G. J. MASHEK.

BRIQUETING PRESS.

APPLICATION FILED JAN. 6, 1910.

1,164,657.

Patented Dec. 21, 1915.

3 SHEETS—SHEET 1.

Fig. 6.

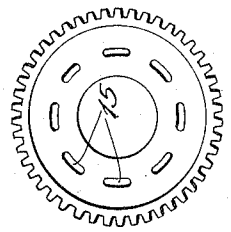


Fig. 5.

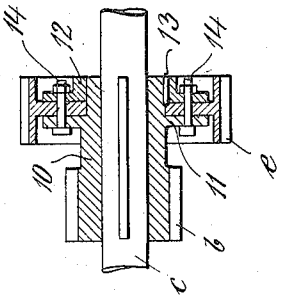


Fig. 1.

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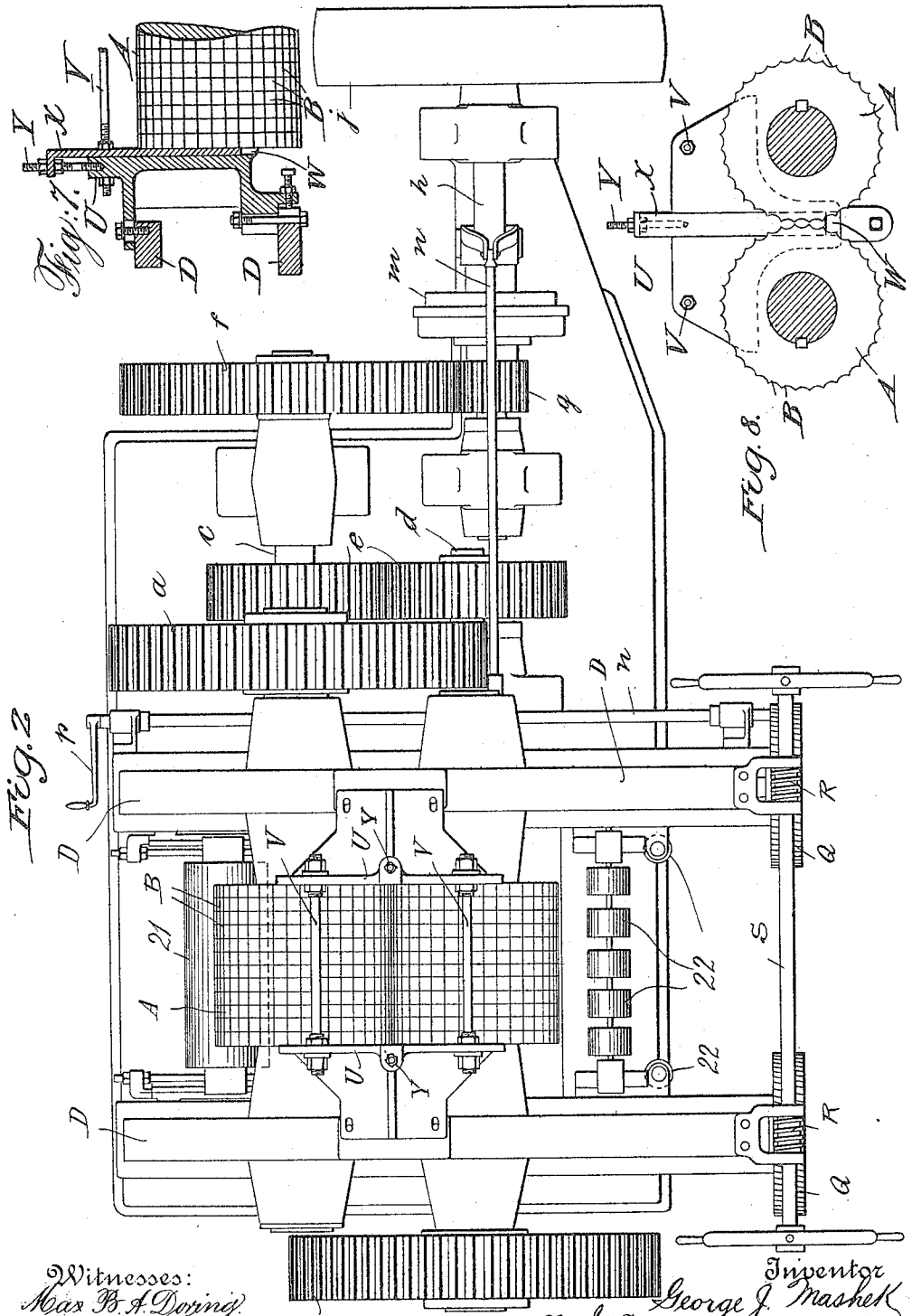
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3 SHEETS—SHEET 2.



