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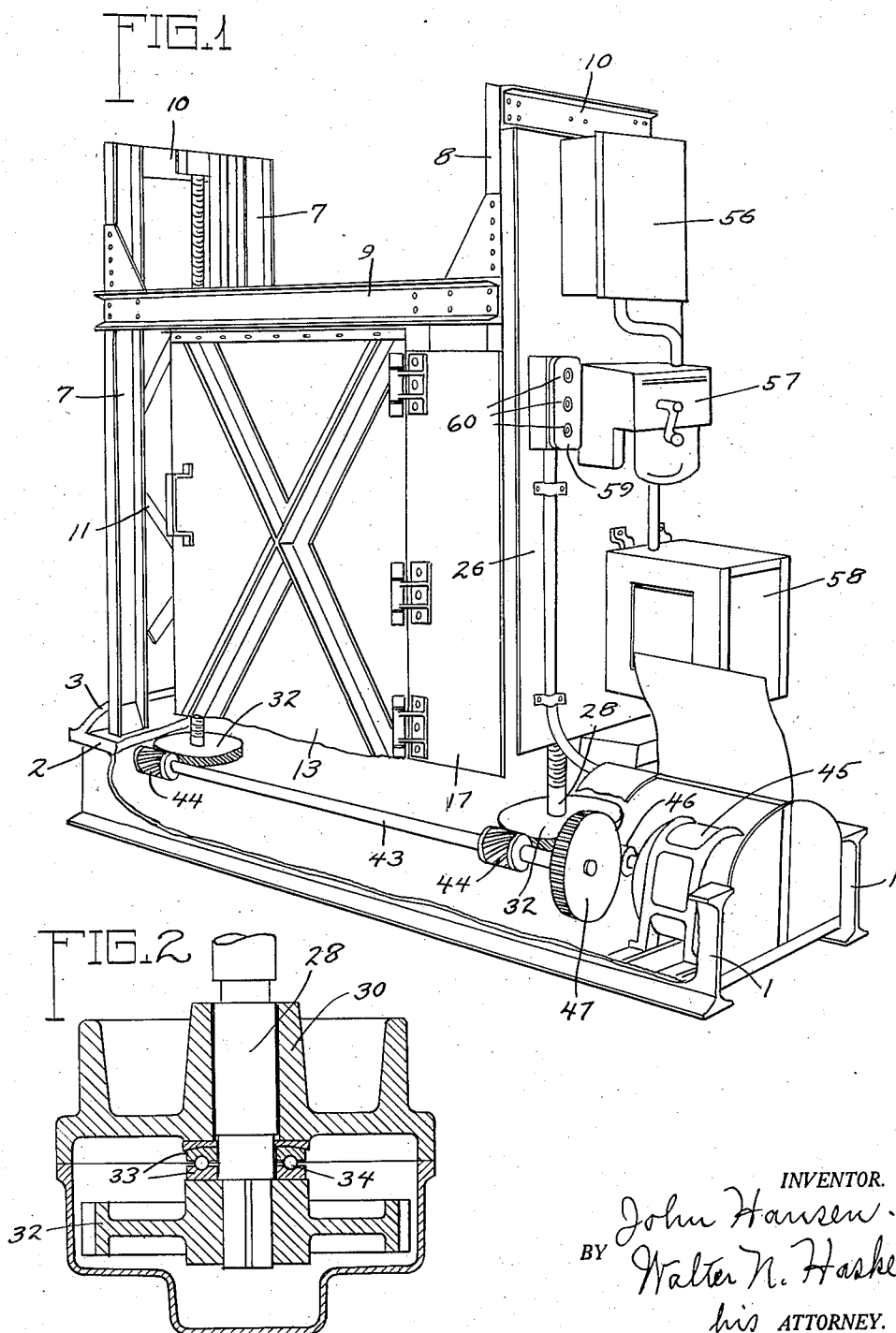
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J. HANSEN

