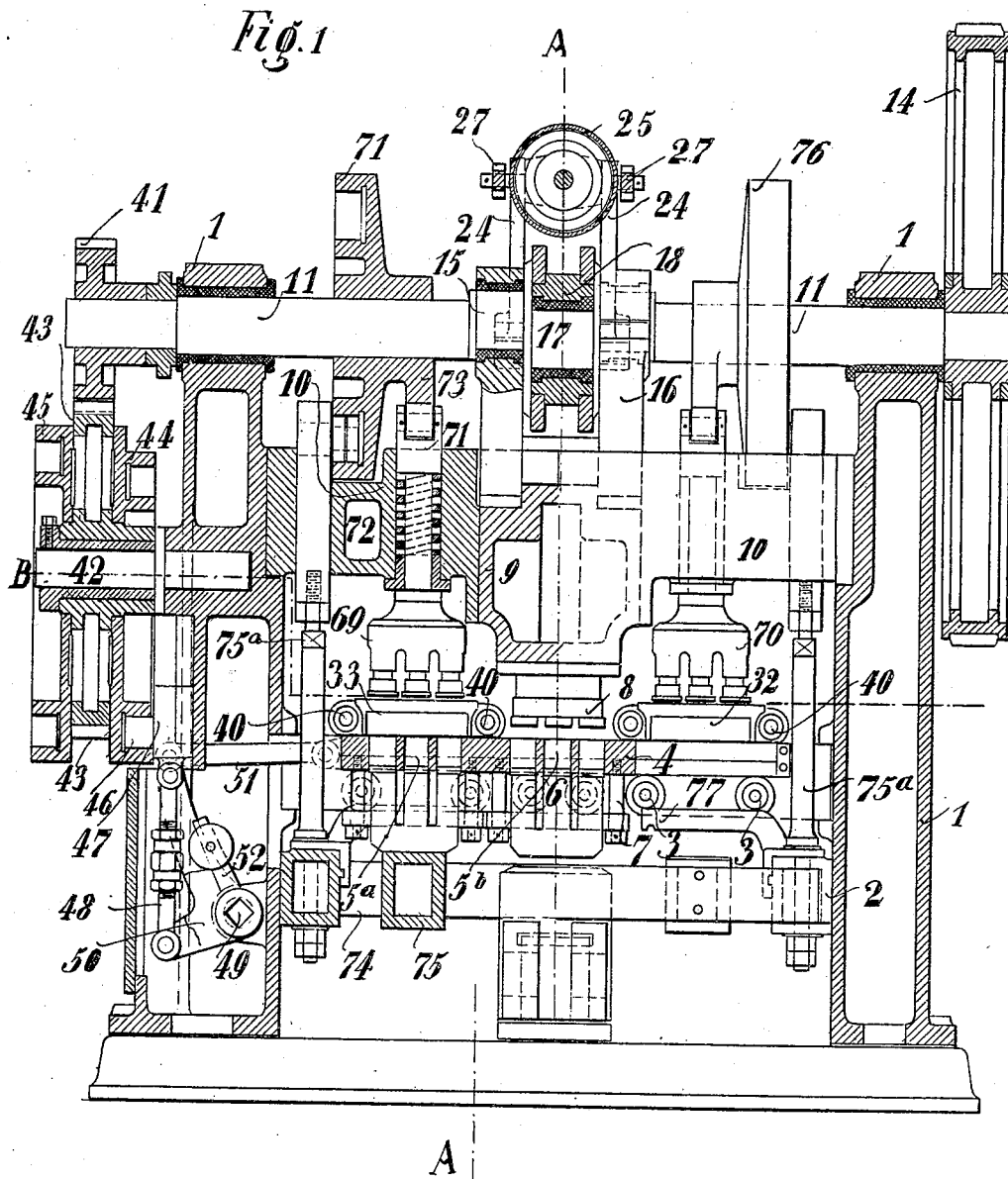


W. SURMANN.  
PRESS FOR MANUFACTURING BRIQUETS, BLOCKS, ARTIFICIAL STONE, AND THE LIKE.  
APPLICATION FILED APR. 28, 1906.

898,525.

Patented Sept. 15, 1908.

