R. C. PENFIELD.

APPARATUS FOR HACKING BRICKS

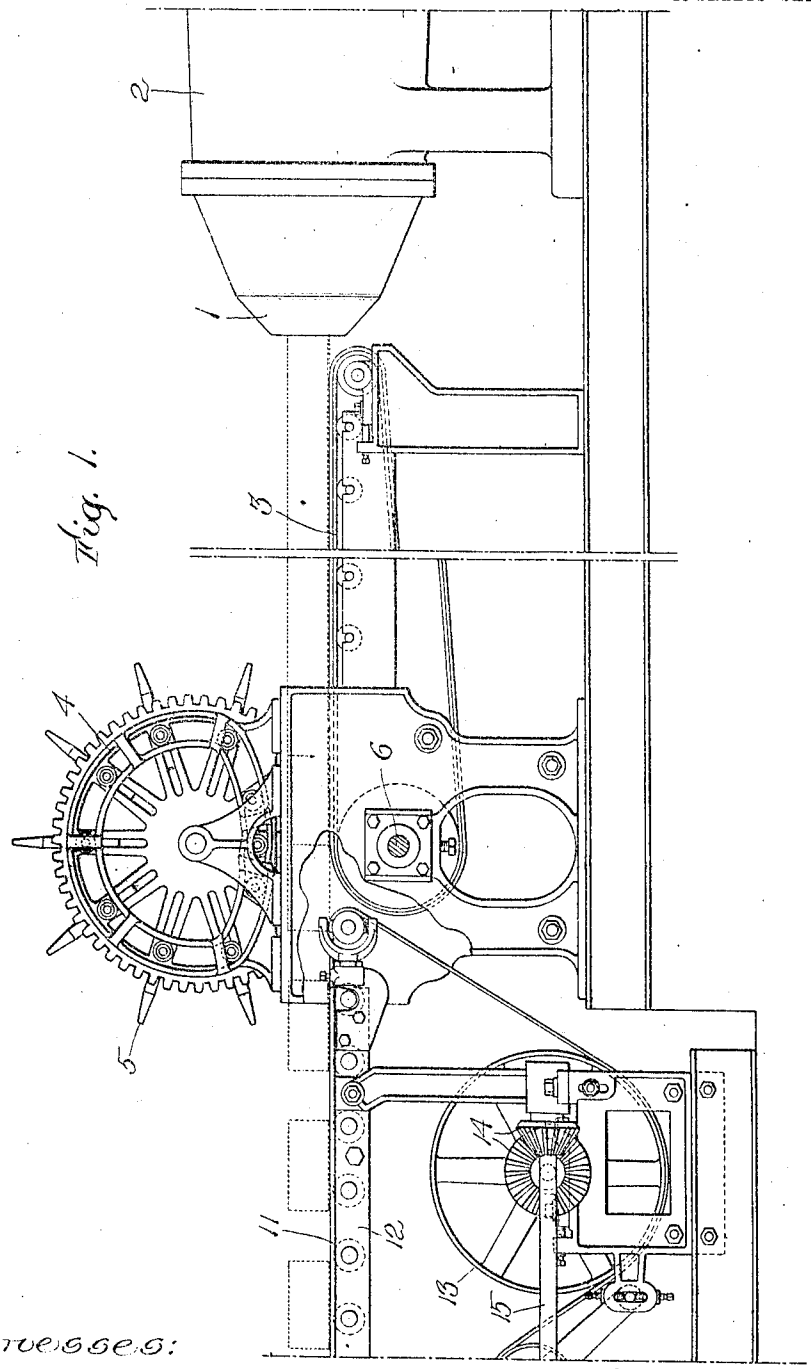
APPLICATION FILED OCT. 10, 1910.

1,020,572.

Patented Mar. 19, 1912.

25 SHEETS—SHEET 1.

Fig. 1.



Witnesses:

Edward Maxwell

William J. Pike.

Inventor:

Raymond C. Penfield,

by Geo. St. Maxwell,

Attorney.

R. C. PENFIELD.

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25 SHEETS—SHEET 2.

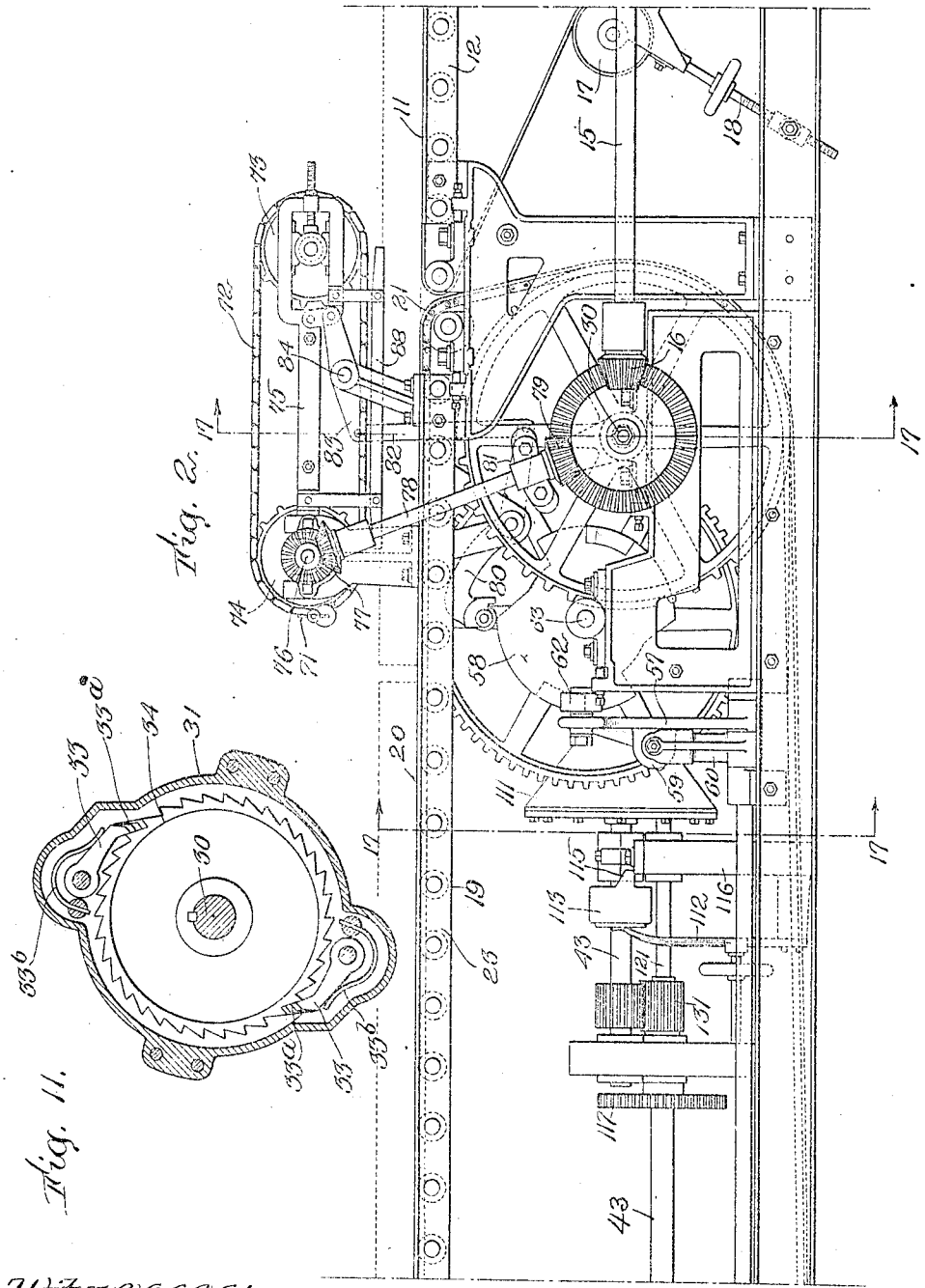

Fig. 2.

Fig. 11.

Witnesses:

Edward Maxwell

William J. Pike

Inventor:

Raymond C. Penfield,

by Geo. H. Maxwell,

Attorney.

R. C. PENFIELD.

APPARATUS FOR HACKING BRICKS

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25 SHEETS—SHEET 3.

Fig. 13.

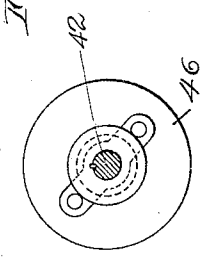


Fig. 12.

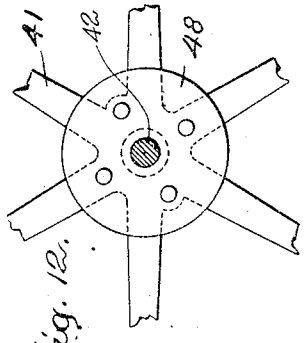
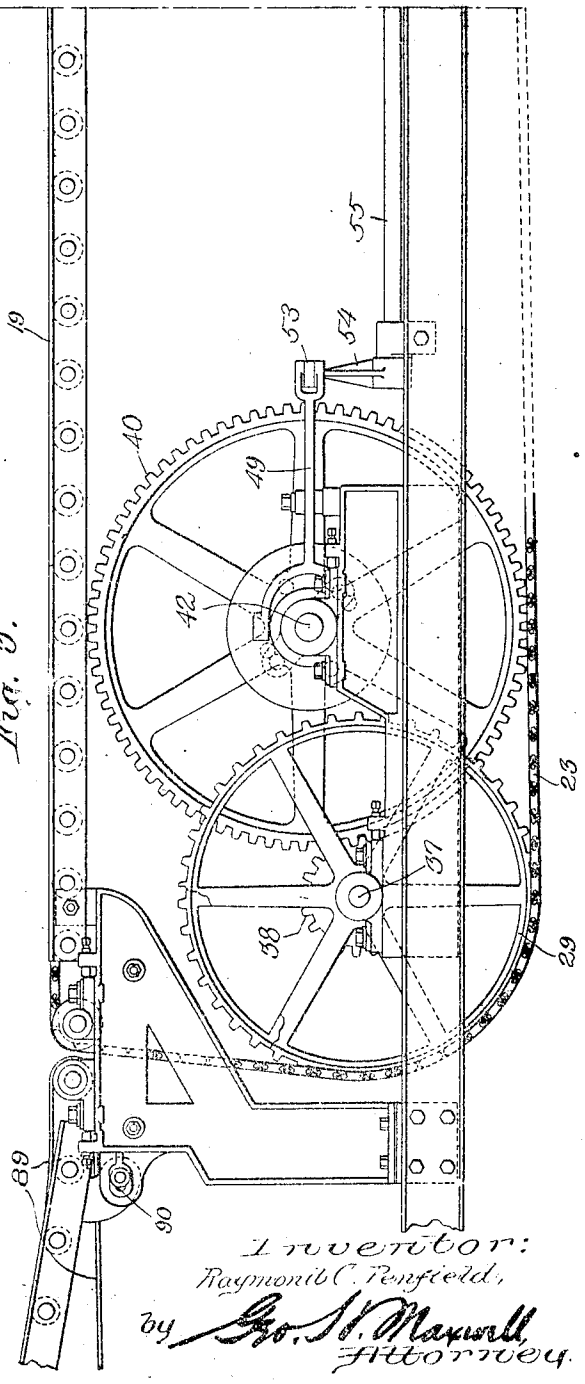


Fig. 8.



Witnesses:
Edward Maxwell.
William J. Pike.

Inventor:
Raymond C. Penfield,
by Geo. N. Maxwell,
Attorney.

R. C. PENFIELD.

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25 SHEETS—SHEET 4.

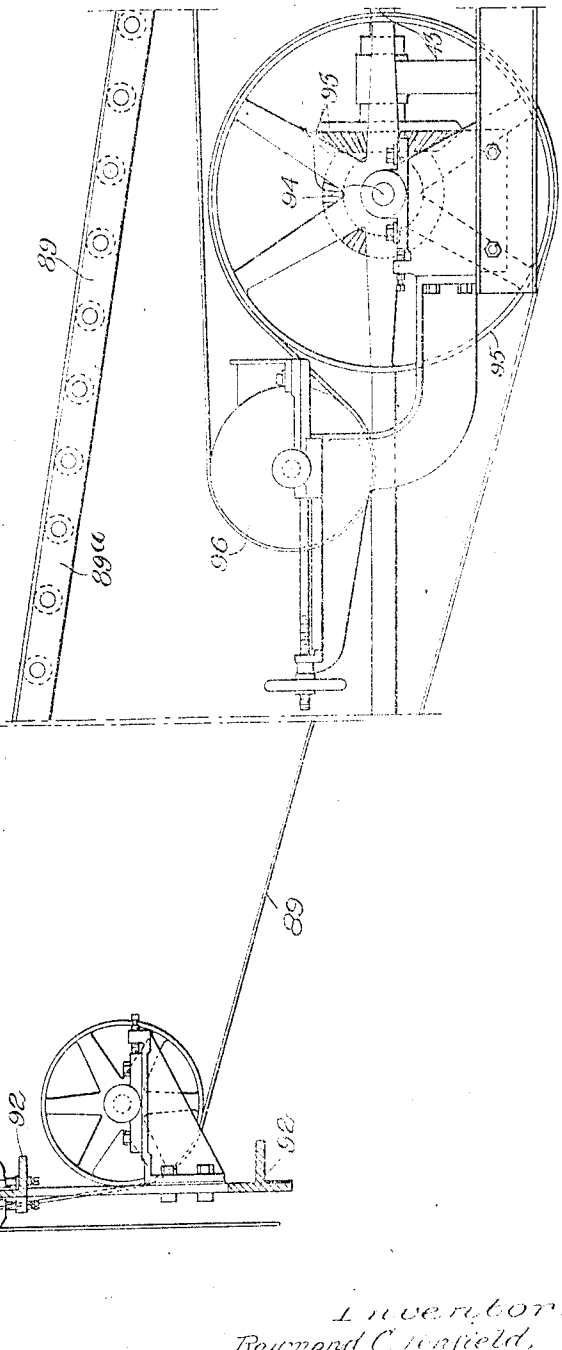

Fig. 4.

Witnesses:
Edward Maxwell.
William J. Pike.

Inventor:
Raymond C. Penfield,
by Geo. H. Maxwell
Attorney.

R. C. PENFIELD.

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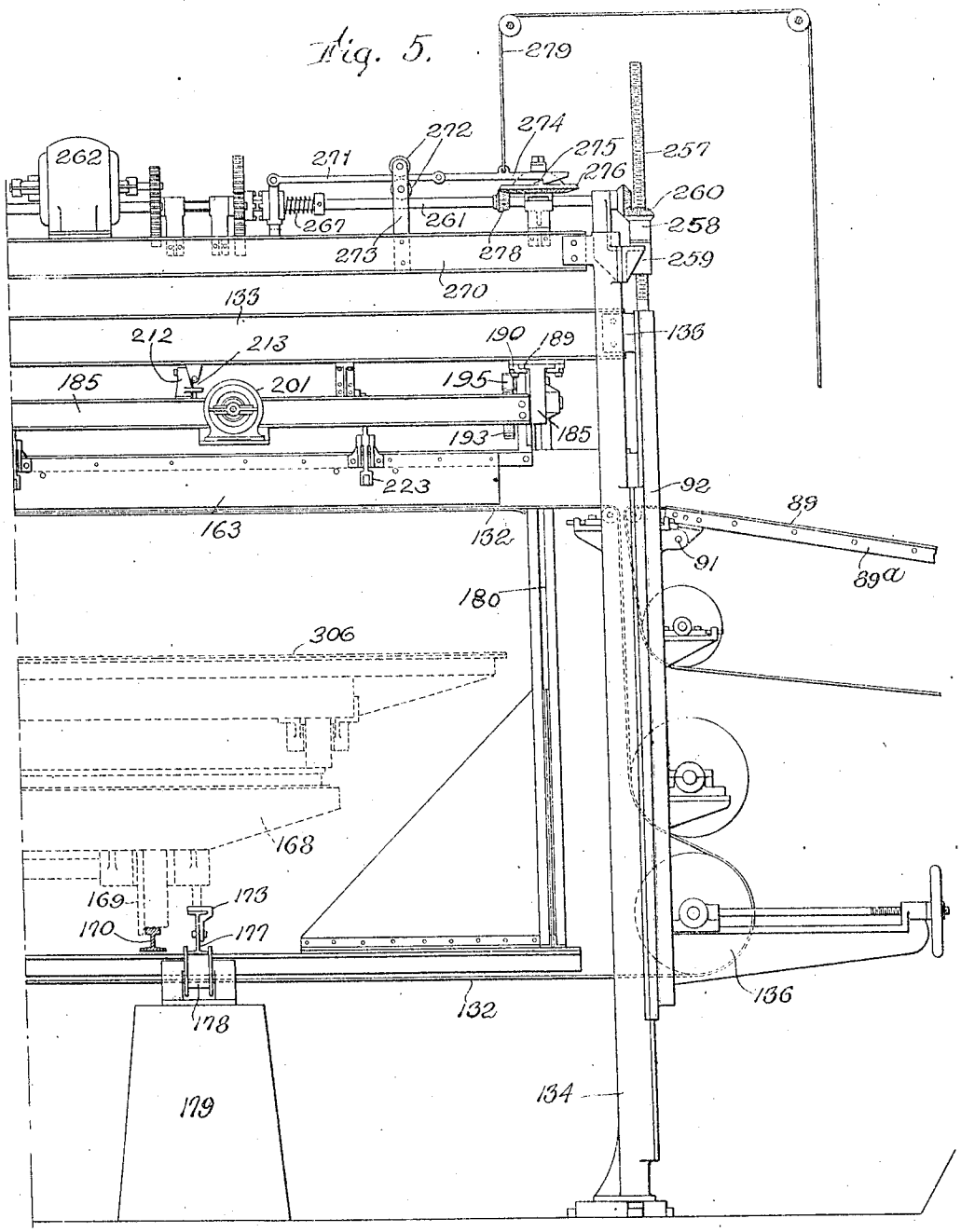
25 SHEETS—SHEET 5.

Fig. 5.



Witnesses:
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William J. Pike

Inventor:
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by Geo. H. Maxwell,
Attorney.

R. C. PENFIELD.

APPARATUS FOR HACKING BRICKS.

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25 SHEETS--SHEET 6.

Fig. 20.

