

C. SCHLICKEYSEN.

BRICK-MACHINE.

No. 189,270.

Patented April 3, 1877.

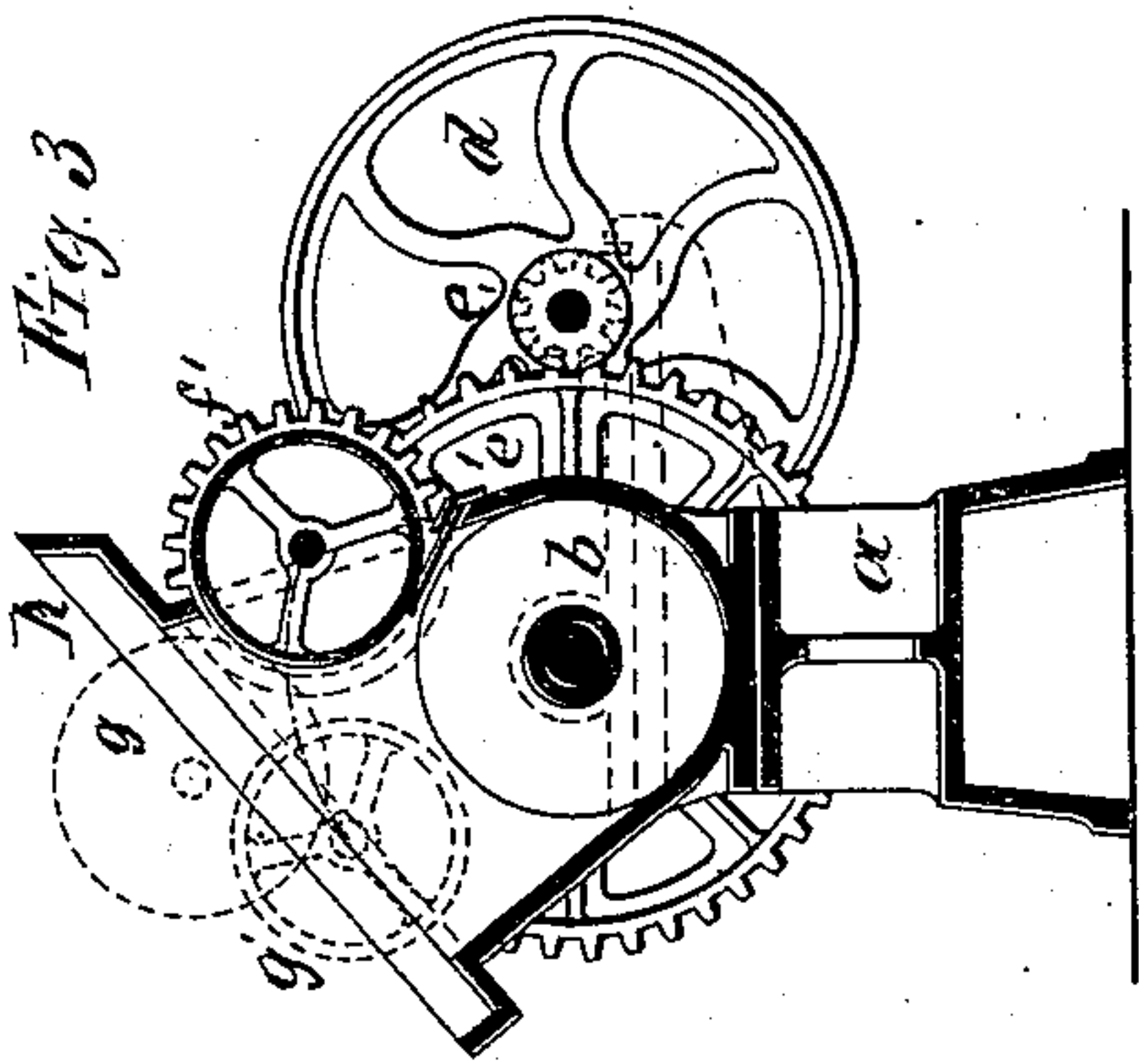


Fig. 2.