4 SHEETS—SHEET 1.

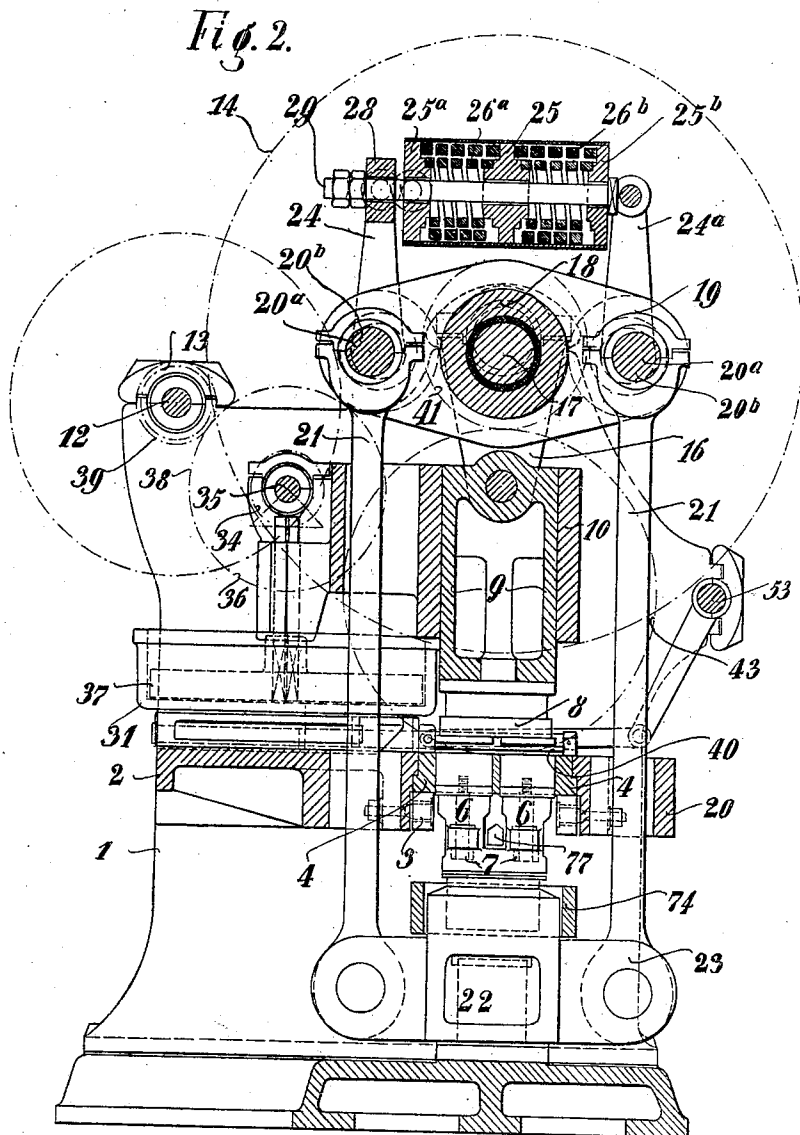


Witnesses:

*Bessie F. Dunlap.*  
*Louis Kambory*

Inventor:

*Wilhelm Surmann*



*Witnesses.*

*Bessie F. Dunlap.*  
*Lowstandory*

*Inventor.*

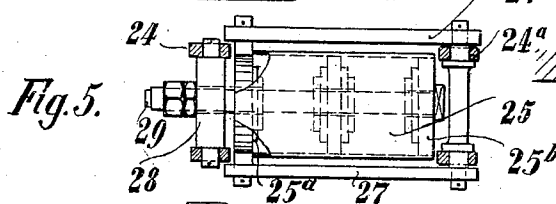
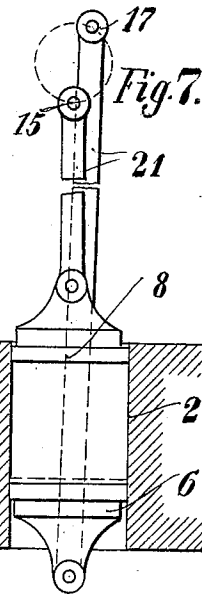
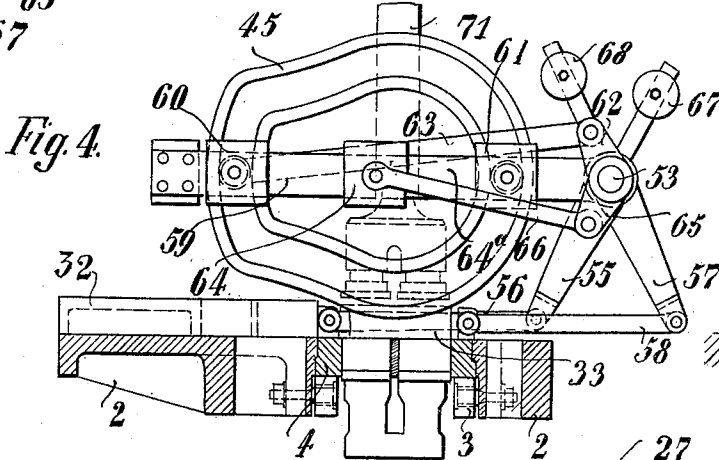
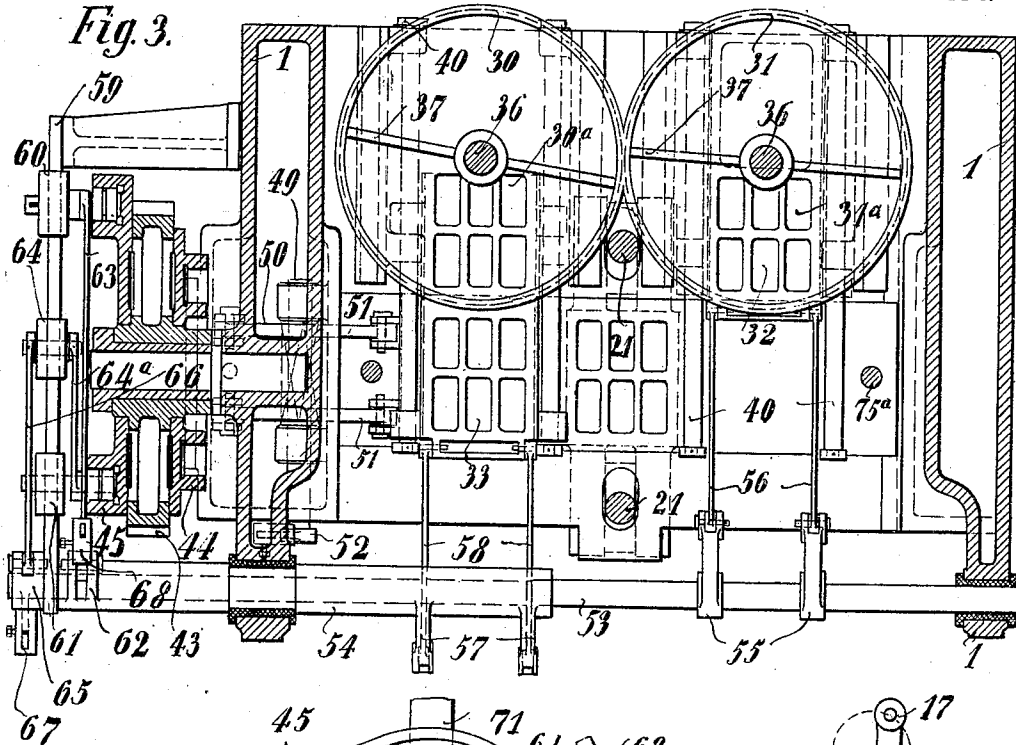
*Wilhelm Surmann*

