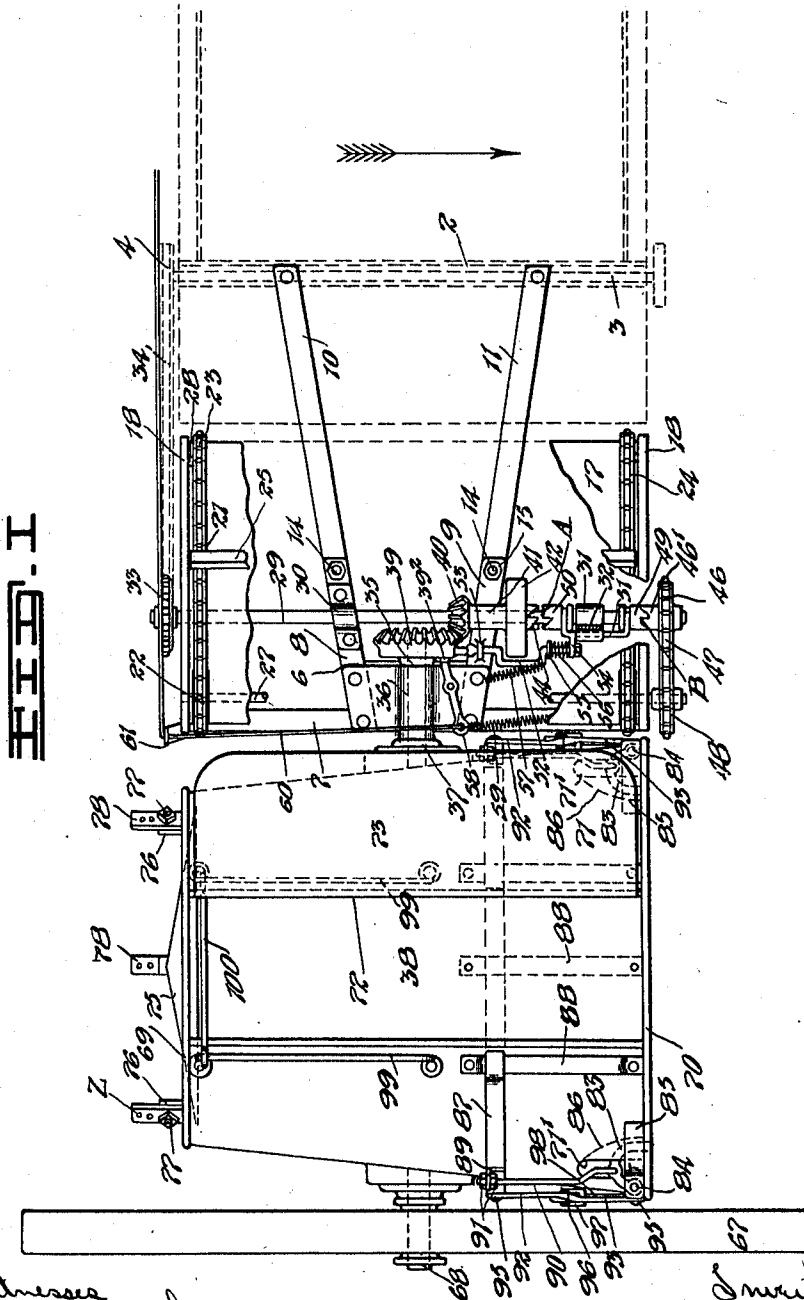


L. J. CLEMENT.
SHOCKING MACHINE.
APPLICATION FILED JUNE 14, 1910.

1,004,370.

Patented Sept. 26, 1911.

