

June 26, 1923.

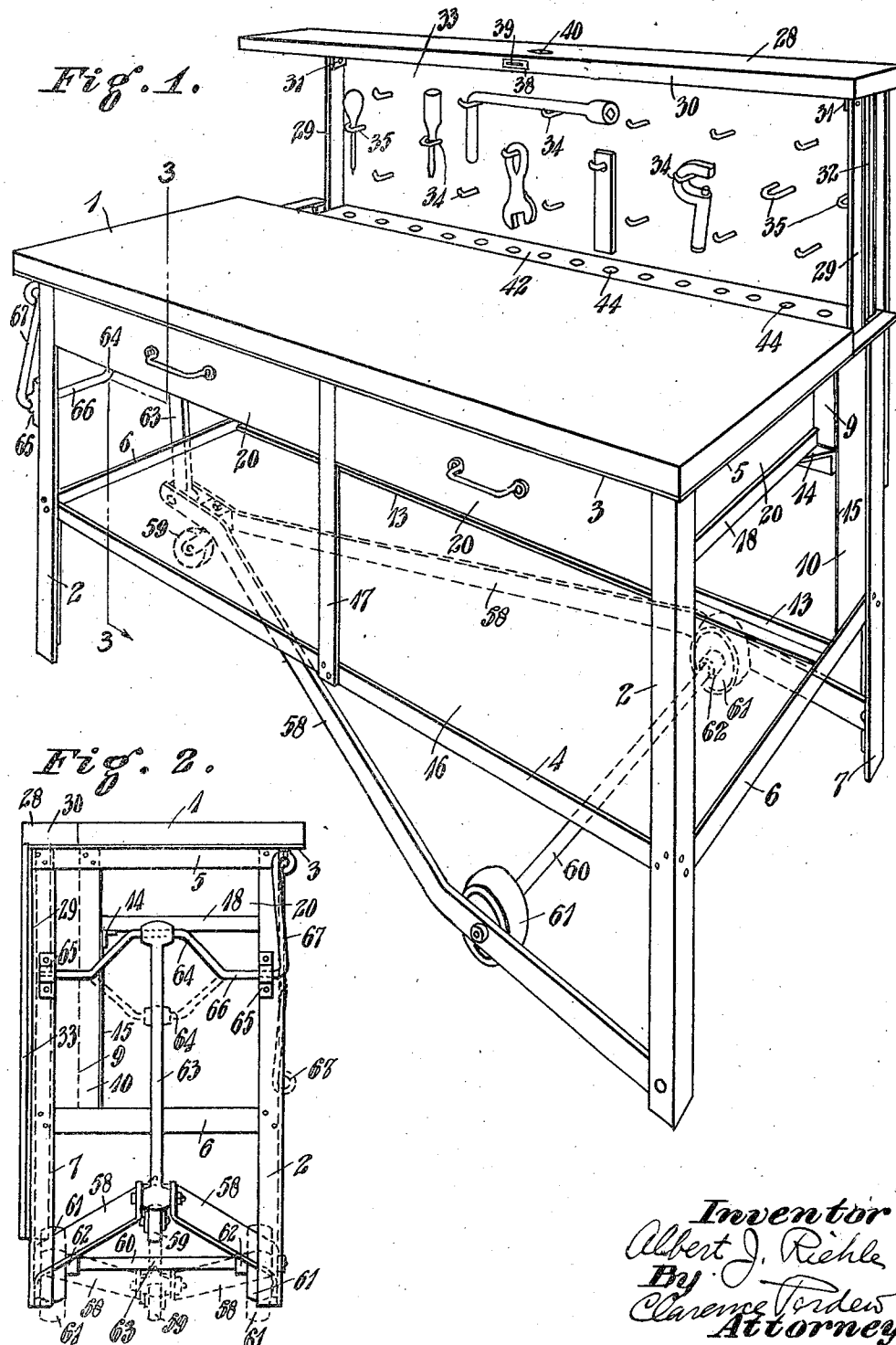
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A. J. RIEHLE

