(No Model.) 2 Sheets—Sheet 1.

J. JUNGBLUTH.

PAVEMENT FOR STABLES.

No. 458,788. Patented Sept. 1, 1891.

Fig. I.

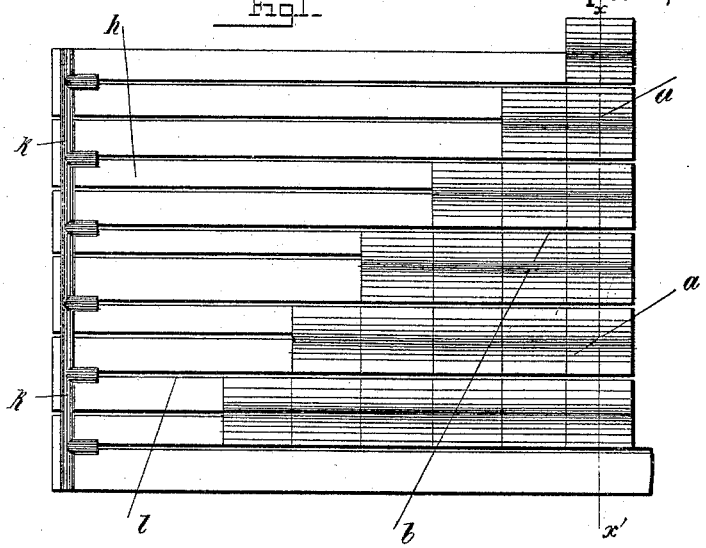


Fig. II.

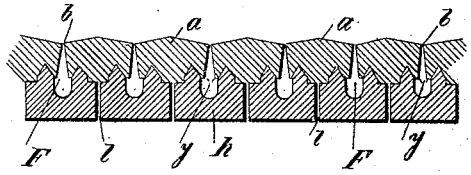
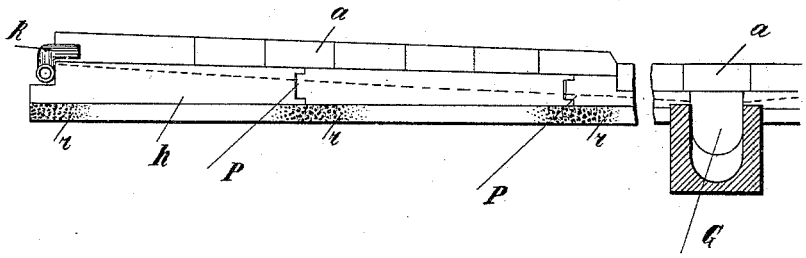


Fig. III.



Witnesses
W. C. Corliss
Martin A. Olsen

Inventor
Johann Jungbluth
By. Cobourn & Bacheller
Attys

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Fig. IV.