4 SHEETS—SHEET 1.



Witnesses
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Jas. M. Laphy

Inventor
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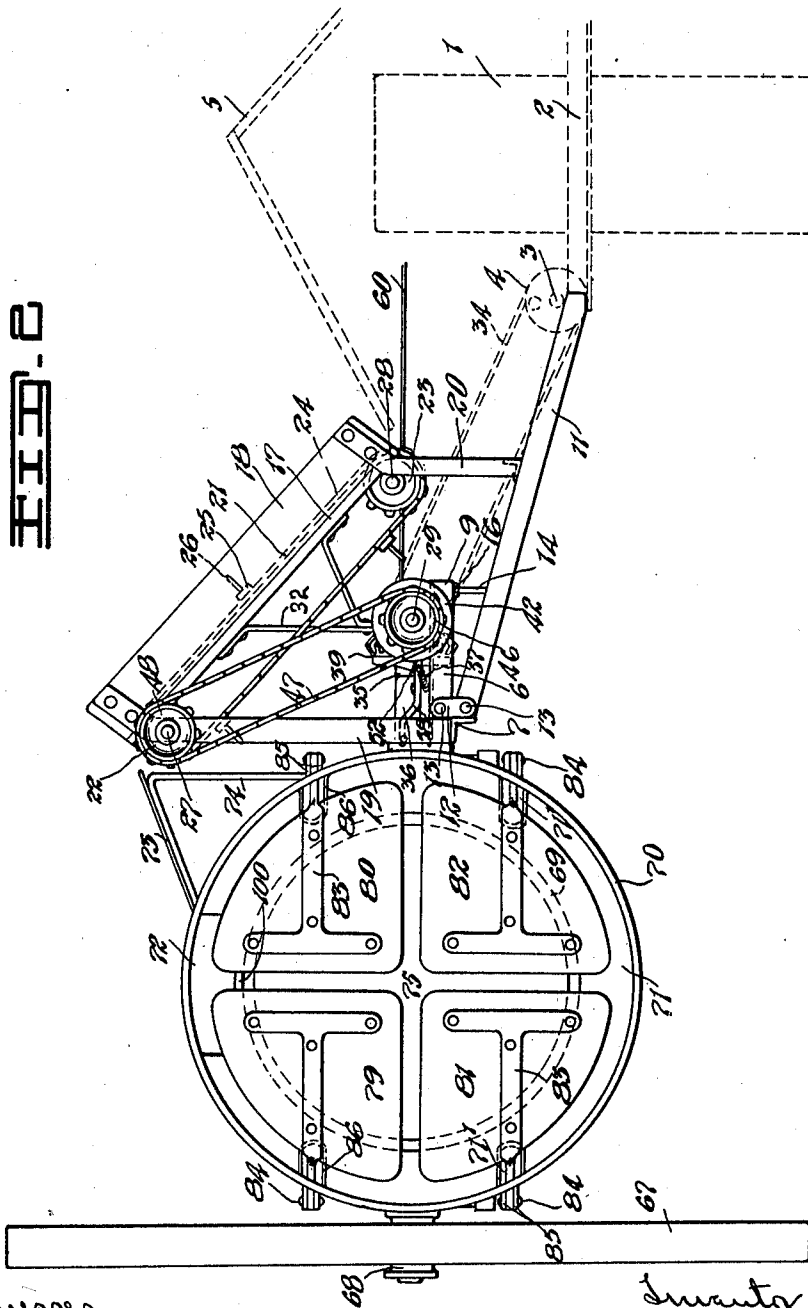
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4 SHEETS—SHEET 2.



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4 SHEETS—SHEET 3.

