

(No Model.)

E. E. RICE.  
METALLIC BRUSH.

No. 511,062.

Patented Dec. 19, 1893.

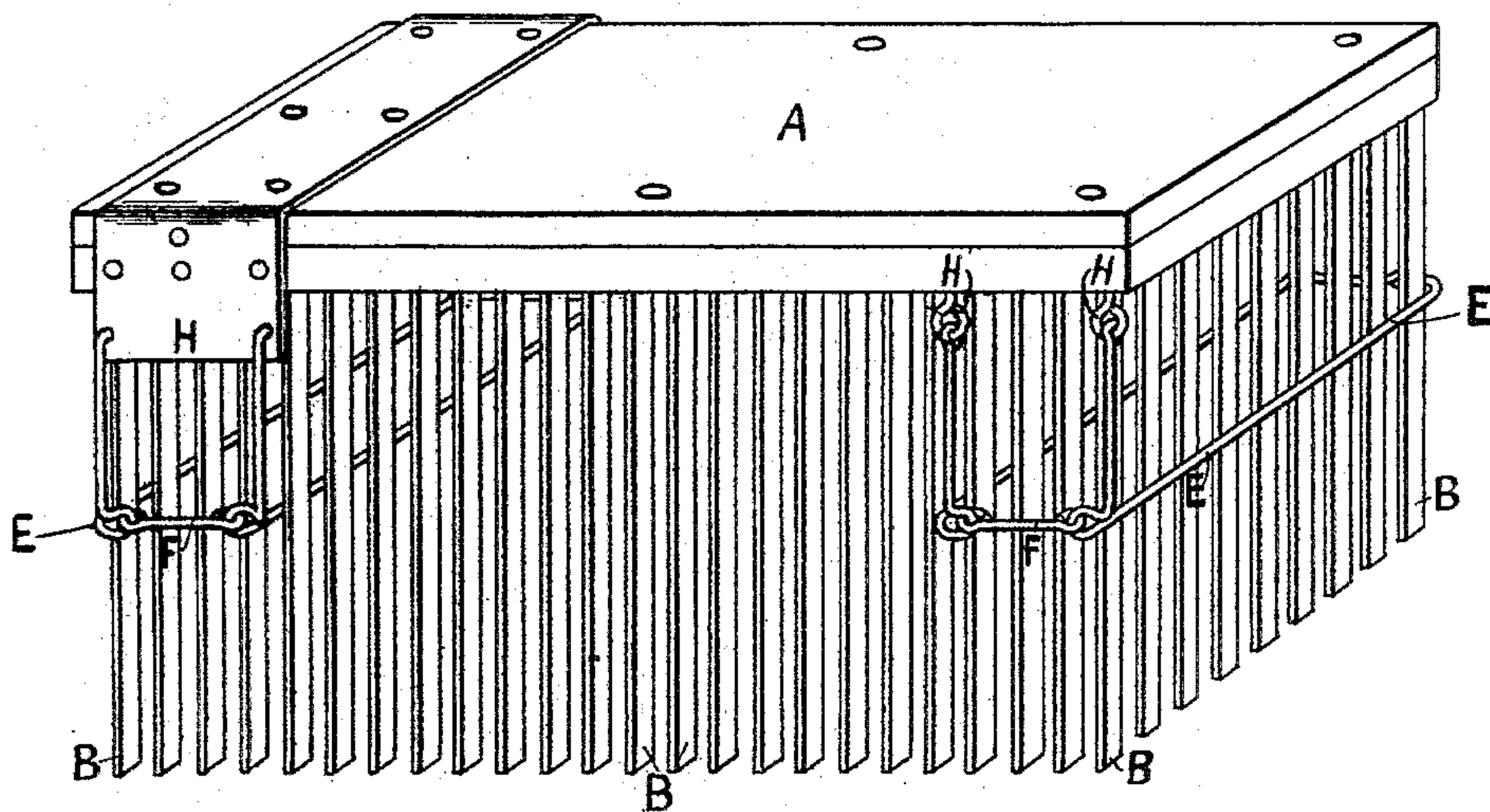


Fig. 1.