POWER BALING PRESS

Filed Jan. 10, 1925

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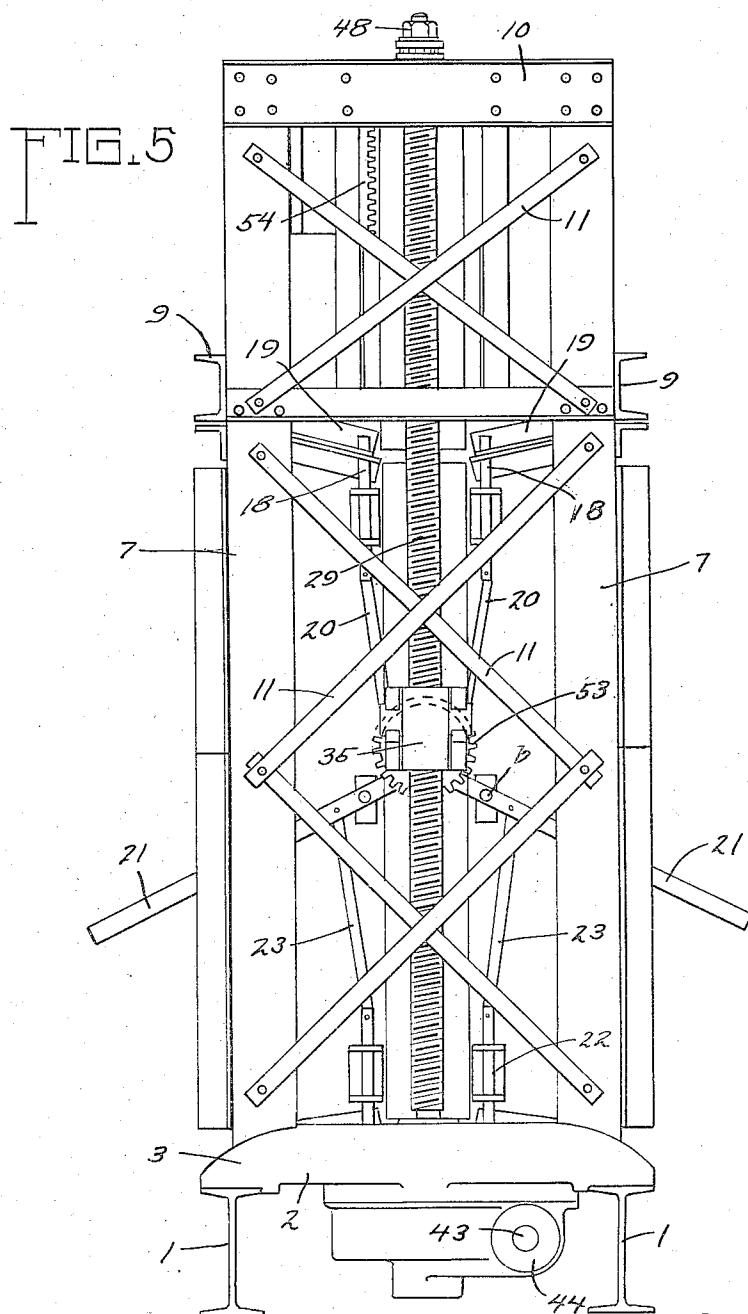
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J. HANSEN

POWER BALING PRESS

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6 Sheets-Sheet 3



INVENTOR.

77 INVENTOR.
John Hansen.
BY Walter N. Haskell,
his ATTORNEY.

Oct. 18, 1927.

