

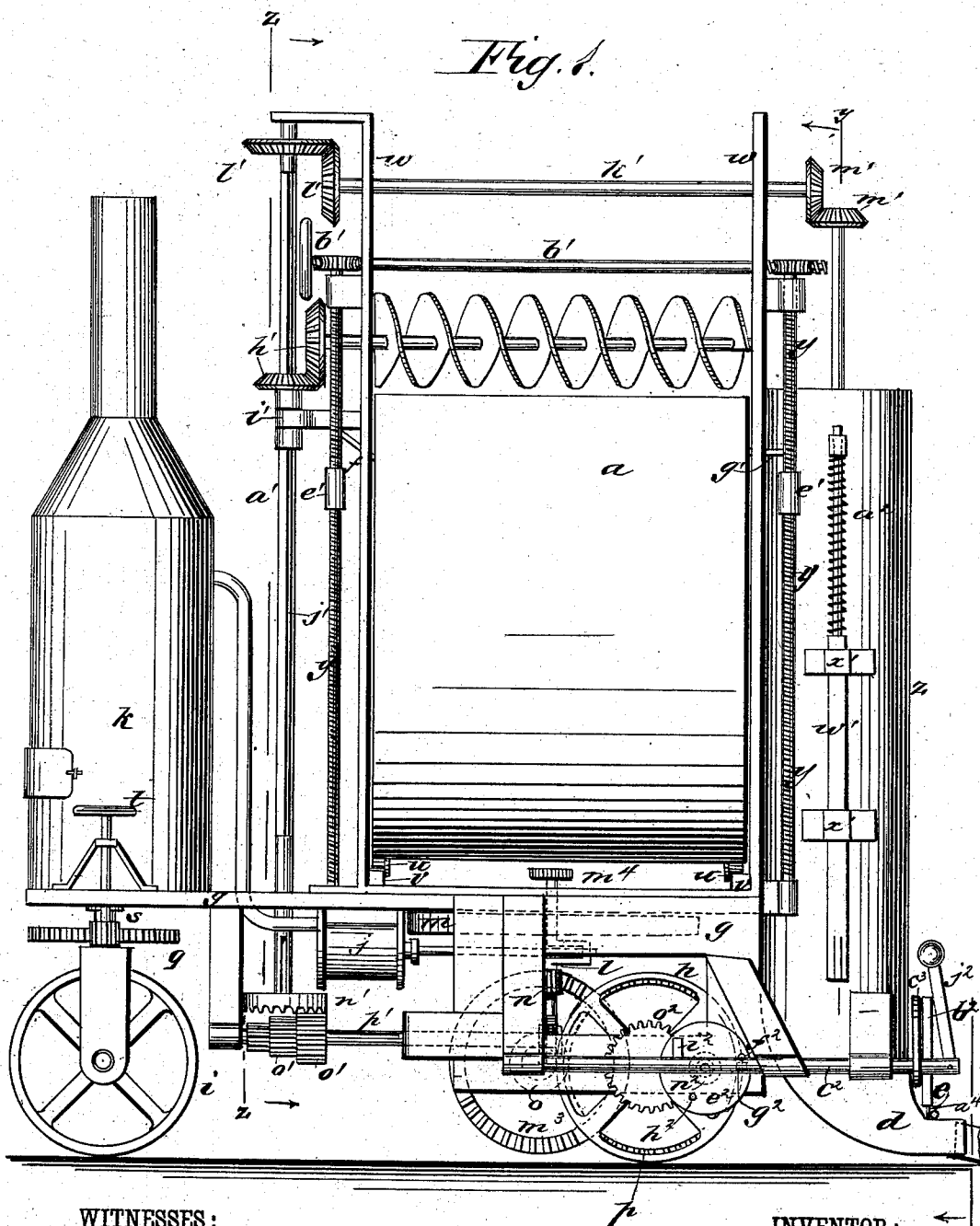
(No Model.)

3 Sheets—Sheet 1.

H. STELZMANN.
TRAVELING BRICK MACHINE.

No. 296,082.

Patented Apr. 1, 1884.



WITNESSES:

Francis McArdele
& Sedgwick

INVENTOR:

H. Stelzmann
BY *Munn & Co*
ATTORNEYS.

(No Model.)