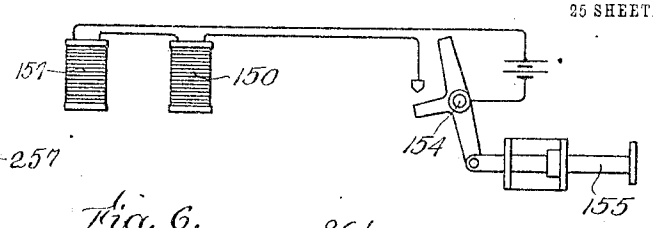
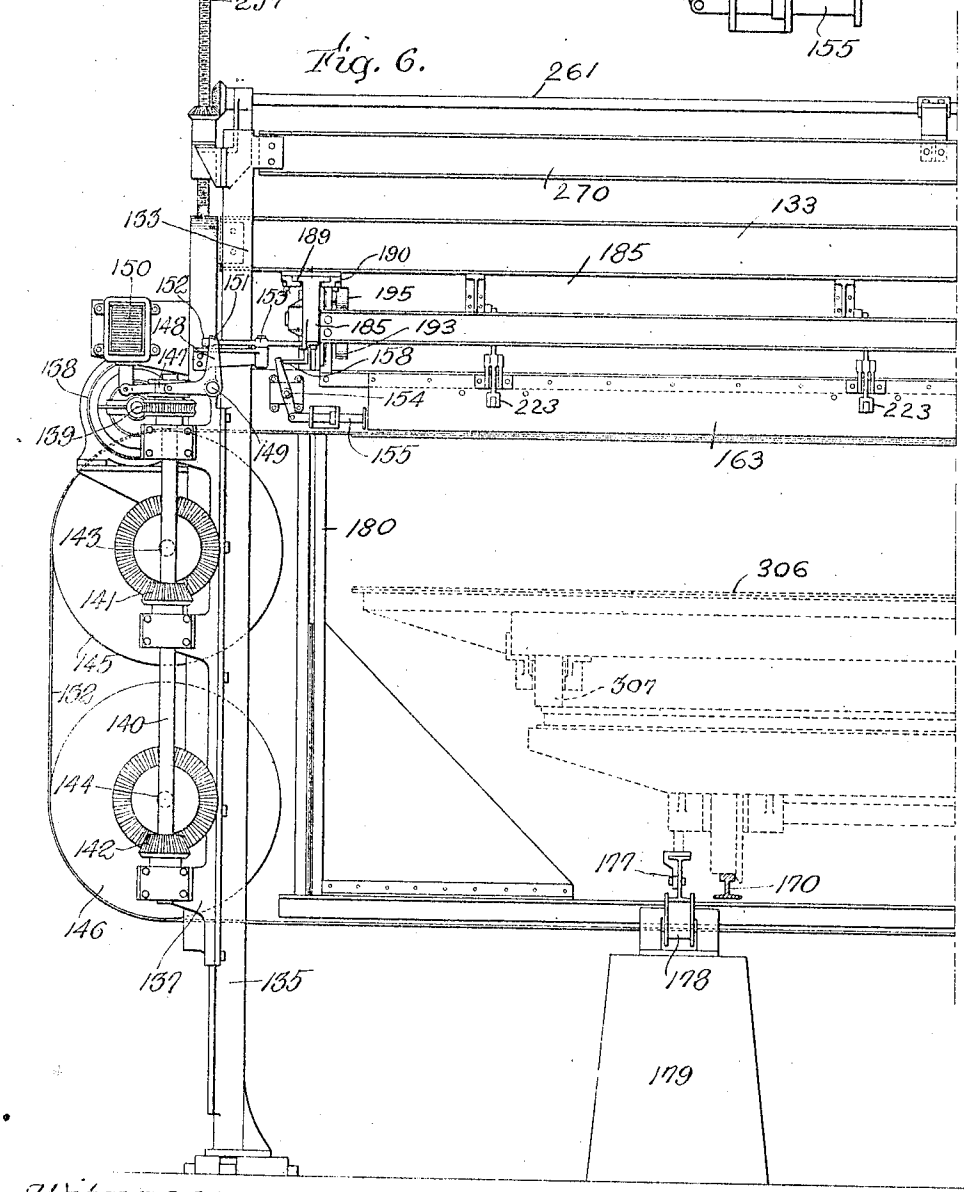


Fig. 6.



Witnesses:

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William J. Pike.

Inventor:

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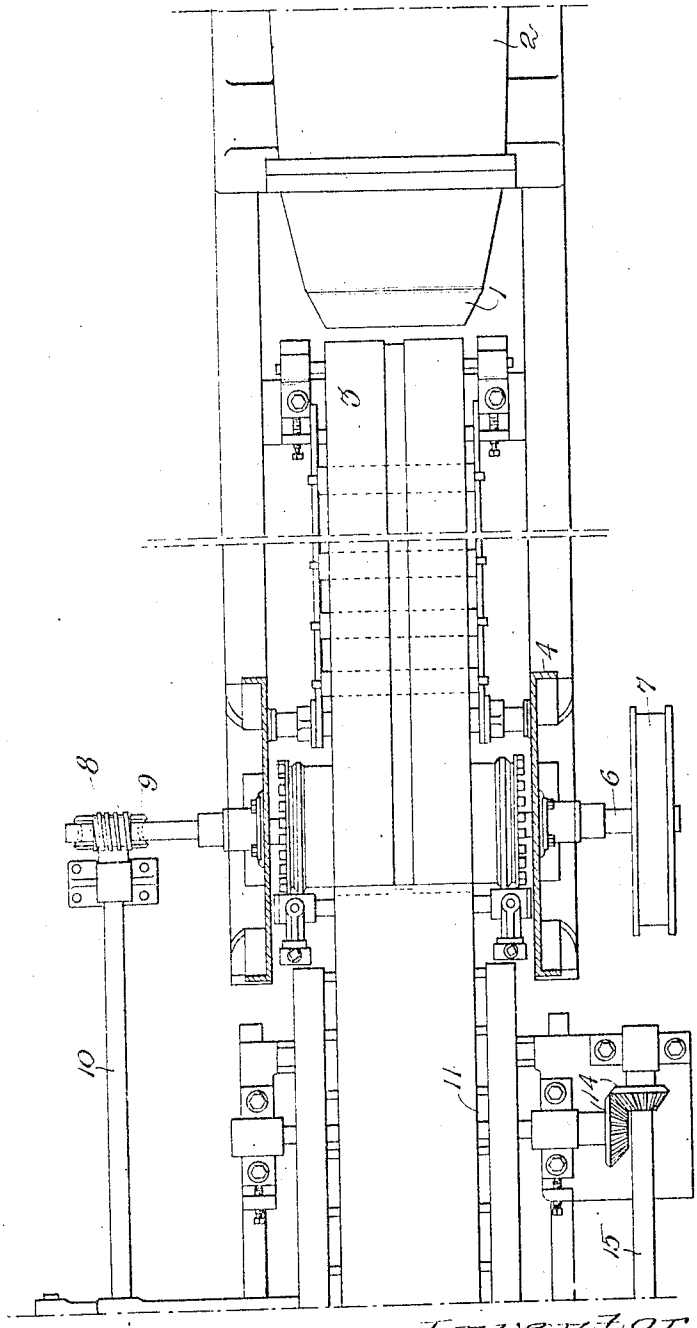
25 SHEETS—SHEET 7.

Fig. 7.



Witnesses:
Edward Maxwell.
William J. Pike.

Inventor
Raymond C. Penfield,
by Geo. H. Maxwell,
Attorney.

R. C. PENFIELD.

APPARATUS FOR HACKING BRICKS.

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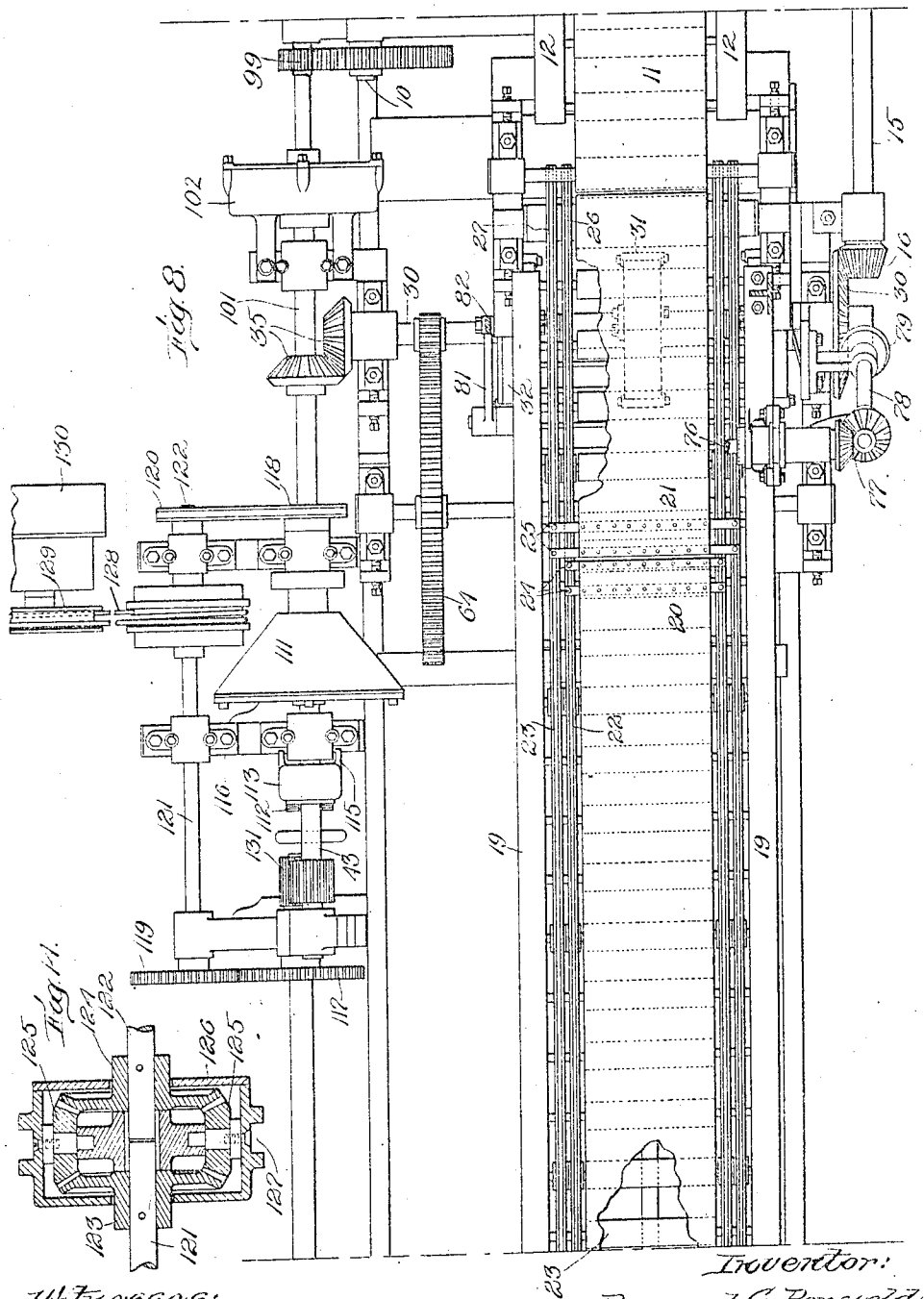
25 SHEETS—SHEET 8.

Fig. 8.



Witnesses:

Edward Maxwell

William J. Pike

Inventor:

Raymond C. Penfield,

by Geo. H. Maxwell, Atty.

R. C. PENFIELD.

APPARATUS FOR HACKING BRICKS.

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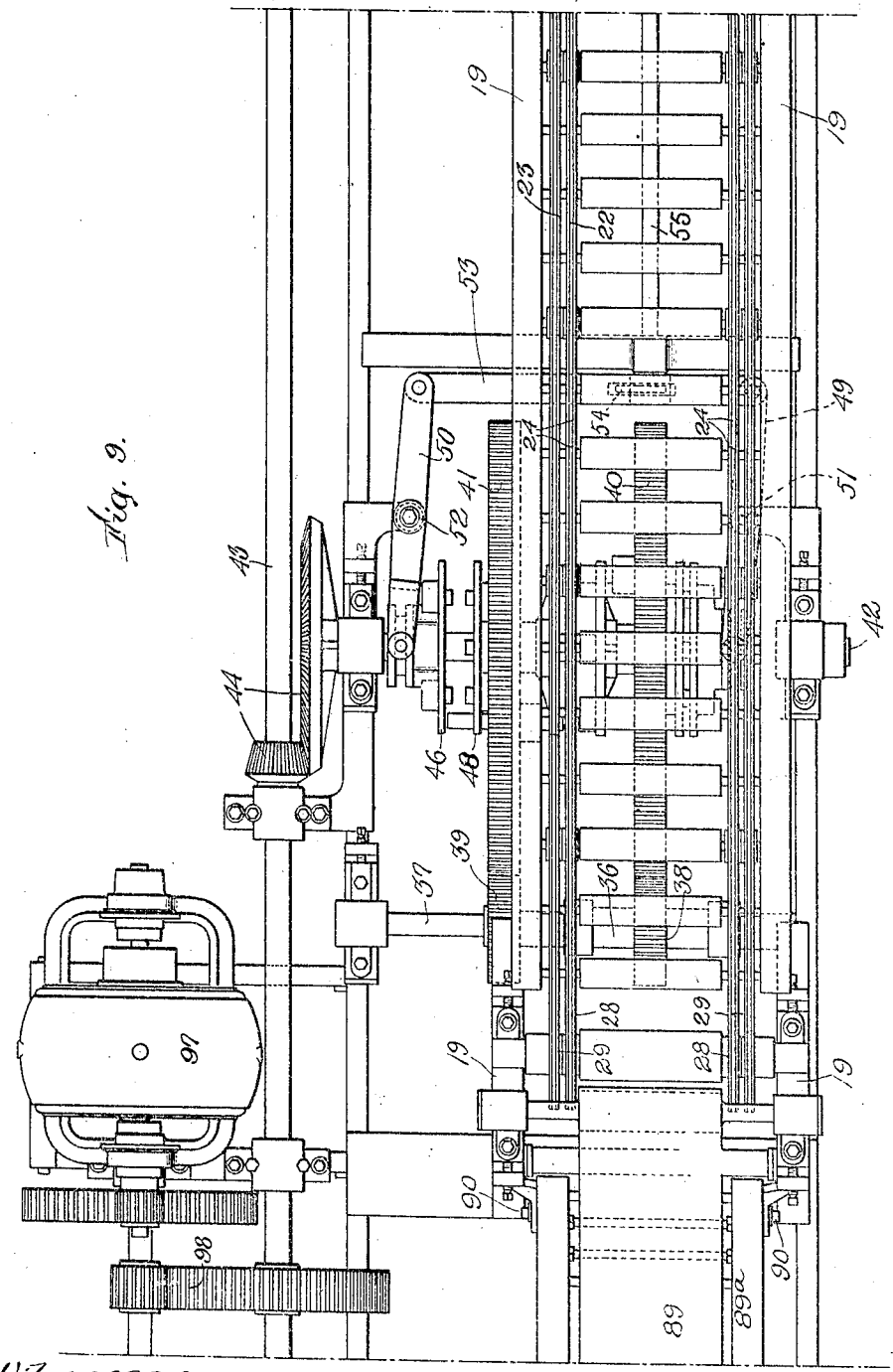
25 SHEETS—SHEET 9.

Fig. 9.



Witnesses:
Edward Maxwell.
William J. Pike

Inventor:
Raymond C. Penfield,
by Geo. H. Maxwell
Attorney.

R. C. PENFIELD.

APPARATUS FOR HACKING BRICKS.

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25 SHEETS—SHEET 10.

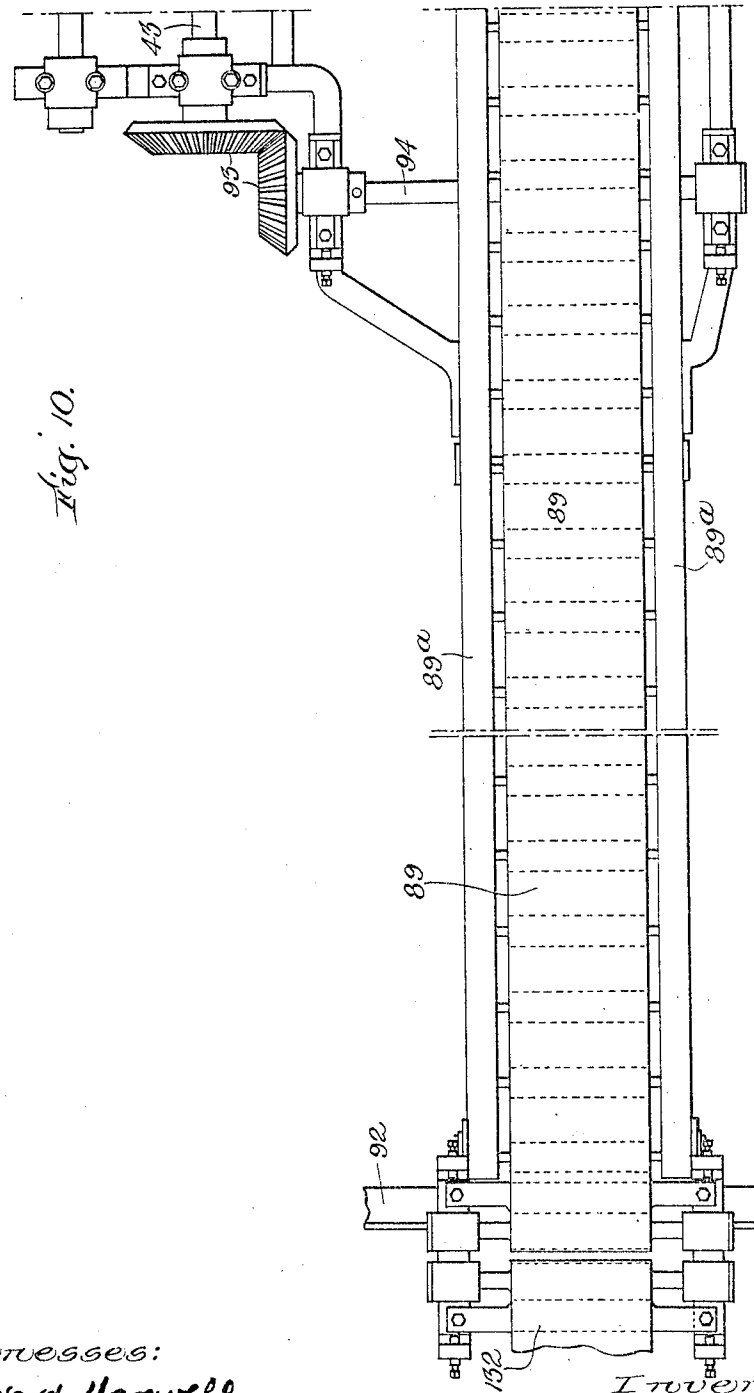

Fig. 10.

Witnesses:
Edward Maxwell
William J. Pike

Inventor
Raymond C. Penfield,
by Geo. H. Maxwell
Attorney.

R. C. PENFIELD.

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25 SHEETS—SHEET 11.

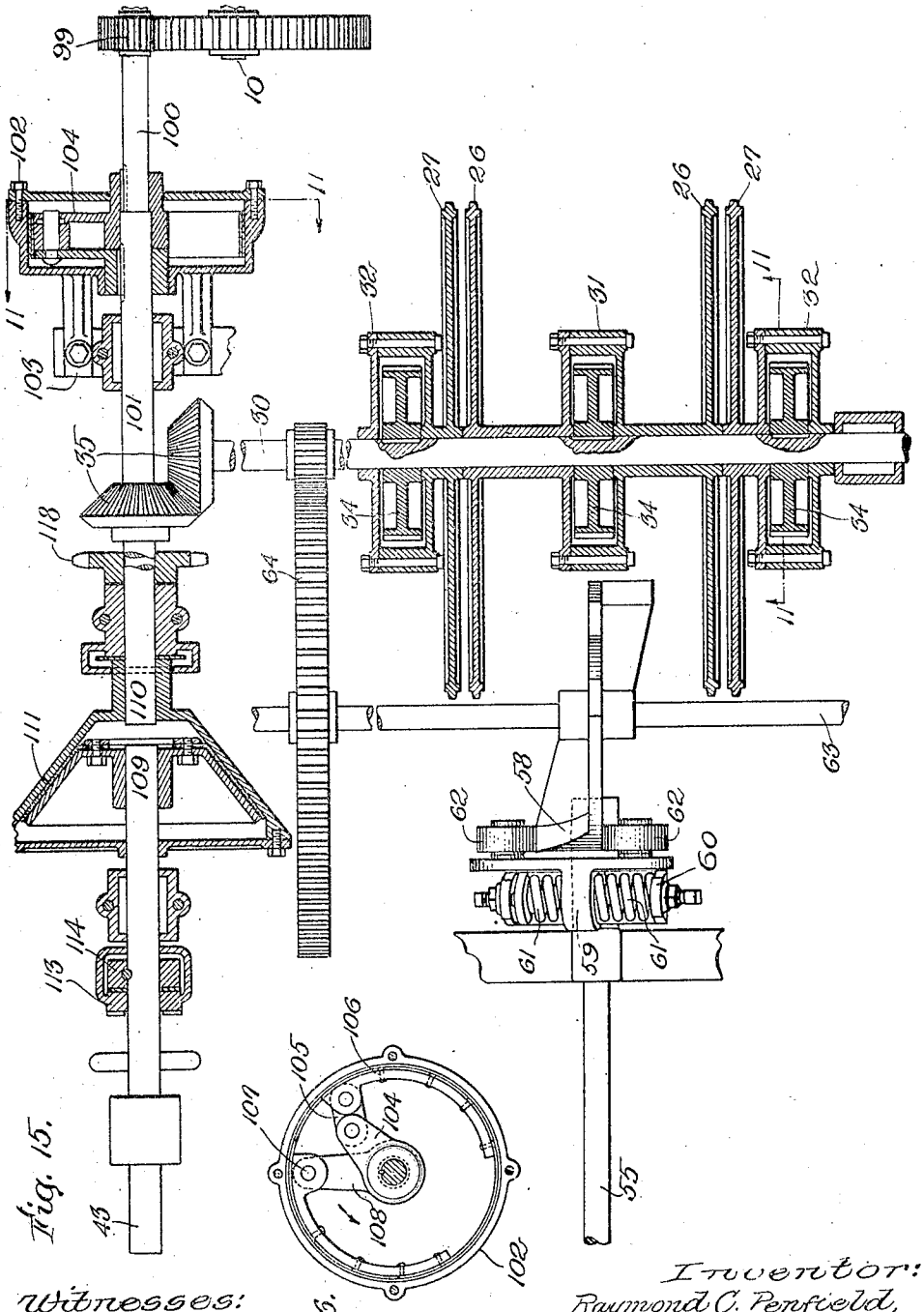

Fig. 15.

