

Jan. 29, 1924.

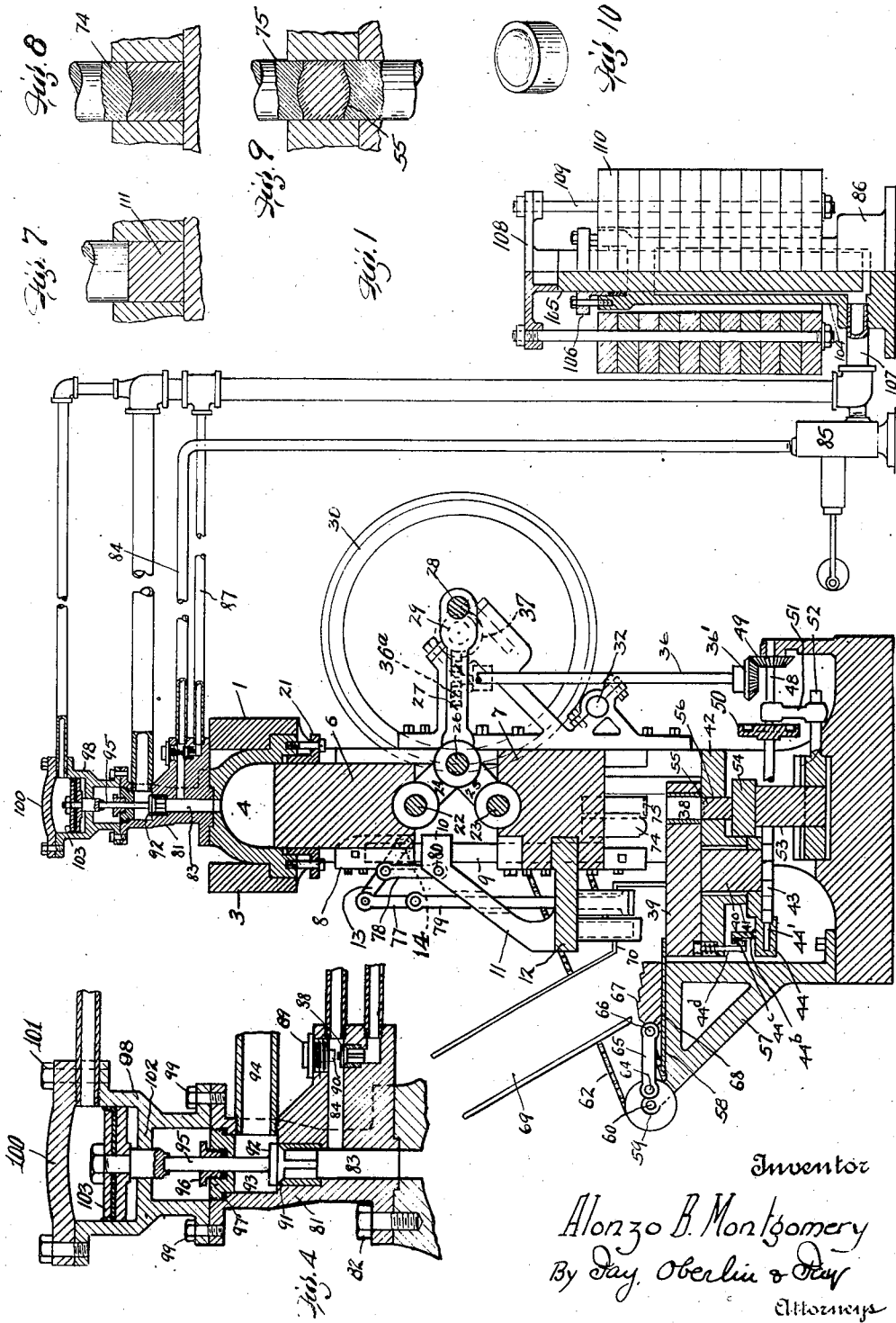
A. B. MONTGOMERY

1,481,806

APPARATUS FOR COMPRESSING METALLIC PARTICLES

Filed Nov. 18, 1920

3 Sheets-Sheet 1



Jan. 29, 1924.