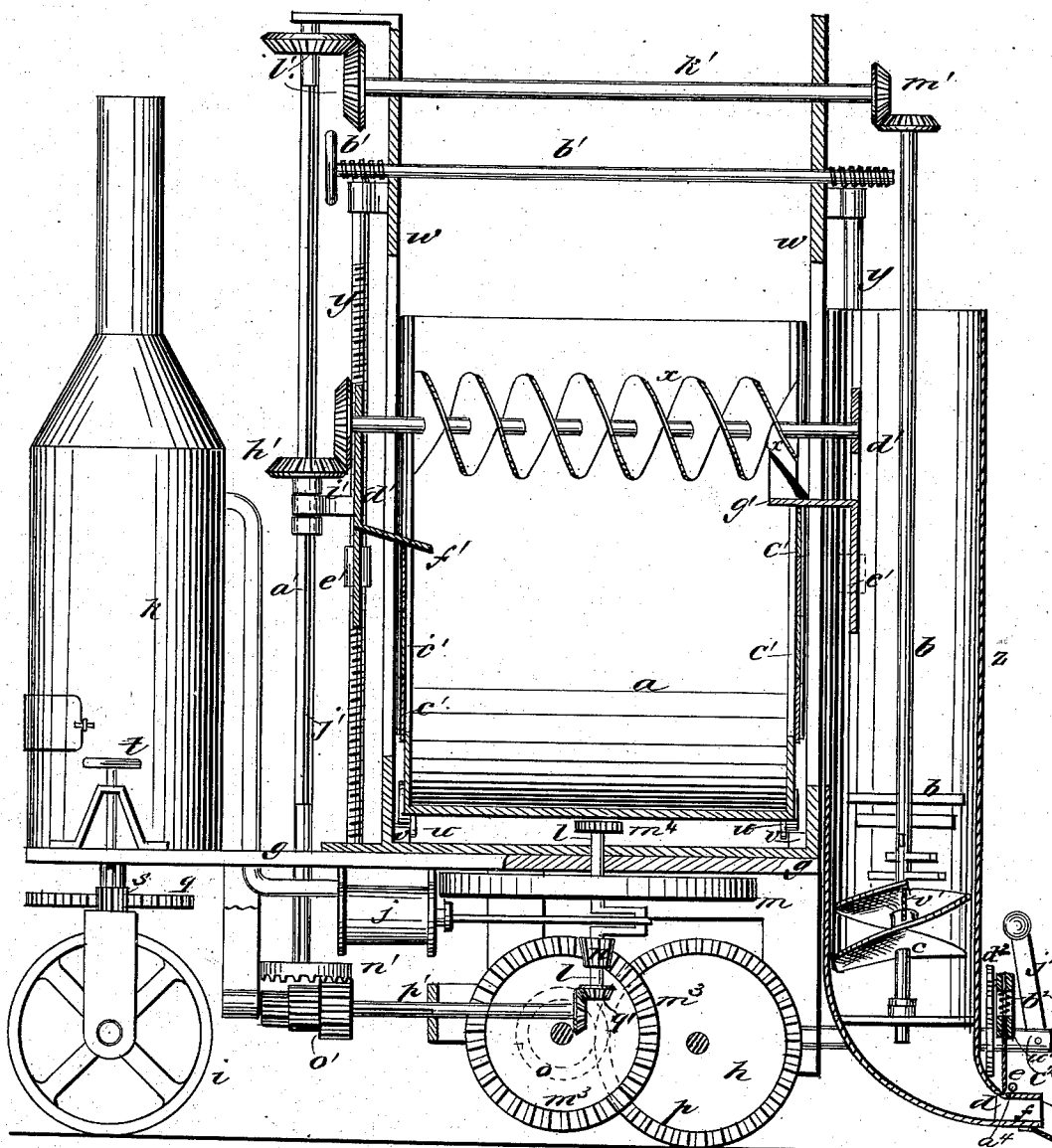
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Patented Apr. 1, 1884.

Fig. 2.



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(No Model.)

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Fig. 3.

