March 5, 1940. H. G. TIFFANY 2,192,337

OFFICE STAND

Original Filed April 30, 1937 2 Sheets-Sheet 1

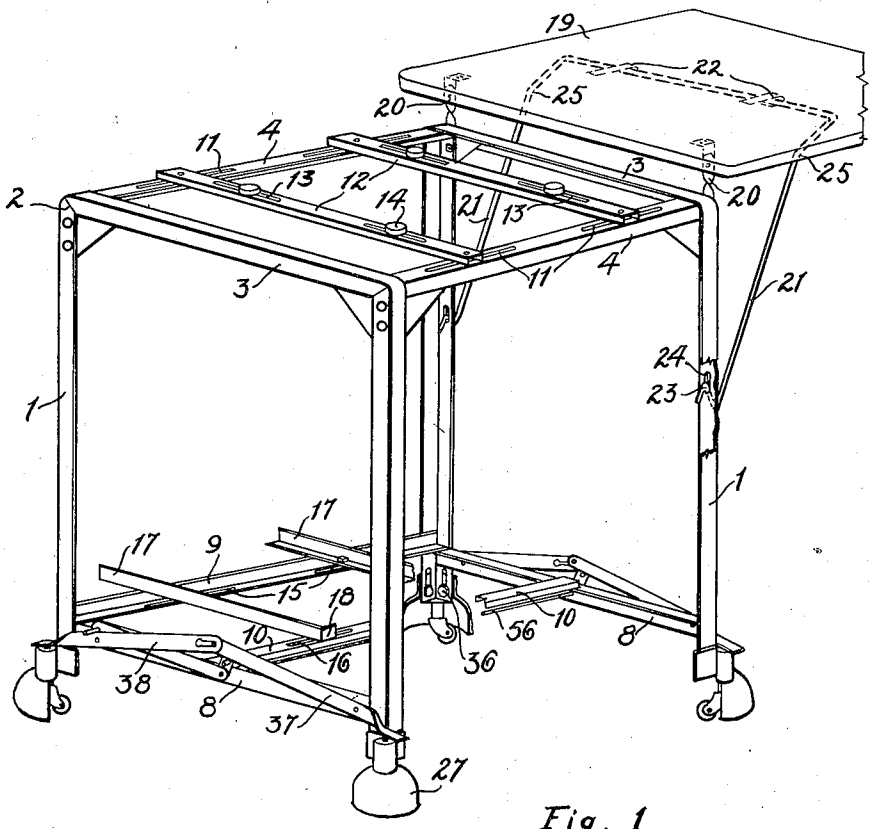


Fig. 1.

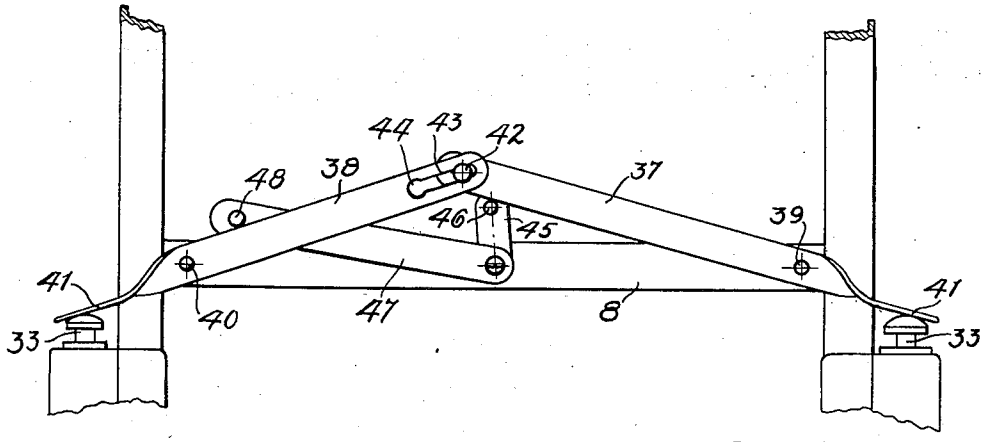


Fig. 2.

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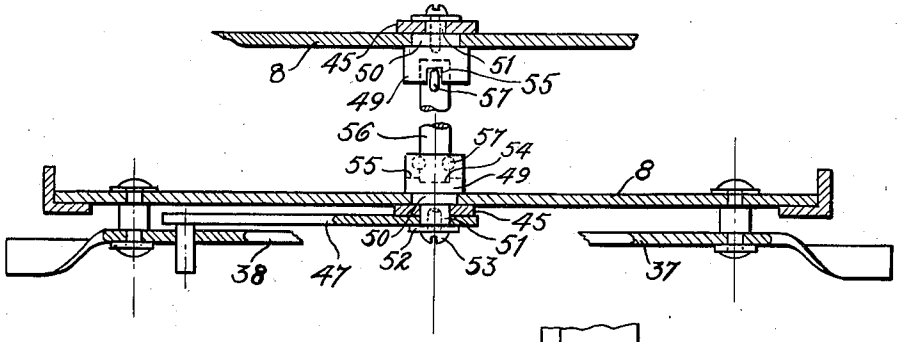


Fig. 3.