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3 SHEETS—SHEET 3.

Fig. 3,

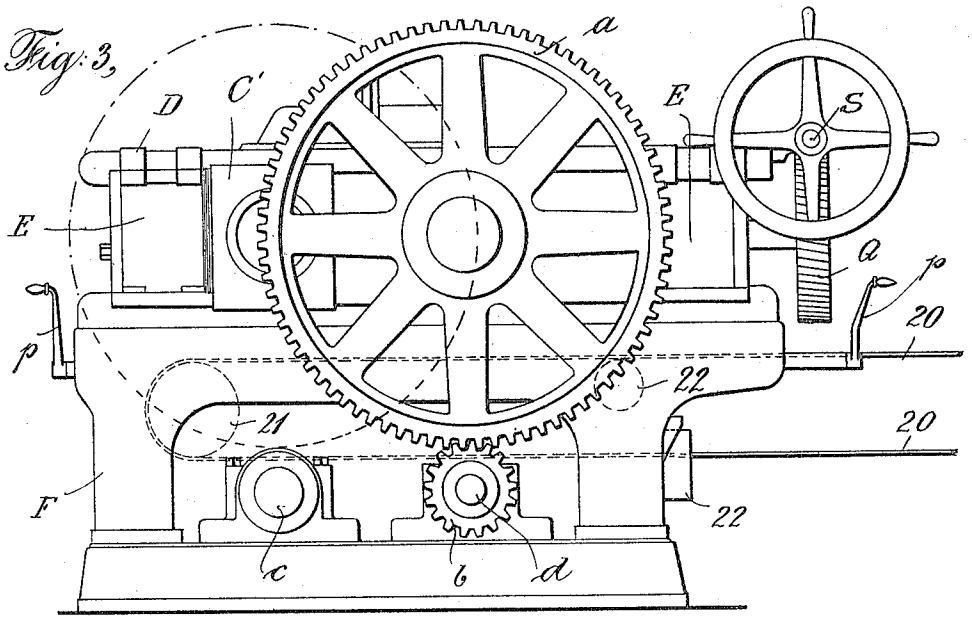
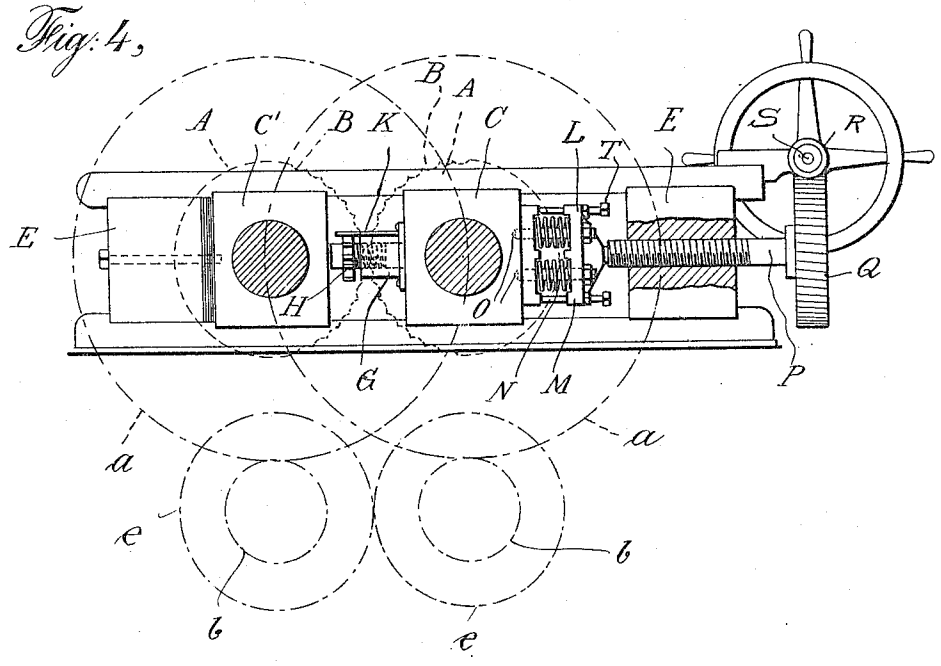


Fig. 4,



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UNITED STATES PATENT OFFICE.

GEORGE J. MASHEK, OF NEWARK, NEW JERSEY.

BRIQUETING-PRESS.

1,164,657. Specification of Letters Patent. Patented Dec. 21, 1915.

Application filed January 6, 1910. Serial No. 536,684.

To all whom it may concern:

Be it known that I, GEORGE J. MASHEK, a citizen of the United States, and a resident of the city of Newark, county of Essex, and State of New Jersey, have invented a certain new and useful Briqueting-Press, of which the following is a specification.

