# United States Patent

[11] 3,559,761


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[33] Germany
[31] P 17 67 795.1


[54] **COMBINED STEP AND STOOL**
**6 Claims, 7 Drawing Figs.**


[52] U.S. Cl. ..... 182/15
[51] Int. Cl. ..... E06c 1/397
[50] Field of Search ..... 182/15; 16/44



[56] **References Cited**

UNITED STATES PATENTS

| | | | |
|---|---|---|---|
| 2,613,389 | 10/1952 | Cramer | 16/44 |
| 2,955,645 | 10/1960 | Cramer | 182/15 |

FOREIGN PATENTS

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| 1,371,686 | 7/1964 | France | 182/15 |



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**ABSTRACT:** This invention is directed particularly to a combined step and stool wherein the stool member is removably attached to the step member, whereby the stool can be removed from the step member and used independently thereof.

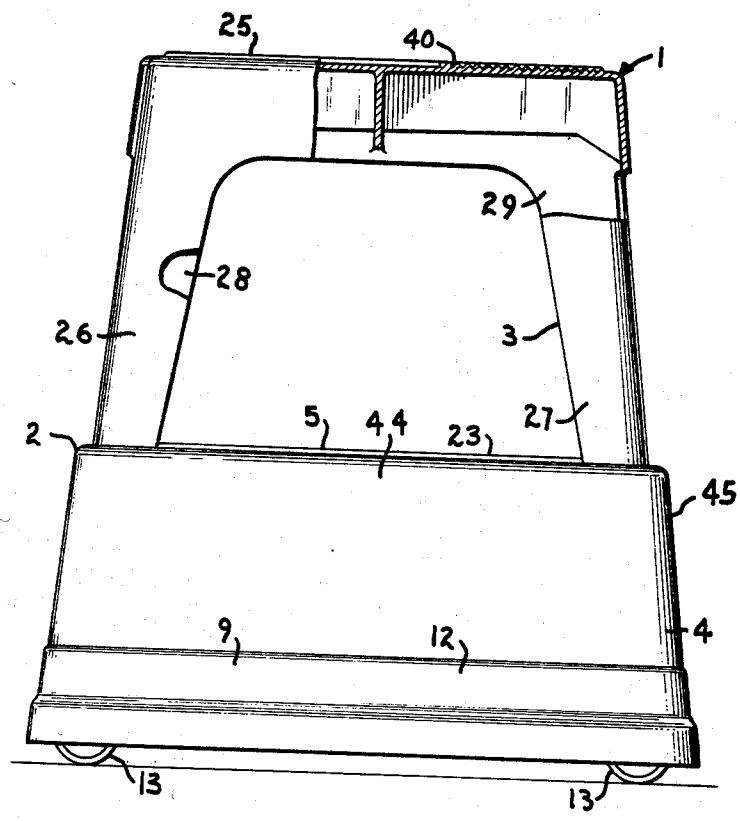



Fig. 1.

