

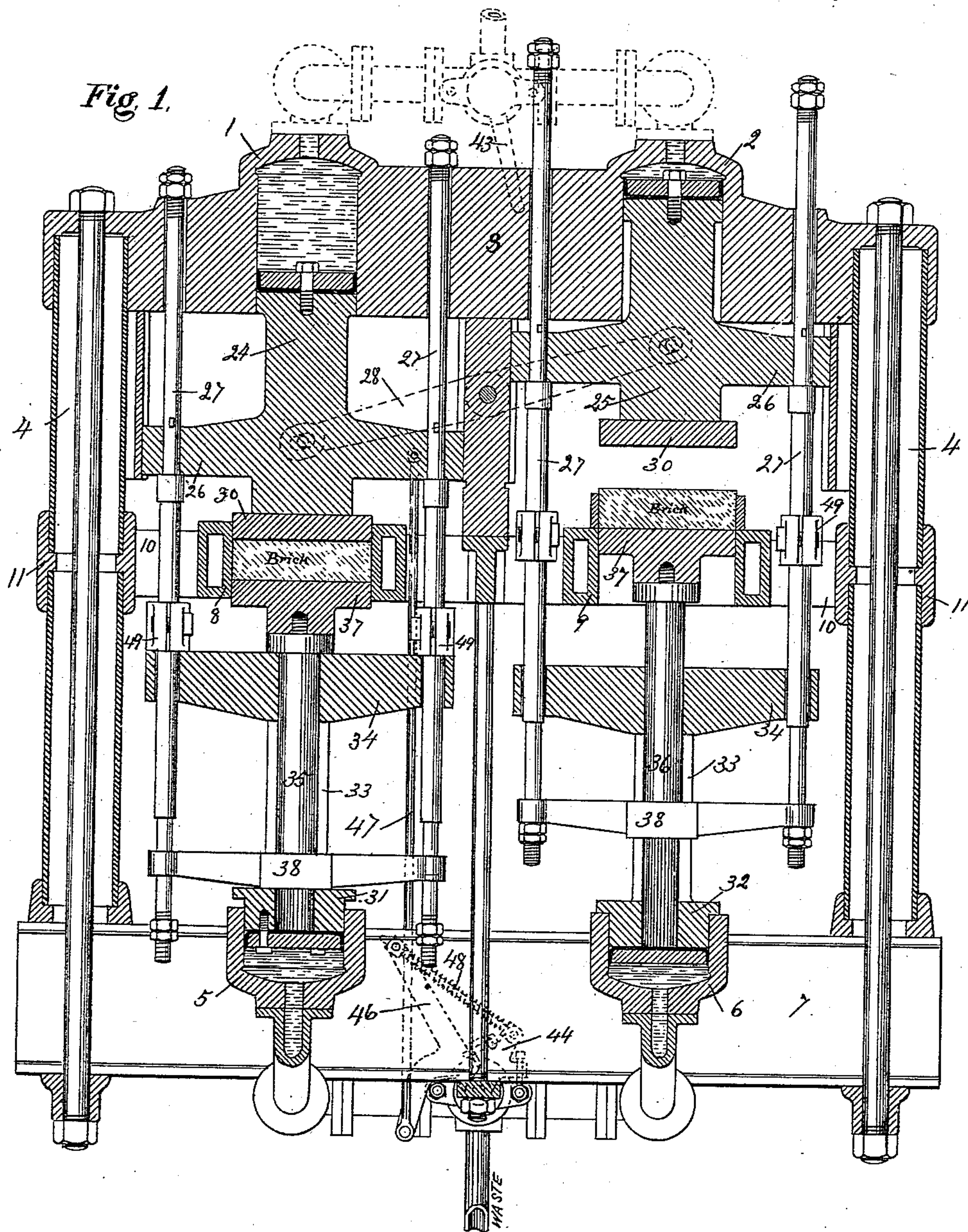
(No Model.)

3 Sheets—Sheet 1.

N. J. TUBBS.
BRICK PRESS.

No. 420,128.

