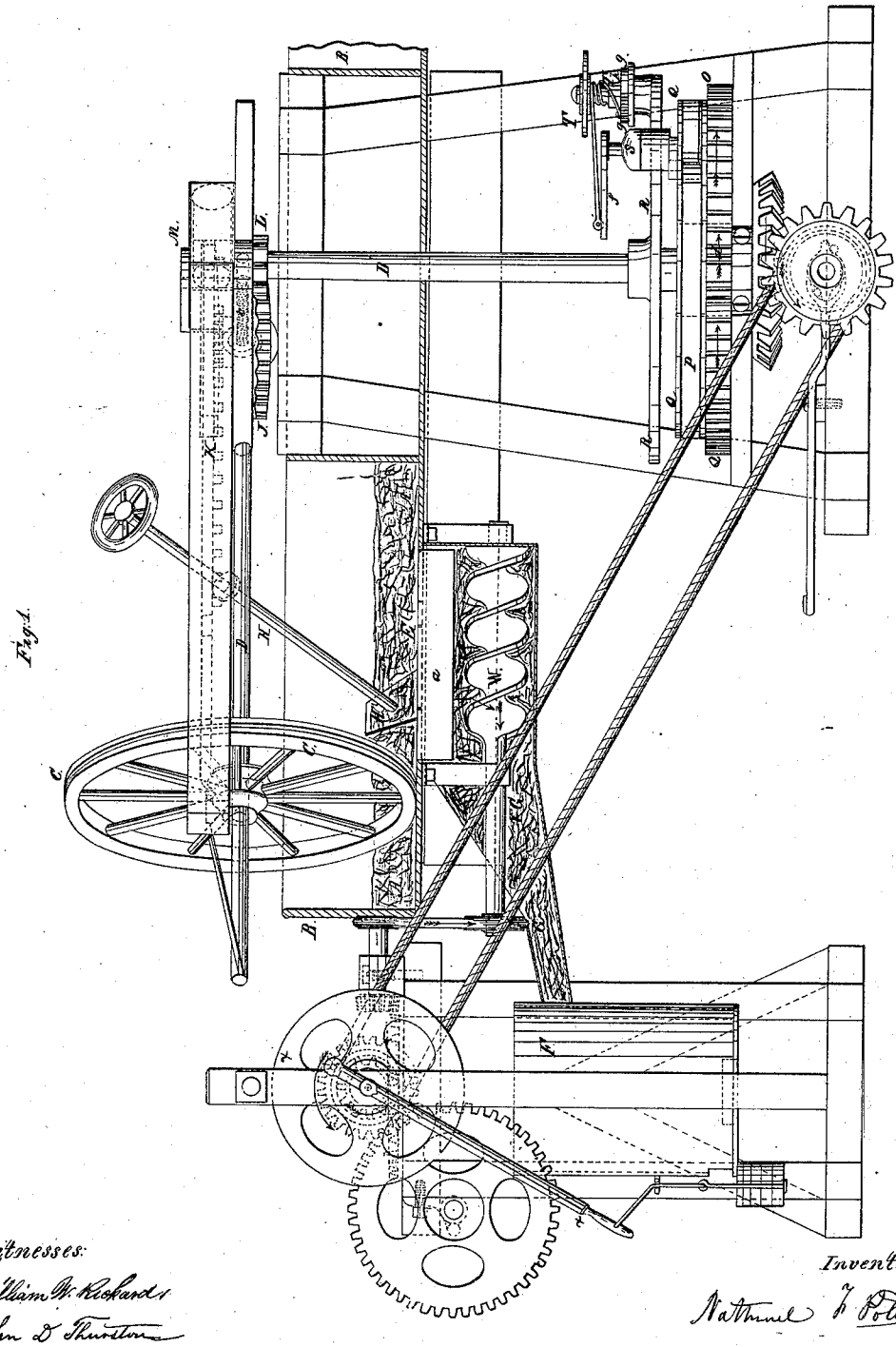
Sheet 1 - 2 Sheets.

