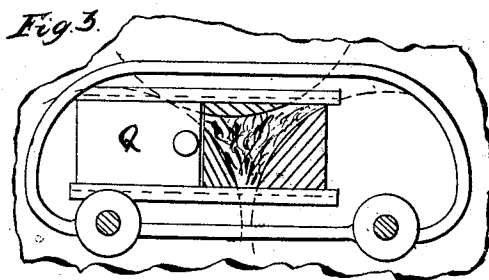
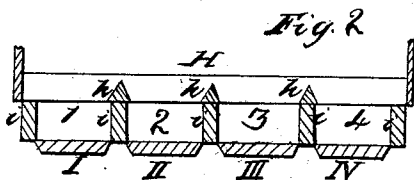
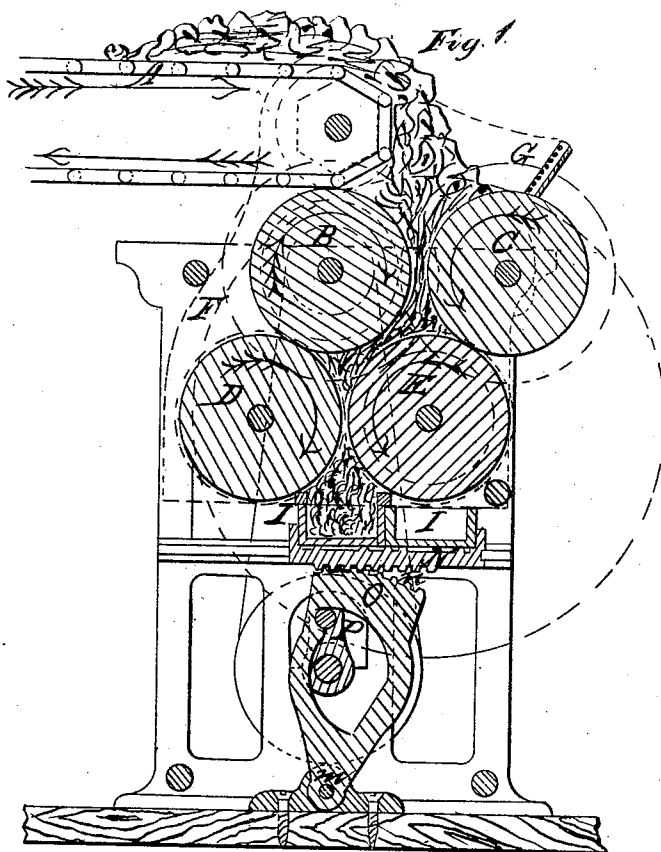


2 Sheets, Sheet 1.  
*Mulsen, Hauelsen & Wagner,*

*Brick Machine.*

*No 81,284.*

*Patented Aug. 18, 1868.*



*Witnesses*  
*Chas. Bauer*  
*Frank Millward*

*Inventors*  
*E. Hansen*  
*A. Wagner*  
*A. J. Pulsen*  
*By Knight Bros. attys.*