Patented Jan. 28, 1890.



Witnesses:
Minor Harvey
R B Grove

Inventor,
Nelson J. Tubbs
by his atty.
Arthur L. Stevens

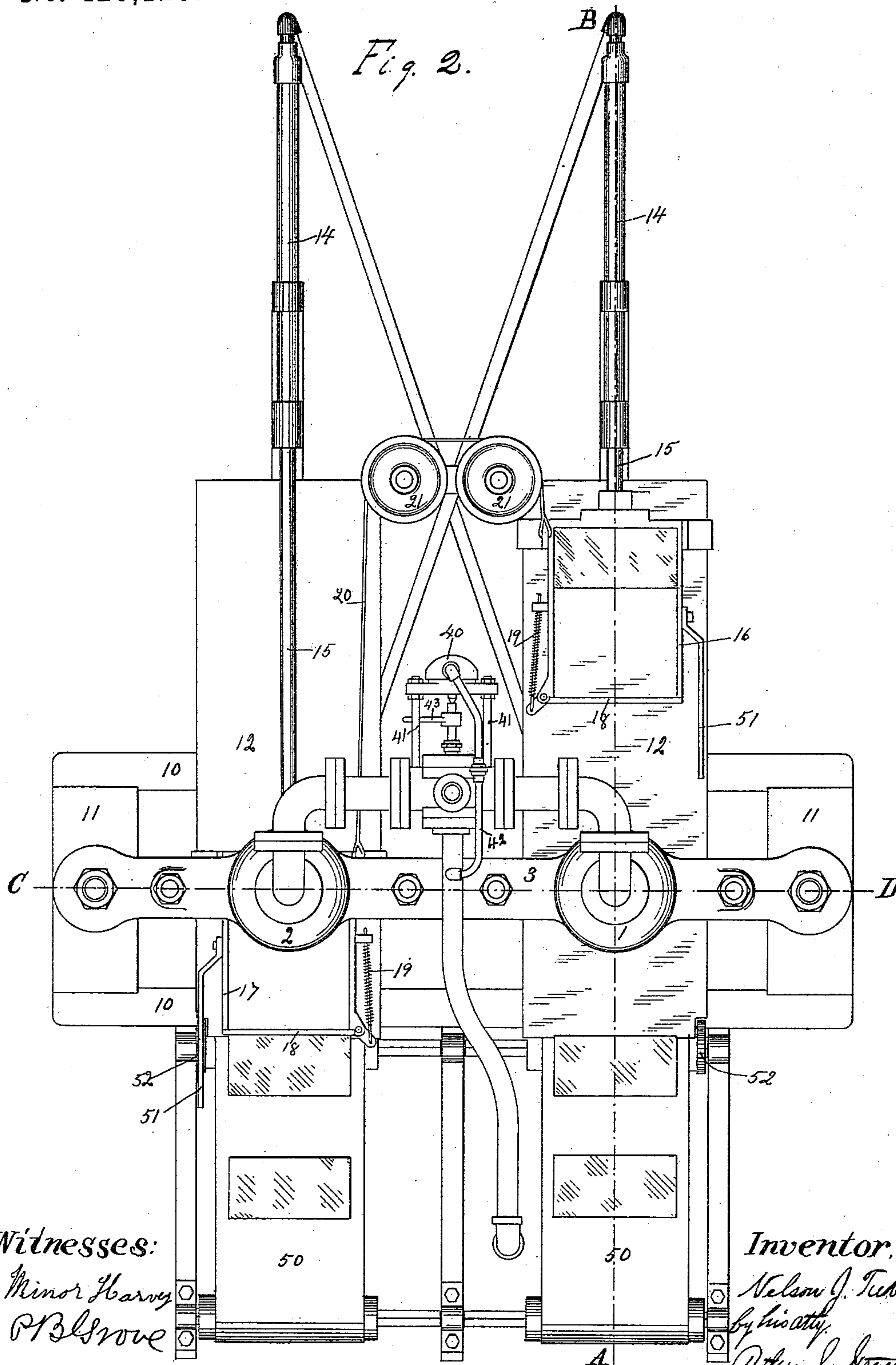
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P. B. Snow