Fig. 16.

Witnesses:
Edward Maxwell
William J. Pike

Inventor:
Raymond C. Penfield,
by Geo. H. Maxwell,
Attorney.

R. C. PENFIELD.

APPARATUS FOR HACKING BRICKS.

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25 SHEETS—SHEET 12.

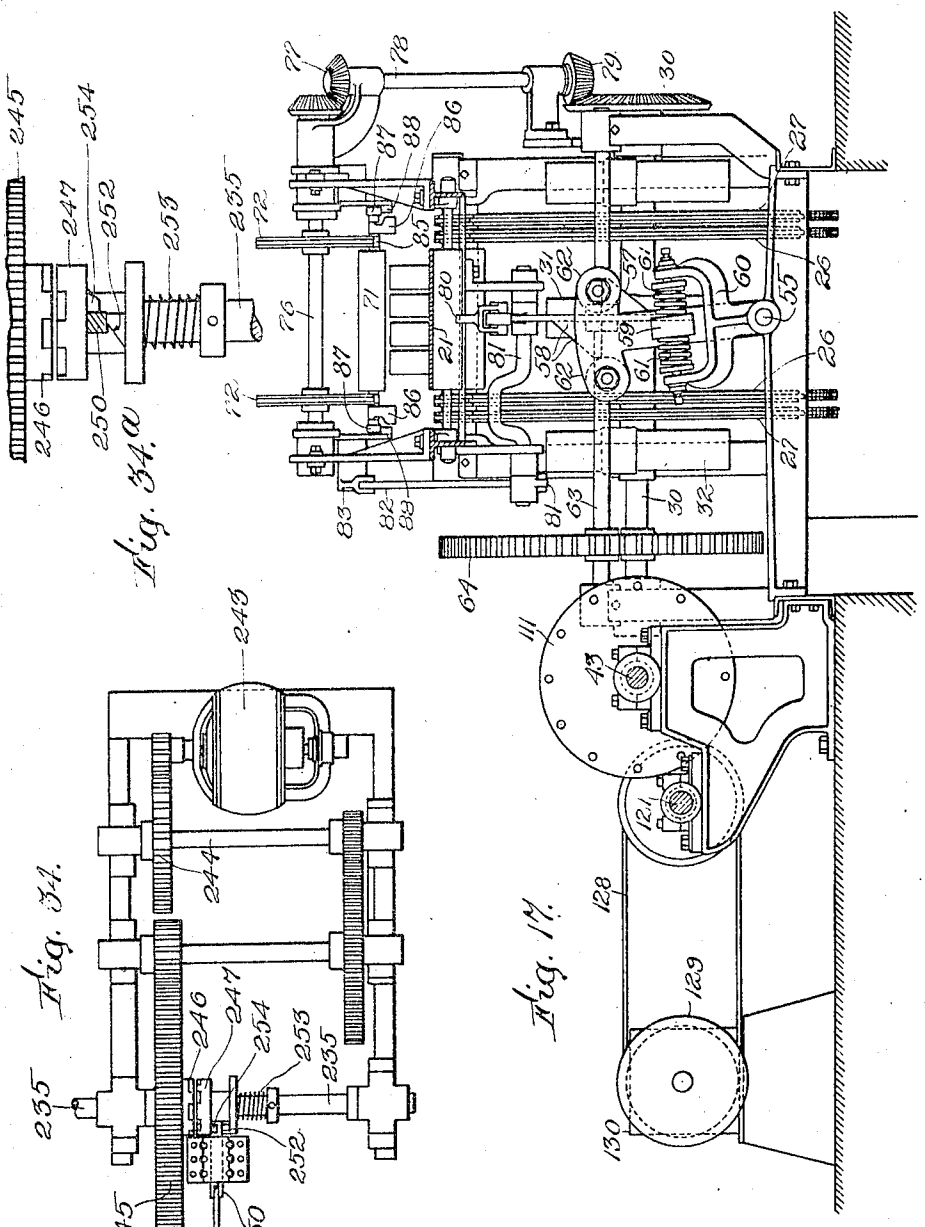

Fig. 34.a

Fig. 34.

Fig. 17.

Witnesses:
Edward Maxwell
William J. Pike.

Inventor.
Raymond C. Penfield,
by Geo. B. Maxwell,
Attorney.

R. C. PENFIELD.

APPARATUS FOR HACKING BRICKS.

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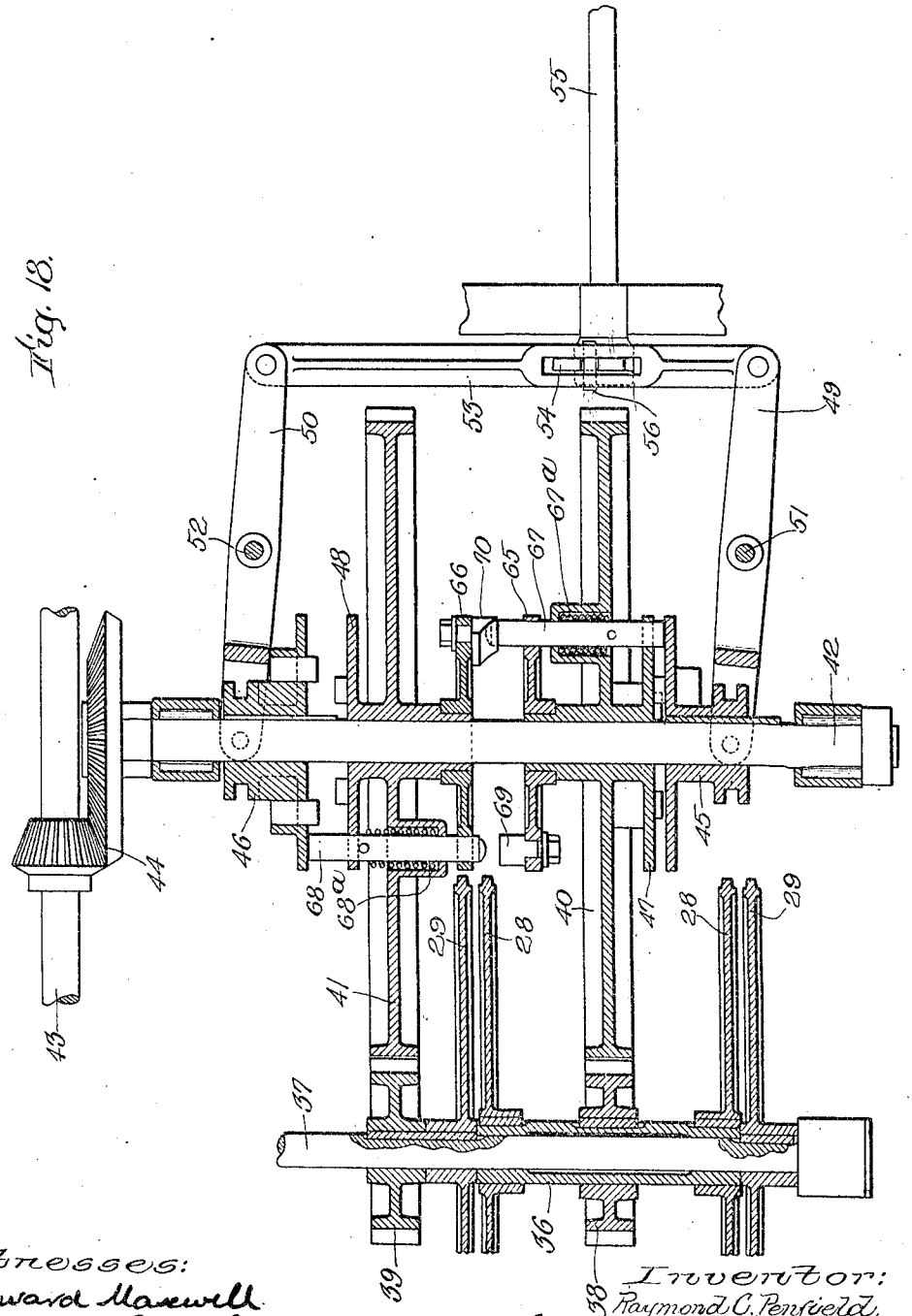
Patented Mar. 19, 1912.

25 SHEETS—SHEET 13.

Fig. 18.



Witnesses:
Edward Maxwell
William J. Pike.

Inventor:
Raymond C. Penfield,
by Geo. H. Maxwell,
Attorney

R. C. PENFIELD.

APPARATUS FOR HACKING BRICKS.

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25 SHEETS—SHEET 14.

Fig. 19.

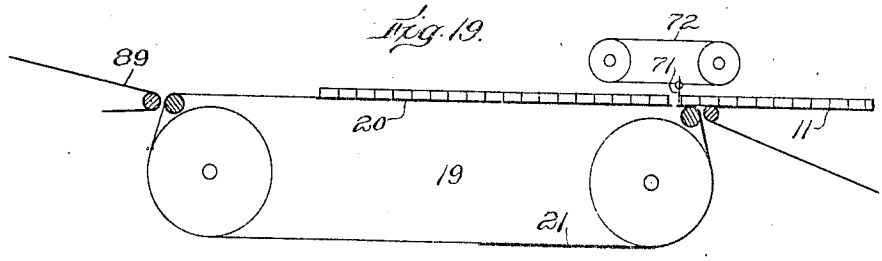


Fig. 38.

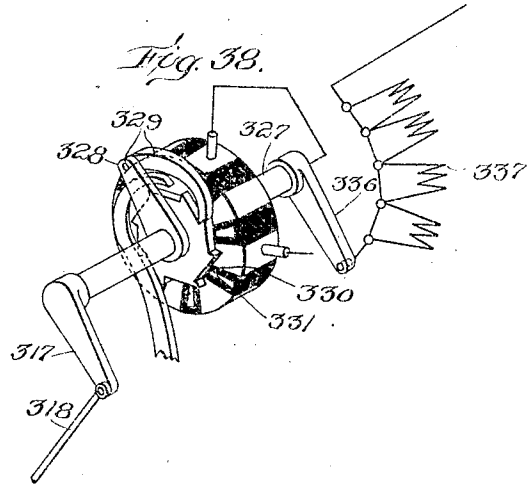
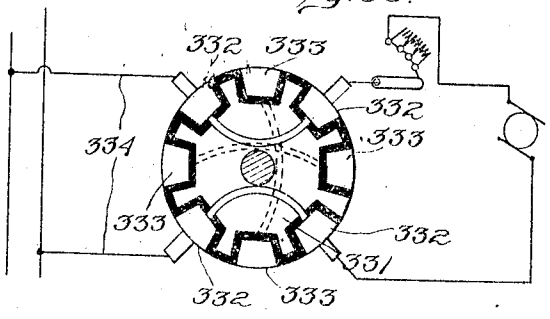


Fig. 39.



Witnesses:

Edward Maxwell.

William J. Pike.

Inventor:

Raymond C. Penfield,

by Geo. S. Maxwell

atty.

R. C. PENFIELD.

APPARATUS FOR HACKING BRICKS.

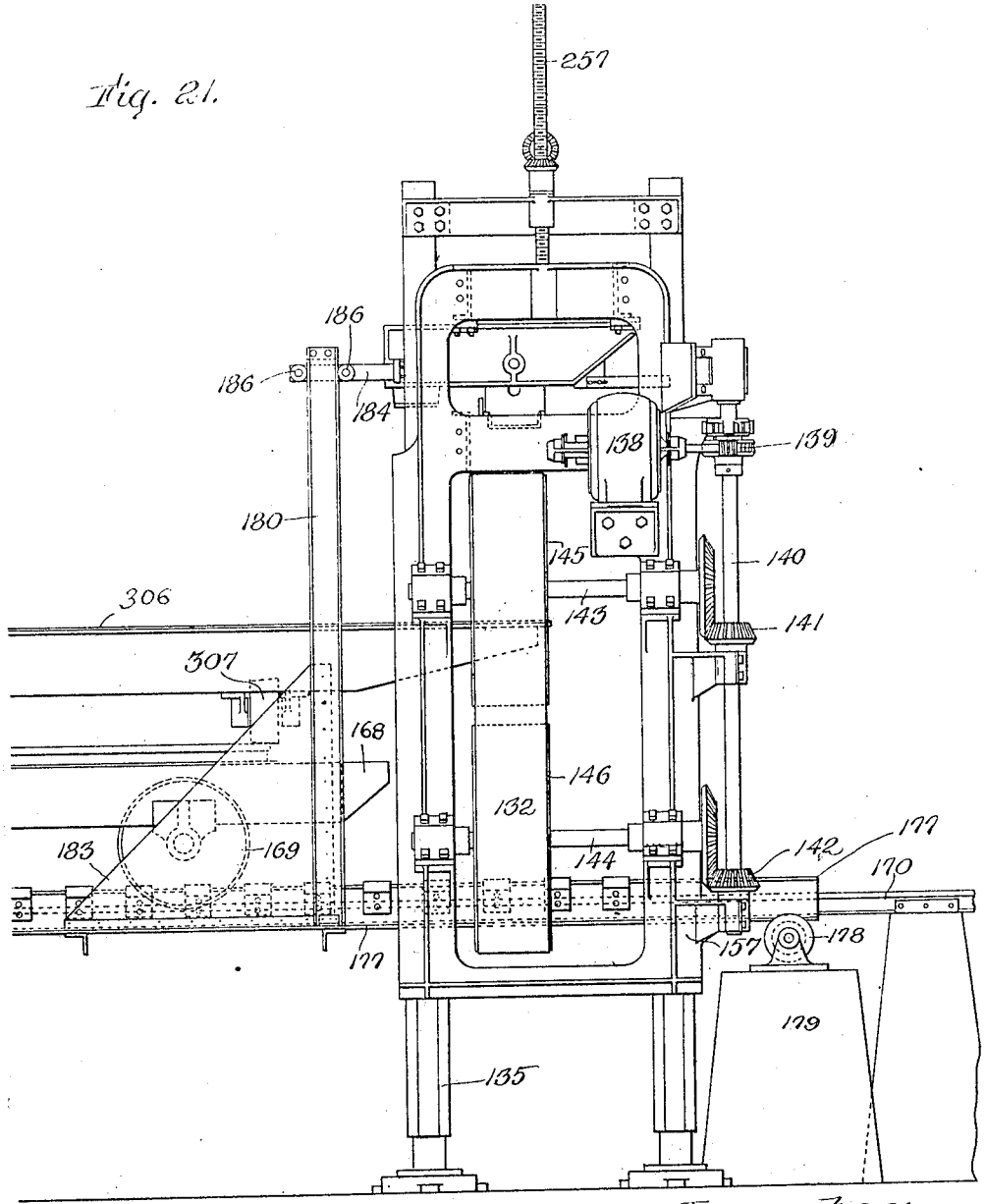
APPLICATION FILED OCT. 10, 1910.

1,020,572.

Patented Mar. 19, 1912.

25 SHEETS—SHEET 15.

Fig. 21.



Witnesses:
Edward Maxwell.
William J. Pike

Inventor:
Raymond C. Penfield,
by Geo. H. Maxwell,
Attorney.

R. C. PENFIELD.

APPARATUS FOR HACKING BRICKS.

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25 SHEETS—SHEET 16.

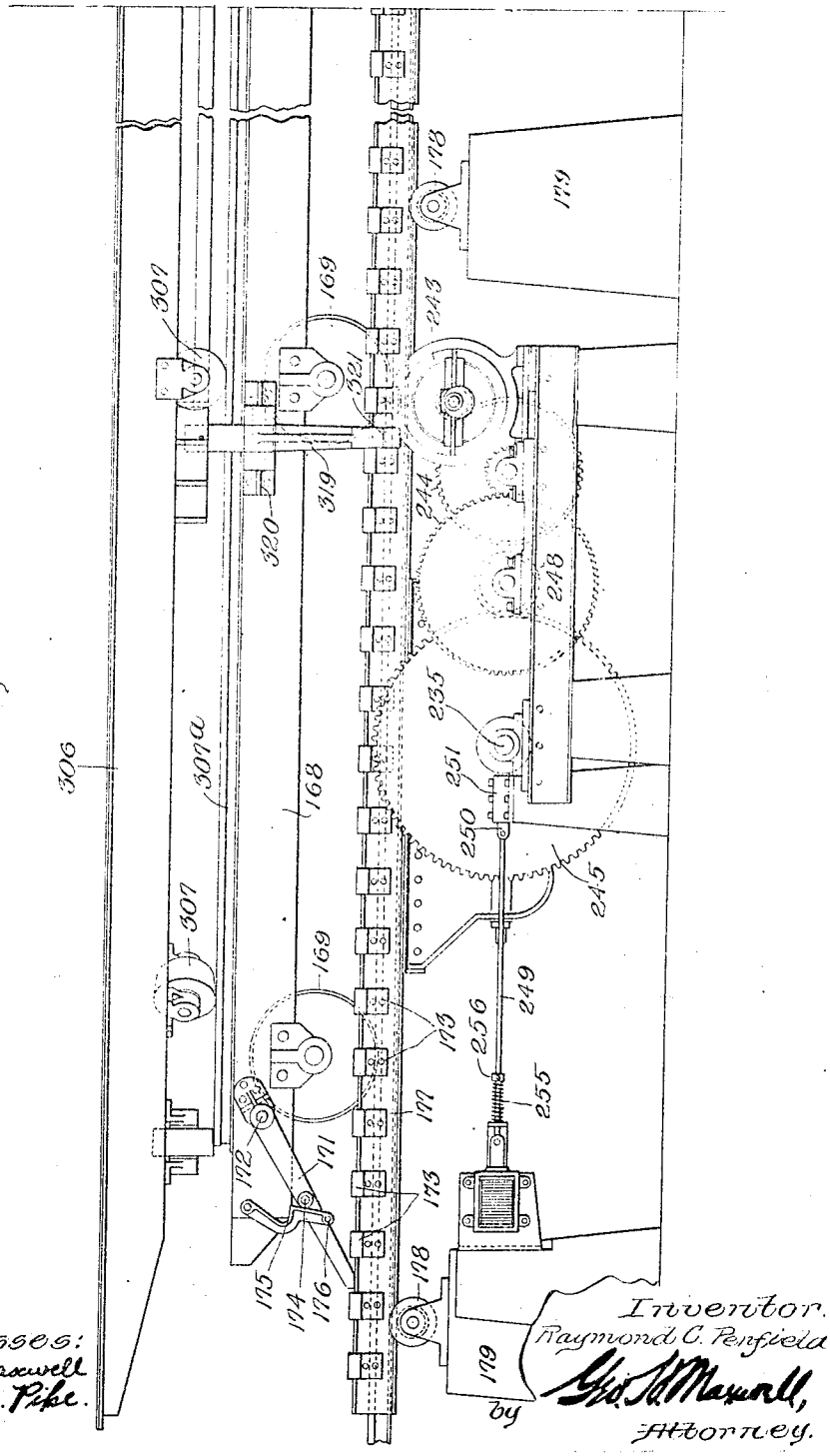

Fig. 22.

Witnesses:
Edward Maxwell
William J. Pike.

Inventor.
Raymond C. Penfield
by Geo. H. Maxwell,
Attorney.

R. C. PENFIELD.

APPARATUS FOR HACKING BRICKS.

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Patented Mar. 19, 1912.

