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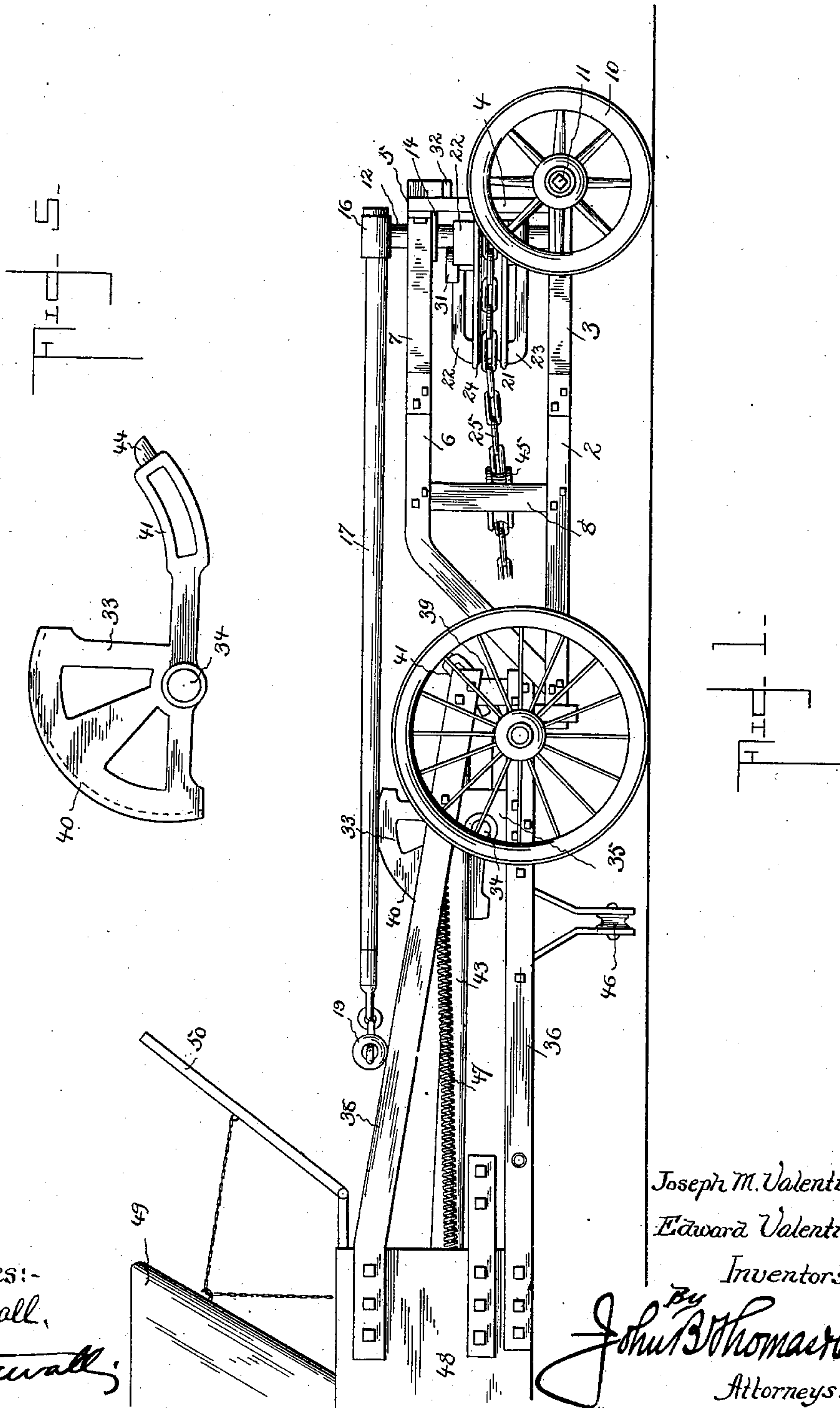
PATENTED MAR. 29, 1904.

J. M. & E. VALENTINE.  
HORSE POWER FOR BALING PRESSES.

APPLICATION FILED MAY 6, 1903.

NO MODEL.

