June 24, 1930. G. A. KEENAN 1,766,786

SCRAPER STEP PLATE

Filed Nov. 2, 1927

Fig. 1.

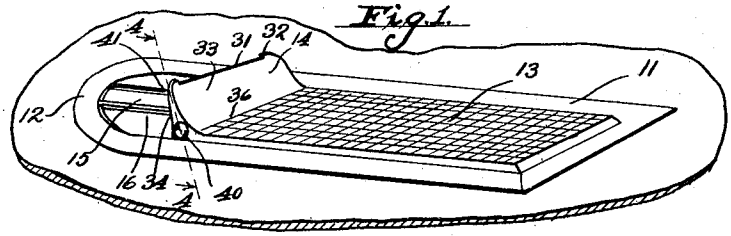


Fig. 2.

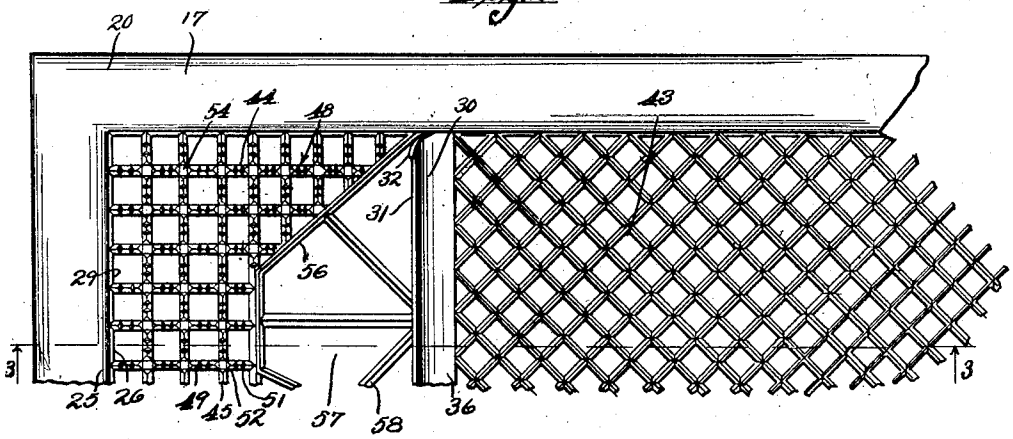


Fig. 3.

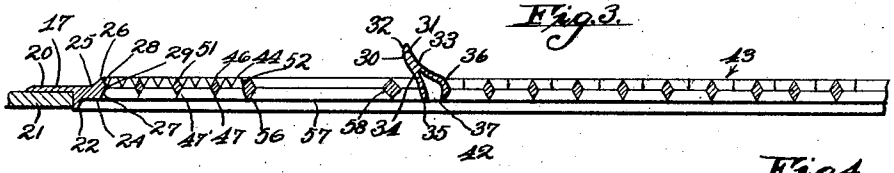


Fig. 4.

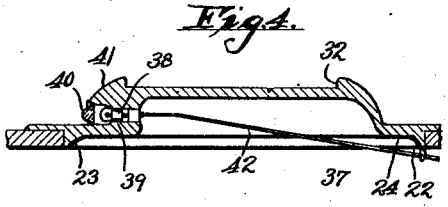
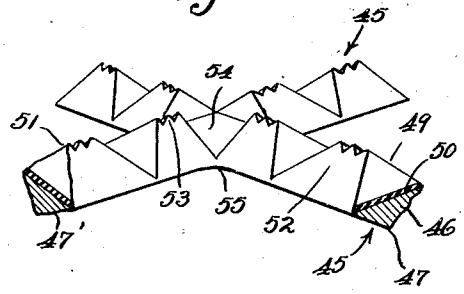


Fig. 5.



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UNITED STATES PATENT OFFICE

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SCRAPER STEP PLATE

Application filed November 2, 1927. Serial No. 230,546.

My invention is in scraper step plates suitable for installing on the running board of an automobile, this having a scraper blade for scraping the mud off the soles of shoes and having grids also forming scraper elements.

An object of my invention is forming the grid with bars of such shape so that the mud splashed up by an automobile will not be visible when looking at the grid from above; and also that any mud that is thrown up by the vehicle or which adheres to the scraper blade will not show when looking downwardly on the grid and scraper plate. I also shape the scraper blade so that mud adhering thereto or thrown up by the vehicle will not be noticeable when looking down on the scraper.

Another object of my invention is the construction of the scraper blade of such shape that it more readily cuts the dirt and mud from the soles of the shoes, and also making the blades of the grid of an improved irregular shape to better facilitate scraping the mud off the shoes. With these features of my invention I also have developed a scraper step plate on which a side light may be mounted, the plate being also designed to have a pleasing appearance.

