(No Model.)

F. L. H. SIMS.

WIRE CUT CLAY WORKING MACHINE.

No. 598,539. Patented Feb. 8, 1898.

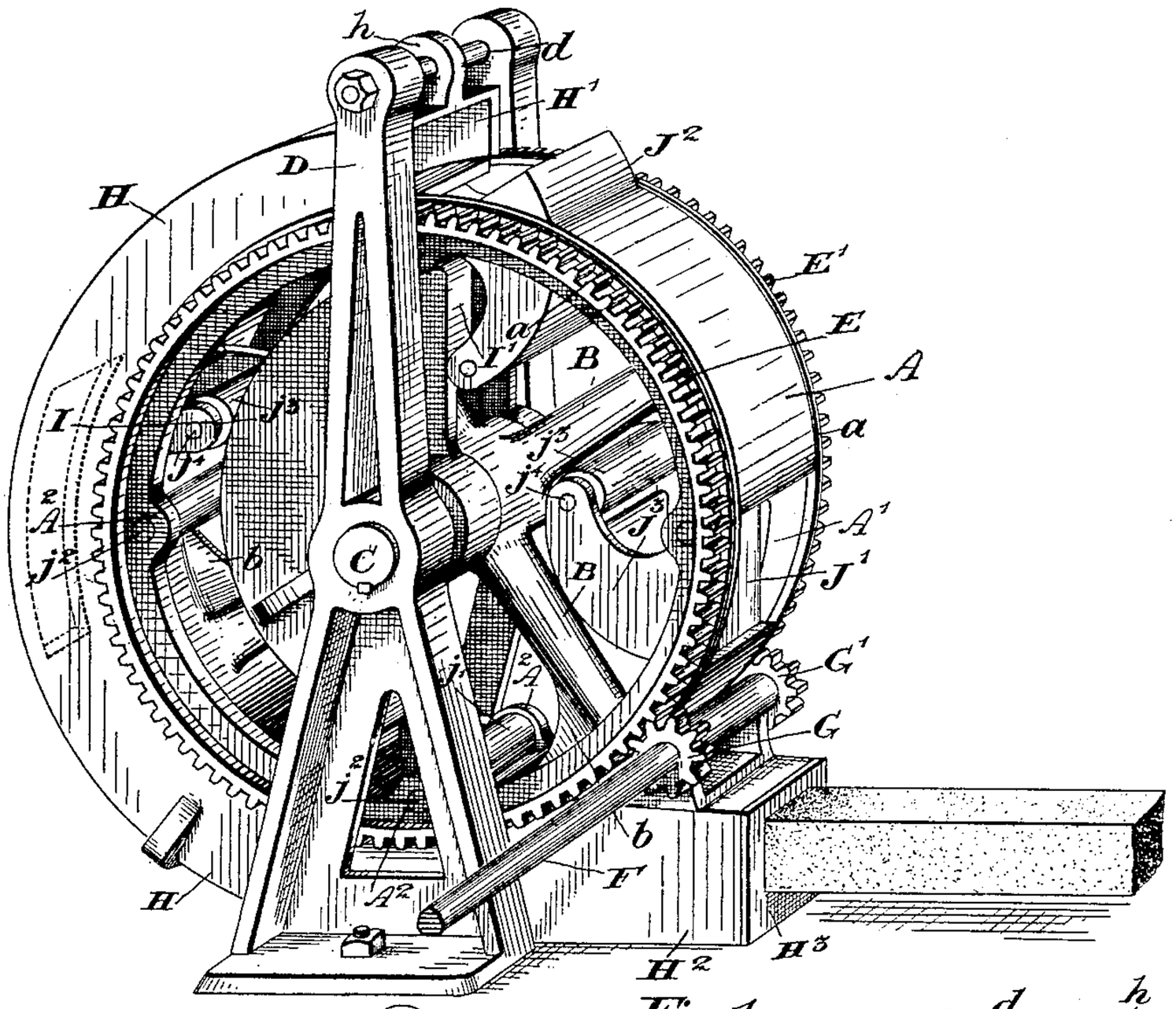

Fig. 1.

