(No Model.) 4 Sheets—Sheet 1.

J. THOMPSON.

BRICK AND TILE MACHINE.

No. 478,481. Patented July 5, 1892.

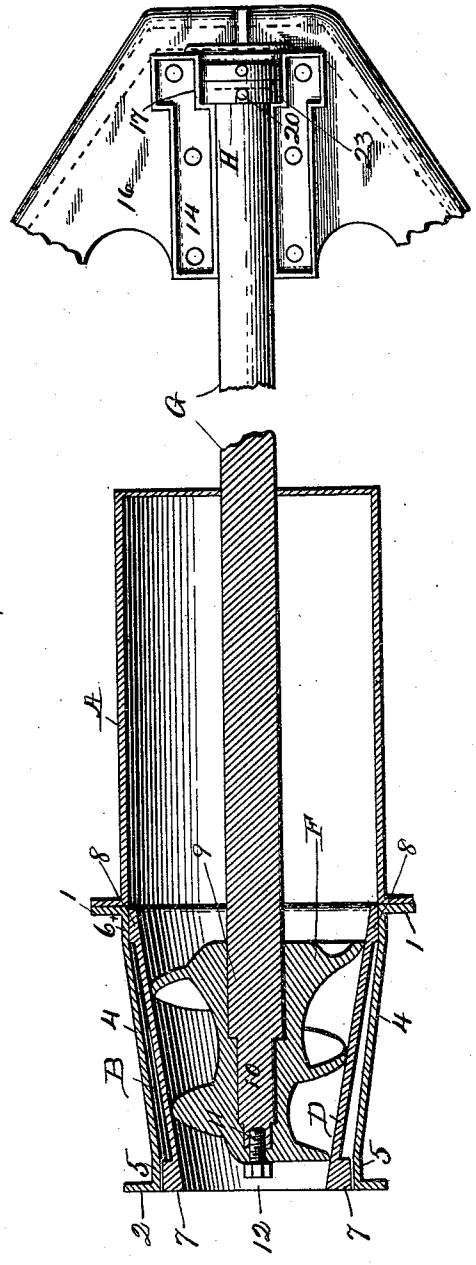

Fig. 1.

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(No Model.) 4 Sheets—Sheet 2.

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Fig. 3.

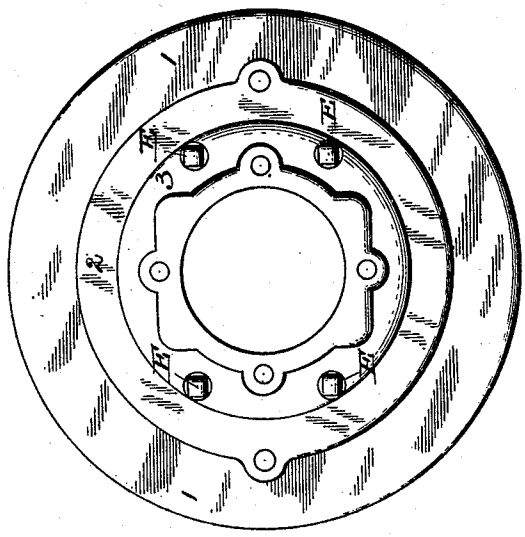

Fig. 2.

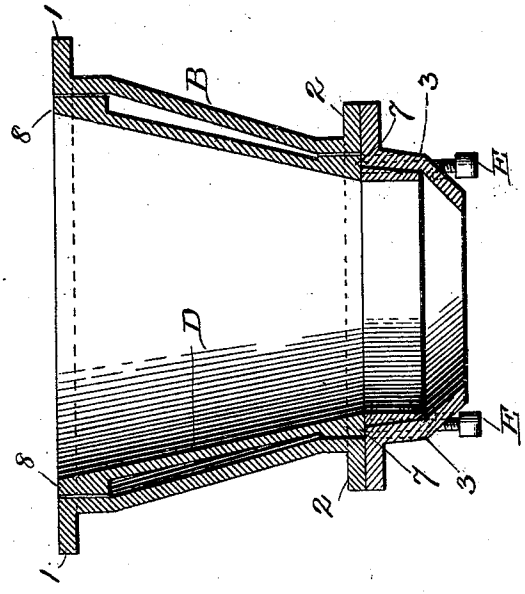

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Fig. 5.