25 SHEETS—SHEET 17.

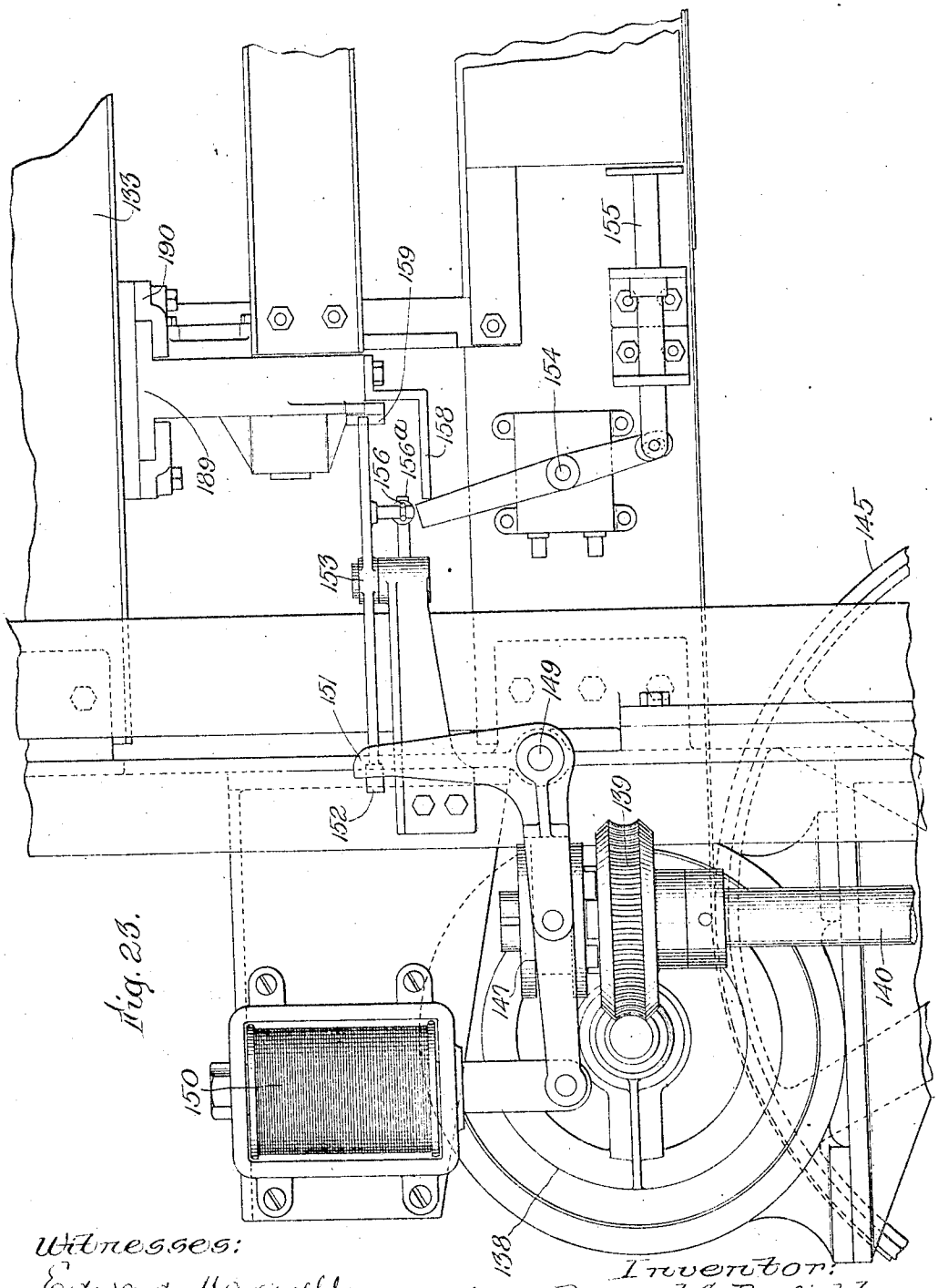

Fig. 23.

Witnesses:
Edward Maxwell.
William J. Pike

Inventor:
Raymond C. Penfield,
by Geo. H. Maxwell,
Attorney.

R. C. PENFIELD.

APPARATUS FOR HACKING BRICKS.

APPLICATION FILED OCT. 10, 1910.

1,020,572.

Patented Mar. 19, 1912.

25 SHEETS—SHEET 18.

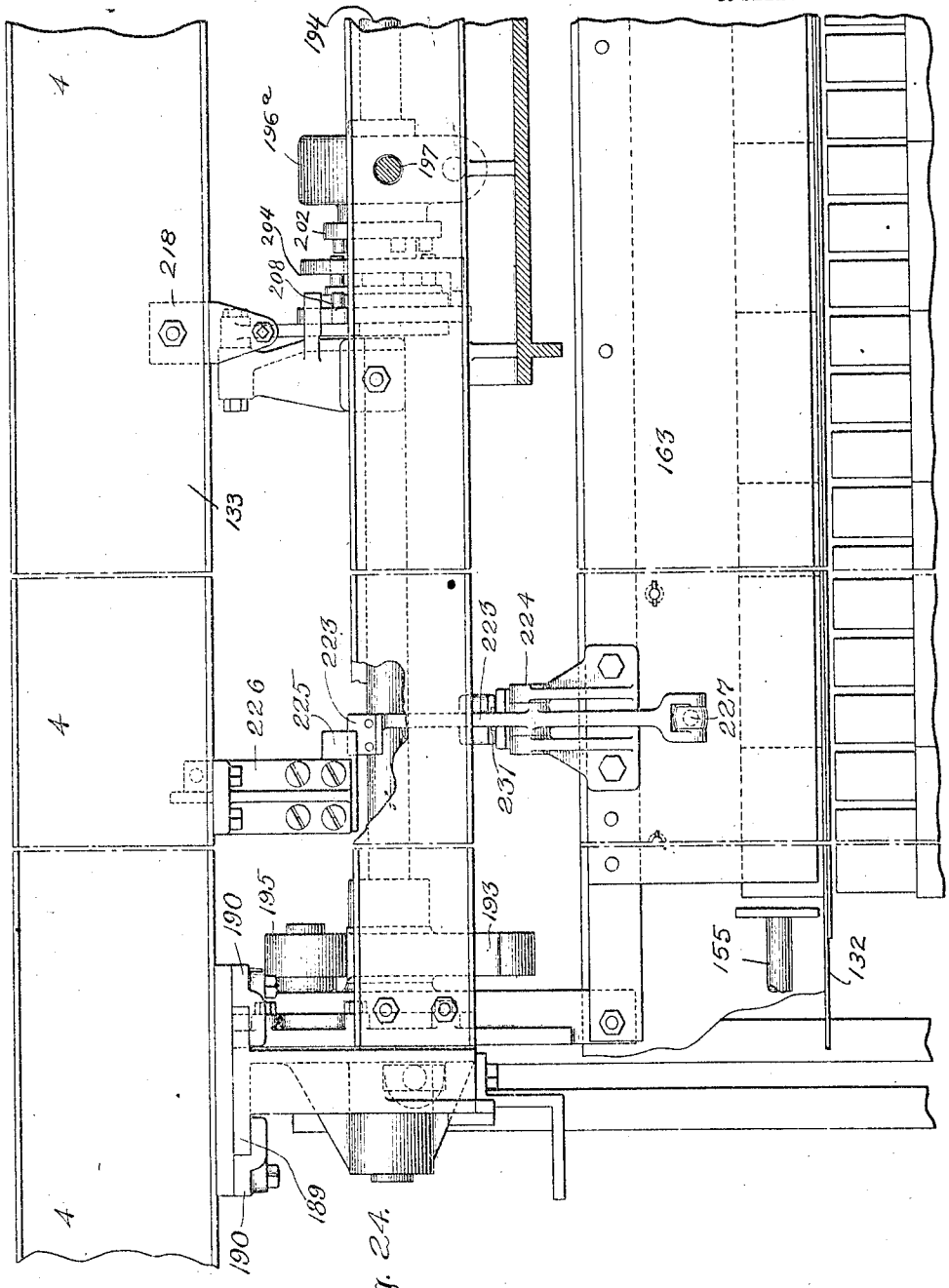

Fig. 24.

Witnesses:
Edward Maxwell.
William J. Pike

Inventor:
Raymond C. Penfield.
by Geo. H. Maxwell,
Attorney.

R. C. PENFIELD.

APPARATUS FOR HACKING BRICKS.

APPLICATION FILED OCT. 10, 1910.

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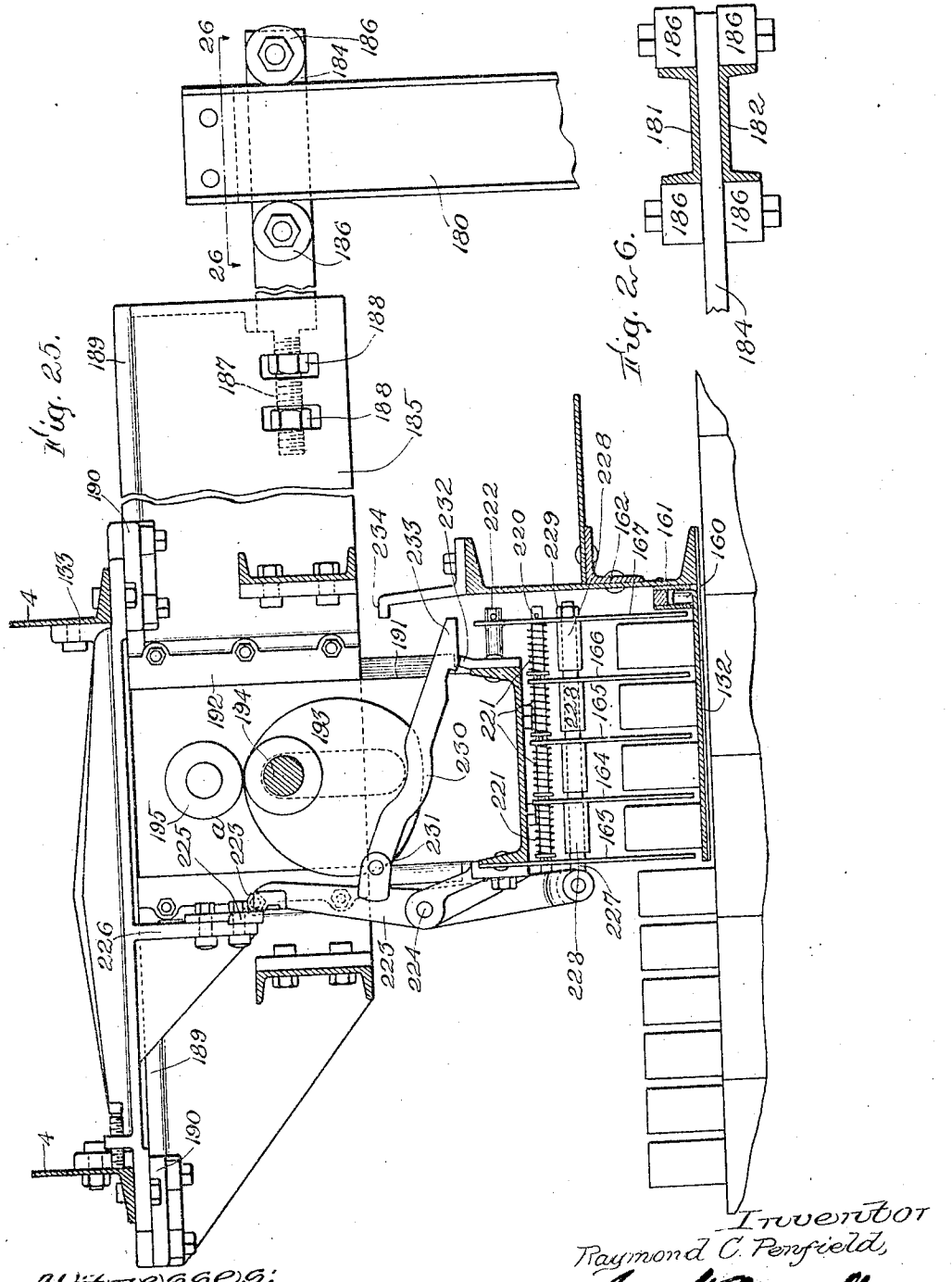
25 SHEETS—SHEET 19.



Witnesses:
Edward Maxwell.
William J. Pike

Inventor
Raymond C. Penfield,
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Attorney.

R. C. PENFIELD.

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25 SHEETS—SHEET 20.

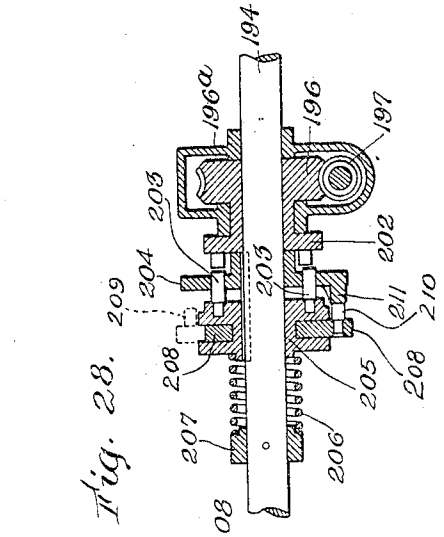

Fig. 28.

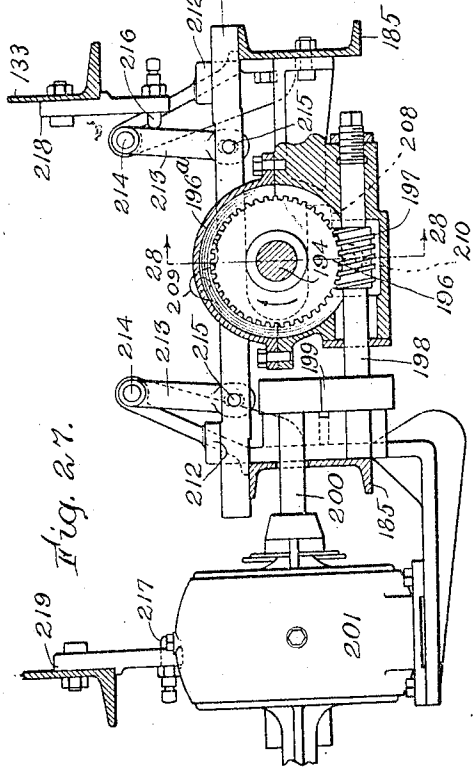

Fig. 27.

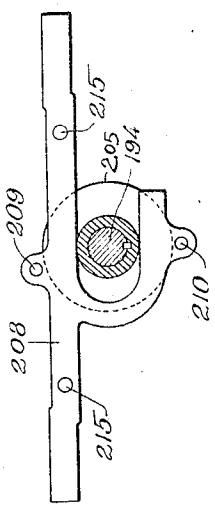

Fig. 29.

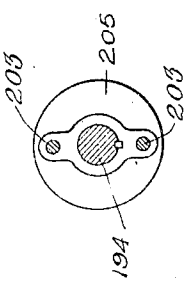

Fig. 30.

Witnesses:
Edward Maxwell.
William J. Pike

Inventor:
Raymond C. Penfield,
by Geo. H. Maxwell,
Attorney.

R. C. PENFIELD.

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25 SHEETS—SHEET 21.

Fig. 31.

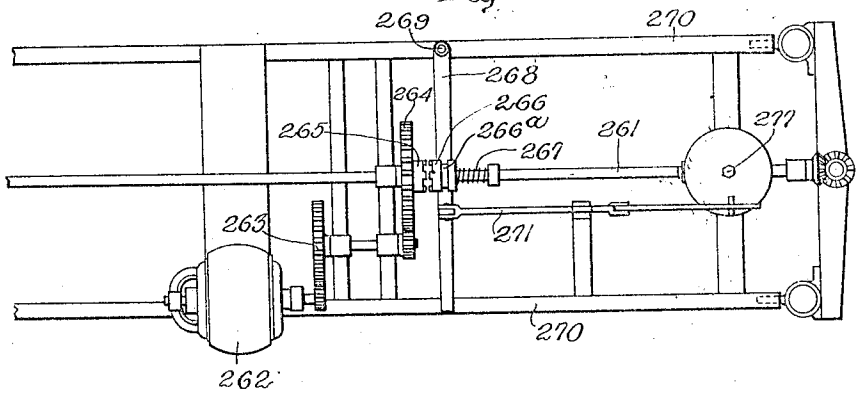
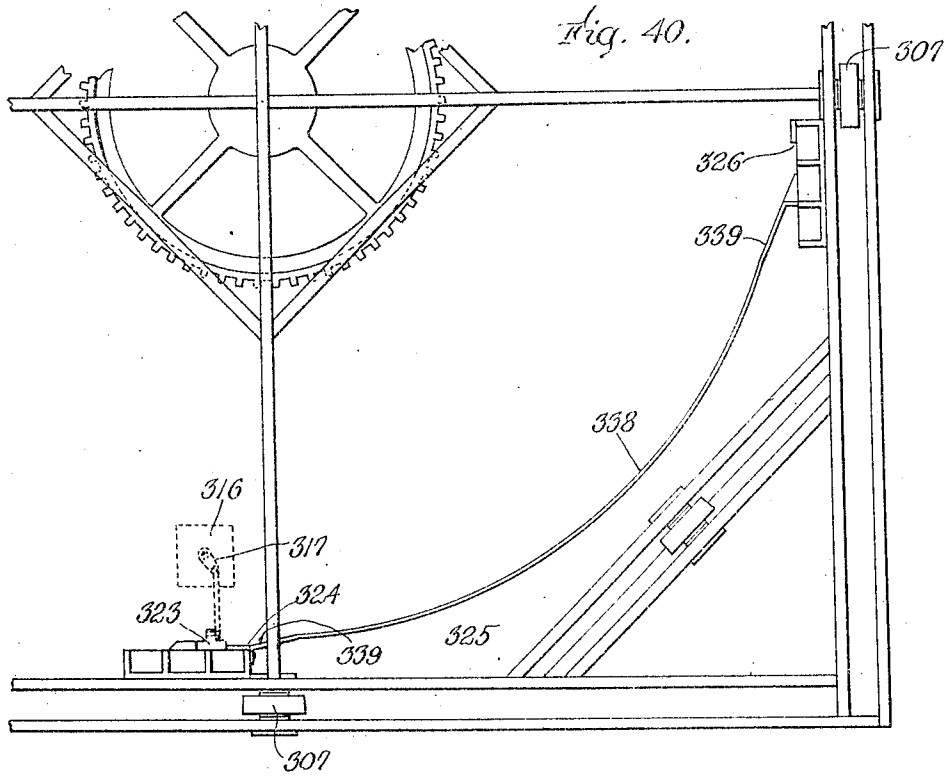


Fig. 40.



Witnesses:

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William J. Pike

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1,020,572. Patented Mar. 19, 1912.

25 SHEETS—SHEET 22.

Fig. 32.

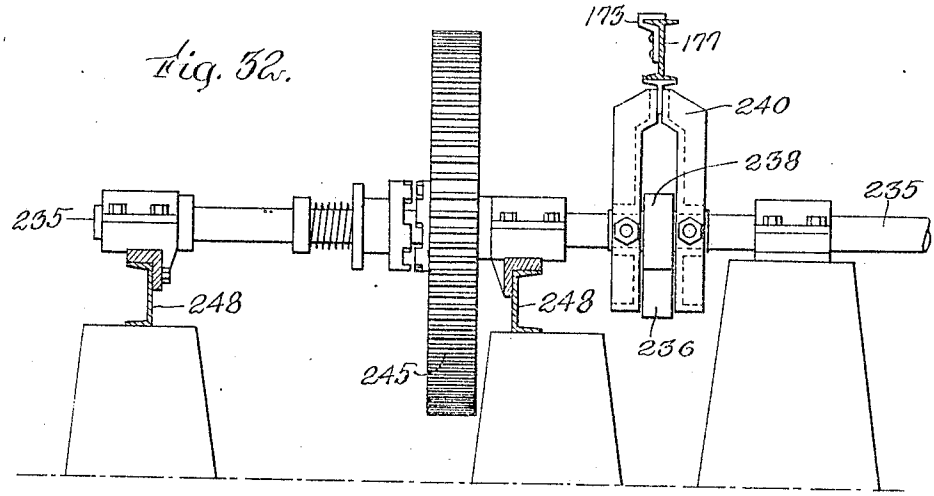
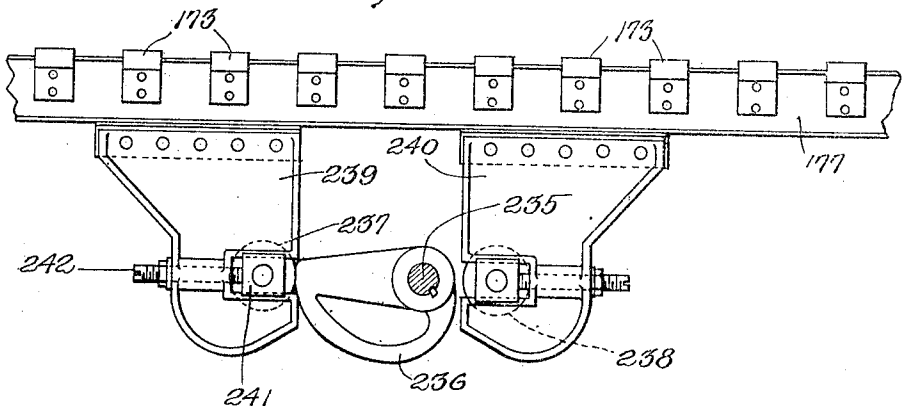


Fig. 33.



