

G. T. LEWIS & E. O. BARTLETT.
Process of Manufacturing Pigment Bases.

No. 223,932.

Patented Jan. 27, 1880.

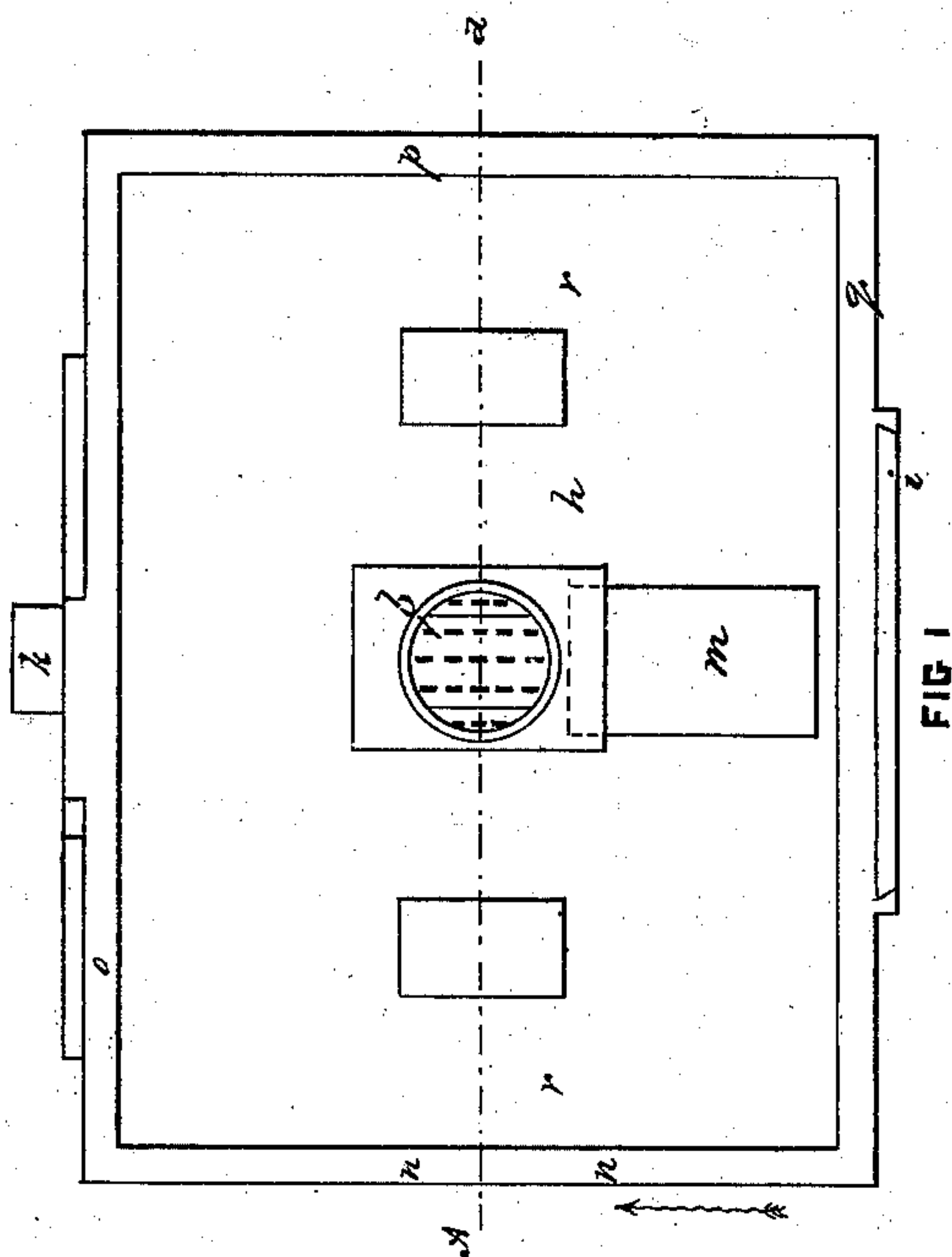


FIG 1

