

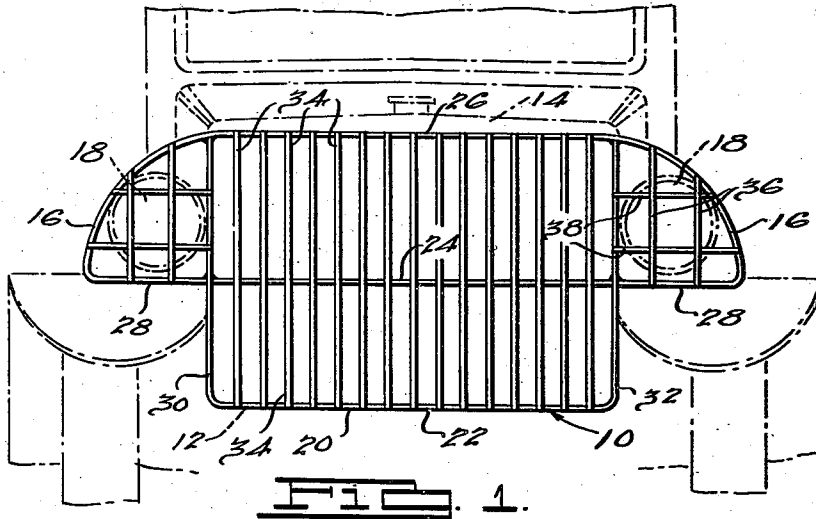
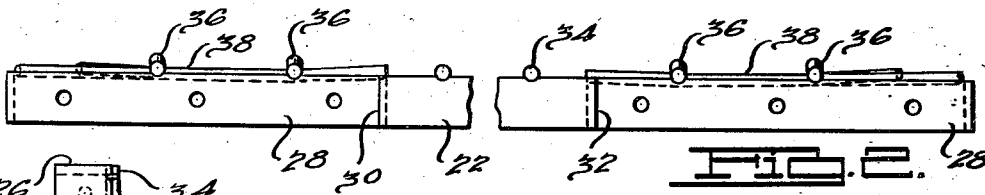
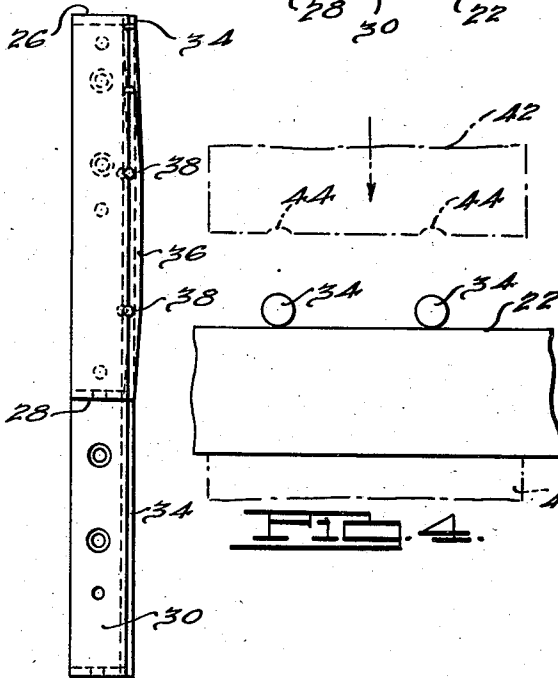
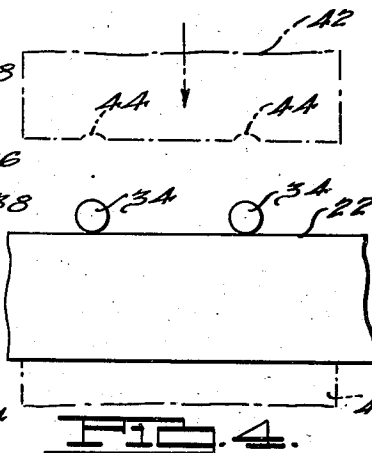
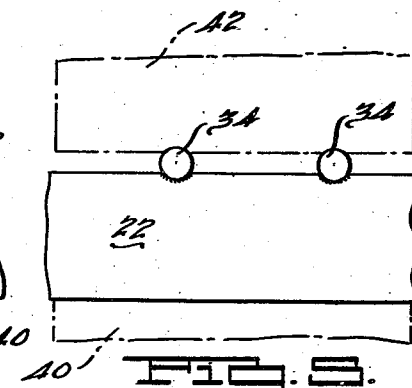
March 19, 1946.