Witnesses.
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William J. Pike.

Inventor:
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Attorney.

R. C. PENFIELD.

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25 SHEETS—SHEET 23.

Fig. 35.

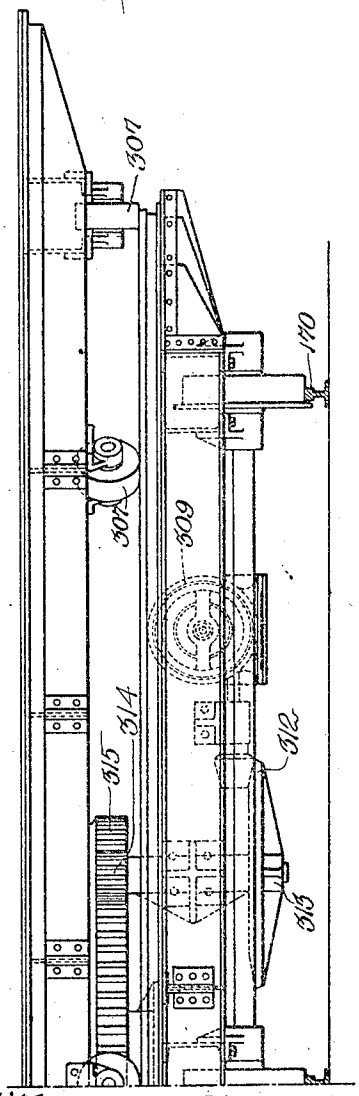
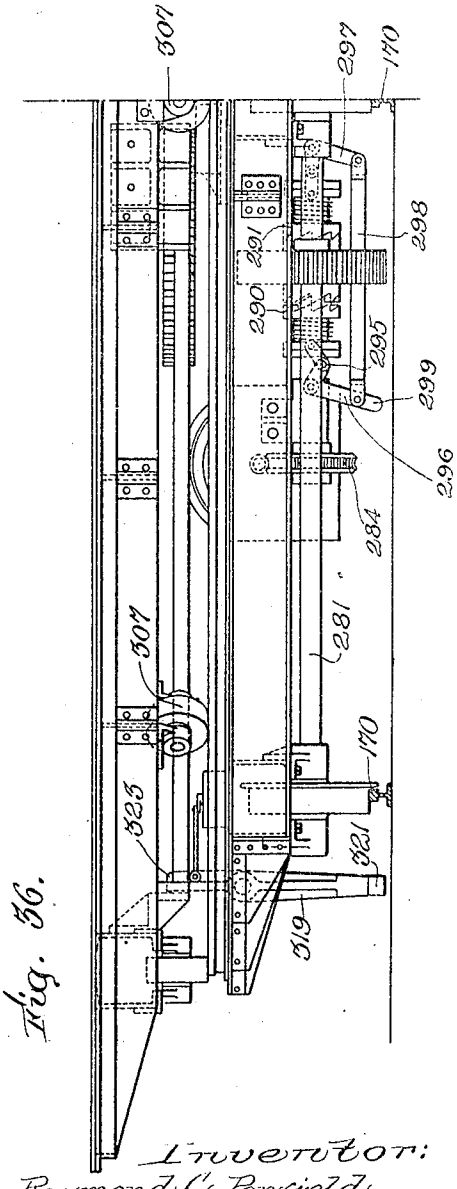


Fig. 36.



Witnesses:
Edward Maxwell
William J. Pike

Inventor:
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by Geo. H. Maxwell,
Attorney.

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APPARATUS FOR HACKING BRICKS.

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Patented Mar. 19, 1912.

25 SHEETS—SHEET 24.

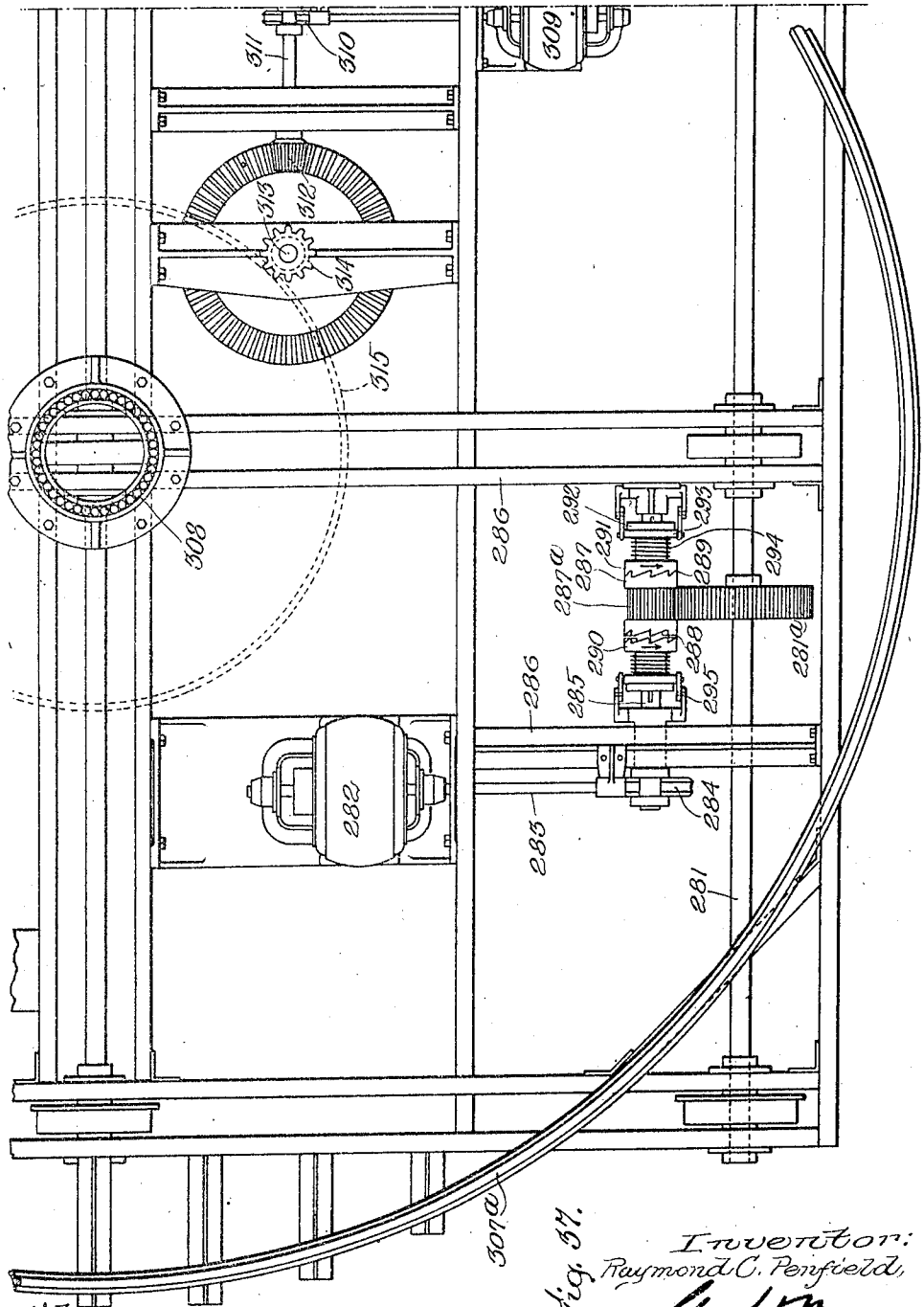

Fig. 34.

Witnesses:
Edward Maxwell.
William J. Pike.

Inventor:
Raymond C. Penfield,
by Geo. S. Maxwell,
Attorney

R. C. PENFIELD.

APPARATUS FOR HACKING BRICKS.

APPLICATION FILED OCT. 10, 1910.

1,020,572.

Patented Mar. 19, 1912.

25 SHEETS—SHEET 25.

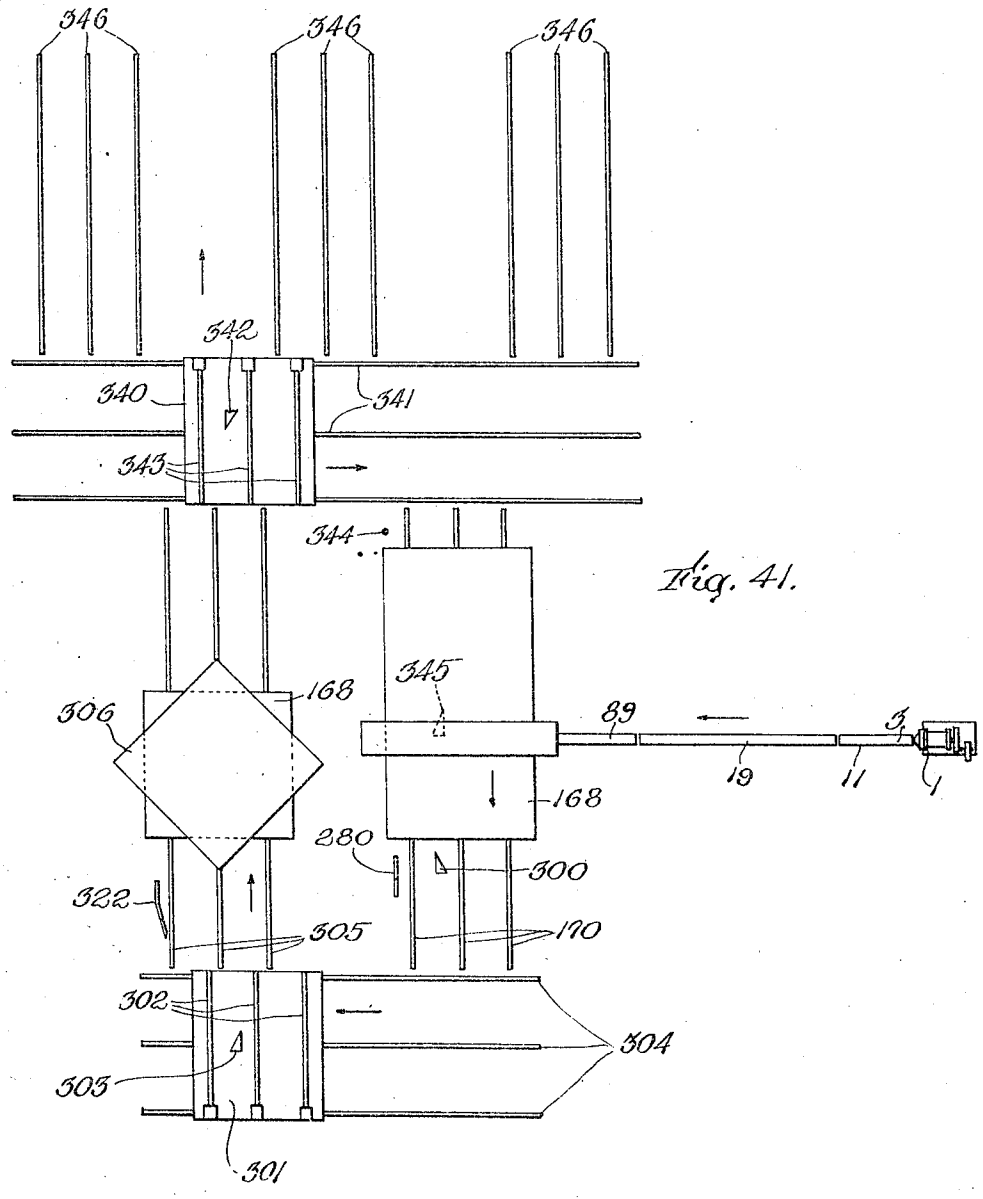

Fig. 41.

Witnesses:
Edward Maxwell
William J. Pike

Inventor:
Raymond C. Penfield,
by Geo. T. Maxwell,
Attorney

UNITED STATES PATENT OFFICE.

RAYMOND C. PENFIELD, OF NEW YORK, N. Y.

APPARATUS FOR HACKING BRICKS.

1,020,572. Specification of Letters Patent. Patented Mar. 19, 1912.

Application filed October 10, 1910. Serial No. 586,412.

To all whom it may concern:

Be it known that I, RAYMOND C. PENFIELD, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented an Improvement in Apparatus for Hacking Bricks, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

The arrangement of the soft bricks from a molding machine in proper spaced relation and stacked formation for drying and burning, known in the art as "hacking," is usually accomplished largely by hand or by hand controlled apparatus, and is not only a tedious and relatively expensive but also a somewhat destructive procedure, since on account of the soft condition of the bricks the edges and corners are easily chipped off and the bricks liable to be bent or otherwise deformed.

The present invention aims to provide apparatus for receiving the continuous streams of bricks as they are cut on leaving the molding machine, forwarding the same to a hacking mechanism, the forwarding conveyer having provision for separating the bricks into "bunches" which may be complete rows for hacking purposes with a time interval between the delivery of said rows, and providing means for delivering the series of rows of bricks to the drying stack so as to form complete layers of bricks in the stack, all the aforesaid parts being automatically timed and controlled so as to operate in proper sequence without any manual intervention.

My invention further includes means for building up the successive layers of the stack on the drier car or other support in proper hacked relation for the drying; providing novel improved features of automatic coöperative control between the driving mechanisms for the several parts of the apparatus; and in other matters of detail which will hereinafter more fully appear.

Taking first a general survey of the preferred embodiment of the invention herein illustrated and of the sequence of operations herein disclosed, any convenient number of continuous streams of bricks are delivered from the molding machine to a usual off-bearing belt having a cutting device adjacent thereto for severing the individual bricks, these parts being movable at the same rate as the brick stream delivery. Immediately beyond the cutting device a more swiftly moving separating conveyer receives the successive bricks and draws them rapidly away so as to avoid injury thereof by the cutting device on its return movement. At this point it may be stated that since a like operation is performed upon each of the streams of bricks being delivered by the molding machine, the treatment of only one of these streams will be considered for the present, for convenience of description. From the separating conveyer the separated bricks are again bunched together in rows upon a conveyer section which during the bunching operation moves at a speed less than that of the separating conveyer but substantially equal to the initial speed of the string of bricks. After being loaded with a full row or complement of bricks, such conveyer section is given a speeded up movement to a subsequent conveyer similarly accelerated, to deliver the rows of bricks to the hacking apparatus, this leaving a substantial time interval before the next row will be so delivered, and during such time interval the row of bricks (and the adjacent rows produced by the other streams) is moved *en masse* transversely off the conveyer onto a drier car or other support, which is during the delivery thereto given a step movement at the same rate as the brick movement, so that the rows of bricks are gently wiped off the conveyer and deposited in rows on the car without the possibility of injury thereto. The layer of bricks on the car being completed by the deposit of a series of rows in the manner stated, with a corresponding series of step movements of the car, the table or superstructure of the car is turned a quarter way around so that the next layer will be deposited at right angles to the one below and so on until the loading of the car is completed, means being provided for automatically lifting the laying mechanism for each successive layer to be deposited.

I consider the improved means for producing a substantial time interval between the delivery of the successive rows of bricks, by itself and in combination with the means which quickly transfers the entire rows from the conveyer during the time interval so provided, to be the most important features of the invention, and I intend to claim these broadly as also the automatic coöperative

control between the several operative parts of the machine.

In the accompanying drawings, in which the entire apparatus is shown in its preferred embodiment, Figures 1, 2, 3, 4, 5 and 6 are complementary views, which, arranged in the order stated, constitute a complete side elevation of the machine; Figs. 7, 8, 9 and 10 are complementary views, which, arranged in the order stated, constitute a plan view of the machine up to the hacking mechanism proper; Fig. 11 is an enlarged detail sectional view on the line 11—11 Fig. 15; Figs. 12 and 13 are detail views of cooperative portions of a high speed driving clutch; Fig 14 is a detail sectional view of the differential gear controller; Fig. 15 is a horizontal view partly in section, showing portions of the sprocket chain drive and the controller therefor; Fig. 16 is a detail view of a regulating brake; Fig. 17 is a vertical cross-sectional view approximately on line 17—17 Fig. 2; Fig. 18 is a horizontal sectional view of a high speed driving gearing; Fig. 19 is a diagrammatic view of the racing belt sections and adjacent parts; Fig. 20 is a diagrammatic view of an automatic switch for operating the magnet controls of the hacking belt and the transverse movement operator simultaneously; Figs. 21 and 22 are complementary views together showing an end elevation of the machine; Fig. 23 is an enlarged detail view showing essential features of the automatic actuator for the hacking belt and other parts, which is put into operation by the row of bricks as delivered; Fig. 24 is a front view of the cross rail and mechanism for transversely shifting the row of bricks from the hacking belt; Fig. 25 is a transverse section of the same parts; Fig. 26 is a detail sectional view on the line 26—26 Fig. 25; Fig. 27 is an elevation, partly in section, showing the means for effecting the right line movement of the blades which wipe the bricks from the hacking belt; Figs. 28, 29 and 30 are detail views of portions of the mechanism of Fig. 27; Fig. 31 is a plan view showing the device for controlling the vertical movement of the cross rail; Figs. 32 and 33 are front and side elevations respectively of a rack and its operating mechanism which effect the bodily movement of the hacking apparatus and car in depositing successive series of rows; Fig. 34 is a detail plan view showing the driving motor, the gearing, and a portion of the controlling device for the parts last mentioned; Fig. 34ª is a detail view of the clutch and operator therefor shown in Fig. 34; Figs. 35 and 36 are complementary views, together constituting an elevation of the drier car and oscillatory table thereon; Fig. 37 is a plan view of the drier car with the table moved; Figs. 38 and 39 are details of a controller for the oscillating table; Fig. 40 is a fragmentary plan view of the oscillating table; and Fig. 41 is a diagrammatic plan of the entire apparatus.

The invention is shown in connection with a molding machine for making bricks by the stiff mud process, but this is merely illustrative and the organization is likewise adapted to coöperate with any brick making machine which produces continuous streams of molded bricks.

Referring then to the construction shown, the properly mixed clay is delivered in a continuous stream or streams from the die 1 of a usual stiff clay brick machine 2, the machine illustrated being for handling four such streams, to an off-bearing belt 3, a cut-off machine 4 having a series of arms 5 being provided with cutting wires for severing the stream into individual bricks in a manner known in the art. The off-bearing belt 3 and cut-off device 4 are geared together to operate in unison with each other and with the molded stream of bricks issuing from the machine. A shaft 6 having a driving pulley 7 thereon and having fixed thereto one of the drums of the off-bearing belt 3 constitutes a means whereby driving impulse may be imparted to the off-bearing belt, but such impulse is preferably not sufficient of itself to cause the movement of the belt and cut-off, the complement of force to cause the movement of these parts being supplied by the friction or pressure engagement of the oncoming brick stream. The shaft 6 is extended at the other side of the machine with a worm 8 fixed thereon to engage with a worm wheel 9 on a shaft 10 for a purpose to which reference will latter be made.

The bricks are received by a relatively swiftly moving conveyer element 11 immediately on being severed, and thus each brick as severed is quickly moved away from its severing wire so as to suffer no injury from contact therewith on its upward movement; it is apparent that this leaves a space between the severed bricks on the swift moving conveyer 11 as indicated in Fig. 1. The conveyer 11, as also the other conveyer portions to be referred to, may be formed of any suitable material such as a belt of sheet steel, this being desirable as its smooth surface readily permits a sliding movement of the bricks thereon; this sliding movement being an incident to the manipulation at certain points, as will hereinafter appear. The belt 11 is supported upon a roller table 12 and passes downward around a driving pulley 13 geared as at 14 to a shaft 15 and connected with the main driving system later to be described, by bevel gearing 16. A suitable tightener, as a roller 17 adjustable by the screw 18 in the base, may be provided for the belt 11.

