

G. W. CAMERON.
AUTOMATIC REVERSING MECHANISM.
APPLICATION FILED JUNE 10, 1911.

1,024,765.

Patented Apr. 30, 1912.

3 SHEETS-SHEET 1.

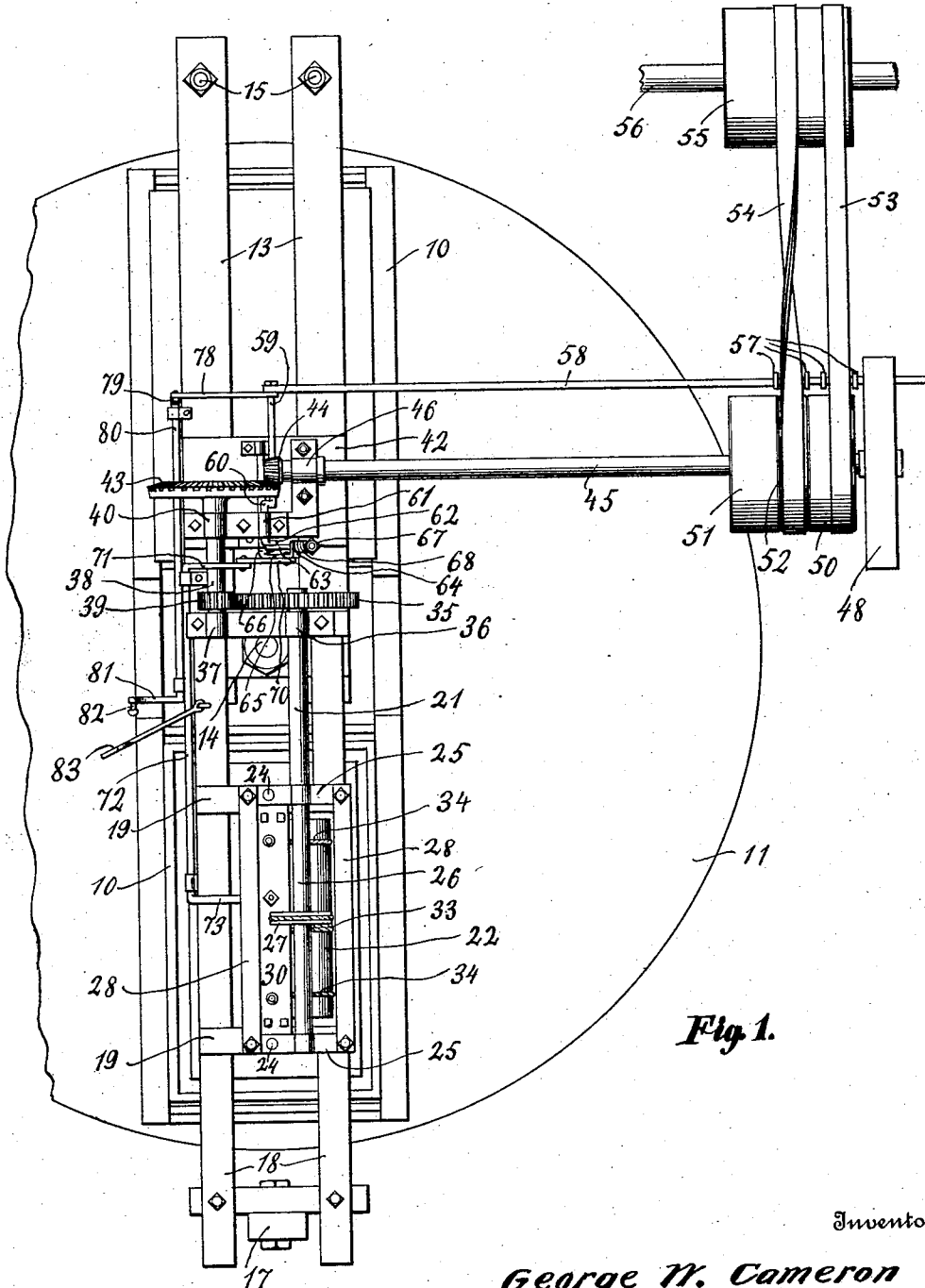


Fig. 1.