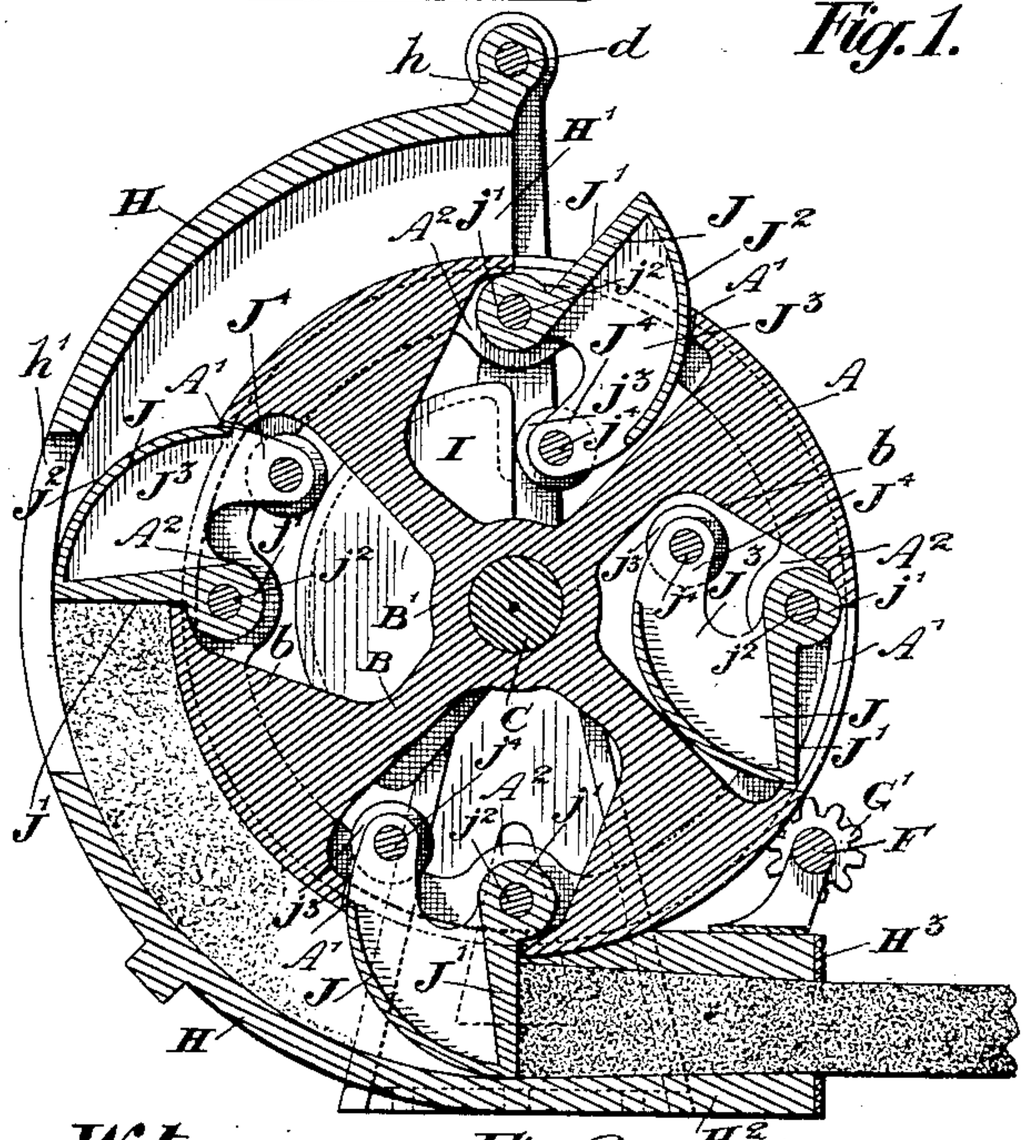

Fig. 2.

