

Nov. 16, 1926.

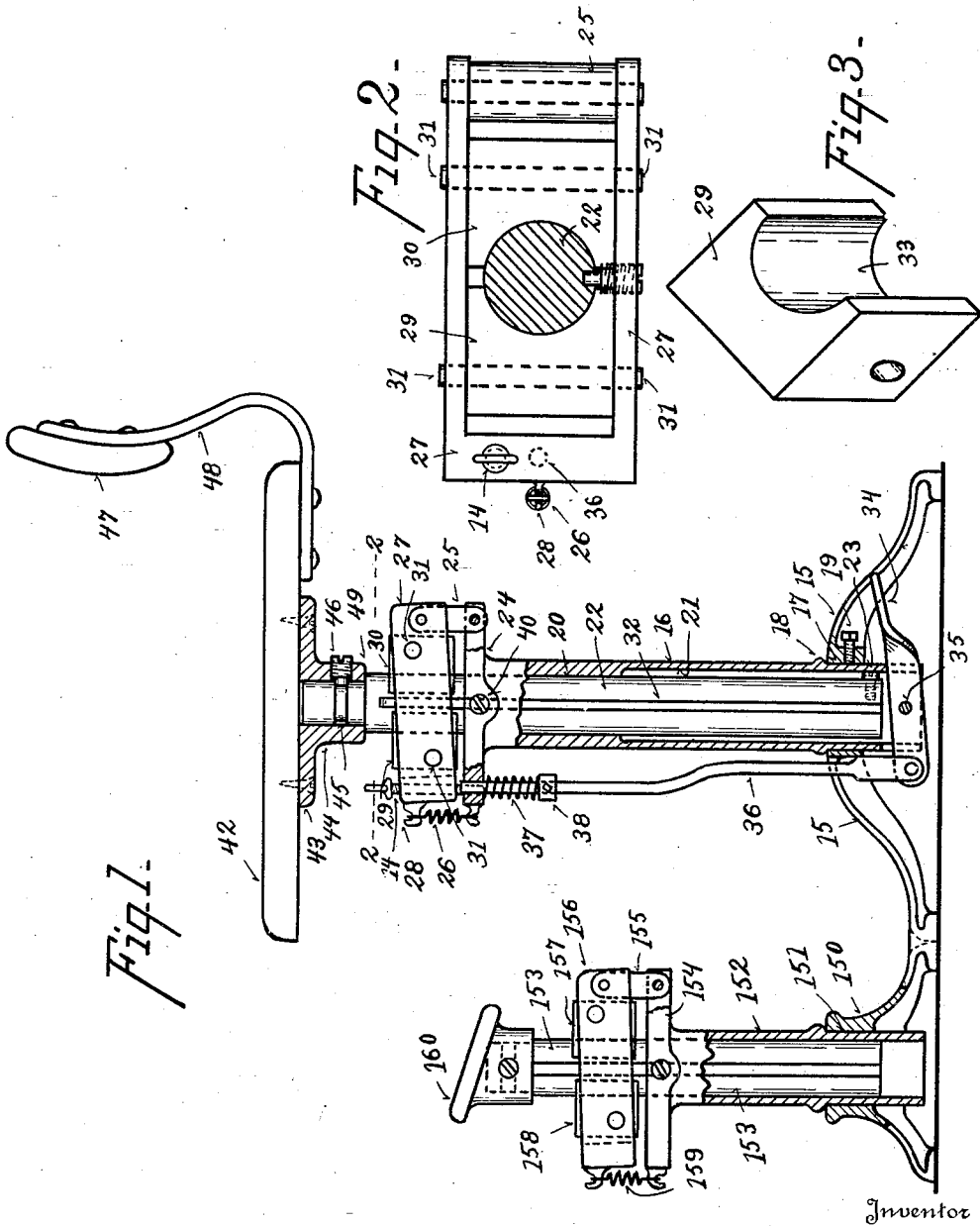
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1,606,840

