

No. 720,088.

PATENTED FEB. 10, 1903.

A. WADDELL.
METHOD OF BRIQUETING COAL.

APPLICATION FILED MAY 17, 1902.

NO MODEL.

Fig. 2.

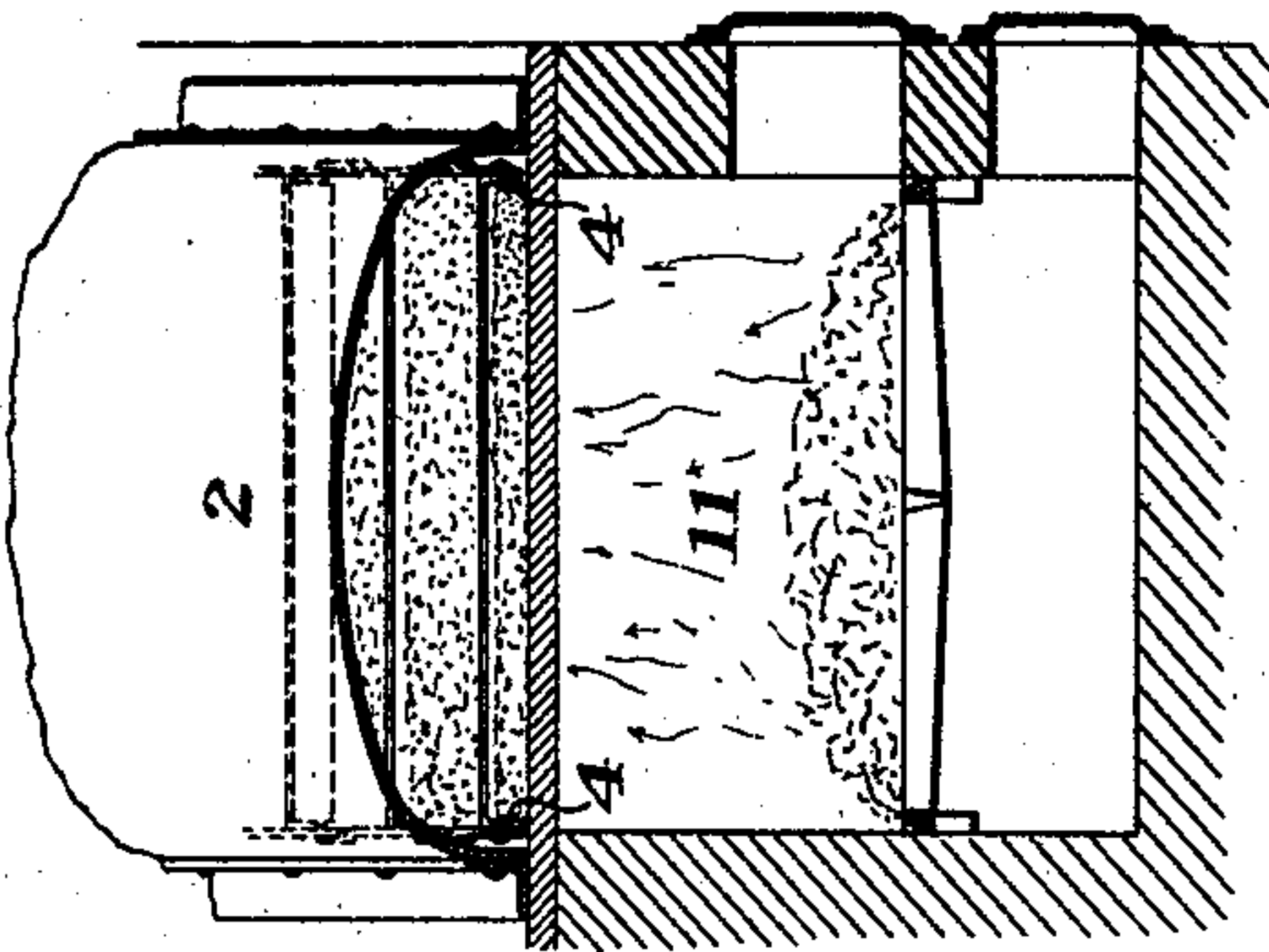
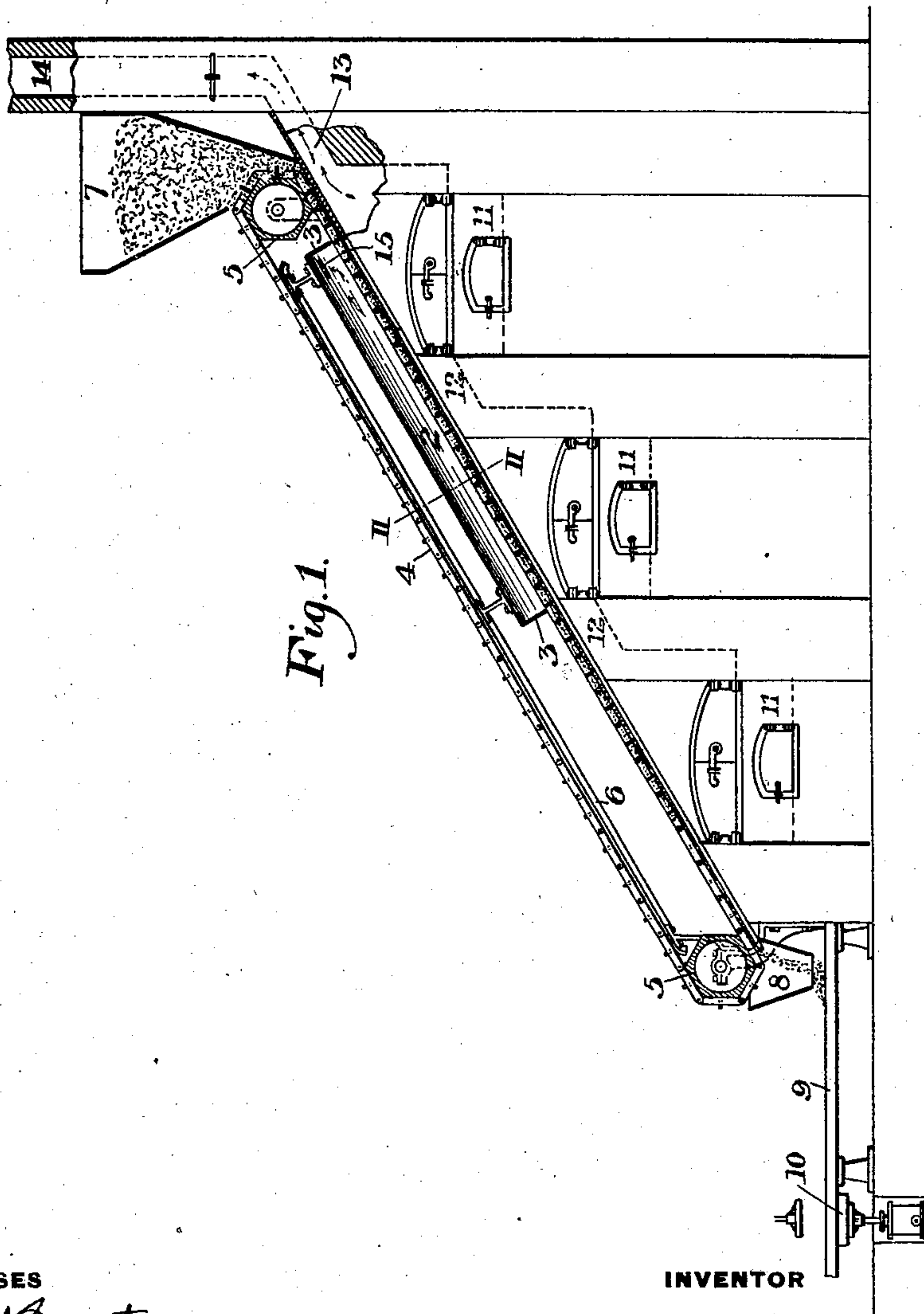