Another object of my invention is in forming the grid or one part of the grid with a resilient top, such as rubber, this being made angular and having a series of pyramidal shaped teeth.

In constructing the scraper step plate I utilize a frame which may be set in an opening in the running board of an automobile, and in this frame there is a grid preferably formed of bars crossing at right angles; these bars preferably have sharp edged sides and the bottom is formed by two surfaces which meet at an edge, these surfaces being inclined downwardly and towards each other from the sharp edged sides. The top surfaces of the bars are formed with pyramidal shaped teeth and some of these teeth are serrated and at the junctions of the inner section of the bars there is a rounded curve. Where I use a resilient top for the grid, the grid bars are made triangular in cross section with the apex down and on this is placed the resilient mat also formed of cross bars generally triangular in cross section with the apex up; and if desired the resilient mat may be made in a series of pyramidal shaped teeth and these have the upper edge or ridge serrated.

The scraper blade extends transversely across the grid, there being a larger opening on one side of the scraper blade than the ordinary openings between the bars of the grid, to allow mud to freely drop through; but this opening preferably has cross bars to prevent a child stepping through same. The scraper blade has a somewhat concave curve on its under portion as well as a concave curve on top, there being a longitudinal passage through the blade for the wiring for a lamp. The lower portion of the blade is mainly hollow for insertion of wiring for the lamp.

My invention is illustrated in the accompanying drawings, in which:

Figure 1 is a perspective view of one form of my scraper step plate.

Fig. 2 is a partial plan view of another form.

Fig. 3 is a longitudinal section on the line 3—3 of Fig. 2 in the direction of the arrows.

Fig. 4 is a section on the line 4—4 of Fig. 1 in the direction of the arrows through the scraper blade.

Fig. 5 is a perspective detail showing two intersecting bars of the grid.

In the construction of my scraper step plate, as shown in Fig. 1, I have a suitable frame 11 which is formed circular at one end 12. This is provided with a grid 13 over the major portion of the step plate and has a scraper blade 14 extending between the sides of the frame. There is a relatively large open space 15 at the side of the scraper blade through which the mud drops when scraped off the shoes, and across this open space there are a series of bars 16 to prevent a child's foot from slipping therethrough. Some of the features employed in the construction of Fig. 1 are also illustrated in the construction of Fig. 2.

In the construction of these Figs. 2 and 3 I employ a frame 17 which has a wide thin flange 20 to engage the upper surface of a run-

ning board 21. The running board has a cut-out section against which fits a downwardly extending flange 22. This flange merges by a gradual curve 23 into the lower surface 24 of the frame and the upper surface of the flange 20 is gradually curved upwardly, as indicated at 25, and terminates in a relatively sharp edge 26 which extends around the frame. The inner lower part of the frame slopes inwardly and upwardly, as indicated at 27, and joins the inner upper surface 28 at a relatively sharp edge 29 (note Fig. 3). By this construction, any dirt which is thrown up by the vehicle is caught on the surface 24 or 27 and is not readily visible from above when looking down on the scraper plate.

In the construction of Figs. 2 and 3 I utilize a scraper blade 30 which extends from side to side of the frame. This blade is the same as shown in Fig. 1 having a relatively sharp scraping edge 31 at the top, with lateral shoulders 32 to scrape the mud from the edges of the sole of the shoe, the edge 31 scraping it from the bottom of the shoe. This blade has a concave curve 33 on the upper side and has a curve 34 on the lower side which is mainly concave. The lower edge 35 of the blade terminates on substantially the same level as the lower surface 24 of the frame, and the upper part 36 of the blade merges into the edge 26 of the frame at the sides and into the top of the grid hereunder described.

The blade is preferably cored out as indicated at 37 for the major portion of the width of the blade and has a tubular section 38 in which may be inserted a lamp 39, there being a lens 40 at the outer end of the scraper blade, this end being preferably curved inwardly as indicated at 41. Electric wiring 42 for the lamp may be fitted in the cored section 37.

In Figs. 2 and 3 there is a main grid 43 and a secondary grid 44. Each of these grids is made with cross bars, and preferably the grid 43 is made with a resilient mat. To effect this construction I utilize cross bars 45 which are triangular in cross section, having a horizontal surface 46 facing upwardly and an apex 47 extending downwardly, there being inclined lower sides 47′. On top of this frame or grid with a flat top I place a mat, designated generally by the numeral 48, having a series of cross bars 49 preferably formed of rubber. These have a flat base 50 downwardly and have their apex 51 upwardly. The rubber bars are preferably formed in a series of pyramidal structures 52, some of the pyramids having a series of serrations 53.