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Witnesses
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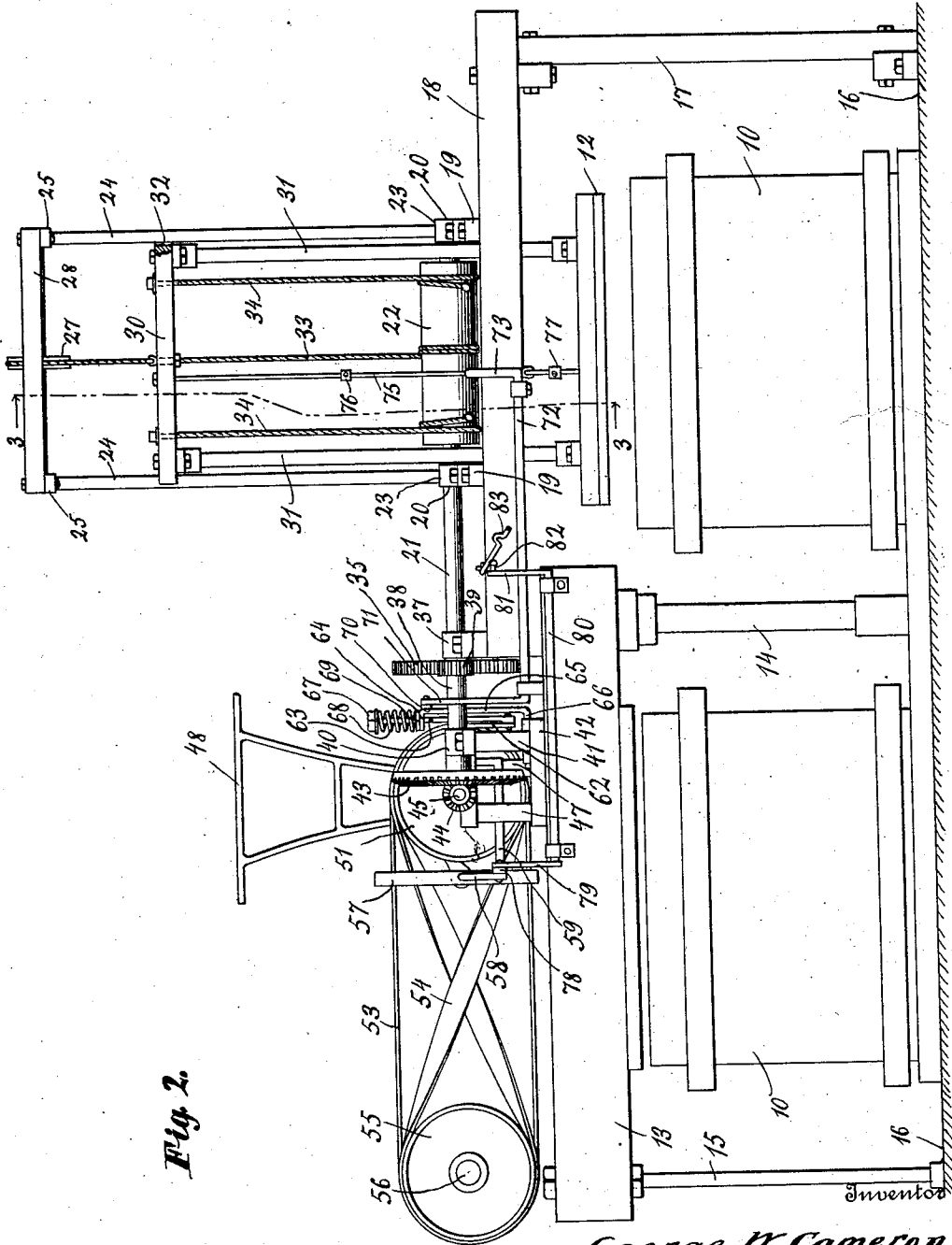


Fig. 2.