3 SHEETS—SHEET 1.



Witnesses:-

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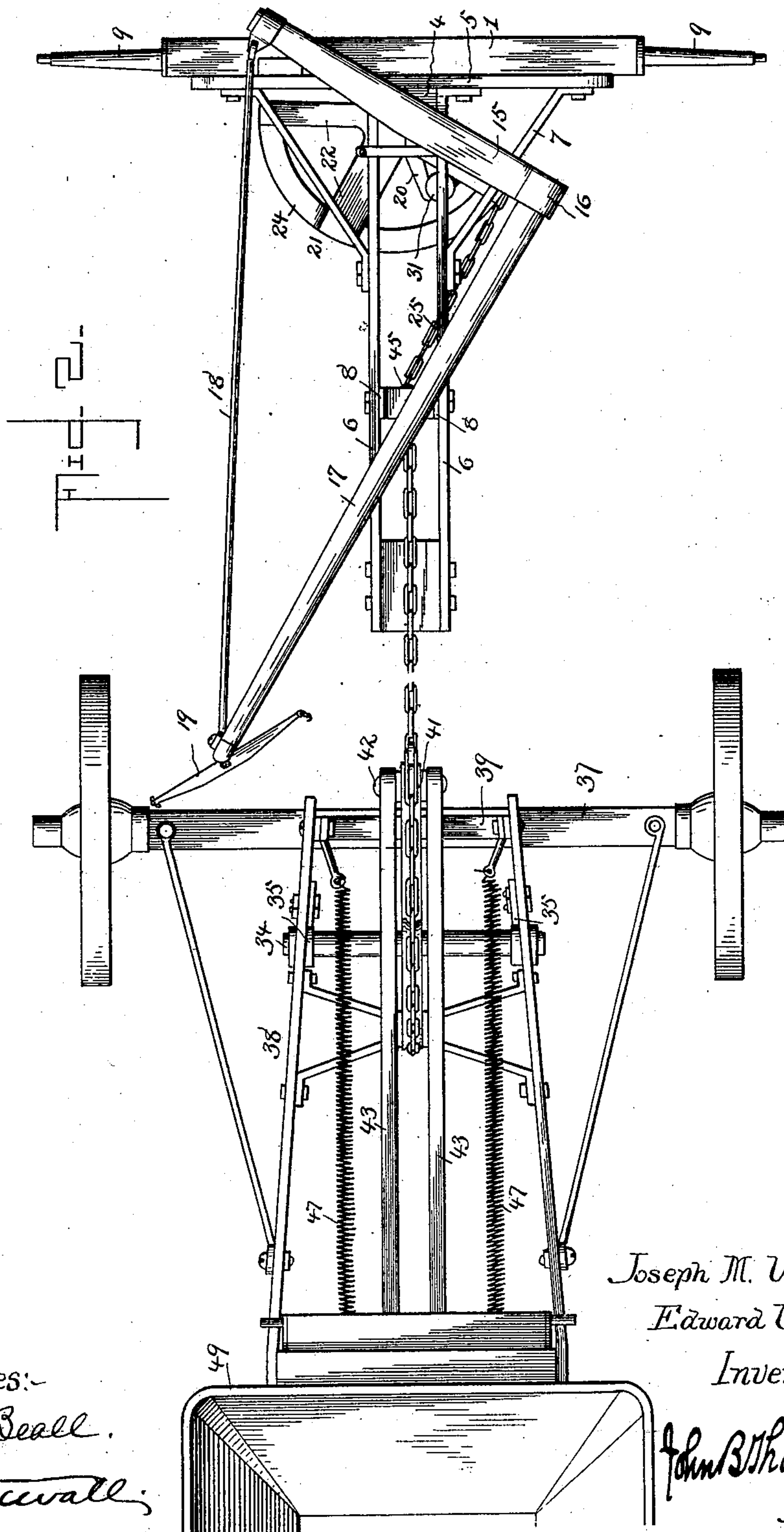
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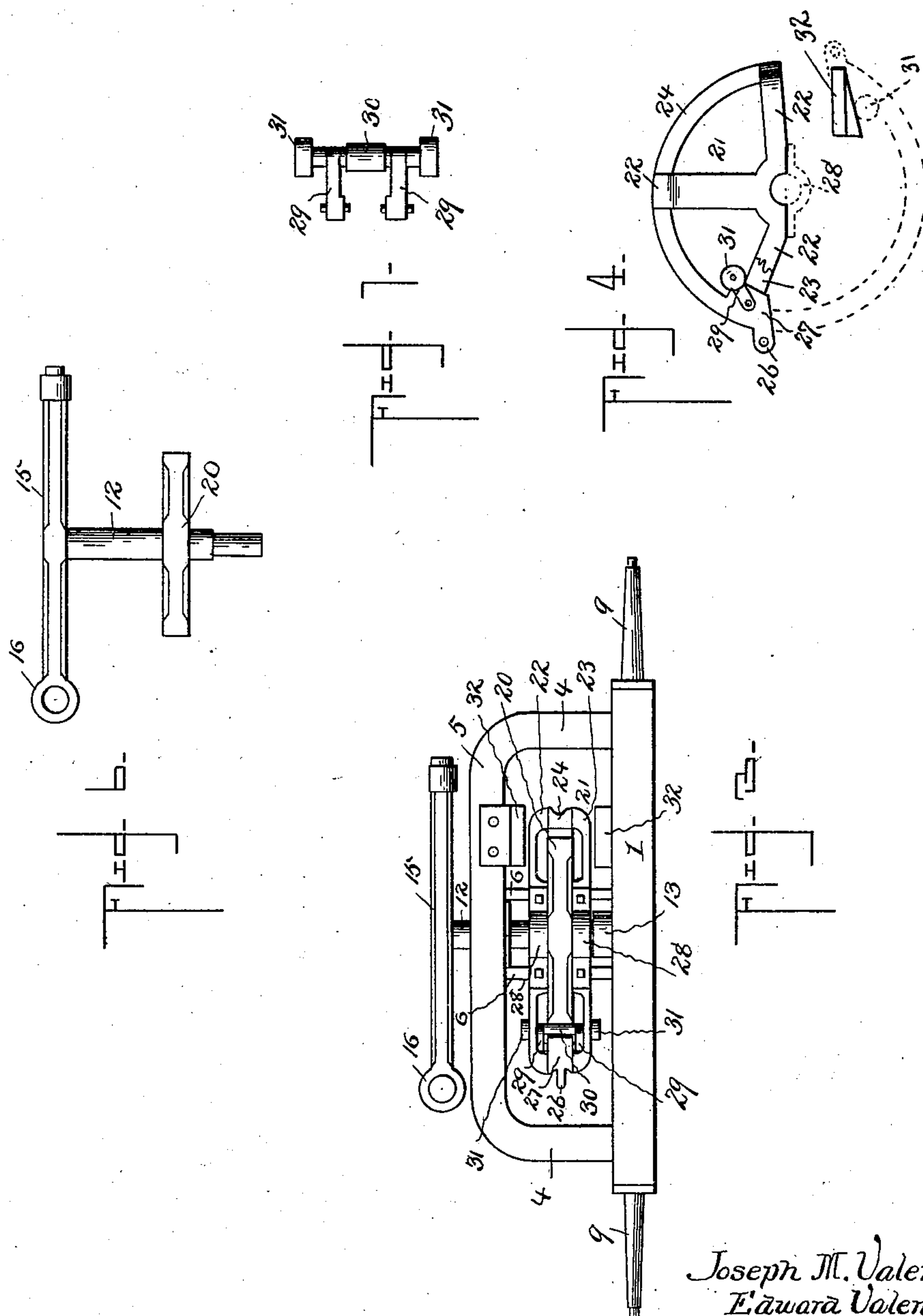
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3 SHEETS—SHEET 3.



