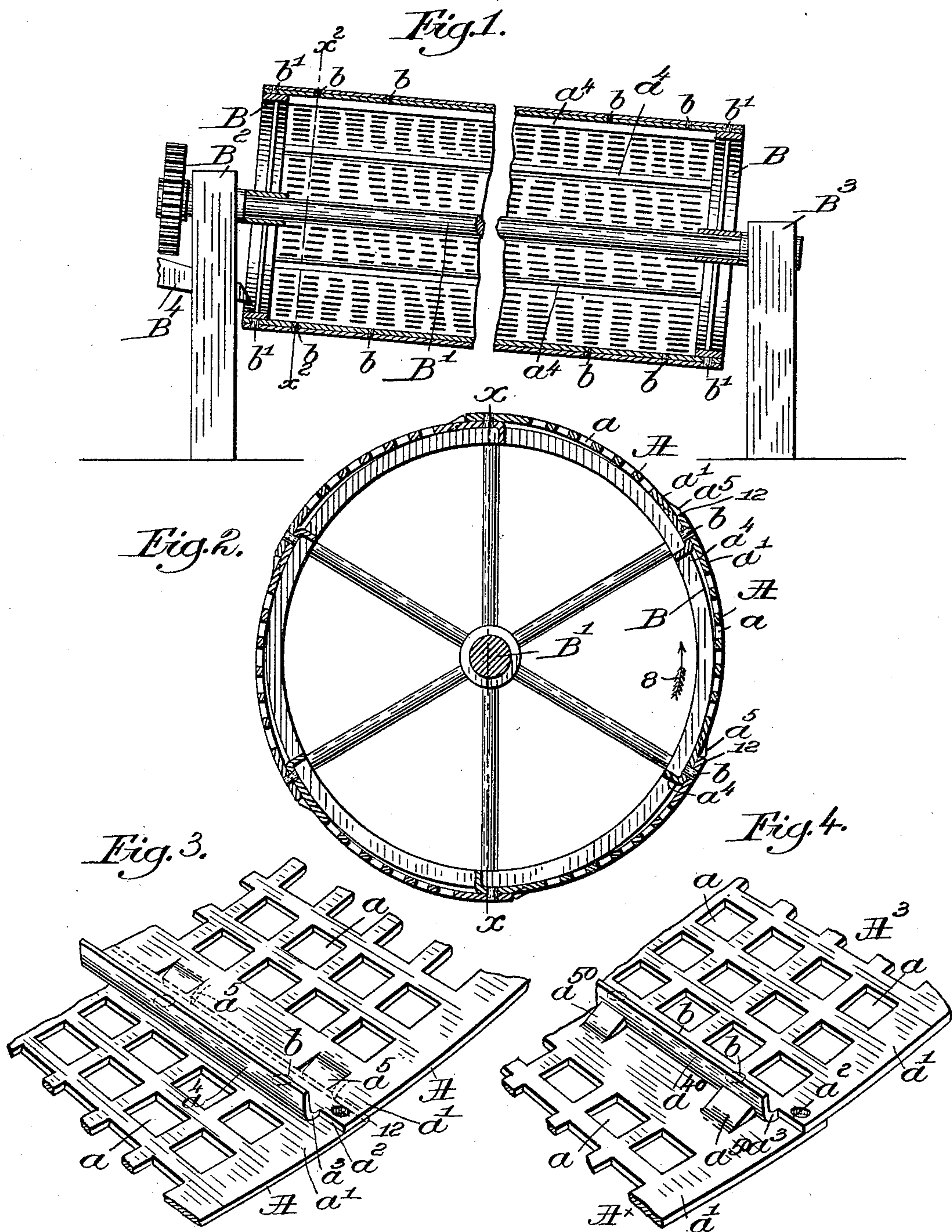


D. E. PHILLIPS.  
SCREEN.

No. 583,216.

Patented May 25, 1897.



witnesses.  
Fred S. Grumbaf.  
Thomas J. Drummond

Inventor.  
David E. Phillips.  
by Crosby & Gregory, attys.

(No Model.)