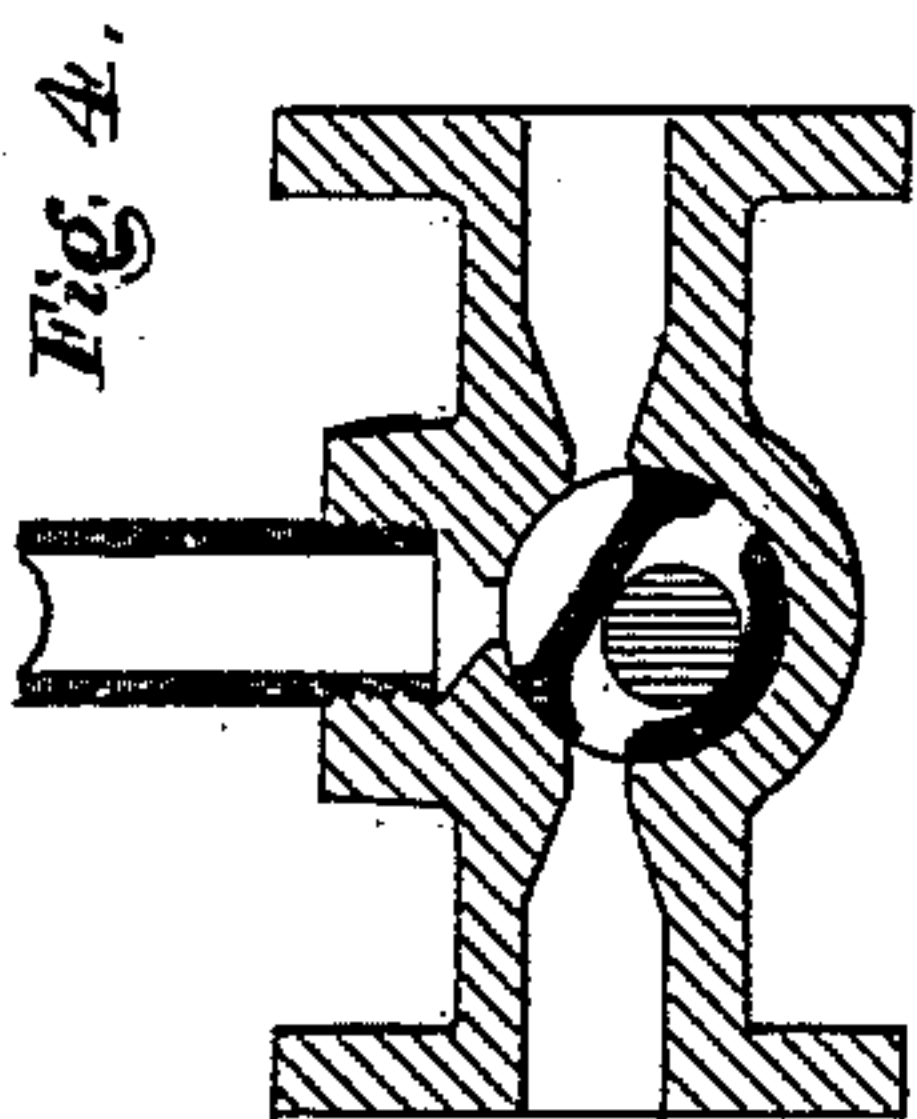
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UNITED STATES PATENT OFFICE.

NELSON J. TUBBS, OF PHILADELPHIA, PENNSYLVANIA.

BRICK-PRESS.

SPECIFICATION forming part of Letters Patent No. 420,128, dated January 28, 1890.

Application filed August 6, 1889. Serial No. 319,854. (No model.)

