

Patented Apr. 16, 1842.



UNITED STATES PATENT OFFICE.

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BRICK-PRESS.

Specification of Letters Patent No. 2,560, dated April 16, 1842.

To all whom it may concern:

Be it known that I, A. K. FAHNESTOCK, of Harrisburg, Dauphin county, and State of Pennsylvania, have invented a new and useful Improvement in Brick-Presses; and I do hereby declare that the following is a full and exact description.

The nature of my invention consists in attaching to the upper end of the upper lever in the press a slide box and joint, to work on a stem connected with the bottom piece of the mold, in connection with the present arrangement of the levers, and two braces for the slide box to rest on, by means of which the cap piece of the press is relieved by the forward stroke of the hand lever after making the pressure.

To enable others skilled in mechanism to make and use my invention, I will proceed to describe its construction and the operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1, is a longitudinal elevation. Fig. 2, the chief iron work. Fig. 3 an end view.

In Fig. 1, A is one side of the frame, of 2 inch ash, 5 ft. 7½ in. long and 8 in. wide.

The ends are 5 inches from the ends of the sides A tenoned and keyed as in plate. The frame is 1 in. wide from out to out. The lower edge of that part sunk in the sides A, A, to receive the eye of rod 9, is 1½ in. from the lower edge of A and one inch deep, and just so large that the rod can play freely upward 1½ in. The outer edge of the eye is 1½ in. from the front edge of side B next to the wheel. The hole is then cut through the side large enough for the lower end of lever 5 to work freely in it. 15 is a stop for lever 13 to rest on, 2½ in. wide on top, 1 in. thick and 19 in. long; one edge of this stop is beveled off, beginning 7 in. from the lower end and striking a line to within ¾ of an inch of the other edge on the end, so that when this lower end which is beveled is screwed to side A, the top of it will project about 2 in. from side A. This must be placed on side A so that the top of it will be 11¾ in. above the floor of the press and 11 in. from the edge of side B; B, the upright side on which the mold rests is 10 inches wide, 1½ in. thick and 22½ in. high above side A, and is continued down through the sides A and sunk into it ¾ in. by a dove tail and projects on the inside of A ¾ in. These

projections of the upright sides B inside of A are distinctly shown in Fig. 4, the lower ends of sides B, B. Against these projections B, B, under the shaft 12 is screwed an inch board 8 inches wide even with the top edge of sides A, A, the length of this board is equal to the space between the sides A, A. See letter R in Fig. 2, the front end of the floor board rests on the edge of this piece R, and the treadle on the floor. Against the board R and on that side toward the levers a strip of hard wood 1½ in. wide, 1 in. thick and 6 in. long is screwed on each side of the treadle as guides for the treadle, see letter s in Fig. 2. X in Fig. 1 is one of the wheels, there being another directly opposite. These are made of hard wood, 7 in. in diameter and 4 in. thick, set off ¾ in. from sides A. Y, the axle in Fig. 1, is 26½ inches long 2 in. square, 15½ in. between the journals. This is sunk into the lower edges of the sides A ¾ in., 8½ in. from the front end of A and secured by a flat staple straddling the axle and being driven into the edges of A. 12, the center of the rolling shaft is set up above the sides A 4¾ in. and 1½ in. from sides B, in a hard wood box screwed against the edge of sides B. Fig. 7, is No. 12 in Figs. 1, 2, 4; the rolling shaft is a solid piece of cast iron 8¾ in. between the journals and 2½ thick; the journals are 1¾ in. long and 1¾ in. thick; the head is round 4 in. thick; the lever hole is 1½ in. square running through the head parallel with the stud 60. The top piece 61 to which the shafts 11 are bolted is round 2½ in. long, 1½ in. thick, from the center of this to the center of the shaft is 4 inches. The connecting stud 60 is proportionately strong.

16 in Fig. 1 is a wrought iron plate 1½ in. wide, ¾ thick and 5½ in. between the heads, which are raised ¾ in. (or an inch if you please) to stop the rods 9. These heads are shown in Fig. 4, 16 where they are represented 1½ high, the thickness of the rods 9. There is one of these required on each side secured by two screws 16 inches above the side A, when the cap piece is at its proper place covering the mold. This piece 16 is placed with one head against the rod to prevent it being pushed beyond the center. This brings the other head so far from the center as to allow the cap piece to clear the mold when it falls off. These pieces 16 may re-

quire to be sunk into the sides A that the rods 9 may play freely.

