

(No Model.)

P. GRIFFIN.
PAVING STREETS.

No. 430,013.

Patented June 10, 1890.

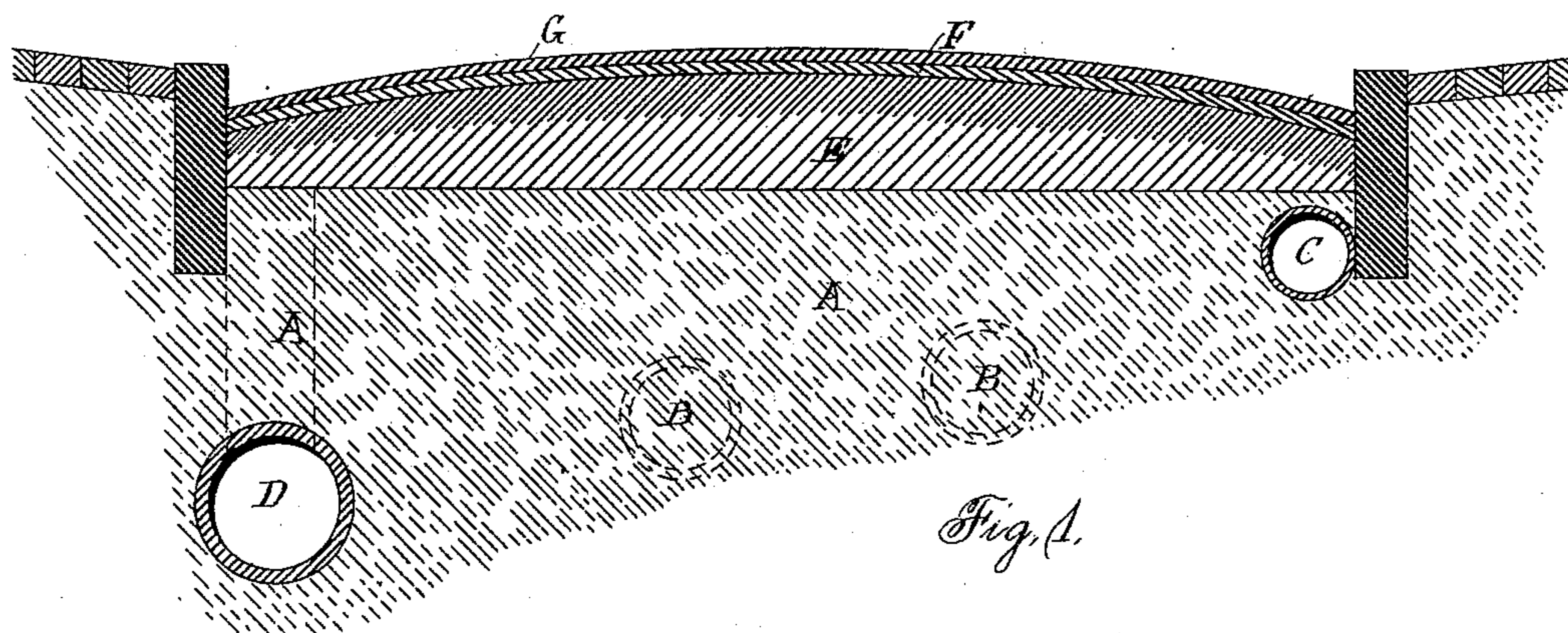


Fig. 1.