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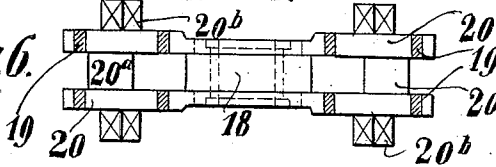


Witnesses:

*Fig. 6.*

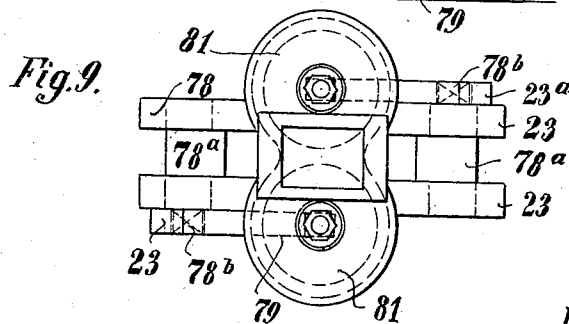
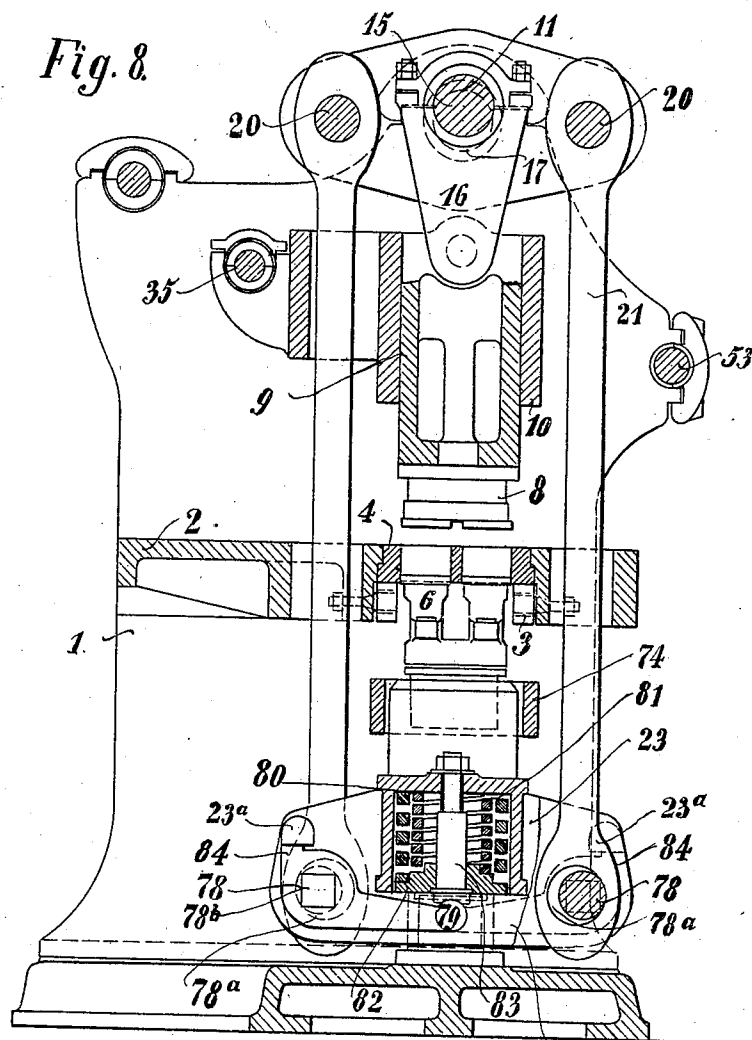
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# UNITED STATES PATENT OFFICE.

WILHELM SURMANN, OF COLOGNE, GERMANY.

PRESS FOR MANUFACTURING BRIQUETS, BLOCKS, ARTIFICIAL STONE, AND  
THE LIKE.