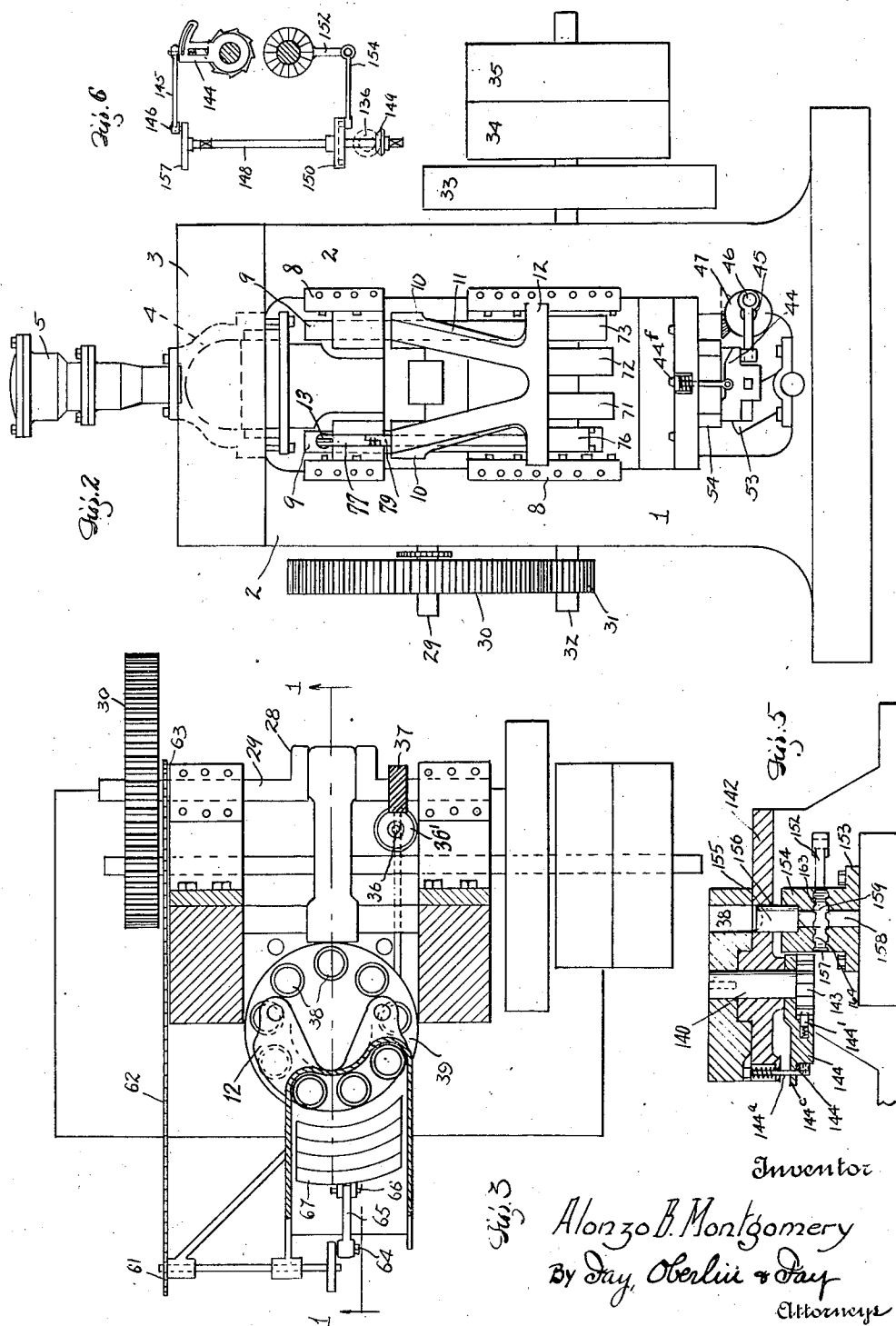
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3 Sheets-Sheet 2



