

No. 764,927.

PATENTED JULY 12, 1904.

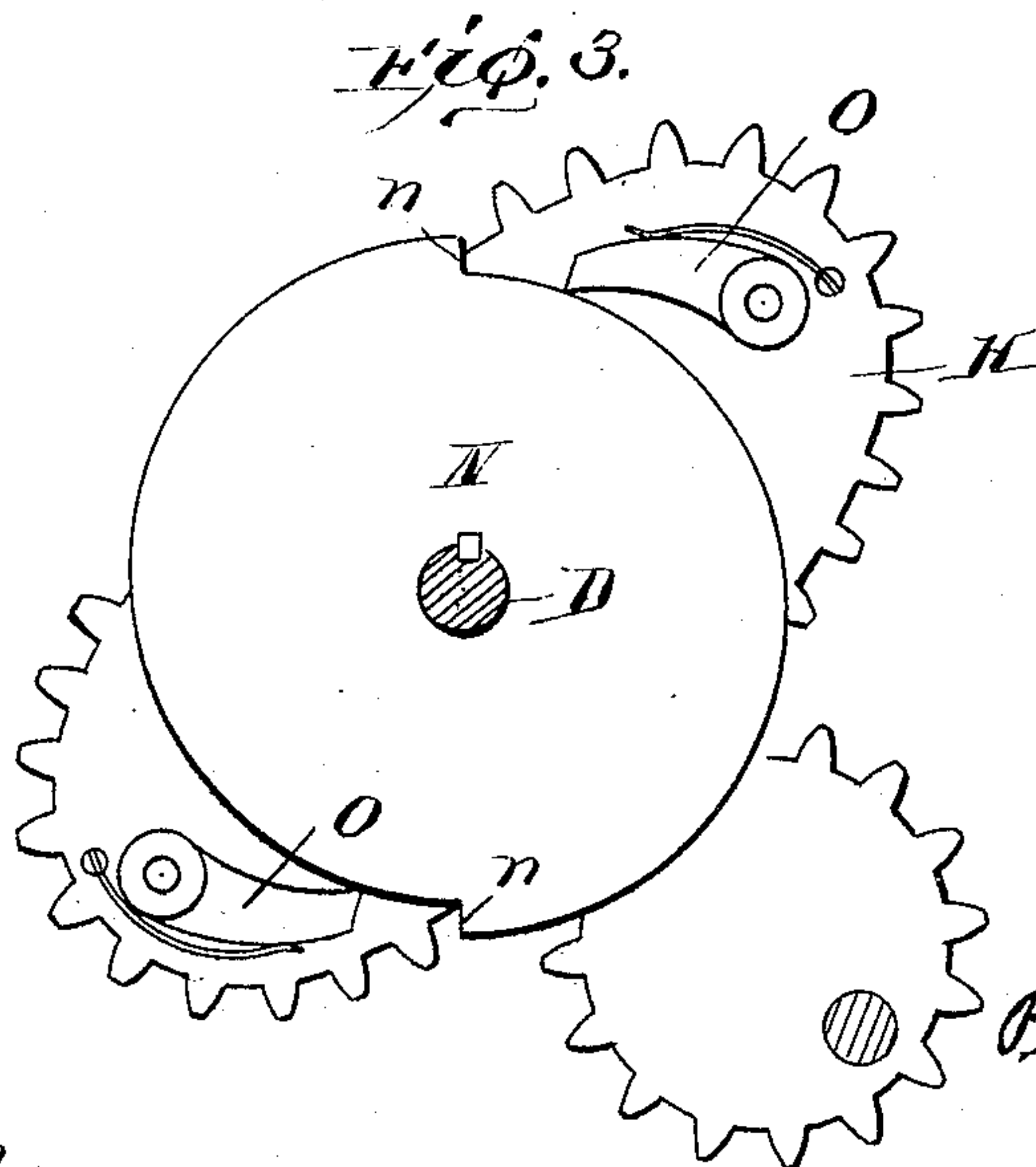