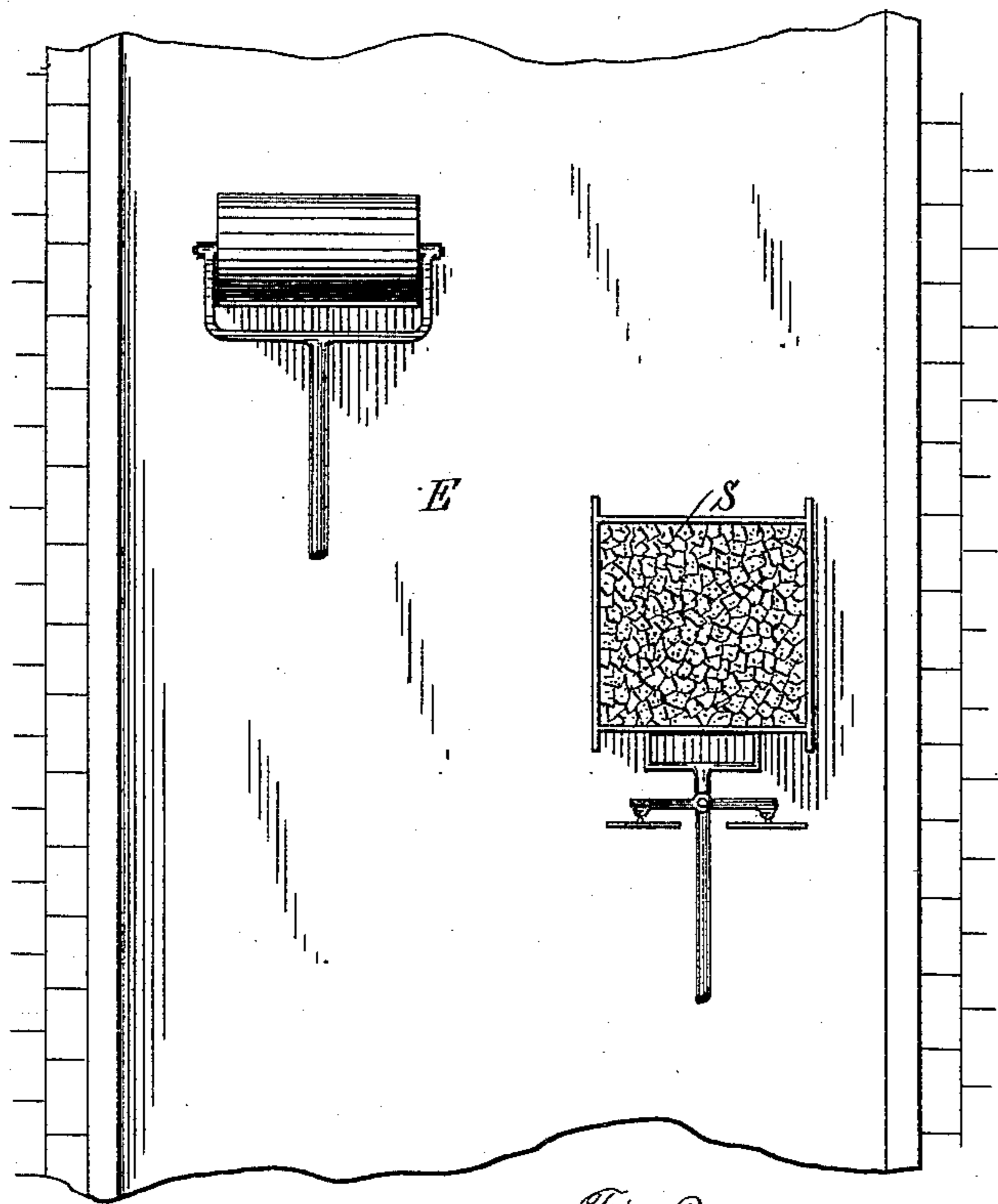


Fig. 2.