The separated bricks are delivered from the belt 11 to a forwarding conveyer por-

tion designated generally as 19 and of a length to hold a complete row of bricks as they are to be stacked in the hacking operation; in practice about forty-eight bricks to each line, or a total of one hundred and ninety-two constituting such a row or bunch. The conveyer portion 19 moves continuously forward but has provision for two speed movements, one which will be termed a loading movement, being timed substantially at the same rate as the movement of the off-bearing belt 3; during this movement the complement of bricks which constitutes a row or bunch as above described is loaded thereon from the swift conveyer 11. As the loading of the conveyer portion 19 with the row of bricks is completed, a second driving means is automatically thrown into action, which imparts thereto an accelerated rate of travel, which will be hereafter termed the racing movement. This carries the row of bricks swiftly away from the oncoming line, and in conjunction with a further onward conveyer later to be described provides for a substantial time interval between the delivery of rows to the stacking mechanism. The particular form of two speed conveyer portion 19 shown consists in two belt sections 20, 21, each of a length sufficient to receive a full row or bunch of bricks, see Fig. 19, mounted respectively upon inner sprocket chains 22 and outer sprocket chains 23 by means of suitable cross bars as 24, 25.

In one special aspect of the invention, as set forth in claims 23, 24 and 25, it is to be understood that sectional or incomplete belt portions are meant, in distinction from complete belts which enter into certain broadly similar combinations in my copending application Ser. No. 578,438 filed August 22, 1910.

The sprocket chains 22, 23, are mounted upon forward pairs of sprocket wheels 26, 27 respectively, and upon the rear pairs of sprockets 28, 29. The forward pairs of sprocket wheels 26 and 27 are loosely mounted upon a transverse shaft 30 and have rigidly connected therewith ratchet casings 31 and 32, there being a single casing 31 between the sprockets 26 and connected with both, while there are two casings 32 outside the sprockets 27. All these ratchet casings are similar and each carries one or more pivoted pawl members 33, each shown as composed of a series of pawls stepped as at 33^a to minimize lost motion, these pawls being normally held in engagement with the ratchet wheel 34 fixed on the shaft 30 as by springs 33^b. The shaft 30 is driven at relatively low speed through driving gear 35, and hence is adapted through the ratchet wheel 34 to drive the sprocket chains and hence the belt sections 20 and 21, thus imparting what has been heretofore termed the "loading movement" to such belts.

The rear pairs of sprocket wheels 28, 29 have provision to receive driving impulse at a relatively high speed from the main driving shaft to effect periodically what has been termed the "racing movement" of the belt sections 20, 21, and the means for automatically imparting properly timed periodic driving impulse for such racing movement will now be described. The pairs of sprocket wheels 28, 29 are keyed respectively to a sleeve 36 and a shaft 37, the sleeve 36 and shaft 37 being concentrically mounted and free for relative rotation. Said sleeve and shaft have rigid therewith pinions 38 and 39 respectively, arranged to mesh with large gears 40, 41 rotatably mounted on a shaft 42. The shaft 42 is adapted to be driven from the main drive shaft 43 (which also drives the gearing 35), through bevel gearing 44, and is arranged to intermittently drive the gears through clutch elements 45, 46, slidably keyed thereon and adapted to coöperate with corresponding clutch elements 47, 48 on the gears 40, 41 respectively, to drive one or the other of said gears when the clutch elements are engaged. The slidable clutch elements 45 and 46 have operating levers 49, 50 pivoted at 51, 52 respectively to suitable stationary supports, and the outer end of said levers are connected by a link 53, see Fig. 18, thus providing means for simultaneously throwing one clutch element into and the other out of operation by movement of said link. The link 53 is operated by an arm 54 rigid on a shaft 55 and having its end forked to engage a pin 56 in said link. The shaft 55 is adapted to be oscillated from its other end by an arm 57 mounted thereon and arranged to be engaged by a cam wheel 58. The arm 57 is mounted in yieldable relation to the shaft 55 by having a lug 59 thereon extend between the sides of a yoke 60 fixed on the shaft 55, spring elements 61 being interposed between the lug 59 and the sides of said yoke. The arm 57 carries spaced-apart rollers 62 adapted to be engaged by cam faces properly spaced on opposite sides of the cam wheel 58 so that through the connections described the shaft 55 will be oscillated. The cam wheel 58 is mounted on a shaft 63 driven by suitable reducing gearing 64 from the shaft 30. It may now be understood that the cam wheel 58 is geared to be driven at such a speed, and the lateral cam faces thereon are so proportioned, that they will oscillate the shaft 55 to cause the gears 40 and 41 to be successively clutched to their driver shaft 42 and thus in succession cause one or the other of the sprocket pairs 28 or 29 and the belt section carried thereby to be speeded up while the other continues at its slow speed, and that during

such speeding up movement the forward sprocket wheels being likewise speeded up, will run ahead of the driving shaft 30, this being permitted by the pawls 33 slipping backward over the ratchets 34.

As shown, see Figs. 18 and 19, the belt section 20 is loaded and the driving gear 40 has just been clutched to its driver shaft 42 so as to commence the racing movement of said belt section, while the belt 21 will be advanced to receive the oncoming load at its slow speed, being driven by the forward pawl and ratchet connection 33, 34, its speeding driver 41 being unclutched. The gearing 44 is proportioned to transmit a slower drive to the shaft 42 than the gears 35 do to the shaft 30, and this arrangement is utilized to provide means for disconnecting the fast driving clutch elements at the proper intervals. Fixed at the inner sides of the gears 40 and 41 are plates 65, 66 respectively, and through such plates and the driving gears, pins 67 68 are mounted to slide to engage the clutch faces 45 and 46 respectively. Springs 67^a and 68^a are housed in the gears 40 and 41 and arranged to engage the pins 67 and 68 respectively to normally keep the same in contact with the faces 45 and 46. The plates 65 and 66 carry on their front faces cams 69 and 70 arranged to engage said pins at proper periods to thereby push a clutch element 45 or 46 out of driving engagement. The parts just described are so proportioned that as a belt section, as 20, starting from the loaded position, as in Fig. 19, finishes the operative portion of its travel at the racing speed and delivers its load to the subsequent conveyer, it will continue at the racing speed until its forward end catches up with the rear end of the other belt, which is at that time being loaded, when the pin 67 will be operated by the cam 70 to disconnect the high speed drive and leave the belt to be advanced through the pawl and ratchet drive 33, 34; this, as before explained, imparts a speed suitable for the loading movement, which continues until the belt has been fully loaded when the racing drive is again imparted thereto, as set forth. The cycle of movements thus described for the belt 20 is duplicated in the case of the belt 21, the drive for each belt being shifted from the racing movement to the loading movement when its forward end catches up with the rear end of the belt being loaded; the racing movement is inaugurated in the manner explained approximately at the time the loading is completed, that is, as the belt 20 is shown in Fig. 19, but this may commence at a somewhat later period without affecting the result, owing to a device now to be explained.

Means is provided for retarding the first few of the oncoming bricks to cause them to be properly alined and bunched on the forward end of the belt being loaded; a number of these first bricks being properly bunched at the forward end of the belt, will act by virtue of their inertia and frictional engagement on the belt to serve as an abutment and insure the proper bunching thereagainst of the succeeding bricks delivered by the swift carrier 11. As shown, this means consists in a retarding blade 71 arranged to be brought down into engagement with the foremost brick of a row to be loaded and moved in the same direction but slightly slower than the belt being loaded. To accomplish this the blade 71 is carried by a sprocket chain 72 which is guided about an idler sprocket 73 and a driving sprocket 74 on a frame 75 pivoted to swing about a shaft 76 which constitutes the driver for the sprocket 74 and is itself driven by gearing 77 and shaft 78 from the transverse shaft 30, bevel gearing 79 being shown as effecting the last named connection. The gearing drive just described is so proportioned as to cause the blade 71 to be moved at a slightly slower rate than the belt being loaded, as above stated. The frame 75 is caused to swing about its axis 76 by operating devices arranged to be driven from the cam wheel 58 which for this purpose is provided with a peripheral cam surface in addition to the lateral cam surfaces before described. This peripheral cam surface is engaged by a roller on the end of a lever 80 having a fixed pivot at 81 and its other end connected to a link 82. The link 82 has its other end connected to a lever 83 having a fixed pivot at 84 and the other end thereof connected to the frame 75 to operate the same. This arrangement of parts is proportioned so that the peripheral cam on the cam wheel 58 will permit the blade 71 to swing down into operative position just as the forward end of the belt to be loaded is presented thereunder, and after it has traveled along with the loading belt through its operative line of travel, it is raised so as to be out of the way in a subsequent movement until the other belt is to be loaded, when the cycle of movements is repeated. To effect this the blade 71 is swingingly mounted on a shaft 85 in the sprocket chain 72, and counter weights 86 are fixed to said shaft to normally maintain the blade 71 in vertical position. While said blade is moving along its operative line of travel it is further held rigidly in operative position by engagement of rollers 87 on the end of the shaft 85 with track ways 88.

The successive rows of bricks are delivered from the respective belt sections 20 and 21, with a time interval between loads as described, to a forwarding conveyer 89 which may be supported on a frame 89^a, pivoted at the receiving end as at 90 with a

horizontally slotted connection adjacent the end of the conveyer portion 19, and its other end is pivoted at 91 to a supporting bracket portion 92 fixed to a vertically adjustable horizontal cross rail which carries the hacking belt to be described later. The conveyer 89 may thus deliver the bricks to the hacking apparatus in different vertical positions as the stack grows to completion. It is driven at substantially the same speed as the belts 20 and 21 in their racing movement heretofore described, preferably by a driving train from the main shaft 43, consisting of geared connection 93 from the shaft 43 to a transverse shaft 94 which has fixed thereon the drum 95 about which the idler portion of the conveyer belt 89 passes, a suitable adjustable tightening drum 96 being shown in connection therewith.

It is obviously important that the subsequent conveyer portions should operate in definite timed relation to the oncoming stream of bricks from the off-bearing belt 3, and this is accomplished by a regulator now to be described, which controls the driver for the several conveyers from the off-bearing belt but leaves the off-bearing belt substantially unaffected by tendencies to variation in driving impulse of the conveyer driver. The shaft 43 has been described as furnishing driving impulse for all the conveying portions and coöperating elements subsequent to the off-bearing belt 3; while this element has been spoken of as a unitary shaft and operates as such for purposes so far described, it is in reality divided into three sections, which may have certain independent movement for purposes to be explained. At its rear end, shaft 43 is preferably driven by an independent motor 97 through suitable gearing 98, while at its front end (disregarding its sectional construction) it is connected by gearing 99 with the shaft 10, which has been described as bearing worm wheel 9 engaged by a worm 8 on the shaft 6. By virtue of this construction any variation in the speed of the off-bearing belt 3, and hence of the shaft 6, is imparted through the worm 8 and worm wheel 9,—to the governor, and controller devices of the conveyer driver and hence such driver is readily controlled thereby; on the other hand any accelerating or retarding tendencies from the conveyer driver and its motor 97 are taken up by the engagement of the worm wheel teeth against the nearly transverse threads of the worm and so do not appreciably affect the off-bearing belt movement.

Means is preferably provided whereby any considerable tendency to acceleration of the motor drive shaft is taken up by an automatic braking device so as not to have to spend its force upon the teeth of worm wheel 9. As shown in Fig. 15, the right hand portion of shaft 43 is formed in two sections 100 and 101, the ends of which abut within a brake case 102 suitably fixed to a base as at 103. The section 100 has fixed thereto an arm 104 connected by a link 105 to one end of a flexible friction ring 106, the other end of said ring being pivoted at 107 to an arm 108 fixed to the shaft section 101. The ring 106 has sufficient rigidity so that it normally rotates loosely in the brake casing 102 but if the arm 108 tends to rotate faster than the arm 104 is permitted to be driven, the friction ring 106 will be expanded to act as a brake, the link 105 coöperating to act as a toggle thus neutralizing the tendency to acceleration from the conveyer driver as imparted to the arm 108.

Further means is provided for controlling the amount of driving impulse imparted by the motor 97 in accordance with the resistance offered by the parts in geared connection with the off-bearing belt as just described. This consists in dividing the shaft 43 into further sections having abutting ends 109, 110, which have fixed thereto the coöperating portions of a cone friction clutch 111, the two portions of which are urged into engagement by a spring 112 acting against a collar 113 which presses upon a block 114 fixed on the shaft section 109. The shaft section 109 rotates within the collar 113 which is held from rotation by ears 115 thereon resting upon the upright support 116. Fixed to the respective sections 109, 110, are a pinion 117 and a sprocket wheel 118, which mesh with a pinion 119, and a sprocket wheel 120 on the ends of coaxial shafts 121 and 122 respectively, the sprocket wheels 118 and 120 being connected by a sprocket chain. These shafts 121 and 122 have fixed adjacent their abutting ends corresponding gears 123, 124, which mesh with pinions 125 radially journaled on the shell 126. The shell 126 has a circumferential groove 127 to receive a band 128 which operates a pulley 129 on a controller 130, which is adapted to govern the motor 97. It is apparent that from the differential arrangement just described if there is no slippage between the sections of the cone clutch 111, the shell 126 will be stationary and the controller unaffected. If however a slippage occurs between the clutch elements so that the section 110 is driven more slowly than the section 109, the shell 126 of the differential gear box just described will be rotated and thus operate the controller 130 to modify the power impulse from the motor 97.

The driver shaft element 43 is further divided into two portions lying alongside of each other and connected by spur gearing 131, this connection resulting in a movement of the two sections in opposite directions, and being between the off take drives 35 and 44 for the two sets of sprockets, this

rectifies the direction of movement of sprockets 28, 29, which would otherwise be reversed owing to the interposition of the pinions 38, 39.

From the forwarding conveyer 89 the rows of bricks are delivered to a hacking belt 132 arranged to be periodically driven at a speed corresponding to that of the conveyer 89 and which is carried by a vertically adjustable cross rail structure generally designated 133; this cross rail structure is guided for vertical adjustment on pairs of uprights 134 and 135 and carries at one end the bracket 92 which is guided in ways on the pair of uprights 134 and in addition to furnishing one end support for the conveyer 89 also has suitable guiding and adjusting pulleys 136 for the belt 132. At its other end the cross rail member 133 has fixed thereto a second bracket 137 likewise guided in ways on the other pair of uprights 135. The bracket 137 carries driving mechanism for the hacking belt consisting of a motor 138 having a worm meshing with a worm wheel 139 on a vertical shaft 140 having suitable bearings in the bracket 137 and which by bevel gearing 141 and 142 is adapted to drive the shafts 143 and 144 suitably journaled in said bracket and carrying the drums 145, 146 about which the hacking belt 132 passes. The worm wheel 139 is loosely mounted on shaft 140 and is adapted to be clutched thereto by a sliding clutch member 147 keyed on said shaft and adapted to be operated by a bell crank lever 148 fulcrumed at 149 to the bracket and having one arm thereof connected to be drawn into inactive position by a magnetic control 150, the other arm of said lever extending up as at 151 to be engaged by a pivoted catch 152 which is pivoted to a bracket on the cross rail at 153 and operated as later described. The parts just described are adapted to be controlled by the rows of bricks so that the drive for the hacking belt will be disconnected at the moment when a series of rows have reached the end of their travel and are positioned over the drier car. This is accomplished by a controller device having a lever 154 to one arm of which is pivoted a rod 155 having its end disposed to be engaged by the oncoming row of bricks when it reaches hacking position, the controller lever 154 being then operated, will cause the magnet 150 to be energized, lifting the clutch element 147 to inoperative position and thus stopping the hacking belt. When the clutch element 147 is so lifted the projecting arm 151 of the bell crank lever 148 will be engaged by the pivoted catch 152 which is normally urged in the direction for engagement by a coil spring 156 having its ends attached to a lateral pin thereon and to a projection 156[a] on the fixed frame work. The controller actuated by lever 154 not only controls the magnet 150 but also simultaneously therewith another magnetic control 157, which sets into operation the mechanism for moving the rows of bricks and the drier car transversely, as will be later described. The lever 154 is returned to its initial position as shown in Fig. 6 by a cam 158 and the pivoted catch 152 may be disengaged by a projection 159, the parts 158 and 159 being carried by a portion of the horizontal slide 185 which carries the blades to wipe the bricks off the hacking belt, as later described.

Referring to Figs. 21–25, and particularly Fig. 25, the hacking belt 132 is guided and held against transverse displacement by rollers 160 at the back thereof, which operate in a guide way 161 suitably fixed to a main bar 162 of the cross rail 133. The rows of bricks (four in number as shown and heretofore described) are simultaneously slid or wiped off the belt onto the drier car transversely by a series of blades 163, 164, 165, 166, 167, these having connection to be moved synchronously with a step movement of the drier car now to be described.

The drier car 168 has its supporting wheels 169 guided on a track 170 and it carries a pawl arm 171 pivoted thereto at 172 and adapted to normally drop by gravity into engagement with the teeth 173 of a reciprocable rack. In order to permit the free travel of the car 168 upon its track, the pawl arm 171 may be held upward in inoperative position by a roller 174 thereon engaging a pivoted hook 175 which is adapted to come into engagement therewith by gravity and may be disengaged therefrom by engagement of a suitable projection with a lateral portion 176 thereof as will be referred to later. The rack teeth 173 are secured to I-shaped rack bars 177 which are guided for reciprocating movement on rollers 178 suitably mounted on pedestals 179. It is desirable to operate the wiper blades 163—167 from the same racks 177 which impart the forward step movement to the car. To this end an upright 180, preferably consisting of a pair of U-bars 181, 182, is rigidly secured to the rack bars 177 as by a brace 183, and guided between the portions 181 and 182 for vertical movement is an adjustable horizontal projection 184 from a horizontal slide 185 which carries the wiper blades 163—167. Suitable rollers 186 may be carried by the member 184, constituting anti-friction devices to engage the upright 180, and this member may be adjusted relative to the slide 185 by means of a threaded shank 187 thereon engaged by the nuts 188 operating in slots in the slide. The slide 185 is guided for reciprocation in the cross rail 133 by T-heads 189 thereon engaging ways 190 secured to the cross rail.

In the operation of the blades 163—167 it is necessary that these should be given a periodic right line vertical movement at the ends of their horizontal reciprocation to withdraw them from between one set of the bricks and insert them between the next set presented. To effect this they are carried by a slide 191 guided for vertical movement in ways 192 in the horizontal slide 185, and the necessary vertical movement is imparted by a cam 193 on a shaft 194 engaging a roller 195 on said vertical slide 191. The shaft 194 is adapted to be periodically driven by a worm wheel 196 engaged by a worm 197 on a shaft 198 which has engagement through spur gears 199 with the shaft 200 of a constantly running motor 201, all the parts just referred to being carried by suitable bearings on the horizontal slide 185. The worm wheel 196 is loose on the shaft 194 but held against endwise movement thereon by the fixedly mounted casing 196ª which embraces the same, and carries a clutch face 202 adapted to be engaged by clutch pins 203 slidable through a collar 204 fixedly keyed on shaft 194, said pins being secured to a block 205 slidable on said shaft and having a spring 206 interposed therebetween, and an abutment 207 fixed to the shaft, said spring tending to keep the block 205 in clutch engaging position. Block 205 has ways therein to embrace a reciprocatory yoke bar 208 which carries pins 209, 210, somewhat spaced apart in a vertical plane. One or the other of the pins 209, 210 is adapted to engage a beveled projection or cam face 211 on the collar 204, and when such engagement occurs the block 205 carrying the clutch 203 will be withdrawn from engagement with the clutch face 202 and the drive from the worm wheel 196 to shaft 194 thus disconnected. The yoke bar 208 is adapted to be reciprocated in suitable guides 212 formed in the horizontal slide 185 to bring one or the other of the pins 209, 210 into position for engagement by the cam 211 as it rotates. To effect this the links 213 pivoted to brackets on the horizontal slide at 214 have pin and slot engagement at 215 with bar 208, and stops 216, 217 secured to brackets 218, 219, respectively on the fixed cross rail are adapted to engage the respective links 213 at the limits of movement of the horizontal slide 185 and thus cause shifting of the bar 208 to disengage a pin as 209 which at that time is in engagement with the cam 211, permitting the clutch elements 202, 203, to be engaged by the action of the spring 206 and at the same time shifting the other pin 210 into position to disengage the clutch members by coaction of the cam 211 after a half revolution of the shaft 194 has been made. It is apparent that this mechanism causes a half rotation of the shaft 194 at the end of each movement of the horizontal shaft 185 and thus through the parts described causes blades 163—167 to be raised and lowered in a vertical line at the end of such movement.