This invention relates to a briqueting press for making briquets, and the objects of the invention are to improve upon the construction of such presses and to increase their efficiency of operation, with simplicity of parts and cheapness of manufacture.

Other objects are to afford provision for the easy adjustment of the press.

Further objects of the invention will hereinafter appear and to these ends the same consists of a briqueting press carrying out the above objects, embodying the features of construction, combination of elements, and arrangement of parts having the general mode of operation, substantially as hereinafter described and shown in the accompanying drawings.

In the drawings: Figure 1 is a side elevation of a briqueting press constructed according to my invention; Fig. 2 is a plan of Fig. 1; Fig. 3 is an end view of Fig. 1 looking toward the right; Fig. 4 is a detail view of the bearings for the rolls showing some of the gearing diagrammatically; Figs. 5 and 6 are detail views of an adjustable gear; Figs. 7 and 8 are detail views of the hopper members.

In the drawings A designates the rolls of the press which in the present instance are provided on their cylindrical surfaces with a plurality of pockets B the sides of which are square, the pockets being placed adjacent each other and separated by thin sharp edges in the usual manner to produce pillow shaped briquets. The rolls A are suitably mounted in adjustable bearing blocks C and C′ which in the present instance are supported upon the bearing members D which are secured at their ends by means of the thrust blocks E, suitable standards F being provided for supporting the bearing members D. To regulate the thickness of the briquets a suitable spacing device is provided which in the present instance consists of small screw jacks G secured to each of the bearing blocks C. In the present instance, the screw of the jack G is provided with a notched wheel H adapted to be engaged by means of a spring catch K which locks the screw of the jack in any desired position. In addition to regulating the size of the briquets the small screw jacks G, by engaging the bearing blocks C′ prevent the surfaces of the rolls A from coming in contact with each other so as to damage the sharp edges of the rolls.

For preventing the over pressing of the briquets and to facilitate the briquets being discharged from the rolls, spring acting devices L are provided each of which consists of the spring thrust block M upon which are mounted the compression springs N, the spring thrust block M and springs N being held in position by means of the stud bolts O which pass freely through the thrust block M and are screwed into the bearing block C. The spring acting devices L are held in compression by means of set screws P which are adjusted through the medium of gears Q which are operated by means of the worms R on the shaft S. To prevent the rolls A being forced too far apart against the compression of the springs N, set screws or stops T are provided which are secured to the spring thrust blocks M, for accomplishing this purpose.

From the above description of the spring acting devices L it will be seen that as the rolls A are rotated in opposite directions, and as the material to be briqueted is fed between the rolls, the rolls will be forced apart against the action of the springs N, which are normally under a compression pressure of about forty tons to each bearing, until the bearing blocks C come in contact with the stops T at which time the thickest portion of the briquets are between the rolls, after which the rolls on rotating cut the briquets and the action of the springs N forces the rolls as near together as the screw jacks G will permit so as to eject the briquets from the rolls in a uniform manner. Due to the rapid rotation of the rolls A this back and forth movement of one of the rolls which is controlled by the spring acting devices at one end provided with positive stops, and the screw jacks at the other end providing another positive stop, tends to give a quick jarring motion as each row of briquets passes through the rolls, cutting the same off in a very decided manner, the jarring of the rolls ejecting the finished briquets and preventing them from sticking to the rolls.

In order to feed the material to be briqueted to the rolls, hopper members U are provided at opposite ends of the rolls, the hopper members U being adjustably secured to the bearing members D of the frame or standards F and held together by means of suitable tie bolts V. The hopper members U are shaped as shown in Fig. 8 so as to overlap that portion of the rolls with which the material to be briqueted comes in contact, so as to prevent the material being forced out of the end pockets on the rolls. The continual pressure of the material to be briqueted against that portion of the hopper members which lies directly between the rolls will wear a groove in the hopper members through which the material will pass without being made into briquets. This grooving of the hopper members is very troublesome and causes needless waste, besides mixing a lot of unbriqueted material with the briquets, until the press is stopped and new hopper members inserted. To obviate this difficulty and to prevent the press being stopped, there is provided in each of the hopper members a vertical groove W in which is fitted an adjustable gib X which is made of hard steel so that as soon as the gib wears out, at that portion of the gib which is adjacent the line of contact of the rolls, the gib can be lowered by means of the bolts and a new flat surface presented, without removing the hopper members or stopping the press; this is a very decided advantage and obviates a lot of work and trouble which heretofore necessitated the removal of the hopper members and the insertion of new ones.

