(No Model.)

D. SHEEDY & M. W. ILES.

DEVICE FOR COLLECTING METALLIC FUMES.

No. 483,176. Patented Sept. 27, 1892.

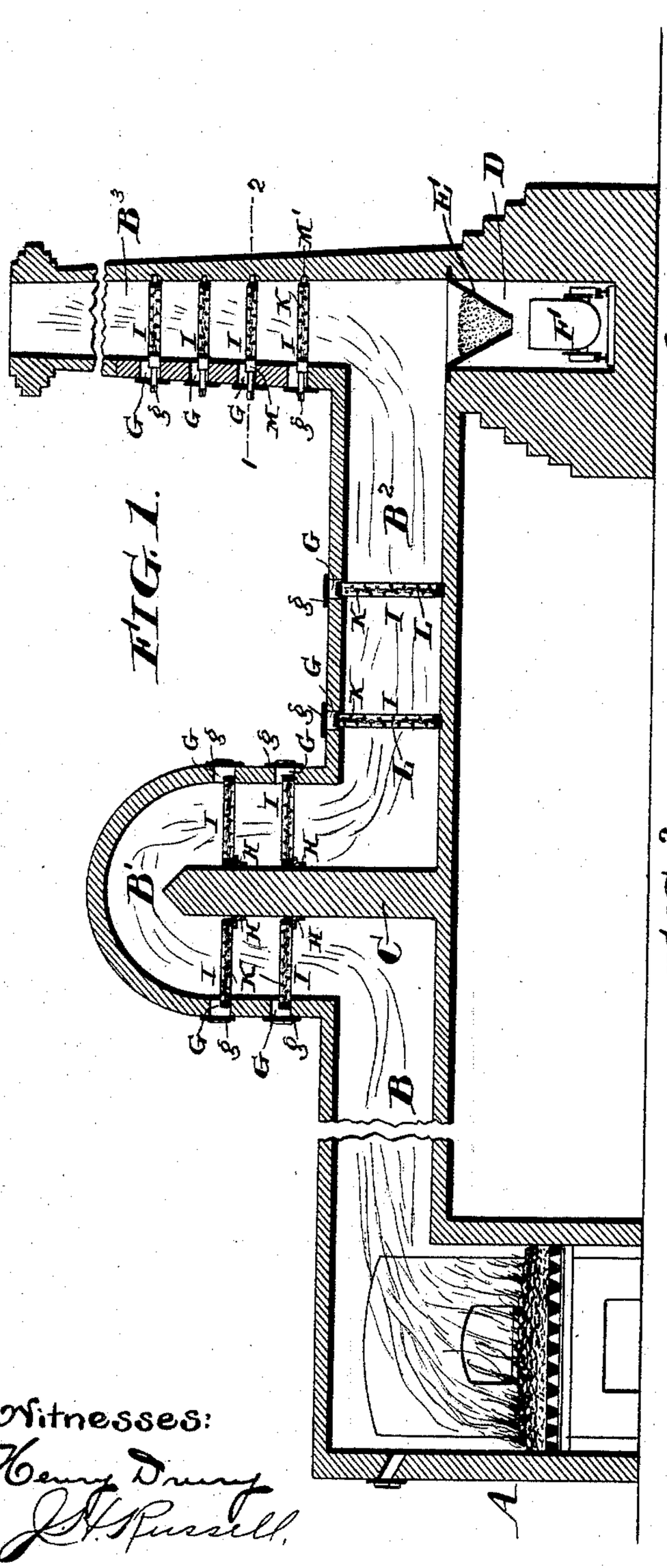

FIG. 1.