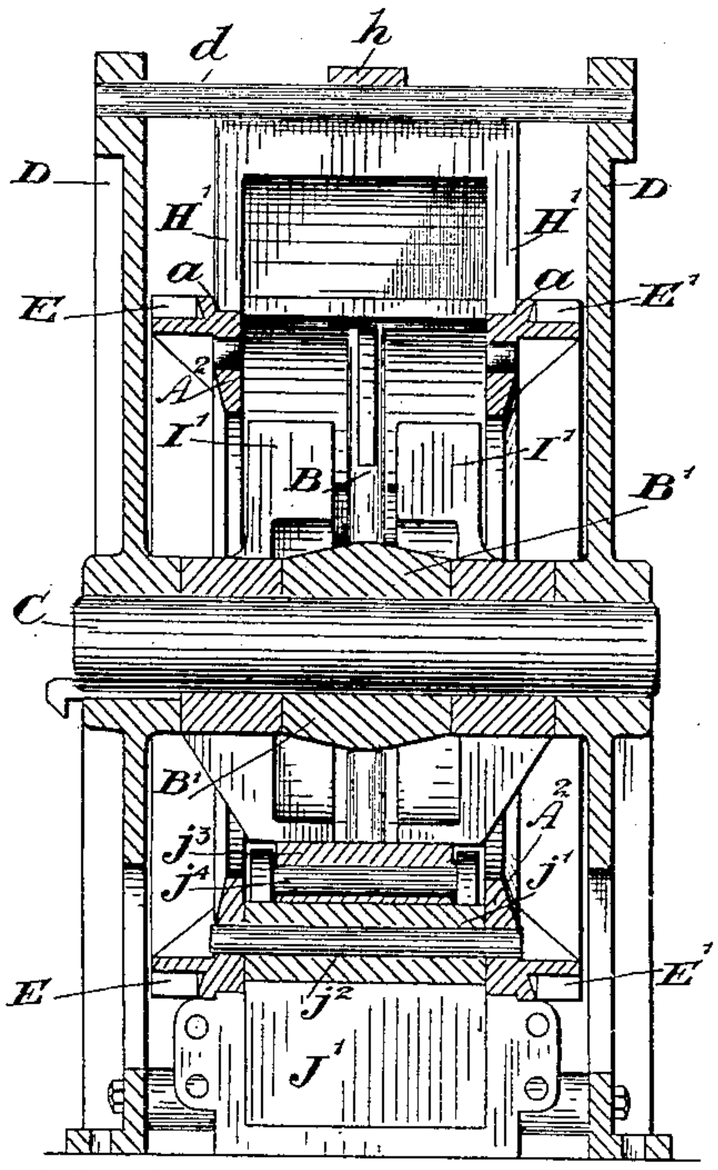

Fig. 3.

Witnesses.
E. R. Case.
Alfred Scott

Inventor:
Frederick L. H. Sims
by Fetherstonhaugh & Co.
Atty's.

UNITED STATES PATENT OFFICE.

FREDERICK LINDLEY HUNT SIMS, OF TORONTO, CANADA.

WIRE-CUT CLAY-WORKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 598,539, dated February 8, 1898.

Application filed December 7, 1896. Serial No. 614,684. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK LINDLEY HUNT SIMS, manufacturer, of the city of Toronto, in the county of York, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Wire-Cut Clay-Working Machines, of which the following is a specification.

My invention relates to improvements in clay-working machines in which the clay after being delivered from the machine is cut off in desired lengths by means of what is commonly known in the art as a "wire-cut;" and the object of the invention is to design a simple, cheap, and easily-driven machine of this class by which the pug-clay from the pug-mill may be compressed and delivered from the die in convenient form for cutting; and it consists, essentially, of a drum journaled on a shaft supported in suitable standards and provided with a series of pivoted compressor-wings, the drum being partly surrounded by a concentric receiving-chamber ending in a tangential compressing-chamber and die-plate, preferably located at the bottom of the machine, an orifice being provided in the receiving-chamber for the conveyance of the pug-clay from the pug-mill into such chamber, the machine being driven and the parts being otherwise arranged and constructed as hereinafter more particularly explained.

Figure 1 is a perspective view of a machine constructed in accordance with my invention. Fig. 2 is a longitudinal sectional elevation through the machine. Fig. 3 is a cross-sectional elevation.

In the drawings like letters of reference indicate corresponding parts in each figure.

A is the drum, which is supported by suitable spokes B and hub B′ upon the shaft C. The hub B′ is loosely journaled on the shaft and designed to rotate freely thereon. Each spoke B is provided with a web *b*, extending out from one side thereof to the rim of the drum.

The shaft C is suitably keyed or otherwise secured in the standards D.

E E′ are gear-rings forming part of or secured to the outside faces at the rim of the drum A.

F is the main driving-shaft, which is journaled in suitable bearings and is provided with gear-pinions G G′, which mesh with the gear-rings E E′, respectively, and from which such drum is driven.

H is a receiving-chamber which extends partially around the periphery of the drum, is U-shaped in cross-section, and is supported at the top by a rod *d*, which extends through a lug *h*, attached to or forming part of the outer wall of the chamber into the top of the standard D. The inner edges of the sides H′ of the chamber H fit into peripheral grooves *a*, which extend around the entire periphery of the drum in juxtaposition to the gear-rings E and E′.

h′ is an orifice made, preferably, in the peripheral side of the compression-chamber.