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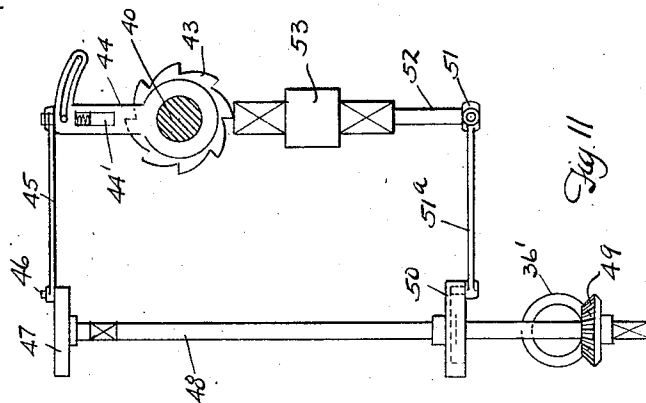
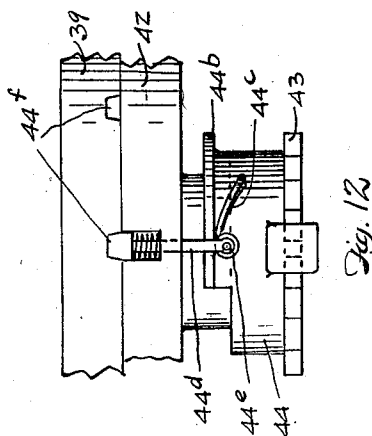
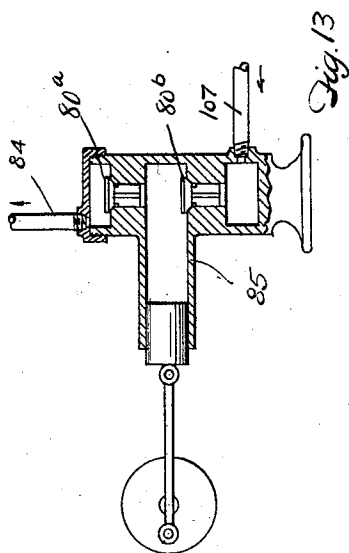
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3 Sheets-Sheet 3



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Patented Jan. 29, 1924.

1,481,806

UNITED STATES PATENT OFFICE.

ALONZO B. MONTGOMERY, OF LAKEWOOD, OHIO.

APPARATUS FOR COMPRESSING METALLIC PARTICLES.

Application filed November 18, 1920. Serial No. 424,841.

To all whom it may concern:

Be it known that I, ALONZO B. MONTGOMERY, a citizen of the United States, and a resident of Lakewood, county of Cuyahoga, and State of Ohio, have invented a new and useful Improvement in Apparatus for Compressing Metallic Particles, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

The invention herein relates to an improvement in a compressing apparatus, and more particularly to a machine for compressing material having a variable stroke and operating with a constant maximum limit of pressure. The specific application of my invention is described in connection with the art of briquetting metallic particles, such as borings, turnings and the like, so that they may be re-melted or re-worked, but it is not intended to limit the invention to that use as the apparatus is obviously of broad utility apart from the specific features disclosed.

Apparatus of this character heretofore in use has been of a complicated construction and of slow operation. The control of such mechanism has also been difficult and the product thereof has been relatively expensive to manufacture and not of uniform or standard quality.

The object of my invention is to obviate the difficulties outlined and to supply an apparatus, which, while of relatively simple construction, will produce a uniform character of product at an increased rate of output. A further object of my invention is to make the apparatus automatic in operation and adapt it to perform a series of steps in perfecting the product without special supervision or control. To the accomplishment of the foregoing and related ends, said invention, then, consists of the means hereinafter fully described and particularly pointed out in the claims.

The annexed drawings and the following description set forth in detail certain mechanism embodying the invention, such disclosed means constituting, however, but one of various mechanical forms in which the principle of the invention may be used.

In said annexed drawings:—

Fig. 1 is a sectional elevation of my complete apparatus, including the press,

pressure control, accumulator and associated mechanism and connections, the sections of the press being taken in several planes indicated by the line 1—1, shown in Fig. 3, looking in the direction of the arrows; Fig. 2 is a front elevation of the press, the hopper and feed mechanism being omitted; Fig. 3 is a sectional top plan view of the press, showing the parts below a horizontal plane located immediately above the toggle mechanism shown in Fig. 1; Fig. 4 is a detailed sectional elevation of the pressure control apparatus; Fig. 5 is a vertical sectional view and Fig. 6 a diagrammatic plan view of a modified form of the lower die operating mechanism and rotatable table control mechanism; Figs 7, 8 and 9 are detail views illustrating the successive steps in the production of a briquette by means of my apparatus; Fig. 10 is a perspective view of the finished briquette produced by my press; Fig. 11 is a diagrammatic plan view of the preferred form of die-operating mechanism and rotatable table control mechanism; Fig. 12 is an enlarged detail in side elevation showing the latching mechanism for the rotatable table; and Fig. 13 is a longitudinal sectional elevation showing the pump and its associated valve mechanism.