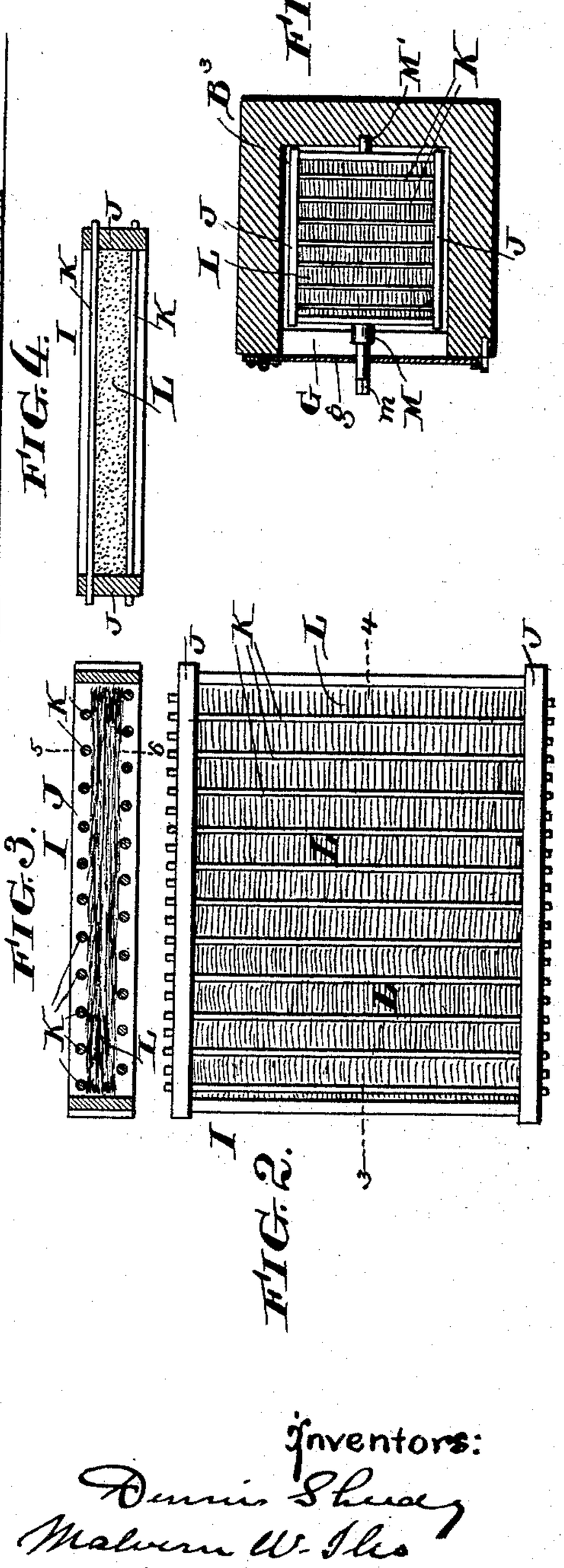

FIG. 4.

FIG. 3.

FIG. 2.

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UNITED STATES PATENT OFFICE.

DENNIS SHEEDY AND MALVERN W. ILES, OF DENVER, COLORADO.

DEVICE FOR COLLECTING METALLIC FUMES.

SPECIFICATION forming part of Letters Patent No. 483,176, dated September 27, 1892.

Application filed December 8, 1891. Serial No. 414,539. (No model.)

To all whom it may concern:

Be it known that we, DENNIS SHEEDY and MALVERN W. ILES, of the city of Denver, county of Arapahoe, and State of Colorado, have invented a certain new and useful Device for Collecting Metallic Fumes, of which the following is a true and exact description, reference being had to the accompanying drawings, which form a part of this specification.

Our invention relates to a device for separating and saving the solid matter driven off from metallurgical furnaces, together with the gaseous products of combustion.

The object of our invention is to provide a simple, efficient, and at the same time economical device for effecting this result, and we may mention here that our device is of especial value for use in connection with roasting-furnaces.

The nature of our invention will be best understood as described in connection with the drawings in which it is illustrated, and in which—

Figure 1 is a longitudinal cross-section through the roasting-furnace and through the conduits, including the stack by which the smoke, &c., is taken from the furnace. Fig. 2 is a plan view of one of the screens which we employ. Fig. 3 is a cross-sectional view of the screen on the line 3 4 of Fig. 2. Fig. 4 is a cross-sectional view on the line 5 6 of Fig. 3; Fig. 5, a cross-sectional view taken through the stack on the line 1 2 of Fig. 1.

A indicates the furnace; B B′ B^2, a conduit, or "dust-flue," as it is sometimes called, leading from the furnace to the stack B^3. The length of the conduit B B′ B^2 would vary in practice according to the conditions of use, the part near the furnace being arranged to serve as a cooling device, so that the products of combustion, &c., will not be sufficiently hot to destroy the screens, which will be hereinafter described.

C indicates a wall, which divides the dome-like portion of the conduit B′ into two vertical parts.

D indicates the dust-chamber situated at the bottom of the stack B^3, E being a hopper for catching the dust, and F a car beneath the hopper for carrying the dust away.

At convenient intervals narrow openings G, &c., are formed in the smoke-conduit and stack, doors *g* being provided for closing them.

I I, &c., indicate screens, which are made up of mats or mat-like masses of fibrous material, secured in a frame J, which is adapted to be inserted in the openings G and to extend transversely across the conduit. The mat of fibrous material may consist of straw, dried grass, or, in fact, any material which when placed loosely together will form a permeable screen, and for certain purposes I have found it advisable and convenient to make up the mat of a mass of lead fiber—that is to say, of very fine lead wire matted loosely together.

The fibrous mat indicated by the letter L is most conveniently held in place on the trays J by means of two rows of slats or wires K K, &c., between which the mat is placed.

The screens we use in the stack B^3 are preferably pivoted therein, as shown in Fig. 5, in which M M′ represent the journals on which the screen is pivoted. The end *m* of the journal M extends through the stack, so that it may be seized and the screen turned to a vertical position. This arrangement is desirable, so that any accumulated dust can be dumped from the screen into the dust-chamber B.

We are aware that it is not new with us to effect a separation of the solid particles from the products of combustion in metallurgical furnaces by means of screens, which have been heretofore made in various ways, the most useful being by the use of a woven fabric.

The essential feature of our invention consists in the use of the matted mass of fibrous material, which makes up a screen of quite a different character and enables us to use cheaper material.

Our screens are readily removable, so that whenever one becomes injured or clogged it can be readily removed and another inserted, the defective screen being repaired by taking out the matted fiber and replacing it with a fresh mat.

Having now described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. Dust-screens having, in combination, a frame J, two rows of rods or wires K K, and a

mat of fibrous material held between the two rows of rods or wires, substantially as and for the purpose specified.

2. In combination with a metallurgical furnace and a fume-conduit leading therefrom, a series of removable dust-screens set across said conduit and formed of a mat-like mass of fibrous material held in a frame by slats or bars, substantially as and for the purpose specified.

3. In combination with a metallurgical furnace, a fume-conduit leading therefrom, openings G in said conduit-doors *g* for closing the same, and removable screens arranged to enter said openings G and formed of a fibrous mat held in place by slats or wires, substantially as and for the purpose specified.

4. The combination, with a metallurgical furnace, of a stack B, leading from the furnace to the atmosphere and having a dust-chamber B at its base, and one or more pivoted screens I, formed of a mat-like mass of fibrous material, held in a frame by slats or bars and secured in said stack, substantially as and for the purpose specified.

5. Dust-screens having a mat formed of fine lead wire secured in frames, substantially as and for the purpose specified.

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