E. F. LOISEAU.

Apparatus for Mixing and Molding Artificial Fuel.

No. 147,665. Patented Feb. 17, 1874.

Fig. 1.

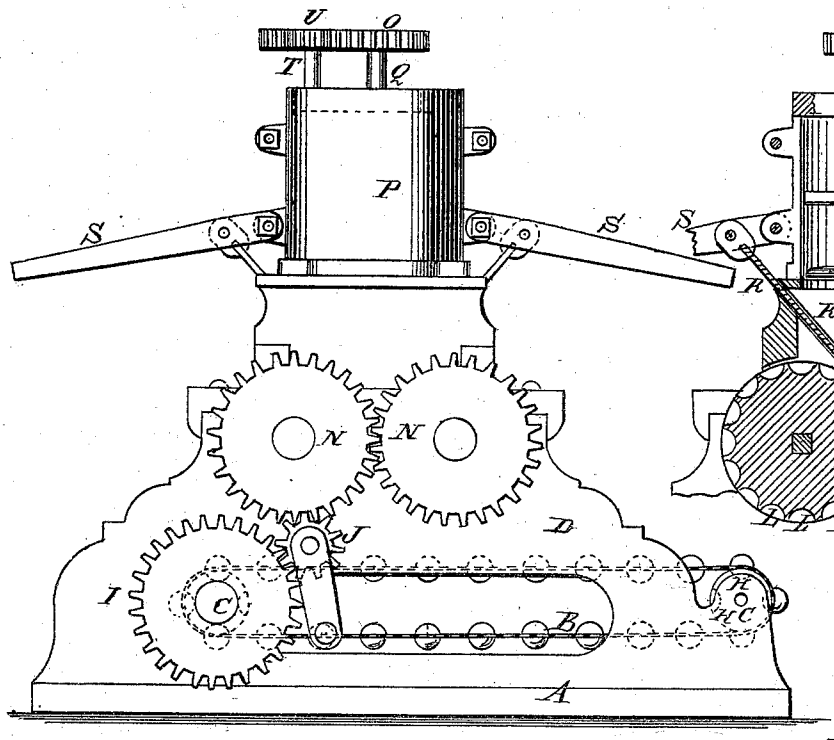


Fig. 2.

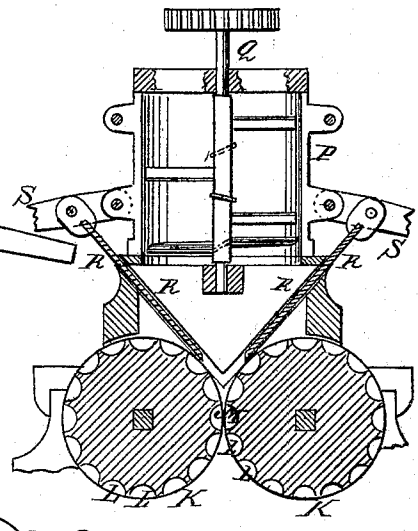


Fig. 4.

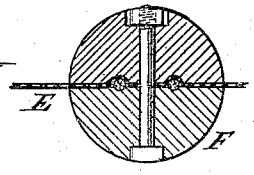


Fig. 3.

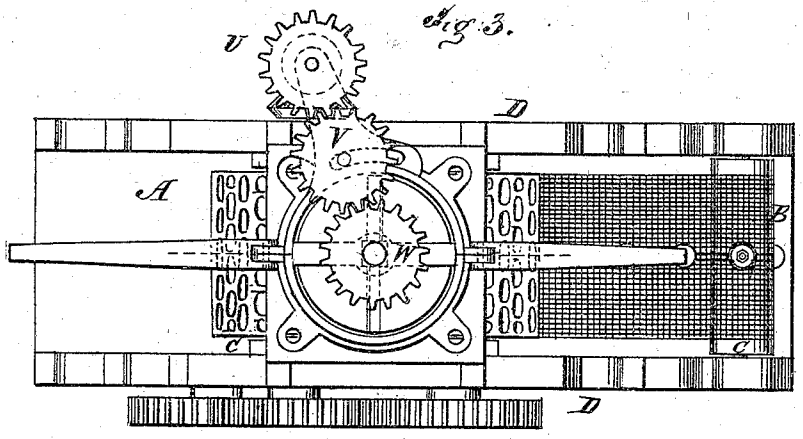
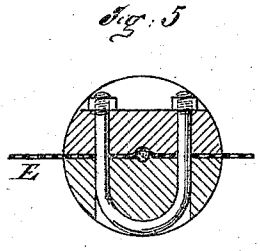


Fig. 5



Witnesses:

E. Wolff.

Alex F. Roberts

Inventor:

E. F. Loiseau

Per

Attorneys.