To all whom it may concern:

Be it known that I, NELSON J. TUBBS, a citizen of the United States, and residing at Philadelphia, in the State of Pennsylvania, have invented certain new and useful Improvements in Brick-Machines, of which the following is a specification.

My invention relates to that class of machines designed to re-press brick, and comprises certain features and devices by which I am enabled to apply pressure to both sides of the brick in the mold, and by which the bricks are automatically fed and discharged from the mold, the object being to produce brick of greater density and with greater rapidity than has heretofore been done. I accomplish this by the devices illustrated in the accompanying drawings, in which—

Figure 1 is a vertical transverse section through the pressure cylinders and molds on line C D, Fig. 2. Fig. 2 is a plan view of the machine. Fig. 3 is a vertical longitudinal section through one of the molds on line A B, Fig. 2. Fig. 4 is a detail view of the valve, and Fig. 5 is a view of the tripping or quick closing device attached to one of the valves.

Similar reference-signs refer to similar parts throughout the several views.

The machine is duplex in its action, and has two molds and four pressure-cylinders. The two upper cylinders 1 and 2 are cast in the upper girder 3, which is supported upon the posts 4. The lower cylinders 5 and 6 are secured to the I-beams 7. Between the top girder and the I-beams are placed the molds 8 and 9, which are supported upon the girders 10, which are secured to the posts by the cross-piece 11. The molds 8 and 9 have a cored space around them forming a steam-jacket. Flush with the top of the molds are the tables or plates 12, supported upon the girders 10 and the bracket 13. To this bracket are secured the pressure tubes or cylinders 14, having plungers 15, secured to which are the frames 16 and 17. These frames have a hinged front piece 18, which is held across the front of the frame by means of the spring 19, but is capable of swinging outward to leave the frames open in front. The frames 16 and 17 are connected by a chain or wire 20, passing over suitable pulley-wheels 21, and arranged so that when one of

the plungers 15, with its frame, is carried forward the other plunger and frame are pulled backward. The upper cylinders 1 and 2 have plungers 24 and 25, with arms 26, to which are secured the rods 27. Said rods extend upward through openings in the top girder, and are provided with nuts which can be adjusted to stop or limit the downward stroke of the plungers.

The lever 28 is fulcrumed to the center support of the machine and is slotted at each end to receive the studs 29, which are inserted in the plungers. When either plunger is forced down, the lever raises the other plunger.

To the bottom of the plungers 24 and 25 are secured the dies 30. The bottom cylinders 5 and 6 have plungers 31 and 32, which are hollow or tubular, with slots 33 through their sides. Two arms 34 project from each plunger, and are provided with bosses through which slide the rods 27. In these plungers are the slides or plungers 35 and 36, to which are secured the dies 37.

Under the plungers 35 and 36 and passing through the slots 33 in plungers 31 and 32 are the bars 38, through the end of which pass the reduced portions of rods 27, these rods being provided with nuts at their lower end, which are brought to bear against the bars 38 for the purpose of raising the inner plungers 35 and 36.

Secured to the rods 27 are the clamps 49, for the purpose of arresting the upward movement of the plungers 31 and 32.

The upper cylinders are connected to a three-way valve, (shown in detail in Fig. 4,) which is operated by means of a hand-lever 43, or otherwise. The bottom cylinders are connected to a similar valve, which is operated by a tripping device attached to one of the upper plungers. The valve which I prefer to use and illustrate in the drawings has three parts, with the pressure-pipe entering the end. The plug has a stem extending through a stuffing-box, with a thrust-bearing or center formed by a conical stud in a piston of the equalizing cup or cylinder 40, which is supported from the body of the valve by studs 41 and is connected by a small pipe 42 with the main pressure-pipe. The bottom valve has in lieu of the hand-lever a lever 44, car-

rying two studs or screws 45, which strike against the studs 41 and limit the movement of the valve.

Loose on the valve-stem is the bell-crank 5 46, the short arm of which is connected by the rod 47 with the plunger 24, and to the end of the long arm is attached a spring 48, which has its other end attached to the lever 44. As the plunger 24 is forced downward 10 the bell-crank 46 will move in the direction of the arrow and compress the spring until the end of the bell-crank carrying the spring passes the center of the lever 44, when the tension of said spring forces the lever 44 to 15 the opposite side, thus changing its position.