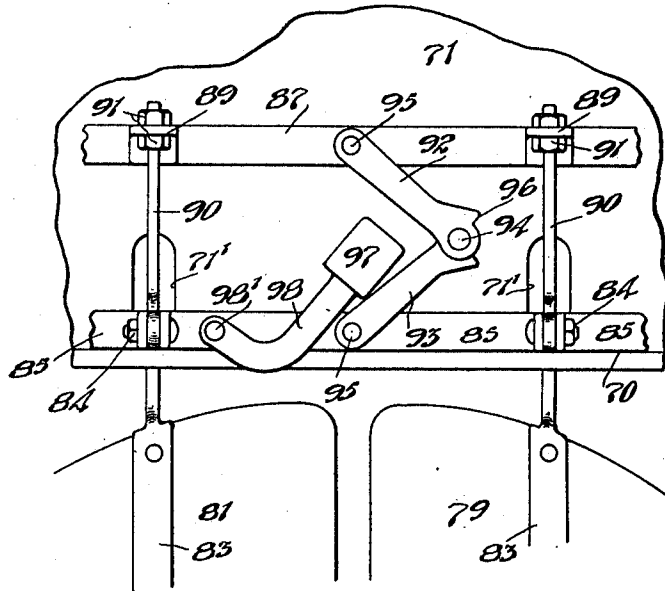


FIG. 3

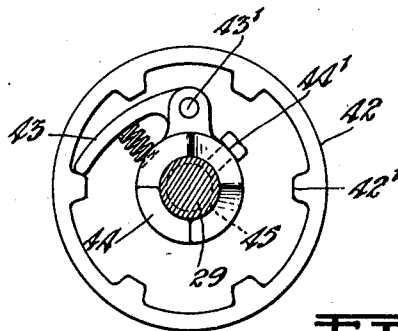


FIG. 4

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4 SHEETS-SHEET 4.

FIG. 5

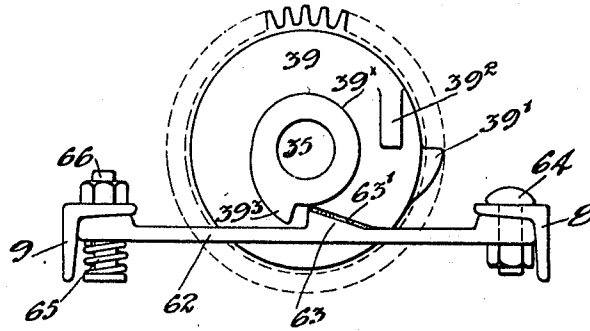


FIG. 6

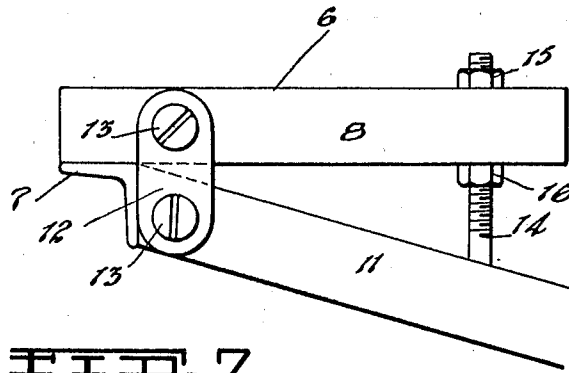
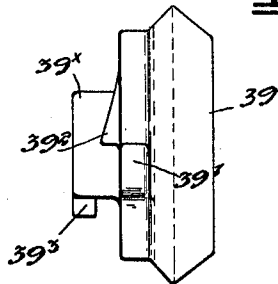


FIG. 7

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UNITED STATES PATENT OFFICE.

LEWIS JAMES CLEMENT, OF CARNDUFF, SASKATCHEWAN, CANADA.

SHOCKING-MACHINE.

1,004,370.

Specification of Letters Patent. Patented Sept. 26, 1911.

Application filed June 14, 1910. Serial No. 566,811.

To all whom it may concern:

Be it known that I, LEWIS JAMES CLEMENT, of the town of Carnduff, in the Province of Saskatchewan, Canada, have invented certain new and useful Improvements in Shocking-Machines, of which the following is the specification.

My invention relates to shocking machines and the object of the invention is to provide a machine which can be readily attached to the present binder and be operated thereby and which will receive the sheaves passed over the binder deck, elevate them and deposit them in a shock forming basket, the basket being designed and operated to deposit the shocks formed, butts down, on the field over which the machine is operating, said machine being under the control of a single operator.

A further object of the invention is to construct the shocker frame so that it can be adjusted in relation to the binder frame whereby the carriage wheel supporting the shocker frame can be set at right angles to the ground.