TOOL RACK

Filed March 2, 1922

2 Sheets-Sheet 1



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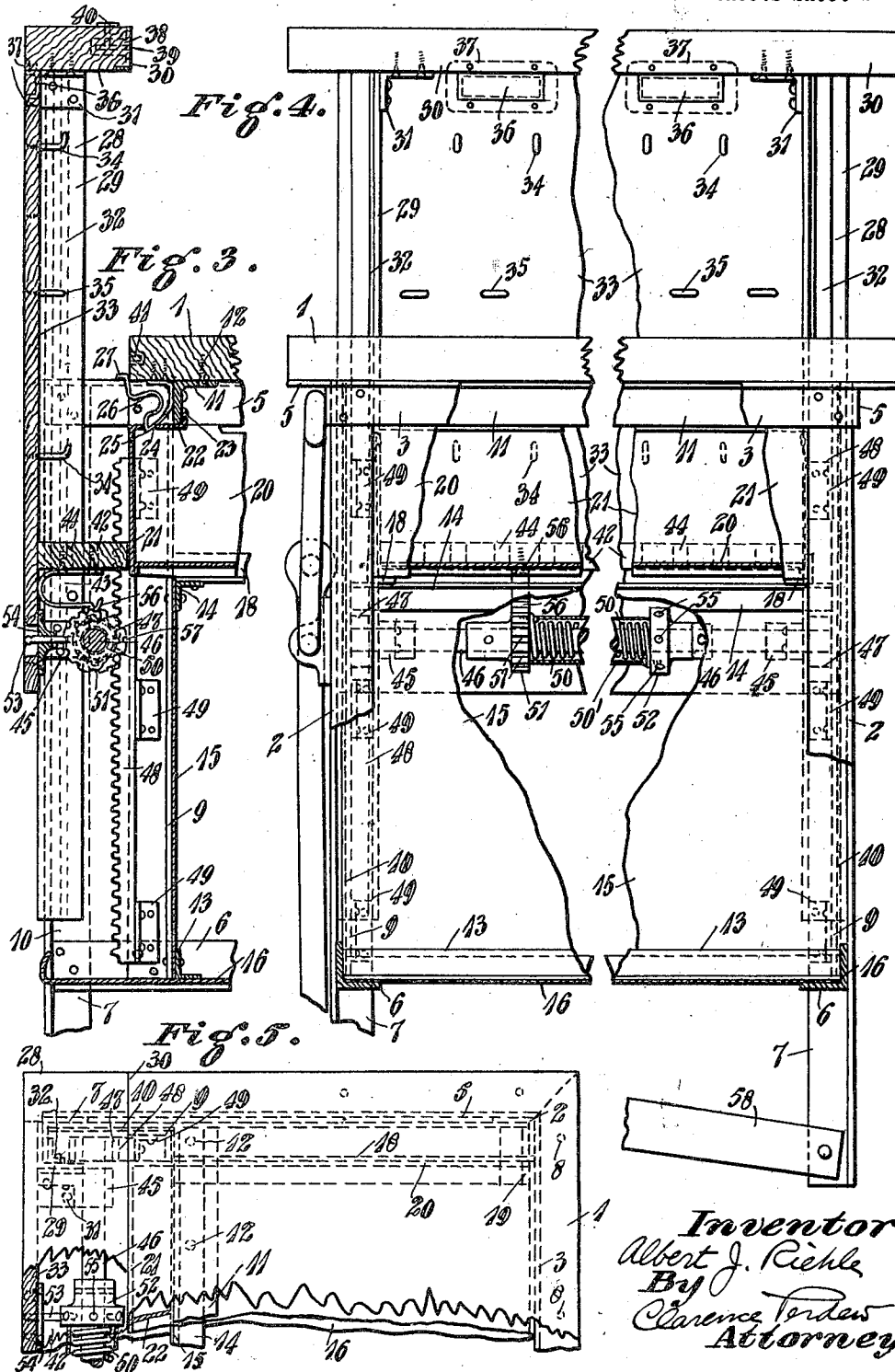
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UNITED STATES PATENT OFFICE.

ALBERT J. RIEHLE, OF CINCINNATI, OHIO.

TOOL RACK.