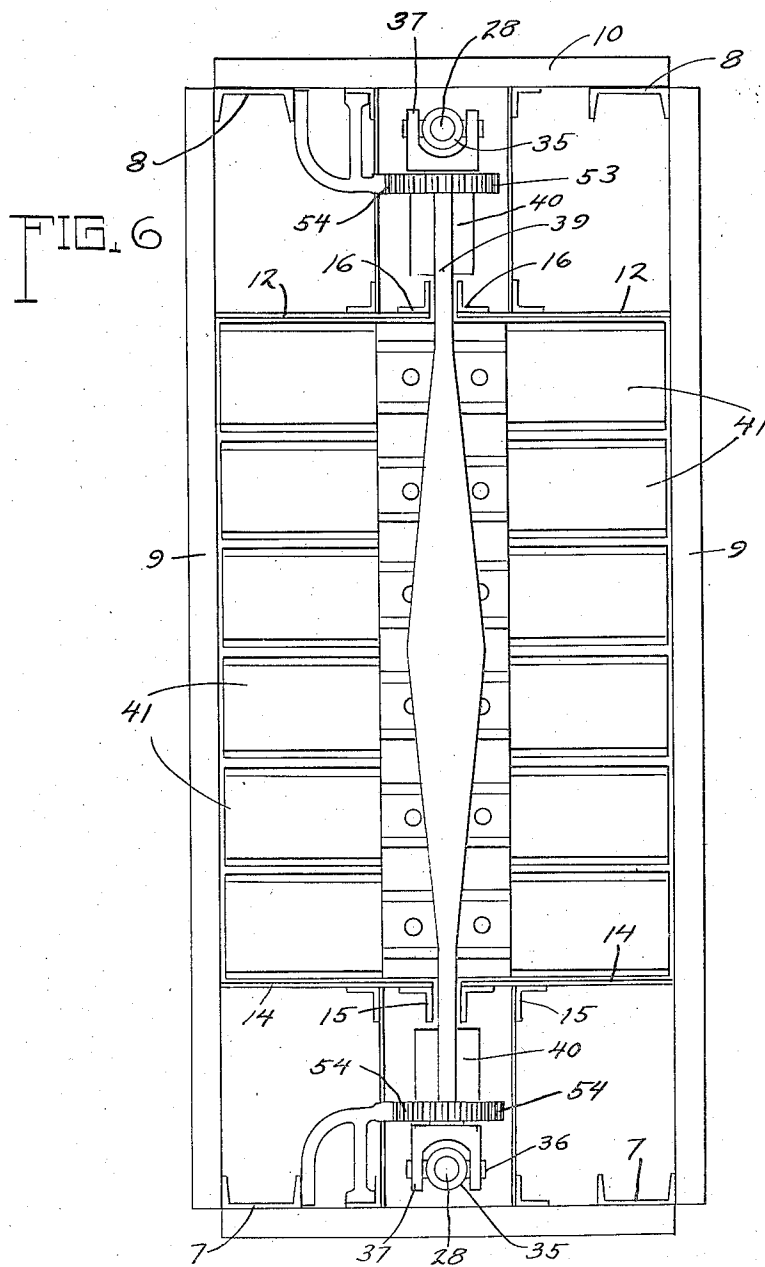
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J. HANSEN

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6 Sheets-Sheet 4



INVENTOR.

John Hansen,
BY Walter N. Haskell.
his ATTORNEY.

Oct. 18, 1927.