Fig. 1.



WITNESSES

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ALEXANDER WADDELL, OF PITTSBURG, PENNSYLVANIA.

METHOD OF BRIQUETTING COAL.

SPECIFICATION forming part of Letters Patent No. 720,088, dated February 10, 1903.

Application filed May 17, 1902. Serial No. 107,761. (No model.)

To all whom it may concern:

Be it known that I, ALEXANDER WADDELL, of Pittsburg, Allegheny county, Pennsylvania, have invented a new and useful Method of Briquetting Coal, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side elevation, partly broken away, showing one form of apparatus for carrying out my invention. Fig. 2 is a vertical section on the line II II of Fig. 1.

My invention relates to the briquetting of fine coal in order to provide a cheap fuel of high calorific value which will burn with little or no smoke; and it consists in a new and improved method whereby such briquets may be easily and cheaply made, while a dense smokeless briquet or block freed of the lighter gases of the coal is obtained.

In carrying out my invention with the apparatus shown in the drawings I provide an inclined retort 2, having closed ends 3 3, with lower slots or openings to receive a conveyer-chain 4, which moves over the floor of the retort in the lower portion of its path. This chain may be formed in any desirable manner, and preferably consists of two sprocket-chains with scrapers connecting the links. It moves over the end sprocket-wheels 5 5, one located above the upper end of the retort and the other below the lower end. In the upper part of its travel the chain may be supported upon suitable longitudinal tracks 6. Above the upper sprocket-wheel is mounted a feed-hopper 7, having an opening in its lower end to receive the feeding-chain. Below the lower end of the retort the chain moves over an inclined bed, which constitutes an extension of the retort-floor, and at the lower end of this bed the partially-coked material is directed into a chute 8, through which it may drop upon a conveyer 9, leading to a briquetting-press 10. The retort-floor and the inclined-bed extension form the roof of fire-chambers 11, of which I have shown three, though any desirable number may be used. These may connect with each other through flues 12, and a stack-flue 13 leads from the uppermost chamber into the stack 14.

In carrying out my method I feed into the upper hopper coal slack or pulverized coal,

preferably mixed with a small amount of lime, sal-soda, and resinous matter. I may vary the ingredients according to the quality of the coal and the kind of briquets desired. I do not wish to limit myself to these particular ingredients, though I prefer to use them. The retort and inclined bed having been heated, the feeding-chain is set in motion and moves continuously at a slow speed, carrying the mixture downwardly through the retort. As the mixture passes through the retort the lighter and more volatile gases or constituents thereof are freed from the coal and may pass off through an upper outlet 15 to a reservoir or other desirable point. The coal is thus partially but not wholly coked as it passes through the retort. The partially-coked mixture is fed to the briquetting-machine and is there pressed into blocks of any desirable shape, and these blocks are preferably formed with transverse holes extending through them in order to improve the combustion of the blocks when burned. The blocks are taken from the briquetting-machine and preferably dipped into treacle or syrup or syrupy substance and are then dried, when they are ready for use. This syrup is preferably of a carbonaceous nature and is used principally to enable the block to be lighted and also to give it a clean surface, which prevents soiling of the hands.

The advantages of my invention result from the simplicity of the method by which a high-grade block fuel is obtained. The blocks may be easily ignited, will burn with little or no smoke, and give an intense heat.

Many variations may be made in the form and arrangement of the apparatus, as well as in the ingredients of the mixture, without departing from my invention.

I claim—

1. The method of briquetting fine coal, consisting in mixing fine coal with an alkaline substance, partially coking the mixture, allowing the volatile gases to escape during the partial coking, and then compressing the partially-coked mixture in blocks; substantially as described.

2. The method of briquetting fine coal, consisting in mixing the same with lime, partially coking the mixture, allowing escape of the volatile gases during the coking operation, and then compressing the partially-coked

mixture into blocks; substantially as described.

3. The method of briquetting fine coal, consisting in mixing the same with alkaline substance, continuously feeding the mixture through a heated retort, partially coking the same therein and allowing the volatile gases to escape, and then compressing the partially-coked mixture into blocks; substantially as described.

4. As a new article of manufacture, a compressed block of partially-coked coal free from the volatile gases, and containing lime; substantially as described.

5. As a new article of manufacture, a bri-

quet having recesses or holes, said briquet containing partially-coked coal free from the volatile gases and mixed with lime; substantially as described.

6. As a new article of manufacture, a briquet containing partially-coked coal free from the lighter gases and mixed with lime, said block having a coating of a resinous or carbonaceous nature; substantially as described.

In testimony whereof I have hereunto set my hand.

ALEXANDER WADDELL.

Witnesses:

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JOHN MILLER.