STOOL

Filed March 27, 1923

2 Sheets-Sheet 1



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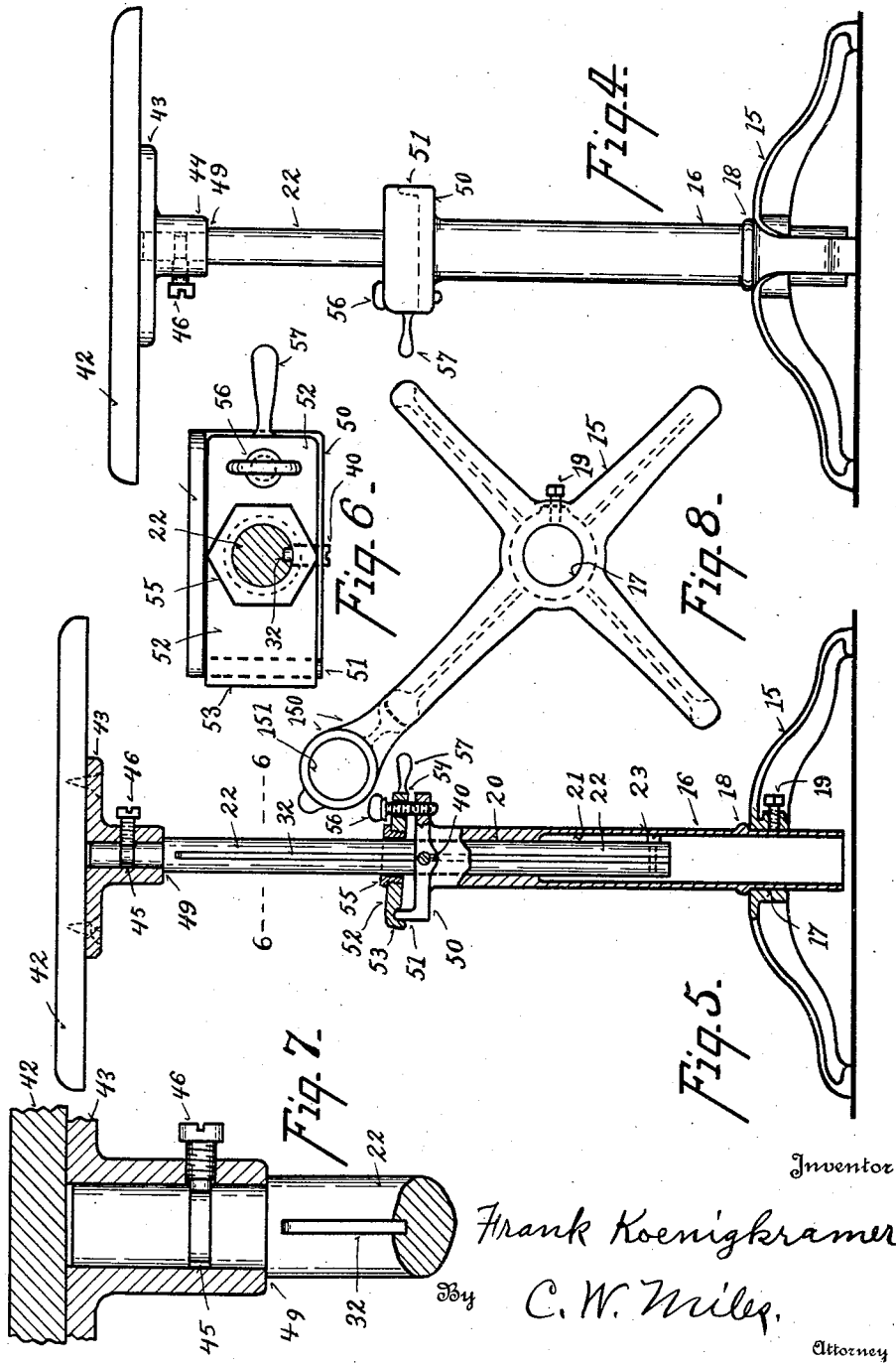
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UNITED STATES PATENT OFFICE.

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STOOL.

Application filed March 27, 1923. Serial No. 628,132.

My invention relates to improvements in stools. One of its objects is to provide an improved simple and efficient stool adapted to a variety of purposes, such for instance as a stool for workmen or for use in front of and behind counters. Another object is to provide a stool having an improved means of adjustment to different heights. Another object is to provide an improved vertically adjustable stool adapted to be readily furnished in a relatively wide variety as to height. Another object is to provide an improved adjustable stool adapted to be conveniently shipped in compact knocked-down condition and to be readily assembled where required for sale or use. Another object is to provide an improved adjustable stool adapted to be quickly and readily adjusted through a wide range of heights suited for instance to use by optometrists, chiropodists and surgical and similar operators. Another object is to provide an improved stool adjusting means adapted to be readily locked to a rigid condition at any adjusted position. My invention also comprises certain details of form, and combination of components, all of which will be fully set forth in the description of the accompanying drawings, in which:

Fig. 1, is a side elevation of a stool and a foot-rest partly in section embodying my invention.