My invention further specifically resides in the following features of construction, arrangement and operation as will be hereinafter set forth with reference to the accompanying drawings in which—

Figure 1 is a plan view of the machine with the basket in the receiving position, a portion of the elevator or carrier being torn away to expose construction. Fig. 2 is a front elevation of the machine as shown in Fig. 1. Fig. 3 is an enlarged detailed side elevation of the knuckle joint and hammer controlling the opening of the gates. Fig. 4 is an enlarged detailed end view of one of the clutch members and adjoining disk wheel showing the spring pressed pawl and lugs which the pawl engages. Fig. 5 is an enlarged detailed side elevation of the basket controlling gear wheel showing the lugs thereon and a friction brake adjoining the wheel. Fig. 6 is a side elevation of the gear wheel shown in Fig. 5. Fig. 7 is an enlarged detailed side elevation of a portion of a shocker frame showing the manner in which it is rendered adjustable.

In the drawings like characters of refer-

ence indicate corresponding parts in each figure.

1 represents the main or bull wheel of a binding machine and 2 a portion of the binding machine frame in which are the bearings for the main wheel as is usual.

3 represents a driven cross shaft on the binder which is fitted with a chain wheel 4, said chain wheel being connected to the shocking machine as shortly to be described.

5 represents the binder deck over which the sheaves are delivered from the binding machine to the shocking machine.

6 represents the shocking machine frame which consists in a rearwardly directed bar 7 of channel iron and two converging bars 8 and 9 which are securely fixed to the channel iron.

Converging arms 10 and 11 are rigidly secured to the binder frame 2 and have their extending ends connected to the binder frame 6 by means of links 12 which are fastened to the parts by pins 13. Rods 14 pass upwardly from the arms 10 and 11 into and through the extending ends of the bars 8 and 9 and are provided with upper and lower adjustable nuts 15 and 16, respectively.

17 represents a platform supplied with the usual side pieces or wind-shields 18, such platform being supported by opposing sets of bars 19 and 20, respectively, at its ends, the bars 19 being secured firmly to the bar 7, and the bars 20 being fixed to the arms 10 and 11.

21 represents a carrier, comprising chain wheels 22 and 23, chains 24 and cross bars 25, the cross bars having prongs 26 extending therefrom. The chain wheels are supported on shafts 27 and 28 mounted in suitable bearings carried by the bars 19 and 20. The carrier is adapted to receive the sheaves passed over the binder deck and pass them to the position where they are deposited in the basket as later to be described.

29 is a main drive shaft of the shocking machine which is mounted in a bearing 30 carried by the frame 6 and a bearing 31 located at the lower end of a bracket 32 extending downwardly from the under side of the platform 17.

33 is a chain wheel keyed on the end of the shaft 29 and connected by means of a chain 34 with the chain wheel 4 already referred to.

35 is a short shaft mounted in a bearing 36 secured to the bars 8 and 9, such shaft being set at right angles to the drive shaft 29 and having one end permanently secured at 37 to the side of the basket 38 and the opposite end provided with a bevel gear 39 which meshes with a pinion 40 located at the end of a sleeve 41, which sleeve is rotatable on the shaft 29 and carries a disk wheel 42 shortly to be described in detail. The disk wheel 42 has suitably spaced lugs 42' arranged on the inner side of the rim thereof, which lugs engage with a spring pressed pawl 43 connected by a pin 43' to lugs extending from the driven member 44 of a clutch A, which member is free to rotate on the shaft 29 and is held from longitudinal displacement thereon by a pin 44' which passes into a groove 45 formed in the shaft.

46 is a chain wheel loosely mounted on the end of the shaft 29 opposite to the chain wheel 33, such chain wheel 46 being united through a chain 47, with a chain wheel 48 fixed on the end of the shaft 27. The chain wheel 46 has the boss thereof formed into the driven member 46' of a second clutch B.

49 and 50 are the cooperating members of the clutches already referred to, such members being keyed on shaft 29 and being adapted to engage with the members 46' and 44, respectively.

51 is a bar slidably secured to the bearing 31, such bar having its ends turned at right angles to the body portion and bifurcated so as to span the members 49 and 50 of the clutches.

The bevel gear 39 is provided with two lugs, one 39' extending from the periphery and another 39" passing from the side thereof which engage with parts now described.

52 is a clutch rod carried rearwardly by a standard 53 extending upwardly from the bar 9 and forwardly by an arm 54 projecting from the bar 51. The rod has the rear end formed into a head which is designed to engage with the lug 39' carried by the bevel gear 39. A shoulder 55 is formed on the rod and a spring 56 encircles the rod and bears at its ends on the shoulder and the arm 54, respectively. A second spiral spring 57 passes between the rod and the frame 6.