Application filed March 2, 1922. Serial No. 540,523.

To all whom it may concern:

Be it known that I, ALBERT J. RIEHLE, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Tool Racks, of which the following is a specification.

My invention relates to devices for holding tools for convenient access; and its object is to provide for readily transporting a number of tools, such as machinist's tools, about a shop, such as a garage, and for conveniently storing the tools and enclosing them, when not in use, and as conveniently exposing the tools for easy access when they are to be used. Other objects will appear in the course of the ensuing description.

I attain these objects by the device illustrated, for example, in the accompanying drawings, in which—

Figure 1 is a perspective view of the tool rack, partly opened for use of the tools, and lowered into a stationary condition;

Fig. 2 is an end elevation of the same, fully closed, and showing, by full lines, the lowered stationary condition, and by dotted lines the positions of the parts which are operated to raise the device for transportation;

Fig. 3 is a partial front-to-rear vertical cross-section of the device on the planes of the broken line 3—3 of Fig. 1;

Fig. 4 is a front elevation of the same, front parts being broken away and omitted for clearness, and middle parts being broken away and omitted for lack of space; and

Fig. 5 is a partial plan view of the device, corresponding to Fig. 3.

As I prefer to embody my invention, the broad flat top 1 preferably is of wood of considerable thickness, and at its front is supported by front legs 2 connected lengthwise by the upper rail 3 and the lower rail 4; these being angle-bars and the upper one 3 having a horizontal member extending forward with its upper surface even with the upper ends of the legs 2 which also are angle-bars, each with one member secured to the vertical member of the upper rail 3 and the other member projecting rearwardly. The lower rail 4, which is rather more than half way down the legs 2, is secured inside these legs; being an angle bar with upright member secured thus to the front members of the legs 2 and horizontal member projected backward. Upper

end rails 5 and lower end rails 6 project back from the respective front legs 2; the upper one being an angle bar similar to the front upper rail 3 and secured to the backwardly projected member of the respective leg 2 by its upright member and having its horizontal member projected outward; while the lower one is an angle bar similar to the front lower rail 4 with upright member secured inside the respective leg 2 and horizontal member projected inward. The rear legs 7 are angle bars positioned similarly to the front legs 2, but inversely, with one member of each leg projected forward and secured to the upright members of the end rails 5 and 6 in the same relation as the front legs 2 have to these rails, and the other member projecting across lengthwise of the structure, at the rear.

The top 1, does not extend as far back as the rear legs 7. Its end parts and its front edge part are secured to the outwardly projected horizontal members of the upper end rails 5 and upper front rail 3 by screws 8 passed up through these members (Fig. 5.) Wall posts 9, of angle bars, are secured upright at opposite ends of the structure, to the respective upper rail 5 and lower rail 6 by their rearwardly projected members, with the rear edges of these members even with the rear edge of the top 1, a considerable distance forward from the rear legs 7. Between these posts 9 and the rails 5 and 6, however, are end wall plates 10, projecting from rail 5 to rail 6 and from post 9 back to rear leg 7 at the respective end, and secured to these parts. The upper rear rail 11 is an angle bar with upright member secured to the other members of the wall posts 9 which project across lengthwise of the structure; the horizontal member of rear rail 11 projecting forward, even with the tops of the posts 9 and rails 3 and 5, and secured to the rear edge part of the top 1 by screws 12 (Fig. 3) the same as the rails 3 and 5 are secured by the screws 8. The lower rear rail 13 is an angle bar with upright member secured to said other members of the posts 9 and its horizontal member at the bottom, projected forward, and at its ends lying over and secured to the inwardly projected horizontal members of the lower end rails 6. The intermediate rear rail 14 is similar to the lower rear rail 13, and is secured

to the posts 9 in the same relation, except that its horizontal member is at the top. Between these rails 13 and 14 and the posts 9, however, the rear wall plate 15, projecting from rail 14 to rail 13 and from post 9 to post 9, is secured; and the shelf plate 16 extends from the rear, under the lower rail 13, between it and the rails 6; this shelf plate 16 extending forward to the lower front rail 4 and from one lower end rail 6 to the other, and being secured on top of the horizontal members of all of these rails, as well as secured to the lower rear rail 13 along the length thereof. The rear edge of this plate 16 is flanged up (Fig. 3) and projects slightly back of the rear legs 7. Midway of the length, at the front, a stile bar 17 extends upright with end parts secured to the fronts of the upright members of the upper and lower front rails 3 and 4; thus reinforcing the shelf structure at the middle, in front; the latter being amply supported at the rear by the rear wall structure including the plate 15.