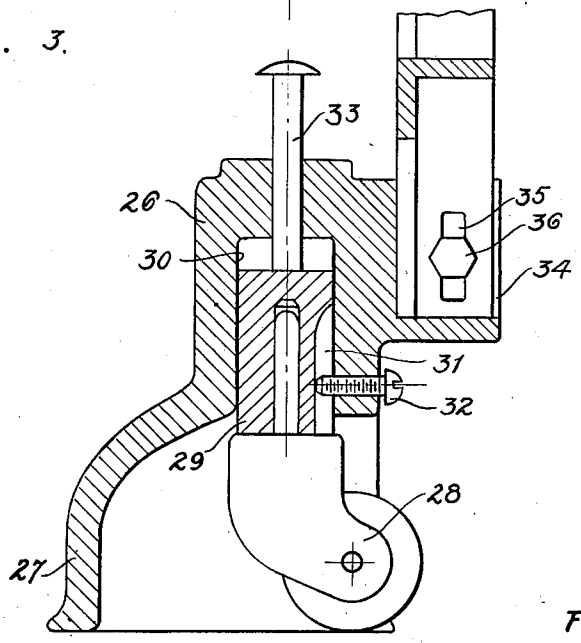


Fig. 4.

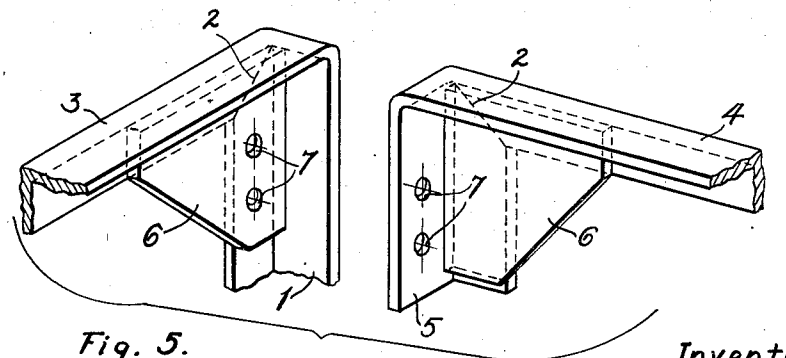


Fig. 5.

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UNITED STATES PATENT OFFICE

2,192,337

OFFICE STAND

Hiero G. Tiffany, Maplewood, Mo.

Application April 30, 1937, Serial No. 139,871
Renewed January 22, 1940

3 Claims. (Cl. 280—44)

This invention pertains to office stands such as are used to support typewriters, adding machines and similar office equipment.

One of the objects of this invention is to provide a portable stand having casters on which it may be rolled about the office with improved means for letting the stand down from its casters and supporting it upon solid feet.

Another object is to provide a stand of this type of demountable construction so that it may be disassembled into convenient form for packing and shipping.

Another object is to provide such a stand with a folding side table of improved construction.

Further objects will appear from the following description taken in connection with the accompanying drawings in which:

Figure 1 is a perspective view of a stand embodying this invention.

Figure 2 is an enlarged detail of Figure 1.

Figure 3 is a fragmentary sectional view of the mechanism for raising the stand on its casters.

Figure 4 is an enlarged sectional detail of the foot and caster construction, and

Figure 5 is a perspective detail of the frame construction.

Referring to the drawings the stand comprises a frame made up of a pair of U-shaped frames indicated generally at 1. The frames are preferably constructed of angle bars having one flange thereof cut or notched as indicated at 2 and the other flange bent so as to close the notch and form the corner of the frame. This forms a U-shaped frame having upright standards connected by horizontal cross members 3. A pair of transverse frame members 4 also constructed of angle bars are provided with downwardly extending end limbs 5 as shown in Figure 5. These end limbs are formed by notching and bending as described for the end frames 1 so as to form corners between the member 4 and its end limbs 5. In both the U frames 1 and the transverse members 4 these corners are braced by gussets 6 extending across the corner as shown in Figure 5 and welded to the inside of the notched flange. This provides a very rigid corner construction for both end frame and transverse members. In assembling the frame the corner of the transverse member 4 is placed inside the corner of the U frame and the two are secured together by detachable clamp fastenings such as bolts passing through holes 7 provided for that purpose. It will be seen that a very rigid corner construction is hereby provided adapted to brace the upright standards in all directions.