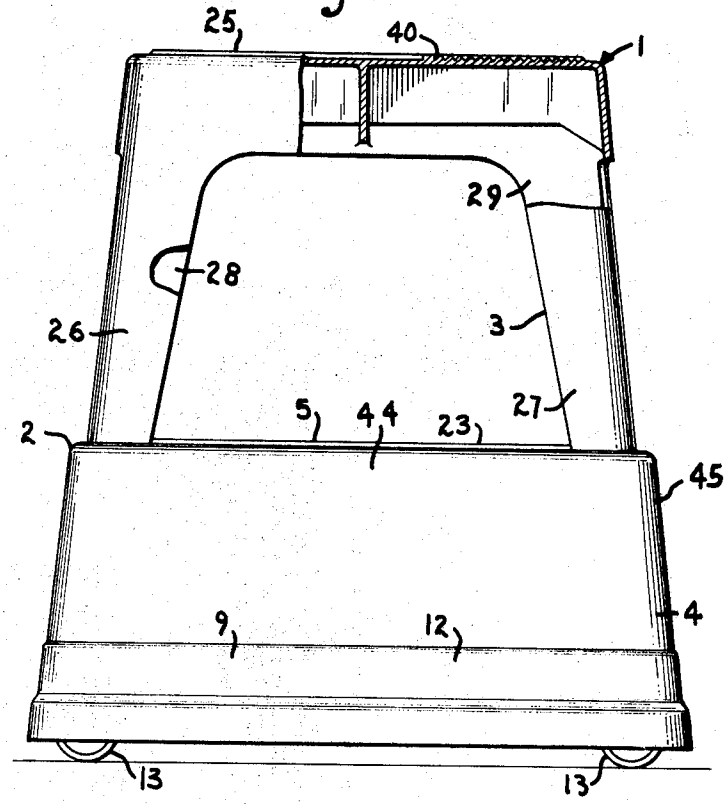
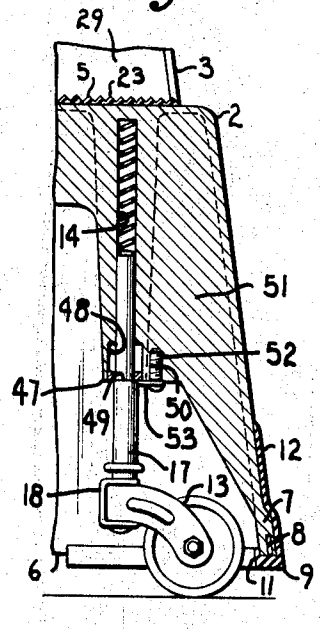



Fig. 7.



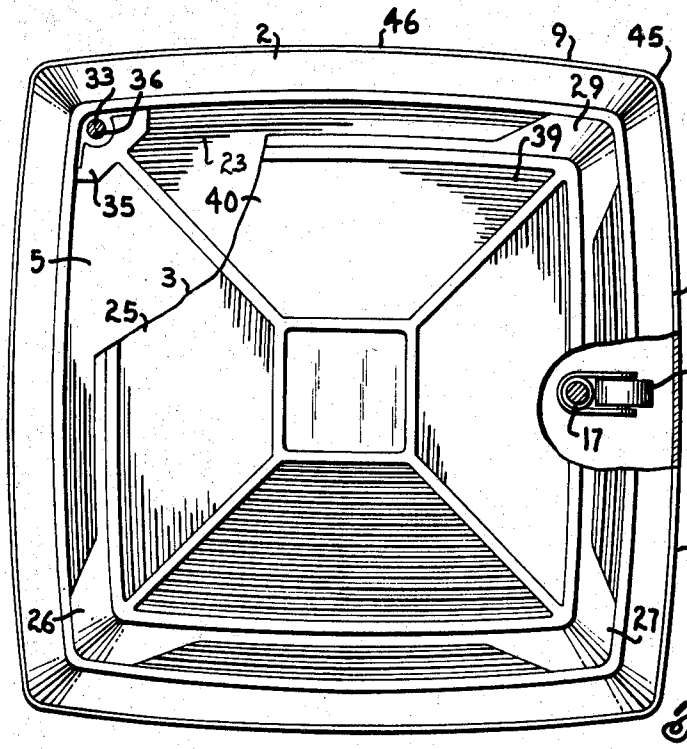




Fig. 2.

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Fig. 3.

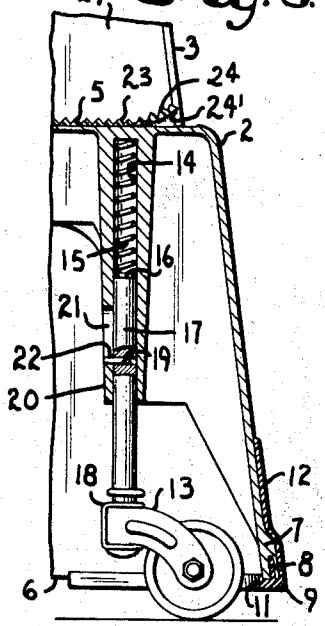



Fig. 4.