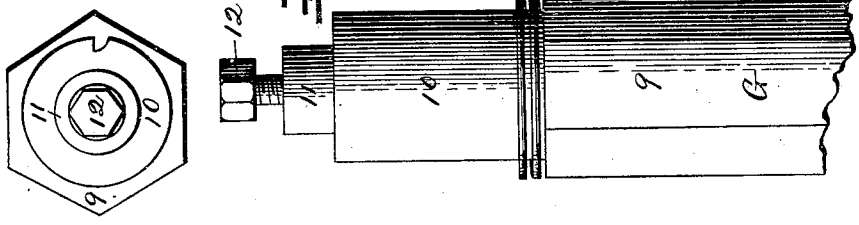
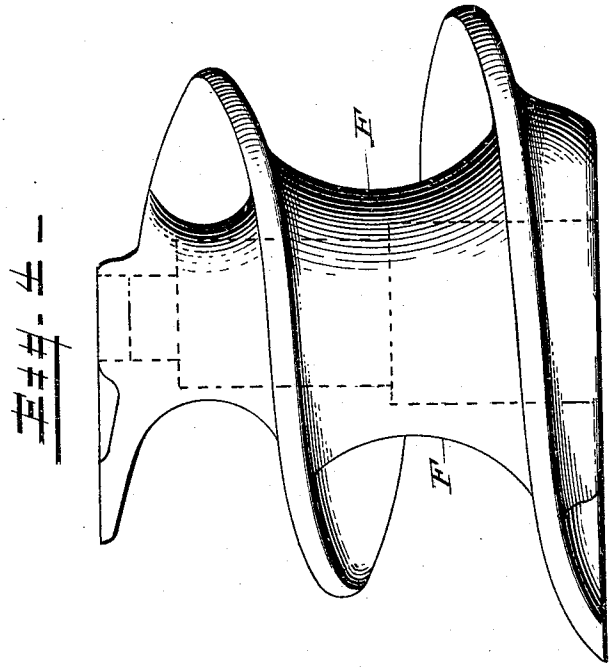


Fig. 6.

Fig. 7.



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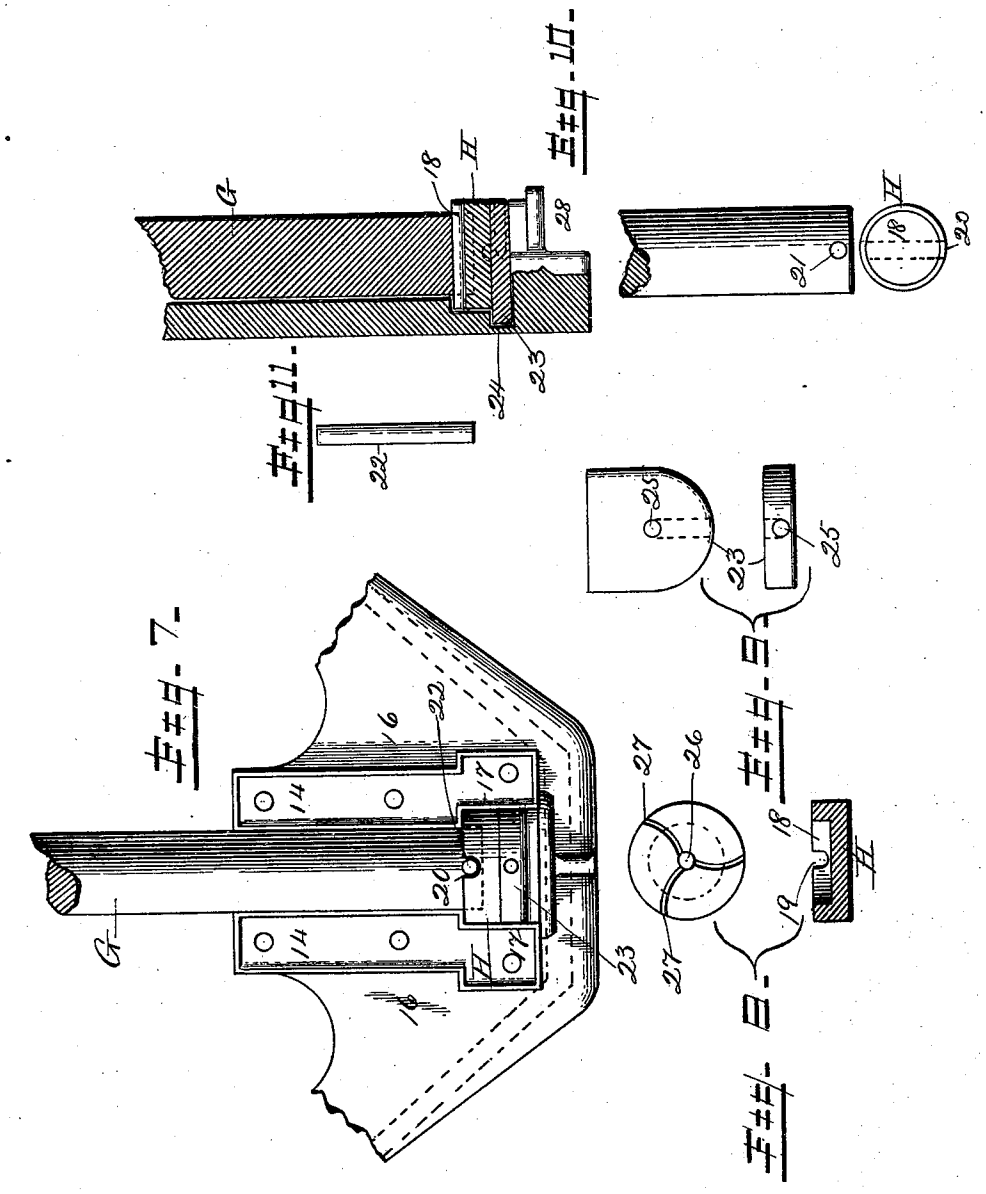