R. V. HEILMAN

2,396,652

BRUSH GUARD AND METHOD OF MAKING SAME

Filed Jan. 27, 1942



INVENTOR
Ross V. Heilman.

BY *Edwin J. Balluff*
ATTORNEY

UNITED STATES PATENT OFFICE

2,396,652

BRUSH GUARD AND METHOD OF MAKING
SAMERoss V. Heilman, Detroit, Mich., assignor to Wall
Wire Products Company, Plymouth, Mich., a
corporation of Michigan

Application January 27, 1942, Serial No. 428,419

2 Claims. (Cl. 293—54)

This invention relates to brush guards and method of making the same.

A principal object of the invention is to provide a brush guard adapted to be arranged at the front of a motor vehicle, such as a military truck, for protecting the radiator and head lamps thereof from damage which might be caused by brush or other obstructions through which the vehicle is driven.

Another object of the invention is to provide an improved and inexpensive method of making brush guards.

Another object of the invention is to provide a brush guard comprising a substantially rigid open frame and cross bars of materially smaller cross sectional area than that of the frame members which are secured to the frame in spaced relationship with each other and by electric resistance welding.

Other objects and advantages of the invention will be apparent from a consideration of the following specification taken in conjunction with the accompanying drawing, of which there is one sheet and wherein:

Fig. 1 is a front elevational view of a brush guard embodying the invention and illustrating its application to the front of a military vehicle;

Fig. 2 is an enlarged bottom plan of the brush guard illustrated in Fig. 1, with parts thereof broken away;

Fig. 3 is a side elevational view of the brush guard;

Fig. 4 is a fragmentary front view illustrating a step in the process of assembling the brush guard and before the cross bars are welded to the frame; and

Fig. 5 is a view similar to Fig. 4 but of the parts after the cross bars have been welded to the frame.

Referring now to Figs. 1 to 3, there is disclosed an embodiment of the invention selected for purposes of illustration and which comprises a brush guard indicated generally at 10 adapted to be arranged at the front of a motor vehicle for protecting the radiator and headlamps thereof. The brush guard 10 includes a portion 12 which, as illustrated, is of rectangular shape and is adapted to be arranged in front of the radiator indicated at 14 of the vehicle. The brush guard 10 further includes wings 16 extending laterally from the radiator portion 12 and which are adapted to be arranged in front of the lamps 18 of the vehicle. The guard 10 comprises a frame 20 formed of horizontally extending frame members 22, 24, 26 and 28 and

vertically extending frame members 30 and 32. The frame members may be formed of hot rolled steel stock one-fourth inch (.25") by one and one-half inches (1.5"), or stock of any other desired section. The frame, however, must be substantially rigid and have sufficient strength to resist without material injury impacts caused by contact with brush when the vehicle on which the guard is mounted is driven therethrough.

As illustrated, the horizontal frame 22 and the vertical frame members 30 and 32 may be formed from a single piece of stock which is bent in the form of a U, and the frame members 26 and 28 may be formed of a single piece of stock which is bent back upon itself to form the frame for the wings 16 and so that the upper ends of the vertical frame members 30 and 32 may be secured to an intermediate part of the frame member 26 and so that the ends of the piece of stock of which the frame members 26 and 28 are formed may be secured to an intermediate portion of the piece of stock of which the frame members 30, 22 and 32 are formed.

The upper ends of the frame members 30 and 32 may be secured by welding to the under side of the upper frame member 26, while the ends of the stock of which the frame members 26 and 28 are formed may be welded to the outside of the frame members 30 and 32 as illustrated.

The frame member 24 may comprise a piece of stock similar to that of which the frame members 22 and 26 are formed and be welded in position between the vertical frame members 30 and 32 and in line with the frame members 28 for bridging the opening defined by the frame members 22, 26, 30 and 32 which defines the radiator portion 12 of the brush guard.