The drawer rails 18 are angle bars, in two pairs, those of each pair having lower horizontal members projected toward each other and secured at the rear to the top of the intermediate rear rail 14 and at the front to small brackets 19 fixed inside the front leg 2 and stile bar 17, respectively. The drawers 20 slide on these members, between the upright members of these drawer rails of the respective pairs. The backs 21 of the drawers lie under the upper rail 11 when the drawers are closed with the fronts of the drawers even with the front legs 2 and stile bar 17. Each drawer back 21 has a flange 22 (Fig. 3) extending forward, with a lug 23 projecting up to engage the front side of the depending member of the upper rear rail 11 and thus limit backward sliding of the drawer. Also, this flange has a recess 24 just forwardly of the drawer back 21, and a flat spring strip is fixed to the back of the rail 11, with a downwardly inclined part succeeded by an upwardly extended part, forming a downwardly projected nose 25, and ending, at the rear, in an upwardly extending loop 26 with a lip 27 close to the lower side of the top 1, adjacent to its rear edge. This lip rises above the level of the lower surface of the top 1 for the nose 25 to leave the recess 24, so as to have no effect, upon closing or opening of the respective drawer 20. Holding the head or lip 27 down confines the spring strip so that the nose 25 can enter but not rise out of the recess 24, preventing opening of the drawer.

The back 28 comprises the upright rails 29, which are angle bars, and the top strip 30, preferably of wood, of the same thickness as the top 1, secured to the upper ends of the rails 29 by angle brackets 31 on the

forwardly projected members of the respective rails 29; the other members of these rails projecting out toward the adjacent ends of the structure. These rails 29 are so located that these other members overlap the rear members of the legs 7, with the forwardly projected members of the rails 29 close to the inner edges of those rear leg members; the legs 7 thus forming upright guides for the back 28. Small angle bar clip rails 32, fixed inside the angles of the rails 29, lap across the fronts of the inwardly projected members of the rear legs 7, holding the back 28 forward in upright position on the guiding legs 7. The back board 33, preferably of wood, is fixed to the backs of the rails 29 under the rear edge of the top strip 30. It extends down far enough to overlap the rear flanged edge of the shelf plate 16 when farthest up in the travel of the back 28. It has fixed in it in various positions in its upper part, forwardly projected hooks 34 and staples 35, under the top strip 30. Near each end, this back board 33 is recessed, just below the top strip 30, admitting finger-socket plates 36 (Figs. 3 and 4) opening rearwardly and fixed to the rear side by flanges 37. Midway of the length of the strip 30, in its front edge, is a lock 38 with a bolt 39 actuated by a key inserted in a key-hole 40 opening through the top of the strip 30; this bolt engaging in a plate 41 set in the rear edge of the top 1 when the back 28 is lowered until the end projections of the strip 30 rest on the tops of the end rails 5. The strip 30 then has its front edge snug against the rear edge of the top 1 and forms a continuation of the top. In this position, the top strip 30, engaging the lips or heads 27, prevents rising of the noses 25 from the recesses 24 in the drawer-back flanges 22, locking the drawers 20 as before described. A ledge 42 is fastened to the back board 32 and the brackets 43 on the inner sides of the rails 29 near the bottom of the back board 32, being preferably of wood; this ledge is so located that it will lie close up to the rear edge of the top 1 when the back 28 is raised to its highest position, thus closing the space at the rear of the top 1. Preferably, the ledge 42 has holes 44 down through it, into which tools may be inserted, to be held by the ledge for easy access when the back is raised.