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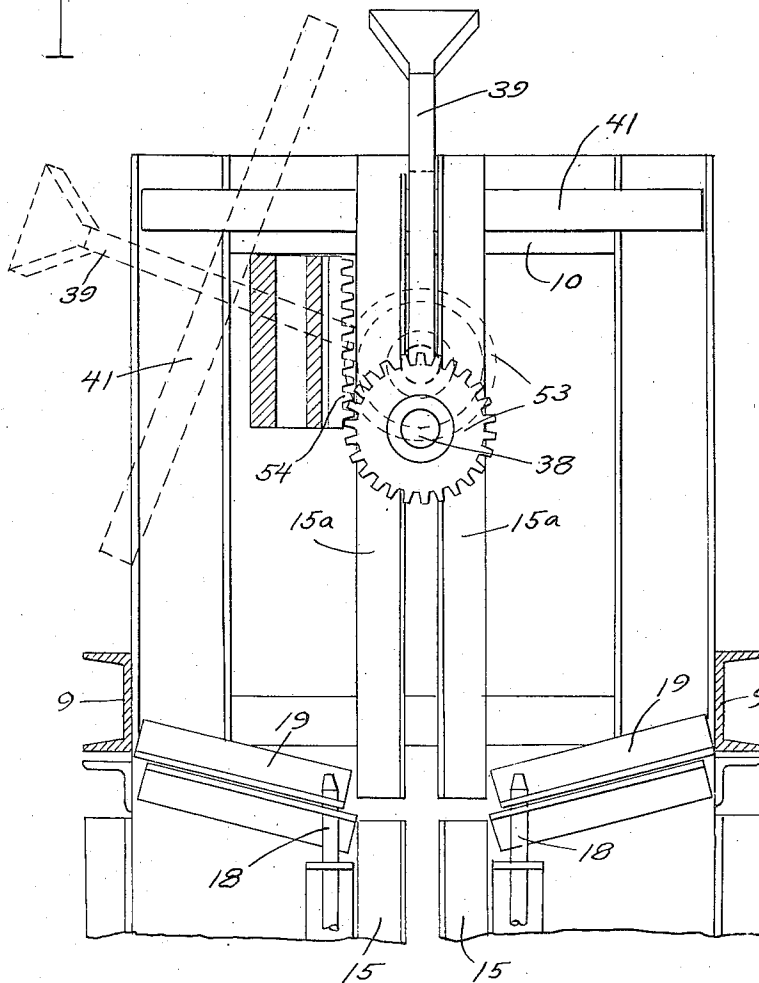
J. HANSEN

POWER BALING PRESS

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FIG. 7



INVENTOR.
John Hansen
BY *Walter N. Haskell*
his ATTORNEY.

Oct. 18, 1927.

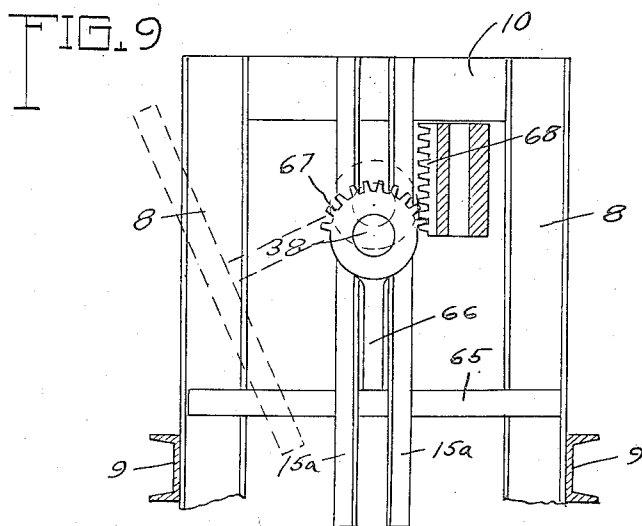
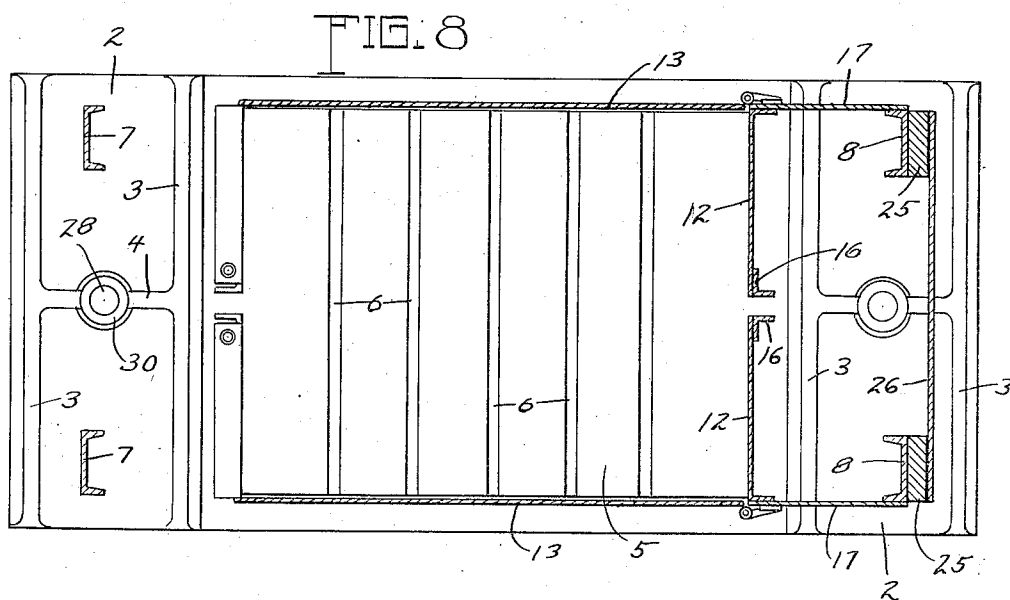
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J. HANSEN

