

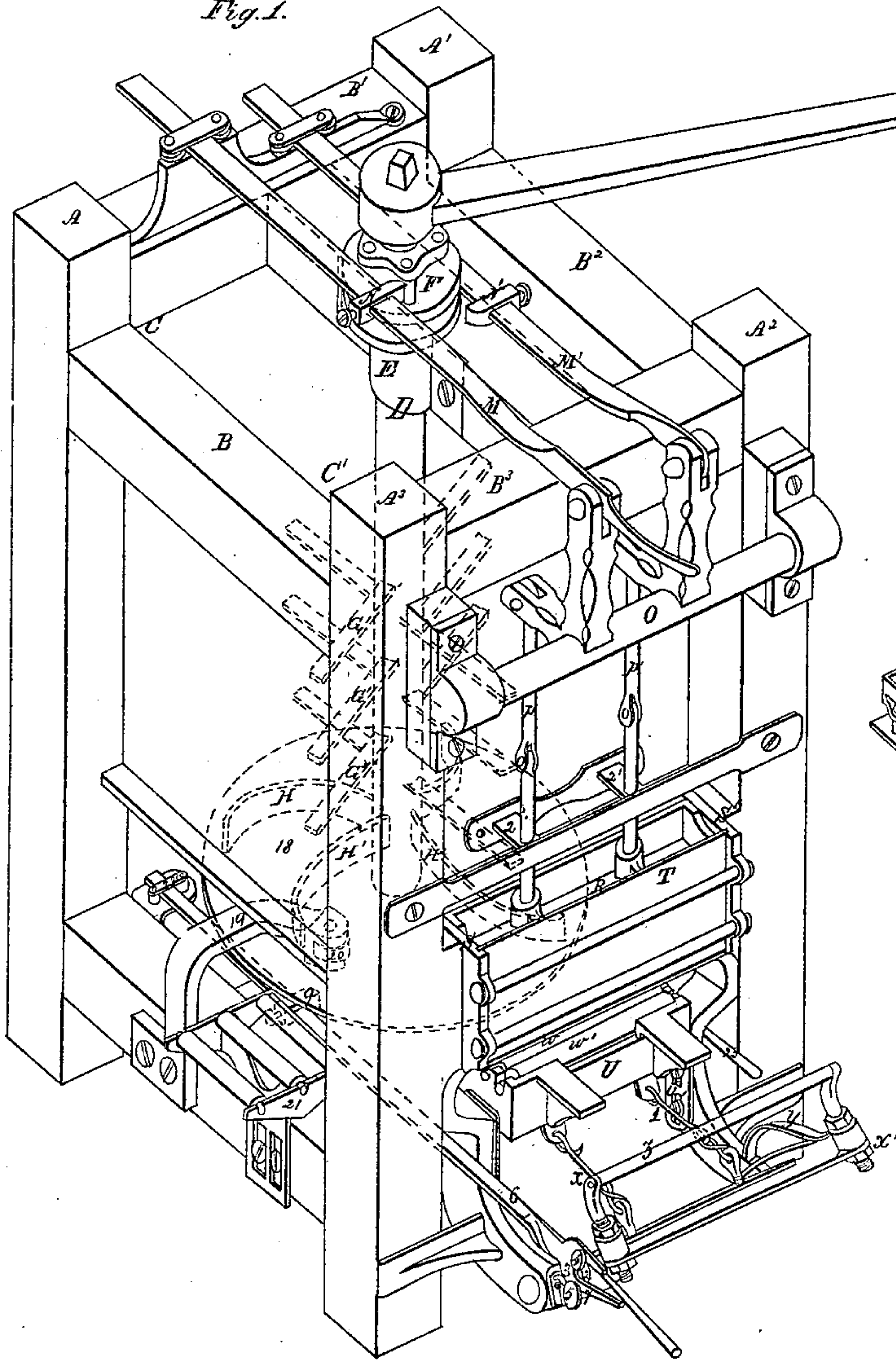
*C. Carnell,*

*Brick Machine.*

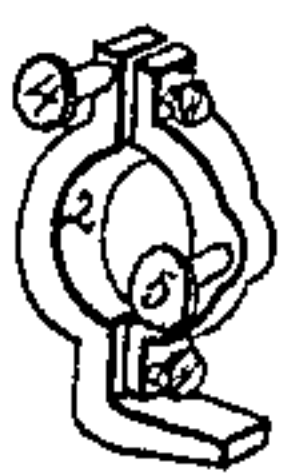
*N<sup>o</sup> 19,236.*

*Patented Feb. 2, 1858.*

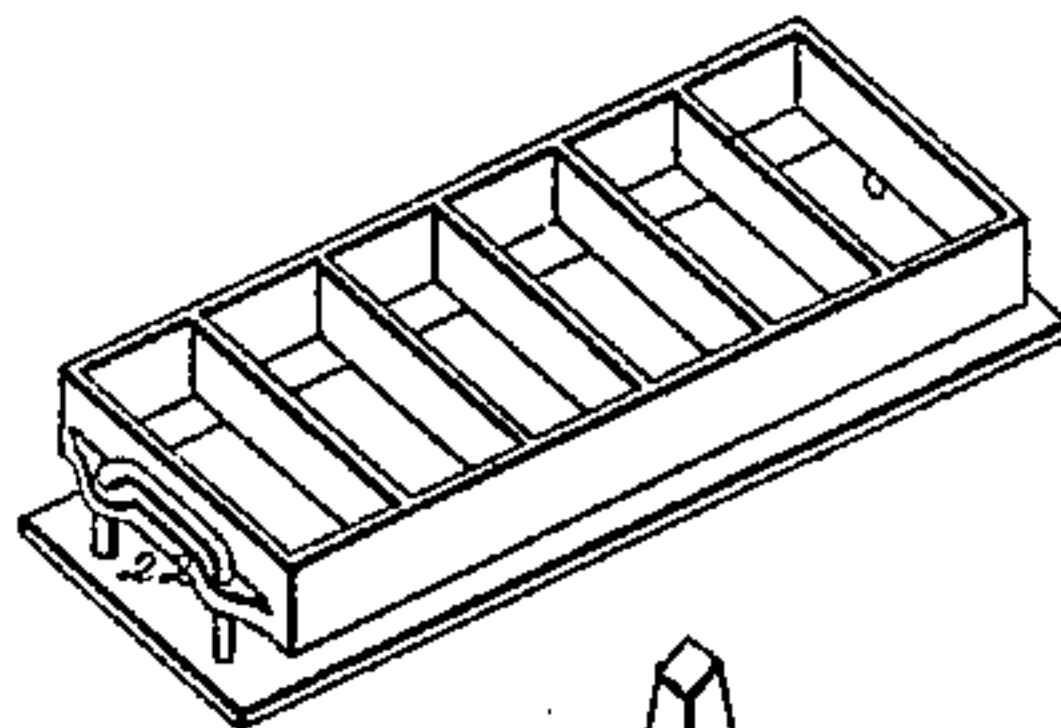
*Fig. 1.*



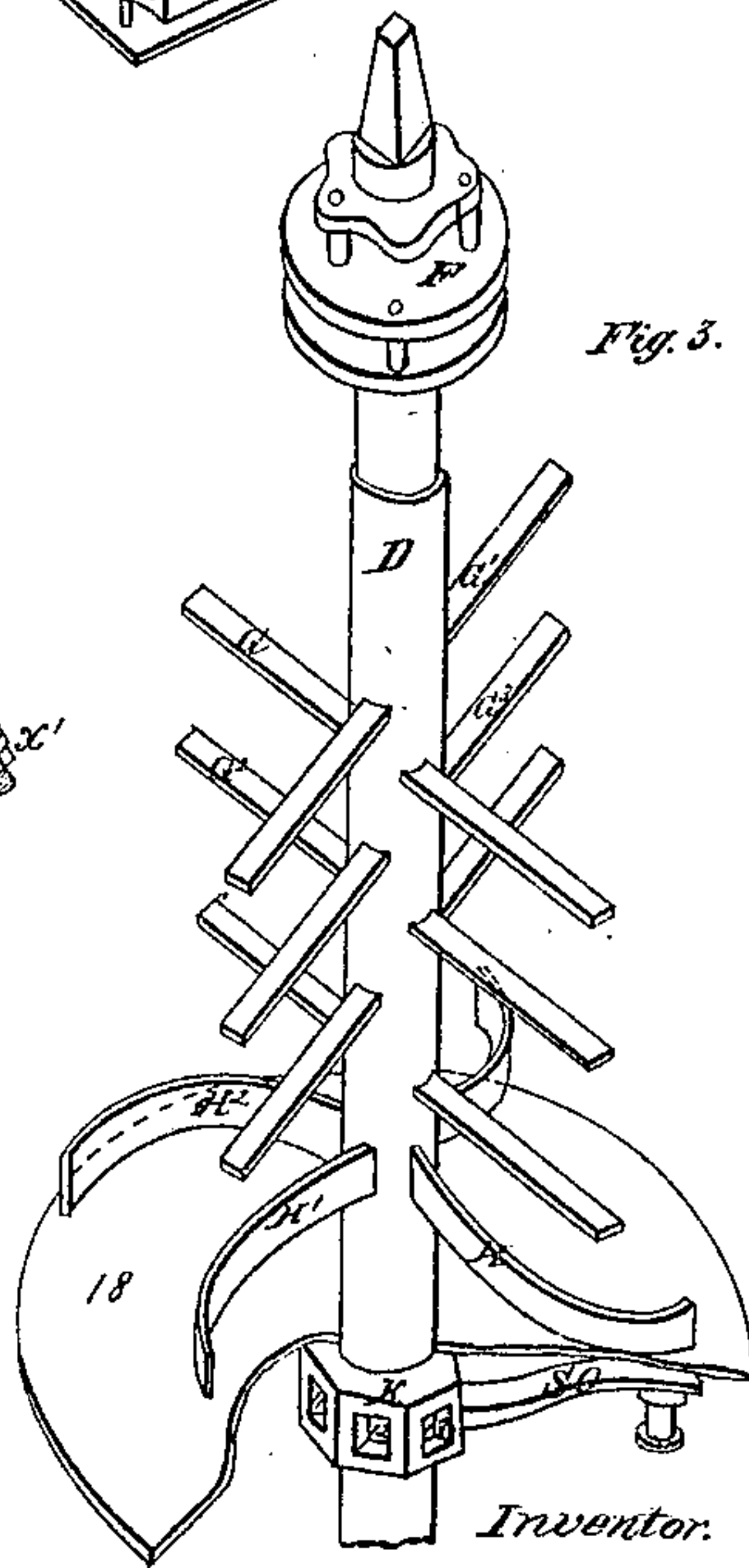
*Fig. 4.*



*Fig. 2.*



*Fig. 3.*



*Witnesses.*  
*J. E. Shaw*  
*J. H. B. Jenkins*

*Inventor.*  
*Charles Carnell*



# UNITED STATES PATENT OFFICE.

CHARLES CARNELL, OF PHILADELPHIA, PENNSYLVANIA.

## BRICK-MACHINE.

Specification of Letters Patent No. 19,236, dated February 2, 1858.

*To all whom it may concern:*

Be it known that I, CHARLES CARNELL, of the city of Philadelphia and State of Pennsylvania, have invented a new and useful  
5 Improvement in Brick-Machines; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, in which—

10 Figure I represents a perspective view of the machine; Fig. II a similar view of a set of molds; Fig. III a similar view of the main or central shaft detached; Fig. IV a similar view of the revolving slip clutch detached—a device for throwing the lower  
15 portion of the machine out of gear automatically.