Fig. 1, No. 1, is an end view of the mold cap which is of cast iron $5\frac{3}{8}$ in. wide, $15\frac{1}{2}$ long, $1\frac{3}{4}$ thick on the ends or ears, 2 in. in the center, or all that surface coming in contact with the top of the mold is $\frac{1}{4}$ in. deeper than the ends or ears, Fig. 8 is the shape of the bottom of this cap 1, it will be seen in this Fig. 8 that lines are drawn across from one corner to the other and the surface dressed off in that shape leaving the center where the lines cross $\frac{1}{8}$ scant higher than the edges, (and the top of the bottom piece Fig. 3 is dressed off in the same way to the same shape.) This cap piece No. 1 in Fig. 1, or Fig. 8, is $1\frac{3}{8}$ in. on the edge and $2\frac{5}{8}$ wide on top, the row holes are $\frac{1}{2}$ in. from the ends and 1 in. strong in diameter, leaving $11\frac{7}{8}$ in. between the holes. The handle on the cap piece as seen in Fig. 4, No. 1, is connected to the top of the cap within 2 in. of the rod holes and forms an arch raising in the clear $1\frac{3}{4}$ in. the handle itself being 1 in. thick where grasped with the hand, this is cast solid with the cap.

No. 2 in Figs. 1, 2, and 4, is the mold, this is cast iron, 7 in. wide across the ends, $11\frac{3}{8}$ long, $3\frac{1}{2}$ deep, $1\frac{1}{8}$ thick, when lined with steel plates it is $8\frac{7}{8}$ by $4\frac{7}{8}$ inside. The side plates are first set in tight, then the end plates, each of which are secured by two $\frac{1}{4}$ in. rivets through each plate and casting, these plates must be filed up perfectly smooth and square. To the lower edge of each end of the mold pattern there is connected a piece 7 in. long, 2 in. wide $8\frac{3}{8}$ thick as seen in Fig. 1, No. 62, and continues around the corners of the mold $1\frac{1}{2}$ in. and is beveled off to an edge as seen in the lower corners of No. 2 in Fig. 4, No. 62, these are cast solid with the mold, and with two screws through each end of these as seen in 62 Fig. 1, the mold is secured on the sides B, the top of sides B being dressed off to a shoulder on which these ends 62 rest and B continuing up inside to the lower edge of the mold. 9, the side rods are $1\frac{1}{8}$ square best wrought iron and 34 in. long from the center of the eye, which is $1\frac{3}{4}$ in. inside and $\frac{5}{8}$ thick making the eye 3 in. across. These rods have a perfect screw on top of $4\frac{1}{2}$ in. long, the top bar 30 is 2 in. square and 1 in. thick. The lower bars 32 are octagons and will not allow of being more than $1\frac{1}{2}$ inch across its greatest width as there is not room between the rod and the mold to turn a larger one, these need not be more than $\frac{5}{8}$ thick, by shifting these bars the thickness of the brick is regulated. Seven inches above the eye on these rods 9, the rod is set over so as to throw the eye $\frac{1}{2}$ in. from the center of the rod toward the wheel that when the cap is raised by the forward stroke of the hand lever, it being $\frac{1}{2}$ in. out or from the center of the eye of rod