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# UNITED STATES PATENT OFFICE.

JOSEPH M. VALENTINE AND EDWARD VALENTINE, OF LINCOLN, ILLINOIS,  
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ILLINOIS.

## HORSE-POWER FOR BALING-PRESSES.

**SPECIFICATION** forming part of Letters Patent No. 756,084, dated March 29, 1904.

Application filed May 6, 1903. Serial No. 155,919. (No model.)

*To all whom it may concern:*

Be it known that we, JOSEPH M. VALENTINE and EDWARD VALENTINE, citizens of the United States, and residents of Lincoln, in the county of Logan and State of Illinois, have invented a Horse-Power for Baling-Presses, of which the following is a specification.

The objects of our invention are to provide a portable horse-power mechanism which shall be light, strong, and durable in construction, may be readily arranged for operation, will transmit the power in such manner that a single horse can accomplish the work usually requiring two horses, will more quickly and tightly compress the bale, and can be conveniently drawn from place to place. These and other objects are attained by a particular construction and arrangement of parts by which the continuous rotary motion of the shaft carrying the sweep is converted into an intermittent reciprocating motion applied to the plunger of the baling-press through the intervention of simple and peculiar mechanism transmitting a maximum amount of the power.

Our invention consists, primarily, in providing the vertical shaft of the horse-power with a loosely-mounted segmental eccentric having trip mechanism by which an arm on the shaft may impart an oscillating motion thereto.

