2 Sheets—Sheet 1.

H. C. SERGEANT.

BRICK-MACHINE.

No. 195,199. Patented Sept. 11, 1877.

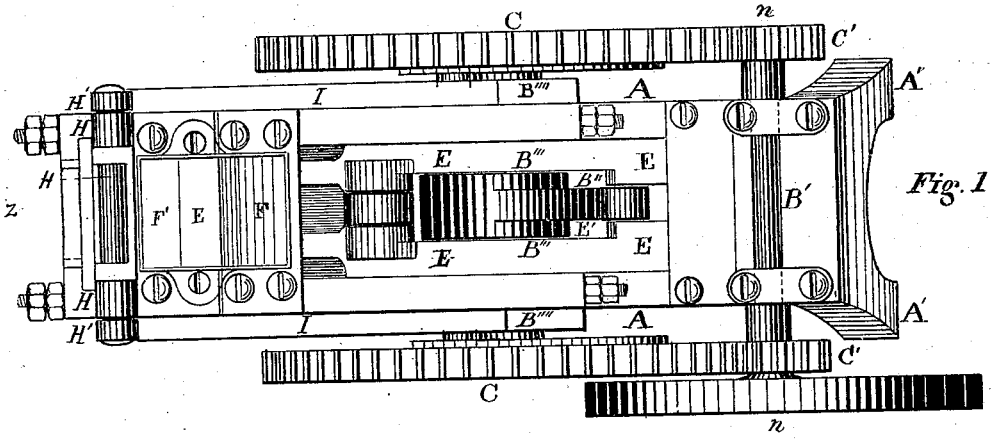

Fig. 1

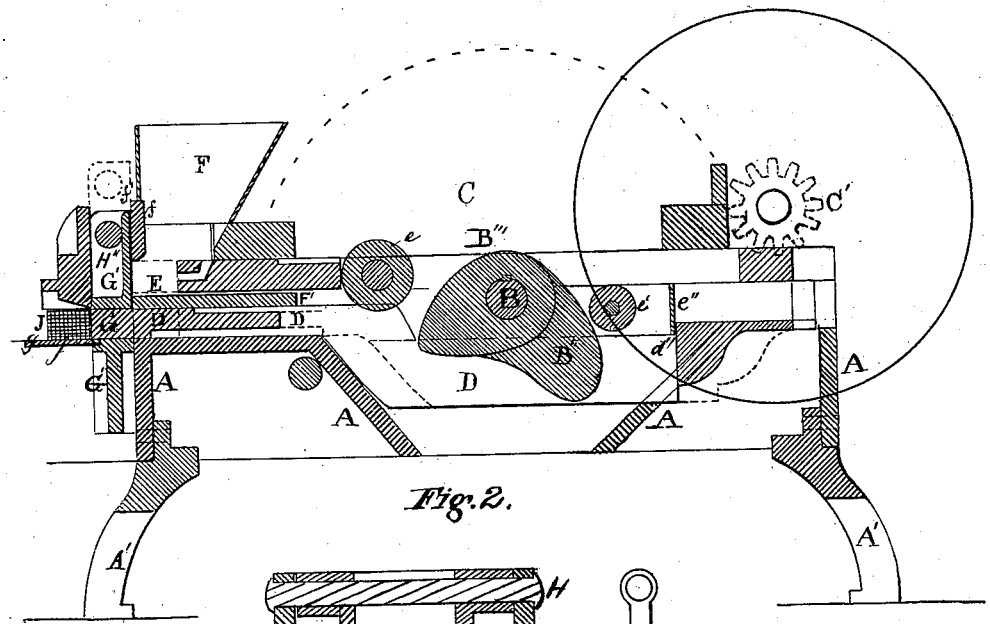

Fig. 2.

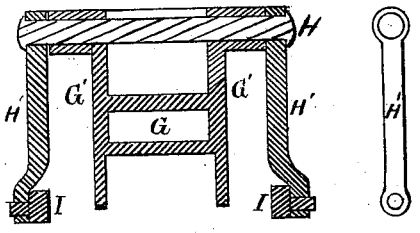

Fig. 13.

Fig. 14.