Witnesses
 E. Larson
 Machine

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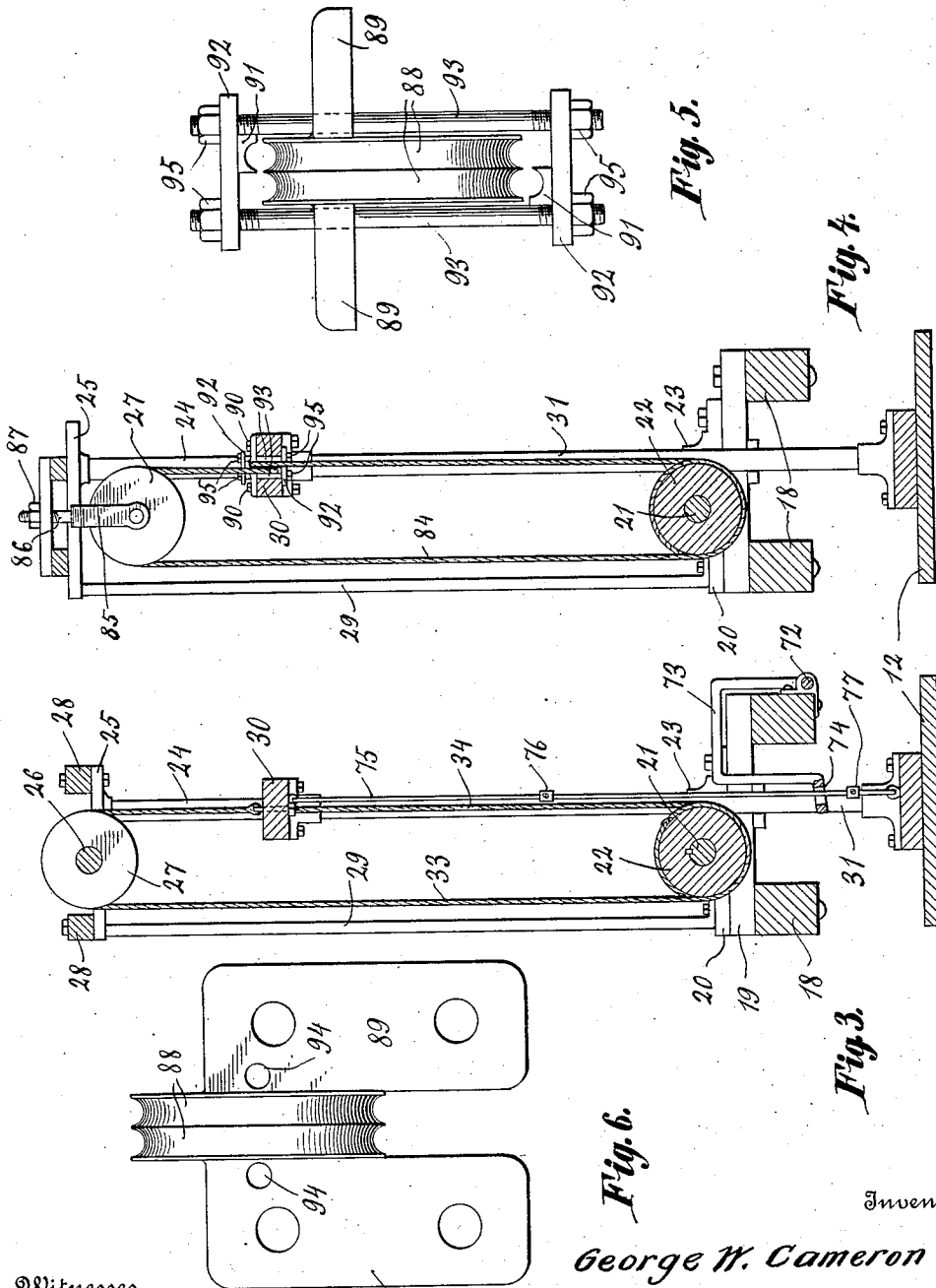
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3 SHEETS—SHEET 3.



Witnesses

Clargon

Machine

Fig. 6.

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UNITED STATES PATENT OFFICE.

GEORGE W. CAMERON, OF HONDO, TEXAS.

AUTOMATIC REVERSING MECHANISM.

1,024,765.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, GEORGE W. CAMERON, a citizen of the United States, residing at Hondo, in the county of Medina and State of Texas, have invented certain new and useful Improvements in Automatic Reversing Mechanism, of which the following is a specification.

This invention relates more particularly to the means for operating the plunger of a cotton press, and its object is to provide a novel and improved driving means which is automatically reversed to advance and retract the plunger.

The invention also has for its object to provide certain novel features of construction to be hereinafter described and claimed.

In order that the invention may be better understood, reference is had to the accompanying drawings forming a part of this specification, in which drawings—

Figure 1 is a plan view of the invention. Fig. 2 is an elevation thereof. Fig. 3 is a vertical section on the line 3—3 of Fig. 2. Fig. 4 is a view similar to Fig. 3 showing a modification. Fig. 5 is a plan view, and Fig. 6 an elevation of the modified form of rope clamp.

The invention is shown applied to a double box press, although it is not limited to that type of presses. The press boxes are mounted side by side on a rotatable platform 11 and are adapted to be alternately brought into operative position with respect to the plunger or tamper 12 in the usual manner. Nothing is claimed for the press box structure and the mounting thereof, and a further description of these parts is therefore deemed unnecessary.