The following specification enters into a detail description of our invention, reference being had to the accompanying drawings, forming part of this specification, and what we claim as novel, and desire to protect by Letters Patent, is more specifically set forth in the appended claims.

In the drawings, Figure 1 is a side elevation showing the application of our invention, the baling-press and horse-power being arranged for transportation. Fig. 2 is a plan view, the parts being arranged for use and on a line with each other to provide a direct draft, the baling-press and horse-power being shown nearer than they would be in actual use. Fig. 3 is a rear view of the horse-power. Fig. 4 is a detail view of the segmental eccentric on the power-shaft, a part of one of the upper

arms being broken away to better show the tripping mechanism with which the cross-bar on the shaft engages. Fig. 5 is a detail view of the rock-arm to which the plunger is attached. Fig. 6 is a detail view of the power-shaft and parts carried thereby. Fig. 7 is a detail view of the tripping mechanism.

Like numerals of reference indicate like parts in all the views of the drawings.

We have herein shown our horse-power and transmitting mechanism applied to a baling-press; but it will be understood that its application is not restricted to this use, as the same may be employed wherever it is desired to convert the rotary motion of a horse-power to a reciprocating motion, and we therefore intend that our claims shall comprehend all other applications of the power mechanism hereinafter described.

In carrying out our invention the frame of the horse-power is made up of a transverse beam 1, constituting an axle, to the center portion of which are bolted a pair of parallel longitudinal beams 2, extending at right angles therefrom, the aforesaid beams 1 and 2 being braced to each other by diagonally-arranged bars 3. To the transverse beam 1 are connected vertical standards 4 4, the upper ends of which are connected by a transverse beam 5, and to the center portion of the latter are connected parallel longitudinal beams 6 6, located above the aforesaid beams 2 and at their forward ends curved downward to be joined thereto. These upper longitudinal beams are braced to the transverse beam 5 by diagonal braces 7, similar to the brace-bars 3, and near the forward end of the frame thus constructed are vertical standards 8 8, connecting the upper and lower longitudinal beams. This frame is adapted to lie flat upon the ground when the horse-power is in use, and to provide for easily and conveniently moving the same from place to place the transverse beam 1 is provided at its ends with spindles 9, formed on or attached thereto, adapted to receive the wheels 10, which latter are held upon the spindles by nuts 11, so as to be readily removable therefrom.



The frame just described is preferably made up entirely of iron, so as to be as light as possible consistently with the required strength; but obviously the same could be constructed of wood, its purpose being to properly support and brace the vertical power-shaft.

12 designates a power-shaft which is stepped at its lower end in a block 13, bolted to the frame between the lower longitudinal beams 2 and at its upper end bears in a two-part bearing-box 14, bolted by a cross-bar 4<sup>x</sup> to the upper transverse beam 5 between the longitudinal beams 6. The upper end of this power-shaft is provided with a cross-arm 15, having a socket 16 at one end into which the sweep 17 is fitted, the latter being braced by a rod 18, extending from an intermediate point thereof to the opposite end of the cross-arm, and to the outer end of this sweep is connected a swingle tree 19, to which the horse or other draft-animal is hitched, as is usual. Within the frame the power-shaft is provided with a cross-bar 20, formed integrally therewith or rigidly attached thereto. This cross-bar travels within a segmental eccentric 21, composed of upper and lower sets of arms 22 and 23, respectively, between the outer ends of which are bolted a grooved rim 24, over which the chain 25 passes, said chain being connected to the wider end of the segmental eccentric, and for this purpose the latter is provided with an extension or ear 26, being a part of the rim, which latter is also extended inward at this point to provide a plate 27, located between the adjacent arms. The arms are spaced apart to permit of the travel of the cross-bar 20 and to also receive the trip mechanism hereinafter described. The segmental eccentric is loosely mounted on the vertical power-shaft, being coupled thereto by metal straps 28, bolted, respectively, to the arms 22 and 23. Being thus mounted on the shaft, the segmental eccentric is permitted a rocking movement to draw upon the chain and release the same for the purpose hereinafter explained.

The trip mechanism consists of two crank-arms 29, loosely mounted between a pair of arms 22 23 and carrying between their outer or free ends a loosely-journaled roller 30, with which latter the ends of the cross-bar 20 are adapted to contact for turning the segmental eccentric with the power-shaft, and for the purpose of tripping these crank-arms to disengage the roller from the end of the cross-bar the outer ends of said crank-arms are extended and provided with rollers or disks 31, adapted to ride upon inclined ways 32 on the frame.