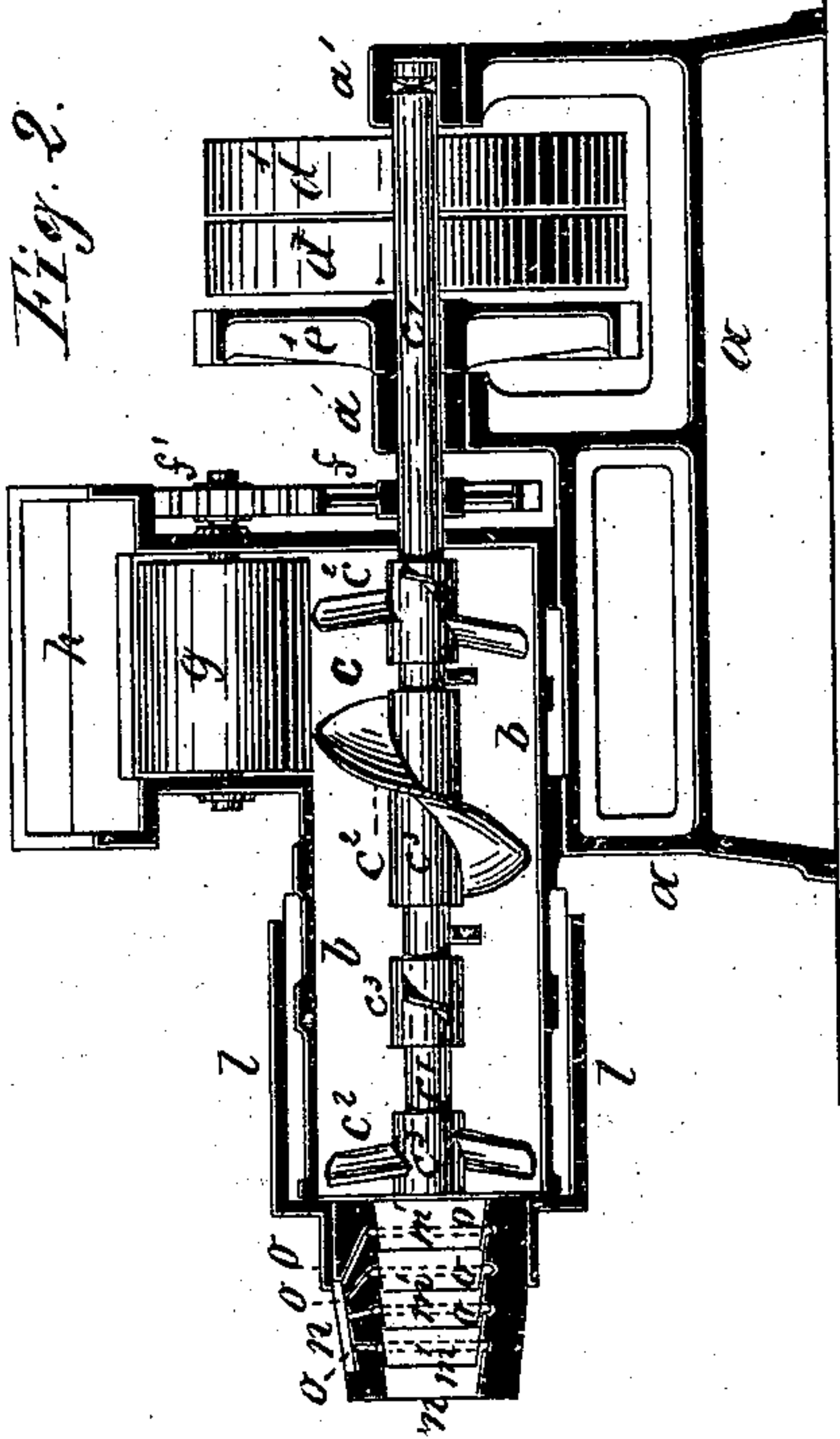


Fig. 4.