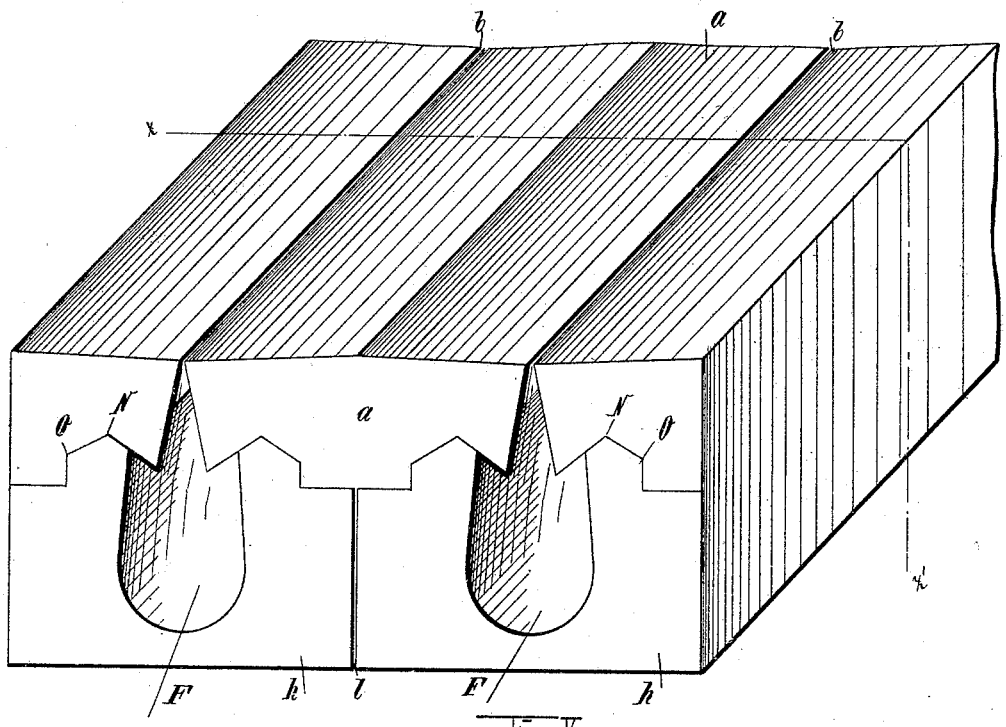
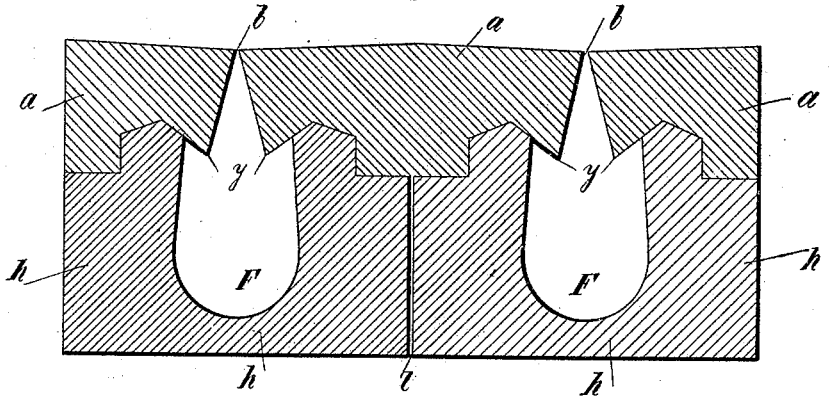


Fig. V.



Witnesses
M. C. Codlick
Martin A. Olsen

Inventor
Johann Jungbluth.
By, Coburn & Thacher
Attys

UNITED STATES PATENT OFFICE.

JOHANN JUNGBLUTH, OF COLOGNE, GERMANY.

PAVEMENT FOR STABLES.

SPECIFICATION forming part of Letters Patent No. 458,788, dated September 1, 1891.

Application filed September 20, 1890. Serial No. 365,689. (No model.)

To all whom it may concern:

Be it known that I, JOHANN JUNGBLUTH, of Cologne, in the Kingdom of Prussia and German Empire, have invented a new and useful Pavement for Stables, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention hereinafter described relates to a composition or concrete flooring for stables, public and other baths, slaughter-houses, and the like, and has for its object to fulfill all the conditions which may be expected from such flooring. These condition are that the flooring should be firm, clean, and dry; that it should allow sewer or drain water to run off readily, which treading or walking thereon and with regard to stables the comfortable lying down of animals should not be prevented or interfered with.

The salient feature of the composition flooring hereinafter described is the use of sloping or drain channels or gutters to receive the running-off water or liquid sewage, these channels being wide below and narrow at the top, while in some cases they have such a form that even when the material of the flooring adheres as tightly as possible thereto only a small opening or slot of this channel is visible. This opening is protected by special means, so as not to become closed or clogged. These outlet channels, drains, or gutters are, according to the method hereinafter explained, formed in the flooring or built therein in such a manner that they increase uniformly on the sloping side and lead to the main sewer. These channels are further opened in their uppermost part, so that branch conduits of a corresponding water-supply can be conveyed thereto for the purpose of flushing the channels. The latter are further provided on their inner sides with projecting edges in such a manner that the drain-water or liquid sewage can easily drip through and that the same is prevented from sinking in the flooring.

A flooring has already been described in the English Blue Book No. 3,713, in which, it is true, also outlet-channels were used. These outlet-channels, however, were narrow at the top and widened below in the form of a cone, in consequence of which construction the liquid adheres to the walls and by evaporating infects the air. This is a great drawback, which is entirely avoided by the present invention by giving the channels a form as to let the liquid only drop down on bottoms without touching the walls at all. The bottom may at any time be flushed and kept clean. As already pointed out, the projecting edges on the inner sides of the channels have such an excellent salubrious effect not obtained yet by the floorings known hitherto. The above-mentioned outlet or drain-channels are built with the material of the flooring, which consists for this purpose of two strong layers—a lower and an upper layer—which are prevented from moving relatively to one another by means of peculiar projecting edges and corresponding openings or grooves.