The operation of the horse-power is as follows: The power-shaft being rotated continuously in one direction by the sweep to which the horse is attached, one end of the cross-bar coming in contact with the roller 30 will move the crank-arms, so that they will bind

against the adjacent arms of the segmental eccentric, so that the latter will turn with said cross-bar a predetermined distance or until the rolls 31, riding upon the inclined ways 32 release said crank-arms, permitting the segmental eccentric to return to its initial position, whereby it is similarly engaged by the other end of the cross-bar and the aforesaid operation repeated. This gives an oscillating motion to the segmental eccentric, which is applied in the manner hereinafter explained.

33 designates a rock-arm provided with gudgeons 34, by which it is journaled in bearing-boxes 35, bolted to longitudinal beams 36, which latter are attached at their forward ends to the baling-box and at their rear ends supported upon an axle 37 and braced by inclined beams 38, also attached to the baling-box and to the rear ends of the aforesaid beams by short standards 39. The said rock-arm is provided at one end with a segmental eccentric 40, and the other end, 41, is curved and slotted to receive and guide the pin 42 at the outer end of the plunger 43, by which said plunger is connected to the said arm. At the outer end of the curved portion of the rock-arm is a lug 44, by which the chain 25 from the horse-power is attached to said arm, the said chain being guided from the horse-power over grooved rollers 45 and 46, Fig. 2, supported by the frames of the horse-power and baling-press, respectively, the roller 46 guiding the chain so that it will pass over the segmental portion of the rock-arm and may be located for a direct end draft, as shown in Fig. 2, or a side draft, as shown in Fig. 1, in which latter position it is designated as 46<sup>x</sup>.

The horse-power operates to move the plunger of the baling-press in the direction to compress the bale, and in order to return said plunger after each such movement strong helical springs 47 are attached to the plunger and at their opposite ends to the inclined beams 38.

The baling-box 48 is of any approved construction, being provided with the hopper 49 and hinged shield 50 and may be mounted on wheels for convenience in moving the same from place to place.

By the special construction of rock-arm 33 and manner of connecting the same to the plunger and to the chain the power is effectively applied to the plunger, the connecting-pin of the plunger being at the outer end of the slot at the beginning of the stroke and gradually travels to the inner end as the arm is rocked.

The operation of the machine will be readily understood from the foregoing description, in connection with the accompanying drawings, for as the segmental eccentric of the horse-power is carried a partial rotation by the cross-bar it will draw upon the chain and the latter being connected to the segmental eccentric portion of the rock-arm will rock said arm, so that the curved and slotted end there-



of will push the plunger into the baling-box and compress the hay or straw that may be fed therein, and when the trip mechanism of the segmental eccentric on the power-shaft is tripped the said segmental eccentric will be released, permitting the springs to return the plunger and by means of the chain move the segmental eccentric of the horse-power back to its initial position, where it is engaged by the other end of the cross-bar to give a second stroke to the plunger, and so on. In this manner the continuous rotary motion of the sweep in connection with the springs attached to the plunger provide for reciprocating said plunger, and by providing a cross-bar on the power-shaft two reciprocations are given to the plunger on each revolution of the sweep, it being understood that as the said cross-bar extends at opposite sides of the power-shaft both ends thereof operate to partially turn the segmental eccentric.

As heretofore stated, the horse-power, as well as the baling-press, is mounted on wheels, so that it may be readily wheeled from place to place, and in setting it for operation the wheels are merely removed and the frame permitted to lie flat upon the ground, the shape of the supporting-frame being such that it will firmly hold in place.

Though we have shown and described the segments on the power-shaft and rock-arm as being eccentric to their axes, it will be understood that the same may be concentric; also, that other means may be employed for returning the plunger after its forward operation by the horse-power.

Other modifications or changes may be made in the construction and arrangement of parts constituting our invention within the spirit and scope of our claims, and therefore we do not wish to be limited in our protection to what is herein precisely shown and described.

Having thus described our invention, what we claim is—

1. In a horse-power, the combination, of a power-shaft to which the sweep is connected, a segment loosely mounted on the shaft and having the chain attached to one end thereof, a bar fixed to the shaft, trip mechanism carried by the segment and with which the bar is adapted to engage, and means for operating said trip mechanism.

2. In a horse-power, the combination, of a power-shaft to which the sweep is connected, a segmental eccentric loosely mounted on the shaft and having the chain attached to the outer end thereof, a bar fixed to the shaft, trip mechanism carried by the segment and with which the bar is adapted to engage, and means for operating said trip mechanism.