Fig. 2, is a sectional detail taken on line 2—2 of Fig. 1.

Fig. 3, is a perspective view of one of the locking members detached.

Fig. 4, is a view similar to Fig. 1, illustrating a modification.

Fig. 5, is a view similar to Fig. 4, from the opposite side and partly in section.

Fig. 6, is an enlarged sectional detail taken on lines 6—6 of Fig. 5.

Fig. 7, is an enlarged sectional detail of the manner of mounting the seat upon the seat standard.

Fig. 8, is a plan of the base detached.

The accompanying drawings illustrate the preferred embodiments of my invention in Figs. 1, 2, and 3 of which 15 represents a base to rest upon the floor and afford a firm support for the stool members mounted thereon. A vertical tubular stool supporting base member 16 is detachably mounted upon the base 15, preferably by telescoping the lower end of said tube through a central

perforation 17 in the base until a bead or annular collar 18 on the tubular member 16 rests upon the upper face of the base 15. A set-screw 19 is preferably employed to lock the tubular section 16 rigidly to the base 15.

Where a foot-rest for the stool is to be provided, a base member 150 is provided which may be separate from, but is preferably provided as an attachment to, or integral extension of, the base 15. The base member 150 is perforated at 151 to receive a tubular foot-rest supporting base member 152, similar to the base member 16.

The bore 20 in the upper portion of section 16 is smaller than the bore 21 in the lower portion of the section 16. A vertically adjustable cylindrical standard 22 closely fits the bore 20 so as to permit the standard 22 to be readily adjusted vertically within said bore 20 and to be guided and laterally supported by the walls of said bore 20. A cap-screw 23 is tapped into the lower end of the standard 22 and the head of said screw forms a stop member to prevent the standard being entirely withdrawn upwardly through the bore 20. The standard 22 may be withdrawn from the bores of section 16 from the lower end of member 16 if desired.

At the upper end of section 16 is a laterally projecting plate 24 having an upwardly projecting link 25 pivotally attached to plate 24 near one edge thereof. An adjustable locking-member 27 is pivotally attached to the upper end of the link 25 at one edge of said member 27, and at the opposite edge of said locking member 27 is a hook 28 by which the member 27 is yieldingly drawn by spring 26 toward the plate 24. The locking member 27 is preferably provided with a pair of hardened steel jaws or locking members 29 and 30 which are pivotally attached by pins 31 to the member 27.

The pins 31 are located in different horizontal planes to facilitate closing or gripping of the jaws 29 and 30 upon the vertical cylindrical standard 22. The jaws 29 and 30 are provided with semi-cylindrical grooved faces 33 and 34 the counterpart of the exterior face of standard 22 to enable said jaws to frictionally grip or engage the standard 22 over extended surfaces.

The locking member 27 tends by gravity and the action of spring 26 to take an inclined position substantially as shown in

Fig. 1, with one end held by the link 25 in a more elevated position than the unsupported end of said locking member, which tends by gravity and the action of spring 26 to rest upon the upper face of the plate 24. In Fig. 1 I have shown the normal position of the locking members, 27, 28, 29 and 30 in which there is a constant tendency for the jaws 29 and 30 to grasp the standard 22 and prevent movement of standard 22 downwardly. Pressure downwardly upon the standard 22 tends to more firmly engage the standard 22 with the jaws 29 and 30. At the same time the standard is enabled to move freely upwardly relative to the jaws 29 and 30, as for instance by the operator lifting the standard 22 or seat to a higher position, after which the jaws 29 and 30 act automatically to engage the standard 22 and hold it to its new position against movement downwardly. Each of the jaws 29 and 30 being independently pivotally mounted upon a pin 31 relative to the locking member 27, enable the semi-cylindrical faces of said jaws to automatically adjust themselves to the face of the standard 22 to secure firm frictional contact of large area with said standard at each readjustment thereof.

The shank of thumb screw 14 is passed through a perforation in locking member 27 and threaded into the plate 24. Normally the head of thumb screw 14 is above and out of engagement with member 27, but may be employed to force the unsupported end of member 27 downwardly to positively lock standard 22 to the base.

In order to conveniently adjust the standard 22 downwardly relative to the base, I preferably provide a foot lever 34 which may be conveniently mounted in a slot in the lower end of the tubular base member 16 and held pivotally thereto by means of a detachable pin 35. At the opposite end of lever 34 is pivotally connected a pitman 36. The upper end of pitman 36 passes through a perforation in the plate 24 and is guided laterally thereby. The upper end of pitman 36 is normally slightly out of engagement with the under face of locking member 27, in which position it is held by a spring 37 interposed between the plate 24 and a collar 38 rigidly mounted upon the pitman 36. The slot in member 16 limits the range of movement of the foot-lever 34. Pressure upon the foot lever 34 causes the upper end of pitman 36 to engage and lift the unsupported side of member 27 against gravity and pressure of spring 26 and thereby disengage the jaws 29 and 30 from the standard 22.