9, it gently falls toward the man on the press. No. 13 is the hand lever, it is $1\frac{1}{2}$ in. round iron at the shoulder and 1 in. at the point and 4 ft 1 in. long, when bent, the middle is 8 inches from a straight line with the ends; about 4 inches above the head of 12 the lever is set out $\frac{3}{4}$ in. from the side B that it may clear the end of the mold cap when the forward stroke is made. Fig. 3, is the bottom of the mold and raising stem, the top of it fits closely to the inside of the mold, is $\frac{5}{8}$ in. thick on the edges and $1\frac{1}{8}$ thick in the center, the top of this is dressed off the same as Fig. 8, being a scant $\frac{1}{8}$ in. higher in the center than on the edges. The stem or raising rod No. 3 in Fig. 3 is 2 ft. $7\frac{3}{4}$ in. long, 2 in. wide and 1 in. thick, the upper end of this is set into the bottom of the mold $\frac{5}{8}$ in. from one edge and at equal distances from the ends. In front of this stem and against the bottom of the mold is placed a block 31 in Fig. 2, 3 and 4, $1\frac{3}{8}$ wide, $3\frac{3}{4}$ long, $1\frac{1}{8}$ thick. The slide box comes in contact with this block and the pressure against it forces the bottom up against the brick in the mold. On each side of this block is a guide horn 18 of wrought iron $\frac{1}{2}$ in. thick $8\frac{1}{2}$ inch long, these horns are $1\frac{5}{8}$ in. wide at the top and continues that width $1\frac{5}{8}$ downward to the lower edge of block 31, allowing $\frac{1}{4}$ inch to run in the casting; at the point they are $\frac{1}{2}$ in. and thickened up from the point to the edge of 31 as seen in Fig. 3, these horns are laid in the sand and the casting takes hold of the upper ends and the edges $\frac{1}{4}$ deep in block 31, which makes Fig. 3 a solid piece, from the block 31 the stem 3 must be filed up smooth 8 in. downward for the slide box to work on. In the lower end of this stem 3 is drilled a hole $\frac{1}{2}$ in. in diameter and 2 in. deep into which a plug is filled with a hook to turn up on the back side of the stem to connect a rod with the treadle all of which is plainly shown in Fig. 2, No. 63. No. 6 Fig. 2 the slide box and joint, also in Fig. 4, this is more fully shown in Fig. 5 which represents the shape of one side, the top line being $2\frac{7}{8}$ in. across the side, the length of the back or left line is $3\frac{7}{8}$ in. the front or right line is $2\frac{5}{8}$ in. long and the square offset from right to left which is the part which rests on the braces is $1\frac{3}{8}$ in. The center of the bolt hole z is $1\frac{1}{2}$ in. from the top of the box and $\frac{1}{4}$ in. from the right outside line or front of the box, from the center of this the half circle above is struck, being the half of a strong inch circle, this half circle and that part above it is the shape of the front piece, which is 2 in. long and $1\frac{3}{8}$ wide on top, from this block to the inside of the back is one inch full, the back piece is $3\frac{7}{8}$ in. long, 2 in. wide and $\frac{3}{8}$ in. thick. The upper end of lever 4 is secured in this box with a steel bolt passing through the hole z , when the levers are brought perpendicular this box is

forced against 31 and the top of Fig. 3 into the mold. Fig. 22 is a top view of this box, and is an open space through which the stem 3 passes, it is 2 in. long by 1 in. wide, the side is $2\frac{1}{2}$ in. the front 3 in. 2, is the top of the front piece which comes in contact with block 31; the bolt hole z is $\frac{3}{8}$ in.

Lever 4 is shown in Figs. 1, 2 and 4, it being the upper lever, it is 1 in. thick, 2 in. wide, $12\frac{1}{2}$ in. long, both ends being alike dressed off to a half circle setting the dividers on one edge within $\frac{1}{2}$ in. of the end and striking the half circle and dressing it from one edge to the other after having struck the $\frac{1}{2}$ circles on each edge, one end of this lever 4 is secured in the slide box by a $\frac{3}{8}$ steel bolt passing through the box and the upper end of the lever, the bolt hole being drilled through the lever on the point from which the half circle was struck.