The operation of the machine is as follows: A brick is placed in the frame 16 during the time it is withdrawn on the plate 12, the frame 17 being in position over the mold 9. 20 As the plunger 25 descends it forces a brick into the mold 9 and raises the plunger 25 by means of the lever 28. As the plunger 25 descends the nuts on the rods 27 come in contact with the top girder, thus arresting the 25 motion of said plunger, but not until, however, by means of the rod attached to the ascending plunger 24, the bottom valve has been reversed, which admits pressure to cylinder 6, forcing up the plunger 32 until the 30 arms 34 come in contact with the clamps 49 on rods 27. At the same time that the plunger 32 acts the plunger and frame 16 are forced forward over the mold 8. While the frame 17 is withdrawn, the swinging piece 18, 35 striking against the plunger 25, swings out, but closes again as soon as it passes the mold. A brick is now placed in this frame, and the valve between the upper cylinders reversed. The plunger 24 now descends, carrying the brick with it, into the mold 8, compressing it from the upper side until arrested by the nuts on rods 27. As the upper plunger is completing its stroke the valve between the bottom cylinders trips and reverses, as before explained, forcing the plunger up against 45 the stop-clamps 49. At the same time that the plunger 24 descends the plunger 25 ascends with the attached rods 27, and the nuts at the lower end of said rods raise the bar 38 and plunger 35, with the bottom die, until the 50 pressed brick is pushed out of mold 9 and the surface of said die is even with the top of the mold. From this position the brick is pushed forward by the swinging piece 18 on frame 17 onto the belt 50, which is moved at 55 the same speed at which the frame is moving by means of the toothed bar 51 engaging with the ratchet-wheel 52.

As a further explanation of the duplex and 60 automatic action of the machine, it may be stated that as the top plunger of one side goes

down it forces the brick into the mold and presses it from the top. The motion of this plunger actuates the valve that admits pressure to the bottom cylinder of the same side 65 which presses the brick from the bottom at or near the conclusion of the stroke of the upper plunger. Pipe-connection being made at a point between the valve and bottom cylinder with the pressure tube or cylinder of 70 the frame-plunger of the opposite side of the machine, it follows that while the brick is being pressed from the bottom the frame on the opposite side pushes away the brick last pressed and shoves another in position to be 75 pressed. The top valve is now reversed, and as the top plunger of the other side descends the first-mentioned top plunger is raised, together with the bottom die, thus lifting the brick just pressed out of the mold, and as the 80 bottom cylinder of the last-mentioned side receives pressure the brick just pressed on the first-mentioned side is pushed onto the belt in the same manner as before.

Having described my invention, what I 85 claim as new, and wish to secure by Letters Patent, is—

1. In a machine for re-pressing brick, the two molds 8 and 9 and the plungers 24 and 25, to which are attached the rods 27, in combination with the plungers 31 and 32, the inner 90 plungers 35 and 36, and the bars 38, substantially as described, and for the purpose set forth.

2. A machine for re-pressing brick, comprising two stationary molds 8 and 9, the upper plungers 24 and 25, and the bottom plungers 31 and 32, having inner plungers on slides 35 95 and 36, said inner plungers being supported and raised by the cross-bars 38 and the said rods 27, which are secured to the upper plungers, said upper and lower plungers being operated by hydraulic pressure and the molds being used alternately, the lever 28 raising one of the upper plungers while the other descends. 105

3. In a machine for re-pressing brick, two stationary molds having plungers to press from the top of said molds, said plungers being connected by a lever, such as 28, in combination with bottom plungers having cylinders which are connected with a valve which is controlled by the movement of said top plungers, said valve admitting pressure to the cylinders of the bottom plungers at or 110 near the conclusion of movement of the said upper plungers, substantially as described, and for the purpose specified. 115

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