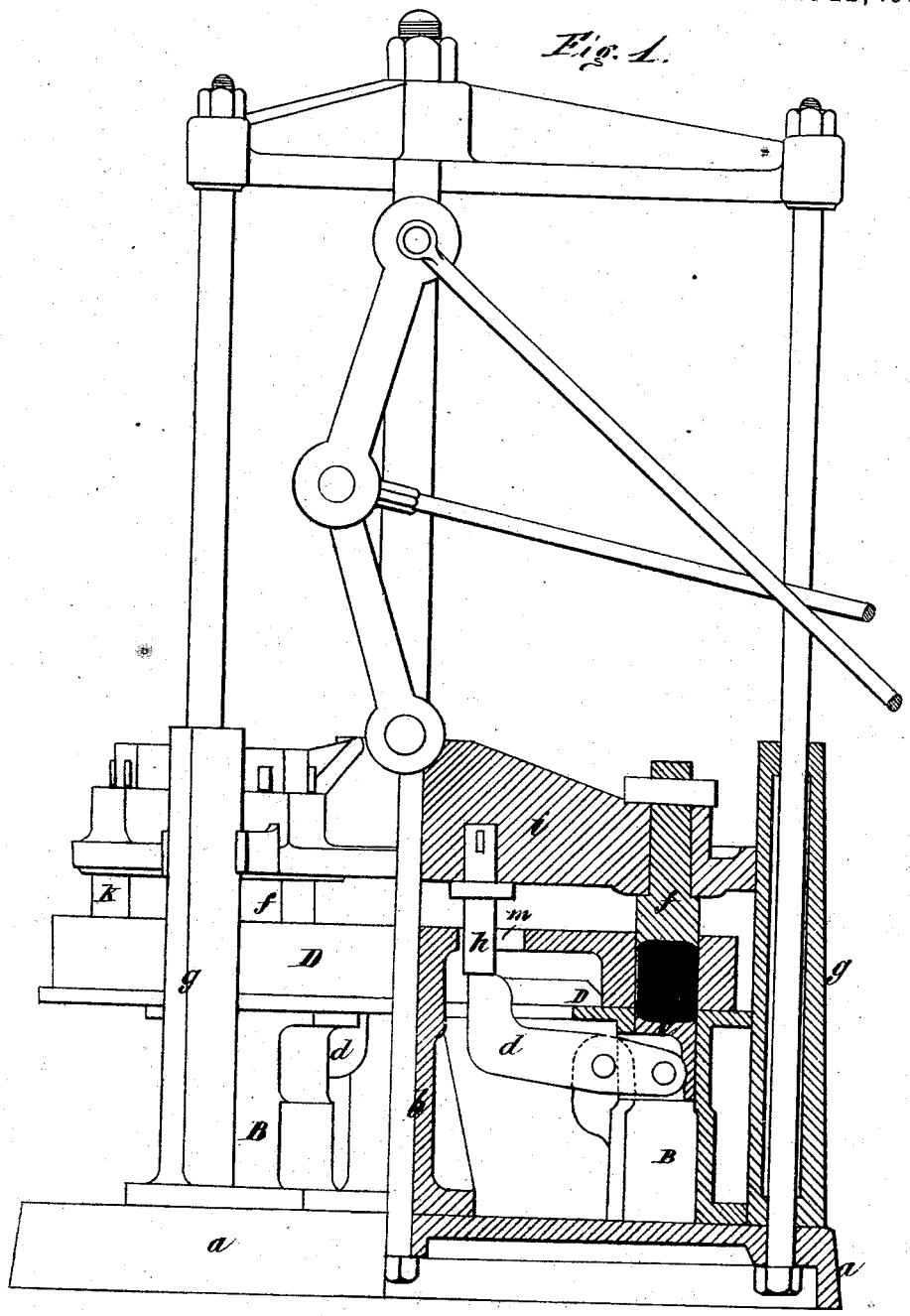
3 Sheets--Sheet 1.

F. J. HAMEL.

Machinery for Compression or Consolidation of Blocks of Fuel or other Material.