No. 898,525.

Specification of Letters Patent.

Patented Sept. 15, 1908.

Application filed April 28, 1906. Serial No. 314,289.

*To all whom it may concern:*

Be it known that I, WILHELM SURMANN, a citizen of the German Empire, residing at Cologne-on-the-Rhine, in the Province of Rhenish Prussia and Kingdom of Prussia, Germany, have invented certain new and useful improvements in and Relating to Presses for Manufacturing Briquets, Blocks, Artificial Stone, and the Like, of which the following is a specification.

The subject matter of the present invention is a press for manufacturing briquets made from mineral coal, lime-sand blocks, or blocks or briquets made from other material, the material to be pressed being supplied to the press-molds by means of charging mold-boxes reciprocating to and fro.

The press according to the present invention is distinguished from older presses of this kind principally by a device for ejecting, charging and preliminarily pressing the material, being arranged at each side of the press proper, which devices come into action alternately and opposite which a press-mold carriage fitted with two press mold systems is periodically moved to and fro so that the one mold-system is brought up to the press in order that the material therein may be pressed while the other mold-system is brought up to the one or other set of the above mentioned devices so that the finished briquets are first ejected by these pressing-means from this second mold system; the molds are then provided with a fresh charge and finally the said charge is subjected to a preliminarily pressing operation with the aid of special preliminarily pressure stamps, this work being performed first on the right and the next time on the left of the press-mechanism proper.

In consequence of the peculiar manner in which the new press operates there is ample time for the charging-molds to be always uniformly charged from the store-holder, while the operation of preliminarily pressing the material is a guarantee that the pressure-molds will always contain a charge of the same thickness. Consequently an absolutely perfectly uniform product is produced by this new press so that the same in regard to the quality of the work performed is superior to all older presses. The same is also true in respect of the quantitative capacity of the press as the press can without question be run more quickly than other presses.

The stroke of the stamps for producing the pressure requires to be only very small as it is entirely independent from the charging device and as the material is preliminarily pressed by means of the charging stamps. Consequently the press mechanism stamps proper are driven from a common multiple-crank shaft, the arrangement being such that the upper stamps have a slight lead or advance with regard to the under stamps and are already somewhat raised during the return stroke before the under stamps complete their stroke. By these means the effect is obtained that the last-named stamps loosen the finished block in the mold and so facilitate the ejection of the same. Finally the upper stamps are positively driven from the multiple-crank driving shaft while a lever mechanism subjected to spring-action is connected in the arrangement of rods transmitting the motion to the under stamps in order to prevent the occurrence of breakages which would result in case the molds were over-filled.

A new press according to the present invention is shown by way of example in the accompanying drawing, in which:

Figure 1 is a part sectional elevation of the same, Fig. 2 a vertical section on the line A—A of Fig. 1, Fig. 3 a horizontal section on the line B—B of Fig. 1 and Fig. 4 an elevation of the mechanism moving the charging-boxes. Figs. 5 and 6 show details. Fig. 7 is a diagrammatic presentation illustrating the manner in which the press works. Fig. 8 shows a modified form of the press, the same being represented in a manner similar to that adopted in the case of Fig. 2. Fig. 9 shows a detail of this modified form.

Between the two lateral frame-walls 1 of the press, the press-table 2 is secured at a suitable height, the press mold sliding-carriage 4 which is adapted to reciprocate on rollers 3 being arranged in said press-table. Said sliding carriage contains two press-mold systems 5<sup>a</sup> and 5<sup>b</sup> which in the case illustrated each consist of 6 individual molds. The under-stamps 6 project from below upwards into said molds, said stamps being adapted to move upwards and downwards on bolts 7 screwed into the carriage 4, so that said stamps participate in the movements of the mold-carriage for the purpose of producing the pressure and for ejecting the finished blocks and are capable of being forced up

into the molds. The upper stamps 8, the number and arrangement of which corresponds to that of the molds of one mold system are mounted upon a carrier 9 which is capable of moving up and down over the path of the mold-carriage 4 centrally in a cross-beam 10 arranged between the two frame-walls 1.

The upper and under stamps are operated from the shaft 11 which is provided with cranks or their mechanical equivalent for this purpose, said shaft being supported in the frame-walls 1 and being driven from the main axle 12 of the press through the tooth-wheels 13, 14. The upper stamp-carrier 9 is positively reciprocated up and down by means of the two lateral eccentrics 15 of the shaft 11 and by the eccentric rods 16 engaging with said eccentrics, whereas the under-stamp 6 is actuated directly by the central eccentric 17 which is displaced or staggered with regard to the above-mentioned lateral eccentrics. A box 18 is revolvably mounted on said central eccentric and upon said box are mounted the two transverse cheeks 19 in the ends of which the bolts 20 are revolvably supported (Fig. 6). Said bolts possess between the cheeks 19 eccentrics 20<sup>a</sup> upon which connecting-rods 21 are mounted, which connecting-rods engage at their lower ends a cross-beam 23 which is capable of moving up and down upon a bolt 22 and which is arranged near the base of the machine below the upper stamp-carrier 9, so that when the shaft 11 rotates said cross-beam 23 is always moved in a direction opposite to that in which the upper stamp is moved. Consequently during the descent of the upper stamp (the press-stroke) the under stamp of that mold-system of the press-mold carriage 4 which is at the time brought under the upper stamp is simultaneously forcibly raised.