58 is a lever pivotally secured to the bearing 36 and 59 is a spiral spring passing between the lever and the bar 19. The spring holds the free end of the lever, unless otherwise displaced, in the path of the lug 39", so that it acts as a stop to the gear wheel. A cord or cable 60 passes from the lever through an eye 61 carried by the frame to the binding machine where it is secured

to a lever (not shown) located within convenient range of the operator.

39³ is a cam extending from the boss 39^x of the bevel gear 39, and 62 is a spring bar having a projecting lug 63 thereon which is located in the path of the cam when the gear turns. The spring bar 62 is securely fastened by a bolt 64 to the bar 8 and has its opposite end resting on a heavy spiral spring 65 carried by an adjustable bolt 66 which is supported by the bar 9. This construction allows the frictional contact between the lug and the cam to be adjusted. If more pressure is desired on the cam it is only necessary to tighten up the nut of the bolt. The lug is faced with a leather strip 63'.

Although I have shown the above construction for adjusting the spring bar I desire it to be understood that various other well known mechanical constructions might be employed with equal advantage without departing from the spirit of the invention.

It is to be noted in the above construction that the cam 39³ and the lug 39² have to be arranged in different vertical planes so that the lug will escape the spring bar when the bevel gear is turned.

67 is a carriage wheel supporting the outer side of the basket, that is, that side farthest from the binding machine. The carriage wheel is mounted on a stub shaft 68 which is permanently secured to the side of the basket. The basket is now described in detail.

69 and 70 are two circular hoops or rings, that 70 having a larger diameter than that 69. A metallic sheeting 71 forms the body of the basket and unites the ring 69 to that 70. It is to this metallic body that the stub shaft 68 and the short shaft 35 are secured. The sheeting is removed at the upper side of the basket, (when in the sheaf receiving position), leaving an opening at 72 through which the sheaves are passed into the basket. A deflecting plate 73 inclines upwardly from the side of the opening to the upper end of the carrier and is reinforced by braces 74. The deflector plate, it will be understood, moves with the basket. The rear end of the basket is closed by a conical shaped end piece 75 which carries suitably spaced bars 76 connected adjustably by bolts 77 to arms 78 permanently secured to the sheeting 71. Said arms 78 have holes Z therein for receiving the bolts. If the bolts be undone the end piece can be moved backwardly and forwardly according to the requirement of the sheaves.

79, 80, 81 and 82 are similar gates in the form of sectors of a circle, the circle being formed by the ring 70. The gates are each braced by T-shaped bars 83 which have each an end extending beyond the edge of the gate and fastened by a pin 84 to the out-

wardly directed ends of opposing bars 85 which in turn are fastened permanently to the outer side of the basket.

The sheeting 71 of the basket is cut away at 71' where the ends of the bars 83, which it will be noticed are more or less U-shaped in form, pass through the basket. A housing or casing 86 is placed over the end of each bar to protect it.

87 is a bar passing partially around the basket, such bar being slidably secured thereto by means of guide bars 88 fastened at suitable intervals to the sheeting. The bar 87 carries four angle plates 89 which receive rods 90 connected to the U-shaped ends of the bars 83. The rods are provided with adjusting nuts 91 located on either side of the angle plates 89 so that the position of the gates can be determined.

92 and 93 are sets of links pivotally secured together at 94 and having their extending ends pinned at 95, the one to the hoop 70 and the other to the bar 87. The adjoining ends of the links are constructed so as to form a knuckle or locking joint at 96. The links appear at the opposite sides of the basket, their purpose being to hold the gates closed while the basket is up-setting.

97 are hammers adapted to engage with the knuckle joints formed between the links and break the same to allow the gates to open. The shanks 98 of the hammers are pivoted at 98' to the hoop 70.

Directly to the sides of the opening 72 I have located opposing guide rods 99 which are secured to the sheeting 71. The rods pass lengthwise of the basket and carry a retaining rod 100 which has its ends formed into eyes which receive the guide rods.