To enable others skilled in the art to make and use my invention I will proceed to describe its construction and operation.

(A, A', A<sup>2</sup>, A<sup>3</sup>) are the four corner posts of the machine firmly bound together by the eight cross braces (B, B' &c.).

25 (C, C' &c.) is the hopper, having a flat bottom and being securely braced to the posts (A &c.).

(D) Figs. I and III is the main shaft and gives motion to all the parts. It is steadied at the top by the pedestal box (E) passes  
30 down through the middle of the hopper and rests on a cross brace below the hopper bottom. It bears the piece (F) hereinafter described; the knives (G, G' &c.) for cutting and tempering the clay; the pushers  
35 (H H' &c.) for pushing the clay into the plunger box; the table (18) for receiving the molds from under the plunger and delivering them at the side of the machine; and the lug piece (K) having six slot holes  
40 for the lug (10) for communicating an intermitting motion to that part of the machine that feeds in the empty molds.

The piece (F) performs an important function in the machine. It is composed of  
45 three plates of about twenty-two inches diameter forming two divisions, the plates being perforated for six friction pins in each division, so that the holes in the lower division fall alternately between those in the  
50 upper division. The lever (M) is operated by the pins in one division and the lever (M') by the pins in the other division, the

effect of which when the lugs (N) and (N') are properly adjusted is to give the rock shaft (O) and through it the plunger (R) 55 its proper motion. These pins may be increased or diminished in number but in doing so regard is to be had to the quality of clay to be worked. If the clay be of a quick-sandy nature and it be desired to  
60 make the bricks rapidly a small movement of the plunger, say of one and a half inches is required. In this case the number of pins will be increased and the lugs (N) (N') adjusted so as to shorten the stroke of 65 the levers (M) (M'). But when the clay is of a hard nature it will be necessary to give the plunger a greater movement say of four or five inches. In this case the number of pins will be diminished and the  
70 lugs (N) (N') adjusted so as to lengthen the stroke of the levers (M) (M'). Herein lies an advantage in my machine: That by increasing or diminishing the number of said pins the machine may be adapted to any 75 kind of clay without further alteration in the arrangement of its parts.

(M) and (M') are two levers guided by a pedestal with two friction rollers having the two movable lugs (N) and (N') 80 which may be adjusted by set screws to give through intervening parts any required movement to the plunger to fill the molds.

(O) is a rock shaft having connection with levers (M) (M') and communicating 85 the motion of said levers to (P) and (P').

(P) and (P') are two connecting rods each jointed about the middle, working through guides (Q) (Q') and connecting the arms of rock shaft (O) with the piston 90 or plunger (R).

(S, S' &c.) is the plunger box into which the tempered clay is forced from the hopper by the pushers (H H' &c.). The bottom of the plunger box is an ordinary grat- 95 ing, so arranged as to shield the sanded sides of the molds when they are being filled, by preventing the clay from entering them at once in their full sectional capacity and causing it to enter at the middle, when it 100 will be spread out to the sides of the molds by the weight of the impending clay and the pressure from the plunger.

(T) is the front plate of the plunger box



(S, S' &c.). It slides easily into grooves in the sides of said box and may be raised to move stones or other foreign substances out of it. The sides of the plunger box are extended down and form bearings for several of the parts. Thus the carriage (U) for carrying the molds under the plunger is fastened to these sides by screws through slots as seen at (V) and may be raised or lowered accordingly as it may be desired to use molds of greater or less thickness or depth.

(W, W', W<sup>2</sup>) are friction rollers on the carriage to facilitate the motion of the molds. A cross bar is secured to the under side of the carriage by means of screws through projecting short lugs of the bar. This bar is operated on by a short lever (23) and serves to lower the carriage when it may be necessary in removing foreign substances from the molds or grating.

