

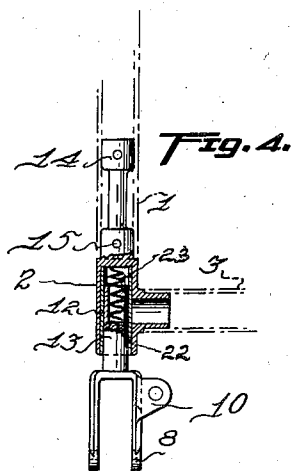
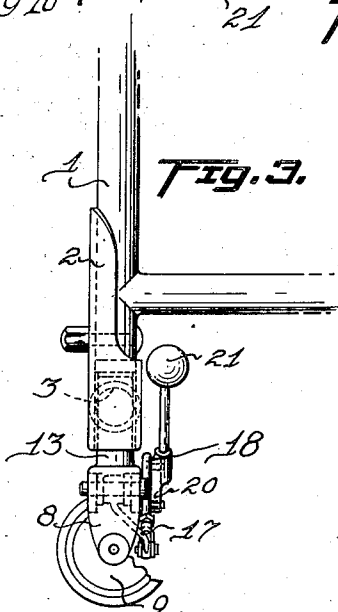
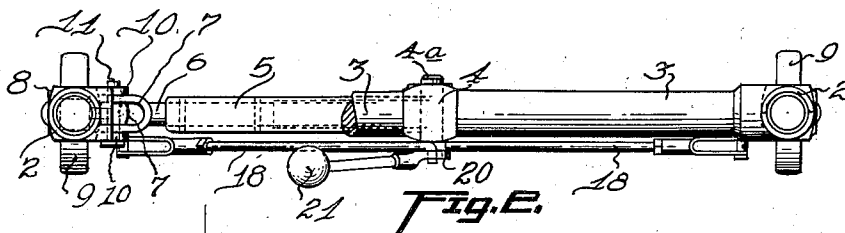
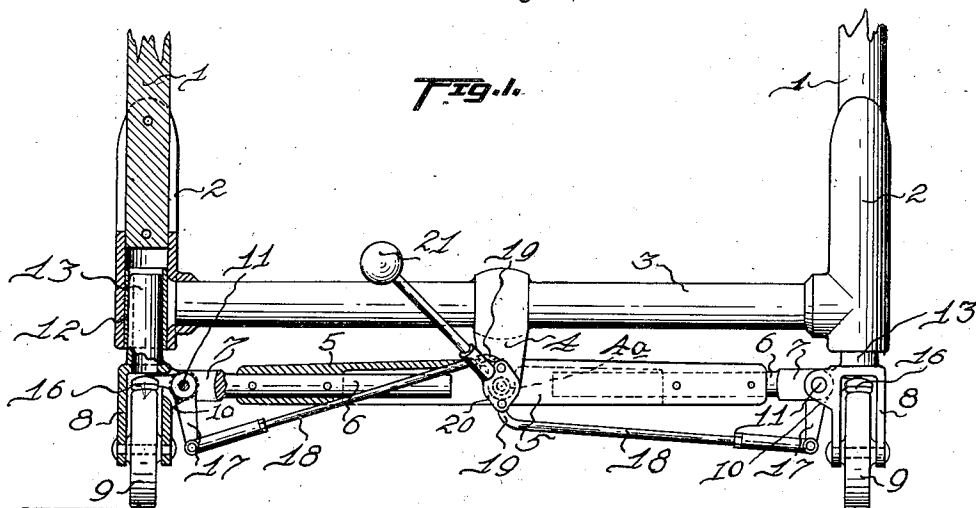
March 5, 1935.

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1,993,458

EQUALIZING AND STABILIZING ATTACHMENT FOR STANDS OR TABLES

Filed Aug. 7, 1930



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1,993,458

EQUALIZING AND STABILIZING ATTACHMENT FOR STANDS OR TABLES

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Application August 7, 1930, Serial No. 473,725

13 Claims. (Cl. 280-43)

The present invention pertains to a novel equalizing and stabilizing attachment of a type particularly adapted for use in combination with movable stands or tables such as are used for supporting typewriters or office equipment which must be moved from place to place.

