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PATENTED JUNE 5, 1906.

C. E. WEHRENBURG.

BALING PRESS.

APPLICATION FILED MAY 9, 1905.

3 SHEETS—SHEET 1.

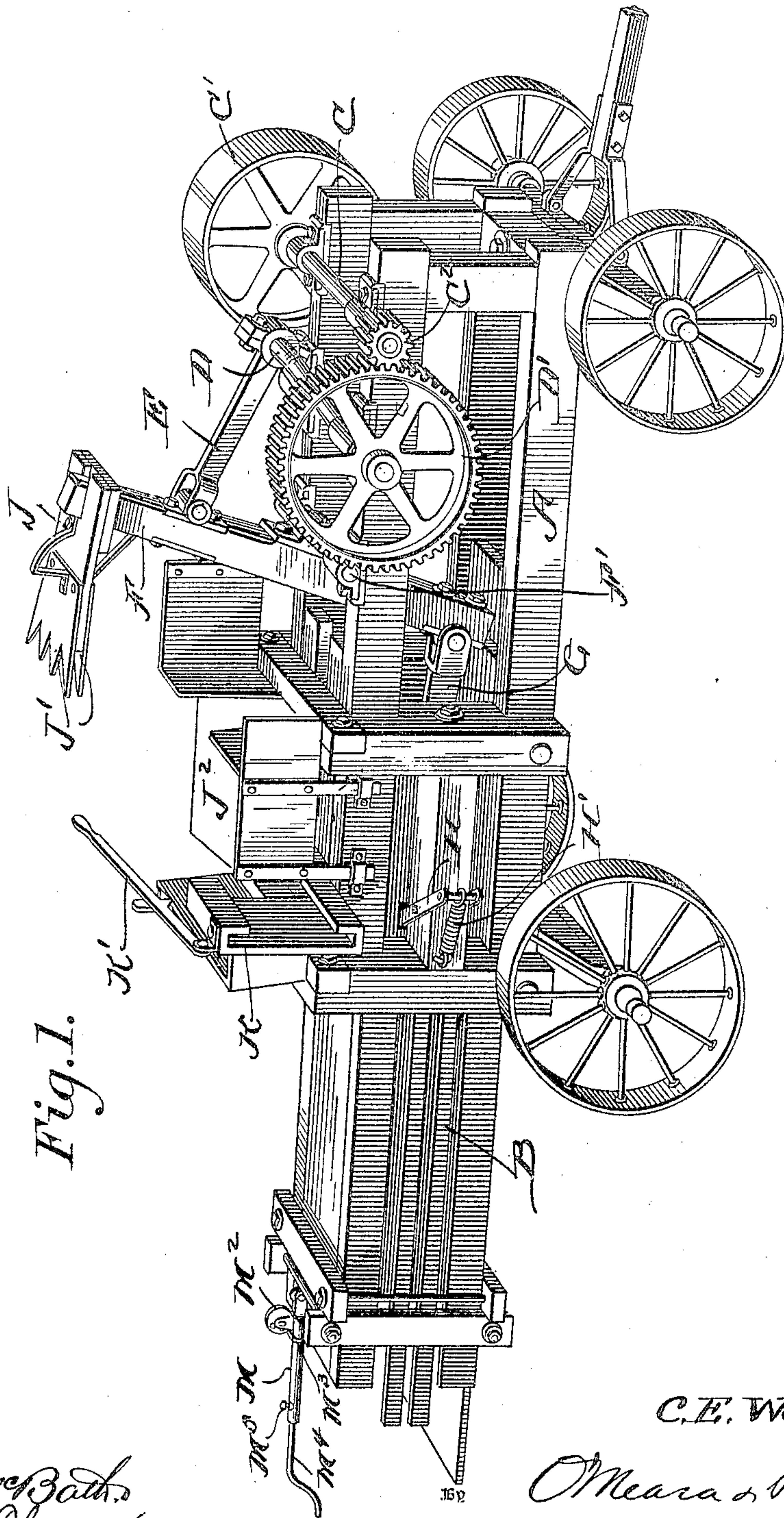


Fig. 1.