In the present instance the rolls A are each driven through the medium of a large gear *a* secured to the roll shaft at one end, the gear *a* for each roll, due to their size, being situated on opposite sides of the rolls. The gears *a* are each adapted to mesh with pinions *b* mounted on suitable shafts *c* and *d* which are connected one to the other by means of the gears *e*. To the shaft *c* is also secured a large gear *f* which meshes with a pinion *g* secured to the driving shaft *h*, one end of which is provided with a driving pulley *j*. The driving shaft *h* is preferably provided with a friction clutch *m* which may be adjusted to slip when the rolls A are over loaded, suitable means being provided, such as the rods *n* and crank *p*, for operating the clutch.

In order to insure proper matching of the longitudinal dividing walls between the pockets of the rolls, which frequently get out of alinement by the wearing of the gearing, the gear *e* secured to the shaft *c* is preferably made adjustable for accomplishing this purpose. In the present instance the pinion *b* which is keyed to the shaft *c* is provided with an extended portion 10 upon which the gear *e* shown in Fig. 6 is mounted. The gear *e* is held in position by means of the flanges 11 and 12, the flange 11 being made integral with the extended portion 10, whereas the flange 12 is keyed to the extended portion by means of the key 13. The flanges 11 and 12 are provided with a plurality of circular holes for the passage of bolts 14 whereas the web of the gear *e* is provided with a corresponding plurality of elongated holes 15 which permit of the gear *e* being adjusted by simply loosening the bolts 14 and turning the gear *e* until the rolls A match properly after which the bolts 14 are tightened. It is obvious that a great many devices may be used for adjusting the gear *e* and it is not to be understood that I limit myself to this particular form of adjustable gear.

For carrying the briquets away after the same leave the rolls, a traveling belt 20 is provided which passes over the roller 21 secured to the frame F, suitable idlers 22 being also secured to the frame for supporting and guiding the belt.

While the invention has been described with particular reference to the details of construction it is not to be considered as limited thereto, as many changes may be made and still fall within the scope of the following claims.

What I claim is:

1. In a briquet machine, a pair of rolls having pockets therein for molding briquets, a pair of fixed bearings for one of said rolls and a pair of movable bearings for the other of said rolls, adjustable stops arranged upon the bearings for one of said rolls and adapted to engage with the bearings of the other of said rolls whereby to maintain said rolls separated to a predetermined degree, means for securing said adjustable stops to their adjusted positions, a pair of adjusting screws, spring tension devices carried partly by said adjusting screws and partly by said movable bearings, means arranged upon said spring tension devices for limiting the outwardly-yielding movement of said movable bearings, and means for actuating said adjusting screws to shift said movable bearings and the roll carried thereby, substantially as specified.

2. In a briquet machine, a pair of rolls having transverse rows of pockets therein for molding briquets, a pair of fixed bearings for one of said rolls, and a pair of movable bearings for the other of said rolls, screw stops carried by said movable bearings and adapted to contact with said fixed bearings for maintaining said rolls separated to a predetermined degree, means for securing said screw-stops to their adjusted positions, a pair of adjusting screws, spring acting devices carried partly by said adjusting screws and partly by said movable bear-

ings, stops, interposed between the parts of said spring acting devices arranged upon said adjusting screws and upon said movable bearings, for limiting the outwardly yielding movement of said movable bearings, and means for synchronously actuating said adjusting screws, substantially as specified.

3. In a briquet machine, a pair of rolls having pockets therein for molding briquets, a pair of fixed bearings for one of said rolls, and a pair of movable bearings for the other of said rolls, adjustable stops carried by said movable bearings and adapted to contact with said fixed bearings for maintaining said rolls separated to a predetermined degree, a pair of adjusting screws, spring acting devices secured partly to the inner ends of said adjusting screws and partly to said movable bearings, stops, interposed between the parts of said spring acting devices secured to said adjusting screws and to said movable bearings, for limiting the outwardly-yielding movement of said movable bearings, gear wheels fixed upon the outer ends of said adjusting screws, a transverse shaft having worms thereon meshing with said gear wheels, and means fixed upon said transverse shaft for operating the same, substantially as specified.

4. In a briquet press, the combination with a pair of rolls having registering transverse rows of pockets therein, means for supporting said rolls, gear wheels secured to said rolls, a pair of shafts, pinions fixed on said shafts and meshing with the gear wheels secured to said rolls, annular flanges secured to one of said pinions, an intermeshing gear wheel provided with a series of concentrically arranged slots, and bolts extending through said slots and said annular flanges for adjustably securing said intermeshing gear wheel to said annular flanges whereby to permit of the adjustment of said intermeshing gear wheel to compensate for wear of the several parts between said rolls and said intermeshing gear wheel to maintain said transverse rows of pockets in said rolls in register, substantially as specified.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

GEORGE J. MASHEK.

Witnesses:
LEO J. MATTY,
D. A. DAVIES.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."