At the intersection of the bars there is a flat section 54, and at the junctions of the bars I utilize a curved fillet 55. These bars join or merge into the frame and the apex of the bars is on a level with the upper sharp edge 26 of the frame. The grid 44 is preferably made with solid bars of substantially the same shape as shown in Fig. 5, in which case the upper portion of the bars is formed with the pyramidal type structures and some of these are provided with serrations on the apex or ridge.

At the forward side of the scraper blade I provide a molding 56, leaving an open space 57, and I utilize a few cross bars 58 extending from the scraper blade to the molding, these being a sufficient number to divide the space 57 into small areas, so that there is no danger of a child passing its foot or leg through the opening, or for a person's heel becoming caught between the bars 58, the molding 56 or the scraper blade.

The manner of functioning of my scraper blade is substantially as follows:

It will be seen that on account of the shape of the grid bars the mud thrown up by the road will be caught to a great extent on the downwardly inclined surface 47′ of such bars, and hence will not be visible from the top of the running board; also any dirt that is thrown up adjacent the frame and caught on the lower surface 24 or the upwardly and inwardly inclined surface 27 will not be visible. As to the scraper blade, the mud scraped off thereby being on the surface 34 readily drops off, and any mud which would be adherent or would be thrown up by the vehicle, would not be visible on looking down on the running board, unless a person viewed this from a low angle, looking at the surface 34. As above mentioned, the edge 31 of the scraper blade may be utilized to remove mud from the soles of the shoes and the shoulder 32 from the edges of the soles.

The grid having the cross bars with the pyramidal type upper surface also facilitates the removal of dirt and especially when the resilient mat of the same formation is used, this may be utilized to scour the soles of the shoes after the major portion of the mud is scraped off.

It will be manifest that scraper step plates formed in accordance with my invention may be considerably changed to adapt same for different styles and tastes. For instance, if only the scraper blade is wanted, the grid may be eliminated and the blade mounted in a frame having a molding. Then again, if the scraper blade is not desired, a grid may be made in accordance with my invention, and forms an effective and efficient shoe scraper. If the scraper plate is utilized with metal running boards, the structure of the plate and running board may be built together.

I prefer to form the main grid 43 of cross bars which have continuous crossing ridges, these ridges forming sharp edges for scraping mud off the soles of the shoes. I prefer, however, to form the secondary grid 44 with the cross bars arranged having pyramids thereon, as these pyramids may be utilized in scraping the dirt from around the edges of

the soles of the shoes. If the main grid is formed with a resilient mat, the lower portion of the bars are triangular in cross section and the upper resilient parts are also formed triangular in cross section with continuous ridges.

Various changes may be made in the principles of my invention without departing from the spirit thereof, as set forth in the description, drawings and claims.

I claim:

1. A step plate having a frame with a grid formed of transverse and longitudinal bars, a scraper blade extending transversely across the frame, the top of the blade being above the top of the grid, an arcuate molding connected from one side of the blade to the other, and cross bars from the molding to the scraper blade.

2. A step plate having a frame adapted to fit in an opening in a running board, a grid formed of longitudinal and transverse bars, a scraper blade extending from side to side of the frame, the edge of the blade being above the top of the grid, said blade having a concave curve from the scraper edge proper to the lower surface of the grid, and a molding connected from side to side of the scraper blade.

3. A step plate having a frame adapted to fit in an opening in a running board, a grid formed of crossing bars, said bars having bottom surfaces which extend downwardly and converge together in a reverse ridge, a scraper blade having an edge extending above the grid, there being an opening on one side of the blade and the side of the blade adjacent such opening having a concave curve from the edge to the under side of the grid.

4. A step plate having a frame to fit in an opening in a running board, a grid formed of crossing bars, said bars having lower surfaces which extend downwardly and converge forming an inverted ridge, the upper surfaces of the bars having a series of pyramidal type structures, some of said structures having a ridge, a scraper blade having an edge positioned above the top of the grid, a molding extending from side to side of the blade, and cross bars extending from the molding to the blade.

5. In a step plate, a frame, a scraper blade mounted therein, there being an open space at one side of the blade, the side of the blade adjacent the open space being cut away from the scraper edge of the blade, the cut away surface converging into the lower surface of the blade.

6. In the art described, a running board, a scraper blade attached thereto, said blade having a passage through one end, and an electric lamp fitted in said passage.

7. In a step plate, a frame, a blade-like structure extending transversely thereof and having an opening on one side adapted to form a housing for an electric lamp, and a hollow structure in the blade adapted to accommodate the wiring for the lamp.

In testimony whereof I have signed my name to this specification.

GEORGE A. KEENAN.