5 is the lower lever seen in Fig. 1, 2 and more fully in Fig. 4, the lower end of this lever 5 is 12 in. between the journals and 2 inches thick the journals are $2\frac{1}{2}$ in. long by $1\frac{3}{4}$ in. thick, the whole length of this lever is $13\frac{3}{4}$ in. the cross piece D D, is 2 in. thick and 5 in. wide, at the upper edge of this piece, it is tapered off gradually to $1\frac{1}{4}$ in. thick on the top edge where the straight part of the lever entered this cross piece, the edge above D D being 5 in. long, on each edge of the lever 5 where it enters D D, is a triangle block $\frac{5}{8}$ thick H, the shape of this lower end is not important, it is tapered off gradually from the journals to the point where these blocks are set on, the straight part of this lever 5 from the top of D D is $8\frac{3}{4}$ in. long, 2 wide and $1\frac{1}{2}$ thick, the top of this lever is a concave half circle the same as that in the slide box, cut from one edge to the other of the lever that the convex end of lever 4 may fit in it. The top of this lever 5 is thickened up with a block $3\frac{1}{4}$ in. wide, 1 in. thick and $2\frac{1}{2}$ long, the top outer edge of this block is dressed off rounding and the lower end of it is dressed down to the width of the lever and $\frac{1}{8}$ in. thick. See E on lever 5, through the top of this block is drilled a $\frac{1}{2}$ inch hole from one edge to the other, this hole is level with the one in the lower end of lever 4. The object in thickening up this top is that the wrought iron levers or straps 11, may clear the ends of the bolt which connects levers 4 and 5. Fig. 20 is one of two pieces of wrought iron full $\frac{1}{4}$ in. thick, 1 wide and 4 in. long with lips $\frac{3}{4}$ in. square $\frac{1}{2}$ in. thick at the lower end 45. Through the top is a $\frac{3}{8}$ bolt hole the center of which is $\frac{5}{8}$ from the top of the piece and two inches below is a $\frac{1}{4}$ in. rivet hole, these pieces are placed on the edges of lever 5 and just so high above the top of it that the upper bolt hole will be opposite the bolt hole in the lower end of lever 4 when it stands perpendicular on lever 5, then there is a hole drilled

through lever 5 to correspond with the rivet hole in these pieces 20 and they secured to lever 5 by passing a rivet through lever 5 and these pieces, previous to which the lips 45 may be bent down to clasp the sides of lever 5, see these lips Fig. 4 No. 45.

Fig. 11, is one of two straps to connect the head of lever 5 with the top piece 61 on the rolling shaft, they are $12\frac{1}{2}$ in. long from center to center of the bolt holes, (these holes are $\frac{1}{2}$ in.) the straps are $1\frac{1}{2}$ in. wide and a full $\frac{1}{4}$ in. thick.

Fig. 10 and No. 10 in Figs. 2 and 4 is a guide for stem 3 to work in. This is a piece of hard wood 2 in. broad and 1 in. thick and notched out in the middle sufficient to admit the stem 3, this notch is lined with hoop iron, over this is laid a piece of hoop iron 5 inches long and secured with two screws to keep the stem in its place. This guide 10 is fitted in between the two sides B 3 inches above frame A and secured by two screws through each side B.

Fig. 9 is a guide for the horns 18 in Fig. 3. This is cast iron 7 in. long, $2\frac{1}{2}$ in. wide and $\frac{3}{8}$ thick with raised cleats to $\frac{3}{8}$ thick and $\frac{1}{2}$ in. high to form a groove for the horns 18 to work in. These guides have each 4 screw holes on the edge to screw them to a solid piece of board 5 in. wide 7 in. long and $\frac{1}{2}$ in. thick, and these firmly screwed to sides B the top of them being No. 7 in Fig. 4 is $1\frac{1}{2}$ in. below the edge of the mold. These are placed in after Fig. 3 is in its place. Under Fig. 9 is an end view of that plate showing the raised cleats.

Fig. 21 is one of the braces. From the lower end of this brace to the shoulder is 4 inches, $\frac{3}{8}$ in. thick and $1\frac{3}{4}$ wide with two screw holes to secure it to the sides of B, thence to brace P is 2 inches. This short brace P is a quarter circle being thrown out 3 in. from a straight line with the lower edge of the main brace, from P to the shoulder on which the slide box rests is 2 in., thence to the top 1 in. the top outside edge of this brace is 3 in. from a straight line with that part which is screwed against side B. The shoulder on the top of this brace is $\frac{1}{4}$ of a 2 in. circle and $\frac{1}{2}$ in. deep as seen in Fig. 6. The top of the brace where the shoulder is cut in is $\frac{5}{8}$ in. thick leaving the quarter circle on the top of Fig. 6 only $\frac{1}{8}$ in. thick. The main brace gradually increases in thickness beginning below the brace P where it is $\frac{3}{8}$ up to the top where it is $\frac{5}{8}$ in.

If Fig. 5 were moved down from its present position $\frac{3}{4}$ of an inch it would be resting in its proper place on the shoulder of Fig. 6. These braces are shown in Fig. 4 No. 8, where there are dotted lines to show the short brace P. One of these braces being exactly the reverse of the other it requires two patterns to cast them. These braces are set on the inside of sides B with the

shoulders on which the slide box rests 5 in. below the lower edge of the mold and just to clear the edges of lever 4.