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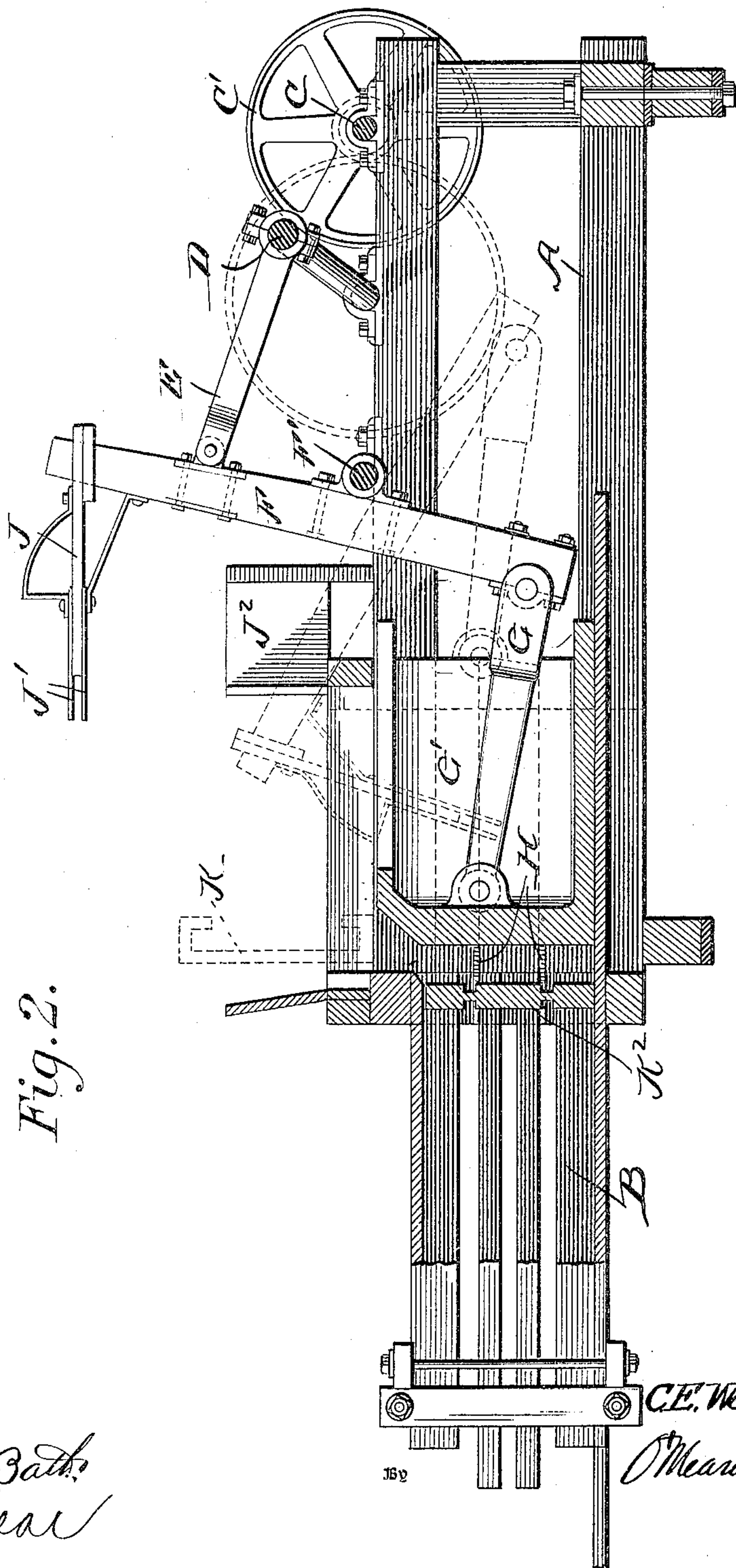
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3 SHEETS—SHEET 3.