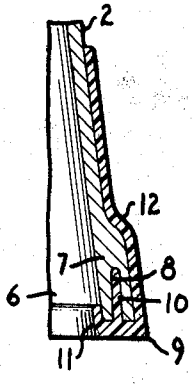



Fig. 5.

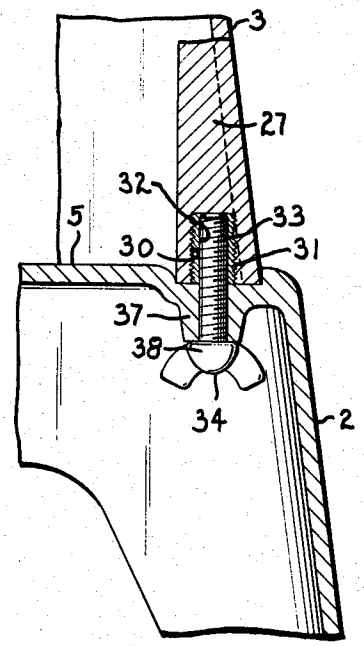
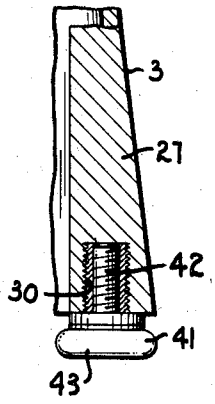



Fig. 6.




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# COMBINED STEP AND STOOL

## BACKGROUND OF THE INVENTION

The present invention in the combined step and stool is an improvement over the Cramer Pat. No. 2,955,645, issued Oct. 11, 1960, and the caster arrangement is an improvement over the Cramer Pat. No. 2,613,389, issued Oct. 14, 1952.

## SUMMARY OF THE INVENTION

The principal object of the present invention is to provide a unitary step and stool, readily rollable on the floor for use at a desired position and which will solidly and frictionally grip the floor upon the application of relative pressure thereto to render the article safe for use as a step to higher-up places or for seating persons.

Another object of the present invention is to provide a combined step and stool of this character wherein the upper or stool member may be disengaged from the step member and used as a step member independently of the first step member.

Still further objects of the present invention are to provide a combined step and stool wherein the step member has a top provided with a nonslip member and having spaced recesses around the outer portion of the top thereof adapted to receive a lower edge or leg portion of the stool member, said recesses having an opening through said top; to provide the legs of the stool member with a socket having a threaded opening adapted to receive a threaded shank of a fastening member or shaft; to provide the step member with depending bosses underneath the recesses of the top and the leg portions of the stool, through which the threaded shaft or fastening member extends; to provide a head for the threaded shaft to retain the stool member attached to the step member; to provide the step or base member with a plurality of supporting casters or rollers for ease in rolling the device along the floor, the casters being readily collapsible to allow the base to frictionally grip the floor when the user steps on the device; to provide elongated sockets depending from the under face of the top of the step member for receiving and securing stems of said casters to the base of the step stool; to provide a glide member on the legs of the stool member when it is detached from the step member, so that the stool member may slide over the floor to the place of use; and to provide a device of this character simple and economical to manufacture.

Other objects and advantages of this invention will become apparent from the following description taken in connection with the accompanying drawings wherein are set forth by way of illustration and example certain embodiments of this invention.

## BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a side elevation illustrating the invention with parts broken away to better illustrate the same.

FIG. 2 is a top plan view with parts broken away to better illustrate the invention.

FIG. 3 is a fragmentary sectional view of the caster arrangement.

FIG. 4 is a fragmentary section showing the bumper member.

FIG. 5 is a sectional view showing the means for fastening the step and stool members together.

FIG. 6 is a fragmentary view showing the glide member on the legs of the stool member.

FIG. 7 is a fragmentary sectional view of a modified form of caster arrangement.

## DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring more in detail to the drawings:

1 designates a combined step and stool illustrating the present invention, the lower step portion 2 designating a lower step member and 3 the upper stool member which may be detached from the step member and also used as a step or stool.