N. F. Potter,

Brick Machine,

No. 80,008 Patented July 14, 1868



Witnesses:
William W. Richards
John D. Thurston

Inventor:
Nathaniel F. Potter

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

Sheet 2 - 2 Sheets.

N. F. Potter,

Brick Machine,

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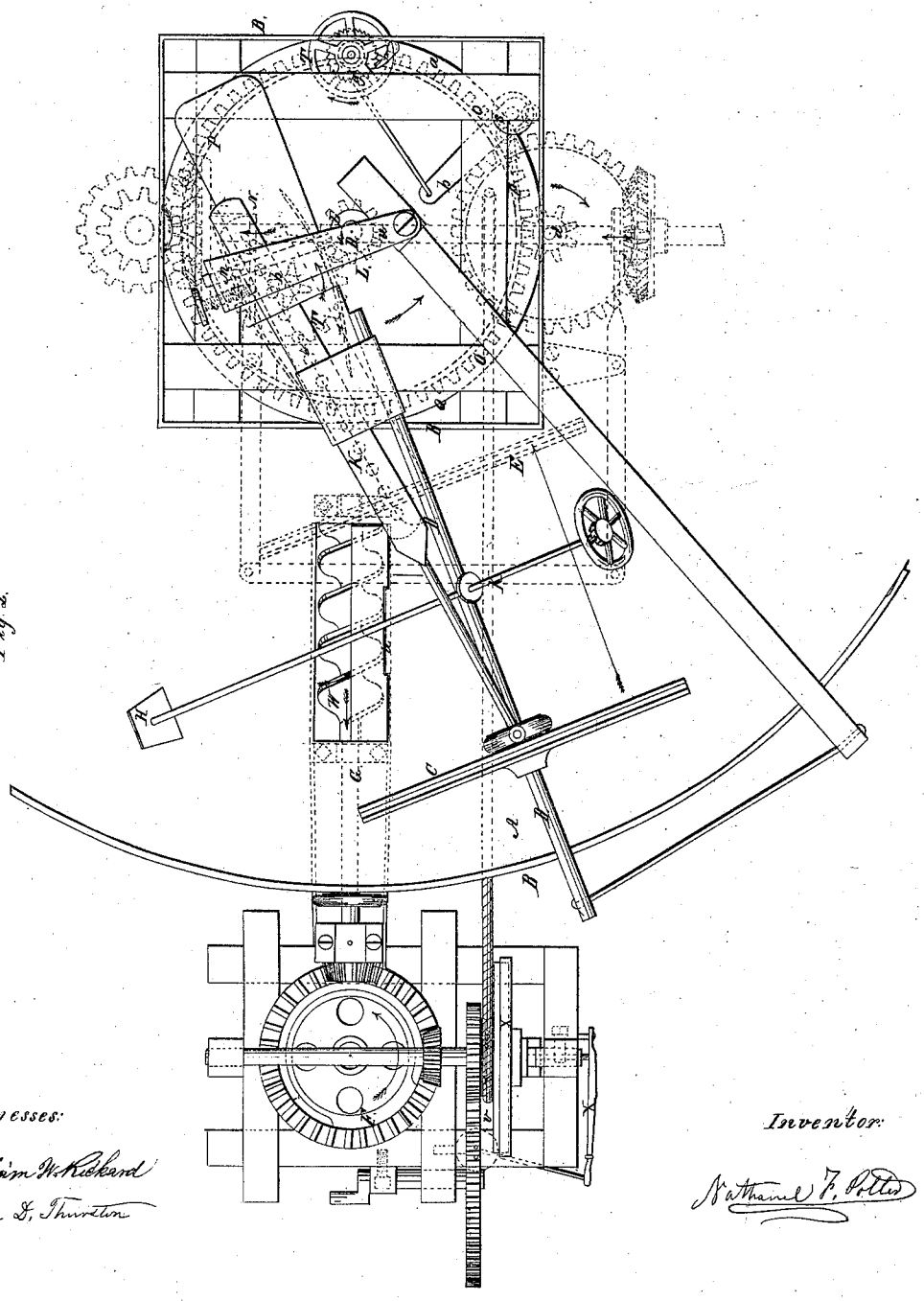


Fig. 2.