H^3 is a tapered compression-chamber which is tangentially arranged, preferably, at the bottom of the machine, as indicated, and forming an extension of the receiving-chamber H.

I are quadrantal cams secured to the shaft C and provided with broadened peripheral faces I′. The upper end of each cam is preferably made vertical, as indicated in the drawings, while the other end is cut off obliquely, so that the length of the cam is less than a half-circle. The ends of the cam are rounded off into straight radial portions, as shown.

A′ are broad openings, preferably four in number, made in the peripheral face of the drum A.

A^2 are inwardly-extending lugs made in each side of the drum toward one end of each of the openings A′.

J are the wings. Each wing J has a compressing side J′, at the inner end of which is an enlargement *j*′, through which passes a rod j^2, which extends into the side lugs A^2 and forms a pivot for the wing J.

J^2 is a convex back extending rearwardly from the compressing side J′, and J^3 are rearwardly-extending sides inclosing the space between the compressing side and back J^2.

j^3 are are friction-rollers journaled on pins j^4 in the inward extensions J^4 of the sides J^3. The back is concentric to the rod j^2.

H^3 is a die-plate which is fastened on the end of the walls of the compressing-chamber H^2. The die-plate H^3 may be of any suitable

form, this of course depending on the style of goods it is desired to turn out.

I do not particularly describe the die-plate, and I may merely mention that there is a liquid lubricator for the clay as it issues from the die-plate. I may also mention that I may provide means between the wings so that upon the raising of each wing at the top of the machine the usual wire-cut appparatus may be operated intermittently to sever the clay into desired lengths; but I do not wish to make any claim upon the particular method of accomplishing this result in this application, as such means are to form the subject-matter of a separate application.

Having now particularly described the principal parts involved in my invention, I shall briefly describe the operation of the machine.

The pug-clay is fed in, as hereinbefore premised, from the pug-mill through the orifice h' into the receiving-chamber H. As the drum is caused to revolve it will be readily seen that each wing J as the rollers j^3 pass up the vertical side of the cam I will be caused, when it reaches the concentric portion of such cam, to raise, so that the compressing side is substantially radial to the center of the shaft. When it has reached this position, it will be noticed from the construction described that it will have entered the receiving-chamber H. In passing around the receiving-chamber, as indicated, each wing J will sweep before it the pug-clay fed in through the orifice h' and will carry it forward and compress it in the tangential compressing-chamber H^2. When the compressing-wing J has reached the position shown at the bottom of Fig. 2, it will be readily seen that the rollers j^3 will have passed the end of the cams, and consequently the back pressure from the now compressed clay as the drum revolves will cause the compressing-wing to recede into the drum, so that it will assume the position shown by the compressing-wing at the right-hand side of the figure. Each wing as the drum revolves is necessarily actuated in the same way, and any little pug-clay which may accumulate from the pug-mill behind the arc-shaped back of the compressing-wing will necessarily be carried forward by the succeeding wing.

From this description it will be seen that I devise a machine in which the compression may be carried on intermittently with a minimum amount of power and less loss of time than any other machine devised for the same purpose of which I am aware, the advantage of the intermission being that the wire-cutting of the product can be accomplished during the same, avoiding the expense of cutting-tables. It will also be noticed that my improvement does away with the twisting and warping of the material before delivery through the die, the most serious defect incident to machines now commonly in use.

What I claim as my invention is—

1. In a clay-working machine, in combination, the casing, the rotary drum having peripheral openings, the compressing-wings pivoted within the openings in said drum, and having inwardly-extending portions, and the stationary cam located within the circumference of the drum and designed to act on the inwardly-extending portions of the wings, substantially as described.

2. In combination the drum having peripheral openings, the stationary cam, the receiving-chamber, the independent compressing-chamber and the pivoted wings adapted to be operated to move in one direction by said cam and to move in the opposite direction by said compressing-chamber, substantially as described.

3. In combination the drum having peripheral openings, the stationary cam, the receiving-chamber, the independent compressing-chamber, and the wings adapted to be thrown outward by said cam, and inward by contacting with the wall of said compressing-chamber, substantially as described.

FREDERICK LINDLEY HUNT SIMS.

Witnesses:
B. BOYD,
H. DENNISON.