Extending transversely of the platform 11, above one of the press boxes, are two spaced horizontal beams 13 which are supported at one of their ends by the center post 14 which forms the pivot of the platform. The beams are supported at their other ends by posts 15 rising from the floor or other foundation 16 adjacent to the edge of the platform. On the diametrically opposite side of the platform a post 17 rises from the floor 16 and supports one end of a pair of spaced horizontal beams 18 extending transversely of the platform above the other press box, and supported at their other ends by the inner ends of the beams

13. The beams 18 carry spaced cross timbers 19 on which are mounted bearings 20 for the shaft 21 of a drum 22. These bearings are provided with extensions 23 at one of their ends in the top of which are sockets in which seat and are fastened standards 24 rising to a suitable height, and carrying at their upper ends bearings 25 for the shaft 26 of a grooved pulley 27. The bearings 25 are connected by cross beams 28, and are braced by standards 29 rising from the bearings 20, the lower ends of said standards being secured to the last-mentioned bearings by the bolts at one end thereof securing the same to the timbers 19.

Between the standards 24 is slidably mounted a cross head 30 which carries the plunger 12, said plunger being secured to the cross head by stems 31 fastened to and depending from the latter. The ends of the cross head have recesses 32 to fit the standards, the latter thus serving to guide the cross head. The drum 22 is located between the cross head and the plunger, and the pulley 27 is above the cross head.

On the middle portion of the drum 22 is made fast and wound one end of a cable or other suitable hoisting line 33. This cable extends upwardly from the drum and passes over the pulley 27, and then extends downwardly to the cross head 30 to which latter it is made fast. On the drum, on opposite sides of the cable 33, are made fast and wound cables 34 which extend upwardly and are made fast to the cross head 30. The cables 33 and 34 are wound on the drum in opposite directions so that when the drum is rotated in one direction, the cable 33 will be wound on the drum and the cables 34 will unwind, and vice versa when the drum is rotated in the opposite direction. It will therefore be evident that inasmuch as the cables are connected to the cross head, said cross head will be reciprocated upon rotating the drum alternately in opposite directions.

The following means are provided for rotating the drum 22: On one end of the shaft 21 is made fast a spur gear 35. This end of the shaft is supported in a bearing 36 carried by the beams 18. These beams also support a bearing 37 in which is mounted one end of a shaft 38 carrying a pinion 39 which is in mesh with the spur gear 35.

The other end of the pinion shaft is supported in a bearing 40 carried by posts 41 rising from a cross timber 42 mounted on the beams 13. The shaft 38 also carries a bevel gear 43 which is in mesh with a bevel pinion 44 carried by a shaft 45 supported at one of its ends in a bearing 46 mounted on posts 47 rising from the timber 42. The other end of the shaft 45 is supported in a bearing 48. The herein described gearing transmits the motion of the shaft 45 to the drum shaft 21.

The shaft 45 is driven by means of a belt gearing, an automatic belt shifter being provided so that the shaft may be driven alternately in opposite directions. This gearing and belt shifter mechanism comprises the following parts: On the shaft 45 are two loose pulleys 50 and 51, respectively, and between these two pulleys said shaft carries a fast pulley 52. Two drive belts 53 and 54 are provided for these pulleys, the belt 54 being crossed as shown. These two belts pass over a drive pulley 55 on a shaft 56 which is connected to any suitable source of power. The belts are adapted to be shifted so as to pass around the fast pulley, alternately, and inasmuch as one of the belts is crossed, it will be noted that the shaft 45 will be alternately driven in opposite directions. The belt which is off the fast pulley runs idle on one of the loose pulleys, the loose pulley 50 receiving the belt 53 and the pulley 51 receiving the belt 54.

The following mechanism is provided for automatically shifting the belts 53 and 54: The belts are provided with shifter forks 57 which are carried by a rod 58 connected to a crank 59 on a shaft 60 journaled in a bearing 61 carried by the posts 41. The shaft 60 also has a crank 62 to which is pivotally connected a stem 63 which passes slidably through an ear 64 on a rocker arm 65 extending from a shaft 66 journaled on the timber 42. The outer end of the stem 63 carries a nut or other abutment 67 between which and the ear 64 is located a spring 68, said spring being coiled around the stem. A washer 69 is interposed between the spring and the ear. The rocker arm 65 is connected by a link 70 to a rocker arm 71 extending from a shaft 72 journaled in suitable bearings on the beams 13 and 18. The shaft 72 has a second rocker arm 73 which is provided at its outer end with an eye 74 through which passes a cable 75 extending between and connected to the cross head 30 and the plunger 12. On the cable 75 are fixed two spaced collars 76 and 77, respectively, which are so located on the cable that the collar 76 engages the eye 74 at the end of the downward movement of the plunger, and the collar 77 engages said eye at the end of the upward movement of