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UNITED STATES PATENT OFFICE.

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BRICK AND TILE MACHINE.

SPECIFICATION forming part of Letters Patent No. 478,481, dated July 5, 1892.

Application filed March 14, 1891. Renewed March 22, 1892. Serial No. 426,001. (No model.)

To all whom it may concern:

Be it known that I, JOHN THOMPSON, a citizen of the United States of America, residing at Bucyrus, in the county of Crawford and State of Ohio, have invented certain new and useful Improvements in Brick and Tile Machines, of which the following is a specification.

My invention relates to improvements in brick and tile machines of that character, style, or construction known as "screw-machines; and the objects are, first, to provide a new, useful, and adjustable lining to the mud-box of the machine, and, second, to provide a new, useful, and improved abutting bearing to the screw-carrying shaft, all as hereinafter fully described, and particularly pointed out in the claims.

I have fully and clearly illustrated my invention in the accompanying drawings, wherein—

Figure 1 is a central longitudinal section of a clay-tempering mill with my improvement applied. Fig. 2 is a detail sectional view of the mud-box on a larger scale than the complete view in Fig. 1. Fig. 3 is an end view of the same. Fig. 4 is a detail view of the screw which turns in the mud-box, the shaft-bearing in the hub being shown in dotted lines. Fig. 5 is a detail view of the end of the shaft which enters the screw. Fig. 6 is an end view of the shaft. Fig. 7 is a detail, on large scale, of the end of the mill on which the screw-shaft is supported, showing the construction and arrangement of the bearings. Fig. 8 is a detail of the bearing-cap to the shaft. Fig. 9 is a detail of the abutting plate, showing the oil-well. Fig. 10 is a detail of the shaft, showing the pin-hole for holding the bearing-cap in the shaft. Fig. 11 is a view of the pin which holds the cap to the shaft.

A designates the casing of the clay-mill, which may be of any of the improved and approved constructions. Since my improvements are specially confined to the construction of the mud-box and to the end bearings of the screw-shaft, I have not illustrated the driving-gear used to impart motion to the elements, as these may be any of the usual character and construction.

B designates the outer shell of the mud-box, consisting of a flanged and tapering or conical-shaped shell, the flanges 1 being adapted to secure the mud-box to the end of the clay-mill casing and the flanges 2 being formed to have fastened thereto the throat-piece 3, leading to the die-shell. The shell B in interior construction consists of a conical shell formed with a conical or tapering portion 4, terminating at each end in the interior in true cylinder extensions 5 6 of different diameters.

3 designates a cap-piece to which the die-box is secured, having flanges by which it is secured to the end of the mud-box, substantially as shown in the drawings.

D designates the lining, conforming in general construction to the interior contour of the outer shell, and consisting of a tapering or conical shell formed at each end on the exterior with lugs 7 8, the surfaces of which on parallel planes with the interior surfaces of the cylindrical end parts of the outer shell.

E designates set-screws let through the cap-piece 3 and bearing with their ends against the ends of the lugs 7, and thus serve to move and adjust the lining-shell D, as desired. F designates the screw, which consists of a tapering screw formed with a core to take the end of the axle or shaft, as indicated in the drawings.

In clay-mills of the character shown and described the screw, as well as the mud-box, is subjected to and liable to wear and depletion by the uses to which they are subjected in the passage of the clay through the parts, and it is the primary object in this part of my machine to provide means for adjusting the interior lining of the mud-box to accommodate the wear and tear of the screw and lining, and this I accomplish by the means and constructions shown and described. It will be perceived that the respective ends of the outer casing of the mud-box are parallel cylinders of different diameters and that the lugs on the lining cylinder conform to the diameters, so that when the interior of the lining wears off or the screw wears, and thus makes an opening or space between the parts, the lining may be adjusted. This relative arrangement of close adjustment is an essentiality to perfect work of the screw in tempering and

forcing the clay uniformly through the dies, so that by turning the adjusting-screws the lining will be moved inward, and consequently onto the screw, and the parts thus kept close in their connection and the clay forced to continue in the curve of the screw.