In order to better understand the machine I will now describe its operation assuming the parts in the position shown in Figs. 1 and 2 of the drawings and the machine progressing with the binding machine in the direction indicated by the arrow, Fig. 1.

The sheaves passed over the binder deck are directed to the carrier 21 where they are elevated to the deflector plate 73 and deposited in the basket through the opening 72, it being understood that the gates are at this time closed. As soon as sufficient sheaves have been in this way placed in the basket to form a shock the operator draws or pulls the cord 60, thereby withdrawing the extending end of the lever 58 clear of the lug 39². The head of the clutch rod is at this time bearing against the lug 31' so that as soon as the lever is released from the lug 39² and the bevel gear rotated, the clutch rod is drawn by the spring toward the bevel gear. This causes the members of the clutch A to engage and those of B to disengage, thereby throwing the carrier out of com-

mission and preventing further sheaves from passing to the basket. The basket impelled by the weight of the shock swings freely from the receiving position to the depositing position although the members of the clutch A are engaged for the reason that the disk wheel turns in a direction which causes the pawl 43 to escape freely over the lugs 42'. Just as soon as the basket is upended the hammers 97 fall over and hit the knuckle joints 96 thereby allowing the gates to open and the shock to be deposited. When the shock touches the ground the basket is swung upwardly to the receiving position by the shaft 29 as the pawl carries with it the disk wheel when the shaft is rotated.

It is pointed out that although the shaft 29 is rotating continually, yet when the basket falls to deposit the shock the disk wheel is rotated faster than the shaft and in the same direction. This accounts for the pawl, which is caused to rotate with the shaft by the clutch A, escaping over the lugs on the disk wheel when the basket turns to deposit the shock. However as soon as the shock touches the ground the basket remains for a short length of time more or less stationary, during which time the pawl is engaged with one of the lugs 42'. Consequently the basket is turned upwardly to the receiving position by the action of the drive shaft 3. When the basket is passing to the horizontal position the head of the clutch rod again engages with the lug 39' and the clutch rod is forced in the direction which disengages the clutch A and engages the clutch B, thereby again throwing the carrier into commission. The basket is stopped by the lug 39² engaging with the extending end of the lever 58.

In order to avoid any possibility of the sheaves dropping out through the opening 72 I have provided the retaining rod 100 which slides to the central position on the basket when the basket primarily turns and returns to its position at the end of the basket when the basket passes to receiving position.

The weight of the gates and bar 87 causes such parts to drop when the basket returns to receiving position so that the knuckle joints again lock the gates shut. The hammers pass away from the knuckle joints and resume their original position.

The spring bar 63 and lug carried thereby are provided so that the full weight of the basket will not come on the lever 58 when the basket is passing to the receiving position. The lug engages the cam frictionally and in so doing prevents the basket from being jarred each time it is turned.

If it be found that at any time the carriage wheel 67 is not riding over the ground properly, that is, at right angles to the

ground, the attendant adjusts the shocker frame by raising or lowering the adjusting nuts of the rods 14 which operation will change the position of the shocker frame in respect to that of the arms.

What I claim as my invention is:—

1. In a shocking machine, the combination comprising a rotatable basket, means for feeding sheaves to said basket to form a shock, releasable means retaining the basket in sheaf receiving position, said basket when released being free to swing from the receiving to the depositing position, and drive means for returning the basket from the depositing position to the receiving position, as and for the purpose specified.

2. In a shocking machine the combination comprising a suitably supported shocking machine frame, a horizontally disposed sheaf receiving and shock forming basket having an open side and being rotatably supported at one side by the frame, a carriage wheel supporting the opposite side rotatably, a trip lever retaining the basket in the sheaf receiving position, said basket turning freely to the depositing position when the lever is released and drive means for returning the basket to the receiving position, as and for the purpose specified.

3. In a shocking machine, the combination comprising a suitably supported shocking machine frame, a short shaft rotatably mounted on the frame, a horizontally disposed sheaf receiving and shock forming basket, having an open side, said shaft being permanently secured to said basket, a carriage wheel supporting the basket rotatably at the opposite side to the shaft aforesaid, a bevel gear fixed on the shaft having a lug extending therefrom, means for rotating the bevel gear and a trip lever engageable with the lug, as and for the purpose specified.