Upon the outside of the transverse cheeks 19 the bolts 20 carry centrally arranged squares 20<sup>b</sup> upon which upwardly directed levers 24, 24<sup>a</sup> are mounted between the upper ends of which a spring-casing 25 is arranged. This casing contains the two disks 25<sup>a</sup>, 25<sup>b</sup> which are arranged in said casing like pistons and which are pressed outwards by the buffer-springs 26<sup>a</sup> and 26<sup>b</sup> and of which the left hand one 25<sup>a</sup> is connected through rods 27 with the right hand levers 24<sup>a</sup>, whereas the left hand levers 24 engage the right hand disk 25<sup>b</sup> through a cross bar 28 and a bolt 29 screwed into said cross-bar and passing through said spring-casing in such a way that the springs tend to draw the levers 24, 24<sup>a</sup> inwards, *i. e.* towards one another.

In the case of this arrangement the lever-pairs 24, 24<sup>a</sup> each form together with the bolt 20 appertaining thereto a bell-crank in the transverse cheeks 19, to the shorter arm of which, formed by the eccentricity of the ec-

centric 20<sup>a</sup> and directed outwards in the position of rest, the connecting-rods 21 are connected, whereas the springs 26<sup>a</sup>, 26<sup>b</sup> act on the longer arms. So long as the pressure does not exceed a certain limit dependent upon the strength of the springs 26<sup>a</sup>, 26<sup>b</sup> the under stamps are moved exactly in correspondence with the eccentricity of the central eccentric of the shaft 11. If however the limit is exceeded the under stamps can yield, the bell cranks carrying the connecting-rods 21 now turning against the action of the springs 26<sup>a</sup>, 26<sup>b</sup> so that the upward movement of the transverse cheeks 19 is no longer transmitted or at any rate is no longer transmitted to its full extent to the connecting-rods 21 and consequently to the under stamp.

By preference the connecting bolt between the levers 24, 24<sup>a</sup> on the rods transferring the pressure of the springs is made adjustable so as to be able to regulate the maximum pressure admissible.

The angle of advance or lead of the eccentrics 15 with regard to the central eccentric 17 is chosen to be about +180°. Consequently when the shaft 11 turns, the upper stamp, and the under stamp coöperating with it at the time, receive motions which are preponderatingly in opposite directions, *i. e.* they are either pressed simultaneously from above or below into the press-mold for the purpose of producing the pressure or they are moved in the reverse directions. The upper stamps, however, receive a certain advance, and on the return stroke they are already somewhat raised before the under stamps have completed their travel, so that the latter effect the loosening of the finished pressed blocks in the mold, as has already been mentioned above in the introduction to this specification.

At the two sides of the press proper, which is arranged as above described, a charging device and a device for preliminarily pressing the material is arranged. The charging devices each consist of a store-vessel or stirring-pan 30 or 31 into which the material to be pressed is introduced, from apparatus for preliminarily preparing the material, by means of suitable devices not shown on the drawing, and these charging devices also each consist of a charging mold box 32 or 33 for transferring the material from the stirring pan 30 or 31 into the press-molds.

The store-vessels 30 and 31 are formed from cylindrical pans which are carried on suitable supports and are arranged close to one another at a suitable height above the press-table 2 at the back of the machine. The bottom of each of them possesses an opening 30<sup>a</sup> or 31<sup>a</sup> shaped to correspond with the press-mold. In each of these pans there is arranged a stirring-shaft 36 which is driven by bevel wheel gear 34 from the shaft 35. The stirring wings 37 of said stir-

ring-shafts tend to sweep the material out through the bottom-openings 30<sup>a</sup>, 31<sup>a</sup> by the movement of said wings to and over the said openings. The shaft 35 is rotated from the

5 main shaft 12 by toothed wheels 38, 39.

The charging mold-boxes 32, 33 possess charging-molds which correspond exactly with the press-molds in so far as their shape as seen in plan is concerned. The height of  
10 said boxes is, however, suitably such that they are able to receive more material than said press-molds. The distance of the pans 30, 31 from the table corresponds with the height of the charging-boxes which rest upon  
15 the table so that the charging-molds are closed below by said table. The boxes themselves are adapted to be moved on the table at right angles to the path of the press-mold carriage 4 by means of the guide-rods 40 in  
20 such a way, that the charging-molds of the boxes in the one limiting position of the latter come under the bottom-openings of the store-vessels 30, 31 and in the other limiting position on the other hand are situated in the  
25 path of the press-mold carriage 4 in which latter case the openings of the store vessels are maintained closed by extensions of the charging mold-boxes.

