

(No Model.)

D. E. PHILLIPS.
REVOLUBLE SCREEN.

No. 523,993.

Patented Aug. 7, 1894.

Fig 1.

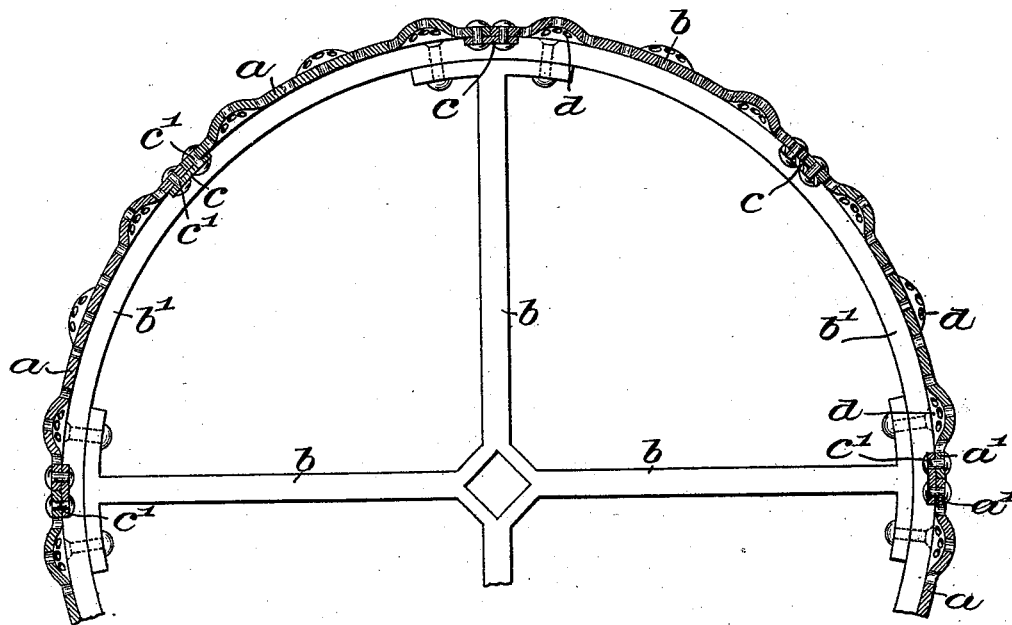
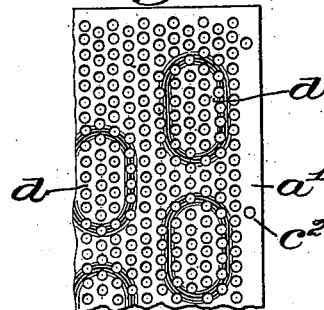


Fig. 2.



Witnesses.

A.C. Harmon

Thomas J. Drummond

Inverted.

David E Phillips,
by Crosby & Gregory
attys.

UNITED STATES PATENT OFFICE.

DAVID E. PHILLIPS, OF MAHANOEY CITY, PENNSYLVANIA.

REVOLUBLE SCREEN.

SPECIFICATION forming part of Letters Patent No. 523,993, dated August 7, 1894.

Application filed December 28, 1893. Serial No. 494,994. (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 Revolvable Screens, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

In screening and sorting coal in large quantities circular revolvable screens are now almost universally used, the screens being usually made in sections, each composed of perforated sheet metal segments secured together and to suitable spiders, but said segments have been composed of woven wire. The perforations in any one section are of the same size, but they gradually increase from the inlet to the outlet end, section by section, to screen and sort the material in well known manner. In order to thoroughly turn over and separate the mass of coal or other material in its passage through the screen, tumblers of various kinds have been devised, which are secured upon the interior thereof and project inwardly, thus making the interior of the screen irregular, to thereby prevent the material from massing in the screen. These tumblers, composed of projecting ribs or flanges, increase the weight of the screen and its cost.

This invention has for its object the production of a revolvable screen which may be used without the customary tumblers, and yet properly separate and agitate the material to be screened.