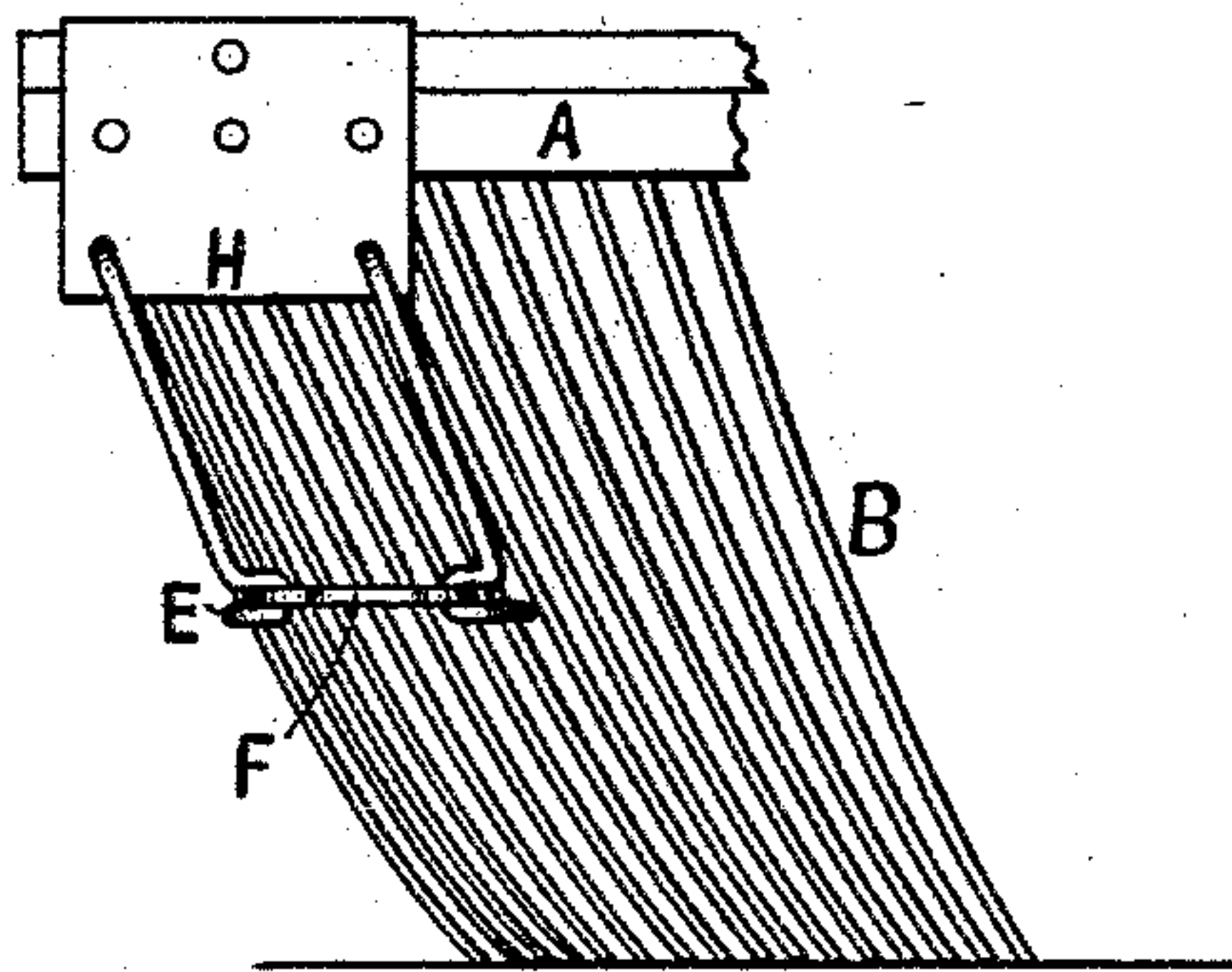


Fig. 2.

WITNESSES

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# UNITED STATES PATENT OFFICE.

EDWARD E. RICE, OF NEW DURHAM, NEW HAMPSHIRE.

## METALLIC BRUSH.

SPECIFICATION forming part of Letters Patent No. 511,062, dated December 19, 1893.

Application filed November 22, 1892. Serial No. 452,835. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD E. RICE, of New Durham, in the county of Strafford and State of New Hampshire, have invented an  
5 Improvement in Metallic Brushes, of which the following is a specification.

The object of my invention is to produce a metallic brush which shall be very flexible, strong and durable, and in which the outside  
10 wires in the brush will not break off from too rapid vibrations, until the brush is worn out in the middle portions, or is worn uniformly throughout its surface.