The distance of the two charging devices  
30 from one another as well as that of the two mold-systems in the mold-slide 4 is such, as is also the motion of the latter, which motion after the completion of the one press-stroke takes place in the one direction and after the  
35 completion of the next press-stroke in the other direction, that the one mold-system comes between the stamps or the like and the other system in the path of one or other of the charging mold-boxes. Correspondingly  
40 the two charging mold-boxes also come alternately into action according as the right or the left press mold-system is to be charged and the charging mold-box in question is then moved forward into the path of the press-mold  
45 slide so that the charging-molds and press-molds then coincide with and stand over one another and so that the material can fall or be transferred from the former into the latter. In order to produce these movements of the  
50 press-mold slide 4 and of the charging mold-boxes in such a manner that they cooperate exactly, the spur-wheel 43 revolubly mounted on the gudgeon 42 fixed in the frame wall, is driven with a velocity ratio of 1:2 from the  
55 crank shaft 11 by means of the spur-wheel 41. At each side of the wheel 43 a cam disk 44 or 45 respectively is fastened, of which the one disk 44 produces the motion of the press-mold slide 4, while the other 45 produces  
60 that of the two charging-molds 32 and 33. In the suitably shaped groove of the disk 44 a roller 46 engages which is arranged on a slide 47 guided on the frame-wall in such a manner that it can move up and down so  
65 that said slide is reciprocated up and down

when the grooved disk 44 rotates. With this slide 47 the shorter arm of the bell-crank 50 mounted on the bolt 49 which is revolubly supported on the frame, is connected by means of the longitudinally adjustable connecting rod 48. The longer arm of said bell-crank engages with the mold slide 4 by means of the rod 51. The so arranged rod consequently transmits the movement of the slide 47 which movement is effected by the grooved disk 44 to the mold slide 4 so that the latter if the grooved disk 44 is suitably shaped is moved to and fro with regard to the press and the charging-devices in the manner described. By adjusting the length of the rod 48 the motion of the press-mold slide 4 can be regulated. The bolt 49 also carries a weighted arm 52 which forces the mold-slide into its end position limited by suitable stops in case an inactive motion should happen to occur in the described gearing, for example, by the wearing of the grooved disk 44.

In order to actuate the two charging mold-boxes 32, 33 from the grooved cam 45 the horizontally running shaft 53 supported on the frame-walls 1 is arranged at the front of the machine and upon this shaft the hollow shaft 54 is revolubly mounted (Figs. 2, 3 and 4). Of these two shafts the first shaft 53 is connected through arms 55 and connecting-rods 56 with the charging mold-box 32, while the second shaft which is hollow, is in like manner connected through arms 57 and connecting-rods 58 with the charging mold-box 33, so that by suitably partially turning these two shafts the charging mold-boxes can be moved in the manner about to be described in detail, suitably arranged steps limiting these movements. In order to produce these rotary motions of the shafts the two slide-blocks 60 and 61 are arranged upon the slide-bar 59 which is supported at the one end on the machine-frame and at the other end on the shaft 53, each of which slide-blocks engage by means of a guide roller in the groove of the cam 45, the one of said rollers being displaced through 180° with regard to the other. On account of the shape of the groove which is illustrated in Fig. 4, the two blocks are moved alternating backwards and forwards on their slide-bar 59; i. e. on account of the velocity ratio of the wheels 41, 43 during the one revolution of the crank-shaft 11, the one slide-block is moved backwards and forwards, and during the next revolution of said shaft the other slide-block. The motion of the block 60 causes the hollow shaft 54 to rotate through the desired angle by means of the arm fastened on said shaft and the connecting rod 63, while the motion of the slide-block 61 is transmitted through the link 64<sup>a</sup> to a third slide-block 64 provided on the slide-bar which latter block causes the massive shaft

53 to turn through a portion of a circle, the motion being transmitted through the arm 65 mounted on said shaft and the connecting-rod 66. If in this arrangement the grooved cam 45 is suitably shaped and is arranged in a correct position with regard to the grooved cam 44, the press-mold slide or carriage and the charging-mold slides or carriages move in the desired manner above described.

In order that the charging-mold-boxes, even in case the gear should move on inactively, may be always advanced up to the desired end position each of the two shafts 53 and 54 are acted upon by a fall-over weight-arm 67 or 68, respectively, so that the boxes are always forced by these arms up to the stops limiting their motion.

For the transference of the material to be pressed from the charging-mold into the press-molds, special stamps 69, 70 are employed, a set of which likewise corresponding to the charging devices is arranged at each of the two sides of the press-mechanism proper. Each of them is carried by a rod 71 which is adapted to move up and down in the cross-beam 10 of the press-frame and each is held up by a spring 72 reacting against said cross-beam. Each set is moved by a cam 73 mounted on the crank shaft 11 in such a way that as soon as the charging mold-box is brought over the press-mold to be charged it is depressed into the charging-mold so that the material is thereby pressed into the press-mold.

In order that the material may always be preliminarily as uniformly pressed as possible and in order that the molds may be charged with a charge of uniform thickness, these charging-stamps or stamps for producing preliminary pressure are advantageously connected with their guide-rods 71 in a resilient manner; this arrangement, however, is not represented on the drawing because it is well known in itself.