My apparatus, as shown in the drawings, Figs. 1, 2 and 3 particularly, comprises a vertical frame 1 of substantial construction and of open rectangular outline as viewed from the front, (see Fig. 2) providing a pair of upright guide members 2—2 at the sides, and a support 3 for a cylinder 4 centrally positioned above the open space. Above the cylinder the pressure control apparatus 5 is located having appropriate fluid connections with a reservoir or accumulator to be later described. A pump is located in the line of one of these fluid connections for a purpose to be hereinafter disclosed.

An upper slide block 6 and lower slide block 7 are engaged between the guide members being held in operative position by a plurality of plates 8 bolted to the sides of the guide members, and these plates serve to position, upon the front of the main frame, a pair of auxiliary guide rods 9, upon which operate a pair of sleeves 10 formed upon the upper ends of bracket-like members 11 which support an extension member 12 attached to the lower slide block 7. Upon the upper left-hand plate, shown in

Fig. 2, a pivot support 14 for a transverse lever 13 and its associated mechanism, to be described hereinafter, is provided.

The upper slide block 6 is of a size to closely fit within the lower open end of the cylinder 4 forming a piston for acting upon the fluid contained within said cylinder. A fluid-tight joint is formed by a suitable packing ring 21 attached to the lower side of the cylinder. The lower slide block with its extension member serves as a head or support for the plungers or die members of the press. Pivot pin connections 22, 23 are provided centrally upon the adjacent faces of the slide blocks, to which are pivoted respectively a pair of toggle arms 24, 25, each connected to a pivot 26 upon the main toggle operating link 27, the other end of which is journaled upon a crank arm 28 of the main press operating shaft 29. A large gear wheel 30 is fixed to said shaft and is driven by a smaller gear 31 secured to the main power shaft 32 journaled upon the frame and carrying a suitable fly-wheel 33 and drive and idler pulleys 34, 35. An auxiliary shaft 36 is driven through a worm gear 37 on the press operating shaft and operates a set of mechanism to be later described. Upon the end face of the plunger head and its extension member a series of die members or plungers is carried. These plungers are six in number and are of different lengths and bottom configuration. The plungers all co-operate with a series of openings or mold chambers 38 provided in a rotatable table 39, which has centrally thereof a shaft 40 seated in a bearing 41 formed in a supporting plate 42 upon the lower part of the main frame. Beneath this supporting plate a toothed wheel 43 is secured to the pivot of the rotatable table. This wheel is actuated through a spring-pressed pawl 44' upon an oscillating plate 44 centrally apertured and positioned upon the pivot 40 immediately above the toothed wheel 43. It is operated by a crank arm 45 pivoted to a wrist pin 46 upon a disk 47 secured to the shaft 48 driven by a bevel wheel 49, in mesh with a bevel wheel 36' upon the lower end of the auxiliary shaft 36 heretofore referred to.

The plate 44 has an extension and flange 44^b having a resilient member 44^c secured adjacent its upper side portion (see Figs. 1 and 12) to momentarily engage a projecting roller 44^d upon a spring-pressed latch 44^e upon the support 42 for the rotatable table 39.

It will be noted that nine notches 44' are provided in the under side of the rotatable table and nine teeth upon the toothed wheel corresponding with the number of molding chambers provided in the plate. Thus upon the actuation of the oscillating plate the latch will be withdrawn from the notch by

the resilient member as the pawl slides over the angular face of the adjacent tooth on the periphery of the wheel, and, when the pawl engages the radially positioned face of the next adjacent tooth, the latch will be fully retracted. The further movement of the oscillating plate will shift the rotatable table the requisite distance to bring the respective mold chambers in alignment with the plungers next in the series. During this movement the latch will trip past the shoulder of the resilient member and engage the next notch upon the rotatable table as it comes into register, thus positively locking the same against movement, while the oscillating plate is being returned to its original position. During this return movement of the oscillating plate the spring-pressed pawl will ride over the faces of the adjacent teeth and the resilient plate will ride beneath the projection upon the end of the spring-pressed latch and snap into position to again engage and retract the same upon the succeeding forward movement.

A cam wheel 50 having an eccentric cam path is fixed on the shaft 48 and is adapted to reciprocate a link 51^a pivotally connected with an arm 51 fixed upon the end of a shaft 52, to which is secured a cam block 53, upon the cam face of which rests the base member 54 of a concave-faced die 55 engaged through an aperture 56 in the support for the rotating table heretofore described, and adapted to be projected into the openings of said table at predetermined intervals, for co-operative briquette shaping action with a similarly shaped die face on one of the die members carried by the plunger head and projecting through the opening in the plate from the direction vertically above that of the concave die face first mentioned.