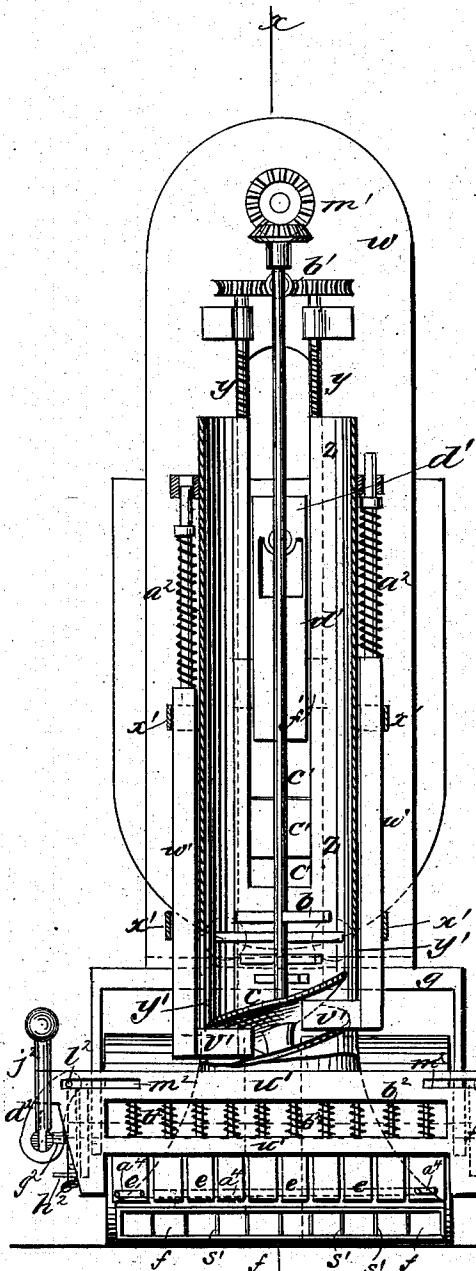
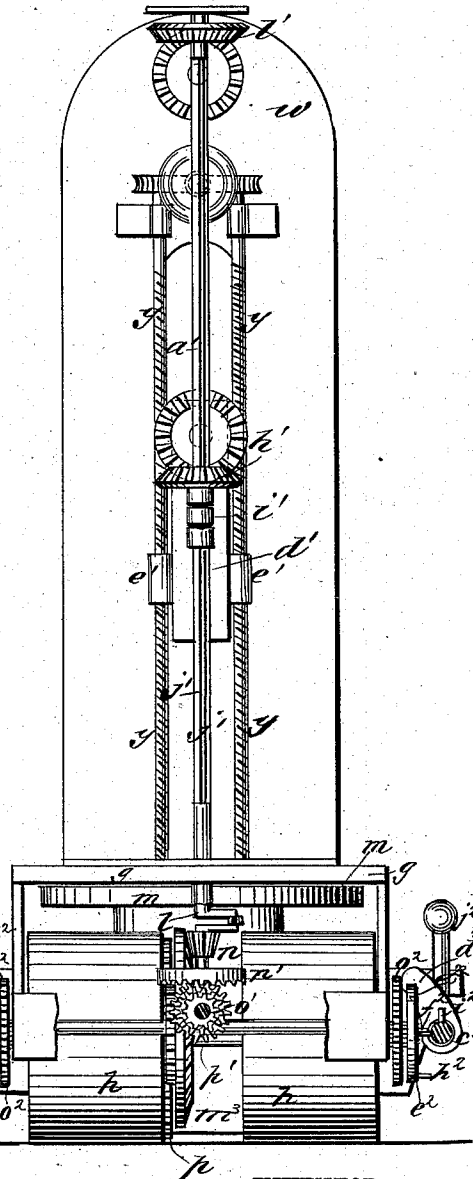
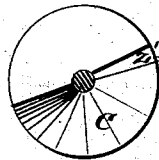


Fig. 4.



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INVENTOR:

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UNITED STATES PATENT OFFICE.

HENRY STELZMANN, OF LEECH LAKE, MINNESOTA.

TRAVELING BRICK-MACHINE.

SPECIFICATION forming part of Letters Patent No. 296,082, dated April 1, 1884.

Application filed June 26, 1883. (No model.)

To all whom it may concern:

Be it known that I, HENRY STELZMANN, of Leech Lake, in the county of Cass and State of Minnesota, have invented a new and Improved Brick-Machine, of which the following is a full, clear, and exact description.

My invention consists of a locomotive-machine contrived to feed the clay from a tank carried upon it into a device where it is worked preparatory to pressing, and is then passed through a press, from which the pressed clay is delivered in properly-formed brick upon the surface of the drying-yard, all by the automatic action of machinery geared with the propelling-engine, the only hand-labor required besides that of the engineer being for the removal of the clay-tank when it becomes empty and the substitution of a filled one, whereby the labor of the temperers, molders, and truckers as employed in the common practice may be dispensed with, all as hereinafter fully described.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of my improved brick-machine. Fig. 2 is a sectional elevation of the machine on the line *xx* of Fig. 3. Fig. 3 is a section on line *yy*, Fig. 1. Fig. 4 is a section on line *zz*, Fig. 1; and Fig. 5 is a section of the auger or screw employed for pressing the clay.