Fig. 4.

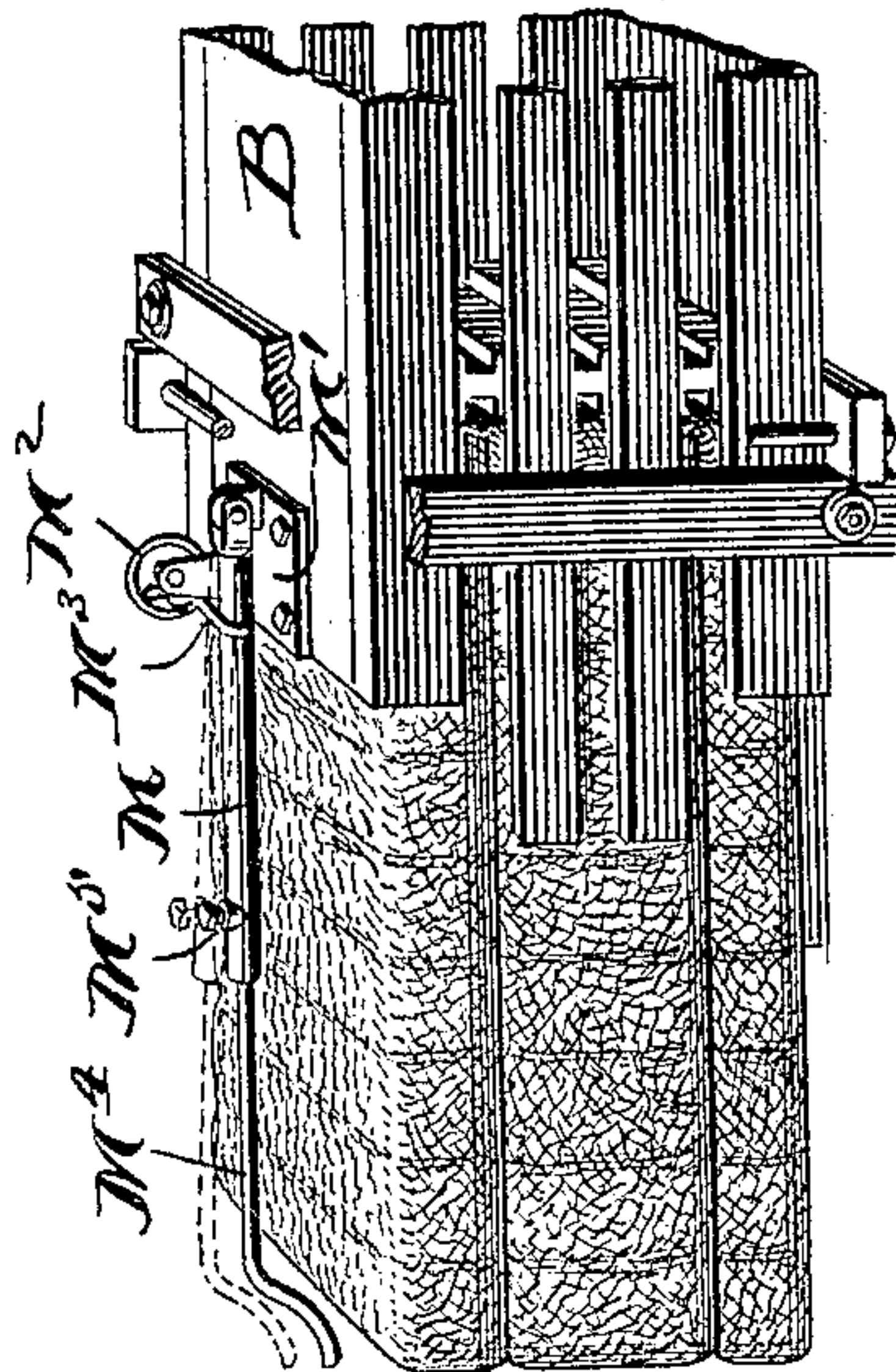