POWER BALING PRESS

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6 Sheets-Sheet 6



INVENTOR.

John Hansen
BY Walter N. Haskell,
his ATTORNEY.

Patented Oct. 18, 1927.

1,645,906

UNITED STATES PATENT OFFICE.

JOHN HANSEN, OF BETTENDORF, IOWA, ASSIGNOR TO DAVENPORT MANUFACTURING COMPANY, INC., OF DAVENPORT, IOWA.

POWER BALING PRESS.

Application filed January 10, 1925. Serial No. 1,565.

My invention has reference to power baling presses, and is specially designed for use in large stores and factories, where there is a considerable accumulation of waste paper and similar refuse matter. It is of that class in which it is intended to have the material fed in at the top, and one of the features thereof consists in simple and novel mechanism for tipping the platen to one side, out of the way, at the upper end of its movement.

The device includes a receptacle for the waste material, having hinged side plates, which, with angular end extensions, comprise three sides of the receptacle, and which, when open, permit the contents of the machine to be approached and removed from either side, as desired.

The machine is shown and described herein as being arranged for and driven by electrical means, but the same can be readily adapted for operation by other kinds of power. The use of electric power insures a quick response to the requirements of the operating mechanism, and renders the same more easily handled. This includes devices for automatically arresting the movement of the platen downwardly, in the compressing operation, when the pressure attains a predetermined intensity. Limit switches are also installed in connection with the electrical system, to automatically check the movement of the platen at a point in its upward movement, and at another point in its downward movement.

The above-named, and other features and advantages of the invention will more fully appear from the following specification, reference being had to the accompanying drawings, in which:

Figure 1 is a perspective of the machine, in closed position, with some of the parts broken away.

Fig. 2 is an enlarged detail of the footing of one of the shafts 28, in vertical section.

Fig. 3 is a longitudinal vertical section of the machine.

Fig. 4 is a detail of one of the supports for the upper ends of the shafts 28, partly in vertical cross-section.

Fig. 5 is an end elevation of the machine, showing the door locking mechanism.

Fig. 6 is a plan view of the superstructure.

Fig. 7 is an end view of the superstructure, with part of the frame cut away.

Fig. 8 is a plan view of the machine, with some of the parts in horizontal cross-section.

Fig. 9 is a view similar to Fig. 7, showing a modified arrangement of the invention.

The machine is supported on a base, formed of a pair of I-beams 1, united by cross-plates 2, provided at their edges with ribs 3, united at a central point by cross-ribs 4. Between the plates 2 is fixed a floor 5, provided at regular intervals with channels 6, for the passage of wires in binding the completed bale of paper. Near the ends of the base are supported corner-posts 7 and 8, united at front and back by channel-plates 9. Each pair of said posts is also united at their upper ends by cross-plates 10, and further braced by cross-ties 11. (Fig. 5.)