The tank *a*, for holding the clay, the mixer *b*, screw or auger press *c*, pressing-chamber *d*, cutters *e*, and dischargers *f* are mounted on a locomotive-truck, *g*, which is made to travel about the yard on two rollers, *h*, and a caster-wheel, *i*, by the power of an engine, *j*, supplied with steam from the boiler *k*, and connected to the vertical crank-shaft *l*, carrying the horizontal balance-wheel *m*, and geared by the bevel-pinion *n* with the wheel *m*³, which gives motion to a pinion, *o*, geared with a toothed rim, *p*, on one of the rollers *h*. The caster-wheel *i* is geared by the wheel *q* and pinion *s* with a hand-staff, *t*, for suitably guiding the machine about the yard. The tank *a* is mounted on rollers *u*, to be rolled on and off the truck, which has rails *v*, with which other rails or platforms or bridge-planks are to

match when the tank is to be shifted. The said tank is received on the truck between uprights *w*, on which a feeding-screw, *x*, is mounted by vertically-adjusting screws *y*, to be gradually lowered into the tank as the clay is delivered therefrom by said screw into the hopper *z* of the mixer, the feeding-screw being geared with the shaft *a'*, for being rotated by the driving-engine, the screws *y* being turned by the engineer from time to time with the hand-wheel and shaft *b'*, and the tank having removable plates *c'* to open slots at its sides for allowing the shaft of the feed-screw to descend. The shaft of the feed-screw is carried in bearings of cross-heads *d'*, which have screw-threaded lugs *e'* fitted on the screws. One of said cross-heads has a chute, *f'*, to throw back any clay that may fall out of the slot of the clay-tank on that side, and the other cross-head has a sort of chute, *g'*, for conducting the clay into mixer-hopper *z*. The bevel-wheel *h'* on shaft *a'*, with which the feed-screw shaft is geared, is made to slide along shaft *a'* as the feed-screw shaft is shifted up and down by an arm, *i'*, attached to the cross-head *d'*, the said shaft having a feather, *j'*, by which the wheel *h'* is made to revolve whenever it may be along it. The shaft *a'*, which also drives the mixer *b* and pressing-screw *c* by shaft *k'* and suitable connecting-gears, *l'* and *m'*, supported by the uprights *w*, is geared by a crown-wheel, *n'*, differential pinions *o'*, shaft *p'*, and bevel-wheels *q'* with the crank-shaft *l*, for operating said mixer and presser by the same motive power that drives the truck, and at the same time. The crown-wheel *n'* and the pinions *o'* are suitably adjustable on their respective shafts for gearing the crown-wheel with any one of the pinions, as may be desired, for regulating the rate of the delivery of bricks to the speed of the machine along the ground. The cylindrical hopper *z* is contrived in the laterally-widened and transversely-contracted pressing-chamber *d*, which curves into horizontal discharging-passages *f* equal in depth to the thickness of the bricks, and separated into spaces equal to the width of the bricks by partitions *s'*, which serve for cutters to divide the clay along the edges of the bricks, and a gang of cutters, *e*, carried by a cross-bar, *u'*, is employed to divide the clay at the ends of the

bricks, said cutters being made to descend at suitable intervals of time through slots in the cover of the discharge-passages. The bricks thus formed are forced out of the machine by the clay behind, and fall gently on the drying-bed of the yard in successive batches, which are delivered suitably distant from each other to prevent any injury by falling in contact with each other, and for allowing the requisite space for the proper circulation of air for drying.

For insuring the passage of the clay down the spaces between the spirals of the pressing-screw c , I employ abutments v' , attached to bars w' , fixed in suitable bearings, x' , upon the outside of the hopper z , to rise and fall thereon, the said abutments projecting through slots y' of the hopper and into the spaces between said spirals, wherein they are pressed down, as the screw turns for resisting the tendency of the clay to adhere to the spirals, and be carried around with the screw, instead of being driven downward. At a suitable part of the pressing-screw—say about half a turn of the helix—a radial slot, z' , is made in it, to allow the abutments to rise to the starting-point by the effect of springs a^2 , applied to the bars w' for the purpose. The cutters e , by which the clay is cut to form the ends of the bricks, are mounted in the cross-head u' , so as to slide, and with springs b^2 to hold them to their work, but to yield in case the cutters may be resisted by stones or other materials too refractory for them. The cross-head u' is operated by the rock-shafts c^2 , to which it is connected by arms d^2 , and the rock-shafts are operated by the tappet-wheels e^2 , geared with the drums h , and having tappets f^2 , which thrust the cross-head down by contact with the tappets g^2 on the rock-shafts, and also having tappets h^2 , which raise the cross-head by contact with the tappets i^2 on the shafts. The tappets f^2 and h^2 are to be so adjusted in the wheels e^2 that the cutters e are made to descend when the clay has been forced the length of a brick beyond them, and to rise after a clearance-space of about an inch between the discharged and coming bricks has accrued. The rock-shafts are provided with a weighted arm, j^2 , which falls on the sides of the rock-shafts and holds them in their respective positions in the intervals between the action of the tappets f^2 and h^2 . The arms d^2 are in this case connected to the cross-head u' by pivots l^2 , working in slots m^2 , to allow the arms d^2 to swing in the cross-head when raising it, as represented in Fig. 1; but any other approved arrangement may be substituted for it.