A bracket 57, attached to the base of the main frame at the forward side of the machine, is provided with a flat horizontal upper face 58 upon a level with the rotating table previously described and at its forward edge is provided with bearings 59 for a horizontal shaft 60 carrying a vertical disk at one end and a sprocket wheel 61 upon the other. The sprocket wheel is driven by a chain 62 running over a driving sprocket 63 fixed upon the toggle drive shaft heretofore described. The vertical disk has a wrist pin 64 eccentrically set into its side, upon which is pivoted an operating link 65 connected at its other end to a pivot 66 upon the block 67 for feeding the material to be compressed to the openings of the mold chambers in the rotatable table. The feed block rests upon a thin plate of sheet metal 68 which extends over the top face of the bracket and the adjacent upper face of the table. A hopper 69 is supported at an angular position over the feed block and the lower portion of the hopper casing

70 extends partially over the rotatable table covering several openings therein at one time, as shown in Figs. 1 and 3. Suitable apertures are provided in the upper side of the portion of the hopper casing above the rotatable table to permit the first three plungers of the series to operate there-through and feed and compact the material in the respective mold chambers. These plungers 71, 72 and 73 are of decreasing height and thus are of successively smaller working stroke, the first plunger, having the greatest amount of effective travel, will thus compact the material into the opening in the rotatable table which has, on the preceding stroke, been relieved of the finished briquette. The succeeding plungers will in turn compact material upon that forced into the opening by the preceding plunger of the series. The fourth plunger 74 has a contact face of convex cross-section and serves to compress the material, held within the opening of the rotating plate, centrally, giving it firmness throughout the main body and preventing a soft spot in the interior of the finished briquette. The fifth plunger 75 of the series has an end face of concave cross-section which co-operates with the concave face of the lower die member, as heretofore described, and serves to closely compact the side walls of the briquette and to give the the top and bottom thereof a shallow dome-like shape to withstand rough handling without fracturing or disintegrating at the edges.

The auxiliary link mechanism already referred to, comprises a transverse lever 13 having a pivoted connection 14 with one of the plates affixed to the face of one of the guide members. It joins through a link 77 with the stem 79 of a knockout plunger 76, which, by reason of the design of the link mechanism, including a link connection 78 having a pivot 80 on the bracket 11, has a greater range of travel than any of the plungers heretofore mentioned. As the openings of the rotatable table are carried beneath the knockout plunger the finished briquette will be forced through the bottom of the table into any suitable chute or receptacle.

The pressure control mechanism, shown in detail in Fig. 4, comprises a base portion 81 securely attached to the top of the cylinder by means of bolts 82, and having a central passage-way 83 connecting with a passage-way in the top of the cylinder head. A lateral passage-way 84 communicates with a piston pump 85, which in turn is connected with a reservoir or accumulator 86. The pump is provided with check valves 80^a and 80^b which respectively cut off back pressure through the passage-way 81 from the cylinder head, and through the

connection 107 with the accumulator from the pump. An auxiliary passage-way 87 connects the lateral passage-way with the accumulator and is provided with a valve 88 operating to admit fluid to the several passageways before mentioned when the pressure therein falls below a certain point. Immediately above the valve the base portion of the pressure control chamber is provided with an aperture into which a plug 89 is screwed, said plug carrying on its under face an abutment 90 to limit the upward motion of the valve and prevent it from being unseated.

The central passage-way of the base portion of the pressure control apparatus is of smaller diameter at its lower portion, and at the end of this section is provided with a valve seat 91, with which co-acts a valve 92 housed within the enlarged upper portion 93 of the central passage-way. This enlarged upper chamber has an open passage-way 94 of large size communicating directly with the accumulator. The valve or piston element is mounted upon the lower section of a two-part valve stem 95 which passes through a packing gland 96 in a transverse member 97 secured over the upper end of the central passageway in the base member of the fluid control apparatus. The upper member of the fluid control mechanism comprises a cylindrical part 98 which is screwed to the base member by bolts 99 and is closed at the top by a plate 100 secured by bolts 101. Centrally of the upper member is a transverse partition 102, through which the upper section of the two-part valve stem passes, and within the upper chamber thus formed, is positioned a piston 103 of greater area than the area of the valve or piston element in the lower chamber, thus providing a differential piston mechanism designed to maintain a higher degree of pressure in the cylinder of the press than is maintained throughout the remainder of the fluid connections prior to the pressure above the larger piston being overcome by the increasing of the pressure upon the toggle arms. The divided valve stem facilitates disassembling.

