

W. H. CORY & E. CORY.

Improvement in Apparatus for Preparing Artificial Fuel.
No. 132,751.

Fig. 1. Patented Nov. 5, 1872.

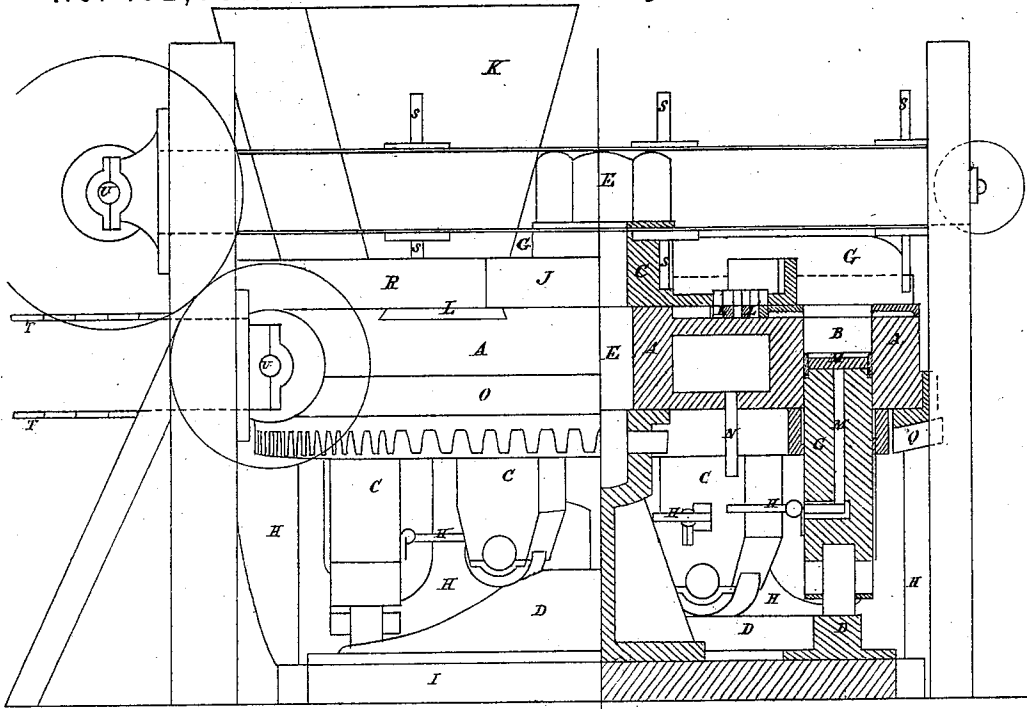
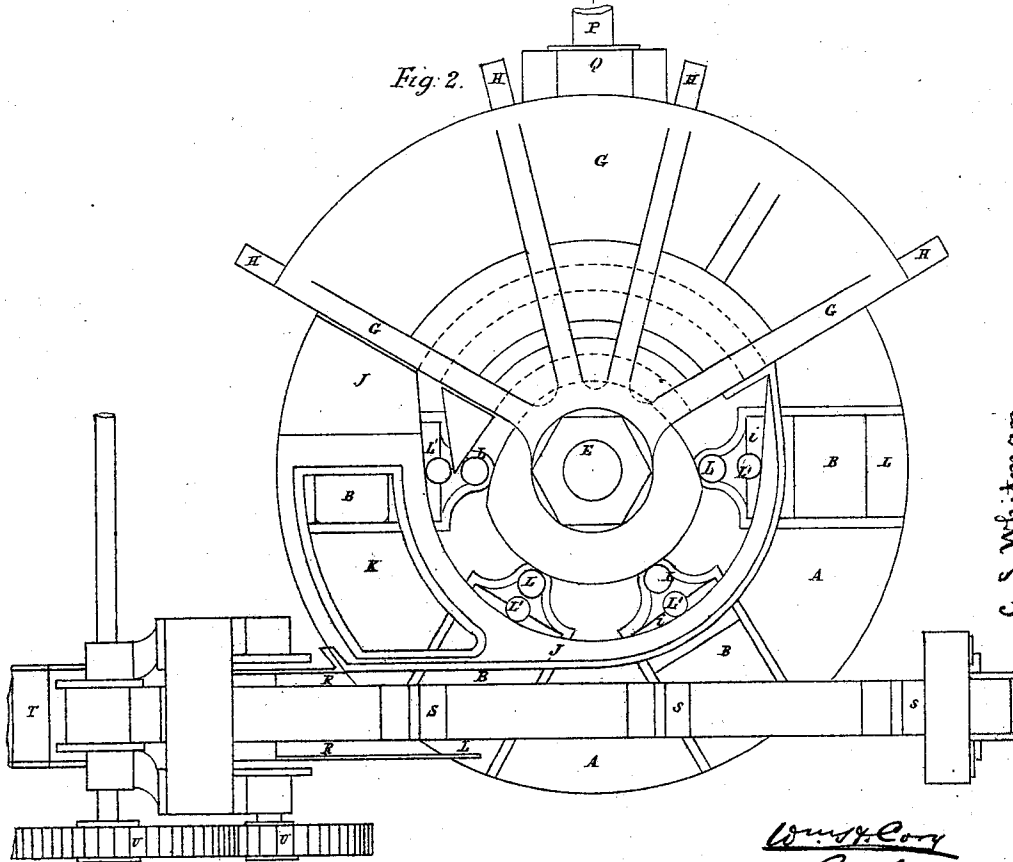


Fig. 2.