The primary object of the present invention is to devise an equalizing and stabilizing member which may be readily substituted for two of the legs of a four-legged table or typewriter stand and which will serve to increase the stability of the table or stand by accommodating itself to the irregularities of the floor surface. This member carries wheels, castors or other floor engaging members upon each end thereof which cooperate with wheels or castors mounted in the usual or conventional manner on the other two of the four legs, to give a four point contact with the floor surface in a manner gaining all the stability of a four-legged support and including the self-adapting characteristics which accompany a three-legged support.

With the above and other ends in view the invention consists in the matters hereinafter set forth and more particularly pointed out in the appended claims, reference being had to the accompanying drawing, in which

Figure 1 is a side elevation of the present equalizing device or axle assembly, being partly broken away and in cross section;

Fig. 2 is a top plan view of the assembly;

Fig. 3 is an end elevation of the same, and

Fig. 4 is a cross sectional detail of a slightly modified form of the present invention.

Like characters of reference are employed throughout to designate the corresponding parts.

The numeral 1 indicates two of the legs of any conventional typewriter table or stand having their lower ends secured in sockets 2 which are rigidly joined together by a cross rod 3 having a depending ear 4 intermediate its ends, it being understood that the other two legs are equipped with castors or wheels in the usual or conventional manner. Pivotaly mounted by a transverse pivot pin 4a on the ear 4 is a tubular axle or equalizing member 5 having stub shafts 6 mounted in the ends thereof and bifurcated or forked as at 7, whereby in applying this member 5 to the table, the overall length of said member may be changed to accommodate the same to tables where the legs are of different distances apart. Forks 8 carry the wheels 9 and are further provided with inwardly projecting ears 10 which embrace the bifurcated or forked ends 7 of the shafts 6 and are pivotaly secured thereto

by transverse, horizontally extending pivot bolts 11.

Bearing sleeves 12 are mounted in the lower ends of the sockets 2 to receive tubular posts 13 integral with and extending upwardly from the upper ends of the forks 8, to attach said forks and wheels to the lower ends of the legs 1 and which posts are adapted to slide within said sleeves and permit said forks and wheels to move vertically toward and from the lower ends of the post sockets, being held and guided thereby so that they may accommodate themselves to irregularities in the floor surface and still permit the table to remain level, the movement of the wheels and posts relative to the table legs being limited by the forks 8 coming into contact with the lower ends of the legs or sockets 2. When one of the wheels 9 comes in contact with a high spot in the floor the post 13 on the fork 8 of that wheel moves upwardly within its sleeve 12, the tubular axle member 5 pivoting upon the ear 4, thereby causing the wheel upon the opposite end of the axle member to move downwardly and its post to slide downwardly in its guide sleeve in the lower end of the leg at that end of the member.

In Fig. 4 there is illustrated a form of the present invention which has a post 14 integral with the upper end of the socket 2, to enter the open lower end of a tubular table leg, thus making the present device readily applicable to tables or stands having tubular legs. In this form the posts 14 are slipped into and rigidly secured within the ends of the tubular legs, by providing holes 15 in said posts and legs to receive bolts or pins, thus firmly and rigidly securing said posts within said legs. Also as illustrated in this Figure 4, each post 13 may be bored out, downwardly from its upper end to form a socket 22 for a coiled spring 23 interposed under slight compression between its seat on the lower end of said socket and its seat at its upper end in the upper end of the bore of the socket member 2, whereby tilting movement of the equalizing member 5 relative to the table is yieldingly resisted.

The present invention also provides brakes for the wheels 9 in order that the table may be held stationary if so desired, but the particular arrangement and construction of which brake mechanism is primarily for eliminating all lost motion or play in the bearings, pivots, etc., of the equalizing mechanism. This brake mechanism includes the shoes 16 which are supported by bell crank levers 17 that are pivotaly mounted within the forks 7 between the ears 10 upon the horizontal pivot pins 11 located at the inner

sides of the wheels adjacent thereto so that pivotal movement of the bell cranks brings the brake shoes into contact with the rims or tires on the wheels 9 to hold said wheels against turning. Mechanism for operating these shoes and their cranks, comprises connecting rods 18 having their ends bent laterally as at 19 and pivotally connected to the opposite ends of a plate or rocker 20 having an integral operating lever 21, the plate 20 being pivotally mounted intermediate its ends upon or formed integral with one end of the pivot pin 4a which has a bearing in the depending ear 4, said pivot being intermediate the points of pivotal attachment of the connecting rods 18 to the plate 20.