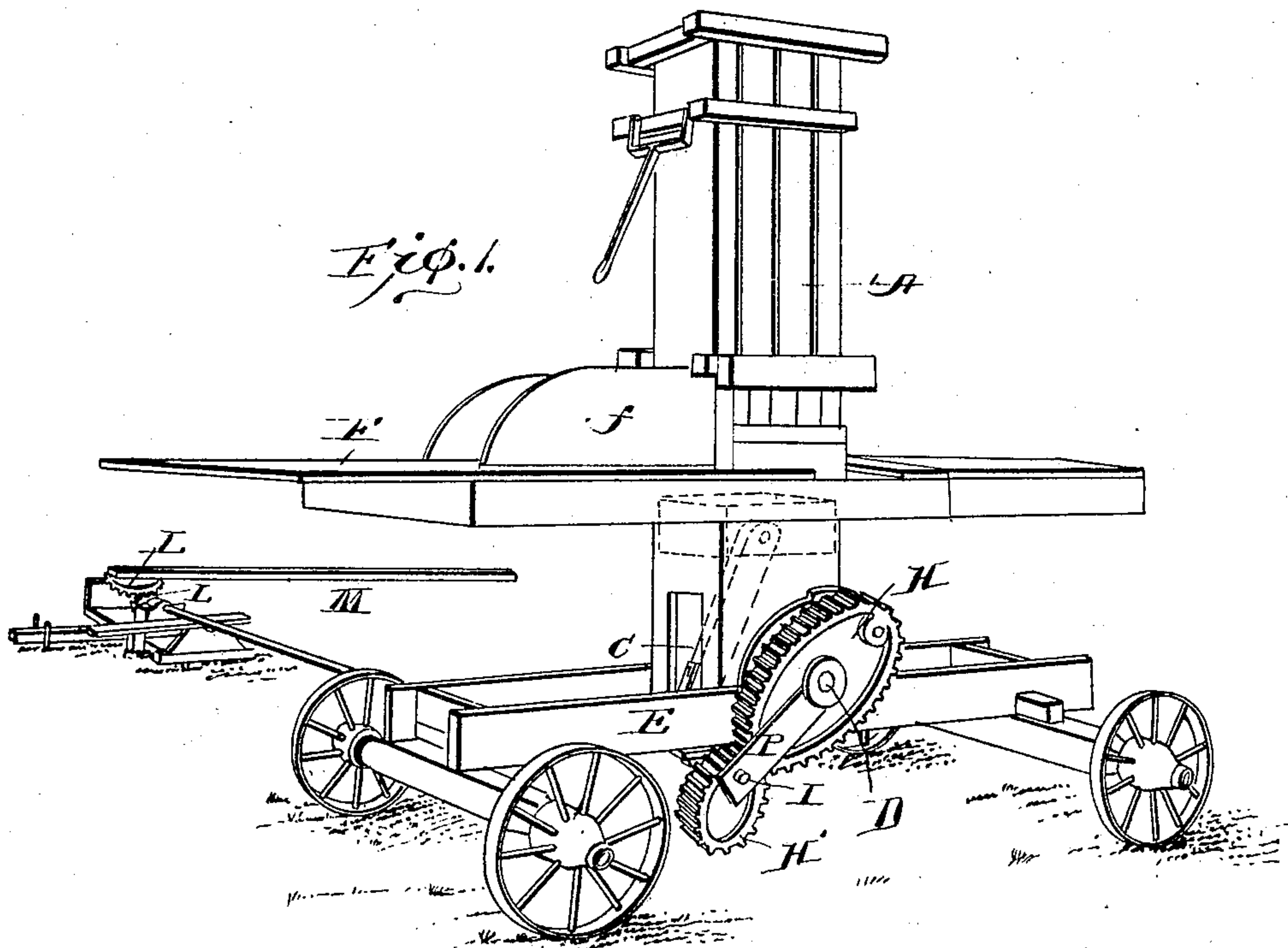
P. K. DEDERICK.