The lower ends of the standards may be connected together by lower side bars 8, rear transverse bar 9 and a center transverse bar 10. The bar 10 is placed in the center of the frame in order to leave one side open to accommodate the feet of the operator. The bars 8 and 9 are preferably constructed of angle iron and the bar 9 is bolted or otherwise detachably secured to the end frames 1. The center bar 10 is preferably of channel form as shown in Figure 1.

The transverse members 4 are provided in their upper flanges with longitudinal slots 11 in which are secured, preferably by a bolt provided with a wing nut, channel shaped supporting bars 12. These may be adjusted along the slots 11 to accommodate an instrument of any width. Slots similar to slots 11 may also be provided in the cross members 3 of the end frames so that if desired the bars 12 may be mounted so as to span the frame in a direction at right angles to that shown in Figure 1. The supporting bars 12 are also provided with slots 13 in which are mounted for adjustment foot sockets 14 adapted to receive the instrument which the stand is intended to support. These attachments provide for spacing the sockets 14 in any desired manner so as to accommodate any type of instrument.

Similarly mounted for adjustment along slots 15 and 16 in the bars 9 and 10 respectively is a pair of angle bar supports 17. These preferably have a short flange bent inwardly at their inner ends as shown at 18. These supports may be used to support a container to hold the forms used in the operation of the instrument carried by this stand.

A folding table 19 is hinged at 20 on the cross member 3 on one of the end frames 1. This table is supported in its extended position by a pair of angle braces 21. These may be formed of a single length of heavy wire or they may be separate. In the illustrations they are shown as formed of a single wire hinged to the table 19 at 22 and having their lower ends formed with a double hook 23 by bending the end of the wire first upwardly and then downwardly. The downwardly bent hook is adapted to engage a socket opening 24 in one of the uprights of the end frame as shown in Figure 1 so as to support the table in extended position. When it is desired to fold the table down, the same is raised on its hinge 20 while at the same time the angle braces 21 are pressed upwardly. This causes the upturned portion of the brace 21 to pass through

the socket 24 until stopped by the lower hook. The table may then be lowered and the shank of the brace 21 will pass through the socket opening 24 and allow the table to descend. Each of the braces 21 is provided with a bend as indicated at 25 so positioned that when the table is folded to a vertical position the portion above the bend 25 will pass through the opening 24 and permit the lower portion of the brace 21 to hinge vertically within the angle of the upright 1.

Each of the uprights of the frames 1 is provided with a foot casting 26 having an extended foot portion 27 providing room there-within for a caster 28 to swing in a horizontal circle. The caster 28 is swiveled in any suitable manner in a cylindrical block 29 slidable in a bore 30 in the casting 26. The block 29 is preferably provided with a slot 31 engaged by a screw 32 which prevents the block from falling out of the casting 26 while permitting it to move vertically therein. An operating pin 33 extending through the top of the casting 26 bears on the top of the block 29 so that by forcing said pin downwardly in the casting the block 29 may be forced downwardly and thereby the caster 28 will be extended below the foot portiton 27. The casting 26 is provided with a socket 34 adapted to receive the lower end of the upright of the frame 1. Preferably three of the foot castings 26 are rigidly secured to their uprights while the fourth is arranged for vertical adjustment thereon. For this purpose a slot 35 is provided in the upright along which the securing bolt 36 may be adjusted. By this arrangement the vertical relation of all four feet may be adjusted to hold the stand rigid on a level floor.

In order to raise the stand on its casters the mechanism illustrated in Figures 2 and 3 is provided. On each side of the frame and pivoted to the lower side bars 8 thereof is a pair of levers 37 and 38. These levers are pivoted at their outer ends at 39 and 40 respectively. The portion of each lever beyond the pivot is formed, by twisting as shown in the drawings or otherwise, to provide a flat abutment 41 engageable with the head of the pin 33. The inner ends of these levers are connected together by a lost motion connection as by a headed pin 42 on one of the levers engaging a slot 45 in the other. The slot 43 may be provided with an enlargement 44 so that, when disconnected from the frame at their pivots, these levers may be separated from each other by passing the head of the pin 42 through the enlargement 44. This provides convenient means for assembly and disassembly of these levers. Pivoted on the bar 8 below the levers 37 and 38 is a crank arm 45 having a pin 46 engageable with one of the levers 37 or 38 to elevate the same at their inner ends. Secured to move with the crank 45 on its pivot is a manipulating element 47 providing a lever by which the crank may be operated. The element 47 is provided with a pin 48 extending outwardly therefrom above the levers 37 and 38 and adapted to engage one or the other of said levers to limit the movement of the manipulating element. In the position shown in Figure 2 the pin 48 rests upon the top of the lever 38 and this positions the crank 45 in such relation to the lever 37 that the direction of the pressure of said lever upon the crank is such to retain the crank in this position and hold the pin 48 against the lever 38. In this position of the levers the abutments 41 operate to press the pins 33 downwardly thereby extending the casters 28 beyond the feet 27 to raise the stand on said casters. In this position the stand may be rolled about to any desired location. When it is desired to support the stand on its feet the pin 48 is raised so as to swing the element 47 and thereby the crank 45 on its pivot in a clockwise direction as seen in Figure 2 until the pin 46 passes the dead-center position of the pressure of the lever 37 with reference to the pivot of the crank. After this position is passed the weight of the stand forces the crank to continue its movement until the pin 48 is arrested by engagement with the lever 37. This movement permits the abutments 41 to rise thereby permitting the pins 33 to rise and the caster 28 to slide upwardly and let the stand down upon the feet 27.