4. In a shocking machine the combination comprising a suitably supported shocking machine frame, a short shaft rotatably mounted on the frame, a horizontally disposed sheaf receiving and shock forming basket having an open side, said shaft being permanently secured to the basket, a carriage wheel supporting the opposite side of the basket rotatably, a bevel gear fixed on the shaft having a lug extending therefrom, a trip lever engageable with the lug and holding the basket in the receiving position and means for rotating the bevel gear, said means allowing the basket to turn freely to the depositing position, as and for the purpose specified.

5. In a shocking machine the combination comprising a suitably supported shocking machine frame, a short shaft rotatably mounted on the frame, a horizontally disposed sheaf receiving and shock forming basket having an open side, said

shaft being permanently secured to the basket, a carriage wheel supporting the opposite side of the basket rotatably, a bevel gear fixed on the shaft having a lug extending therefrom, a trip lever engageable with the lug and holding the basket in the receiving position, a drive shaft carried by the frame, a sleeve rotatable on the drive shaft having a bevel pinion at one end and a disk wheel at the other, the said bevel gear meshing with the bevel pinion and the disk wheel being provided with inwardly directed lugs, a clutch mounted on the drive shaft and having one of the members thereof adjoining the disk wheel and rotatable on the shaft the other member being feathered on the shaft, means for disengaging the members of the clutch at a predetermined instant and a spring-pressed pawl carried by the clutch member adjoining the disk and engageable with the lugs formed on the disk, as and for the purpose specified.

6. In a shocking machine the combination comprising a suitably supported shocking machine frame, a short shaft rotatably mounted on the frame, a horizontally disposed sheaf receiving and shock forming basket having an open side, said shaft being permanently secured to the basket, a carriage wheel supporting the opposite side of the basket rotatably, a bevel gear fixed on the shaft having a lug extending therefrom, a trip lever engageable with the lug and holding the basket in the receiving position, a drive shaft carried by the frame, a sleeve rotatable on the drive shaft having a bevel pinion at one end and a disk wheel at the other, the said bevel gear meshing with the bevel pinion and the disk wheel being provided with inwardly directed lugs, a clutch mounted on the drive shaft and having one of the members thereof adjoining the disk wheel and rotatable on the shaft the other member being feathered on the shaft, a slidable clutch rod having one end engageable with a second lug extending from the face of the bevel gear and the other end connected to the feathered clutch member, a spring holding the clutch rod against the face of the gear and a spring-pressed pawl secured to the other member of the clutch and extending from the disk wheel, as and for the purpose specified.

7. In a shocking machine the combination comprising a horizontally disposed sheaf receiving and shock forming rotatably mounted basket having an open side, an adjustable conically shaped end piece closing one end thereof, swingable gates closing the opposite end thereof and means for releasing the gates to open when the basket turns to vertical position, and means for turning the basket as and for the purpose specified.

8. In a shocking machine the combination

comprising a horizontally disposed sheaf receiving and shock forming rotatable basket having an open side, a conically shaped adjustable end piece closing one of the ends thereof, releasable gates swingably secured to the opposite end of the basket and adapted to close the end thereof in the sheaf receiving position and means for releasing the gates to open simultaneously when the basket passes to the dumping position, and means for actuating the basket as and for the purpose specified.

9. In a shocking machine the combination comprising a horizontally disposed sheaf receiving and shock forming basket having an open side, an adjustable end piece closing one end thereof, gates swingably secured to the opposite ends thereof and adapted to close the end of the same, means for locking the gates in such position, and gravity actuated means for releasing the gates to open simultaneously when the basket passes to the vertical position, and means for actuating the basket as and for the purpose specified.

10. In a shocking machine the combination comprising a rotatably mounted sheaf receiving and shock forming basket having an open side, an adjustable end piece closing one end thereof, similar gates adapted to close the opposite end thereof bars swingably securing the gates to the basket, a movable bar partially encircling the basket, adjustable rods connecting the latter bar with the former bars, interconnected links connecting the movable bar to the basket and forming knuckle joints and means for breaking the joints when the basket passes to shock depositing position, and means for actuating the basket as and for the purpose specified.