As will be understood from the above, the arrangement is such as to locate the two wheels 9 at the ends of the pivoted equalizer member 5, the wheels, however, having individual pivotal connection with the bar through the yoke 8, the latter providing the pivotal connection with the bar, with the wheel located in the yoke. Because of this arrangement it is possible to provide the free movement of the stems 13 within the respective sockets, since the unit can properly compensate for the swing of the ends of the bar 5 through the arcs traversed by the pivots 11 during the movement of the bar. Hence, the sockets 12 need not partake of the pivotal movement of the bar. As a result, the bar movements can take place readily and the wheels be positioned relative to the floor to compensate for unevenness of the latter.

While this freedom of movement of the stems 13 in the sockets would appear to permit the side of the table thus supported to be readily depressed, it can be readily understood that such depression would also be communicated to the bar 3 through connection of the latter with the legs. Hence, the movement would be transmitted to the pivot of the bar 5 and thus to the latter, with the tendency to lower the pivots 11. As the wheels are in contact with the surface on which the table is resting, it can be understood that the downward movement of the pivot would tend to rock the yokes slightly and thus set up binding action of the stems with the sockets.

Should, however, the pressure be applied over but one of the legs the tendency would be to cant bar 3, and the action above pointed out would not be as prominent, and to meet this condition, advantage is taken of these conditions in connection with the brake mechanism, the latter primarily serving to lock the wheels against rotation by contact of the shoes 16 with the tread of the wheels, the shoes being brought into and out of engagement with the wheels by movement of the arm 20 from one side to the other relative to a vertical plane passing through the axis of plate 20. However, due to the arrangement of the bell cranks on the pivot 11, and the looseness of the pivot itself, it can be understood that when the shoes are applied to the tread of the wheels, the resultant effect of the pressure application is to bring the pivots into close frictional engagement with the wall of the openings in which they are located in the ends of members 6, the slight movement necessarily tending to rock the yoke with the contact between the floor surface and the wheel as the fulcrum, thus shifting the stem slightly to set up the binding relation with the socket. As a result, the stem and socket are held against relative movement until the brake has been released. In other words, the brake application tends to

eliminate the effect of the pivotal relation of the yoke, so that the latter would take on the nature of an integral portion of the bar 5; since the latter is canted in making the adjustment for unevenness, the tendency is to provide the cramping action which would be present by bar movement if pivot 11 were omitted.

As will be understood, if the movement of lever 21 be sufficient to carry the pivots of connections 18 across a horizontal plane extending through the plate axis, the brake mechanism will be locked in the particular position.

Although specific embodiments of the present invention have been illustrated and described, it is to be understood that various changes may be made in the details of construction without departing from the spirit of the invention, and such changes are contemplated.

What I claim is:

1. The combination with a table having four supporting legs, a frame carried at the lower ends of a pair of legs, of an equalizing member pivotally supported intermediate its ends to said frame with said ends adjacent the lower ends of two of said legs, wheels, wheel carrying members pivotally attached to the ends of said equalizing member and engaged with and guided by said two legs for vertical movement upon tilting movement of said equalizing member, and braking means for said wheels and including operating members for operating said braking means and for exerting an inward strain upon said wheel carrying members to eliminate lost motion in said pivots and between said wheel carrying members and said legs.

2. The combination with a frame having four supporting legs and a cross member connecting two of said legs adjacent their lower ends, of an equalizing member pivotally connected intermediate its ends to said cross member with its ends adjacent the lower ends of said two legs, a wheel carrying member pivotally attached to each end of said equalizing member, wheels mounted upon said wheel carrying members to support the device upon the floor, a post on each wheel carrying member to engage and slide within said legs, and means including operating rods and an operating member for moving said rods simultaneously in opposite directions to draw inwardly upon said wheel carrying members and eliminate lost motion between said posts and said legs.

3. The combination with a frame having supporting legs, socket members on the lower ends of two of said legs, a cross member connecting said socket members on the lower ends of two of said legs, an equalizing member pivotally attached intermediate its ends to said cross member below the same with its ends adjacent the lower ends of said legs, a forked member pivotally attached to each end of said equalizing member, wheels pivotally mounted in the forks of said forked members, and a post extending upwardly from each forked member to engage and slide within said legs, said posts having a sliding movement limited by the lower ends of said legs.