The frame members 22 and 26 have secured thereto cross bars or rods 34 which may be arranged in spaced relation with each other, for example, approximately $1\frac{1}{8}$ inches between centers, or any other desirable distance. The cross bars or rods 34 may be formed of hot rolled steel stock of $\frac{1}{2}$ inch in diameter or of such other size as may be desirable, and preferably have their upper ends flush with the upper surface of the frame member 26 and the lower ends flush with the lower surface of the frame member 22.

The wing sections 16 are defined by portions of the frame members 26, 28 and 32 on one side and frame members 26, 28 and 30 on the other side, and these frame members have secured thereto vertical cross bars or rods 36 and horizontal cross bars 38, the horizontal cross bars under-

lying the vertical cross bars. The vertical and horizontal cross bars 36 and 38 are not only secured to the frame, but are secured to each other at their points of crossing. The stock of the cross bars 36 and 38 may be smaller than that of the cross bars 34, for example, approximately $\frac{1}{8}$ inch in diameter, of hot rolled steel. In addition to being secured to the frame members 22 and 26, the vertical cross bars 34 are also secured to the frame member 24.

In making the brush guard the frame members are formed as indicated and then assembled and welded together so as to provide a substantially rigid open frame. Thereafter the cross bars are secured to the frame by electric resistance welding process. In this process the frame member is held in a horizontal position, as illustrated in Figs. 2 and 4, and the cross rods are laid flush on the upper face of the frame, the frame resting, for example, on a lower electrode indicated at 40 of an electric resistance welding apparatus, as illustrated in Fig. 4. Referring to this figure, it will be noted that the cross bars are lying on the upper face of the frame and in position to be engaged by the upper movable electrode 42 of the electric resistance welding apparatus which may be provided with grooves 44 for engaging with the upper curved surface of the rods 34. The upper electrode 42 is then moved into engagement with the rods 34 and applies pressure to the rods 34 for driving the same into the frame, the heat generated when the electric circuit through the rods 34 and between the electrodes 40 and 42 is closed melting the part of the frame in contact with the rods 34 sufficiently to allow the rods to be driven into the frame any desired distance and welded thereto. In carrying out the process herein disclosed, the cross rods are driven into the frame section approximately one-third ($\frac{1}{3}$) the diameter of the cross rods. The rods 34 are welded to the frame members 22, 24, and 26 in the foregoing manner and the rods 36 and 38 of the wings are welded to the frame members thereof and to each other by the same process, thereby providing a structure in which the cross bars are all welded to the frame so as to provide an integral substantially rigid unit.

The frame 10 may be provided with suitable holes illustrated in Figs. 2 and 3 by means of which the brush guard may be mounted on the motor vehicle.

While the invention has been described with some detail, it is to be understood that the description is for the purpose of illustration only and is not definitive of the limits of the inventive idea. The right is reserved to make such changes in the details of construction and arrangements of parts as will fall within the purview of the attached claims.

I claim:

1. A brush guard adapted to be arranged at the front of a motor vehicle for protecting the radiator and headlamps thereof comprising an open substantially rigid frame formed of suitable lengths of metal bar or rod stock, said frame being formed of a U-shaped frame member and another frame member having its ends bent back upon itself but in spaced relation thereto, said ends being secured to the outside of the legs of said U-shaped frame member and the ends of said U-shaped frame member being secured to said other frame member intermediate the ends thereof and cross bars integrally connected to the edges of said frame members in spaced relationship.

2. A brush guard adapted to be arranged at the front of a motor vehicle for protecting the radiator and headlamps thereof comprising an open substantially rigid frame formed of suitable lengths of metal bar or rod stock, said frame being formed of a U-shaped frame member and another frame member having its ends bent back upon itself but in spaced relation thereto, said ends being secured to the outside of the legs of said U-shaped frame member and the ends of said U-shaped frame member being secured to said other frame member intermediate the ends thereof and cross bars integrally connected to the edges of said frame members in spaced relationship, said bent back parts of said frame member defining laterally extending wings for arrangement in front of the headlamps and having cross bars secured thereto.

ROSS V. HEILMAN.