Brushes of flat steel wire adapted for re-  
15 moving the sand from the surfaces of new iron castings, requiring considerable pressure, and rapid movement over the castings, tends to spring or bend the end rows inwardly, so that when lifted up from contact, or by passing  
20 over and beyond the contact surface, with the casting, very rapid and long continued vibrations ensue, which very soon affect the fibrous structure of the drawn steel wire, and render the same molecular or granular, and  
25 very brittle, so much so, that the outside rows of the opposite ends, or the end rows of flat wires, break off, continually, and before the wires forming the center, or middle portion of the brush are one tenth worn away in length;  
30 as shown by comparison of brushes in actual use, as heretofore constructed for the purpose.

In the drawings hereto annexed which form a part of this specification, and to which reference is made:—Figure 1 represents a per-  
35 spective view of a metallic foundry brush constructed in accordance with my invention. Fig. 2 represents a side elevation of a portion of one end, showing the position of the check, or bridle, with the flat wire teeth, bristles, or  
40 flexible brush portion, as in contact with the sandy surface of cast iron in the operation of removing the adherent sand therefrom.

A represents the wood back and body portion of the brush, being formed of two pieces, the lower one being perforated with a uni-  
45 form series of holes, as usual. Within these holes are inserted the opposite prongs of the looped, or bent flat steel wires B, each prong entering separate contiguous holes forming  
50 two rows, the middle loop of the wires, or the loop midlength of the flat wires lying flatwise upon the top surface of the said perforated

lower piece of the brush body. These flat steel wires B, are placed in the said perfora-  
tions or holes, in bunches of five, or six, more, 55 or less, as may be desired, and their projecting free lower ends somewhat irregular, not being parallel and regular, as shown, but which regularity is shown to better illustrate the position of the hinged bridle, or check  
60 holder wires E, E, loosely connected together at their lower portions by the bent wire links F, passing loosely through the bent loops formed to connect the opposite check-wires E, which surround two sets of prongs, or four 55 rows of the single prongs B, extending across each end of the brush. The upward ends of the said check, or bridle-wires E, are provided with hook, bent, or looped eyes, which  
70 are adapted to form loose hinges when inserted within the openings, or holes formed through the downward projecting ends of the flat sheet metal straps H, or screw eyes H' as shown at the opposite ends of the brush. The  
75 back board of the said brush body is secured upon the lower perforated board, resting upon the said loops of the flat wires, as heretofore constructed.

It will be seen and understood that by means of the check, bridle, or wires E, extend-  
80 ing around two or more bunches, throughout the end rows of the brush, when any single prong B, or several prongs B, are forced and bent, or sprung, on a segment, or on a curve, the same is limited in extent of movement to  
85 that of the inclosed bunch, or bunches taken together collectively, and that the check-bridle wires E, contact with the spring bunches B, at about midlength, thereby transferring the greatest strain from a point at or near the  
90 lower side of the said body A, to the bearing, or contact point with the said check or bridle wires E, by which the leverage on the flat wires is reduced nearly one half, and the inclosed prongs, or bunches B, are caused to  
95 bend or spring uniformly throughout the entire length, instead of springing, or bending mostly or very excessively at their bearing points in contact with the body block A, as heretofore constructed. Thus it will be seen 100 and understood that the said check, or bridle wires E, being hinged to the body block A the flexibility of the flat brush wires B, is not thereby affected, or decreased, and that when



the brush is being used, or operated upon the sand castings forcibly and rapidly, the rapid vibrations thereby set up, are instantly, and completely stopped by means of said check, 5 or bridle E, and resultant contact with the next row, or rows, or the adjacent wires there-to, or in the rows, or series of contiguous brush wires B, that are inclosed, or surrounded by the said check-bridle E. It will be evident 10 that the said check-bridle E, may be hinged, or pivoted to the brush back, or body A, in a variety of ways and by well known mechanical devices, and supported in the desired po-

sition by different means, without departing from the essential features of my invention. 15

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

A metallic brush for cleaning castings having a hinged check-bridle surrounding the 20 flexible end rows of the brush, for the purpose set forth.

EDWARD E. RICE.

Witnesses:

SYLVENUS WALKER,  
WILLIAM H. PARRY.