No. 164,834. Patented June 22, 1875.

Fig. 1.



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Inventor:
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Fig: 2.

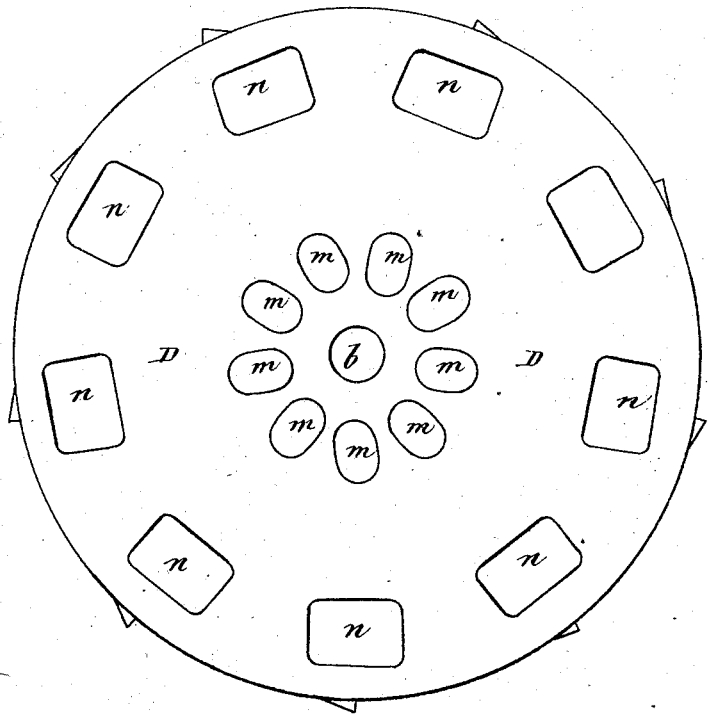
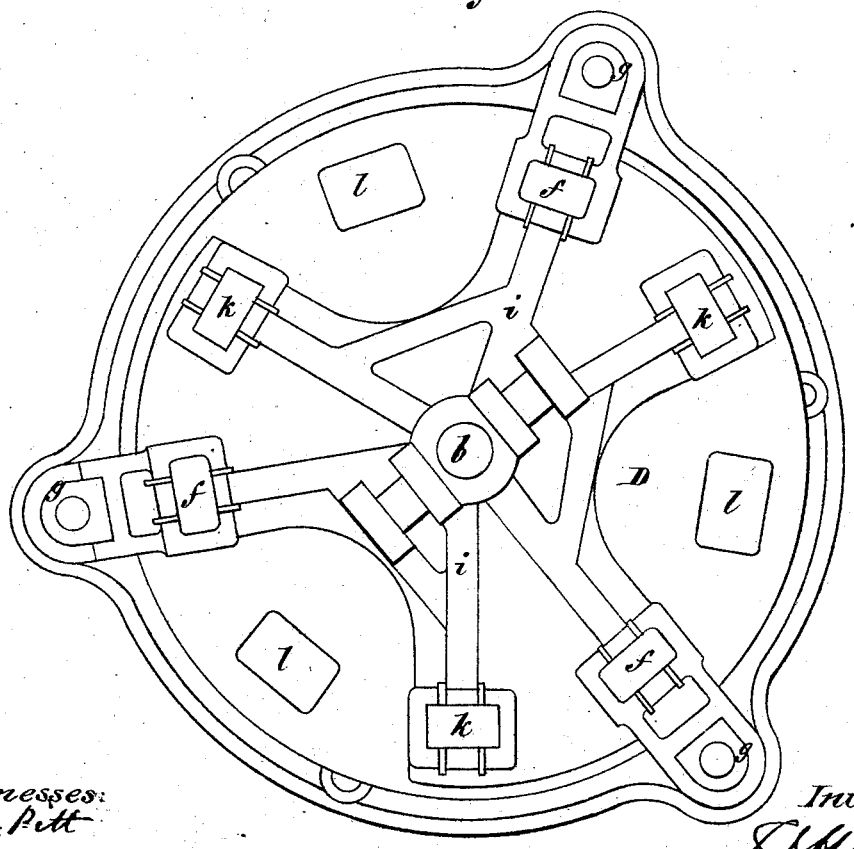


Fig: 3.



