar assembly, said plate also having a hollow bearing extending outwardly therefrom with an internal annular space and a shoulder, a pinion meshing with the teeth of said rack bar and having a socket at one side and a reduced cylindrical bearing at the opposite side for fitting within said plate bearing, said plate bearing engaging the side of the pinion opposite the socket, said pinion also having a shoulder and having an internal tapered recess within said bearing, a diaphragm closing said recess, an upsettable flange beyond said diaphragm, and a shaft fitted in said pinion socket with a reduced tenion fitting in the recess.

LEWIS W. NEWSOM.