The pivots of the crank arms 45 are shown in Figure 3. Each of these comprises a cylindrical block 49 having a circular bearing portion 50 engaging circular openings in the bar 8, and a squared extension 51. The crank arm 45 and the manipulating element 47 are provided with square holes fitting the portion 51 so as to be keyed thereto. The members 45 and 47 are retained upon the pivot block by a washer 52 and a screw 53. The inner end of the block is provided with a socket 54 having diametrically opposite peripheral notches 55. A cross shaft 56, provided at its ends with lateral projections 57 has its ends lodged in the sockets 54 with the projections 57 engaging the notches 55. The shaft 56 provides a cross connection between the opposite sides of the frame so as to connect together for operation in unison the lever mechanisms on the two end frames so that when operated all four casters will be extended or retracted together.

It will be seen that this invention provides a stand of simple construction which is demountable so that it may be "knocked down" for shipment. The end frames 1 each forms a unit having the lever mechanism for operating the casters mounted thereon. By simply removing bolts the transverse members 4 and the cross bars 9 and 10 may be removed. The shaft 56 is simply slipped out of the sockets in the pivot blocks 49. This reduces the entire frame to a flat form which may be packed and shipped in a minimum of space.

The lever mechanism for raising and lowering the stand on its casters is simple and effective in operation. In the position shown in Figure 2 it is self-retaining with the stand on its casters. When it is desired to lower the stand on its feet it is only necessary to kick the pin 48 upwardly a short distance and the mechanism then automatically drops the stand to its feet. The folding table is of simple construction and the form of the angle braces is such that upon folding the table they are not easily pulled out of the socket openings 24 on account of the lower hook formed therein. At the same time when in folded position the table is flat against the end frame and the braces 21 hang vertical within the angle spaces of the legs. In this position they are out of the way of the operator and also conform to the flat form of the device when knocked down for shipment. The provision for attachment of the foot sockets 24 provides for every possible spacing within the range of the stand so that any type of instrument may be supported thereon. The provision of the supports 17 enables the stand to carry not only the instrument, but adequate supplies of the forms upon which the operations are performed.

While the invention has been described as

embodied in a unitary device, it will be understood that certain individual features or sub-combinations thereof may be useful by themselves without reference to other features or the complete combination, and that the employment of such individual features or sub-combinations is contemplated by this invention and within the scope of the appended claims.

It is further obvious that various changes may be made, within the scope of the appended claims, in the details of construction without departing from the spirit of this invention; it is understood, therefore, that the invention is not limited to the specific details shown or described.

Having thus described the invention what is claimed is:

1. In a stand of the character described, a demountable frame comprising, a pair of U-shaped end frames, each of said end frames being formed of an angle bar having one flange notched and the other bent to form the frame corners and a gusset welded to the inside of the notched flange across each corner, a pair of transverse frame members having downwardly-extending end limbs of a similar corner-structure to said U-frames, and detachable clamp-fasteners securing said limbs to said U-frames.

2. In a stand of the character described having a frame, feet on said frame and casters movable relatively to said feet to support said frame; a pair of levers pivoted at their outer ends on said frame and engageable beyond their pivots with means for moving a caster, a lower cross-member on said frame on which said levers are pivoted, and means for raising said levers together including a crank supported on said cross-member having a part engageable with one of said levers and movable to a self-locking position with said levers raised.

3. In a stand of the character described, a demountable frame comprising, a pair of U-shaped end frames, each of said end frames being formed of an angle bar bent to form the frame corners and a gusset welded to the inside flange of the angle bar across each corner, a lower cross member bracing the open end of each of said frames, a pair of transverse frame members having downwardly-extending end limbs of a similar corner structure to said U-frames, detachable clamp fasteners securing said limbs to said U-frames, foot members at the open ends of said end frames having casters movable relatively to said members, lever mechanisms including a pair of levers pivoted at their outer ends on each of said cross members and engageable beyond their pivots with means for moving a caster, means for raising said levers together including a crank supported on the cross member having apart engageable with one of the levers of a pair and movable to a self-locking position with said levers raised, and a demountable connection between said lever mechanisms.

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