4. The combination with a frame having supporting legs, a cross member connecting the lower end portions of two of said legs, an equalizing member pivotally attached intermediate its ends to said cross member with its ends adjacent the lower ends of said legs, a forked member pivotally attached to each end of said equalizing member and engaged with and slidable within

said posts, wheels pivotally mounted in the forks of said forked members, brake members pivotally attached to said forked members and provided with shoes to engage said wheels, and means connecting said brake members for simultaneous

member to permit free sliding movement of the stem relative to a leg socket, the relation of the member pivot with its table support being such that pressure on the table top at the side having said means will tend to rock the support on its pivot to produce binding effect between the stem and socket.

5. The combination with a frame having supporting legs, a cross member connecting the lower end portions of two of said legs, an equalizing member pivotally attached intermediate its ends to said cross member with its ends adjacent the lower ends of said legs, a forked member pivotally attached to each end of said equalizing member, wheels pivotally mounted in the forks of said forked members, brake cranks pivotally supported concentric with the pivotal attachment of said forked members to said equalizing member, an operating handle pivotally supported concentric with the pivotal attachment of said equalizing member to said cross member, and rods connecting said handle and brake cranks and arranged to throw past center of said pivot of said handle to lock said brake cranks with said brakes set and maintain an inward pull upon said forked members and eliminate lost motion from said pivots.

10. The combination with a table and its legs, of means for stabilizing the table and equalizing its leg length when positioned on uneven surfaces, said means including an equalizing member pivotally carried by the table and positioned relative to two adjacent legs, a support pivotally mounted at each end of the member, said support having a stem slidable relative to a socket carried by the leg served thereby, a floor-engaging element carried by said support below said stem, and a brake mechanism mounted relative to the equalizing member and operative on the floor-engaging elements to prevent floor movements of the latter, said mechanism being mounted relative to the support pivots in a manner such that the application of the brakes to the floor-engaging elements will tend to rock the supports to produce binding action between a stem and its socket.

6. The combination with a table having legs certain of which are each provided with a socket at its lower end, a member rigidly connecting the sockets, floor engaging means individual to and having parts slidable in said sockets, and an equalizing member pivotally attached adjacent its ends to said floor engaging means and pivotally supported intermediate its ends upon said connecting member to rock thereon adjacent the floor, the points of engagement of said member and said means being below the sockets.

11. A combination as in claim 10 characterized in that the brake mechanism includes a bell-crank lever mounted on the support pivot, one end of the lever carrying a brake shoe, the application of the shoe to the floor-engaging element to lock the latter, tending to provide pressure on the support pivot such as rock the support and bind the stem and socket with the element serving as the fulcrum for the rocking movement.

7. A device as in claim 6 and including yieldable means interposed between the socket and the floor-engaging means co-operating therewith to yieldingly resist rocking movement of said equalizing member.

12. A device of the character described comprising a pair of sockets to be secured to the lower ends of a pair of table-supporting legs, a rod rigidly connecting said sockets at the lower ends of said legs, floor-engaging means directly beneath the lower ends of said sockets and having vertically-extended parts slidable in said sockets, and an equalizing member pivotally attached at its ends to said means and pivotally supported intermediate its ends upon said cross-rod beneath the same and adjacent the floor.

8. A device as in claim 6 and including springs in said sockets co-operative therewith and with parts of said means to yieldingly resist sliding movements of the floor engaging means relative to the sockets.

13. The combination with a table having a supporting structure including four supporting legs, of an equalizing member pivotally supported intermediate its ends upon said supporting structure and intermediate two of said legs with the ends of said member adjacent the lower ends of said two legs, independent floor-engaging means pivotally connected to the respective ends of said member and guided vertically by said two legs as said member tilts upon its pivotal support, and means for exerting an inward force upon the respective floor-engaging means to eliminate lost motion in said pivots and between said floor-engaging means and said legs.

9. The combination with a table and its legs, of means for stabilizing the table and equalizing its leg length when positioned on uneven surfaces, said means including an equalizing member pivotally carried by the table and positioned relative to two adjacent legs, a support pivotally mounted at each end of the member, said support having a stem slidable relatively to the leg served thereby, a floor-engaging element carried by said support below said stem, whereby said support is normally free to rock relative to the equalizing

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