The object of the invention is illustrated in the accompanying drawings, in which—

Figure I shows a flooring in upper as well as a lower view, partly with the upper plates taken off. Fig. II is a cutting or section in the direction of the cutting-line $x\,x$ of Fig. I. Fig. III is a side view of Fig. I. Fig. IV is a perspective view of the flooring. Fig. V is a cutting through line $z\,z'$ of Fig. IV.

In the flooring the upper stones a and lower stones h are of peculiar form and are peculiarly connected with one another in such a manner as to form drain conduits or channels F, which have the required depth and are wider at the bottom than at the top. The stones h of the lower layer have a suitable shape and are made of cement, slag sand, or the like. They may, however, be formed of burnt clay. The stones a of the upper layer are made of a mass consisting, essentially, of sharp sand, powdered basalt, lava slags, Niedermenning stone or cement mixed in suitable proportions, such mass being cast in suitable molds after having been previously moistened with a small quantity of water having a temperature of about 12° centigrade, while its surface is covered with an upper layer about one to two centimeters thick. The substance forming this top or covering layer contains besides the above-mentioned materials which are incorporated therewith, a suitable addition of iron turnings or shavings and impure sugar. This addition renders the upper surface of the stones particularly hard and ca-

pable of withstanding the action of water and liquid sewage after the same has been dried in the open air. The stones of the lower layer can likewise be provided on their surface with a similar protecting-layer. The stones *h* of the lower layer have for their object to form one of the arches of the drain-conduits, as well as to hold the upper stones in their corresponding position, and are for this purpose provided with protuberances in the longitudinal direction of the channel F. The drain-channels F are formed with a suitable inclination for water and liquid sewage. The lower stones *h* are placed over a suitable length and in regular joints in a layer of sand *r*, the stones being provided at their ends with projections P, fitting in corresponding cavities of the adjacent stones. The lower stones are joined adjacently by means of mortar or asphalt *l*. The protuberances N and O, arranged on the lower stones parallel to the drain-channel F, serve as a connection with the upper stones *a*, which are laid in rows upon a foundation of fine well-strained sand in the drain-channel F, formed of the lower stones. The upper stones *a* are of such dimensions that between each two rows of stones an interval or opening *b* is left, through which the water or liquid sewage may pass into the corresponding drain-channels F. From the channel F the water runs in a sewer G, arranged in the center of the stable or otherwise. The two abutting sides of the stones *a* are connected together by means of cement or asphalt, and thus rendered water-tight. The flat surface of the lower stones *h*, toward the drain-channels F, and the corresponding inclination of the upper stones *a*, as well as the arrangement owing to which the upper stones *a* project with their edge *y* (which is especially characteristical) somewhat beyond the walls of the channel F formed thereunder, cause the water or liquid sewage to be conveyed readily within the latter without such liquid being allowed between or above the foundations.

Suitable branches of a water-supply pipe K lead to the higher portion of the drain-channel F, and by these means the latter can be flushed whenever required.

What I claim, and desire to secure by Letters Patent of the United States, is—

1. A composition flooring for stables, public or other baths, slaughter-houses, and the like characterized by the use of drain-channels of tapering section, which are slotted at the top in a longitudinal direction, are provided laterally with projections *y* for the clean and ready drainage of the water, and are so formed by the said flooring that the latter does not slope, as hitherto practiced, in the longitudinal direction of the drain-channels, but it is inclined laterally toward each pair of drain-channels, substantially as described.

2. In composition flooring of the kind set forth, the drain-channels formed of lower stones *h*, which are provided at their upper edges with inclosed protuberances N O and with inner cavities running in a longitudinal direction, and of upper stones *a*, laid thereon and connected therewith by means of a layer of sand, the latter stones being held in place by the former, and forming in the direction of the drain-channels F of the lower stones small intervals or passages, allowing the water or liquid sewage to be readily drained off, substantially as described.

In witness whereof I have hereunto set my hand in presence of two witnesses.

JOHANN JUNGBLUTH.

Witnesses:

F. H. LAUFENHEROS,

GUSTAVE OELRICHS.