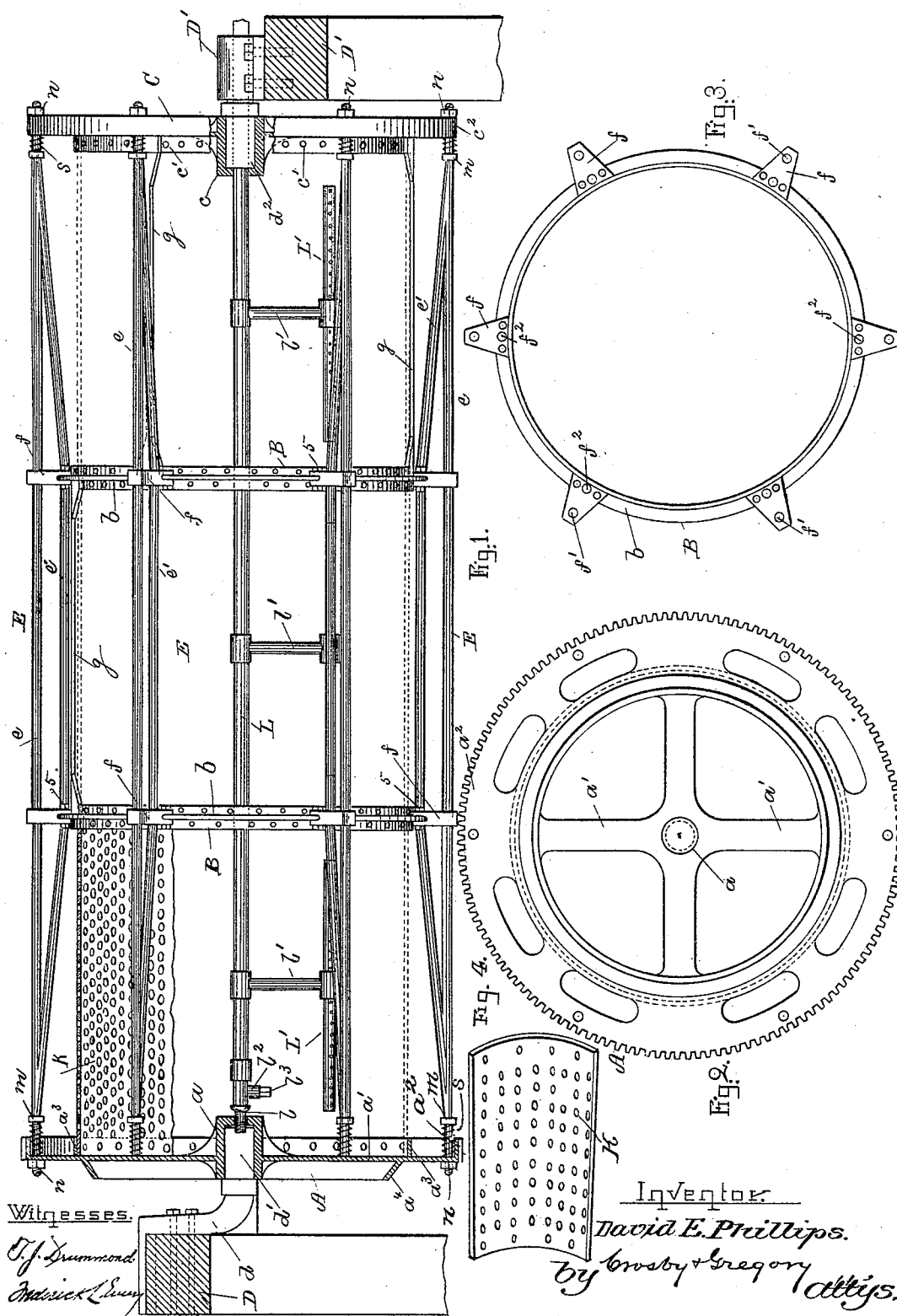


(No Model.)

D. E. PHILLIPS.
REVOLUBLE SCREEN.

No. 520,571.

Patented May 29, 1894.



Witnesses.

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DAVID E. PHILLIPS, OF MAHANOEY CITY, PENNSYLVANIA.

REVOLUBLE SCREEN.

SPECIFICATION forming part of Letters Patent No. 520,571, dated May 29, 1894.

Application filed August 30, 1893. Serial No. 484,367. (No model.)

To all whom it may concern:

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

In the construction of screens for sorting coal, &c., it is now usual to secure the several sections of perforated metal to the outside of a series of spiders, a large and heavy central shaft extending from one to the other end of the screen along its longitudinal axis, its projecting ends forming journals to rest in suitable bearings, the weight of the screen and its load being concentrated at the center. The several spiders are secured to this shaft, and have the requisite strength given them by arms radiating from their hubs to their peripheries, which interfere with the passage of the material through the screen. When the screen is in use the weight of the coal passing therethrough is great, and in order to give the shaft sufficient strength it has to be made very large, increasing the dead weight of the screen and necessitating more power to rotate it.

This invention has for its object the production of a screen which presents an uninterrupted surface for the passage of the material therethrough between its ends, the longitudinal shaft being omitted, and means are provided for carrying the strains from the center to the end of the screen, whereby a very strong and light screen is obtained.

In accordance therewith, my invention consists, in a revoluble screen, of head and tail wheels, fixed independent journals for the hubs thereof, and intermediate screen rings, combined with perforated metallic screen segments secured to said rings and wheels, and a series of external longitudinal trusses connecting the head and tail wheels and secured to the exterior of the annular supports, to leave an uninterrupted passage through the screen, substantially as will be described.