BALING PRESS.

APPLICATION FILED JULY 18, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses

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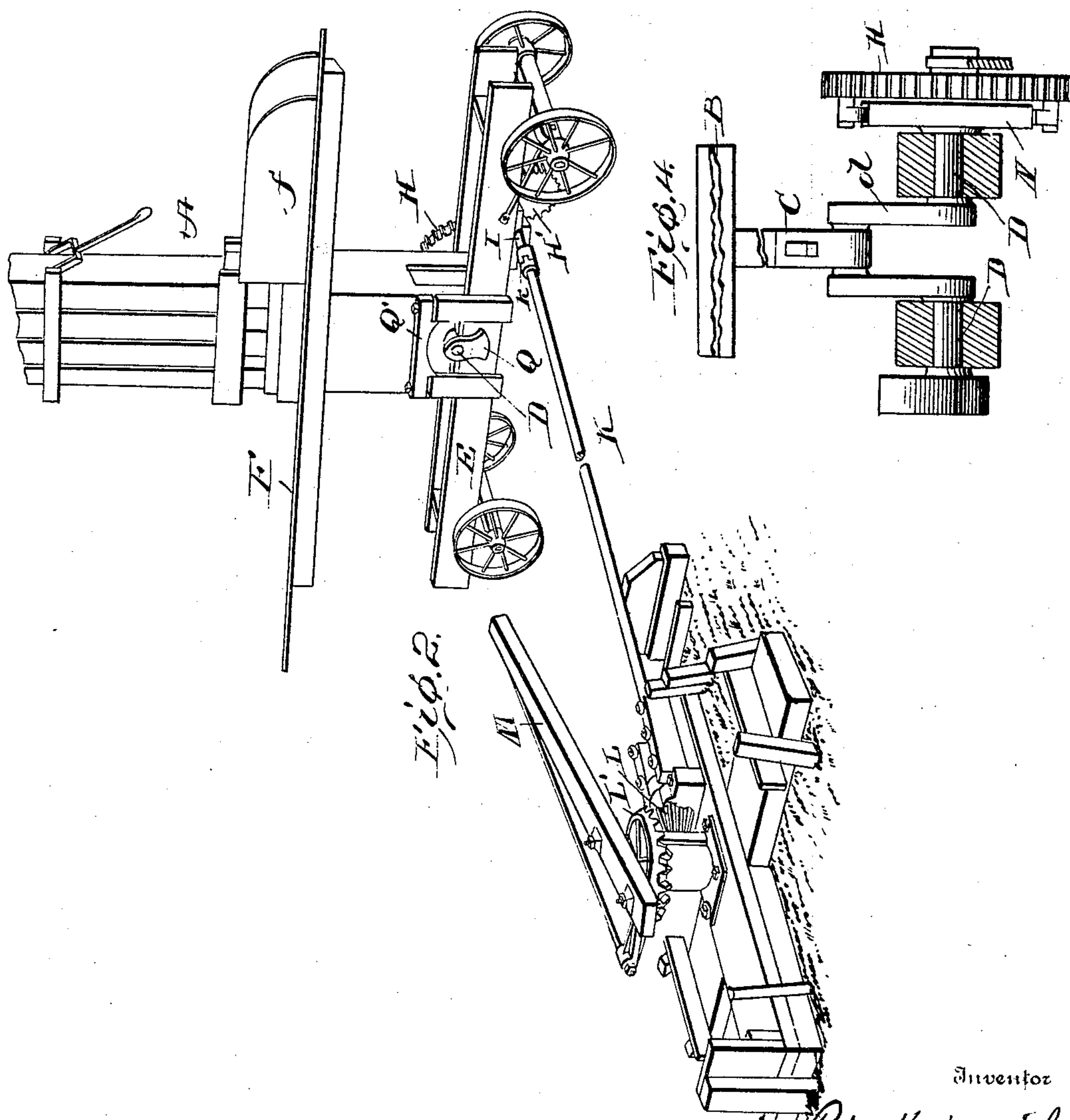
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UNITED STATES PATENT OFFICE.

PETER K. DEDERICK, OF LOUDONVILLE, NEW YORK.

BALING-PRESS.

SPECIFICATION forming part of Letters Patent No. 764,927, dated July 12, 1904.

Application filed July 18, 1903. Serial No. 166,160. (No model.)

To all whom it may concern:

Be it known that I, PETER K. DEDERICK, a citizen of the United States, residing at Loudonville, in the county of Albany and State of New York, have invented certain new and useful Improvements in Baling-Presses; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the letters of reference marked thereon.

This invention relates more especially, though not exclusively, to presses for baling hay and other fibrous material which are usually run by horse-power, the objects of the invention being to provide an improved mechanism in which lightness, ease, and rapidity of operation and portability, together with sufficient power to effect compact baling, shall be combined in a compact and slightly structure occupying a relatively small floor-space.

The invention consists in certain novel details of construction and combinations and arrangements of parts, all as will be now described, and pointed out particularly in the appended claims.