The receptacle for the material is formed of a pair of spaced-apart end-plates 12, to the outer edges of which are hinged side plates 13, bent at their free ends into end-plates 14, parallel with the plates 12, and similarly spaced. The edges of the end-plates 14 are reinforced by angle-plates 15, and the inner edges of the plates 12 are similarly strengthened by angle-plates 16. (Fig. 8.) The outer edges of the plates 12 are bent at a right angle and connected by plates 17 with the posts. The doors 13 may be locked in a closed position by fastening means shown in Fig. 5 of the drawings, consisting of a pair of bolts 18 slidably mounted on the outer faces of the end-plates 14, and adapted for engagement with openings in plates 19, fixed to the frame of the machine. The bolts 18 are connected by links 20 with the inner ends of a pair of levers 21, pivoted to the end-plates 14, as at 6. At the lower ends of the plates 14 are slidably mounted a pair of bolts 22, adapted to enter openings in the lower part of the frame, not shown in the drawings. The bolts 22 are united by links 23 with the levers 21, at points between the fulcrums and outer ends of said levers. A movement of either of said levers operates to simultaneously lock or release the bolts connected therewith. The fastening means just described, when in a locked position, provide a rigid resistance against the pressure exerted in the receptacle, either in the direction of the side plates 13 or end plates 14.

Secured to the outer faces of the posts 8 are spacers 25, to which is secured a plate 26, forming a panel for the support of cer-

tain devices used in controlling the operation of the machine, which will be herein-after more fully set forth.

Fixed to the inner faces of the cross-plates 10 is a pair of bearings 27, (Fig. 3) from which is supported a pair of shafts 28, so as to be rotatable therein. Said shafts are provided with threads 29, and the lower end of each of said shafts is united in a bearing 30 in one of the tie-ribs 4. The lower end of each of said shafts is threaded to receive a nut 31, above which is fixed to the shaft a helical gear wheel 32, separated from the bearing 30 by plates 33, provided in their adjacent faces with ball races for a series of balls 34.

On each of the shafts 28 is a traveller 35, internally threaded to correspond with the threads on said shafts, said travellers being fitted with trunnions 36, upon which are rockingly mounted bearings 37, from which shafts 38 are projected inwardly. Rockingly supported on said shafts is a cross-beam 39, by means of bearings 40 on the ends of said cross-beam. Fixed to the lower face of the cross-beam 39 is a series of channel-plates 41, comprising the compression member or platen of the machine, such platen being of a suitable size to move vertically in the receptacle. A coincident rotation of the shafts 28 operates to move the travellers 35 and parts supported thereby upwardly or downwardly, depending upon the direction of rotation of said shafts.

Movement is imparted to the shafts 28 from a shaft 43 rotatably mounted in the base of the machine, and upon which are fixed gear-pinions 44, in engagement with the wheels 32 on the lower ends of the shafts 28. Movement of the shaft 43 is derived from an electric motor 45, in one end of the base, by means of a gear-pinion 46 on the motor shaft, in mesh with a gear-wheel 47 on the shaft 43. The pinion 46 is considerably smaller than the wheel 47, so that the speed of such wheel and the shaft 43 will be correspondingly reduced.

The upper ends of the shafts 28 are threaded, and fitted with nuts 48, between which and the bearings 27 are inserted ball-bearing plates 49 and 50, (Fig. 4) separated by balls 51. In the greater part of its movement portions of the cross-beam 39 near the ends thereof travel in the channels in the ends of the receptacle, and in continuations of such channels formed by extensions 15^a in the superstructure. When the platen is supported at a point where it is not in engagement with the material in the receptacle the weight of such platen and appurtenant devices will be sustained entirely by the bearings 27 and anti-friction devices thereon, but upon the platen being moved downwardly into engagement with

the material in the receptacle, and beginning to exert a pressure thereon, the direction of the load is shifted, and a force exerted by the platen and travellers 35 in an upward direction upon the screws 29. The resistance of the mechanism at the upper ends of the shafts 28 is thereupon transferred to the lower ends thereof, the upward stress being borne by the anti-friction devices provided at that point. Said shafts 28 are capable of a limited amount of vertical movement in the bearings 27 and 30, to allow for the transfer from one set of resistance devices to the other.