The accumulator 86, as shown, comprises a cylinder 104 of heavy construction, within which operates a piston 105 through a suitable packing gland 106. The cylinder has a common connection 107 at its base with the several fluid passageways heretofore described. The piston carries a cross-head 108 at its upper end, from which depend rods 109, upon which are placed a predetermined quantity of heavy plates 110, according to the amount of pressure which it is desired to maintain above the large piston in the pressure control apparatus. The pump may be of any desired construction and is designed to keep the pressure from falling

below the predetermined amount within the cylinder.

The operation of the apparatus has been partially described in connection with the statement of the construction of the several parts.

It will be noted that the material is fed through the hopper into the several apertures or mold chambers of the rotatable table and is compressed through successive descents of the plungers within said chambers. The rotatable table is shifted at intervals between the strokes of the plunger head and the material is brought beneath the several dies in succession. After the operation of the first three dies of the series the briquette 111 assumes the form shown in Fig. 7 of the drawing. It is then compacted centrally by a plunger having a convex end face, as is illustrated in Fig. 8, and it is finally shaped and given a highly compacted superficial area by means of the pair of co-acting concave faced dies 75, 55, as illustrated in Fig. 9. The finished briquette of the shape shown in Fig. 10 is then ejected from the mold chamber through the action of the knockout plunger.

The shocks due to the operation of the toggle and its associated mechanism are absorbed in the accumulator. The pressure applied by the final pair of plungers is greater in degree than that exerted by any of the other plungers of the series and the material is of denser constitution when it is brought into register between this pair of plungers. The amount of pressure applied is therefore controlled by the amount of pressure transmitted upwardly to the upper sliding block and thence to the liquid contained within the cylinder. When the pressure upon the lower valve or piston element reaches the equivalent of that above the upper piston element the valve will lift, and the fluid in the cylinder will be released through the large open passageway connecting the space above the valve with the accumulator, which will take up the shock of the operation. When the pressure is relieved through the valve the upper slide block will move upwardly a small distance and with the re-seating of the valve will again afford an abutment against which the toggle mechanism may continue to work. As soon as the piston moves downwardly through the operation of the drive shaft of the toggle mechanism the fluid pressure will be restored to the original amount through the action of the pump as well as through the lifting of the check valve 88 in the auxiliary passageway.

It should be noted that the pump fulfills a very important function in connection with the operation of the apparatus. The pressure in the cylinder is built up to approximately 4000 pounds per square inch by

the pump and the maximum working pressure in the cylinder is 4500 pounds per square inch. The pressure above the differential piston valve and its associated fluid passageways is about 350 pounds per square inch. When the check valve operates, the piston in the cylinder moves about one inch, thus lowering the pressure below 350 pounds per square inch. The press is usually operated at a speed of thirty revolutions per minute and the pump must be of a capacity to handle two cubic inches of liquid thirty times per minute. The pump, while of relatively small capacity, will be brought into action sufficiently rapidly to prevent a drop to 350 pounds per square inch where the piston moves one-quarter or one-half inch.

Through the provision of a pump in the apparatus, the upper slide block may be positioned at its lower-most limit of motion and without any displacement thereof, the pressure above said slide block may be raised to 4000 pounds per square inch. After the operation of the differential piston valve the accumulator serves to restore fluid at 350 pounds pressure above the slide block as it drops to its lower position, and without the pump it would require some upward displacement of the slide block to build up the necessary working pressure in the apparatus. This displacement of the slide block would be in effect "lost motion" and would prevent the rapid production of briquettes under identical conditions of pressure. Without a pump the mechanism would be subjected to unusual strains and vibration and the life of the check valve would be reduced. Furthermore, any slight leakage in the check valve would cause unevenness of operation and in the event that a slightly insufficient amount of material should be fed to the apparatus, it might easily occur that the total amount of pressure delivered to a briquette would reach only 350 pounds per square inch and thus cause a certain percentage of loss through the defective articles produced. As has been indicated, the pump is set to deliver a maximum pressure of about 4000 pounds per square inch for the character of operation above described. If the pump is permitted to develop a higher pressure it would overbalance the piston instead of allowing the slide block to do so. The pump must therefore be one of suitable size and provided with a pressure relief valve of approved construction.