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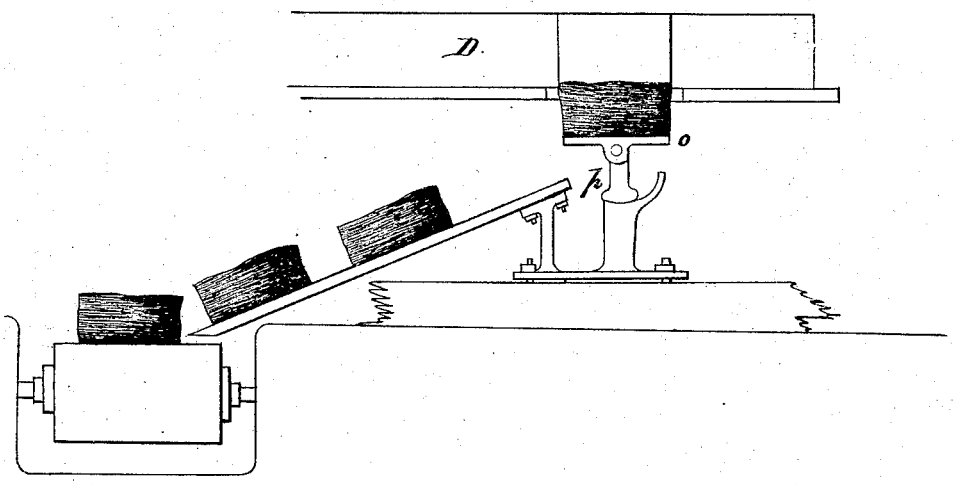
3 Sheets--Sheet 3.

F. J. HAMEL.

Machinery for Compression or Consolidation of Blocks of Fuel or other Material.

No. 164,834. Patented June 22, 1875.

Fig: 4.



Witnesses:

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Inventor:

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UNITED STATES PATENT OFFICE.

FELIX JOHN HAMEL, OF LONDON, ENGLAND.

IMPROVEMENT IN MACHINERY FOR COMPRESSION OR CONSOLIDATION OF BLOCKS OF FUEL OR OTHER MATERIAL.

Specification forming part of Letters Patent No. **164,834**, dated June 22, 1875; application filed May 29, 1873.

To all whom it may concern:

Be it known that I, FELIX JOHN HAMEL, of 78 Avenue Road, Regent's Park, London, in the county of Middlesex, England, a subject of the Queen of Great Britain, have invented or discovered new and useful Improvements in Machinery for the Compression or Consolidation of Blocks of Fuel or other Material; and I, the said FELIX JOHN HAMEL, do hereby declare the nature of the said invention, and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement thereof—that is to say—

This invention has for its object improvements in machinery for the compression or consolidation of blocks of fuel or other material. The plan is to have a horizontal circular rotating table containing molding-cavities perforated completely through, to the number of 6, 9, 12, or any multiple of three, with one bed to every three cavities. The beds are equidistant from each other under the table, so that as the table revolves each cavity will, in succession, come over a bed. There is, also, one upper or descending plunger or die to every three cavities exactly over the bed, above or in which is also placed a lower or rising plunger, raised by a lever acted upon simultaneously with the descent of the upper plunger by a descending plug passing through a hole in the table, so that when a cavity charged with materials for compression comes over the bed the descending plunger may descend into the cavity, and squeeze or consolidate the material into a block between it and the rising plunger. Likewise there is one expeller to every three cavities, working simultaneously with the descending plunger, and entering the next cavity to expel the block carried by the motion of the table from the place of compression, so that simultaneously with the compression of each block its predecessor will be expelled, and ready to be carried away. Thus two, three, or more blocks are made at the same time. The beds may be fixed surfaces beneath the rotating table without rising plungers, if preferred.