Fig. 19, represents the top of the treadle, it is 2 ft. long of stuff $1\frac{1}{2}$ thick ash or oak, it is $1\frac{3}{8}$ across the narrow end and 3 in. where the foot is placed on it. F, on the lower edge of this is a plate of thin iron $1\frac{3}{8}$ wide and 5 in. long with a $\frac{3}{8}$ round hole in the center, this is screwed on with the hole $5\frac{1}{2}$ in. from the end of the treadle, this hole is cut through the treadle same width and 2 in. long on the top side to allow the short end to fall low enough. There is an iron plate screwed on the top of the small end of the treadle with a hook on the end extending down $\frac{3}{4}$ in. below the lower edge of the treadle, see 65 Fig. 2. To this is connected a rod of $\frac{3}{8}$ iron with a hook on each end, this rod 17 is 7 in. long and connects with the hook in the lower end of the raising stem 3, by which the brick is raised out of the mold. 66 in Fig. 2 is a hard piece of wood 6 in. long $\frac{1}{2}$ in. thick, the upper corners of which is worked off rounding and an iron plate of hoop iron screwed on the top of it, being bent to the same shape, in this the $\frac{3}{8}$ pin is set for the lever to work on, this piece is placed on the end of the floor under the shaft 12 and the pin which runs up into the treadle is set 3 inches from the box in which the shaft 12 is confined so as to throw the end of the treadle on which the foot is placed within an inch of stay 15. The floor board may be cut across any place back of the stay 15 hinges put on it and a tool box formed in that end of the frame.

Instructions to put the press together, when the frame is ready to put together.—

Lever 5 must be set into the sides, then the end pieces may be keyed up. Next fit the mold on the top of sides B, this must be done neat and solid, being careful to have it level and square. Next join lever 4 to lever 5, then the slide box on lever 4, then put the stem 3 down through the mold and slide box, get the top of 3 square with the top of the mold, then put in guides 10 and screw it fast, then take No. 7 Fig. 4 having the guides screwed to the boards, plane the backs of them down till they slip up between the sides B and the horns 18, screw them fast to sides B $1\frac{1}{2}$ in. below the lower edge of the mold. Then set braces 8 Fig. 4 with the shoulders on which the slide box rests 5 in. below the bottom or lower edge

of the mold and just to clear the edges of lever 4. Next put in the treadle then the connecting rod from the treadle to the hook in the lower end of the raising stem. A square is tenoned into the lower edge of square is tenanted into the lower edge of the treadle 8 in. from the end, this requires to be about $2\frac{1}{2}$ in. long, the exact length however may be ascertained by first pressing down the treadle until the bottom of the mold comes level with the top edges, then measure the distance between the treadle and the floor, this is the only way to get at the exact length. Then the shaft 12 is placed in, then the straps 11, connecting 61 on shaft 12 with E on the top of lever 5. Next the side rods 9 and cap 1, by the bars on these rods the thickness of the brick is regulated. Next the guides 16 as before directed, then the lever in the eye of 12. Now it is complete and ready to go to work.

Instructions to work the press.—A man or boy stands on the floor of the press with the lever 13 in his right hand and the handle of the mold cap in his left, by pushing the lever from him the slide box rests on the braces 8 and throws the cap up from the mold and at the same time the cap falls toward him a brick is then placed in the mold, the cap is pushed forward to its place, the lever 13 is pressed to the top of stay 15 then raised up to cap No. 1 which cap falls toward him, at the same moment he places his right foot on the treadle and raises the brick out of the mold. The operation of pressing bricks is performed quicker and with less labor on this press than on any other I have ever seen and quite as perfect. The press is perfectly simple and can be understood by any mechanic at a glance.

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

Attaching to the upper end of the upper lever in the above described press is slide box and joint, to work on a stem connected with the bottom piece of the mold, in connection with the present arrangement of the levers. 2^d and two braces for the slide box to rest on, by means of which the cap of the press is relieved by the forward stroke of the hand lever after making the pressure.

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Witnesses:

C. C. SNYDER,
JOHN M. FOX.