2 Sheets—Sheet 1.

E. DURAND.

Brick and Tile Machine.

No. 204,957. **Patented June 18, 1878.**

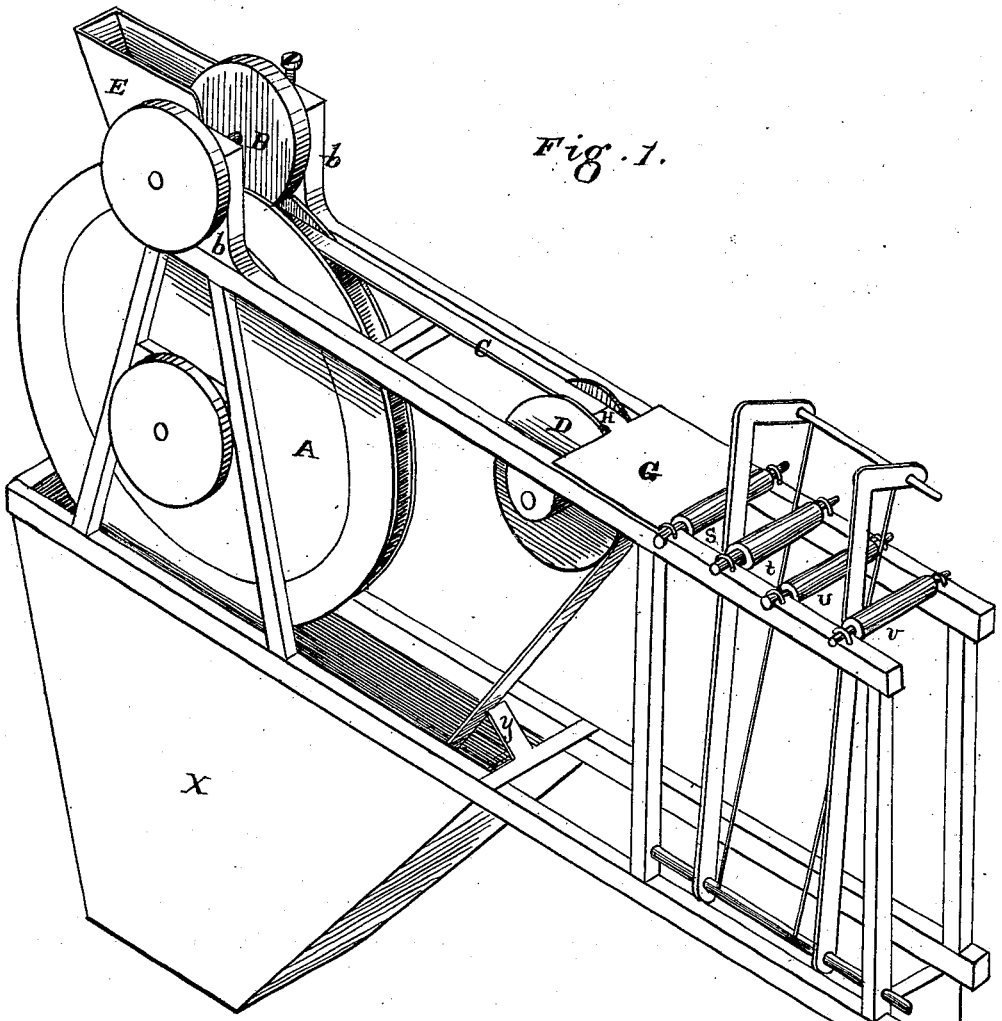

Fig. 1.

Witnesses

Geo. H. Strong

Frank A. Brooks

Inventor

Emile Durand

by Dewey & Co

Attys.