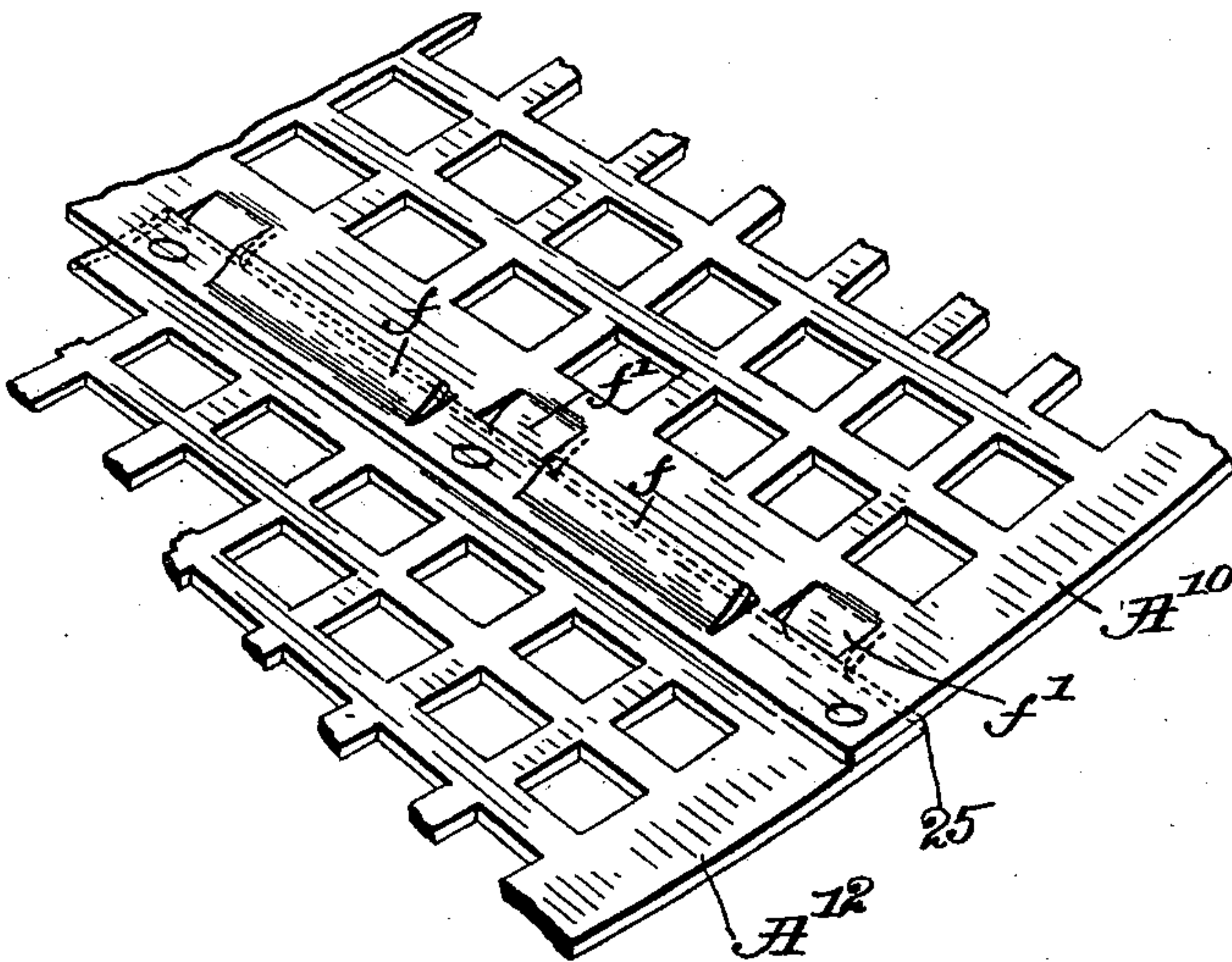
2 Sheets—Sheet 2.

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*Fig. 5.*



*witnesses:*

*Fred S. Grunleaf*  
*Thomas J. Drummond*

*Inverton*

*David E. Phillips.*

*by Crosby Gregory*  
*Attys.*



# UNITED STATES PATENT OFFICE.

DAVID E. PHILLIPS, OF MAHANAY CITY, PENNSYLVANIA.

## SCREEN.

SPECIFICATION forming part of Letters Patent No. 583,216, dated May 25, 1897.

Application filed March 1, 1897. Serial No. 625,495. (No model.)

*To all whom it may concern:*

Be it known that I, DAVID E. PHILLIPS, of Mahanoy City, in the county of Schuylkill and 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 and figures on the drawings representing like parts.

10 This invention relates particularly to revolving screens employed in screening coal, &c., and has for its object the production of strong, simple, and durable means for tumbling the material treated as the screen rotates, the screen-segments being connected and held in place in a novel and effective manner.

Coal-screens are subjected to very hard and rough usage and the protector or tumbler plates are put to great strain, so that to be durable and also to prevent opening of the joints the protectors must be very strong.

I prefer to construct the screen-segments of suitably-punched sheet metal, connecting the longitudinal edges of the segments by lap-joints, the annular spiders or rings supporting the ends of the segments. At or near one of the longitudinal edges the metal of each segment is bent up or inturned, except at the immediate ends, or a series of such inturned portions are provided, such bent portion stiffening the segment and also acting as a tumbler to resist the sliding action of the material being screened. The longitudinal edge of the adjacent segment is extended beneath the edge of the first segment having the inturned portion or portions, and means are provided on one segment to engage the edge of the next segment to prevent the sliding movement or tendency between them, thereby obviating the shearing strain on the bolts or rivets which connect the overlapping edges.