Slightly below the ledge 42 each back rail 29 has fixed on its forwardly projected member a bearing bracket 45, projected forwardly; and a shaft 46 is journalled lengthwise of the structure in these brackets 45, having fixed on it just outside the respective brackets, spur pinions 47. Racks 48, are fixed upright, by brackets 49, to the backs of the respective wall posts 9, facing backward and meshing with the respective pin-

ions 47. A helical torsional spring 50 is coiled around the shaft 46; this spring having one end secured to a hub 51 pinned on the shaft 46; and having its other end secured to a similar hub 52 loose on the shaft 46 and kept from turning by a pin 53 passed through a detent plate 54 in the back board 33 and entering any one of a number of holes 55 in the periphery of the hub 52. This allows adjustment of the torsion of the spring 50. When the back is pressed down, the spring is wound up, so that it acts to counterbalance the back 28 and articles carried thereon. The resistance of the spring 50 may be adjusted, by means of the pin 53 as desired; approximately to balance the back 28 and its load, making it easy for the user to lift the back by engaging the fingers in the sockets 36. Or the spring 50 may be made to lift the back slowly when the latter is released by unlocking the lock 38. The resistance required of the spring, for either purpose, will vary with the number and size of the tools carried on the back 28, and approximate adjustment may be made accordingly.

The shaft 46, with its pinions 47 meshing with the racks 48 near remote ends of the structure, prevents tilting of the back 28 longitudinally, should it be loaded more near one end than near the other end.

Should the spring 50 be adjusted so that it does not quite balance the load, a detent spring 56, secured to the back ledge 42 and bearing on the periphery of the hub 51 that is pinned to the shaft 46 to enter any one of a number of notches 57 in this periphery, will hold the back at any one of several desired heights. If this detent means is made resistive enough, it can hold the back up without the spring 50; the user overcoming the entire weight of the back and its load in raising it, or lowering it with the aid of the braking pressure of this detent means on the hub 51. A tube 50' forms a casing for spring 50.

A yoke is made up of bars 58, with a caster 59 mounted between them near one end of the structure, and diverging toward the opposite end, where they are pivoted to the legs 2 and 7. Near this end, a shaft 60 extends from bar to bar with wheels 61 journaled on it near the respective bars, where they are held by collars 62. A link 63 pivoted to the narrow end of the yoke extends up and is pivoted to a crank 64 journaled transversely of the adjacent end of the structure in brackets 65 on the legs 2 and 7 of this end. This crank 64 is the central part of a bar 66 bent to form this crank; and also, at its forward end this crank bar 66 is bent to form a handle 67 extending in the same direction as the crank 64 and adapted to engage the front leg 2 either above or below the bracket 65 upon turning of the crank

bar a little over 180°. When the handle is turned up, the wheels 59 and 61 are raised, and the legs 2 and 7 rest firmly on the floor, as in Fig. 1. When this handle 67 is turned down, as indicated by the dotted lines in Fig. 2, the wheels 59 and 61 are forced down, as shown by dotted lines also in Fig. 2; and the tool rack thus will be raised and supported on the wheels, to be rolled about, wherever needed.

The hooks 34 and staples 35 on the back 28 serve to support tools, as indicated in Fig. 1, for ready access when the back 28 is raised as shown. When the back 28 is lowered, the articles so held are enclosed in the rear space behind the wall plate 15, with the rear projection of the shelf plate 16 at the bottom, the end wall plates 10 at the end, the top strip 30 at the top, and the back board 33 at the rear with the rear flanged edge of the shelf plate 16 closely in contact therewith. With this back thus locked down by the lock 38, the articles are protected. The drawers 20 are for tools used less often; and these are locked automatically when the back 28 is down, by the noses 25 and loops 26, as before described. The broad flat top 1, and the shelf formed by the plate 16 with a raised rim all around, are convenient for receiving tools temporarily, during the work; or for storage of articles not requiring to be locked away. The raised and lowered back 28 is more convenient than drawers, or a chest with lid to be raised; it is not necessary to clear away articles from the top 1 to get access to the tools held by the back 28, as would be the case if the top were hinged for storage of articles thereunder or on its lower side.