G designates the shaft on which the blades of the mill are secured and on which the screw in the mud-box is mounted. This shaft is polygonal in cross-section in the length constituting the shaft part, the end portion, as 9, extending into the hub of the screw and holding the screw against revolution on the hub-bearing. Extending from the end of the angular part of the shaft is a round section 10, and from this another round extension 11, which fits in corresponding bearings in the hub of the screw, and in the end of the shaft or part 11 is a threaded hole, which takes a headed and threaded set and adjusting-screw 12, by which the screw is held on the shaft against endwise displacement and by which it can be held in any set position. Washers, as 13, may be used to set the hub of the screw in longitudinal adjustment on the shaft if the screw should become worn in diameter and require to be moved outward into the mud-box.

The second part of my present invention involves the bearing of the shaft at the outer end. In screw clay-mills the back-pressure occasioned by the endwise force of the screw requires some means for holding the shaft strongly against this tendency to work backward, and I have provided the following-described means to effect the purpose: The shaft G is mounted in bearings 14 on the frame 16, the bearing 14 being formed at its outer end with a broadened recess 17 to receive the cap-bearing arranged on the end of the shaft, and the abutting-plate hereinafter described.

H designates the cap-bearing, consisting of a substantial circular plate having its center bored out, as seen at 18, to fit over the end of the shaft, and oppositely-arranged notches 19 20, cut in the annular wall thus formed. Through the shaft is a transversely-arranged hole 21 to take a coupling-pin 22, having its end projecting and engaging in the notches 19 and 20, whereby the cap-bearing is turned with the shaft. In front of the cap-bearing is arranged the abutting plate 23, which rests with its outer face against the metal of the frame, substantially as shown in the drawings. This plate 23 is rounded at its lower end and fits into a seat 24, formed in the bottom of the bearing-box, said seat corresponding to the shape of the plate. In the abutting plate is an oil-hole 25, which opens out at the center of the cap-bearing into an oil-well 26, from which lead oil-ducts 27, by which the oil is distributed over the parts in bearing contact. The frame of the machine is braced at this part by a strong bracket or reinforcing rib or piece 28. It will be perceived from the foregoing description that the cap-bearing turns with the shaft and sustains whatever of wear may be incurred instead of the end of the shaft, so that if it is necessary to adjust the parts because of end wear the cap-bearing can be replaced by a new one, and also that a strong and secure abutment from the shaft is provided.

Having thus described my invention, what I claim is—

1. In a mud-box for a brick and tile machine, the combination of an outer tapering shell having its ends formed as true cylinders of different diameters, an interior tapering shell formed with exterior lugs having their outer surfaces in alignment with the planes of the cylindrical faces of the outer shell, and adjusting-screws to engage the ends of the lugs on the inner shell, substantially as and for the purpose specified.

2. In a mud-box for a brick and tile machine, the combination of an outer tapering shell formed with cylindrical end portions of different diameters, an interior tapering shell formed with exterior lugs having faces parallel with the planes of the cylinders of the outer shell, set-screws to adjust the inner shell in longitudinal direction, and a tapering clay-screw fitted to the inner shell, substantially as and for the purpose specified.

3. In a brick and tile machine, the combination of the shaft G, having a pin-hole transversely through its outer end, a cap-bearing on the end of the shaft, having seats in it to take the ends of a pin in the pin-hole of the shaft, and a coupling-pin in the shaft and cap-bearing, substantially as described.

4. In a brick and tile machine, the combination of the shaft G, having a pin-hole transversely through its outer end, a coupling-pin in the pin-hole with its ends projecting beyond the shaft, a cap-bearing fitted over the end of the shaft and formed with seats to take the ends of the coupling-pin, and an abutment-plate against the outer face of the cap-bearing, substantially as described.

5. In a brick and tile machine, the combination of the shaft G, having a pin-hole through its end, a cap-bearing fitted over the end of the shaft, formed with oil-ducts in its outer face, a coupling-pin to lock the shaft and cap-bearing together, and an abutment-plate against the outer face of the cap-bearing, formed with an oil-duct leading to the oil-ducts of the cap-bearing, substantially as described.

In witness whereof I have hereto set my hand in the presence of two attesting witnesses.

JOHN THOMPSON.

Attest:
A. G. HEYLMAN,
J. S. BARKER.