In order to eject the finished blocks from the press-molds a cross-head 74, adapted to reciprocate up and down at the lower part of the machine, is employed, said cross head consisting of a frame constructed from two flat iron bars and two end pieces in which are fastened the pressure-blocks 75 in a position perpendicularly under the charging-stamps. This cross-head 74 is carried by two longitudinally adjustable rods 75<sup>a</sup> which are capable of moving up and down in the cross-beam 10 of the press-frame, said rods being so actuated by the aid of grooved cams 76 which in the example shown are cast in one piece with the already mentioned cam 73, which cam 76 is mounted on the crank shaft 11 that as soon as the mold-carriage has been displaced the cross head 74 is raised and the under stamp of the molds to be discharged, and consequently the blocks situated therein

are forced up to such an extent by the one or other pressure-block 75 that said blocks can be pushed aside by the charging mold-box which is now advancing.

At the two ends of the cross head 74 inwardly projecting arms 77 are provided in such a way that when the press-mold carriage is displaced they penetrate between the under stamps on said carriage and so remove any material which may have fallen between said stamps. At the same time these arms 77 effect a connection between the press-stamps 6 and the cross head 74 so that the stamps must participate in the downward movement and cannot remain hanging in the raised position in the press-molds after the finished blocks have been pushed out.

The manner in which this press operates is as follows: If in the position illustrated in Fig. 1 of the drawings the material in the molds 5<sup>b</sup> has been pressed to the necessary extent for forming the finished blocks or briquets, and if simultaneously the molds 5<sup>a</sup> have been charged with fresh material, the press-mold carriage 4 is displaced to the right after the return stroke of the press-stamps. The molds 5<sup>a</sup> consequently come into the path of the press-stamps and the latter during the following press-stroke exert pressure on the material in these molds. The molds containing the finished blocks are simultaneously passed under the preliminary press-stamp 70. The cross head 74 is now first moved upwards and consequently the under stamps of these molds 5<sup>b</sup> are raised to such an extent that the upper surface of these stamps lies at the same height as the surface of the carriage 4, and consequently the finished blocks or briquets can now be pushed away by the charging mold-box 32 which is now advancing. When the under stamps have been lowered again and when the charging-molds of the box 32 have arrived over the molds 5<sup>b</sup> of the mold-carriage 4 the preliminary press-stamps 70 are moved downwards so that they penetrate into the charging-molds and force the material situated therein for the greater part into the press-molds while a portion remains in the charging-molds as its capacity as mentioned above is the greater. Consequently, during the return passage of the charging-mold box taking place after the rising of the preliminary press-stamps, during which return passage the superfluous material has been carried back with said box, the press-molds are scraped so that they are always charged up to their upper rim. During these events in the working cycle the other charging mold-box 33 came under the store-vessel 30 co-operating with it and its charging-molds were charged with fresh material. When all this has happened the press-mold carriage is, after the operation of pressing has been completed, moved to the left again and the above



described events in the working cycle are now repeated at this side of the machine, and so on.

Figs. 8 and 9 show a modified form of the  
 5 press in which the arrangement of levers and springs rendering possible the yielding of the under stamp instead of being arranged above is accommodated below or in the cross beam  
 23. In the case of this instruction the con-  
 10 necting rods 21, transmitting the motion of the shaft 11 to the under stamps, are mounted at their upper end on simple cylindrical bolts 20 between the transverse cheeks 19. At their lower end on the other hand each of  
 15 these connecting-rods engages with a bolt 78 supported in the cross-beam 23, in fact with an eccentric 78<sup>a</sup> forming part of said bolt. Each of these bolts 78 carries at one end, as is particularly easy to see from Fig. 9, a lever  
 20 79 which is mounted on a centric square 78<sup>b</sup> which levers lie in the same direction as the eccentricity of the eccentrics 78<sup>a</sup> on the bolts. Said levers are subjected to the action of springs at their free ends. These springs 80  
 25 are arranged in the casings 81 provided in the cross-beam 23 at both sides of the pressure-block acting on the under stamp and tend to press downwards a piston-like bottom 82 lying therein or the bolt 83 which holds said  
 30 bottom in place, which bolt transmits the action of the spring to the lever 79 appertaining thereto. A nose 84, provided on each lever and abutting against a projection 23<sup>a</sup> of the cross-beam 23, limits the range of influence  
 35 of each spring 80 in such a way that the levers 79 and consequently the eccentricity of the eccentrics 78<sup>a</sup> usually occupy a horizontal position. Consequently in this case, as also in that of the first form, two connected  
 40 levers are provided of which the shorter, formed by the eccentricity of the eccentrics 78<sup>a</sup>, effects the connection of the connecting rods 21 with the lower cross-head 23 carrying the under stamp while the longer one is sub-  
 45 jected to the influence of a spring.

As long as the pressure exerted by the press does not exceed a certain limit the under stamps move in correspondence with the excentricity of the eccentric 17 on the shaft  
 50 11. If, however, this limit is exceeded the under stamps are able to yield; the effect is consequently the same as in the case of the first form. The construction of the press is, however, very materially simplified by ar-  
 55 ranging in the lower cross-head the levers and springs which render possible the yielding of the under stamps.

The connecting rods 21 might be mounted directly upon eccentrics on the crank shaft, the transverse cheeks 19 being omitted, by  
 60 which arrangement of course it would be necessary to alter the arrangement of the cross-head 23 and of the connecting rods 21 themselves.