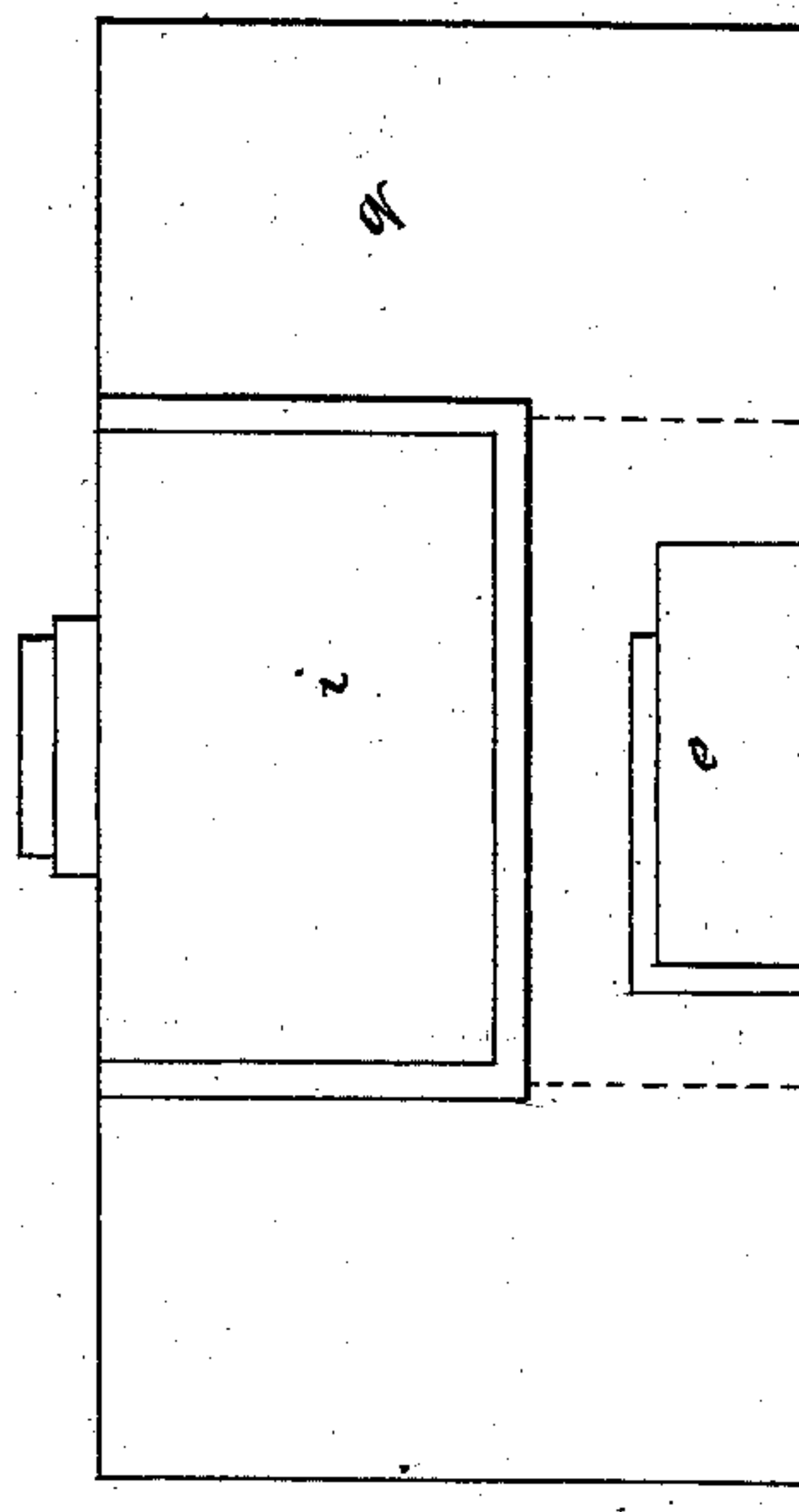


FIG 2

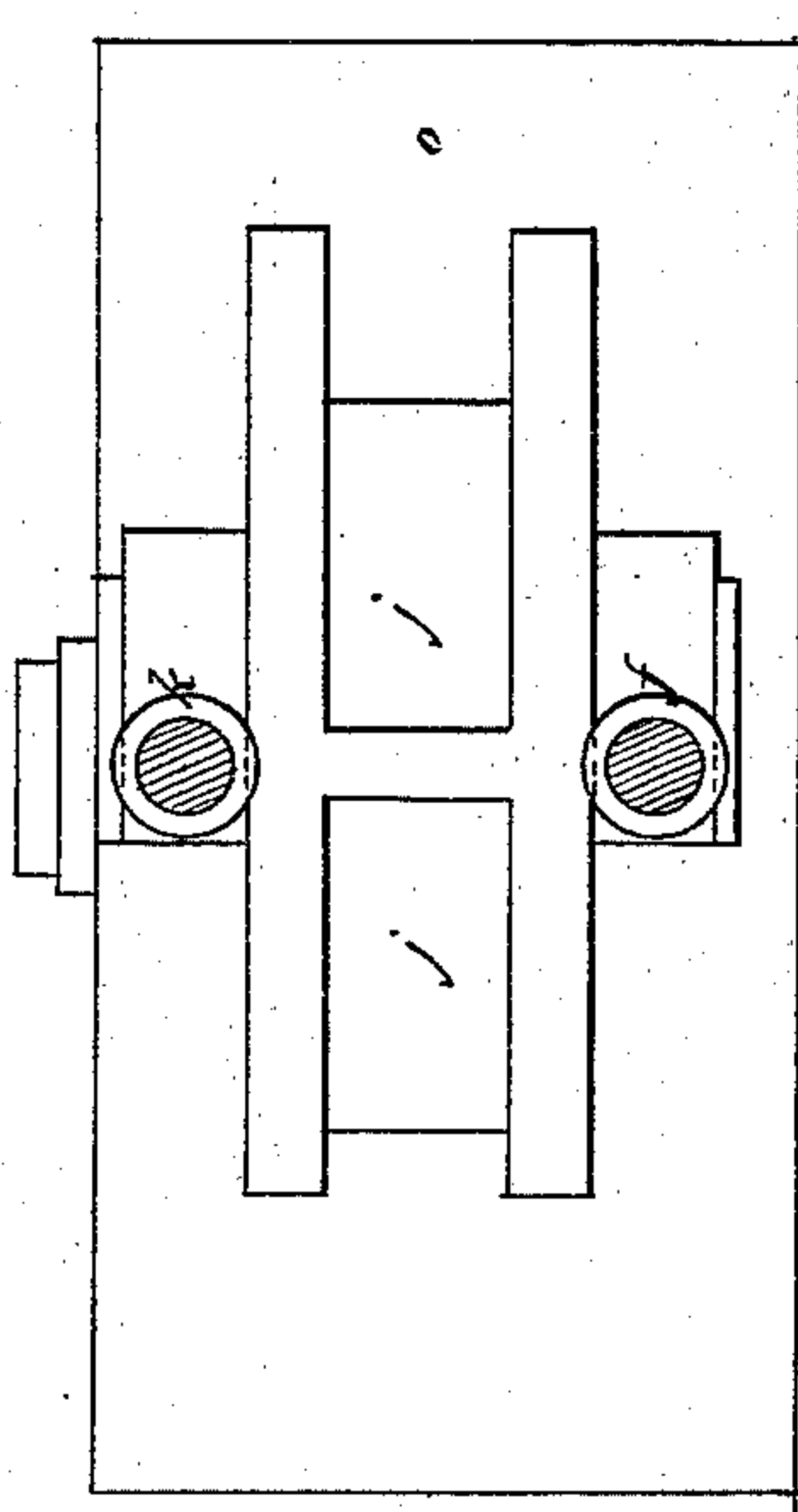


FIG 3

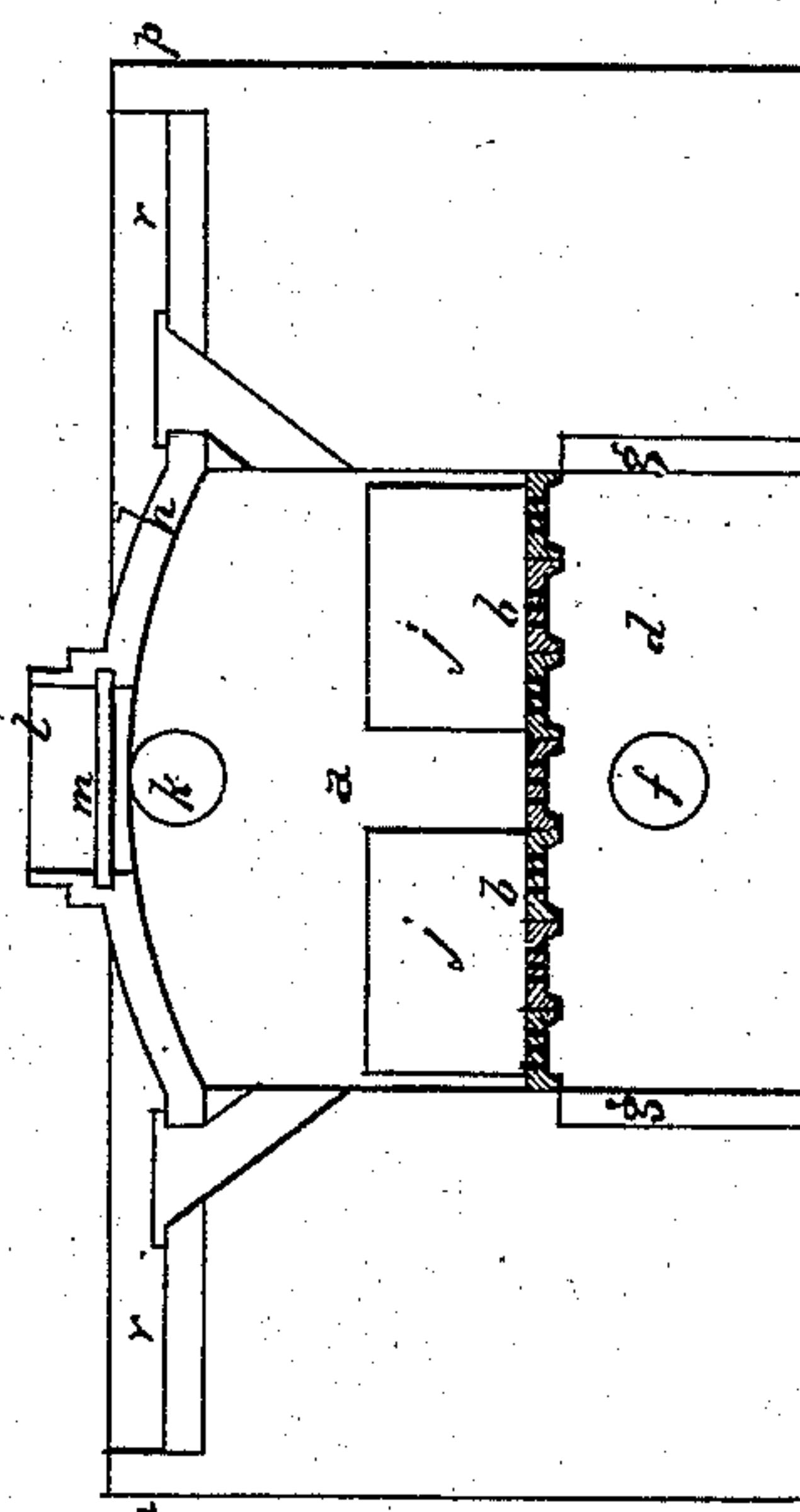


FIG 4

Attests

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UNITED STATES PATENT OFFICE.

GEORGE T. LEWIS, OF PHILADELPHIA, PENNSYLVANIA, AND EAYRE O.
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PROCESS OF MANUFACTURING PIGMENT BASES.

SPECIFICATION forming part of Letters Patent No. 223,932, dated January 27, 1880.