I have illustrated the standard 22 as provided with a longitudinal groove or keyway 32 which is engaged by the inner reduced end of a set-screw 40 tapped into

one side of the plate 24, and which enables the standard 22 to be adjusted endwise but prevents adjustment of said standard rotatably relative to the base member 16. If desired the slot 32 and screw 40 may be omitted, and the standard adjusted both endwise and rotatably relative to the base.

A seat 42 is designed to be mounted either rotatably or rigidly upon the upper end of the standard 22. As illustrated a metal plate 43 provided with a downwardly projecting hub 44 is attached by screws to the under face of the seat 44. The upper end of the standard 22 is of reduced cross-section and is closely fitted into the bore of the hub 44. An annular groove 45 in the reduced upper section of standard 22 is engaged by the inner reduced end of a set screw 46 tapped through the side wall of said hub to retain the seat in place upon the upper end of the standard 22. If the seat is to be rigidly attached to the standard 22 the screw 46 is screwed in tightly, and when not screwed in tightly the seat is enabled to rotate upon the upper end of the standard with the weight of the seat supported upon the shoulder 49 at the lower end of hub 44. The shoulder bearing 49 prevents the upper end of standard 22 contacting with the under faces of the seat. In Fig. 1, I have illustrated a back 47 detachably secured by a bracket 48 to the seat 42, and which may be employed or not as desired.

My improved seat is adapted to be employed for a wide variety of purposes in some of which no foot-rest or secondary seat is desired. Where a foot-rest or secondary seat is required I provide a standard similar to the standard 22 which is mounted and laterally supported and vertically adjustable relative to the tubular base member 152, substantially as heretofore described for the standard 22 and base member 16, by means of a plate 154 a link 155, a locking member 156, and jaws 157 and 158 pivotally attached to the locking member 156, and a spring 159, all operating substantially as described for similar members serving to adjust and support the standard 22. Mounted rigidly or rotatably upon the upper end of the standard 153 is a foot rest member 160, which is designed to be employed interchangeably with a seat member substantially like the seat member 42, whereby the standard may serve as an adjustable support for a foot-rest in front of the seat 42, or as a support for a supplemental seat lower than the seat 42 and located either in front, at the side or in rear of the seat 42 as may be desired. Substantially as shown in Fig. 1, the stool is adapted to be used as a treatment stool and for a variety of similar purposes.

The modification illustrated particularly in Fig. 4, 5, and 6, is designed for use as a

stool in stores and work-shops and for similar purposes where a simple and less expensive stool is required. In place of the plate 24 a plate 50 having an upwardly directed rib 51 at one edge is employed at the upper end of the tubular section 16 of the base. A locking member 52 has one edge 53 resting upon the top of the rib 51, while the opposite edge 54 of member 52 is unsupported and tends by gravity to rest upon the upper face of the plate 50. A hardened steel bushing 55 is threaded through the member 52, and the standard 22 passes through the bore of said bushing with a rather snug fit. The bushing 55 fits the standard 22 close enough to prevent the unsupported end of member 52, making contact with the upper face of plate 50.

The shank of a thumb-screw 56 passes through a perforation in the member 52 and is threaded into a perforation in the plate 50. The normal tendency of the member 52 and bushing 55 is to gravitate so as to cause the bushing to bind upon the standard 22 and lock the standard automatically to the base member 16, particularly to resist pressure downwardly upon the standard 22. The standard 22 is free however to be lifted or adjusted upwardly relative to the base, and the member 52 acts automatically to lock the standard to its new and higher position of adjustment. In order to adjust the standard and its seat to lower positions the member 52 is temporarily elevated by hand, as by lifting upon the hand lever 57 attached to member 52, whereupon the standard 52 may be freely adjusted downwardly, and member 52 will act automatically to lock the standard to its new adjustment as soon as the hand lever 57 is released. By tightening up the thumb screw 56 pressure is applied to the free end of member 52 to rigidly lock the standard to the base until said thumb-screw pressure is again released.

Normally the thumb-screw 56 (or 14) serves as a guide for the locking member 52 and also as an adjustable stop to limit the upward movement of said locking member 62.