From time to time it is necessary to admit fluid into the system to compensate for leakage and evaporation. This is preferably accomplished by connecting the pump with an outside source of fluid supply and opening valves in the pressure line until the desired amount of liquid is restored to the system.

In a modified form of construction, illus-

trated in Figs. 5 and 6, I provide a rotatable table shifting mechanism substantially the same as that described in connection with the form of my construction first referred to. Thus, the vertical shaft 136, operated from the toggle drive shaft, operates the horizontal shaft 148 carrying a disk provided with a wrist pin 146 at one end and another disk 150 near its other end, provided with a cam path. Upon the wrist pin the crank arm 145 is pivoted, and at its other end connected with the table shifting plate 144 carrying a spring pressed pawl 144', which engages the toothed wheel 143 affixed to the pivot 140 of the rotating table. Upon the margin of the shifting plate a resilient member 144^c is provided to engage a projection upon a latch member 144^a co-operating with a plurality of notches 144^b upon the under side of the rotating table.

In the modified form of my device the lower die-raising mechanism differs from that previously described and comprises a base member 153 provided centrally with a pivot pin 158 on its upper face, and with a series of projections 159, having horizontal top faces 160 and inclined sides 161 positioned about said pivot pin upon the outer circumferential portion of said upper face. A block carrying the die member 156 has on its under face a complementary series of projections and an intermediate disk 157 is interposed between the adjacent faces carrying the projections, and has on each of its sides a series of projections 164 of a shape to engage the projections of the blocks mentioned and, through rotation about the pivot pin, to cause the blocks to be forced apart and the die to be supported in elevated position by the plurality of horizontal faces upon said associated members.

Thus it will be noted that the press operates against a constant fluid pressure in the pressure control apparatus, that release of pressure is direct, and that normal operating conditions are quickly and automatically restored. The resulting product is of uniform character of compactness and internal structure and is of a shape to withstand such handling as is required in the process of transportation and industrial use.

Other modes of applying the principle of my invention may be employed instead of the one explained, change being made as regards the mechanism herein disclosed, provided the means stated by any of the following claims or the equivalent of such stated means be employed.

I therefore particularly point out and distinctly claim as my invention:—

1. In an apparatus for compressing material, an automatic intermittently revolving table, a plurality of molding chambers therein, a plunger head, a plurality of plungers carried by said plunger head for successively

compacting material within the respective molding chambers, and a plurality of plungers on said head for successively giving said material a different outward configuration.

2. In an apparatus for compressing material, an automatic intermittently revolving table, a plurality of molding chambers therein, a plunger head, a plurality of plungers carried by said plunger head for successively compacting material within the respective molding chambers, and a plurality of plungers on said head for successively compressing the central and peripheral portions respectively of said compressed body.

3. In an apparatus for compressing material, an automatic intermittently revolving table, a plurality of molding chambers therein, a plunger head, a plurality of plungers carried by said plunger head for successively compacting material within the respective molding chambers, an additional plunger also carried by said plunger head, a convex face upon said plunger adapted to compress said material centrally and give one end of the compressed body a concave upper face, and a plurality of oppositely positioned plungers having concave contact surfaces to compact said material circumferentially and give the opposite ends of the compressed body convex terminal faces.

4. In an apparatus for compressing material, a frame, a revolving table supported upon said frame, a plurality of molding chambers therein, a plunger head, a plurality of plungers carried by said plunger head for successively compacting material within the respective molding chambers, an additional plunger also carried by said plunger head, a convex face upon said plunger adapted to compress said material centrally and give one end of the compressed body a concave upper face, a plurality of oppositely positioned plungers having concave contact surfaces to compact said material circumferentially and give the opposite ends of the compressed body convex terminal faces, and an independently movable knock-out plunger for discharging the compressed body from the molding chamber.

5. In an apparatus for compressing material, the combination of a press, a liquid containing cylinder associated with said press, an element of said press movably engaged within said cylinder, a valve member upon said cylinder and fluid pressure means for maintaining a constant pressure upon said valve member.

6. In an apparatus for compressing material, the combination of a press, a liquid containing cylinder associated with said press, an element of said press movably engaged within said cylinder, and means embodying a differential piston valve for maintaining a constant amount of pressure above said cylinder.

7. In an apparatus for compressing material, the combination of a press, a liquid containing cylinder mounted above said press, an element of said press movably engaged within said cylinder, a valve upon said cylinder, means comprising a differential piston for maintaining a constant amount of pressure upon said valve, and means to absorb the shock when said differential piston is over-balanced by the pressure in the cylinder.