The step member 2 consists of a hollow base 4 having a top surface 5 and the body portion having a lower rim 6. The rim 6 has an enlarged portion 7 by merely offsetting the rim spaced from the bottom edge and provided with a groove 8 for receiving a bumper member 9 generally made of rubber, plastic, or the like. The bumper has a tongue 10 to engage within the groove 8 and sides 11 and 12 which are forced over the lower rim of the housing to retain the bumper thereon for engaging the floor when pressure is applied to the step. The bumper may be of vinyl material extruded in a continuous ring.

Four casters as illustrated at 13 are equally spaced underneath the housing of the base 4 and are secured to the underneath side of the top of the housing as illustrated in FIG. 3 by elongated sockets 14. These may be cast integrally with the top 4 of the base and their upper ends are closed. A coil spring 15 is positioned within the socket, one end resting against the closed end of the sockets 14 and the other against the end 16 of a shank 17 to which the casters 13 are secured on its lower end by any suitable means as indicated at 18. The shank has an opening 19 transversely therethrough and the wall 20 of the socket 14 is provided with an elongated slot 21 for receiving a roll pin 22 for engaging in the opening 19 of the shank for retaining the shank in the socket, and the coil spring will urge the shank outwardly therefrom to extend the casters.

It is to be understood that the step and stool may be made of plastic or metal. If made of plastic, a tread 23 is provided for the top of the step member and may be molded therein. If made of metal, then it is necessary to place thereon a nonskid tread as indicated at 24 made of rubber of the like, and securing the same thereon by an adhesive, as indicated at 24'.

It is obvious, of course, that the step stool may be readily rolled to a position of use through the plurality of rollers or casters, the casters being readily collapsible when a relatively slight pressure is applied to the base or the top, to allow the bumper to contact and frictionally grip the floor to insure stability.

The stool member 3 has a top 25 and four legs 26, 27, 28 and 29, spaced equidistant around the top and having their lower ends provided with an elongated, axial socket 30 for receiving a bushing 31 internally threaded as at 32 for receiving a threaded shank 33 of a fastening member or bolt 34. The top 5 of the step member 2 is provided with a plurality of recesses, as indicated at 35, to receive the lower end of each of the legs 26, 27, 28 and 29, the recesses having an opening as indicated at 36 and provided with depending bosses as indicated at 37, through which the threaded shanks 33 extend. The stool member is thus held on the step member through the legs and shanks as described, and wing heads 38 are provided for fastening and unfastening the bolts 34 and securely holding the stool member on the step member.

The top 39 of the stool member is also provided with a nonskid tread member 40 secured thereon by adhesive or the like as is the usual practice. The bushings 31 may be welded or cast in the threaded shanks if desired.

When it is desired to disengage the stool member 3 from the step portion or base 2, the fastening members 33 are removed from the legs 26, 27, 28 and 29, and the stool member 3 is then readily removed for use separately. In order to facilitate sliding of the stool member 3 over a floor, a glide member 41 is provided consisting of a threaded shank 42 for engaging in the threaded sockets 30 of said legs and the free end is provided with a glide portion 43, the glide portion 43 being made of a nonfrictional material such as plastic, metal, or the like, and it is slightly larger than the lower end of the legs, as illustrated in FIG. 6.

It will be noted that the base member 2 is substantially square or rectangular in shape, having sides 44 being slightly tapered inwardly from the slightly rounded corners 45 as indicated at 46, FIG. 2. The sidewalls of the base 2 are tapered upwardly and the casters 13 are placed substantially at the center between the corners 45 of each of the sidewalls for distribution of the load over substantially all of the base. The substantially square shape will provide for the utilization of space more efficiently than devices now on the market.

The top 39 of the stool member 3 is also substantially the same shape as the base 2 just above described, the top being smaller than the base and the legs of the stool member 3 are tapered inwardly towards the top thereof, so that the top of the stool member will be offset inwardly from the top of the step member 2 for easy access of a foot of the user to the step member when the device is used as a combined step and stool.