It is desirable that the blades 163—167 which, as shown, see Fig. 25, are projected into the spaces between the bricks without engagement therewith, should have a relative movement to bring them nearer together so as to embrace the bricks and hold them in alinement, and to this end the blades 164—167 are adapted to be slid transversely on a guide rod 220 secured to the vertical slide against the action of springs 221 which normally keep them spaced apart as shown; the outer blade 167 may be further guided on a pin 222 projecting from the vertical slide. As an operator to effect such relative movement of the blades, a lever 223 is pivoted at 224 on the vertical slide and has a lateral projection 223ª on its upper end adapted to be engaged by a projection 225 carried by an arm 226 fixed to the cross rail. At its other end the lever 223 has pivoted thereto a rod 227 passing through the blades 163—167 and having slidable thereon between such blades spacing collars 228. The outer end of the rod 227 has fixed thereon a stop nut 229. As shown, immediately upon commencement of the movement of slide 185 the upper end of lever 223 will be engaged by the stop 225 and thus the blades brought together against the sides of the bricks as described. As this occurs, a locking dog 230 pivoted to the lever 223 at 231 will engage over a ledge 232 on the slide and hold the blades against the bricks during the rest of the transverse movement, and after the end 223ª of the lever 223 wipes past the projection 225. After the vertical slide has been raised, the horizontal slide 185 drawn back, and as the vertical slide is again being moved down between another set of bricks, a nose 233 on the end of the locking dog 230 will engage a projection 234 fixed on the cross rail and thus disengage that locking dog and permit the springs 221 to again space apart the blades 163—167.

The rack bar 177 which has been described as imparting reciprocating movement to the brick wiping blades and step movement to the drier car, is reciprocated from a shaft 235, see Figs. 22 and 32–34, by means of a wiper cam 236 fixed on said shaft engaging alternately rollers 237, 238 on ears 239, 240, projecting downwardly from said rack bar. The rollers 237, 238, may be mounted for adjustment in said ears, being journaled in slide blocks 241 and adjustable by screw bolts 242. The shaft 235 is driven from a motor 243 through the interposition of reducing gearing 244, the last element of said reducing gearing being a gear 245 loose on said shaft and carrying a clutch face 246 adapted to coöperate with a corresponding

clutch face on a clutch sleeve 247 slidably keyed on the shaft. The driving mechanism just described is suitably mounted in a pedestal 248 which as shown is provided with journal boxes for the several operative shafts and a support for the motor 243.

As above suggested, the control for the rack bar driver is effected by the magnetic device 157, which is connected for operation from the controller lever 154. From the magnetic control 157 a link 249 is connected to operate a slide bolt 250 which is mounted in a suitable guide 251 on the pedestal 248. The operative end of this bolt extends into a circumferential groove on the clutch sleeve 247 and is adapted to be engaged by a cam face 252 carried by said clutch sleeve and projecting into said groove. When such engagement occurs the clutch sleeve 247 is shifted against the action of a spring 253 to inoperative position; when so shifted a stop 254 on said clutch sleeve coming into engagement with the slide bolt 250 prevents further movement of the shaft 235. It is apparent that as the magnetic device 157 is energized as described, the slide bolt 250 will be withdrawn from engagement with the clutch sleeve 247 and that thereupon the clutch elements 246, 247 will be caused to be engaged by the spring 253 and the shaft 235 thereby caused to make a single revolution, when the clutch elements will be disengaged, since the magnetic device 157 having been in the meantime deënergized, the slide bolt 250 is again projected into position to engage the cam 252; means to project the sliding bolt forward as described when the magnet 157 is deënergized may consist in a spring 255 encircling the link 249 and bearing against a collar 256 thereon.

Means is provided to raise the cross rail 133 and all parts carried thereby a determinate distance corresponding to the thickness of a layer of bricks after each layer is completed. As shown, referring to Figs. 5 and 31, this consists in the provision of screw rods 257 extending upward from the brackets at each end of the cross rail, which engage with rotary nuts 258 journaled on ledges 259 on the supporting frame work. The nuts 258 are adapted to be simultaneously driven by bevel gearing 260 from a shaft 261 extending across the frame work and driven by a motor 262 through reducing gearing 263, the last element of said gearing being a gear wheel 264 loose on the shaft 261 and having a clutch face 265 adapted to be engaged by a coöperating clutch face on the clutch sleeve 266 slidably keyed on said shaft, said clutch faces being normally urged into engagement by a spring 267. The clutch sleeve 266 is adapted to have a peripheral groove 266ª thereon engaged for operation by a yoke lever 268 pivoted at 269 to the top bar support 270. A link 271 secured to said lever is guided between rollers 272 mounted on an upright 273 fixed to the top bar and on the outer end of said link is pivoted a latch dog 274 adapted to be engaged by a ledge 275 formed on top of a bevel gear 276 journaled on a vertical axis 277 on the top bar. The bevel gear 276 is engaged by a bevel pinion 278 on the shaft 261, said pinion and gear having a determinate ratio, which in the present instance is one to four, to effect a predetermined movement of the cross rail before the driving power is disconnected. A trip device, shown as a cord 279, may be fixed to the latch dog 274 and extended to a convenient point for operation. It is apparent that when said trip device is operated to lift the latch dog 274 from engagement with the ledge 275, the spring 267 will operate to connect the clutch members 265, 266 and cause actuation of the shaft 261 and hence of the cross rail. This will continue until the gear 276 has made a complete revolution, when the ledge 275 will again engage the latch dog, which drops thereover and will pull the clutch elements apart, thus stopping the vertical movement of the cross rail after it has been lifted the desired distance.

After a complete layer of bricks has been placed upon the drier car, the car having in the meantime been advanced along its track from under the hacking mechanism by the step movement described, the pawl arm 171 is lifted from engagement with the rack teeth 173 by engagement with a cam surface 280 fixed in the path thereof, see Fig. 41. When so raised the pivoted hook 175 will swing under the roller 174 and so hold the pawl arm raised. A traction device is automatically thrown into action for forwarding the car along its tracks. To this end one of the truck shafts 281 of the car has provision to receive driving impulse from a motor 282, whose armature shaft 283 has a worm thereon driving a worm wheel 284 fixed on a shaft 285 suitably journaled in struts 286 on the car. The shaft 285 has loosely mounted thereon adjacent the central portion a clutch sleeve 287 in geared connection with the shaft 281 by gear 281ª on said shaft, engaging a pinion 287ª on said sleeve. The pinion 287ª may be somewhat smaller than the adjacent ends of the sleeve so as to form shoulders to engage with the gear 281ª and prevent longitudinal displacement of said sleeve. The clutch sleeve 287 has at its ends oppositely arranged clutch faces 288, 289, adapted to be engaged by clutch collars 290 and 291 respectively, slidably keyed on said shaft. The clutch collars 290, 291 are in the form of spools and each has an outer flange 292 against which a slide yoke 293 on the spool normally abuts under the action of a spring 294. The slide yokes 293 have toggle connections 295 with

operating bell crank levers 296, 297, which are connected for synchronous movement from a link 298. As is apparent from Fig. 36, the toggle connections 295 are so connected by the link 298 that as either one is straightened the other is flexed, and the clutch collar connected with the one straightened, as 291 in Fig. 36, is yieldingly urged into engagement with the corresponding clutch face 287, while as shown the clutch collar 290 is drawn to inoperative position. The motor 282 is of a reversible type and as shown in Fig. 36 when the car is just leaving the hacking station it is operating in a direction to drive the clutch elements so that the clutch collar 291 will snap over the clutch face 289 without turning the same. An extended end 299 of the lever 296 now engages a cam 300 fixed in its path of movement, which causes the lever to be actuated, the left flexed toggle 295 straightened, and the right straight toggle flexed, thus throwing the clutch collar 290 into engagement with the clutch face 288 and imparting driving impulse to the truck shaft 281. The car 168 is thus moved along the track 170 onto a transfer car 301, which has a continuation 302 of the tracks 170. When fully positioned on such transfer car a cam 303 is arranged to strike the lever extension 299 and break the driving connection by throwing the clutch elements to the position shown in Fig. 36. The transfer car 301 is then moved transversely along tracks 304 until the track section 302 alines with a track 305, shown as parallel with the track 170. The motor 282 is then reversed, and without further shifting of parts the driving impulse will be imparted through the clutch elements 289, 291 to move the car along the track 305.

As the car moves along the track 305, means is provided to cause the table or superstructure of the car 306 to be oscillated through an arc of ninety degrees, rollers 307 thereon engaging a circular track 307ª on a car about its central journal 308, shown as a ball bearing support, the purpose of this being to present the car for the next layer of bricks so that they will be arranged at right angles to the preceding layer. Driving impulse to oscillate the table is imparted through a motor 309, see Figs. 35 and 37, which communicates power through worm gearing 310, a stub shaft 311, bevel gearing 312, shaft 313 and spur pinion 314 to a gear 315 fixed to the table. A controller for motor 309 is shown at 316, see Figs. 38 and 40, supported on the fixed framework and having a crank arm 317 connected by a link 318 to a latch bar 319 pivoted to the car proper at 320. The lower depending end 321 of this latch bar is arranged to be contacted by a fixed cam 322 by the side of the track 305 as the car moves therealong, which will cause the upper end 323 of said bar to be disengaged from a locking recess 324 formed in one end of a quadrantal casting 325 fixed to the table. This frees the table for oscillation and at the same time operating the controller arm 317, energizes the motor 309 and produces a ninety degree movement of the table mentioned. Upon the completion of such movement the end 323 of bar 319 will swing into engagement with a second locking recess 326, thus locking the table in its second position. The specific form of controller 316 preferably employed to accomplish its purpose is shown in Figs. 38 and 39. The arm 317 is fixed to a shaft 327 having fixed thereon a pawl arm 328 carrying a pawl 329 which is adapted to engage a ratchet wheel 330 to turn a pole changing contact disk 331 from one contact station to the next with each impulse imparted from the link 318. The contact disk 331 is of a known form, having a direct set of contacts 332 and a reversing set of contacts 333 whereby the direction of current flowing from the leads 334 to the motor connections 335 is reversed for each succeeding contact section of the disk 331. As the motor 309 is a reversible type it is apparent that the actuation of the pole changer 331 will cause the motor to be operated in reverse directions as it is successively energized, thus causing the table to be oscillated back and forth through its ninety degree arc. The shaft 227 is arranged to operate a rheostat arm 336 which is adapted to engage successive contacts of a series 337 and in an extreme position to be out of contact with all of them; this arrangement constitutes a rheostat in the circuit of motor 309, and referring to Fig. 40, it will be noted that the end 323 of bar 319 is guided in the major part of the oscillating movement of the table by a concentric wall 338 of the casting 325, this position keeping the rheostat arm 336 in a position to impart full driving impulse to the motor. As the table nears the end of its oscillation, however, the concentric wall 338 merges into a backwardly inclined portion 339, which allows the bar end 323 to gradually drop back before finally engaging in the locking recess, and this movement will swing the rheostat arm 336 progressively backward past the contact points, thus gradually deënergizing the motor before it is finally stopped by the arm 336 passing out of range of the contacts altogether.

As a car moves along the track portion 305 some distance past the line of the hacking mechanism, it passes upon a second transfer car 340, which is movable along the transverse tracks 341. This transfer car has a projecting cam portion 342 arranged to engage the lever projection 299 and again stop the traction motor, as described. The

transfer car 340 is now traversed along the track 341 until its track section 343 registers with the track 170, when the car thereon may be transferred thereto. As it passes upon the track 170 a fixed post 344 is disposed to engage the lateral projection 176 on the pivoted hook 175 to trip the same and allow the pawl arm 171 to again drop into engagement with the rack teeth 173. The traction motor is now stopped by engagement of the lever projection 299 with a cam 345 and the car is advanced under the hacking mechanism in the manner before described and the concomitant and subsequent cycle of operations as set forth is repeated.

When a complete stack of bricks has been loaded upon a car 168 by the building up of successive layers as described, the car may be run off the transfer car 340 onto tracks 346 to the place where the bricks are to be dried.

The operation of my machine has already been quite fully explained, so that it will be sufficient to point out briefly its manner of use.

The continuous streams of molded brick material (herein illustrated as four) are delivered in the well known manner by the brick machine upon the off-bearing belt 3, which carries them past the cut-off mechanism 4, where they are severed into individual bricks, the movement of these parts being controlled by the oncoming streams, and the severed bricks are then delivered to the swift conveyer 11, which spaces the successive bricks from the preceding line to avoid mutilation thereof. From the swift conveyer 11 the separated bricks are forwarded onto a conveyer section 20 or 21 which at that time is moving at a rate substantially similar to the oncoming brick streams, being driven by the slow ratchet drive 33, 34, the foremost bricks on such conveyer sections being retarded and positioned by the retarding blade 71, which has a speed similar to or slightly slower than that of the loading belt movement, and the rest of the row being bunched thereon by delivery from the swift conveyer 11. The swinging frame 75 for the retarding blade is so timed by its cam controller 58 and the arrangement of said blade is such that it will be presented adjacent the front end of each conveyer section 20 or 21 as it passes into loading position. As a conveyer section, as 20, Fig. 19, is fully loaded, the high speed drive from shaft 42 is thrown into operation and said belt section is raced away from the other section 21 which then begins to receive its load moving at the slow speed. The conveyer sections 20 and 21 deliver the rows of brick intact to the conveyer 89, which does not disturb the formation of the rows since it is moved in synchronism with the delivery of bricks thereonto, and from the conveyer 89 the rows are delivered at the necessary elevation to the hacking belt 132, which is likewise then moved in synchronism with the belt 89. As the simultaneously delivered series of rows are fully positioned upon the hacking belt, the front of the rows strike the rod 155 to operate the controller lever 154, which both causes disconnection of the driving impulse from the motor 138 by energizing the magnetic control 150, and by energizing the other magnetic control 157, withdraws the slide bolt 250, to permit engagement of the clutch elements 246, 247, and thus causes driving engagement of motor 243 to be imparted to initiate the reciprocating movement of the rack bars 177; the rack bars 177 imparting step movement to the drier car 168 and reciprocating movement to the horizontal slide 185, which carries the wiper blades 163—167, to slide the rows of bricks transversely off the hacking belt 132 upon the drier car, which is then moving synchronously with such wiper blades.

The horizontal reciprocation of the slide 185 effects the vertical movement of the slide 191 at the ends of its movement by the control of the drive from the motor 201 through the clutch 202, 203, this being effected by the engagement of the oscillating links 213 on a slide with the fixed stops 216, 217, this resulting in the blades 163 being held downward at the sides of the rows of bricks during the movement of the slide 185 to wipe the rows of bricks from the hacking belt, then lifting said blades vertically, holding them so lifted during the return movement of the slide 185, and lowering them into place at the sides of the succeeding rows of bricks.

When a complete layer of bricks has been placed upon the car by the deposit of the successive series of rows, as described, the car is run out along a track 170, the motor 282 being then thrown into operation by the cam contact 300 engaging the clutch controller lever projection 299, and as the car progresses it moves upon the transfer car 301, whose tracks are then in position to receive it, and its traction motor 282 is disconnected by the cam face 303 engaging the lever projection 299. The transfer car is then moved along tracks 304 until the track sections 302 thereon aline with the tracks 305, when the traction motor is energized to run the drier car off the transfer car onto said tracks, and as it passes thereonto it is engaged by the cam surface 322 to unlock the oscillating table 306 and cause actuation of the controller 316 to energize the motor 309 and thus impart driving impulse to oscillate the table. As the table is completing an oscillation of ninety degrees the end 323 of latch 319 moves along the incline 329, thus gradually diminishing the

power of the motor 309 by operating the rheostat portion of controller 316 until the motor is finally disconnected and the end 323 drops into locking recess 326. The car is progressed along tracks 305 onto a second transfer car 340, when its traction motor is stopped by the cam 342. The transfer car 340 is then moved along its track 341 to bring the tracks thereon into alinement with the tracks 170, when the drier car may be transferred therefrom to the tracks 170 and run therealong back onto the hacking mechanism to receive another layer in the manner described. The cross rail carrying the hacking belt and wiper blades is then elevated by the operation of the motor 262, the clutch elements 265, 266 being allowed to engage by the operation of the trip 279, and when the cross rail is elevated a distance corresponding to the thickness of a layer, the clutch elements 265, 266 are disconnected by the ledge 275 engaging the latch dog 274. As it passes upon the tracks 170, the fixed post 344 engages the latch 175, tripping the same to permit the pawl arm 171 to again engage the rack teeth 173 and again initiate the forward step movement of the drier car. As this commences, the traction motor 282 for the car is disconnected by the fixed cam 345.

The stack of bricks being completed by a repetition of the cycle of operations described, the loaded car is run off along one of the tracks 346 for drying or other treatment. It is thus apparent that the bricks from the time they are severed from the molding machine delivery stream, to the arrangement thereof into complete layers upon the drier car, are forwarded and handled by a series of mechanisms, all of which receive and deliver them without shocks or impacts or any other treatment which would tend to mutilate or in any way deform them, and it its further evident that the substantial time interval between the delivery of successive rows by the racing belts 20, 21, is ample for the operation of the expeditious means devised for shifting the complete hacking rows of bricks transversely from the delivery belt onto the drier car. I consider this combination especially advantageous and important and I intend to claim the same broadly. It is obvious however that the arrangement of racing belt sections 20, 21, may be used in other relations and also that the means for bodily transferring the rows of bricks transversely from the delivery belt to a stack is useful *per se*, and I therefore desire to claim these features in broad form separately. The purpose of this racing belt construction is to be understood as primarily to afford a substantial time interval between deliveries of units of the bricks in distinction from a "bunching" of the bricks in successive units with a space interval between units to afford room for plural hacking clamps to operate, as disclosed in my copending application Ser. No. 578,438 filed August 22, 1910.

I desire it to be understood that I have made use of the terms and have described combinations of parts in the foregoing specification, in an illustrative and not in a restrictive sense, and I desire to cover the invention broadly as set forth in the appended claims.

Having described my invention, what I claim as new and desire to secure by Letters Patent is,

1. In an apparatus of the kind described, a conveyer system adapted to receive a continuous line of bricks, and means for imparting differential movements to different portions of said system to separate the bricks into rows with a time interval between the delivery of successive rows.

2. In an apparatus of the kind described, a conveyer system comprising receiving and delivering sections adapted to receive different speed movements, means for moving said sections simultaneously, one to receive a continuous line of bricks, and the other more swiftly to deliver the bricks, and means for transferring the bricks in rows with a time interval between the rows, from the former to the latter section.

3. In an apparatus of the kind described, a conveyer system comprising receiving and delivering sections adapted to receive different speed movements, means for moving said sections simultaneously, one to receive a continuous line of bricks, and the other more swiftly to deliver the bricks, and a section having provision to receive variable speed for transferring the bricks in rows with a time interval between the rows, from said receiving to the delivering section.

4. In an apparatus of the kind described, a conveyer system comprising a section adapted to be moved in time with a line of bricks fed thereto, a separately movable section, and means for alternately moving the latter section at a rate similar to that of the former section for loading, and at an accelerated rate to create a time interval between the row of bricks thereon and the succeeding line.

5. A brick hacking apparatus, comprising a conveyer system adapted to receive a continuous line of bricks and constructed to deliver the bricks in hacking rows with a time interval between rows, and means for bodily transferring the rows from the conveyer to build up a stack.

6. A brick hacking apparatus, comprising a conveyer system adapted to receive a continuous line of bricks and having provision to deliver the bricks in hacking rows with a time interval between rows, a device

for transferring the bricks from said conveyer to a stacking support, and means for moving the stacking support in time with the transferring device.

7. A hacking apparatus, comprising a conveyer constructed to deliver rows of bricks, means for transferring the rows from the conveyer to a table support, and means for moving said support in time with said brick transferring movement.