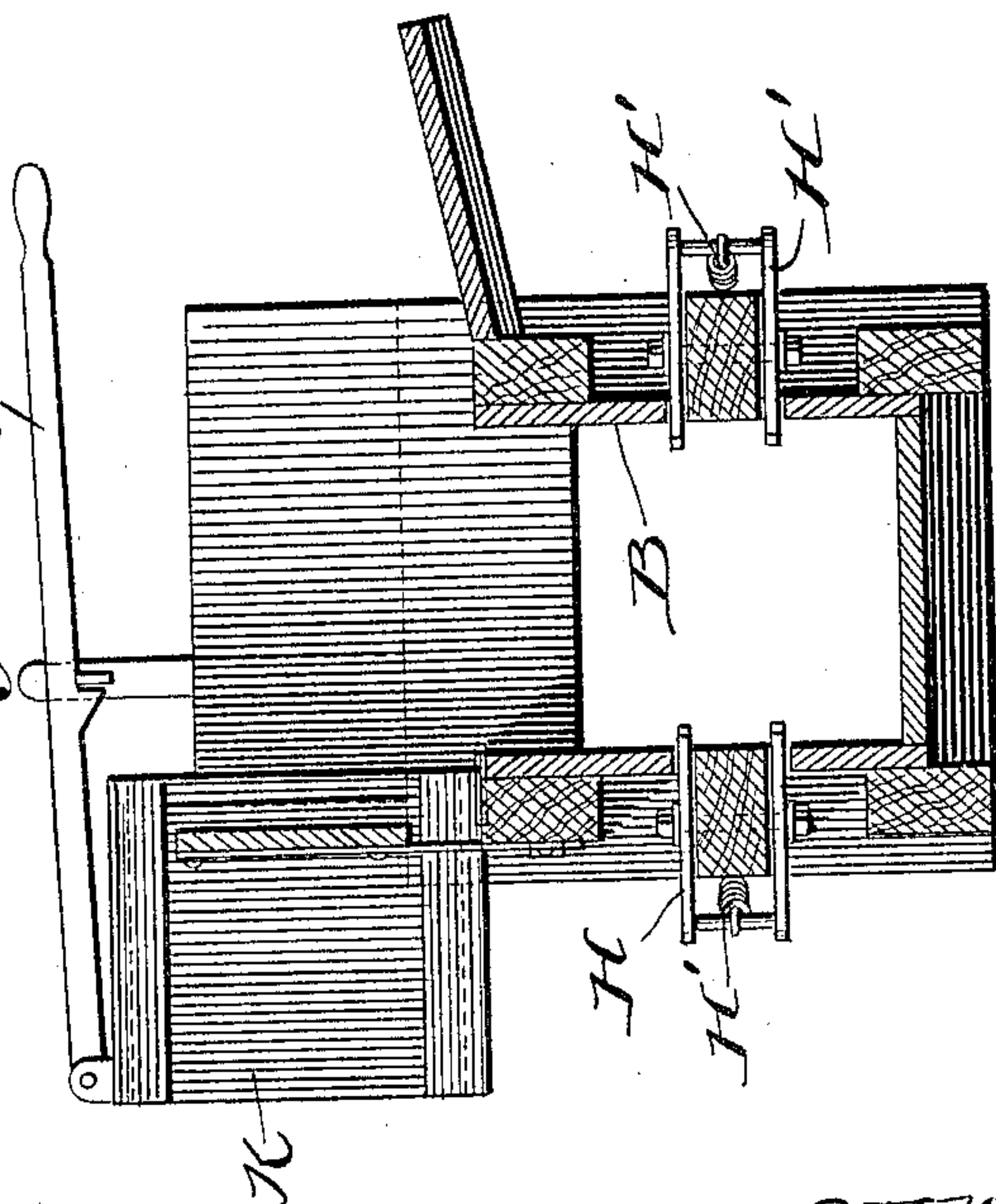


Fig. 3.