Connected with the outer ends of the bearings 40, so as to be rotatable therewith, are gear-pinions 53, the teeth of which are adapted to engage the teeth of a pair of gear-racks 54 supported in the upper part of the frame. In the upward movement of the platen, as the cross-beam 39 is freed from the extensions 15^a at the upper ends thereof, the racks 54 are simultaneously engaged by the pinions 53, at the lower ends of such racks, as shown in Fig. 7. A continued upward movement of the travellers 35 causes a partial rotation of the pinions 53, with a consequent tipping of the cross-beam and platen to one side of the machine, as shown in broken lines in said Fig. 7. This leaves the top of the machine clear for the delivery of material into the receptacle. On the return movement of the travellers the platen is rocked back into position again, ready for its downward movement. The superstructure is of a sufficient height to permit the platen to be carried to a considerable distance above the top of the receptacle, and the return movement of such platen is in a combined inward and downward direction, making it possible to pile the material above the top of the receptacle, the excess material being forced downwardly into the receptacle in its downward movement. This gives a greater capacity to the machine, than in those which can only be partially filled, or only filled as far as the upper edge of the box.

The operation of the motor may be under the control of well-known electrical devices, stationed in encasements on the outer face of the panel 26, as shown in Fig. 1. For example, the box 56 may contain a safety switch, under the control of a circuit breaking device in the casing 57, so arranged that when the amperage of the current reaches a pre-determined point, superinduced by the pressure exerted by the platen upon the contents of the receptacle, the circuit is automatically broken, and the machine ceases to operate. At 58 is shown an enclosure for other electrical devices of a standard type, the purpose of which is to cause the motor to operate in a given direction, or the reverse

thereof. These devices are under the control of switches in a box 59, provided with a set of push-buttons 60, one of which operates to start the motor to move the platen in a downward direction, one to cause an upward movement thereof, and another to interrupt the movement of the motor and platen. Limit switches are also provided, one at 62 and the other at 63, Fig. 3, which are in the path of the bearing 37, and are actuated by said bearing to break the circuit, and interrupt the movement of the machine at the extreme upward and downward points in such movement.

The upper end of the extension 15^a away from which the platen moves in its rocking action is projected slightly higher than that of its companion piece, so as to steady the cross-beam 39 until it begins to tip outwardly as shown in Fig. 7. It will be evident that, as a matter of convenience, the racks 54 can be arranged on either side of the machine, and the platen tipped accordingly.

The trunnion support of the bearings 40 gives a flexible connection to the ends of the cross-beam 39 with the travellers 35, and prevents the threads of such travellers becoming jammed on the screws 29, in case a greater strain should come on one end of the platen and cross-beam than on the other.

In Fig. 9 is shown a modified arrangement of the device, wherein a platen 65 is suspended by a cross-beam 66, supported at its ends on the shafts 38. The pinions 53 are replaced by segment-gears 67, which engage gear racks 68 in the upper part of the frame.

By such engagement, and the continued upward movement of the shafts 38 the platen is swung to one side, as shown in broken lines in said Figure 9. The receptacle can then be filled through the top as in the former case.

What I claim, and desire to secure by Letters Patent, is:

1. A baling press, comprising a receptacle, open at the top, and capable of being opened at its sides; a press mechanism vertically movable in said receptacle, and above the same, said mechanism being rockingly mounted at its ends; an impediment supported in the path of said press mechanism, near the upper end of the movement thereof; and means carried by said press mechanism capable of a mobile engagement with said impediment, causing a tipping movement of said press mechanism to one side of the machine, during a continued upward movement of said mechanism.

2. A baling press, comprising a receptacle having an open top; a pair of screws vertically supported at opposite ends of said receptacle; travellers on said screws; a press mechanism pivotally connected at its ends with said travellers, and including a platen device; gear pinions on the pivots of said press mechanism; and gear racks supported in the upper part of the machine, in the path of said pinions, and adapted to rotate the same to rock the press mechanism and platen to one side of the machine.

In testimony whereof I affix my signature.

JOHN HANSEN.