8. A hacking apparatus, comprising a continuously operated conveyer system having provision to deliver hacking rows of bricks successively with a time interval between deliveries, and a hacking mechanism arranged to stack the rows of bricks during such intervals.

9. A hacking apparatus, comprising a continuously operated conveyer constructed to deliver successive hacking rows of bricks with a time interval between deliveries, a hacking mechanism, and means for setting said hacking mechanism into operation upon the delivery of a row, to transfer the same to a stack.

10. A hacking apparatus, comprising a continuously operated conveyer constructed to deliver successive hacking rows of bricks with a time interval between deliveries, a hacking mechanism, and means constructed to be operated by a row of bricks upon delivery to set the hacking mechanism into operation to stack the row.

11. In an apparatus of the kind described, a hacking conveyer system having a section adapted to receive a continuous line of bricks, plural conveyer sections adapted to alternately receive loads of bricks from the first named section, and means for driving the latter sections alternately at substantially the same speed as the first section, and at an accelerated speed, said drive constructed to operate one of said plural sections at the lower speed while the other is operating at the higher speed.

12. In an apparatus of the kind described, a hacking conveyer system comprising a section adapted to be moved in time with a continuous line of bricks fed thereto, a plurality of sections each having provision to successively receive driving movement at a rate similar to that of the first named section and at an accelerated rate, and a forwarding conveyer to receive the bricks for further treatment.

13. In an apparatus of the kind described, a hacking conveyer system comprising a section adapted to be moved in time with a continuous line of bricks fed thereto, and a pair of belt sections having provision to be each successively driven at a rate similar to that of the oncoming line of bricks and at an accelerated rate to deliver the bricks in hacking rows with a time interval between deliveries.

14. In an apparatus of the kind described, a hacking conveyer system comprising a section having provision alternately for a loading movement and an accelerated movement, a relatively swift moving section to deliver bricks in separated relation to the former section, and a retarding device having provision to be moved to coöperate with the first named section in its loading movement.

15. In an apparatus of the kind described, a hacking conveyer system comprising a pair of conveyer sections, means for moving each of said sections through a loading position in the system at one speed and for simultaneously moving the other through another portion of the system at an accelerated speed, and means for loading each section as it moves past the loading position.

16. In an apparatus of the kind described, a hacking conveyer system comprising a pair of conveyer sections, means for moving each of said sections through a loading position in the system at one speed and for simultaneously moving the other through another portion of the system at an accelerated speed, and means for loading each section as it moves past the loading position, consisting of a high speed section to supply bricks in separated relation, and a retarding device movable at a slower speed to bunch them together as they pass on the loading section.

17. In an apparatus of the kind described, a hacking conveyer system, comprising a portion formed of a plurality of conveyer sections movable in the same closed circuit and adapted to successively occupy the same positions in the system, means for driving said sections successively at one speed in a loading position and at an accelerated speed through the rest of its operative travel, and means for delivering bricks in continuous rows to each section in its loading position.

18. A hacking conveyer system, for the purpose stated, comprising a portion formed of a plurality of conveyer sections adapted to occupy a loading position and to deliver loads at a distance therefrom, movable in a closed circuit, continuously operating means for imparting one speed of movement to said sections and controlling the movement in the loading position, means intermittently thrown into operation for imparting an accelerated movement to each section as it leaves the loading position, and means for loading rows of bricks on each section when in loading position.

19. A hacking conveyer system, for the purpose stated, comprising a portion formed of a plurality of conveyer sections adapted to occupy a loading position and to deliver loads at a distance therefrom, movable in a closed circuit, continuously operating means for imparting one speed of movement to said sections and controlling the movement in the

loading position, means for intermittently connecting a higher speed drive to each section as it leaves loading position, means for disconnecting said high speed drive as the forward end of the section so driven catches up with the rear of the succeeding section, and means for loading rows of bricks on each section when in loading position.

20. A hacking conveyer system, for the purpose stated, comprising a portion having a pair of belt sections movable in a closed circuit, adapted to alternately occupy a loading position and to be moved through a subsequent part of the system, a constant driver for said sections adapted to impart loading movement thereto, a higher speed driver, means for engaging the latter driver to operate each belt section after it is loaded, and means for loading the successive belt sections as they enter loading position.

21. A hacking conveyer system, comprising a pair of belt sections independently movable in the same closed circuit and having provision to be moved through a loading position at one speed and through subsequent operative travel at a higher speed, a pair of sprocket chains for each of said belt sections, a constant driver for said sections adapted to impart loading movement thereto, and a higher speed driver arranged to be connected with each belt section successively after its loading is completed.

22. A hacking conveyer system, comprising a pair of belt sections independently movable in the same closed circuit and having provision to be moved through a loading position at one speed and through subsequent operative travel at a higher speed, a pair of sprocket chains for each of said belt sections, forward pairs of sprocket wheels for said chains having provision for constant drive to impart loading movement to the belt sections, and rearward pairs of sprocket wheels, each rearward pair having provision for engagement with a higher speed driver after the belt section it controls leaves loading position.

23. A hacking conveyer system, comprising a belt section, means for traversing said belt section through a loading position, a section movable at a higher speed for delivering bricks thereto, and a retarding device having provision to be moved in cooperation with the front end of said belt section to position the foremost bricks thereon.

24. A hacking conveyer system, comprising a belt section, means for traversing said belt section through a loading position, a section movable at a higher speed for delivering bricks thereto, a retarding device having provision to be moved in coöperation with the front end of said belt section to position the foremost bricks thereon, and means for thereafter moving said retarding device to inoperative position.

25. A hacking conveyer system, comprising a belt section, means for traversing said belt section through a loading position, a section movable at a higher speed for delivering bricks thereto, a retarding blade adapted to coöperate with the forward end of said belt section to position the foremost bricks thereon, said blade being swingingly mounted, and means for swinging said blade out of operative position after the foremost bricks of a row are positioned.

26. In an apparatus of the kind described, a hacking conveyer system comprising a section adapted to be moved in time with a continuous line of bricks fed thereto, a section having accelerated movement to receive the bricks in separated relation, a section having provision alternately for movement in time with the oncoming brick line and at an accelerated rate, and a retarding device having provision to be moved to coöperate with the last named section in its slower movement.

27. A hacking conveyer system, for the purpose stated, comprising an off-bearing belt and cut-off means, adapted to be moved in time with a continuous line of brick material fed thereto, a conveyer section adapted to receive a row of bricks and having provision for loading movement in time with the off-bearing belt, means for supplying bricks thereto at a higher rate of movement, and a retarding device having provision to move in coöperation with the forward end of a conveyer section being loaded.

28. A hacking conveyer system, for the purpose stated, comprising an off-bearing belt and cut-off means, adapted to be moved in time with a continuous line of brick material fed thereto, a conveyer section adapted to receive a row of bricks and having provision for loading movement in time with the off-bearing belt, means for supplying bricks thereto at a higher rate of movement, a retarding device having provision to move in coöperation with the forward end of a conveyer section being loaded, and means for moving said retarding device to inoperative position after it has positioned the foremost bricks of a row.

29. A hacking conveyer system, for the purpose stated, comprising an off-bearing belt and cut-off means, adapted to be moved in time with a continuous line of brick material fed thereto, a conveyer section adapted to receive a row of bricks and having provision for loading movement in time with the off-bearing belt, means for supplying bricks thereto at a higher rate of movement, a retarding blade having provision to move in coöperation with the forward end of a conveyer section being loaded, said

blade being swingingly mounted, and cam mechanism for swinging said blade out of operative position after the foremost bricks of a row are positioned.

30. A brick hacking apparatus, comprising a pair of conveyer sections arranged to successively occupy a loading position and having provision to receive an accelerated movement therefrom toward hacking mechanism to deliver rows of bricks with a time interval between deliveries, and a hacking mechanism arranged to operate during such time interval.

31. A brick hacking apparatus, comprising an off-bearing belt arranged to be controlled in movement by a continuous line of brick material fed thereto, a subsequent conveyer system, driving means therefor, and a controlling connection from said off-bearing belt to said driving means having provision to transmit variations in the movement of said off-bearing belt to said driving means to control the same but constructed to prevent the transmission of driving impulse from said driving means to the off-bearing belt.

32. A brick hacking apparatus, comprising an off-bearing belt and cutting means adapted to have a movement controlled by a continuous line of brick material fed thereto, a subsequent conveyer system, a driving motor therefor, and a gear controller from said off-bearing belt to said motor constructed to transmit variations of movement thereof to said motor to control the same and arranged to be self-locking against the transmission of variations in driving impulse from said motor to the off-bearing belt.

33. A brick hacking apparatus, comprising an off-bearing belt and cutting means, adapted to be moved in time with a continuous line of brick material fed thereto, a subsequent conveyer system, a motor therefor, and a geared connection from said motor to said off-bearing belt consisting of a worm on a shaft connected with the off-bearing belt, and a worm wheel on a shaft connected with said motor, for the purpose stated.

34. A brick hacking apparatus, comprising an off-bearing belt adapted to be controlled in movement by a line of bricks continuously fed thereon, a subsequent conveyer system, driving means therefor, a controller from said off-bearing belt to said driving means, and a brake for said driving means arranged to be automatically brought into action by said controller and to coöperate therewith in governing said driving means.

35. A brick hacking apparatus, comprising an off-bearing belt adapted to be controlled in movement by a line of bricks continuously fed thereon, a subsequent conveyer system, driving means therefor, a controller from said off-bearing belt to said driving means, and a brake for said driving means arranged to be automatically brought into action by said controller and to coöperate therewith in governing said driving means, said brake consisting of a sectional shaft in connection with said driving means, arms on the respective sections, and a shoe carried by said arms to engage a brake casing.

36. A brick hacking apparatus, comprising an off-bearing belt and cutting means adapted to have movement controlled by a line of brick material continuously fed thereto, a subsequent conveying system, a motor therefor, a controller for the subsequent conveyer from the off-bearing belt, and a governor for said motor having provision to be brought into operation by said controller.

37. A brick hacking apparatus, comprising an off-bearing belt and cutting means adapted to have movement controlled by a line of brick material continuously fed thereto, a subsequent conveying system, a motor therefor, a controller for the subsequent conveyer from the off-bearing belt, and a governor for said motor consisting of elements connected respectively with the motor and the controller and having yielding connection, and provision to vary the energy supply to the motor upon relative movement between said elements.

38. A brick hacking apparatus, comprising an off-bearing belt and cutting means adapted to have movement controlled by a line of brick material continuously fed thereto, a subsequent conveying system, a motor therefor, a controller for the subsequent conveyer from the off-bearing belt, and a governor for said motor consisting of shaft sections connected respectively with the motor and the controller and having yielding clutched connection, and differential gear mechanism connected with said shaft sections.

39. A hacking apparatus, comprising a conveyer system adapted to arrange bricks into segregated groups with the bricks of each group in relative hacking position and to deliver such groups successively to a transfer station, and means to bodily transfer the groups therefrom between deliveries to form a stack in hacked formation.

40. A hacking apparatus, comprising a conveyer system adapted to arrange bricks into segregated groups with the bricks of each group in relative hacking position, said system having as a final element a conveyer section having provision to receive intermittent movement to deliver successive segregated groups of bricks in plural rows to hacking position with intervals of rest between such movements, and automatic means connected for timed operation relative to said conveyer section for bodily shifting said groups of bricks therefrom, with the bricks of each group separated in definite relation for hacking during the intervals of rest.

41. A hacking apparatus, comprising a conveyer system adapted to arrange bricks into segregated groups with the bricks of each group in relative hacking position, said system having as a final element a conveyer section adapted to deliver successive segregated groups of bricks in plural rows to hacking position with a time interval between deliveries, and automatic means connected for timed operation relative to said conveyer section for sliding said groups off said section transversely of their line of delivery movement, with the bricks of each group separated in definite relation for hacking.

42. A hacking apparatus, comprising a conveyer system adapted to arrange bricks into segregated groups with the bricks of each group in relative hacking position, said system having as a final element a conveyer section having provision to deliver successive segregated groups of bricks in a row to hacking position, and an automatically operable slide connected for timed operation relative to said conveyer section and movable transversely of the line of conveyer movement, said slide carrying wipers to engage and remove the bricks, whereby the bricks of each group may be transferred in definite hacked relation.

43. A hacking apparatus, comprising a movable conveyer section to deliver bricks to hacking position, a transversely movable slide carrying a series of wiper blades to move the bricks from said conveyer, said blades being mounted for independent movement, and an operating device to move the several blades against the bricks to space the same.

44. A hacking apparatus, comprising a movable conveyer section to deliver bricks to hacking position, a transversely movable slide carrying a series of wiper blades to move the bricks from said conveyer, said blades being mounted for independent movement, an operating device to move the several blades against the bricks to space the same, and means for actuating said operating device by the movement of said slide.

45. A hacking apparatus, comprising a conveyer section, an operator therefor to forward rows of bricks to hacking position, and means for disconnecting said operator upon arrival of the bricks in hacking position and for simultaneously setting into operation a stacking device.

46. A hacking apparatus, comprising a conveyer section, an operator therefor to forward rows of bricks to hacking position, and means operated by the bricks upon arrival in hacking position for disconnecting said operator and for simultaneously setting into operation a stacking device.

47. A hacking apparatus, comprising means for forwarding rows of bricks to hacking position, means for moving a row transversely onto a stack, and means for moving the stack support in time with the brick movement.

48. A hacking apparatus, comprising a conveyer for bringing rows of bricks to hacking position, means for moving said rows transversely of said conveyer, and means for simultaneously moving a support on which they are to be stacked at the same rate as said movement.

49. A brick hacking apparatus, comprising a conveyer and an operator therefor for bringing rows of bricks to hacking position, a movable support to receive a stack of bricks, means for removing the bricks from said conveyer to said support, and means set into operation by the arrival of a row in hacking position to simultaneously set into operation said brick removing means and said support.

50. A brick hacking apparatus, comprising means for bringing rows of bricks to hacking position, a car to receive a brick stack, a slide to move bricks from said conveyer to said car, and an operating device to move said parts forward together.

51. A brick hacking apparatus, comprising means for bringing rows of bricks to hacking position, a car to receive a brick stack, a slide to move bricks from said conveyer to said car, and an operating device constructed to impart reciprocating movement to said slide and a forward step movement to said car.

52. A brick hacking apparatus, comprising means for bringing rows of bricks to hacking position, a car to receive a brick stack, a slide to move bricks from said conveyer to said car, and an operating device to move said parts forward together, said operating device having provision to be energized by the arrival of a row of bricks in hacking position.

53. A brick hacking apparatus, comprising a car, a slide constructed to transfer bricks thereto, means for moving said car forward with a step movement, and means for reciprocating said slide, the forward movement of the slide being in time with the forward step movement of the car.

54. A brick hacking apparatus, comprising a car, a slide movable to transfer bricks thereto, and a common operator for said slide and car constructed to impart forward step movement to the car and reciprocating movement to the slide.

55. Means for transferring bricks from a conveyer to a stack, comprising a horizontal reciprocating slide, a vertical slide carried thereby having brick engaging blades, means for imparting reciprocation to the horizontal slide, and means for imparting movement to the vertical slide at

the ends of movement of the horizontal slide.

56. A brick hacking apparatus, comprising a conveyer section having provision to deliver rows of bricks to hacking position, a transverse horizontal slide with means for operating the same as the bricks arrive in hacking position, a vertical slide carried thereby having wipers to remove the bricks from said conveyer, a motor for said vertical slide, and means for connecting said motor at the end of each movement of the horizontal slide to impart movement to the vertical slide.

57. A hacking apparatus, comprising a conveyer section having provision to deliver rows of bricks to hacking position, a support therefor, and means for elevating said support to build the successive rows of the stack, said means arranged to be automatically disconnected after raising said support a determinate amount.

58. A hacking apparatus, comprising a conveyer section having provision to deliver successive rows of bricks to hacking position, a vertically adjustable support therefor, means carried by said support for delivering bricks from said conveyer to a stack, and means for vertically adjusting said support.

59. A hacking apparatus, comprising a vertically adjustable support, a hacking belt and a driver therefor, carried thereby to deliver rows of bricks to hacking position, a transverse slide on said support to remove bricks to a stack, and means for vertically adjusting said support.

60. A hacking apparatus, comprising vertically adjustable means to deliver rows of bricks to hacking position, including a slide carrying wiper blades, a car, an operator having provision to intermittently advance said car, and a connection from said operator to reciprocate said slide, said connection consisting of an upright adapted to engage said slide irrespective of its vertical position.

61. A hacking apparatus, comprising means for delivering rows of bricks to hacking position, a car having a pawl arm extending therefrom, an operator consisting of a rack bar with means for reciprocating the same, arranged to be engaged by said pawl arm, means for transferring bricks to said car, and a connection from said bar to said means.

62. In a hacking apparatus, means adapted to receive a continuous series of bricks and forward the same in rows, a car, means for laying rows of bricks thereon, and means for effecting relative step movement between said parts as successive rows are deposited.

63. In a hacking apparatus, means adapted to receive a continuous series of bricks and forward the same in rows, a car, means for automatically stacking a layer of bricks thereon by the deposit of successive rows, a traction motor for said car, and means for automatically bringing said motor into operation upon the completion of a layer.

64. In a hacking apparatus, means adapted to receive a continuous series of bricks and forward the same in rows, a car, means for laying rows of bricks thereon, means for effecting relative step movement between said parts as successive rows are deposited, and a traction motor for said car having provision to be automatically brought into operation upon completion of a layer of bricks.

65. In a hacking apparatus, means adapted to receive a continuous series of bricks and forward the same in rows, a car, means for depositing rows of bricks thereon, means for imparting step movement to the car as successive rows are deposited, and a device for disconnecting the operator for said step movement upon completion of a layer.

66. In a hacking apparatus, means adapted to receive a continuous series of bricks and forward the same in rows, a car, means for depositing rows of bricks thereon, means for imparting step movement to the car as successive rows are deposited, a device for disconnecting the operator for said step movement upon completion of a layer, a traction motor, and means for automatically connecting said motor with the car as it leaves hacking position.

67. In a hacking apparatus, means adapted to receive a continuous series of bricks and forward the same in rows, a car, means for automatically sliding a layer of bricks thereon, a device for adjusting said means a definite amount to position it for depositing a succeeding layer, and automatic means to render said adjusting device inactive after the same definite movement for succeeding layers.

68. A hacking apparatus, comprising means for receiving bricks and forwarding them to hacking mechanism a car having a movable table thereon, means for automatically depositing a layer of bricks on said table, tracks for said car, a traction device to move said car along said tracks, and means arranged to be thrown into operation by the movement of the car along a track for angularly moving said table on said car.

69. A hacking apparatus, comprising means for receiving bricks and forwarding them to hacking mechanism a car having a movable table thereon, means for automatically depositing a layer of bricks on said table, tracks for said car, a traction device to move said car along said tracks, means arranged to be thrown into operation by the movement of the car along a track for angularly moving said table on said car, and

provision for returning the car to hacking position.

70. A hacking apparatus, comprising means for receiving bricks and forwarding them to hacking mechanism a car having a movable table support thereon, tracks therefor, means to deposit layers of bricks, a device to adjust said means to position for successive layers, means to present the car in hacking position by movement thereto in the same direction after traversing a circuit to receive successive layers, and means to adjust said table support between layer deposits.

71. In a hacking apparatus, means for receiving bricks, hacking mechanism for depositing the same a car, a table support journaled thereon, an operator for said support, and means for automatically throwing said operator into engagement by movement of the car.

72. In a hacking apparatus means for receiving bricks, hacking mechanism for depositing the same a car, a table support journaled thereon, an operator therefor, means for automatically throwing said operator into engagement by movement of the car, and means for disconnecting said operator after a determinate movement of the support.

73. A hacking apparatus, comprising means for receiving bricks, hacking mechanism for depositing the same a car, a table support movable thereon, an operator for said support to move the same through a definite path of travel, and means for gradually deënergizing said operator as the support nears the limit of its movement.

74. A hacking apparatus, comprising means for receiving bricks, hacking mechanism for depositing the same a car, a table support journaled thereon, an operator to move said support through a definite path of travel and having provision to be automatically thrown into operation by the movement of said car, and means for simultaneously deënergizing said operator and locking the table support at the limit of its movement.

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

RAYMOND C. PENFIELD.

Witnesses:
C. P. MERTENS,
W. H. SMART.