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William W. Rickard

John D. Thurston

Inventor:

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United States Patent Office.

NATHANIEL F. POTTER, OF PROVIDENCE, RHODE ISLAND.

Letters Patent No. 80,008, *dated July* 14, 1868.

IMPROVED CLAY-MILL.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, NATHANIEL F. POTTER, of the city and county of Providence, in the State of Rhode Island, have invented new and useful Improvements in Machinery for Working Clay to be Moulded into Bricks; and I do hereby declare that the following specification, taken in connection with the drawings making a part of the same, is a full, clear, and exact description thereof.

Figure 1 represents an elevation of the apparatus.

Figure 2 exhibits a plan.

In the accompanying drawings, the circular bed A, surrounded by the rim B, the tempering-wheel C with the machinery for causing such wheel to be moved alternately back and forth along its sweep-axle, radiating from the central shaft D, as the wheel travels through the bed of clay in the mill, is substantially the same apparatus for tempering clay described in the Letters Patent to Nathaniel Adams of December 16, 1833, with the exception that such tempering-mill is constructed with delivery-apertures or pockets, E, (one of which is shown in the drawing,) and a scraper in combination therewith for discharging the mass of material after it has been tempered, and which improvement is described in the Letters Patent heretofore granted to me, May 1, A. D. 1866. The drawings, fig. 2, also exhibit a means for disconnecting the machinery, which causes the tempering-wheel to be moved along its axle from the driving-shaft, and which will be referred to hereafter.

F represents an apparatus for moulding clay into the form of bricks, which has long been in use.

These two sets of apparatus are combined together by means of a closed trough or conduit G and forcing-screw W, as shown, the tempering-mill being placed at a suitable elevation to accommodate the moulding-apparatus.

My first improvement consists in a means for disconnecting at pleasure the apparatus, which causes the tempering-wheel to travel along its axle as the wheel revolves from the shaft, which gives motion to the sweep or axle on which such wheel is placed.

Inasmuch as my apparatus contemplates the discharge of the clay after it has been tempered through the apertures E, (the doors, *a*, to which are closed while the tempering process is going on,) it becomes important that the tempering-wheel, during the time that the scraper H is doing its work, should be permitted to travel in one track, so as not, by its movement along its axle, to interfere with the scraper, which, during the operation of discharging the clay, is temporarily connected with the axle of the wheel.

In order to effect such disconnection at pleasure, the pinion J, which carries on its axle the four-armed pinion *b*, operating the rack *k*, and obtains its motion from the toothed wheel L on the driving-shaft D′, is held in its proper position by means of a strap or keeper, M, and an adjusting-screw, *c*. The length of this keeper is such that upon turning the screw in one direction, the pinion J will be drawn away from engagement with the driving-wheel L, the end of such screw being swivel-jointed to the sweep-arm N, and its threads engaging with the threads of a fixed nut upon the outer end of the keeper M, such nut being located at right angles with the length of the latter. By turning the screw *c* in the reverse direction, the connection between the pinion J and the driving-wheel L will be restored.

It is quite obvious that with this arrangement the connection between the driving-shaft and the mechanism which causes the wheel to traverse its axle can be brought into connection or be disconnected at pleasure, and that upon the disconnection being made, the tempering-wheel will continue to travel in one track, as, for instance, in that indicated by the position of the wheel shown in red lines, fig. 2, and not interfere with the scraper.