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UNITED STATES PATENT OFFICE.

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BALING-PRESS.

No. 822,411.

Specification of Letters Patent.

Patented June 5, 1906.

Application filed May 9, 1905. Serial No. 259,502.

To all whom it may concern:

Be it known that I, CHARLES E. WEHRENBURG, a citizen of the United States, residing at Mound City, in the county of Pulaski and State of Illinois, have invented a new and useful Improvement in a Baling-Press, of which the following is a specification.

This invention relates to baling-presses, and has for its objects the reduction of the movable parts to a minimum, thus enabling the parts to be made of a sufficient size to be strong and durable and at the same time by reason of the small number of such parts to practically reduce the weight of the entire press, whereby it is more readily moved from one part of the country to another; to provide a plunger which shall have a forward stroke decreasing in speed as the material becomes packed and having a quick return; to provide a feed-block which does not act independent of the movement of the plunger and cannot therefore descend into the feed-hopper prematurely, and thus interfere with the hopper feeding the material to be packed, and, further, to provide a signal which shall notify the operator when sufficient has been fed into the press to form one bale.

The invention consists of the usual hopper, feed-chamber, baling-chamber, and of a plunger working in the feed-chamber below the hopper. This plunger is connected by a pitman to the lower end of a lever which carries at its upper end a feed-block.

A rotatable crank-shaft is employed to which is connected a pitman, which is pivoted to the lever at a point above the fulcrum-point of the lever and in such a position that the pitman connecting the lever and crank is moved away from the fulcrum-point of the lever as the plunger is moved forward and approaches said point as the plunger is retracted, whereby the plunger commences its forward movement with a quick stroke and terminates it with a slow stroke and is quickly retracted.

In the accompanying drawings, Figure 1 is a perspective view of my baling-press. Fig. 2 is a longitudinal section through the press proper, the supporting-truck and signal apparatus being omitted. Fig. 3 is a vertical transverse section through the feed-hopper and feeding-chamber. Fig. 4 is a detail perspective view of the delivery end of the press,

illustrating the operation of the signal apparatus.

In the drawings, A represents a suitable truck on which is mounted the press, the baling-chamber being shown at B. Adjacent one end of the truck is a rotatable shaft C, provided with a belt-wheel C' at one end and a gear-wheel C² at the opposite end. A crank-shaft D is journaled upon the press or frame of the truck and is provided with a gear-wheel D', which meshes with the gear-wheel C². A pitman E is connected to the crank portion of the shaft D at one end and is pivoted at its opposite end to a lever F, which lever is pivotally mounted upon a shaft F' by means of a bearing F², secured upon the forward face of the lever F. The shaft F' is in the same plane as the shaft D, and its crank portion is alternately in a plane above and below the shaft F', while the end of the pitman E, which is connected to the lever F, is pivoted to the lever at a point above the shaft F' and rocks the lever F backward and forward, the lever assuming a vertical position when the plunger is near the end of its stroke. To the lower end and rear face of the lever F is pivoted a plunger-rod G, which is pivotally connected to the head of the hollow plunger G' of the usual construction. To the upper end of the lever F is secured a board J and to the free end of the board and upon opposite faces of the board are secured parallel metal plates J', toothed at their free ends, which plates form the feeding-block and when the plunger G' is withdrawn from the feed-chamber the feed-block J' is forced into the same, as shown in dotted lines in Fig. 2, the block J' working through a suitable hopper J². Adjacent this hopper is arranged the plate K, adapted to receive divisional blocks K², an operating-lever K' being mounted upon the block-holder or plate K. Upon each side of the feed-chamber, the sides of which are slotted, are pivotal open rectangular frames H, the free ends of which extend into the feed-chamber in advance of the plunger, and these frames are held in the desired position by springs H', the object of these frames being to prevent rearward movement of the division blocks K² after they have been placed in position. Upon the delivery end of the baling-press is arranged a tubular rod M, pivoted to a suitable base M', and upon the base is

placed a bell M^2 , having a movable clapper M^3 . A rod M^4 , which is curved downward at its free end, is slidably held in the tube M and is locked in its adjusted position by a set-screw M^5 .