Application filed November 6, 1879.

To all whom it may concern:

Be it known that we, GEORGE T. LEWIS, of Philadelphia, Pennsylvania, and EAYRE O. BARTLETT, of Pemberton, New Jersey, (formerly of Joplin, in the State of Missouri,) have invented a new and useful Improvement in the Manufacture of Dry White Lead and White-Lead Pigment from Native Carbonate and Sulphate of Lead; and we do hereby declare that the following is a full and exact description of the same.

We have discovered that by mixing native carbonate of lead or native sulphate of lead with carbon or other reducing agent and treating the mixture in a reducing and oxidizing furnace a superior quality of dry white lead is produced.

The furnace which we have found to work well for the purposes above mentioned is commonly known as the "Wetherill zinc-furnace," for which Letters Patent of the United States were granted to Samuel Wetherill, November 13, 1855, No. 13,806, and which is represented in the annexed drawing, in which—

a is the main chamber, the bottom *b* of which is composed of iron bars perforated with small holes of about one-quarter of an inch in diameter and about one inch apart, and preferably made slightly conical, with the larger diameter downward. The size of the holes would be such as to prevent the crushed ore and coal from falling through. These perforated bars are suitably sustained at the ends on the front and back walls.

The ash-pit below the perforated bottom is of equal area therewith, and is provided with a door, *e*, in front, and with a hole, *f*, at the back, for the reception of a pipe from suitable blowing apparatus.

The walls *g g* and arch on top should be built of some refractory substance, such as fire-brick.

The front is entirely open and provided with sliding doors *i*, by which it can be closed when working the process, or open to remove the residuum.

At the back there are two sliding jambs, *j j*, to give access to the main chamber, for stirring the charge and for inspection.

At the back, near the arch, there is a hole, *k*, governed by a sliding damper, leading to a chimney, for carrying off smoke and impure gases in the beginning of the operation on a new charge.

In the center of the roof there is an aperture, *l*, governed by a damper or sliding door, *m*, leading to a suitable apparatus for the collection of the oxidized vapors of lead.

The exterior walls, *n o p q*, may be built above the top, to form two feeding-troughs, *r r*, one on each side of the arch or roof, and provided each with an aperture or passage, *s*, leading to the inside or main chamber, and each aperture or passage is provided with a cover, to be put on after the furnace has been charged.

We mix together crushed ore, native carbonate or sulphate of lead and carbon, preferably in the state of pea or dust anthracite coal, in the proportion of half and half, and treat the mixture in a compound reducing and oxidizing furnace.

Dense white vapors or fumes pass off, which are conveyed to a separate chamber, where they are strained by passing through a screen or series of screens of muslin or other textile fabric.

The advantage of subliming sulphate and carbonate of lead in the presence of carbon or other reducing agent is that fumes are obtained which furnish an excellent basis of pigment, being free from impurities, which are frequently produced when galena ore is treated.

We have discovered, also, that the process of sublimation can be carried on with good results either in a furnace with grate-bars, with blast introduced at pleasure from below or at the sides, or in a furnace with a solid bottom with blast introduced at the sides. The grate or furnace can be either closed or open at the top. We find, however, that the solid bottom presents some advantages, as it does not, like the grate-bottom, become filled and choked with molten lead.

We have discovered that a reverberatory furnace can be used for this purpose by heating the charge of ore and carbon on the bed of the furnace. The mixture of ore and carbon may also be heated by a generator, gas

flame, or in a closed muffle. In all these cases a current of air, preferably hot air, has to be introduced into or over the charge.

Having thus described our invention, what we claim is—

The process of manufacturing the basis of a pigment, in treating native carbonate or sulphate of lead mixed with carbon or other reducing agent, by subjecting the same to the action of heat and oxygen, and again sublim-

ing and oxidizing the reduced lead and collecting the fumes, as above described.

In testimony of which invention we hereunto set our hands.

GEORGE T. LEWIS.
EAYRE O. BARTLETT.

Witnesses:

GORDON SECKEL,
H. B. RIANBARD.