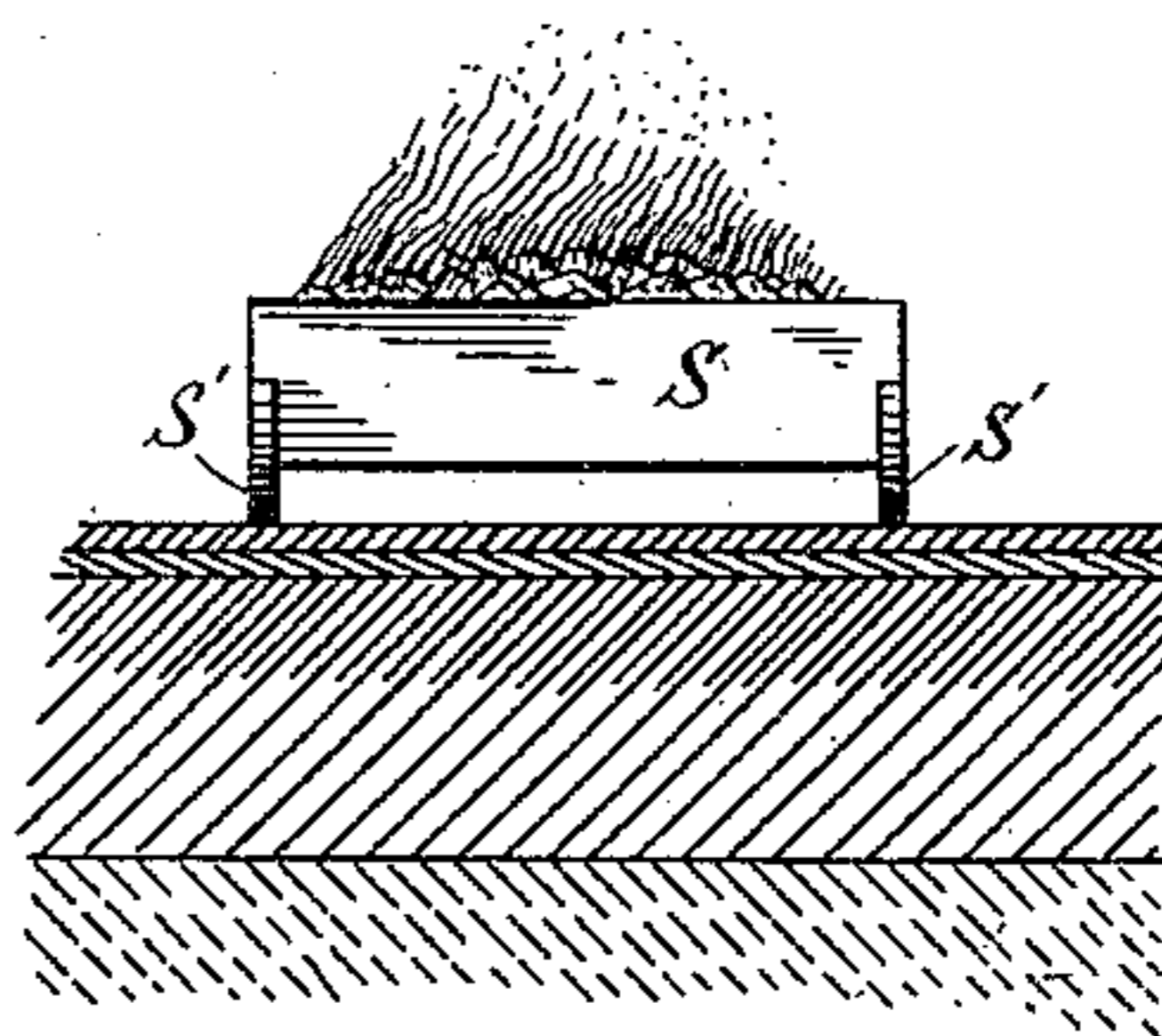


Fig. 3.

Witnesses:

J. W. Johnson.
W. M. Bartlett.

Patrick Griffin
Inventor:

By W. A. Bartlett
Attorney:

UNITED STATES PATENT OFFICE.

PATRICK GRIFFIN, OF UTICA, NEW YORK.

PAVING STREETS.

SPECIFICATION forming part of Letters Patent No. 430,013, dated June 10, 1890.

Application filed December 3, 1889. Serial No. 332,373. (No model.)

To all whom it may concern:

Be it known that I, PATRICK GRIFFIN, residing at Utica, in the county of Oneida and State of New York, have invented certain new and useful Improvements in Paving Streets, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to paving or road-construction for streets and highways.

The object of the invention is to produce a protected pavement or roadway, wherein the natural soil shall be a very prominent constituent, but which shall have many of the wearing qualities of a concrete or asphalt-covered pavement and greater elasticity than the common varieties of concrete.

To carry out my invention in constructing a roadway, I excavate or fill along the line of the road until the proposed surface-level is approximated. If filling has to be done to any considerable extent, the earth used in filling should be compacted—as by rolling or ramming—until such a compactness is had that there will be little or no subsequent settling. In cuts or where the natural surface-level is used the natural earth will answer for a foundation, if it be not boggy. Having approximated the desired level or grade, I apply to the entire surface of the roadway a body of clay or loam in convex form, the crown or center of the street being some inches higher than the sides. Where the earth *in situ* is a clay or clay-loam, it may be simply turned up and rounded, so that the crown will be higher than the sides of the road. If the soil is very largely composed of clean or sharp sand, the surface may be removed and some six or eight inches of clay or clayey soil will be substituted. At the sides of the road-bed it is desirable to have good drainage. The drainage may be effected by a gutter or by sunken tile or a sewer or other usual means of draining. The clay or earth for the roadway, if dry, should be moistened or wet to a proper consistency sufficiently to insure its packing. The rounded or convex body of clay in moistened condition is then firmly compacted by rolling, ramming, or in other suitable manner until it is extremely solid, like an artificial stone, care be-

ing observed to preserve the convexity and smoothness of the compacted clay surface. I prefer to compact the clay by rolling, and have devised a roller for the purpose, by which very great pressure may be applied, and have applied for a patent on said roller.