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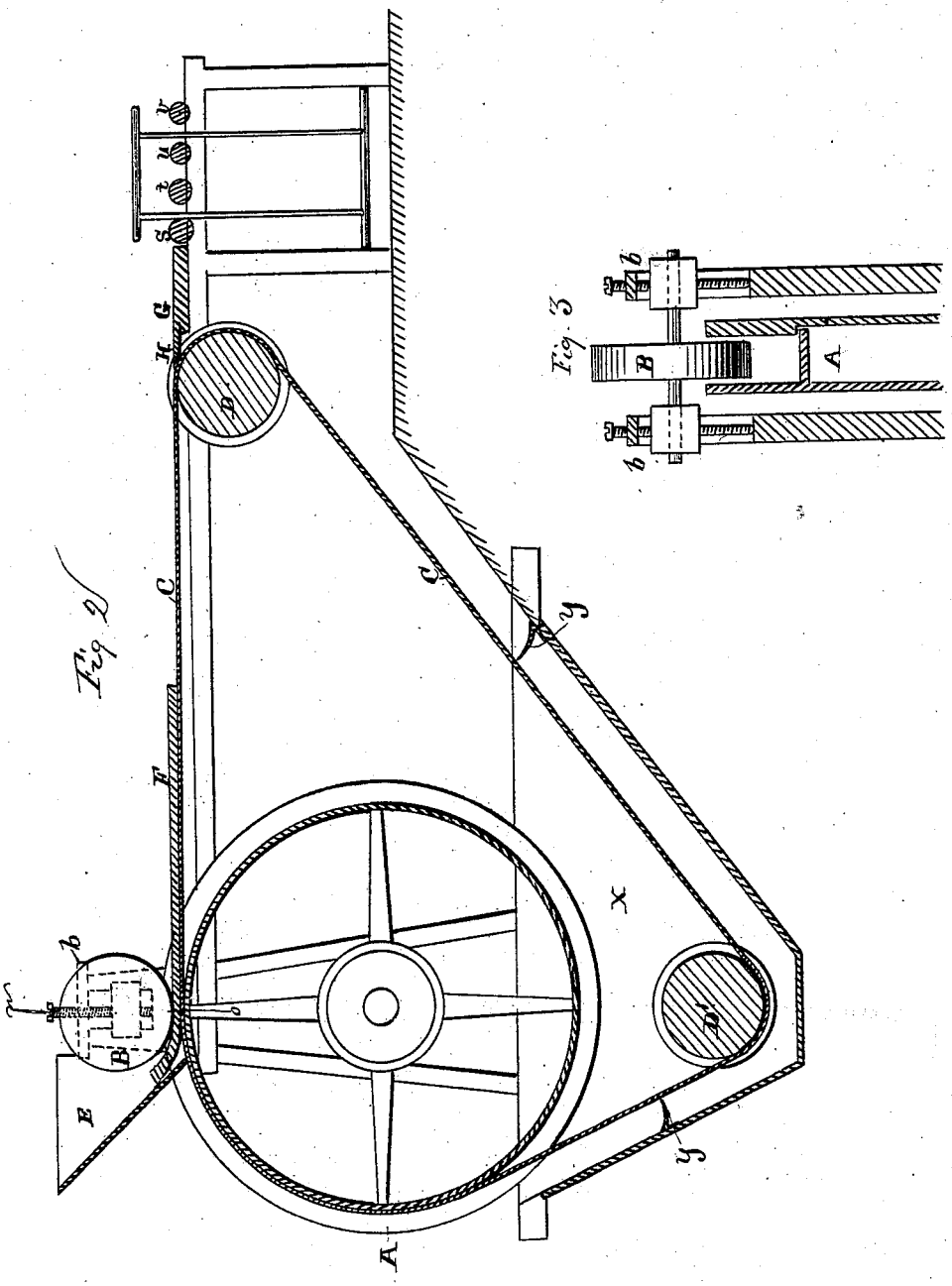

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UNITED STATES PATENT OFFICE.

EMILE DURAND, OF LA BASTIDE ROUAIROUX, FRANCE.

IMPROVEMENT IN BRICK AND TILE MACHINES.

Specification forming part of Letters Patent No. **204,957**, dated June 18, 1878; application filed May 7, 1878.

To all whom it may concern:

Be it known that I, EMILE DURAND, of La Bastide Rouairoux, France, have invented a Brick and Tile Making Machine; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings.

The object of my invention is to provide a novel mechanism for molding clay, coal-dust, cement, and other materials for the production of bricks, tiles, and blocks of any description for building, paving, and other purposes, also for chemical and metallurgical uses.

My apparatus consists in the employment of a large grooved pulley, in combination with a movable compressing-roller and an endless belt, with a carrying-pulley and guide-plate. It also consists in the employment, in connection with these devices, of a cutting-table and scraper, arranged to operate in a manner more fully described in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view; Fig. 2, sectional elevation. Fig. 3 is a transverse sectional view through *n o*.