The operation of the press is substantially similar to that of other presses of this type; but the construction shown is believed to have the following advantages: During the two-thirds of a revolution of the crank-shaft D the plunger G' will make its complete forward stroke, the plunger being retracted during the remaining one-third of the revolution of the crank-shaft. It will therefore be seen that the return stroke of the plunger will be much quicker than the forward stroke, and, furthermore, as the feeding-block is carried by the upper end of the same lever which drives the plunger there will be a very quick feed.

In operation when the plunger commences its forward movement the lever F is approximately in the position shown in the dotted lines in Fig. 2. It will be obvious that this will throw the pitman E into a position adjacent to the shaft F' and almost in line with the fulcrum-point of the lever F , and during the first one-fourth of a revolution of the crank-shaft D the plunger will make about one-half of its forward stroke, the movement upon the commencement of the stroke being very rapid; but as the pitman E rises and describes an arch above the fulcrum-point of the lever F it moves farther from that point, and the movement of the plunger becomes slower and the power exerted becomes greater as the leverage obtained by the pitman E increases, the slowest movement of the plunger and the greatest leverage of the pitman E being had as the plunger finishes its stroke. The throw of the plunger is approximately three times the length of the crank. During this stroke the crank-shaft D has made, as above stated, approximately two-thirds of the revolution and the return stroke is completed in approximately one-half of the time occupied by the forward stroke. It will be obvious that this gives a quick movement of the plunger with comparatively light pressure upon the commencement of the stroke when the material being baled is loose and offers little resistance to the forward movement of the plunger; but as the material becomes more packed and offers greater resistance to the advance of the plunger the speed of the plunger is gradually decreased and its power correspondingly increased, which in-

crease in power is in my press kept as near as possible in proportion to the increased resistance offered by the material being operated upon.

With this construction the work of baling is not only accomplished with great rapidity, but a great saving of power is also effected, as the largest percentage of power utilized is applied exactly at the time when it is required and when the plunger is in a position to do its most effective work.

It will also be noted that as the feed-block is connected to the same lever which operated the plunger it is impossible for the said block to be projected into the feed-hopper during any part of the forward stroke of the plunger or in advance of its proper entry, as is sometimes the case with the feed-blocks which are actuated independently of the means used to drive the plunger.

When a sufficient amount of material has been pressed to form a bale, the bale previously formed has been forced from the delivery end of the baling-chamber, as shown in Fig. 4, and with completion of the following bale, the bale being ejected, engages and lifts the rod M^4 , which lifts the tube M , thus actuating the clapper M^3 and sounding the bell M^2 . This notifies the operator that a new bale has been completed, and a new division-block is then placed in the feed-chamber. By having the rod M^4 adjustable the signal device may be set so that bales of greater or less length can be formed, as desired.

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

A device of the kind described comprising a crank-shaft, a shaft parallel thereto, a lever having a bearing on its forward face pivotally connected to the last-mentioned shaft, a plunger, a pitman, pivoted at one end to the plunger and at the opposite end pivotally connected to the rear face of the lever adjacent its lower end, a pitman pivotally connected to the crank-shaft and to the lever at a point substantially midway the fulcrum-point and the upper end of the lever, and a feed-block carried by the lever adjacent its upper end, the throw of the plunger being greater than the travel of the crank portion of the crank-shaft.

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Witnesses:

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