My invention consists in a revolvable screen having an undulatory surface presenting several longitudinal rows or separated depressions or pockets, the pockets of each row having each a plurality of holes or perforations therein, whereby the material to be screened is turned over, separated, and continuously screened, substantially as will be described.

Figure 1 is a sectional end view, broken out to save space, of a circular screen embodying my invention; and Fig. 2 is a detail view of a portion of a segment.

I have herein represented a series of curved segments *a*, supported at their ends by a spider having arms *b* and a rim *b'*, the number of spiders varying with the length of the segments. Usually, however, a spider at each

end is sufficient, and the segments are bolted or otherwise secured to the rim *b'* in usual manner. The longitudinal edges of adjacent segments are shown as butt-jointed, the edges being secured together and the joints covered and protected by plates *c* secured to the imperforate edges *a'* of the segments by suitable bolts or rivets *c'*, extended through holes *c''*, see Fig. 2. Each segment is provided with a series of depressions or shallow pockets, as *d*, Figs. 1 and 2, which are arranged in parallel rows, a depression in one row being shown as opposite the space between two in the next row.

In operation the shallow pockets present an irregular interior surface and carry up in the rotation of the screen portions of the under layer of coal or other material, thus turning it over, separating, and discharging said material upon the top of the mass of material at the lowest portion of the screen. These pockets perform the work of tumblers and reduce the weight and cost of the screen, the rigidity of the segments, whether of sheet metal or woven wire, being increased by the indented form given them, and the operation of the screen is improved generally.

The successive depressions or pockets positively turn over and agitate the material, and by staggering said depressions or pockets the particles of material are given a zig-zag motion, first to one and then to the other side, as they are carried up by the rotation of the screen, and the material is prevented from being carried too high. The same result would not be effected were the depressions unbroken or continuous, as in a corrugated segment, for the long depressions would carry the coal so high that when it dropped back it would pass over the perforations with such speed that they would have little screening effect, and furthermore, the edge of each long corrugation toward which the coal tumbles would be subjected to great wear and tear, and would wear out long before the depressed portion, so that the screen would soon be rendered worthless, while a large portion of it, separately considered, would remain in good condition.

By making the depressions or pockets comparatively small, and separating and arranging them in staggered form, the whole screen

wears much more equally, and no particular part will give out while the rest is practically intact. I prefer to have the edges and ends of the depressions rounded, as shown.

5 This invention is not restricted to the exact size of the series of pockets from end to end of the segment, nor to the exact shape, size, or number of the perforations, so long as there are a plurality of perforations in
10 each depression or pocket, as it is obvious that they may vary in such particulars without departing from the spirit of my invention.

I have herein shown sheet metal segments, but it is obvious that the construction, operation, and arrangement of the various parts
15 would be equally applicable to segments of woven wire, and I wish it to be understood that by the term "perforated segment" I mean either a sheet metal, or a woven wire
20 segment, my invention being comprehended in either, provided the segment used has the depressions or pockets with a plurality of holes.

I am aware that revoluble screens have
25 been constructed of sheet metal segments having corrugations extended from one to the other end of the screen, and I am also aware that a series of circumferential indentations each having a narrow slot therein, have been

formed in the cylindrical surface of so-called 30 smut machines, and such constructions I do not claim.

I claim—

1. A revoluble screen having an undulatory surface presenting several longitudinal rows 35 of separated depressions or pockets, the pockets of each row having each a plurality of holes or perforations therein, whereby the material to be screened is turned over, separated, and continuously screened, substan- 40 tially as described.

2. A revoluble screen having a perforated undulatory surface formed by a series of separated and staggered depressions or pockets, each pocket having a plurality of holes or per- 45 forations therein, the location of the pockets imparting to the material to be screened a zig-zag motion from side to side, the material being turned over, separated, and continuously screened, substantially as described. 50

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

DAVID E. PHILLIPS.

Witnesses:

JOHN W. PHILLIPS,
DAVID L. MOLL.