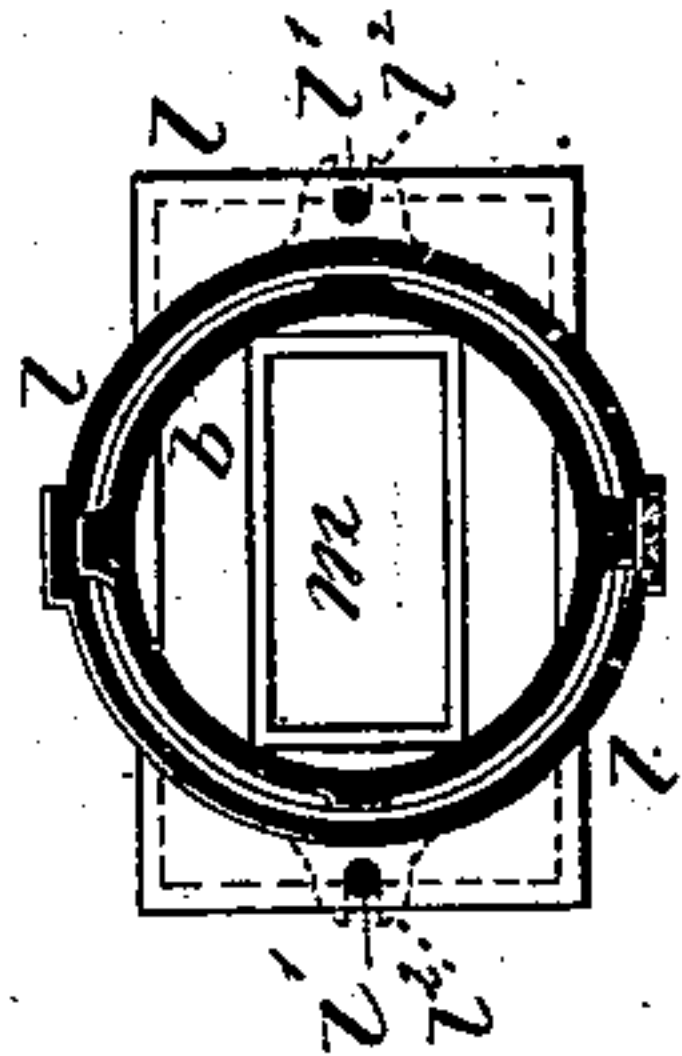
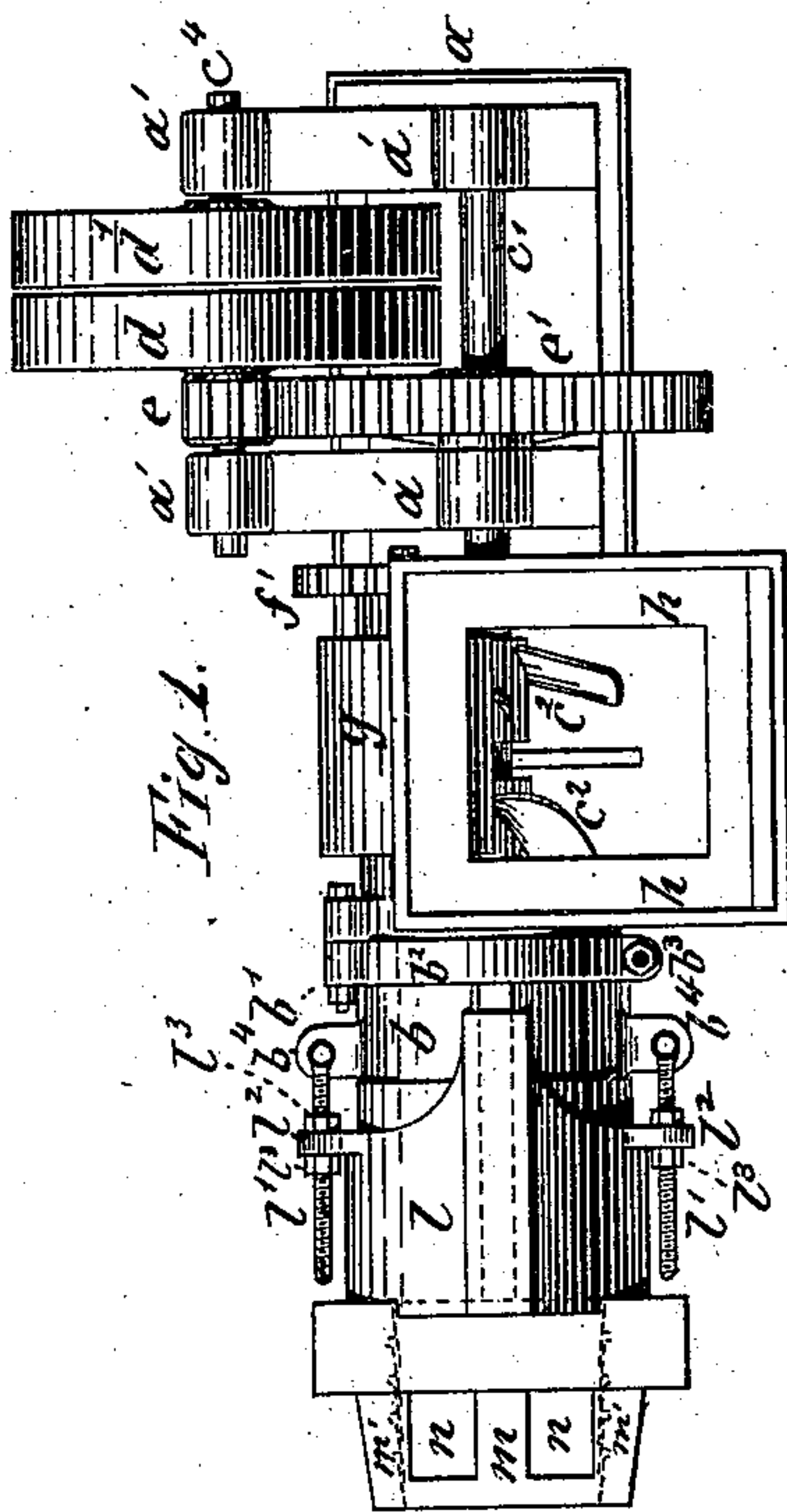


Fig. 1.



