

No. 632,201.

Patented Aug. 29, 1899.

D. E. PHILLIPS.
SCREEN.

(Application filed Aug. 13, 1894.)

(No Model.)

Fig. 1.

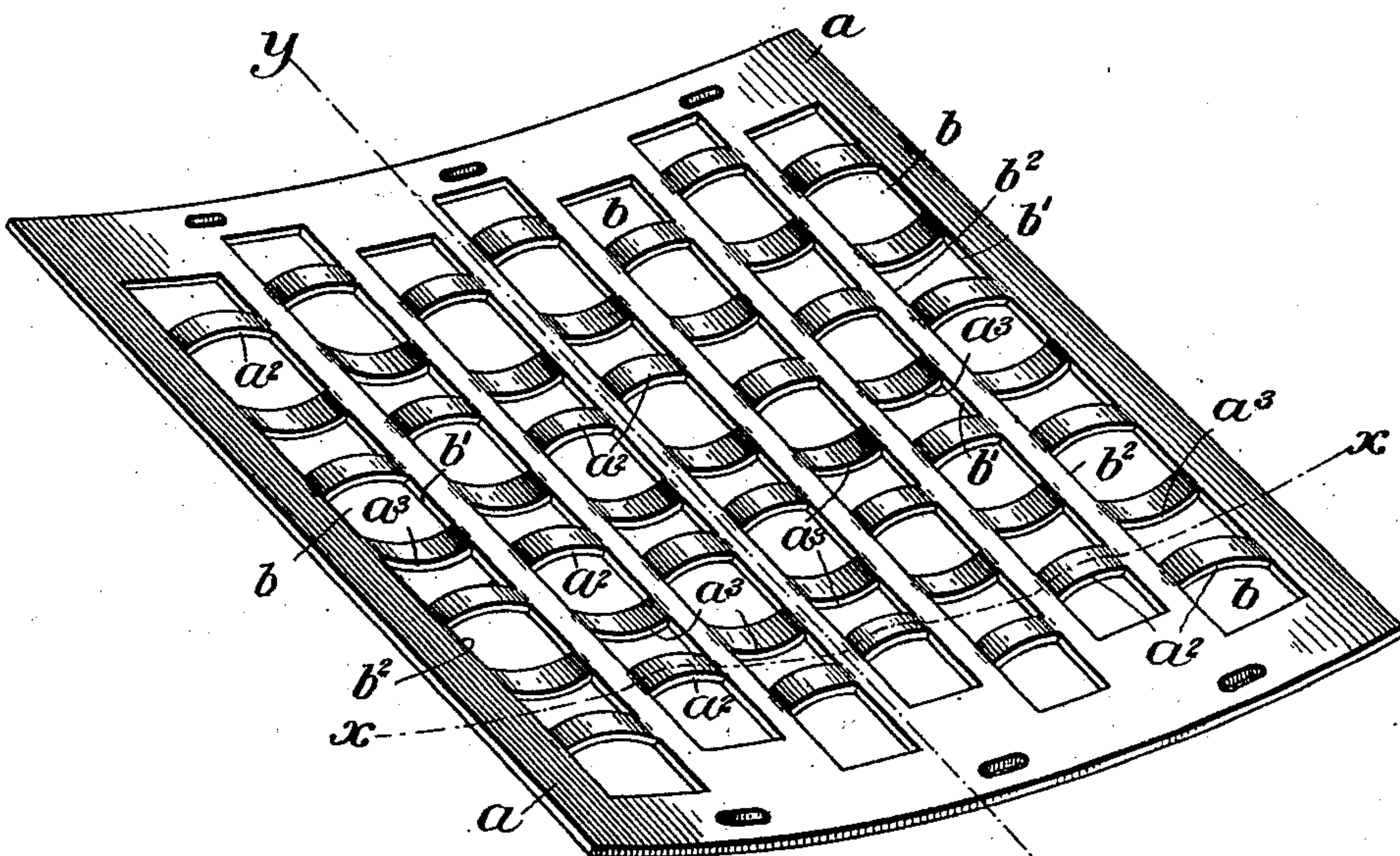


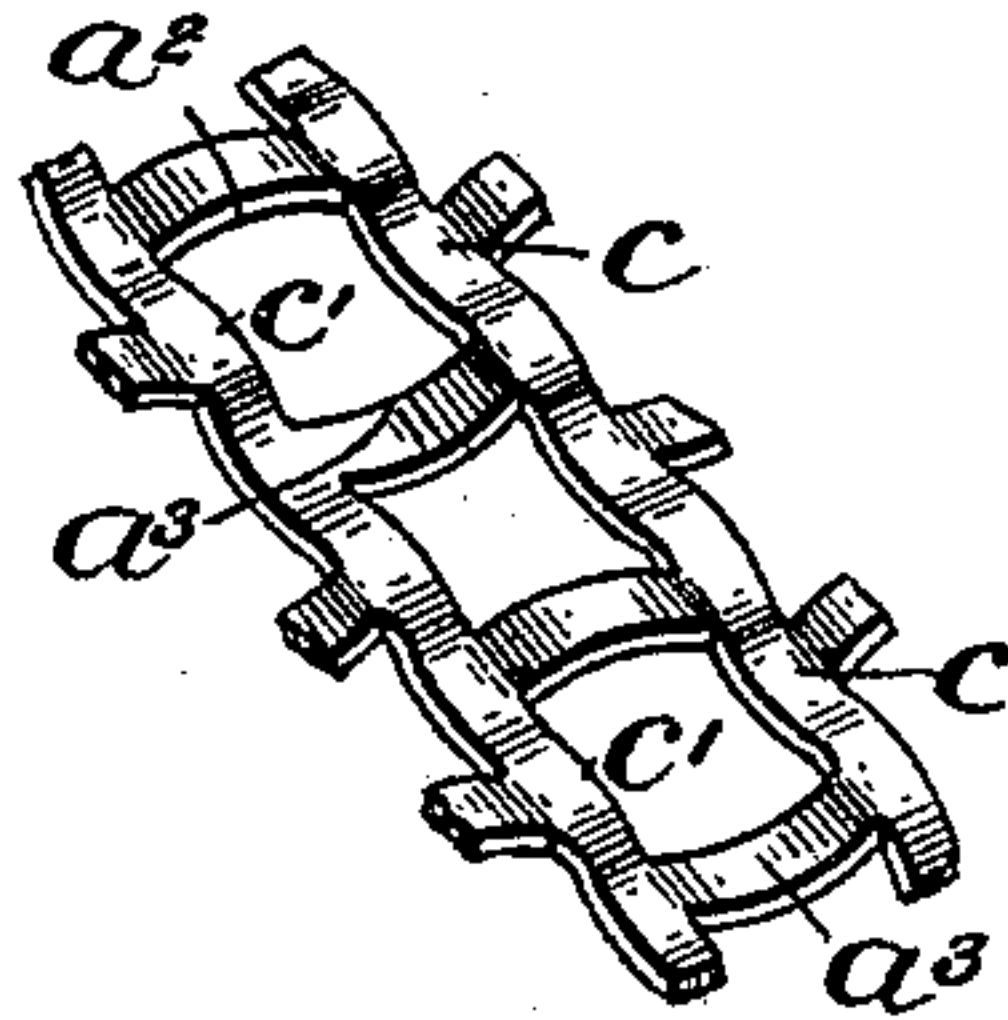
Fig. 2.



Fig. 3.



Fig. 4.



Witnesses.

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UNITED STATES PATENT OFFICE.

DAVID E. PHILLIPS, OF MAHANOEY CITY, PENNSYLVANIA, ASSIGNOR TO THE
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SCREEN.

SPECIFICATION forming part of Letters Patent No. 632,201, dated August 29, 1899.