(X, X' &c.) is the lower rock shaft having bearings in the extended sides of the plunger box (S, S' &c.). It forces the molds under the plunger with an intermitting movement, being at rest about seven-eighths of the time of operation of the machine, thus allowing the operator ample time to place the empty molds on the carriage. This rock shaft carries or is composed of several parts: (Y) a spring for throwing it back when released; (Z) a friction roller to prevent friction of the shaft on the molds; (1) a chain to limit the backward motion of the shaft; and (2) the revolving slip-clutch, shown in place in Fig. I and in Fig. IV detached.

The slip-clutch (2) consists of two semi-circular pieces screwed together, working on the stud (3) Fig. I of the rock shaft and having two other studs (4), (5). The forked rod (6) through which motion is communicated to the rock shaft (X X') is attached to the stud (4). When the motion of the molds from under the plunger is prevented by stones or other foreign substances in the molds or grating if the rock shaft (X, X') should continue to work great strain and breakage would occur.

It is important therefore that there should be some device by which the machine may throw itself out of gear whenever the necessity occurs. To accomplish this result the slip clutch is tightened around the stud (3) so as to work under ordinary circumstances without any motion on its center, but the instant the motion of the molds ceases the rock shaft (X X') is arrested, and the forked rod (6) continuing to act on the stud (4) draws the slip clutch around on its center and when it reaches a certain point, brings the stud (5) against the lower fork (7) of the rod (6) which gradually lifts said rod and frees it from all connection with the stud (4), thereby throwing the rock shaft (X X') out of gear. It may here be stated

that the levers (M) (M') conveying motion to the plunger rods (P) (P') may at any time be thrown out of gear, but although the plunger should continue to work when the lower rock shaft (X X') is out of gear no inconvenience is occasioned thereby since the motion of the plunger only forces the overplus clay back into the hopper.

The rod (6) passes through a guide (23') and is provided with an adjustable lug (9).

(10) Fig. III is a rigid arm which may be fastened into any one of the six holes (11, 12 &c.) in the piece (K). When the main shaft (D) is carried around the arm (10) is carried with it and at regular intervals strikes the movable lug (9) drawing back the lever (6) thereby giving an intermitting motion to the rock shaft (X X'). Lug (9) is adjustable for the purpose of drawing in the rock shaft (X X') a given distance to bring the molds to their proper position under the grating.

(18) Fig. I is a circular table or plate of iron carried by the main shaft for the purpose of receiving the molds from under the plunger and delivering them at the sides of the machine.

(19) is a stationary arm having a small friction wheel (20) against which the filled molds are carried by the motion of the table and turned out at the side, where they are received and borne away.

The receiving table (21) has friction rollers, as shown in Fig. I to facilitate the delivery of the molds.

Fig. II represents a mold or set of molds. They are of iron and have loose bottoms, held by staples that pass through guides at either end as at (22). The bottom fits closely under the plunger but being free when the molds are withdrawn greatly facilitates the discharge of the bricks.

I make the corner posts nine feet high and the hopper five feet deep by three feet inside; but these dimensions may be increased or diminished, by increasing or diminishing proportionately the other parts of the machine.

When the machine is in operation one set of molds is constantly kept under the plunger and an empty set on the carriage in front of the lower rock shaft (X X').

A pit is formed near the machine into which the clay is drawn and water thrown over it the day before use.

Having thus described my machine what I claim and desire to secure by Letters Patent is—

1. The piece F in two divisions composed of three plates and the friction pins arranged alternately in combination with the levers M and M' and adjustable lugs N and N' so as to give M, M' any required amount of motion.

2. I claim in combination with the feed-

ing devices X X' the slip clutch (2) and the forked rod 6 the whole constructed and operating as and for the purposes set forth.

3. I claim in combination with the feed-  
5 ing device X X' and carriage U the guide 19 and revolving table 18 for receiving the filled molds from said carriage and deliver-

ing them at the side of the machine, the whole being constructed and operated in the manner set forth and described.

CHAS. CARNELL.

Witnesses:

J. E. SHAW,

J. H. B. JENKINS.