Referring to the accompanying drawings, Figure 1 is a perspective view of a press embodying the present improvements. Fig. 2 is a view looking at the opposite side of the press from Fig. 1, portions being broken away. Fig. 3 is a detail of the notch or lug wheel, larger gear-wheel, and latch or dog. Fig. 4 is a vertical section showing the traverser crank-shaft and associated parts.

Like letters of reference in the several figures denote the same parts.

The press illustrated is of the vertical type—that is to say, the press and bale-chamber A are arranged in vertical position. The traverser B works vertically therein to press the material upward and is operated by a pitman C, connected with the crank *d* of a shaft D, arranged horizontally and journaled in bearings on a frame E, which latter may form the body of a truck upon which the press may be conveniently transported. The bale-chamber and press-box may be of usual or preferred construction and either of the continuous or stop-head type; but, as shown, the material is

fed into a side opening located above a platform F and is guided into the opening by guide-boards *f*, while the finished bale is ejected from the top end of the bale-chamber. It will be understood, however, that the invention is not limited to this particular type of press save where particularly specified in the claims, as features of the invention are applicable to other types of press wherein the press and bale-chambers are not arranged vertically, although the latter arrangement is preferred.

The crank-shaft D has journaled upon it a relatively large, but irregular, preferably oval, gear-wheel H, and meshing with this wheel is a pinion H', also of irregular shape.

The pinion H' is mounted eccentrically, for a reason which will presently appear, on a shaft I, journaled on the frame E and forming a continuation of the tumbling-rod K, usually coupled thereto at *k* and extending off to the horse-power formed by a bevel-pinion L on the tumbling-rod and a bevel-gear L', meshing therewith and with which the sweep M is connected.

The traverser B is adapted to make two strokes to each rotation of the gear H, and to effect this a notch or lug wheel N is mounted fast on the crank-shaft and provided with two shoulders or teeth *n*, with which a pawl or dog O on the gear H is adapted to engage. Two dogs at opposite points on the gear may be employed, if so desired, and the arrangement is such that when the crank has been moved up over the center it will immediately drop by reason of its own weight or the expansion of the pressed material, or both, until the dogs again engage and the traverser is in position to be again advanced as the gear is rotated. The wheel H might be firmly secured to the shafts D and the lug-wheel and ratchet located on the tumbling-rod shaft or on the horse-power with the same effect, but would require more friction to check the momentum of the additional machinery.

In order to permit of the employment of a light tumbling-rod and at the same time secure the requisite speed and power, the gear H and pinion H' are so proportioned that the latter rotates twice to the former's once, and additional power is gained by making the

gears irregular, the teeth nearest the axis of the pinion engaging the teeth farthest from the axis of the gear H when the greatest horse-power is required, and vice versa. By
 5 this arrangement ample power is secured with a comparatively light tumbling-rod, while the rod makes two revolutions to one of the large gear, the traverser is caused to make
 10 reciprocation to each rotation of the tumbling-rod, and no time is lost because of the power-gearing.

To increase the speed to give two reciprocations of the traverser to each rotation of the horse-power sweep, the bevel-pinion L and gear L' are preferably two-to-one gears, the sweep thus making one rotation to two of the pinion and tumbling-rod, and as a consequence the traverser will be advanced twice
 20 to each rotation of the sweep.

Obviously irregular-shaped gears of any well-known or preferred form may be employed, and hence I do not wish to be limited to any particular form, it only being necessary for the purposes of the present invention that the smaller gear shall be the driver and arranged so that the short arm of the pinion engages the long arm of the larger gear when the greatest power is required on the shaft, thus lessening the strain on the tumbling-rod.
 30

Elliptical gears are preferably employed, with the larger gear on a central axis and the smaller gear on an eccentric axis; but variations in the contour of the gears may be made without departing from the invention herein.
 35

The shafts D and I are preferably connected by a plate or tie-frame P at their ends to prevent spreading, and in addition the shaft D is provided with a brake or friction segment Q, Fig. 2, which contacting with a block or shoe Q', adjustably mounted on the frame, serves to arrest the movement of the traverser when it drops back to initial position. The friction
 40 is made sufficient to arrest the traverser and crank-shaft when the lug-wheel is far enough advanced to insure the engagement of the pawl. Thus sufficient time will be allowed for the feeding in of a charge of material, and
 45 shock from the engagement of the pawls on the return swing of the crank is avoided.
 50