Figure 1 is a longitudinal section of the screen, centrally broken out and taken on the line  $x x$ , Fig. 2. Fig. 2 is a transverse enlarged sectional view on the line  $x' x'$ , Fig. 1. Fig. 3 is an enlarged perspective view of portions of two adjacent segments, showing the overlapping joint and the tumbler. Fig. 4 is a similar view of a modification to be described, and Fig. 5 is a like view showing a plurality of inturned portions at or near the

edge of one of the segments forming a non-continuous tumbler.

The screen is shown as composed of sections, each section in turn being composed of curved screen-segments A, supported at their ends by circular spiders or heads B, secured to a shaft B', rotatably mounted in suitable fixed bearings B<sup>2</sup> B<sup>3</sup>, the screen being inclined to facilitate the passage of the coal or other material along the screen.

A feed-chute B<sup>4</sup> delivers the material at the upper end of the screen, and it is discharged from the lower end thereof.

The screen-segments A are made of sheet-metal plates, suitably punched to provide the desired perforations  $a$ , the ends  $a'$  and the longitudinal edges being imperforate. Each segment is cut away at its ends at one longitudinal edge, as at  $a^2$ , Figs. 1, 3, and 4, to leave an extended portion  $a^3$ , which latter is bent up or inwardly to form a longitudinal rib  $a^4$ , substantially at right angles to the main portion of the part  $a^3$ . The longitudinal edge of the adjacent segment is extended beneath the extended portion  $a^3$ , and the longitudinal imperforate portions of the segments are rigidly connected by bolts or rivets  $b$ , while the imperforate ends of the segments are secured, as by bolts  $b'$ , to the spiders or heads B. The inner segment is struck up, as shown in Fig. 3, to form stops  $a^5$ , turned out or projecting from its outer surface to abut against the edge 12 of the adjacent segment, thus preventing one segment from moving over and toward the other segment, thereby obviating to a great degree shearing strain on the connecting-bolts  $b$ .

In Fig. 4 the segment A<sup>3</sup> is upturned at  $a^{40}$  to form the tumbler, and the outer segment A<sup>x</sup> is cut and bent inwardly at  $a^{50}$  to leave projections on the inner side of the segment, said projections engaging the upturned rib  $a^{40}$  of the adjacent segment A<sup>3</sup>. The extended portion  $a^3$  of the inner segment overlaps the longitudinal edge of the adjacent segment in either case, protecting the joint or seam between them.

In Fig. 2 the direction of rotation of the screen is indicated by the arrow 8, the material being carried up by the ribs  $a^4$  and resting on the adjacent portion  $a^3$  of the segment.

In Fig. 5 a plurality of portions  $f$  are struck



up near one longitudinal edge of the segment A<sup>10</sup> to form an interrupted or non-continuous tumbler, while stop-portions *f'* are struck up to turn out or project from the outer surface of the segment to abut against the edge 25 of the adjacent segment A<sup>12</sup>.

Preferably the stops are staggered with relation to the portions *f* of the tumbler, and in this instance the segment is not cut away at its ends, as in the other forms shown.

It will be noted that the spaces below the struck-up or inturned portions *f* are covered by the edge of the adjacent segment, and, if desired, the series of portions *f* of one tumbler may be arranged opposite the spaces between the portions forming the next tumbler.

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

1. In a rotatable screen, perforated screen-segments supported at their ends and having their longitudinal edges overlapped and secured together, the longitudinal edge of the inner segment having one or more inturned portions above the adjacent segment, and stops on one segment to engage the adjacent segment and prevent relative sliding movement of the segments, substantially as described.

2. In a rotatable screen, perforated screen-segments supported at their ends and overlapped at their longitudinal edges, the inner segment being provided at or near its overlapping edge with one or more portions bent inward above the adjacent segment to form a tumbler, and means integral with one segment

to be engaged by and serve as a stop for the adjacent segment, substantially as described.

3. In a rotatable screen, perforated screen-segments supported at their ends and overlapped at their longitudinal edges, the overlapping edge of the inner segment being bent inward above the adjacent segment to form a tumbler, and integral stops projecting from the surface of one segment to engage the adjacent segment and prevent relative sliding movement of the segments, substantially as described.

4. A sheet-metal screen-segment having a perforated body and imperforate ends and longitudinal edges, one of the longitudinal edges thereof being bent up at one or more portions to form a tumbler, and integral stops projecting from the surface of the segment, to engage and hold an adjacent segment, substantially as described.

5. A sheet-metal screen-segment having a perforated body and imperforate ends, one of the longitudinal edges thereof being bent inward at separated portions to form a non-continuous tumbler, and bent outwardly to form integral stops projecting from the surface of the segment, to engage and hold the edge of an adjacent segment, substantially as described.

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

DAVID E. PHILLIPS.

Witnesses:

JOHN B. DAVIES,  
D. C. T. WATKINS.