UNITED STATES PATENT OFFICE.

EMILE F. LOISEAU, OF MAUCH CHUNK, PENNSYLVANIA.

IMPROVEMENT IN APPARATUS FOR MIXING AND MOLDING ARTIFICIAL FUEL.

Specification forming part of Letters Patent No. **147,665**, dated February 17, 1874; application filed September 20, 1873.

To all whom it may concern:

Be it known that I, EMILE F. LOISEAU, of Mauch Chunk, in the county of Carbon and State of Pennsylvania, have invented a new and useful Improvement in Machine for Mixing and Pressing Coal-Dust in the Manufacture of Artificial Fuel, of which the following is a specification:

The invention will first be fully described, and then pointed out in the claims.

In the accompanying drawing, Figure 1 represents a side elevation. Fig. 2 is a vertical section of Fig. 1, taken on the line *x x*. Fig. 3 is a top or plan view of the machine. Figs. 4 and 5 are details, showing the manner of constructing the revolving apron.

Similar letters of reference indicate corresponding parts.

A is the bed of the machine. B is an endless belt, which revolves over the rollers or drums C C. These rollers are supported on central journals in the sides D D of the machine. The belt is made of wire-cloth or other suitable material, strengthened by one or more ropes, E, of wire or other suitable material, and weighted by a series of iron balls or spheres, F, each consisting of two halves or hemispheres fastened together by a bolt, either a straight bolt, as seen in Fig. 4, or a U-shaped bolt, as seen in Fig. 5. The former bolt is used when the ball has two ropes passing through it for giving increased strength. The latter or U-shaped bolt is employed when but a single rope is employed; but any other suitable means may be employed for fastening the halves together and keeping them in place. The belt is confined between the hemispheres, as seen in the drawing, and the heads or ends and nuts of the bolts are sunken in recesses in the balls, so as to form no obstruction as the belt revolves. In the surface or periphery of the rollers C C, over which the belt runs, is made a series of cavities or recesses, H, with which the balls engage, so as to act as cogs to prevent the belt from slipping or to propel the same. I is a gear-wheel on the outer end of one of the rollers C, which receives motion from the driving-wheel J, to which wheel the motive power is applied to drive the machine. K K are the mold and pressing cylinders, so arranged that the outer surfaces run in contact with each other. These surfaces are provided with a series of cavities or recesses, L, which, as the cylinders revolve, register with each other and form chambers M, of oval or other form. These chambers extend in close proximity the length of the cylinders in regular rows, and the prepared coal-dust is received and compressed therein and delivered onto the revolving belt beneath. The compressing-cylinders are revolved by means of the gear-wheels N N, which receive motion from the aforesaid driving-wheel J. These gear-wheels are of uniform size or duplicates of each other and mesh together, so that the compressing-cylinders revolve with a uniform motion in opposite directions. O is the mixing or pug mill, consisting of an outer casing, P, and a central vertical shaft, Q, which latter is provided with a series of horizontal knives, which are made adjustable to any desired angle.

The coal-dust is combined with clay and lime-water in suitable proportions, or with any other substance or substances to secure a proper degree of adhesiveness, and is introduced into the pug-mill in a plastic state, and is delivered to the compressing-cylinders in a broad sheet, where it is divided and pressed into blocks or lumps convenient for use, and delivered onto the apron and conveyed away to be dried and further prepared for use. The thickness of the plastic sheet is regulated by the inclined slides R R, which form together a kind of hopper above the cylinder. These slides are operated by means of the lever S S.

The pug-mill is driven by means of gearing actuated by a miter-pinion on the end of the driving-wheel shaft, which pinion revolves a vertical shaft, T, upon the upper end of which is a spur-wheel, U. V is a changeable intermediate spur-gear, which engages with the wheel U, and also with the spur-wheel W on the shaft Q of the pug-mill. The shaft of this wheel V works in an oblique slot, so that a larger or smaller wheel may be substituted therefor, for increasing or diminishing the speed of the mill.

The mixing and pressing performed by means of this machine is the first operation in the process of preparing artificial fuel from coal-dust, and thereby utilizing the waste products of coal-mines and coal-yards.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination of the mixing-mill, the subjacent compressing-rolls, and the intermediate adjustable hopper that conducts the fuel from the pug-mill and delivers it between the rolls, to form a mill for preparing artificial fuel, as described.

2. The hopper having two inclined sides, R R, each adjustable, and thus enabling the feed and the graduation thereof to be made by the same means, as set forth.

3. The combination of the slides R R and the levers S S, the former pivoted to the latter, and the latter pivoted to the mixing-mill, in the manner described.

EMILE F. LOISEAU.

Witnesses:
T. B. MOSHER,
ALEX. F. ROBERTS.