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Fig. 3

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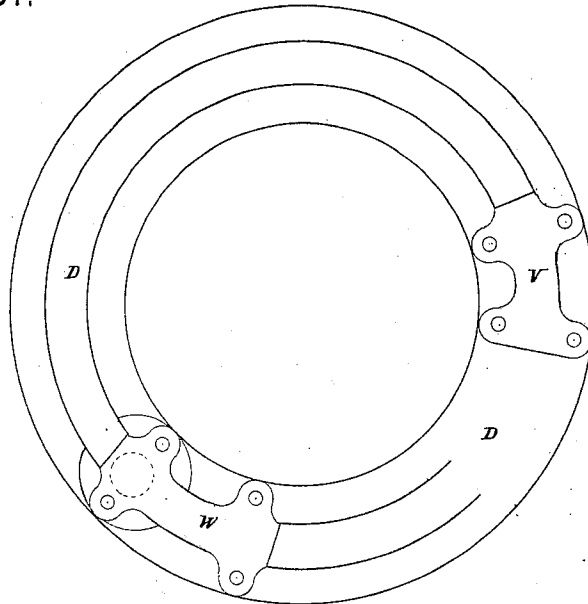


Fig. 4

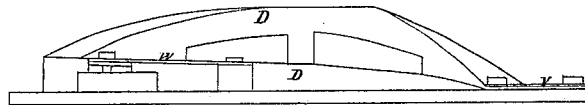


Fig. 5.

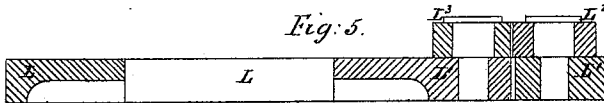


Fig. 7

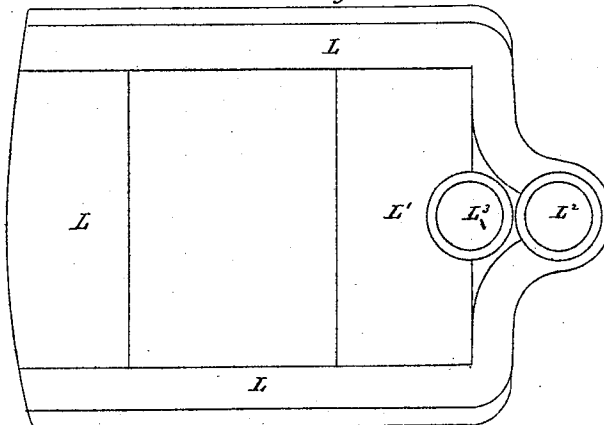
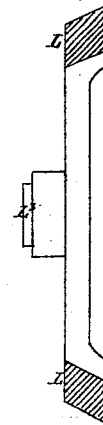


Fig. 6



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UNITED STATES PATENT OFFICE.

WILLIAM HENRY CORY AND EDWARD CORY, OF NOTTING HILL, ENGLAND.

IMPROVEMENT IN APPARATUS FOR PREPARING ARTIFICIAL FUEL.

Specification forming part of Letters Patent No. 132,751, dated November 5, 1872.

To all whom it may concern:

Be it known that we, WILLIAM HENRY CORY and EDWARD CORY, both of Notting Hill, in the county of Middlesex, England, have invented "An Improved Method of Preparing Blocks of Fuel;" and do hereby declare that the following description, taken in connection with the accompanying sheet of drawing hereinafter referred to, forms a full and exact specification of the same, wherein we have set forth the nature and principles of our said improvement, by which our invention may be distinguished from others of a similar class, together with such parts as we claim and desire to secure by Letters Patent, that is to say—

This invention relates to a method of compounding and agglomerating small coal, coal-dust, or other carbonaceous matter into blocks of fuel by mixing the matter to be agglomerated with certain ingredients which cause it to cohere and subjecting the mixture to compression in suitable molds, which are arranged and worked in connection with mechanism for their supply and discharge. For this purpose the matter to be agglomerated is mixed with plastic cement, such as Portland, Roman, or Pozzolana cement, or with fire-clay, or other strong plastic clay, and a solution of silicate of soda or silicate of potash. The proportions of the ingredients may be varied, but we find that from two to four parts by weight of silicate of soda or of potash in solution of a specific gravity about 1.3 with four to five parts of the cementitious ingredients, are sufficient for one hundred parts by weight of the carbonaceous matter. The materials having been mixed in a pug-mill or other mixing-machine of known construction, are fed into the hopper of the machine for compressing and molding, which we will now describe, referring to the accompanying drawing.