In FIG. 7, I have illustrated a modified form of caster mounting wherein the lower end 47 of the depending socket member 14 is recessed on its inner surface, forming an offset socket 48. The shank 17 is provided at substantially the center thereof with a shoulder or pintle 49 or other stop arrangement movable in the socket 48 when pressure is placed on the stool. A threaded socket 50 is provided in the wall 51 of the elongated socket member for receiving a truss headed screw 52 having a lock washer 53. The head of the screw overlaps the recess or socket 48 and prevents the pintle or shoulder member from being removed from the socket when in use.

It will be obvious that generally a person stepping on the stool will place the feet on the tread, and in this event the pressure on the stool will be directly over the casters. Placement of the casters is utilized under the tread to assure direct compression of the caster springs.

It is to be understood that, while I have illustrated and described one form of my invention, it is not to be limited to the specific form or arrangement of parts herein described and shown.

I claim:

1. A step and stool comprising:
   a. a hollow base having a flat top and a floor-engaging bumper secured to the lower peripheral rim of said base;
   b. a stool portion having a flat top of less area than the top of the base and provided with a plurality of equally spaced supporting legs;
   c. a plurality of equally spaced collapsible casters secured to the lower side of the top of said base for rollably supporting the base and stool portion under noload conditions and collapsible under the application of pressure to the base or stool portion to allow said bumper to engage the floor;
   d. a plurality of spaced recessed portions on said top of the base having an opening therethrough surrounded by a depending boss, the lower end of said legs on said stool portion being adapted to engage in said recesses and being provided with vertically extending threaded bores; and
   e. a threaded shank bolt having a wing nut on one end for engaging through said bosses and into said threaded bore on said legs to retain said stool and step together.

2. The combination of claim 1 including an internally threaded bushing in said vertical bores of said legs on said stool portion.

3. The combination of claim 1 including glide means for engaging said legs on said stool portion when removed from said base.

4. The combination of claim 3 wherein said glide means includes a head having a threaded shank for engaging in said vertically threaded bores of said legs.

5. A step and stool comprising:
   a. a hollow base having a flat top and a floor engaging bumper secured to the lower peripheral rim of said base;
   b. a stool portion having a flat top of less area than the top of the base and provided with a plurality of equally spaced supporting legs;
   c. a plurality of equally spaced collapsible casters secured to the lower side of the top of said base for rollably supporting the base and stool portion under noload conditions and collapsible under the application of pressure to the base or stool portion to allow said bumper to engage the floor; and
   d. means on said legs of the stool portion cooperating with means carried by the top of the base to removably secure said stool portion to the base whereby said stool portion and base may be separated and used separately as step stools wherein said lower peripheral rim of said base has an enlarged portion and a vertically extending annular groove therein and said bumper has a tongue member engaging in said groove, and side members engaging the sides of said legs.

6. A caster mounting for a step stool having a hollow base with sidewalls, a flat top and a floor-engaging bumper secured to the lower peripheral rim of said base comprising:
   a. a plurality of spaced, elongated socket members rigidly secured to the under side of said top and depending therefrom, said sockets being spaced inwardly from said sidewalls and having closed upper ends;
   b. casters having stems rotatably mounted in said sockets, the upper ends of said stems being spaced from the closed end of said sockets;
   c. coiled springs having one end engaging against the closed ends of said sockets and their other ends against the upper ends of said stems on the casters and normally urging the casters downwardly; and
   d. means in said sockets and stems cooperating to retain the stems in the sockets to limit movement of said casters by said springs and adapted to cooperate with the sockets to retain the stems in said sockets and add said means including a recessed portion in the lower end of the socket members, said shank having shoulders forming a stop movable in said recessed portions of the socket member, said elongated socket members each having sidewalls and a threaded socket in said sidewalls, a washer having an opening therein and a threaded bolt for engaging in said threaded socket, said bolt having a head overlapping said recessed portion of said socket members to retain the shanks in said recessed members.