8. In an apparatus for compressing material, the combination of a press, a liquid containing cylinder associated with said press, an element of said press movably engaged within said cylinder, a valve upon said cylinder, means comprising a differential piston for maintaining a constant amount of pressure upon said valve, means to absorb the shock when said differential piston is over-balanced by the pressure in the cylinder, and means to automatically restore the parts to operative condition.

9. In an apparatus for compressing material, the combination of a press, a liquid containing cylinder mounted above said press, an element of said press movably engaged within said cylinder, a valve above said cylinder, means comprising a differential piston for maintaining a constant amount of pressure above said cylinder, means to absorb the shock when said differential piston is over-balanced by the pressure in the cylinder, and means to automatically restore the parts to operative condition, including a check valve in connection with a fluid supply.

10. In an apparatus for compressing material, the combination of a press, a liquid containing cylinder mounted above said press, an element of said press movably engaged within said cylinder, a valve above said cylinder, means comprising a differential piston for maintaining a constant amount of pressure above said cylinder, means to absorb the shock when said differential piston is over-balanced by the pressure in the cylinder, means to automatically restore the parts to operative condition, including a check valve in a connection with a fluid supply, and a pressure maintaining pump in another connection with said fluid supply.

11. In an apparatus for compressing material, the combination of a press, a liquid containing cylinder mounted above said press, an element of said press movably engaged within said cylinder, an accumulator, a fluid control apparatus above said cylinder responsive to predetermined pressure in said cylinder, and fluid connections between said apparatus and the accumulator.

12. In an apparatus for compressing material, the combination of a press, a liquid containing cylinder mounted above said press, an element of said press movably en-

gaged within said cylinder, an accumulator, a fluid control apparatus above said cylinder embodying a differential piston valve, direct fluid connections between said accumulator and the space immediately above the valve members of said differential piston valve, and fluid connections between said fluid control apparatus and said accumulator below said differential piston valve, having a check valve and pump respectively interposed therein.

13. In an apparatus for compressing material, the combination of a toggle joint press, a liquid containing cylinder mounted above said press, an element of said press movably engaged within said cylinder, a pressure control apparatus mounted above said cylinder, a reservoir, passageways connecting said pressure control apparatus with said reservoir, a pump interposed in the line of one of said passageways whereby a predetermined pressure is maintained in said cylinder and its adjacent passageways, and a differential piston mounted within said pressure control apparatus and adapted to maintain a constant pressure above said liquid containing cylinder.

14. In an apparatus for compressing material, the combination of a drive mechanism, a toggle connecting with said drive mechanism, an arm of said toggle connecting with a piston slide block, a fluid containing cylinder receiving one end of said slide block, a plunger head connected with the other arm of said toggle, a plurality of plungers carried by said plunger head, a plurality of mold chambers with which said plungers co-operate, a valve above said fluid chamber, and means for maintaining a constant pressure above said valve.

15. In an apparatus for molding and compressing material, the combination of a rotatable table, a plurality of molding chambers therein, a series of reciprocating die members above the plane of said table co-operating with said molding chambers, means for intermittently shifting said table between the working strokes of said members, a lower die member located beneath the rotatable table and adapted to enter one of the mold chambers from below and radially oscillating means for reciprocating said lower die member and provided with a plurality of horizontal die supporting faces.

16. In an apparatus for molding and compressing material, the combination of a rotatable table, a plurality of molding chambers therein, a series of reciprocating die members above the plane of said table co-operating with said molding chambers, means for intermittently shifting said table between the working strokes of said members, a lower die member located beneath the rotatable table in vertical alignment with one of the upper die members and adapted to

enter one of the mold chambers from below, a base plate beneath said die member provided centrally with a pivot pin on its upper face and with a series of projections 5 having horizontal top faces and inclined sides positioned about said pivot pin upon the outer circumferential portion of said upper face, a block carrying said die member having on its under face a complementary series of projections and an intermediate disk interposed between the adjacent 10 faces carrying the projections, having on each of its sides a series of projections of a shape to engage the projections of the blocks mentioned and, through rotation 15 about the pivot pin, to cause the blocks to be forced apart and the die to be supported in elevated position by the plurality of horizontal faces upon said associated members. 20

Signed by me, this 13th day of November, 1920.

ALONZO B. MONTGOMERY.