Figure 1 represents partly a vertical section and partly a side elevation of the machine; Fig. 2 represents a plan of the same; and Figs. 3, 4, 5, 6, and 7 various parts of the machine, which will be referred to more particularly in the course of the description.

The machine consists of a base, I, and a cover, G, connected firmly together by a ribbed framing, H. In the center of the base is a standard, F, from which projects a bolt, E, forming an axis for a circular revolving-table,

A, which is held down by the nut in the axis E. The circular table A has attached to it bevel-gearing O, and a shaft, P, mounted in a bearing, Q, has a bevel-pinion which gears into the teeth O. This shaft, P, being caused to revolve by any suitable power, gives rotation to the table A in the direction of the arrow. The revolving table A has in it several cavities, B, with rounded corners, which, with their covers and bottoms, presently to be described, constitute molds for the fuel-blocks. One of the covers of these molds is shown in longitudinal section in Fig. 5, in transverse section in Fig. 6, and in plan in Fig. 7. It consists of two parts, L and L¹, fitted to slide in the table to or from the center thereof. On each of those parts is mounted a roller, L², and L³, which projects into a cam-shaped groove formed in the cover G, this cam-shaped groove being so formed that during one part of the revolution of the table A the two slides L L¹ are kept apart, as shown in Fig. 7, so as to open the top of the mold to which they belong, and during another part of the revolution they are closed together so as to form a cover for the mold. It will be observed that these covers are recessed on the under side, the sides and ends of the recesses being rounded, so that when they cover the mold the block within it has its upper edges rounded off. The bottom of each mold is a plunger, C, having a projecting edge with rounded angles; at its lower end a roller. This roller runs upon an inclined or helical tram-way, D, of which a plan is shown in Fig. 3, and a side view in Fig. 4. The plungers C with their rollers being carried round by the rotation of the table A, the rollers in traveling along the tram-way D during one part of the revolution raise the plungers C upward and during another part of the revolution allow them to descend. Within the projecting edge of the plunger C is a false bottom or inner plunger, M, which rests on a rod, N, worked by a lever, so that when the plungers C are at the upper extreme of their stroke, as determined by the position of their rollers on the incline D, the inner plungers M lift the block formed in the mold above the level of the upper face of the table A. It will be seen in Fig. 2 that the cover G is of such a form as to leave part of the table A exposed, and that at one side of

this exposed part it takes the form of a guide, J. It also supports the hopper K, (shown in sectional plan in Fig. 2,) into which the mixture to be agglomerated is fed. By the rotation of the table A the molds B are brought successively under the mouth of the hopper K, the covers L L¹ being then withdrawn so as to leave the mouths of the molds open, and the plungers C, which form the bottoms of the molds, being down. The molds, charged with the mixture from the hopper, then pass under the cover G. Their covers L L¹ are then closed, and their bottoms are gradually raised by the movement of their rollers along the incline D, so that the contents of the molds are compressed when the molds reach the uncovered part of their revolution, their covers L L¹ are withdrawn, and their bottom plungers, still rising, lift the molded blocks out of the molds, so that by the continued rotation of the table they are carried along the guide J. From this part of the machine the blocks may be removed by hand, but it is more convenient to remove them by apparatus, which we will now describe. The guide J leads to a straight chute, R, leading to an endless band, T, which may be carried along the stacking-ground whereon the blocks are stacked to harden and season. The blocks are transferred from J to T by means of wipers S, fixed on an endless traveling-band above the machine. The traveling-bands S and F are driven by the gearing and shaft U. The quantity of material fed into each mold determines the amount of compression to which it is subjected. This quantity can be

adjusted by making the lowest part of the incline at V a movable plate, which can be raised or lowered by adjusting-screws. This plate being raised, the molds, when presented to the hopper, have less depth, and consequently receive a smaller supply of the mixture. Also, that part of the incline D which gives the final pressure by raising the bottom plungers of the molds just before they are uncovered, may be a plate, W, supported on powerful springs, which yield when the pressure exceeds such an amount as may be desired.

Having thus described the nature of our invention, and the best means with which we are acquainted of carrying it into practice, we claim—

1. The cover of the mold, consisting of two parts, L and L¹, on each of which is mounted the rollers L² L³, as and for the purposes described.

2. In combination with the rollers L² L³ mounted on the cover of the mold, the cover G provided with a cam-shaped groove, as and for the purposes described.

3. The inner plunger M, resting on a rod, N, and operated by a lever, in combination with the plunger C, as and for the purposes described.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

WM. H. CORY.
EDWD. CORY.

Witnesses:

JOHN INNAY,
JNO. P. M. MILLARD.