Witnesses.

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# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN BRICK-MACHINES.

Specification forming part of Letters Patent No. 189,270, dated April 3, 1877; application filed December 2, 1876.

*To all whom it may concern:*

Be it known that I, CHARLES SCHLICKEYSEN, of the city of Berlin, in the Kingdom of Prussia, have invented new and useful Improvements in Brick-Machines, of which the following is a specification:

My invention relates to that class of machines in which a horizontal feed-cylinder is employed, said machines having been placed on exhibition and worked by me at the International Centennial Exhibition in Philadelphia; and consists, first, in the application of a removable and adjustable former-head to hold the former nearer to or farther from the mouth of the horizontal feed-cylinder, according to the nature and pressure of the material—that is to say, according to the nature and quantity of the material fed from the cylinder to the former; and, second, in combining a removable and adjustable former-head with a longitudinal feed-cylinder carrying the feed or pug shaft, said cylinder being formed in two halves and adapted to be opened and closed; and, lastly, in several details of construction and arrangement of parts, as herein-after fully described.

By this construction and arrangement a highly-finished brick is obtained, while at the same time a great saving in power is effected, as will be readily understood.

But that my invention may be fully understood, I will proceed to describe the same in detail by aid of the accompanying drawings, in which—

Figure 1 is a plan view, Fig. 2 a vertical longitudinal section, and Fig. 3 a vertical transverse section, of a machine constructed according to my invention; and Fig. 4 is a transverse section of the former-head.

$a$  is the main frame, made by preference of metal, and adapted to receive the operating mechanism.  $b$  is the horizontal feed-cylinder, made in two halves longitudinally, said halves being connected together at one side by a hinged connection,  $b^1$ , Fig. 1, the two parts of the hinges being prolonged to form each a locking-strap,  $b^2$ , one of which encircles the upper half of the cylinder, and the other the lower half, the ends of the straps being provided with or forming ears  $b^3$ , which are locked

together by means of bolts and nuts, as fully shown by Fig. 1.

The arrangement of hinged straps not only affords a secure locking of the two halves of the cylinder  $b$ , but also serves to strengthen the latter materially.

I have here described one means of locking the two halves of the cylinder, though I do not wish to limit myself to the particular devices to that effect, as shown and described, as it will be readily understood that any other suitable means for locking the two halves of the cylinder may be employed.

$c$  is the feed and mixing screw, the axis  $c^1$  of which has its bearings at one end at or near the outlet-orifice of the cylinder  $b$ , in a suitable bracket or support, several of which may be employed, if desired. The other or outer end of the axis  $c^1$  passes through the head of the cylinder, and has its bearings in uprights  $a^1$ , formed on or bolted to the main-frame  $a$ .

The axis  $c^1$  within the cylinder  $b$  carries a series of feed and cutter blades,  $c^2$ , formed spirally upon sleeves  $c^3$ , which latter are keyed or otherwise secured upon the shaft  $c^1$ .  $c^4$  is a short axis, which has its bearings in the uprights  $a^1$ , and carries a fast and loose pulley,  $d$   $d^1$ , and a pinion,  $e$ , which latter transmits motion to a cog-wheel,  $e^1$ , mounted upon the outer end of the shaft  $c^1$ , between the uprights  $a^1$ , to operate said shaft  $c^1$ , which carries another gear-wheel,  $f$ , between the head of the cylinder  $b$  and the uprights  $a^1$ , said gear-wheel  $f$  meshing with a pinion,  $f^1$ , mounted on the axis of the feed-roll  $g$ , and in this manner the feed-roll is operated from the screw-shaft  $c^1$ . This feed-roll  $g$  practically forms one side of an inclined funnel-shaped feed-hopper,  $h$ , and is revolved by means of the mechanism just described in a direction toward the feed-screw  $c$ , as will be readily understood. The axis of the roller  $g$  has its bearings in brackets formed on the feed-hopper  $h$ , said bearings being so constructed as to be readily unlocked to remove the feed-roll. When it is desired to open the cylinder  $b$ , the feed-hopper  $h$ , forming part of said cylinder, or being otherwise secured thereto, is tilted over with the upper half of the cylinder  $b$ , when it is desired or required to inspect its interior.