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

Figure 1 in side elevation and partly in sec-

tion represents a screen embodying my invention, only a small section of perforated segment being shown, to avoid confusion. Fig. 2 is an end elevation of the head wheel of the screen, detached; and Fig. 3 is a plan view of one of the intermediate screen rings, and Fig. 4 is a perspective view of one of the perforated screen segments, detached.

As shown herein the screen is composed of a head wheel A, having a hub *a*, arms *a'* radiating therefrom, a toothed periphery *a*², internal segment supporting flange *a*³, and external hopper *a*⁴, a series of intermediate screen rings or segment supports B provided with external ribs *b*, which strengthen and stiffen the rings, and a tail wheel C having a hub *c*, segment supporting flange *c'*, flanged periphery *c*², and radiating arms, not shown. The head wheel A is supported on a suitable hanger *d*, secured to a standard or frame D, the end *d'* of the hanger entering the hub *a* and forming a shouldered stud or gudgeon upon which the head wheel is supported. A hollow stud or gudgeon *d*² is rigidly secured to a support D', to form a journal for the hollow bearing or hub *c* of the tail wheel C, the stud being made hollow for a purpose to be described, and shouldered to take the end thrust.

The head and tail wheels A and C are connected by a series of longitudinal trusses E, herein shown as six in number, though a greater or less number may be used according to circumstances. As herein shown the trusses are formed of two rods *e* and *e'*, the outer rod *e* straight and the inner one *e'* bent, said rods being in the same radial plane passing through the longitudinal center of the screen. The screen rings B are inclosed by the trusses, and are connected therewith by chairs *f*, secured to the exterior of the rings B through the ribs *b*, see Figs. 1 and 3, by bolts 5, the chairs having openings *f'* and *f*² for the truss rods, the openings *f*² registering with suitable openings in the ribs *b*. In Fig. 1 two of the screen rings are shown, but more or less may be used according to the size of the screen. Suitable braces *g* are secured to the screen rings, three only being herein shown, to avoid confusion, the braces keeping them at the proper distances from each other and from the head and tail wheels A

and C. The perforated screen segments are held in place on the inner smooth peripheries of the rings or supports B, and on the segment supporting flanges a^s and c' of the heads, to which they are secured by suitable bolts or rivets, thus covering and protecting the screen rings and the flanges from the hard wear to which they would be otherwise subjected. A portion only of one screen segment k is shown on Fig. 1, and an entire segment is shown in Fig. 4, so that the whole construction will be evident from the foregoing. I prefer to locate the longitudinal joints of the segments opposite the trusses, as the latter are thereby in a large measure protected from dropping coal, stones, &c.

The ends of the truss rods are herein shown as threaded, and extended through the rims of the head and tail wheels, as shown, and secured in place by suitable nuts n , and in order to take up any longitudinal movement of the head and tail wheels A and C, I have provided the trusses with collars m adjacent said wheels, strong spiral springs s surrounding the trusses therebetween. These springs take up any sudden longitudinal motion which may be imparted to the screen ends. The strain upon the central portions of the screen is taken up by the trusses and conveyed to the ends, where the bearings are located, thereby greatly increasing the strength of the screen, and its efficiency.

It is obvious that the trusses could be made of angle or other iron, or of different shape, so long as they took up the central strains and conveyed them to the ends of the screen.

In order to supply water to the interior of the screen, to wash its contents while passing therethrough, I have extended a water supply pipe L through the hollow stud or gudgeon d^2 , and preferably secured it to the stud or gudgeon d' by a threaded coupling l , a series of perforated distributing pipes L' being secured to the supply pipe by hollow connections l' , and if desired the supply pipe may also be perforated. By securing the ends of the pipe L to the stud d' it is out of the way of the incoming material. Should the pipe become closed or blocked up it may be flushed from near the head wheel, as I have placed in the pipe L a T, as l^2 having a removable plug l^3 , removal of the plug permitting the pipe to be flushed.

By an inspection of the drawings it will be evident that if it should be desirable to provide the screen with a jacket it could be readily secured thereto on the ribs b of the rings and to the head and tail wheels.

I claim—

1. In a revoluble screen, head and tail wheels, fixed independent journals for the hubs thereof, and intermediate screen rings, combined with perforated metallic screen segments secured to said rings and wheels, and a series of external longitudinal trusses connecting the head and tail wheels and secured to the exterior of the annular supports, to leave an uninterrupted passage through the screen, substantially as described.

2. In a revoluble screen, head and tail wheels each having a hollow hub or bearing, fixed supporting journals therefor upon which the hubs rotate, and a water supply pipe extended through one and secured to the other journal, within the screen, combined with a series of trusses connecting the head and tail wheels, screen segments within said trusses and secured to the head and tail wheels, and intermediate connections between said segments and trusses substantially as described.

3. In a revoluble screen, head and tail wheels, intermediate screen rings having external projecting ribs, and screen segments secured to said rings and to the said wheels, combined with external trusses connecting the head and tail wheels, and connections between said trusses and the ribs of the rings, substantially as described.

4. The combination, in a revoluble screen, of head and tail wheels each having a hollow hub or bearing and a segment supporting flange, and perforated screen segments, with a series of external trusses connecting the head and tail wheels and supporting the segments between said wheels, and separate externally supported journals, and extended into the hubs or bearings, 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:

GEO. W. GREGORY,
JOHN C. EDWARDS.