

UNITED STATES PATENT OFFICE.

JOSEF STEINBACH, OF VIENNA, AUSTRIA-HUNGARY.

PAVING-FLAG.

SPECIFICATION forming part of Letters Patent No. 698,072, dated April 22, 1902.

Application filed October 1, 1900. Renewed September 27, 1901. Serial No. 76,804. (No model.)

To all whom it may concern:

Be it known that I, JOSEF STEINBACH, a subject of the Emperor of Austria-Hungary, and a resident of Vienna, Austria-Hungary, have
5 invented certain new and useful Improvements in Paving-Flags, of which the following is a specification.

The object of this present invention is to provide improved paving-flags for roads, foot-
10 paths, and the like.

In accordance with my invention the improved flags are formed of a layer of concrete upon which is spread a layer composed of a mixture of pulverized asphalt, sulfur,
15 lime, iron oxid, and granulated porphyry or any other kind of hard homogeneous stone, said second layer forming a solid inseparable mass with the layer of concrete.

Experiments have shown that the so-called
20 "noiseless" pavements made of rolled asphalt or asphalt flags present numerous defects, due chiefly to the fact that the layer of asphalt is not firmly connected with the lower supporting layer of concrete. These objec-
25 tions are partially overcome by employing flags composed of a layer of concrete and a layer of asphalt. Pavements, however, made with such flags present the defect that they become very slippery when it rains and are
30 quickly worn out. The pavement made by means of my improved flags is not so quickly worn out, since porphyry or other hard homogeneous stone is very resisting and can, furthermore, be yieldingly embedded in the as-
35 phalt. The addition of cork-meal results in a very tough flag, while the mixture sets quickly when sulfur and iron oxid are added thereto. When the pavement has been in use for a certain time, the upper surface thereof
40 becomes rough, since the upper parts of the asphalt mixture are sooner worn out than the hard embedded stone mass. Afterward the wearing of the asphalt is lessened by the projecting stone grains. Another advantage of
45 the invention is that the flags may be made as hard as desired.

The process of manufacturing the improved flags is as follows: Natural asphalt-meal is mixed in a cold state with finely-di-

vided sulfur, iron oxid, cork-meal, and granu- 50
lated porphyry or any similar hard stone. This mixture is slowly heated in a suitable receptacle to a temperature of 140° Celsius, care being taken to continually stir the ma-
terials. Then the heated mixture is main- 55
tained for a certain time at a temperature of 120° and poured into suitable molds containing a layer of concrete still moist. Then the flag is submitted to a strong pressure, which determines the degree of hardness of the flag. 60

Experiments have proved that a perfect product is obtained when the materials are employed in about the following proportions: first, one thousand kilograms asphalt-meal; second, fifteen to twenty kilograms sulfur; 65
third, one hundred and fifty kilograms porphyry or any similar stone; fourth, five kilograms cork-meal; fifth, ten kilograms iron oxid. Four and five, or one of these materials, may be omitted without affecting the final 70
product. The flags thus produced and which have, for instance, for cart-roads a total thickness of from six to seven centimeters, the layer of porphyry, cork, and asphalt being from two to three centimeters thick, are 75
laid upon the dry bed of concrete on the road with ordinary hydraulic lime, the joints between the flags being closed by means of hot asphalt-powder. For foot-pavements I preferably employ flags of a thickness of four to 80
five centimeters, the layer of porphyry, cork, and asphalt being one and one-half to two centimeters thick. For these pavements the flags may be directly placed upon well-rammed ground. 85

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

1. Paving-flags, composed of a layer of concrete firmly connected by means of a strong 90
pressure with an upper layer formed of a mixture of natural asphalt-meal, sulfur, cork-meal, iron oxid and granulated porphyry or any other kind of hard homogeneous stone, substantially as set forth. 95

2. The process of making the improved paving-flags, which consists in mixing natural asphalt-meal in a cold state with finely-

divided sulfur, cork-meal iron oxid and granu-
lated porphyry or other similar stone, heat-
ing the mixture to a temperature of 140° Cel-
sius, maintaining the mixture at a tempera-
5 ture of 120° Celsius, then pouring the mate-
rial into suitable molds containing a layer of
moistened concrete, and finally submitting
the molded flags to a strong pressure, the

above materials being employed in about the
proportions stated, substantially as set forth. 10

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

JOSEF STEINBACH.

Witnesses:

ALVESTO S. HOGUE,
J. E. GILLON.