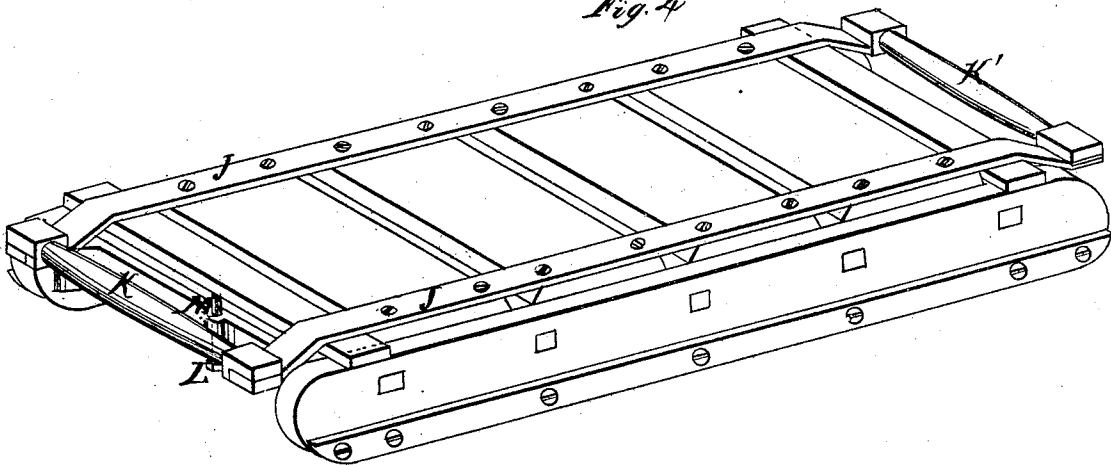
*Nulsen, Hauelsen & Wagner,*

*Brick Machine.*

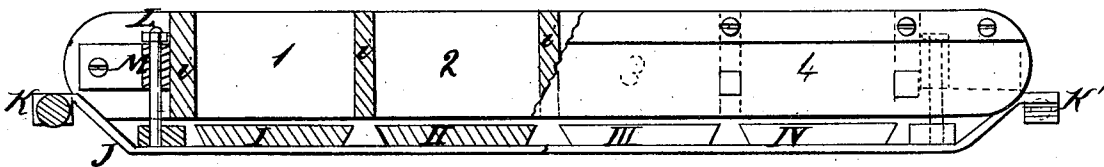
*N<sup>o</sup> 81,284.*

*Patented Aug. 18, 1868.*

*Fig. 4*



*Fig. 5*



*Witnesses*

*Chas. Bangs*

*Frank Millward*

*Inventors*

*C. Hauelsen*

*A. Wagner*

*H. Nulsen*

*By Knight Bros. attys.*

# United States Patent Office.

ANTHONY NULSEN, EUGEN HAUEISEN, AND ALBERT WAGNER, OF CINCINNATI, OHIO, ASSIGNORS TO A. NULSEN AND COMPANY.

*Letters Patent No. 81,284, dated August 18, 1868.*

## IMPROVEMENT IN BRICK-MACHINES.

The Schedule referred to in these Letters Patent and making part of the same.

### TO WHOM IT MAY CONCERN:

Be it known that we, ANTHONY NULSEN, EUGEN HAUEISEN, and ALBERT WAGNER, all of Cincinnati, Hamilton county, Ohio, have invented new and useful Improvements in Brick-Machines; and we hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification.

Our invention relates to improved devices for tempering, moulding, and delivering the clay in the form of bricks.

Figure 1 is a transverse section of our brick-machine.

Figure 2 is a transverse section of one of the sets of brick-moulds.

Figure 3 is an elevation representing a portion of the external case or shell.

Figure 4 is a perspective view of one of our sets of brick-moulds in the reverse position for discharging bricks.

Figure 5 is a partially-sectionized side elevation of the same, with the mouths of the compartments upward.

The clay is delivered to the machine on top of an endless apron, A, which, being carried forward in direction of the arrow, drops the clay between a pair of rolls, B C, whose axles revolve in a common horizontal plane, but in opposite directions, and at such distance from each other as to leave an interval between the peripheries of the rolls sufficient to permit the entrance between them of the untempered clay.

D and E are two other similar rolls, which revolve, as per arrows, in a common plane, at such distance below the rolls B and C, and so much to one side of them, as to bring the peripheries of the rolls B and E somewhat nearer to each other than those of the rolls B and C, and so as to bring the peripheries of the rolls D and E still nearer together than those of the rolls B and E.

The result of this rotation and approximation of the rolls is to both feed down and gradually temper and compress the clay, and to force the same into the moulds, with the requisite pressure to insure a compact and homogeneous brick.

The above rolls, B, C, D, and E, revolve, with their ends in close contact with the case F, and are journaled therein.

G is a hopper, for properly directing the untempered clay into the above-described space between the rolls.

From the rolls D and E the clay is forced through a throat, H, of cast steel, having as many bars, *h*, as there are partitions, *z*, in the mould I. The said bars *h* are triangular in transverse section, their bases being somewhat wider than the thickness of the partitions *z*, and their upper edges being acute, so as both to separate the clay, and to cause it to enter readily the compartments of the mould, and to fill up the lower portions thereof without scraping against the sides thereof, so as to remove the sand therefrom.

We employ two precisely-similar moulds, I I', each divided into a number of equal compartments, 1 2 3 4, and having loose bottoms, I II III IV, secured to a pair of bars, J, whose ends are provided with handles, K K'. Guide-rods L L', projecting from the bar J, and entering sockets M M', on the mould, both guide and limit the play of the loose bottoms.

Each mould, as fast as it becomes filled, is shifted by the reciprocating table N, and is drawn out by the operator through a suitable aperture in the side of the case, and emptied by reversing, as seen in fig. 4, the body of the mould descending by its gravity, and causing the clay to separate from the bottoms, so as to admit air and allow the clay to drop out.

The removal of one mould from beneath the throat acts to bring beneath said throat, and in suitable position for being charged with clay, another mould, which has been placed upon the reciprocating table for that purpose.

The reciprocation of the table N is effected by a segment-rack, O, which vibrates on a fulcrum, *m*, and which meshes in a rack, *n*, on the bottom of the said table. Said segment-rack takes the form of a yoke, within

which revolves a cam or wrist, P. The form of the bearing-surface of the yoke is such as to afford somewhat protracted rests between the stroke-movements, which latter occupy respectively but about one-sixth of the entire period of rotation of the cam.

Q is a door in the side of the case, for inspection of the condition of the rolls, or removal of rocks or other obstructions.

Having thus fully described our invention, we claim as new therein, and desire to secure by Letters Patent—

The relative arrangement of the endless carrier A, hopper G, case F, rolls B C D E, and throat H, constructed to operate as described.

In testimony of which invention, we hereunto set our hands.

ANTHONY NULSEN,  
EUGEN HAUEISEN,  
ALBERT WAGNER.

Witnesses:

GEO. H. KNIGHT,  
JAMES H. LAYMAN.