

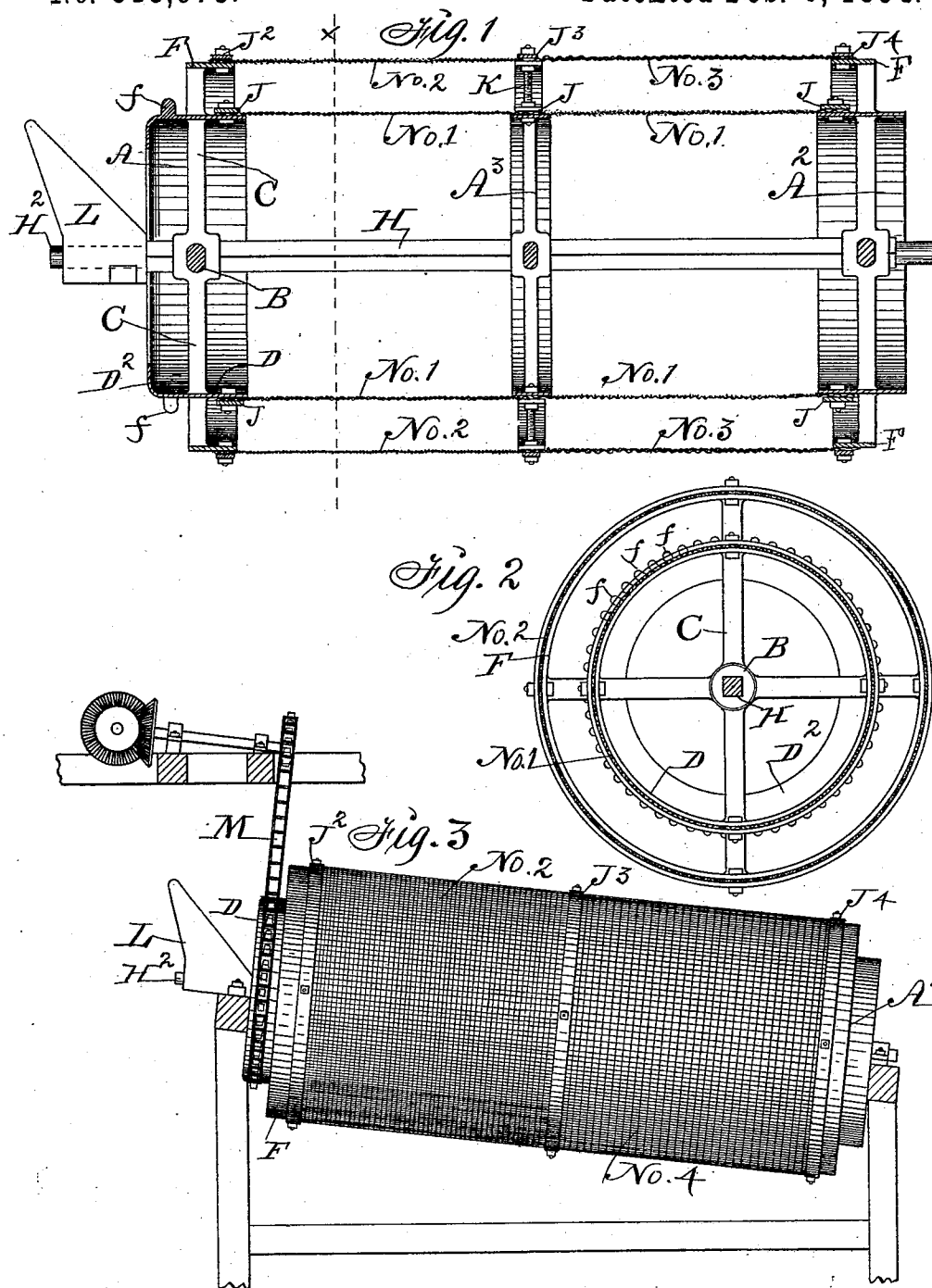
(No Model.)

L. AULMANN.

DUPLEX REVOLVING SCREEN FOR CLEANING AND GRADING COAL.

No. 513,973.

Patented Feb. 6, 1894.



Witnesses:

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Inventor: Lorenz Aulmann

By Thomas G. Orwig, atty.

UNITED STATES PATENT OFFICE.

LORENZ AULMANN, OF DES MOINES, IOWA.

DUPLEX REVOLVING SCREEN FOR CLEANING AND GRADING COAL.

SPECIFICATION forming part of Letters Patent No. 513,973, dated February 6, 1894.

Application filed February 28, 1893. Serial No. 464,049. (No model.)

To all whom it may concern:

Be it known that I, LORENZ AULMANN, a citizen of the United States of America, residing in Des Moines, in the county of Polk and State of Iowa, have invented a Duplex Revolving Screen for Cleaning and Grading Coal, of which the following is a specification.

My object is to facilitate the construction and improve the operation of revolving screens as required to advantageously clean and grade coal and like solid substances.