In order that my said invention may be most fully understood and readily carried into effect, I will proceed to describe the drawings hereunto annexed.

Figure 1 is an elevation, showing a quarter-section of the machine.

a is a bed-plate, from the center of which the post *b* rises. D is a table, which is able to turn around the post *b;* and it is rotated step by step. A plan of the table D is shown at Fig. 2. *n n n n n n n n n* are molding-cavities in the table. B is one of the beds, upon or in which is a lower or rising plunger or die, between which and an upper or descending plunger or die the fuel or other similar material is compressed in one of the molding-cavities, the lower or rising plunger being actuated by a lever, *d*. *i* is a strong iron frame, which is controlled by the guides *g*, and moves up and down upon the post *b* by the action of toggle-levers or other suitable machinery, worked by steam or other motive power. The casting *i*, with the table D beneath it, is shown in plan at Fig. 3. It carries three upper or descending plungers, *f f f*, and three expellers, *k k k*, and three plugs, *h*. (Not shown in Fig. 3; but one of which, *h*, is shown in the quarter-section, Fig. 1.) The expellers are similar to the plungers, except that they are longer, so as to pass completely through the molding-cavities; and each plug is also longer, so as to pass through the holes *m*, Fig. 2, and operate upon the lever *d*, which raises the lower or rising plunger *e*. Above each of the places where the three molding-cavities are shown uncovered *l l l*, in Fig. 3, is a feeder from a hopper above. (Not shown in the drawing, but the position of which is over each of the three cavities *l l l*.)

Each motion of the table places three of the molding-cavities beneath the feeders, and the fuel descends from the hoppers into them. The next motion of the table places the filled cavities under the plungers *f f f*, and in their passage any superfluous portion of the material is swept off the cavities by the lower edge of the feeder, or a scraper, as they each pass beneath, leaving the material in the cavity level with the surface of the table. At the same time that the upper or descending plungers *f*

f f descend the lower or rising plungers *e e e* ascend to meet them by the action of the plugs *h* upon the levers *d*. The double action of the descending and rising plungers causes the fuel to be pressed between them more regularly than with fixed beds below; the use of which, however, for simplicity or other reason, is optional. At the same time that the three plungers descend the three expellers *k k k* expel from their cavities in the table the three blocks which were molded at the previous stroke of the machine, and they fall upon endless bands worked by drums, or running on rollers, or both, but not shown in the drawings, which bands conduct the blocks away or upon small hinged tablets *o* riding upon a spring or lever, *p*, equal only in resistance to a smaller weight than the block of fuel, tipping it up in its descent, so as to slide the block onto a smooth inclined plane, down which it may slide to the endless band, to be carried away; the chief object of this being to guard against injury to the newly-made block in its fall from the molding-cavity when expelled, and to facilitate its removal, as shown in Fig. 4.

Having thus described the nature of my said invention, and the manner of performing the same, I would have it understood that I claim—

1. The combination of the table rotated step by step, and provided with a series of molding-cavities, beds arranged beneath the table, the frame, moving up and down above the table, and controlled by guides, the series of descending plungers carried by said frame, and the series of expellers likewise carried by the frame, these members being constructed and operating as set forth, whereby the fuel supplied to each mold is successively compressed therein and expelled therefrom, while in different molds the operations of compressing and expelling are carried on simultaneously, and a block discharged by each expeller at every descent of the plunger and expeller-frame.

2. The combination of the table, rotated step by step, and provided with a series of molding-cavities, beds arranged beneath the table, a series of rising plungers provided with levers, the frame moving up and down above the table, the series of descending plungers carried by the frame, and the series of plugs, also carried by the frame, operating upon the levers of the rising plungers through holes in the table, these members being constructed and operating substantially as set forth.

3. The combination of the table provided with molding-cavities, the expellers, working in said cavities to expel the blocks, and the hinged tablets, these members being constructed and operating substantially as set forth, whereby the blocks, as they leave the molds, are deposited upon the tablets, and automatically delivered therefrom, by the tilting of the tablets.

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