The feed-roll *g* is, by preference, constructed with a perfectly-smooth periphery, but it is sometimes desirable, according to the nature of the material to be worked, to employ a roll having a roughened, ribbed, or corrugated surface, said ribs or corrugations being formed either on a line with its axis or peripheral or spiral, as may be found necessary. In some cases it may also be found advantageous to employ, in conjunction with the feed-roll, a stationary cutter, having vertical or straight blades to cut the material while being fed by the feed-roll *g* to the cylinder *b* and screw *c*. This stationary cutter consists of a shaft or axis, which has its bearings in the sides of the feed-hopper a little above and in front of the feed-roll *g*, and carries three or more cutting-blades, to cut the material while being fed to the cylinder by the feed-roll *g*.

*l* is the movable former-head, consisting of a square mouth to receive the former and a cylindrical portion to fit over the two halves of the cylinder *b*, to which it is removably and adjustably connected by means of the screw-bolts *l'* *l'*, affixed by pivots or eyes to ears *b'* *b'* formed on the cylinder *b*, said screw-bolts passing through threaded perforations in the ears *l''* *l''* formed on the former-head, and the latter may thus be removed from or adjusted nearer to or farther from the cylinder *b* by means of the nuts *l'''* *l'''*, as clearly shown by Fig. 1.

*m* is the former, the inner surface of which is tapering from its rear end toward its front or mouth, or nearly so, and is lined with a series of overlapping sheet-metal plates, *m'*, attached to the former *m* at their rear ends only, so as to leave a passage-way at the point where said plates overlap each other, except the plate at the mouth of the former, which is tightly and smoothly fitted to the latter. The former *m* is provided on its upper face with one or more recesses, *n*, forming water-reservoirs, the bottom of which is covered with some suitable filtering material—such as canvas or other open fabric—to filter the water fed into said reservoirs and prevent any impurities that may be contained therein from penetrating and obstructing the distributing-channels *o*, which diverge from said recesses *n*, to carry the water between each two overlapping plates *m'*—that is to say, the arrangement of channels and plates is as follows: The plate at the mouth of the former *m* has its whole surface connected to the former, and terminates at a point where the first water-channel *o* is formed; the next succeeding plate has only one half, or nearly so, of its surface attached or made fast to the former *m* from a point in rear of the first water-channel to the front edge of the second channel *o*, while the other loose half of the plate overlaps the first plate *m'*, and so on, in succession, to the rear end of the former *m*. The plates *m'* having a

yielding surface, the pressure of the material passing through the former will continually squeeze out, or, more properly, produce a suction of, the water contained in the channels *o*, which is fed thereto from the reservoirs *n*, to which latter the water may be fed from any suitable source of supply, preferably from a tank located on the former-head *l*. By this means the surface of the material passing through the former *m* is kept moist all the time, imparting to the product a high finish or smooth surfaces, and at the same time effecting a great saving of power, while the choking or obstructing of the former *m* is also effectually prevented.

Instead of metallic plates *m'*, leather or other suitable material may be employed as an overlapping lining to the former *m*, which latter may also be constructed of several parts.

The former is connected to the former-head by means of bolts or pins to facilitate its removal when another former is to be placed in the head *l*.

When peat or mortar is to be worked in the machine, a feed-roll, *g'*, of smaller diameter than the roll *g*, and having a series of radially or spirally arranged cutting and feeding blades arranged upon its periphery, is arranged within the hopper, as shown at *g'*, Fig. 3, the rear side of the hopper being then closed, and the feed roll *g* is located above the roll *g'*, from which it receives motion, as shown in Fig. 3.

Having now described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a brick-machine, the combination, with the feed and mixing cylinder *b*, of a former-head adapted to be adjusted to and from said cylinder in a line with that of its axis, substantially as described, for the purpose set forth.

2. The driving or operating mechanism, consisting of the gear-wheels *f'* *f'* and the pinion *e* and a fast pulley, the latter two mounted on a counter-shaft, *c'*, in combination with the pug-shaft *c'* and the feed-roll *g*, all constructed, arranged, and operating substantially as described.

3. The former *m*, the adjustable former-head *l*, the cylinder *b*, and the feed mechanism, all combined and operating substantially as described, for the purpose specified.

4. The cylinder *b*, adapted to be opened and closed, in combination with the adjustable and removable former-head, all constructed and operating substantially as described, for the purpose specified.

In witness that I claim the foregoing I have hereto set my hand this 6th day of May, A. D. 1876.

CHARLES SCHLICKEYSEN.

Witnesses:

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HUGO WILOP.