In normal practice the limited vertical movement of the locking member 27 (or 50) and its gravity or spring action enables the seat 42 and standard 22 to be lifted vertically relative to the base members 15 and 16 to any desired height, whereupon the locking member operates automatically by gravity to grasp the standard 22 and lock it against movement vertically downwardly relative to base member 16. The seat and standard 22 may be adjusted downwardly relative to base member 16 to any desired extent by grasping the seat in one or both hands and lifting the lock-member 27 (or 52) by means of pressure applied to foot-lever 34, (or by hand) until the seat gravi-

tates slowly to the desired position whereupon the lever 34 is released and the member 27 and jaws 29 and 30 act automatically to lock the standard 22 at the desired position to base member 16.

The seat may be locked against rotation by set-screws 40 and 46. By detaching the seat from the standard 22 and base member 16 from the base member 15, the parts may be assembled in very compact knocked-down position for packing and safe shipment, and are capable of being readily assembled again by unskilled operators.

It will be noted that unlike stools in which the seat has a screw adjustment relative to the base, my improved stool lends itself to a more extended adjustment within limited periods of time, and hence is more desirable for a variety of purposes, as for instance before the counters of retail stores, and particularly when used by optometrists and others in connection with operating chairs in which the patient is seated, and where the operator is required to make frequent and extensive changes of position vertically relative to the patient in the chair. The holding of the standard non-rotatably relative to the base, as for instance by the key-way 32 and screw 40 renders the locking action of member 27 or 52 positive and reliable. It will be noted that movement of the locking member 27 upon the link 25 enables the jaws to automatically and accurately adjust themselves to the face of standard 22 to secure a firm grip thereupon. Member 27 may if desired be supported upon a member 15, substantially as shown in Fig. 5.

The standard 22 is preferably but not necessarily cylindrical. It will be noted that short or long standards 22 are adapted to be employed interchangeably with the other stool members to readily provide stools with seats at any desired height.

The apparatus herein shown and described is capable of considerable modification without departing from the spirit of my invention.

What I claim is:

1. A stool comprising a base having an upwardly extending tubular base section, a vertical standard mounted to move vertically with and relative to said upwardly extending base section, a locking member supported at one side and laterally adjustable relative to the upper portion of said upwardly extending base section and unsupported at its opposite side, a pair of jaws independently pivotally attached to said locking member and independently adjustable relative thereto to automatically grasp said seat standard and lock said seat standard against movement downwardly relative to said base section while enabling said seat standard to be freely adjusted upward-

ly relative to said base and to be adjusted downwardly by lifting the unsupported side of said locking member.

2. A stool comprising a base having an upwardly extending tubular section, a vertical seat standard mounted telescopically and non-rotatably within the tubular section of said base, a gravity actuated locking member pivotally mounted upon the upper end of said tubular base section and provided with opposed jaws independently pivotally attached to said locking member and independently adjustable relative thereto to automatically grasp said seat standard from opposite sides thereof and adapted to permit free movement of said standard upwardly relative to said base and to automatically grasp and lock said standard against movement downwardly relative to said base, and a seat mounted upon the upper end of said standard.

3. A stool comprising a main base section, a vertical tubular base section detachably telescopically mounted upon said main base section and projecting upwardly therefrom, a vertical seat standard mounted telescopically and non-rotatably within the tubular base section, a locking member supported at one side and laterally adjustable relative to the upper portion of said base and unsupported at its opposite side, a pair of jaws pivotally attached to said locking member and independently adjustable relative thereto to automatically grasp said seat standard and lock said seat standard against

movement downwardly relative to said base, while enabling said seat-standard to be freely adjusted upwardly relative to said base, and means to lift the unsupported side of said locking member to thereby release said seat standard from the base and permit the standard to be adjusted downwardly relative to said base.

4. A stool comprising a main base section, a vertical tubular base section detachably telescopically mounted upon said main base section and projecting upwardly therefrom, a vertical seat standard mounted telescopically within said tubular base section and splined thereto, a locking member supported at one side and laterally adjustable relative to the upper portion of said base and unsupported at its opposite side, a pair of jaws pivotally attached to said locking member and independently adjustable relative thereto to automatically grasp said seat standard and lock said seat standard against movement downwardly relative to said base, while enabling said seat-standard to be freely adjusted upwardly relative to said base, and treadle mechanism serving to lift the unsupported side of said locking member to thereby release said seat-standard from the base and permit the standard to be adjusted downwardly relative to said base.

In testimony whereof I have affixed my signature.

FRANK KOENIGKRAMER.