I am aware that brick presses by which

two feed molds are arranged and which work with two pressure pistons have been known and I do not broadly claim such a press as my invention, but

What I claim is:

1. In a press for making blocks, briquets  
 70 and like articles, the combination of a pair of pressure devices and means for operating them, a mold carriage containing two molds,  
 means for reciprocating said carriage be-  
 75 tween said stamps and presenting said molds alternately in the line of pressure, and mechanism arranged on each side of the pressure devices, to eject the finished block and re-  
 80 charge the mold which at the moment is not undergoing pressure substantially as set forth.

2. In a press for making blocks, briquets and the like articles, a pair of stamps mov-  
 85 able toward and from each other, means arranged on each side of said stamps for ejecting the finished brick and recharging a mold, a mold carrier provided with two molds,  
 means for reciprocating said mold-carrier be-  
 90 tween said stamps, to present the molds alternately thereto, the mold not between the stamps being simultaneously presented to  
 the ejecting and recharging devices, a driv-  
 ing shaft, eccentrics operated thereby and  
 95 intermediate devices whereby the said stamps are actuated by said shaft substantially as set forth.

3. In a press for blocks, briquets and similar articles, a pair of opposed coöperating  
 100 stamps and their actuating mechanism, in combination with molds movable transversely across the line of pressure and between said stamps, means for thus reciprocating said molds in order that they may be  
 105 presented alternately between said stamps and thereafter in position to be discharged and recharged on one side or the other of said stamps and charging boxes arranged on each  
 side of said stamps for thus supplying said  
 110 molds, the charging chambers of said boxes being of similar shape to that of said molds, but greater in capacity, so that some of the material will remain in them after each charging.

4. In a press for blocks, briquets, and simi-  
 115 lar articles, and in combination with the pressure applying mechanism, molds which are movable alternately into position to be charged and for the contents to be pressed, charging boxes, a pair of grooved cams turn-  
 120 ing together, gearing for driving said cams, and devices respectively connecting one of said cams to said molds and the other cam to said charging boxes, in order that said molds and boxes may be operated simultaneously.  
 125 and correspondingly.

5. In a press for blocks, briquets and similar articles, the pressure mechanism and mold-carriage adapted to be moved to pre-  
 130 sent each mold alternately for charging and

for pressure and mechanism for reciprocating said carriage to that end, this mechanism comprising a rotary cam and means for turning the same, a slide piece actuated thereby, 5 guides therefor, a lever operated by said slide piece and engaging and operating said mold-carriage, a longitudinally adjustable rod connecting said slide piece and insuring the accurate presentation of the molds and a 10 weighted arm coöperating with the said rod substantially as set forth.

6. In a press for blocks, briquets and similar articles, a pair of opposed coöperating stamps, and a driving shaft, in combination 15 with mechanism whereby said shaft actuates one of the said stamps, this mechanism comprising a part carried by said shaft, levers mounted on said part, springs resisting the action of said levers, a cross-head, and rods 20 connecting this cross-head to said levers, in order that said cross-head and stamp may be raised thereby against the resistance of said springs, substantially as set forth.

7. In a press for blocks, briquets and similar articles, the pressure mechanism, the 25 mold carriage provided with a pair of molds for alternate presentation to be filled and to be pressed and the mechanism for reciprocating the said carriage, to present the molds 30 alternately on opposite sides of the pressure mechanism, for charging, in combination with a pair of charging boxes arranged at the points for charging the molds as above, and mechanism for alternately operating said 35 charging boxes, such mechanism comprising a pair of concentric shafts, connected by intermediate means to the said charging boxes respectively, a rotary grooved cam and slides for driving said shafts from said cam, these 40 slides being provided with rollers which enter the said groove of said cam and said slides and their connections to the charging boxes, operating the latter alternately at an interval substantially as set forth.

45 8. In a press for blocks, briquets and similar articles, the pressure mechanism, in combination with the molds and the mechanism

for presenting them and for charging and preliminary pressure stamps arranged to act 50 on the molds in each of the charging positions of the latter, guides for said stamps, cams and springs acting on said stamps in opposite directions and means for rotating said 55 cams, which are arranged to make such stamps act alternately, each pressing the material into the mold below it as such material is supplied and said mold presented to be 60 charged substantially as set forth.

9. In a press for blocks, briquets and similar articles, the pressure mechanism, in combination with a pair of molds and the mechanism 65 for presenting them alternately on opposite sides of the said pressure mechanism to be charged and pressed, a pair of preliminary pressing and charging stamps, arranged 70 one on each side of the pressing mechanism, and means for alternately reciprocating said stamps comprising a rotary shaft, cams suitably disposed thereon, and springs acting in 75 opposition to said cams, and devices coöperating with said stamps for supplying the material to said molds, the parts aforesaid being arranged and connected to insure the action of each stamp in forcing the material into the mold below it as soon as such material has been supplied to said mold.

10. In a press for blocks, briquets and similar articles, a pair of opposed coöperating stamps, the mold-carrier and means for operating the same, in combination with a 80 cross-head and means for lowering and raising the same and arms on said head adapted to penetrate between the parts of the lower stamps and push out any material, said arms also connecting said lower stamps to said 85 cross-head in order that the latter may carry them down substantially as set forth.

In testimony whereof I have affixed my signature in presence of two witnesses.

WILHELM SURMANN.

Witnesses:

BESSIE F. DUNLAP,   
LOUIS VANDORN.