My invention consists in heads specially adapted for connecting two concentric screens, and the combination of screens, a rotating shaft and a frame, as hereinafter set forth, pointed out in my claims, and illustrated in the accompanying drawings, in which—

Figure 1 shows a longitudinal section; Fig. 2 a transverse section through the line *xx* of of Fig. 1 looking toward the left and the head or front end of the machine, and Fig. 3 is a side elevation showing the screen mounted upon a frame as required for practical use.

A represents the head of the machine in the form of a cylindrical frame cast complete in one piece. It has a hub B at its center, radial arms C extending to its circular rim, D, that has an inwardly extending flange D². The hub has an angular bore adapted to admit an angular shaft and the rim has spurs *f* on its outer surface adapting it to serve as a sprocket wheel to impart rotary motion to the complete screen.

F is a rim, of larger diameter, integral with the outer ends of the arms C, and in concentric position with the rim D.

A² is a corresponding head formed complete in one piece, but has no flange projecting inward from the rim, and no spur on the periphery of the rim.

A³ is a frame corresponding in diameter with the rims D of the frames or heads A and A².

H is an angular shaft extended through the hubs of the three frames A, A², and A³ and fastened thereto. It has journals H² on its ends.

No. 1 is a wire screen clamped to the outside surface and inner portion of the rim D of the head A and the periphery of the rim of the frame A³ and the frame A² by means of rings J and screw bolts passed through the

overlapping parts and nuts on the inner ends of the bolts.

No. 2 is a wire screen fixed to the rim F of the head A, by means of a ring J² and screw bolts and nuts, and to the frame A³ by means of a ring J³ and screw threaded bolts K that extend from the rim of the frame A² as shown in Fig. 1.

No. 3 is a screen coarser than screen No. 2 fixed to the rim of the frame A³, by means of the ring J³ on the bolt *k* and to the rim F of the frame A² by means of a ring J⁴ and screw bolts and nuts. A duplex screen is thus produced adapted to facilitate the cleaning and grading of coal and other substances.

L represents a stationary chute through which coal can be readily introduced into the cylinder when it is mounted in an inclined position as shown in Fig. 3.

M is a drive chain on the spurs *f* of the rim D and connected with gearing adapted to actuate the chain as required to rotate the duplex screen in an inclined position.

To operate the machine I put it in motion and then throw broken coal into the chute L to allow it to descend therefrom into and through the screen by gravitation. The small particles of dirt or clay and coal will immediately fall through meshes of the No. 1 screen and larger pieces of coal will descend thereon while the smaller portions will pass through the meshes and the larger pieces drop out from the lower end of the No. 1 screen. The dust and dirt that fall from the screen No. 1, upon the concentric screen No. 2 will fall through while small particles of coal will descend thereon to screen No. 3 and fall through its meshes and the smaller pieces of coal that fall through the screen No. 1 into the screen No. 3 will also drop through the meshes of the No. 3 screen while the larger pieces pass out from its lower end. The refuse or waste matter will thus be deposited under the screen No. 2, the nut coal under the screen No. 3 and the largest pieces of coal at the lower end of the machine.

The length and diameter and numbers of screens may vary as required to produce machines differing in capacity, and the meshes of the screens may also vary in size as required for cleaning and separating or grading coal and other substances.

It is obvious that by means of the head A that has a rim D and a flange D² and spurs f on the periphery of the rim and a concentric rim C of larger diameter and a hub and arms 5 or spokes, all cast complete in one piece, the construction of the machine is greatly facilitated by means of this single improved element, and the operation of the complete machine improved by the means thus provided 10 for applying power direct to the head by means of a drive chain.

I claim as my invention—

1. A frame or head for a duplex rotating screen, comprising a bored hub adapted to 15 admit a shaft, radial arms projecting from the hub, a rim near the outer ends of the arms having spurs on its periphery to engage a drive chain, and a flange extending inward to partially close the head, and a rim at the 20 extremities of the arms, for the purposes stated.

2. An improved duplex screen, for cleaning and grading coal, comprising a head having a bored hub adapted to admit a rotating shaft and arms extending radially from the hub 25 and provided with a rim on their ends adapted to fix the end of a cylindrical screen thereto,

and also adapted to serve as a drive wheel, and a flange extending inward from said rim to partially close the head, short arms projecting radially from said rim and provided 30 with an auxiliary concentric rim adapted for fixing the end of a cylindrical screen thereto, a circular frame having a bored hub and radial arms and two concentric rims adapted for fixing the ends of two concentric cylindrical screens thereto, a corresponding circular 35 frame having a bored hub and radial arms and concentric rims fixed to the central portion of the concentric screens, two concentric screens, a rotating shaft extending through 40 the hubs and fastened thereto to rotate them, a frame adapted to support the shaft in an inclined position, a chute for conveying the coal into the head of the inner cylindrical screen, and means for transmitting motion to 45 the flange or drive wheel of the head as required to actuate the machine in the manner set forth for the purposes stated.

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