Application filed August 13, 1894. Serial No. 520,130. (No model.)

To all whom it may concern:

Be it known that I, DAVID E. PHILLIPS, of Mahanoe City, county of Schuylkill, State of Pennsylvania, have invented an Improvement in Screens, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention relates to screens for screening refractory material—such as coal, gravel, &c.—by causing the material to pass over an irregular surface having suitable interstices or perforations therein. Woven wire has been extensively employed for such purposes, the meshes forming the interstices, and such screens are effective in their action, but it is difficult to firmly secure the wires together where they cross, and the hard usage to which such screens are subjected wears them out rapidly. To overcome these objections, screens have been made from heavy punched sheet metal, and while they wear better and longer than wire screens they are not so effective, for the material slides over the smooth surface of the sheet-iron instead of being thoroughly broken up and tumbled, which is necessary to properly screen the material.

My invention has for its object the production of a punched sheet-metal screen which has all of the advantages of a woven-wire screen without any of its objectionable features; and it consists, essentially, in a metal screen having an integral web provided with substantially quadrilateral interstices, each interstice having two substantially straight and parallel sides and the other two sides bent or curved in opposite directions with relation to the working face, substantially as will be described.

Other features of my invention will be hereinafter described, and particularly pointed out in the claims.

Figure 1 is a perspective view of one of the sections or segments of a screen embodying my invention. Fig. 2 is a section thereof, taken on the line xx . Fig. 3 is a similar view on the line yy , Fig. 1; and Fig. 4 is a perspective detail view of a modification to be described.

While I have herein shown the section or segment as curved to be used in a cylindrical

screen, it is to be understood that the degree of curvature may be varied and, if desired, the sections may be flat for use in chutes and the like.

The sections or segments are preferably made from stout sheet-metal webs a of any desired thickness, according to the nature of the material to be screened, and openings or interstices b are formed therein by punching.

As shown in Fig. 1, the openings or interstices b are quadrilateral in form, preferably substantially rectangular. Two of the sides of each interstice, as b' and b'' , are substantially straight and parallel and, as shown in Figs. 1 to 3, in the plane of the web a of the section or segment. These sides, however, may be slightly convex and concave alternately, as shown at c and c' , Fig. 4, the highest and lowest points in the sides being opposite the portions of the web separating two interstices in the next adjacent row.

The other two sides a^2 and a^3 of each interstice are bent or turned in opposite directions, the side a^2 being bent or curved upwardly or convexed relative to the working face of the web, and the side a^3 is bent in the opposite direction or concaved relative to the working face, and preferably the edges of the said sides are in parallel planes at right angles to the web.

In punching the openings or interstices they are arranged, preferably, in parallel rows and staggered or alternated, so that the interstices of one row are opposite the portions of the web separating and forming the bent or curved sides of the interstices of the adjacent rows, such arrangement increasing the effective operation of the screen in tumbling and separating the material.

From the foregoing description it will be obvious that the sections are integral, or made of a single piece of metal, resulting in great strength and endurance and performing the operation of screening most effectively.

The segments may be cast, if desired, and will give good results; but I prefer to punch them from sheet metal.

I claim—

1. A metal screen having an integral web provided with substantially quadrilateral interstices, each interstice having two substan-

tially straight and parallel sides, and the other two sides bent or curved in opposite directions with relation to the working face, substantially as described.

- 5 2. A metal screen having an integral web provided with substantially quadrilateral interstices, each interstice having two substantially parallel sides, and the other two sides bent or curved in opposite directions, with
10 relation to the working face, the interstices of one row being opposite to the portions of the web separating and forming the bent or curved sides of the interstices of the adjacent rows, substantially as described.

3. A metal screen having an integral web 15 portion with rectangular interstices, two, opposite, sides of any one interstice being the one concave, and the other convex with relation to the working face, substantially as described. 20

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

DAVID E. PHILLIPS.

Witnesses:

PHAON HERMANY,
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