Witnesses

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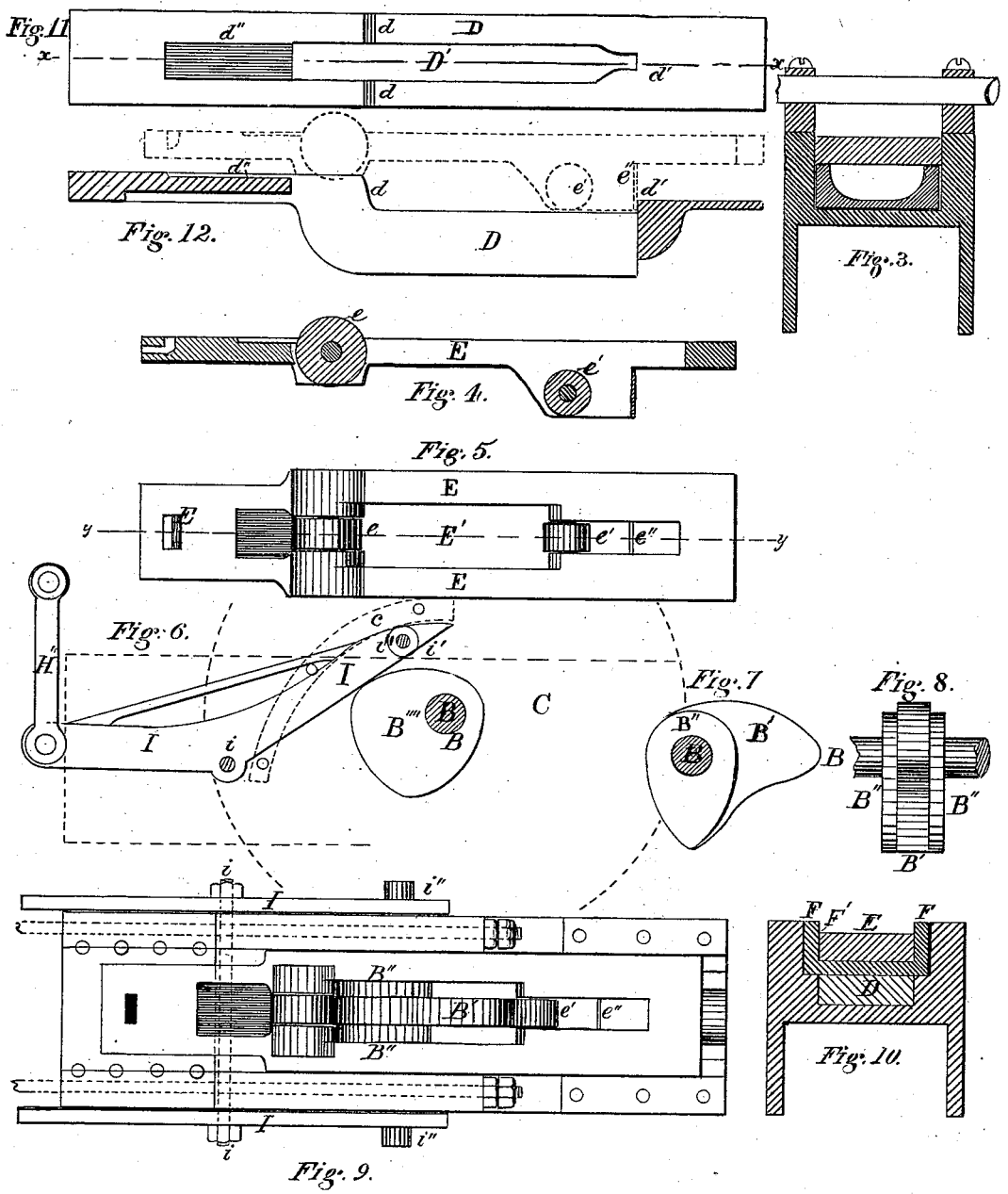

Witnesses
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UNITED STATES PATENT OFFICE.

HENRY C. SERGEANT, OF NEW YORK, N. Y.

IMPROVEMENT IN BRICK-MACHINES.

Specification forming part of Letters Patent No. **195,199**, dated September 11, 1877; application filed March 14, 1877.

To all whom it may concern:

Be it known that I, HENRY C. SERGEANT, of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Machines for Making Brick; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification:

Figure 1 is top view of the whole machine. Fig. 2 is a longitudinal vertical section on *z z* of Fig. 1. Fig. 3 is a transverse section on *n n* of Fig. 1. Fig. 4 is a section of Fig. 5. Fig. 5 is a plan of one of the followers. Fig. 6 is side view of one of the levers, operated by a cam on the main shaft. Figs. 7 and 8 are side and end views of the central cams; Figs. 9 and 10, top view and cross-section of the machine, with parts of it removed; Figs. 11 and 12, top view and section of a follower. Fig. 13 is a front view of the mold-frame, and Fig. 14 is an edge view of the same.

This invention relates to improvements in machines for making paving or other kinds of brick composed of asphalt and sand or other suitable material, and also for any other purposes for which such bricks may be adapted.

These improvement consists in two sliding bars moved by cams arranged upon a central shaft, in which one bar is employed to press the material, which is fed down through a vertical hopper into the mold, after which the thus-formed brick is carried downward a short distance, and the other bar, by the action of the cam, forces the brick laterally out of the mold and on a shelf, and thence into a bath of cold water, by which it is cooled and hardened at the same time the mold is moistened, all of which will be hereinafter more fully described.