Having brought the clay to a state of extreme solidity, as above described, if there be a surplus of moisture the same may be removed by the artificial application of heat. Thus the surface may be rolled with hot rollers, or a pan filled with burning combustibles may be drawn over the surface, or a jet of heated air may be blown on the clay surface. The moisture in the upper layer can thus be entirely removed, and the whole surface of the clay may be brought to the consistency of a partially-burned brick. Having compacted and dried the clay, and while it is in a dry state, a wearing-surface of asphalt or other water-proof material—such as is used in concrete pavements—is applied to the compacted clay road-bed. This asphalt coating is preferably applied in two layers, each layer being of about an inch in thickness, and by preference the upper and lower layers of the concrete are separated, so that the upper layer may be removed and replaced in making repairs without disturbing the lower layer.

Referring now to the drawings, Figure 1 is a cross-sectional view intended to illustrate a roadway constructed after the manner of this invention. Fig. 2 is a plan of a short section of a roadway, showing compacting and drying apparatus. Fig. 3 is a cross-section of a part of the clay bed of the road and a drying and heating apparatus thereon.

A indicates the earth-strata in natural condition. If the soil be wet, it may be drained by any required number of under drains, as indicated at B B.

C indicates a side drain for the roadway. This may be of tile, brick, rough or broken stone, or even poles laid in a blind ditch, the object being to convey away any superfluous moisture from the compacted part of the road-bed.

D denotes the sewer, which when laid with proper relation to the roadway will obviate the necessity of a side drain. (In sandy soil, or where there is considerable slope to the

road or street, side drains or sewers are sometimes necessary.)

E represents the body of compacted clay or loam. The upper convex surface of this body of earthy matter is compacted to a condition of extreme hardness and made dry.

F indicates the lower, and G the upper, layer of "rock" or other asphalt or water-proof coating, which makes a water-proof covering to the compact clay road-bed. The layers are preferably made so that the upper one G may be removed without disturbing the lower one.

In Fig. 2, R represents a roller, and S a drying pan or kiln, resting on the clay body E of the road-bed. The drying pan or kiln may be drawn about on runners $s' s'$, with its lower heated metallic surface just above the road-bed. Numerous other devices for compacting and drying the clay bed may be used. I give these merely as examples. The asphalt covering F G is applied in the manner usual in surfacing streets. The compacted and dried clay becomes almost like brick, and will not resume its original condition even if exposed to water for a very long time. It is my object, however, to keep it perfectly dry by means of the water-proof covering. The artificial drying or burning of the clay surface *in situ*, thus forming a bed of a single brick burned or partially burned in place, is a useful step under certain conditions and with certain qualities of soil. In some cases the burning or drying may be unnecessary. The compacted and dried clay bed is in itself a good roadway, has a considerable elasticity and great strength and hardness. When pro-

tected by the water-proof covering it is practically indestructible.

What I claim is—

1. The improvement in the art of making roadways or pavements, which consists in bringing the general road surface to approximate grade, forming a convex body of clayey material thereon and compacting the same, then kiln-drying or partially burning the compacted surface by the application of heat, substantially as described.

2. The improvement in the method of building roads, which consists in grading, rounding up a clayey bed for the substructure, thoroughly compacting and drying the same, and applying water-proof wearing-surface directly to the compacted clay bed.

3. The improvement in the art of road-making, which consists in grading, rounding a clay body for a substructure, compacting the same to extreme hardness, drying the surface by the artificial application of heat, and covering the same with separate layers of water-proof material.

4. The artificial structure for roads, consisting of a compacted clay-body with convex surface, said surface being burned *in situ* into an integral brick-like substance, substantially as set forth and described.

In testimony whereof I affix my signature in presence of two witnesses.

PATRICK GRIFFIN.

Witnesses:

PHILIP MAURO,
W. A. BARTLETT.