11. In a shocking machine the combination comprising a rotatable horizontally disposed sheaf receiving and shock forming basket having an open side, adjustable means closing one end thereof, T-shaped bars, similar gates swingably secured to the opposite end by said bars, said T-shaped bars having each an end extending beyond the edge of the gate and formed into a U with the extremity pivotally secured to the outer side of the basket, a movable bar partially encircling the basket and held thereto by guide bars, adjustable rods secured to the movable bar and to the U-shaped ends of the T bars, sets of links pivotally connected in pairs and having their ends pivotally secured to the basket and to the movable bar, respectively, each pair of links forming a knuckle joint, and hammers having extending shanks pivotally secured to the basket, said hammers being designed to engage with the links to break the knuckle joints and release the gates when the basket passes to the depositing position, and means for

actuating the basket as and for the purpose specified.

12. In a shocking machine the combination with a rotatable sheaf forming basket having an open side through which the sheaves are passed, of a retaining rod slidably secured to the basket, and means for actuating the basket, said rod sliding across the opening when the basket is moving to dumping position, as and for the purpose specified.

13. In a shocking machine the combination with a rotatable sheaf receiving and shock forming basket having an open side through which the sheaves are passed, of guide rods located at the opposite sides of the opening and a retaining bar slidably secured to the guide rods and sliding across the opening when the basket is raised into vertical position, as and for the purpose specified.

14. In a shocking machine the combination with a horizontally disposed rotatably mounted sheaf receiving and shock forming basket having an open side at the top through which the sheaves are passed, of longitudinally extending guide rods passing from the rear end of the basket to the center of the side thereof, such guide rods being located to either side of the opening, and a retaining rod having its end slidably secured to the guide rods and sliding across the opening when the basket is raised into vertical position, as and for the purpose specified.

15. In a shocking machine the combination with a suitably supported shocking machine frame, a basket having a short shaft extending therefrom and rotatably mounted in the frame and a carriage wheel supporting the opposite side of the basket rotatably, of a bevel gear fixed on the end of the short shaft, rotary means engaging therewith and an adjustable spring bar carried by the shocking machine frame having a lug extending therefrom frictionally engageable with the cam, as and for the purpose specified.

16. In a shocking machine the combination with a shocking machine frame formed from a rearwardly directed bar carrying an opposing pair of converging bars, a basket carrying a short shaft mounted in a suitable bearing located on the binding machine frame, and a carriage wheel supporting the basket rotatably at the opposite side, of a bevel gear fixed on the short shaft and having a cam extending from the boss thereof, rotary means engaging with the gear, a spring bar permanently secured at one end of one of the converging bars aforesaid and passing beneath the cam there being a lug on the bar frictionally engageable with the cam, an adjustable bolt carried by the other of the converging bars and passing through

the spring bar and a spring interposed between the head of the bolt and the adjoining end of the bar, as and for the purpose specified.

- 5 17. In a shocking machine attachable to a binding machine, the combination with a shocking machine frame secured to the binder frame, a short shaft rotatably mounted in a bearing carried by the shock-
10 ing machine frame, a horizontally disposed sheaf receiving and shock forming basket having an open side, said shaft being secured to the side of the basket and a carriage wheel supporting the opposite side
15 of the basket rotatably, of an inclined carrier passing between the binder deck and the basket, a suitably mounted drive shaft, a clutch having one of the members thereof

keyed on the shaft and the opposite member feathered thereon, a chain wheel fixed on 20 such shaft adapted to operate the carrier, a bevel gear on the short shaft having a lug extending from the periphery thereof, a suitably supported slidable clutch rod en- 25 gageable with the lug, a clutch bar secured to the rod and to the slidable member of the clutch and a spring holding the clutch rod in engagement with the face of the bevel gear, as and for the purpose specified.

Signed at Carnduff, in the Province of 30 Saskatchewan, this 7th day of May, 1910.

LEWIS JAMES CLEMENT.

In the presence of—
W. B. BUTCHART,
P. STEPHENS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."