Let A represent the grooved pulley, supported by suitable frame-work, which also supports a movable compressing-roller, B, having suitable journals, working in boxes *b b*, which are in slots at the upper end of the frame-work. These boxes move in slots, and are held in position by screw-bolts, which may be operated to change the gage of the machine, when different thicknesses of molded clay are required for the purpose of manufacturing bricks and various articles for which the machine is adapted.

An endless belt, C, of sheet-iron, steel, brass, india-rubber, or any other suitable material serves for a carrying-belt, that passes around a portion of the circumference of the grooved pulley A, and at the top it runs off at a tangent in a horizontal direction, passing around the carrying-pulley D, and from thence around a pulley, D′, situated in a tank of water, X, underneath the grooved pulley A. The belt then returns to the groove in the latter. The pulley A may be made with removable flanges; or one flange can be cast with the wheel, and the other made separate and bolted on. By this means varying width of groove may be had, and more than one groove may be employed. Upon the top of the machine is a hopper, E, into which pulverized clay is fed.

In practice, it may be necessary to employ a screw in this hopper to push the clay through into the groove of the pulley A, where it is molded or pressed into a clay band, F, that is carried by the endless belt C horizontally to a cutting-table, G. This clay band may pass between a system of rollers, *s t u v*, to give it a better shape. These rollers should be placed in a convenient position between the wheel A and the table G. As the clay band passes off from the endless belt C it is received by a guide-plate, H, or an extension of the table G, and then passes over rollers in the top of the latter, where it may be cut in various shapes by any suitable means, but usually by metallic wires fixed in a movable frame. After the endless belt has deposited its load, it passes from the pulley D to the pulley D′, and is scraped by brushes or scrapers *y y*, one of them being placed above the water, and one or more in the water, of the tank X. By this means the belt is cleaned, and the groove in the pulley A is cleansed in a similar manner by revolving scrapers or brushes and water in the tank X below the wheel.

The operation of my machine will be as follows: Motion being communicated to the grooved pulley A from a driving-pulley or other suitable mechanism, the grooved pulley revolves on its central shaft, working in journal-boxes. Pulverized or wet pasty clay is forced by means of a screw, or it falls by the action of gravitation, into the groove of this pulley, where it is subjected to compression between the compressing-cylinder B and the moving endless belt C in the groove, the excess of clay being pushed back into the hopper by said cylinder. The endless belt conveys the band of clay thus formed to the cutting-table G, where it is cut as required by suitable mechanism.

When the belt and grooved wheel have been cleaned by means of the brushes or scapers and water, as above described, sand may be spread on the face of the belt to insure a clean surface that will not adhere to the clay band in passing. This clay band may

be cut by wires in a longitudinal direction to form several bands of molded material passing onto the cutting-table from one groove in the face of said pulley; or, if desired, several flanges may be employed to form a number of grooves in the face of the pulley A for the purpose of increasing the capacity of the machine. By this means a number of different-shaped tiles, blocks, or other articles may be formed at the same time, as different-shaped belts and compression-wheels may be employed.

The belt of the groove in wheel A may have various-shaped projections or depressions to form any peculiar-shaped article for ornamental or other purposes. India-rubber belting will be best adapted for such variations or peculiar patterns molded in the faces. When pipes, hollow bricks, &c., are to be made, a core should be secured to a cross-bar (not shown) placed back of the cylinder B, so that the core will enter the clay under said compression-cylinder. Therefore when the clay band moves forward it will be hollow, and any number of perforations may be made by the same means. This machine requires about one-horse power, and the grooved wheel A is revolved at the rate of one revolution per minute.

By the foregoing description it will be seen that with this machine bricks, tiles, and other articles of commerce may be manufactured in a rapid and satisfactory manner.

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

1. The grooved forming-pulley A, having the movable flange or flanges to vary the size and shape of the formed belt, in combination with a pressing-roller, B, substantially as shown, and for the purpose herein described.

2. The grooved forming-pulley A, pressing-roller B, and belt C, in combination with the washing and cleansing tank X, scrapers or brushes Y, and guide-pulleys D and D′, substantially as shown, and for the purpose herein described.

In witness whereof I hereunto set my hand and seal.

E. DURAND. [L. S.]

Witnesses:
T. C. AUBRAY,
ROBT. M. HOOPER.