The press is of such form as to take up but little floor-space and may well be located in a barn, while the tumbling-rod extends outside, where the horse may travel a continuous circular path without in any way interfering with the feeding of the press or the removal of the completed bales.
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Both of the latter operations are preferably performed from the platform located at about the level of the bottom of the feed-opening, thus leaving ample space below for the power mechanism and operation of the traverser and crank.
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65 Having thus described my invention, what

I claim as new, and desire to secure by Letters Patent, is—

1. In a baling-press, the combination with the reciprocatory traverser, crank and shaft for reciprocating the same the relatively large irregular gear-wheel and a pawl-and-ratchet connection between said wheel and shaft whereby the shaft is free to move forward independently of the wheel, of an irregular driving-pinion meshing with the gear-wheel for rotating the same, the arrangement being such that the maximum power is given the traverser during the latter part of its forward stroke; substantially as described. 70 75

2. In a baling-press a crank, a traverser reciprocated thereby, an irregular gear-wheel connected with the crank and an irregular pinion meshing with the gear-wheel, a tumbling-rod for rotating the pinion and a power-gearing for rotating the tumbling-rod; and a pawl-and-ratchet connection whereby the crank is free to move forward; substantially as described. 80 85

3. In a baling-press the combination of the following instrumentalities, to wit: a reciprocatory traverser, a crank for advancing the same, irregular intermeshing gear-wheels, a pawl-and-ratchet connection between said gear-wheels and crank and means for driving the irregular gear-wheels, the rotation of the gear-wheels and pawl-and-ratchet connection being such that the maximum power is exerted during the latter part of the forward movement of the traverser; substantially as described. 90 95 100

4. In a baling-press the combination of the following instrumentalities to wit: a reciprocatory traverser, a crank connected therewith, an irregular gear-wheel journaled on the shaft of the crank, a pawl-and-ratchet connection between the gear-wheel and shaft to permit the shaft to rotate forwardly independently of the gear-wheel, an irregular pinion journaled eccentrically and meshing with the gear-wheel and a tumbling-rod for rotating the pinion; substantially as described. 105 110

5. In a baling-press the combination of the following instrumentalities to wit: a reciprocatory traverser free to return to initial position, a gear-wheel for advancing the traverser having an irregular contour, an eccentric pinion meshing with the gear-wheel and proportioned to make two revolutions to one of the gear-wheel, a tumbling-rod for rotating the pinion, a pinion on the tumbling-rod and a gear-wheel for rotating the pinion and rod; substantially as described. 115 120

6. In a baling-press the combination with the vertically-arranged press-box and bale-chamber, the traverser mounted to reciprocate therein and the shaft and crank for reciprocating the traverser, of the elliptic gear-wheel journaled on the shaft, a pawl-and-ratchet connection between the gear and shaft to permit the shaft to rotate forwardly independently of 125 130

the gear and the traverser to drop to its initial position, the eccentric pinion meshing with the gear and proportioned to rotate once during each reciprocation of the traverser, a
5 tumbling-rod for rotating the gear, and gearing for rotating the tumbling-rod; substantially as described.

7. In a baling-press the combination with the vertically-arranged press-box and bale-chamber, the traverser arranged to reciprocate
10 vertically therein and the shaft and crank for reciprocating the traverser, of the elliptic gear-wheel journaled on the shaft, an eccentric pinion meshing with the gear-wheel and a
15 pawl-and-ratchet connection between the gear-wheel and shaft so disposed that when the greatest power is required on the crank-shaft the teeth of the gear-wheel farthest from its axis and the teeth of the pinion nearest its axis
20 are in mesh; substantially as described.

8. In a baling-press the combination with the vertically-arranged press, drop-back reciprocatory plunger, crank-shaft and drive-

gear journaled on and connected with the crank-shaft by a pawl-and-ratchet connection, 25 of a friction-segment on the crank-shaft and an adjustable friction-shoe mounted on the press to arrest the movement of the crank-shaft and traverser when they drop back to initial position; substantially as described. 30

9. In a baling-press the combination with the vertically-arranged press and traverser, of the crank-shaft the drive-gear journaled on one end of the crank-shaft and connected therewith by a pawl-and-ratchet connection, a friction-segment on the opposite end of the crank-shaft, a friction-shoe with which the segment
35 engages, a drive-pinion meshing with the gear-wheel, a tumbling-rod connected with the pinion and a geared horse-power for rotating the
40 tumbling-rod; substantially as described.

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Witnesses:

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