the plunger. When the collars strike the eye, the shaft 72 is rocked, and through the connections between said shaft and the rod 58, the forks 57 are actuated, the shaft 72 being rocked alternately in opposite directions, and the forks being thus shifted back and forth to place one belt and then the other belt on the tight pulley 52, and thus cause the shaft 45 to be driven alternately in opposite directions to raise and lower the plunger as already described.

The following means are provided for locking the mechanism herein described: The crank 59 is connected by a link 78 to a rocker arm 79 on a shaft 80 supported by one of the beams 13. The shaft 80 has an arm 81 which carries a laterally extending pin 82. To one of the beams 18 is pivoted a hook 83 which is adapted to be slipped over the pin 82. By the herein described connection between the shaft 80 and the crank 59, the rod 58 can be actuated to place the belts 53 and 54 on the loose pulleys, thus throwing the mechanism out of gear, and the parts are held in this position upon engaging the hook 83 with the pin 82.

Figs. 4 to 6 show a slightly modified form of connection between the drum 22 and the cross head 30. A single cable 84 is provided which is wound around the drum several times. One end of the cable passes over the pulley 27 and then extends downwardly and is made fast to the cross head, and the other end of the cable extends upwardly from the drum and is made fast to the cross head. The pulley 27 is carried by a hanger 85 provided with a threaded stem 86 on which is screwed an adjusting nut 87 for the purpose of keeping the cable taut on the drum. The following means are provided for connecting the two ends of the cable to the cross head 30: On the cross head is mounted a casting which is in the shape of a pair of disks 88 placed side by side, and projecting sidewise therefrom are flanges 89 provided with perforations to receive bolts or other fastening means 90 whereby they are secured to the cross head. The peripheries of the disks 88 are grooved, to receive the cable, one end of the cable being passed around one of the disks, and the other end being passed around the other disk. The ends of the cable are made fast by being clamped to the disks. The cable clamping means comprise shoes 91 having a grooved face, said shoes being carried by plates 92. One of the shoes is opposite the periphery of one of the disks, and the other shoe is opposite the periphery of the other disk, and said shoes are located, respectively, above and below the disks. The plates 92 are slidably mounted on stems 93 which pass through perforations 94 in the flanges 89. The ends of the stems are threaded to receive nuts 95 which are adapted to be

screwed against the plates for the purpose of advancing the shoes to clamp the ends of the cable to the respective disks.

I claim:

5 1. The combination with a reversible driving means, of means for reversing the driving means, said reversing means comprising a reciprocating rod operatively connected to said driving means, a shaft having a crank
10 to which the rod is connected, a second crank on said shaft, a rocker arm, a stem connected to the last-mentioned crank and having a sliding connection with the rocker arm, a shaft having a pair of rocker arms,
15 means for actuating one of said arms, and a connection between the other one of the last-mentioned rocker arms and the first-mentioned rocker arm.

20 2. The combination with a reversible driving means, of means for reversing the driving means, said reversing means comprising a reciprocating rod operatively connected to said driving means, a shaft having a crank to which the rod is connected, a
25 second crank on said shaft, a rocker arm, said rocker arm having a perforated ear, a stem connected to the last-mentioned crank and passing loosely through the perforation of the ear, an abutment on the stem, a
30 spring between the abutment and the ear,

a shaft having a pair of rocker arms, means for actuating one of said rocker arms, and a connection between the other one of the last-mentioned rocker arms and the first-mentioned rocker arm.

35 3. The combination with a reversible driving means, of means for reversing the driving means, said reversing means comprising a reciprocating rod operatively connected to said driving means, a shaft having a
40 crank to which the rod is connected, a second crank on said shaft, a rocker arm, a stem connected to the last-mentioned crank and having a sliding connection with the rocker arm, a shaft having a pair of rocker
45 arms, means for actuating one of said arms, a connection between the other one of the last-mentioned rocker arms and the first-mentioned rocker arm, a rock shaft, arms
50 extending from the rock shaft, a connection between one of the arms and the first-mentioned crank, and locking means engageable with the other arm.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE W. CAMERON.

Witnesses:

T. H. BLOCKER,
ELMER DE MONTEL.

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