3. In a horse-power, the combination, of a power-shaft to which the sweep is connected, a segment loosely mounted on the shaft and to which the chain is attached, trip mechanism carried by said segment, means for operating

said trip mechanism, and a cross-bar fixed to the shaft and the ends thereof adapted to be engaged by and disengaged from the trip mechanism.

4. In a horse-power, the combination, of a power-shaft to which the sweep is connected, a cross-bar fixed to said shaft, a segment loosely mounted on the shaft and having the chain attached thereto, a crank mounted in the eccentric and adapted to be moved so that the connecting portion thereof will engage the ends of the cross-bar, and means for moving said crank to disengage the cross-bar.

5. In a horse-power, the combination, of the power-shaft to which the sweep is connected, a cross-bar on said shaft, a segment loosely mounted on the shaft and having the chain attached thereto, a crank mounted in the eccentric and adapted to be moved so that the connecting portion thereof will engage the ends of the cross-bar, and a cam-plate on the supporting-frame of the horse-power for moving said crank out of engagement with the cross-bar.

6. In a horse-power, the combination, of the power-shaft to which the sweep is connected, a cross-bar on said shaft, a segment loosely mounted on the shaft and to which the chain is attached, a crank mounted in the eccentric and adapted to be moved so that the connecting portion thereof will engage the ends of the cross-bar, rollers at the ends of the connecting portion of the crank and disposed beyond the sides of the eccentric, and a cam-plate on the supporting-frame on which said rollers ride to move the crank out of engagement with the cross-bar.

7. In a horse-power, the combination, of the power-shaft to which the sweep is connected, a cross-bar fixed to said shaft, a segment loosely mounted on the shaft and comprising arms carrying a grooved rim to which the chain is attached, the said arms being spaced apart, a crank mounted between the arms and carrying a roller with which the ends of the cross-bar are adapted to engage, rollers at the ends of the connecting portion of the crank, and a cam-plate on the supporting-frame and upon which the rollers ride to disengage the crank from the cross-bar.

8. In a horse-power for baling-presses, the combination with the supporting-frame comprising an axle, vertical standards connected by a cross-bar at their upper ends, and upper and lower longitudinal beams braced to the axle and upper cross-bar, of a vertical power-shaft supported in said frame, a segmental lever loosely mounted thereon and having its arms spaced apart, a cross-bar fixed to the shaft between the arms of the segment and adapted to rotate between said arms, a crank pivoted between a pair of the arms of the segmental lever, a stop on said lever adapted to limit the movement of the crank in one direction or when it is engaged by the cross-bar,



and means on the supporting-frame for moving the crank out of engagement with the cross-bar.

9. In a horse-power for baling-presses, the  
5 combination with the supporting-frame comprising an axle, vertical standards connected by a cross-bar at their upper ends, and upper and lower longitudinal beams braced to the axle and upper cross-bar, of a vertical power-  
10 shaft supported in said frame, a segmental lever loosely mounted thereon and having its arms spaced apart, a cross-bar fixed to the shaft between the arms of the segmental lever and adapted to rotate between said arms, a  
15 crank pivoted between a pair of the arms of the segmental lever, a stop on said lever adapted to limit the movement of the crank in one direction or when it is engaged by the cross-bar, rollers at the ends of the connecting portion of the crank and beyond the sides of the  
20 lever, and cam-plates on the supporting-frame upon which said rollers ride to move the crank out of engagement with the cross-bar.

10. In a horse-power for baling-presses, the  
25 combination with the supporting-frame comprising an axle, vertical standards connected by a cross-bar at their upper ends, and upper

and lower longitudinal beams braced to the axle and upper cross-bar, of a vertical power-shaft supported in said frame, a segmental  
30 lever loosely mounted thereon and having its arms spaced apart, a cross-bar fixed to the shaft between the arms of the segmental lever and adapted to rotate between said arms, a crank pivoted between a pair of the arms of  
35 the segmental lever, a stop on said lever adapted to limit the movement of the crank in one direction or when it is engaged by the cross-bar, and cam-plates on the supporting-frame adapted to move the crank out of engagement  
40 with the cross-bar; together with a chain attached to the segmental lever, and means adapted to move the lever in one direction or opposite to the movement imparted by the cross-bar.  
45

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

JOSEPH M. VALENTINE.  
EDWARD VALENTINE.

Witnesses:

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