Another improvement consists in the means employed for connecting the main line of shafting (which is supposed to drive all the machines in the brick-yard) with the special machinery for tempering the clay. Heretofore a clutch-box coupling has been used as a means of connection, but the resistance to be overcome is so great that constant breakages to the machinery are occurring from the shock which takes place at starting. For this reason, it has been customary to stop the engine which drives the machinery of the yard, and start it again slowly, whenever it became necessary to set a tempering-mill in operation, thereby interfering with the regular working of all the other machines employed.

It is highly desirable, therefore, to employ some means of connection that will enable the apparatus for tempering the clay to be started gradually; something that will be more reliable than a belt, which is not applicable conveniently to a case where the speed is so low, but the resistance so great, and that will be completely under control, so as to allow of the starting of each tempering-machine without first slowing the engine which drives the machinery of the yard.

Accordingly, I connect the upright shaft D′, which drives the tempering-mill (by means of a friction-strap, P, fig. 1,) with the gear-wheel O, driven by the pinion *d*, deriving its motion from the main line of shafting, which strap, when made to hug the drum Q, attached to the gear-wheel O, and revolving with it, will communicate motion to the shaft D′. For this purpose the strap P has one end made fast to a stud-pin projecting from the circular plate or platform R, and which plate is keyed to the shaft D′. The other end of the strap is attached to the wrist of a crank mounted in a bearing, S, attached to the edge of the plate R. This crank can be vibrated by means of a lever, *f*, keyed to its shaft.

Upon the face of the plate R, a windlass, T, with a suitable ratchet-plate, *g*, and holding-pawl attachment, *h*, is mounted, and a chain, one end of which is connected with the lever *f*, is wound around the barrel of the windlass.

It is very clear that when the windlass is worked, the strap P will be made to embrace the drum Q, and movement will be communicated to the plate R and to the shaft D′. At other times the drum Q will revolve freely within the coil of the strap, and the shaft D′ will remain at rest.

Instead of the plate R, a radial arm, of sufficient width to furnish support for the windlass T, could be used, but a plate is more convenient, inasmuch as it affords a convenient platform for the operator to stand upon, while he adjusts the strain of the friction-strap to the requirements of the case.

The moulding-apparatus is connected with the tempering-apparatus by means of a closed trough or conduit, G. Beneath the delivery-apertures E is arranged, in a suitably-enclosed space connecting with and forming a part of the conduit, as shown, a screw, W, the convolutions of which will, as the screw is made to revolve in its bearings, force the clay, as it is discharged, in a mass along the conduit and into the moulding-apparatus.

The moulding-apparatus is driven by the friction-plate X, which, by means of the lever X′, is brought up to the face of another plate, V, whose motion is derived in any convenient way from the main line of shafting. This lever X′ can be weighted, so that the amount of friction exerted, and consequently the rate of speed at which the moulding-apparatus shall be run, can be varied at pleasure, and as the forcing-screw W is driven by power communicated from the gearing which drives the moulding-apparatus, the clay will be fed to the moulding-mill as fast and no faster than it is required to take the place of that which has been moulded and discharged.

The whole apparatus herein described, and represented in the drawings, exhibits in its arrangement and combination of devices a practical and convenient system of machinery for working clay and like material involving the several advantages which have been hereinbefore stated.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. Combining the rack-and-pinion mechanism *k-b* (for giving a radial movement on its axle to the tempering-wheel) with its driving-gear, L, by means of the adjusting-screw *c*, or equivalent device, for breaking the connection between the two at pleasure, substantially as herein described.

2. I also claim combining the driving-shaft, D′, of a tempering-mill with the driving-gearing by means of the friction-strap P, applied and operating in the manner substantially as shown and described.

In witness whereof, I have hereunto set my hand, this second day of March, A. D. 1868.

NATHANIEL F. POTTER.

Witnesses:

WILLIAM W. RICKARD,

JOHN D. THURSTON.