A is the main body of the machine, made of metal, of sufficient strength and due proportions for the purpose of sustaining the operating mechanism; and it is supported on legs A A′, which, in this case, are bolted to the body, as seen in section, Fig. 2. B is a main shaft across the body A, and on each end is a spur gear-wheel, C, which meshes into a pinion, C′, on a shaft, B′, across the end of the main body. On the inside of these spur-wheels C are cams *c c*, bolted on, as shown in Fig. 6.

On main shaft B there is a central cam, B″, having two side cams, B‴ B‴, and two outer cams, B⁗. D is a follower-bar, in plan and vertical longitudinal section in Figs. 11 and 12, having a central opening, D′, and cam-surfaces *d d*, against which the cams B‴ B‴ impinge, and consequently force the bar D to the front end of the main body.

Above the end of D is a shoulder, *d′*, for a purpose which will be explained. The groove D′ is to permit the cam B″ to move freely without contact with it.

E is another bar, for pressing the brick, and has in it a central opening, E′. This bar has two friction-rollers, *e e′*, against which the central cam B″ impinges as it revolves with the main shaft, viz: As it moves on *e* it forces the bar to the front end, and compresses the material in the mold. Having passed over, it comes to the roller *e′*, and carries the bar back again to the rear end, to allow the material in the hopper to fall into the mold for another brick, as it will be seen, by reference to Fig. 2, that bar *e* forms a movable bottom to the feed-hopper. Beyond roller *e′* is a narrow slot, across which is a diaphragm, *e″*, which, as the bar returns, catches upon the shoulder *d′* of the bar D, and carries the bar with it, so as to withdraw it from the mold. F′ is an open box, in which the bar E slides, as seen in Figs. 10 and 2; the bottom being the floor of the hopper F when E is withdrawn, and it receives the material for mold G, which is formed in the sliding plate G′, as seen in Fig. 13.

H is a frame, supported within two side bars, H′ H′, which are connected by a bolt, H″. Suitably secured to the bottom of these side bars H′ H′ are the outer ends of two levers, I I, held by a bolt, *i*, which passes through the body and is secured by nuts.

These levers I I have a straight surface, *i′*, on which the outer cams B⁗ impinge and raise up that end of them, and thereby carry downward the frame H, and with it the mold G, to the lower floor, at the line *g*, ready for the removing-bar D to force the brick out of the mold, as seen in Fig. 2, where J represents

the brick shoved out of the mold, and into the cistern, and on the shelf *j*. At that time the end of D occupies the space within the mold, as seen at G in Fig. 2. Another turn of the main shaft B then withdraws the bar D, by the action of the diaphragm *e''* against *d'*, as described above. D falls back to the inner line of the mold, and the mold-frame rises by means of the cams *c c*, on the inside of the spur-gears C C, passing over friction-rollers *i'' i''* on the levers, as seen in Fig. 6. The mold is carried up to its first position, ready for the presser-bar E to force another brick into it; and thus, by the continued rotation of the shaft, the two bars operate so that the upper one, E, presses the material into the mold G, which, when formed, is carried by the sliding plate downward, and the other bar, D, then forces the brick outwardly onto the shelf and into the cistern of water.

For the proper and just registering movements of the presser-bar E, the sliding plate G', in which is the mold G, has its face above the mold planed off just enough to allow the end of the presser-bar E to enter the mold slightly beyond the line of contact with the stationary plate *f*, which forms the front of the hopper F, as seen in section, Fig. 2, where this vacant space planed off is represented in a black line at *f'*.

This is an important feature in the machine, as the whole of the material is pressed into the mold, and the end of the presser-bar E forms a part of the mold-frame when the brick is to be carried down, and prevents the brick from catching upon the edge of the frame.

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

1. The top of the mold constructed with a recess, *f'*, in the inner face, substantially as and for the purpose described.

2. The top of the mold having a recess, *f'*, in combination with the presser-bar E, substantially as and for the purpose described.

3. The cams B'' B''' B''', in combination with the bars D and E, for the purpose of pressing the brick with one and removing it from the mold with the other.

4. The combination of the diaphragm *e''* on the bar E with the shoulder *d'* on the bar D.

5. The combination of the bars D E, cams B'' B''' B''', the mold G, side levers I I, and cams B'''' B'''' and *c c*.

6. The recess *f'* in the top of the sliding mold, in combination with the stationary piece *f*, which forms a part of the upper side of the mold.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

HENRY C. SERGEANT.

Witnesses:
CHARLES MOORE,
PATRICK SMITH.