The crank-shaft l has a pinion, m^4 , above the truck-platform, that may be used in case of need to gear with a ratchet to be connected with the clay-truck in any approved way to utilize the power of the engine for shifting the clay-tank on the truck. The tappet-wheels e^2 are geared with the roller-axes by pinions n^2 and wheels o^2 .

In practice the dischargers f are to run along the surface of the ground, so that the bricks will not fall heavily, and it is designed to have the mouth of the dischargers capable of rising and falling to accommodate them to uneven ground, and the rock-shafts c^2 will be made in two sections, which will be so coupled as to allow the arms d^2 to swing more or less, according as the dischargers are high or low.

I propose to arrange a steam-pipe from the boiler, and with a perforated section, a^4 , ranging along the sides of the cutters e , for moistening them with fine jets of steam, condensing on them, to lubricate them and the clay, to cause them to cut smoothly, and to lessen the friction.

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

1. The combination of a clay-tank, clay-feeder, clay-mixer, clay-presser, brick-former, clay-cutters, and dischargers, substantially as herein described, with a locomotive-machine, substantially as specified.

2. The combination, in a brick-machine, of a locomotive-truck, a removable clay-tank, and feeding, mixing, pressing, cutting, and discharging apparatus, substantially as described.

3. The clay-tank having slotted sides and removable plates c' , in combination with the locomotive-truck having vertically-adjustable feeding-screw x and clay mixing, pressing, cutting, and discharging mechanism, substantially as described.

4. The combination of vertically-adjustable feed-screw x , adjusting-screws y , and cross-heads d' with the clay-tank a , having slotted sides and removable plates c' , and being mounted on the truck, together with the mixing, pressing, cutting, and delivering apparatus, substantially as described.

5. The combination of the vertically-adjustable feed-screw x , cross-heads d' , and chutes f' g' with the clay-tank a , having slotted sides and removable plates c' , substantially as described.

6. The combination of clay-tank a , having rollers u , with the locomotive-truck g , having rails v , uprights w , and feed-screw x , substantially as described.

7. The combination of the vertical clay-mixing hopper z , mixer b , clay-tank a , and feed-screw x with a locomotive-truck, said mixer and feed-screw being geared with the motive apparatus, substantially as described.

8. The combination of the vertical clay-mixing hopper z , mixer b , pressing-screw c , tank a , and feed-screw x with a locomotive-truck, said presser, mixer, and feed-screw being geared with the motive apparatus, substantially as described.

9. In a brick-machine, the connected series of sliding cutters e , arranged in a cross-head, u' , and actuated by suitable mechanism to descend when sufficient clay for a brick has

passed them, and to rise when said clay has arrived within an inch or so of the preceding brick, as described.

5 10. The combination of tappet-wheels e^2 , rock-shafts c^2 , arms d^2 , cross-head u' , and cutters e with dischargers f , substantially as described.

10 11. The combination of a steam-jet pipe, a^4 , with the cutters e , having connection with the boiler or other source of steam-supply, and arranged to lubricate the cutters and the clay by steam-jets, substantially as described.

12. The combination of the vertical clay-mixing hopper z , mixer b , pressing-screw c , press-

ing-chamber d , dischargers f , and cutters e with 15 a locomotive-truck having a clay tank and feeder, and said mixer, presser, cutters, and feeder being geared with the motive apparatus, substantially as described.

13. The combination of abutments v' with 20 the clay-pressing screw, said abutment being movable along the screw, and the screw having a slot or opening, y' , substantially as described.

HENRY STELZMANN.

Witnesses:

H. J. KING,
E. BENEDICT.