Manner of use other than those shown herein may occur, and while certain details are deemed preferable, and I have shown and described these specifically to show the construction and use of my invention, as required, I do not wish to be understood as being limited to such precise showing and description, but having thus fully described my invention,

What I claim as new and desire to secure by Letters Patent is:

1. In a tool rack, a structure comprising a compartment having one upright side movable up and down and provided with means whereby said side holds articles on its inner surface, to be enclosed in said compartment or exposed for access as said side is moved one way or another, a drawer in said structure, and means whereby said drawer is locked when said side is moved to enclose said articles.

2. In a tool rack, a structure comprising a top and a compartment below and to the rear of said top, having its rear upright side movable up above said top and down below said top and provided with means whereby

said side holds articles on its inner surface to be enclosed in said compartment or exposed for access above said top as said side is moved down or up, a drawer in said structure under said top, and means whereby said drawer is locked under said top when said side is moved down to enclose said articles.

3. In a tool rack, a structure comprising a compartment having one upright side movable up and down and provided with means whereby said side holds articles on its inner surface to be enclosed in said compartment or exposed for access as said side is moved one way or the other, a shaft extending from end to end of said structure, and operative connections between said shaft and said movable side, and between said shaft and other parts of said structure, near opposite ends of said shaft, whereby said shaft limits endwise tilting of said side and prevents binding of said side in its up and down movement.

4. In a tool rack, a structure comprising a top and a compartment below and to the rear of said top, having its rear upright side movable up above said top and down below said top and provided with means whereby said side holds articles on its inner surface to be enclosed in said compartment or exposed for access above said top as said side is moved down or up, an upper part of said rear side projecting forward over said compartment and forming a rear continuation of said top when said side is down, a drawer in said structure under said top, and means engaged by said upper part of said rear side whereby said drawer is locked under said top when said side is moved down to enclose said articles.

5. In a tool rack, a structure comprising a compartment having one upright side movable up and down and provided with means whereby said side holds articles on its inner surface to be enclosed in said compartment or exposed for access as said side is moved one way or the other, operative connecting means near opposite ends of said side, connected to said side, a shaft connecting said means whereby said side is prevented from tilting in its up and down movement, and a spring coiled around said shaft with one end attached to said shaft to turn therewith and the other end non-rotatively held.

6. In a tool rack, a structure comprising a compartment having one upright side movable up and down and provided with means whereby said side holds articles on its inner surface to be enclosed in said compartment

or exposed for access as said side is moved one way or the other, a shaft journaled lengthwise of said movable side, pinions fixed on said shaft near opposite ends thereof, racks fixed upright on another part of said structure and meshing with the respective pinions, a spring coiled around said shaft with one end attached to said shaft to turn therewith, and means holding the other end of said spring to said movable side.

7. In a tool rack, a structure comprising a compartment having one upright side movable up and down and provided with means whereby said side holds articles on its inner surface to be enclosed in said compartment or exposed for access as said side is moved one way or the other, a shaft journaled lengthwise of said movable side, pinions fixed on said shaft near opposite ends thereof, racks fixed upright on another part of said structure and meshing with the respective pinions, a spring coiled around said shaft, a hub fixed on said shaft and connected to one end of said spring, and having notches in its periphery, detent means mounted on said movable side and engaging with said periphery to enter said notches, and another hub loose on said shaft, connected to the other end of said spring, and means on said movable side preventing this hub from turning.

8. In a tool rack, a structure comprising a compartment having one upright side movable up and down and provided with means whereby said side holds articles on its inner surface to be enclosed in said compartment or exposed for access as said side is moved one way or the other, a shaft journaled lengthwise of said movable side, pinions fixed on said shaft near opposite ends thereof, racks fixed upright on another part of said structure and meshing with the respective pinions, means fixed on said shaft, having a concentric notched periphery, and detent means mounted on said movable side and engaging with said periphery to enter the notches thereof.

9. In a tool rack, a structure comprising a compartment having one upright side movable up and down and provided with means whereby said side holds articles on its inner surface, to be enclosed in said compartment or exposed for access as said side is moved one way or the other, and means to counter-balance said side in its up and down movement.

ALBERT J. RIEHLE.