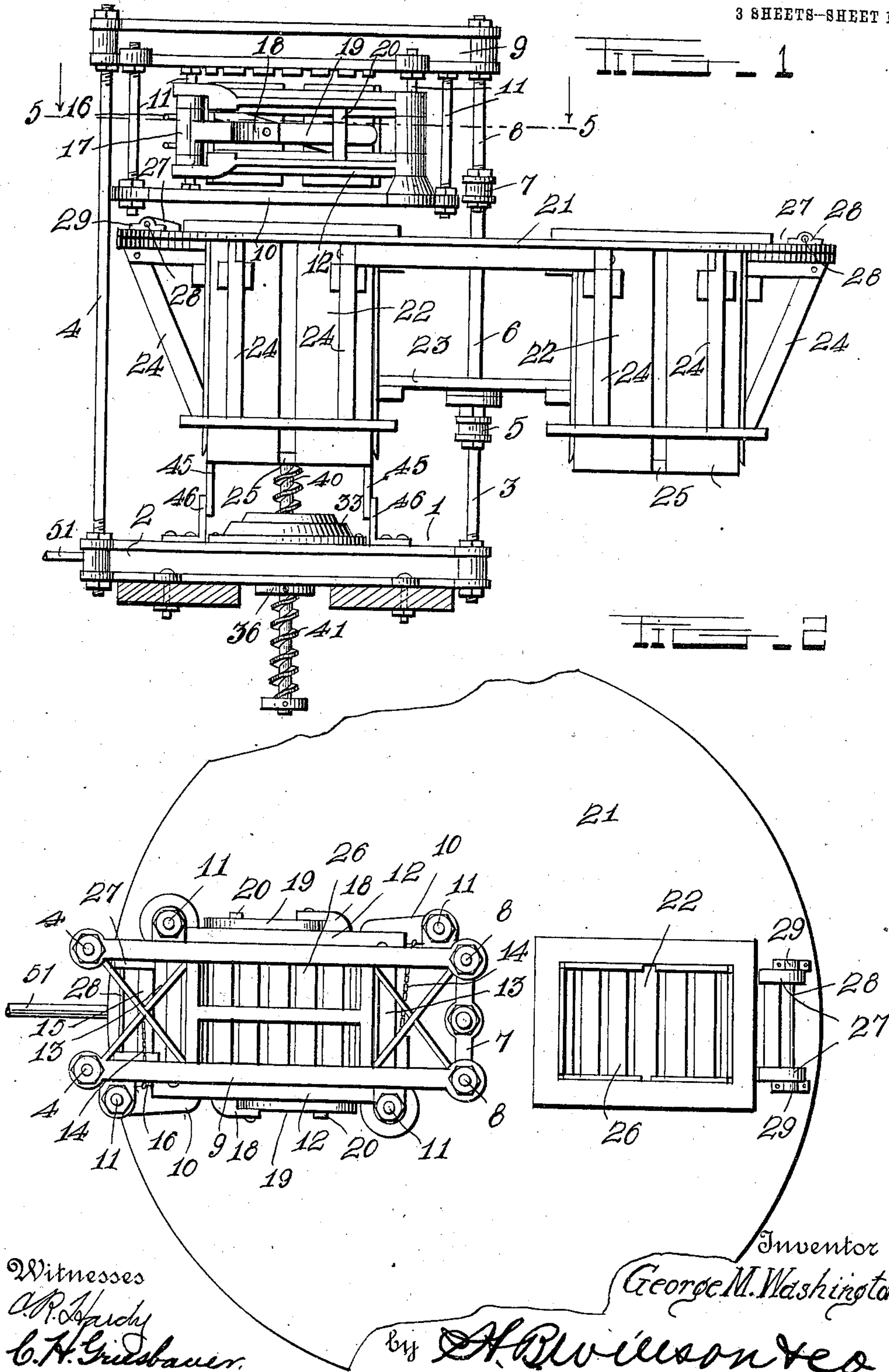


G. M. WASHINGTON.
BALING PRESS.
APPLICATION FILED APR. 18, 1910.

995,932.

Patented June 20, 1911.

3 SHEETS-SHEET 1.



Witnesses
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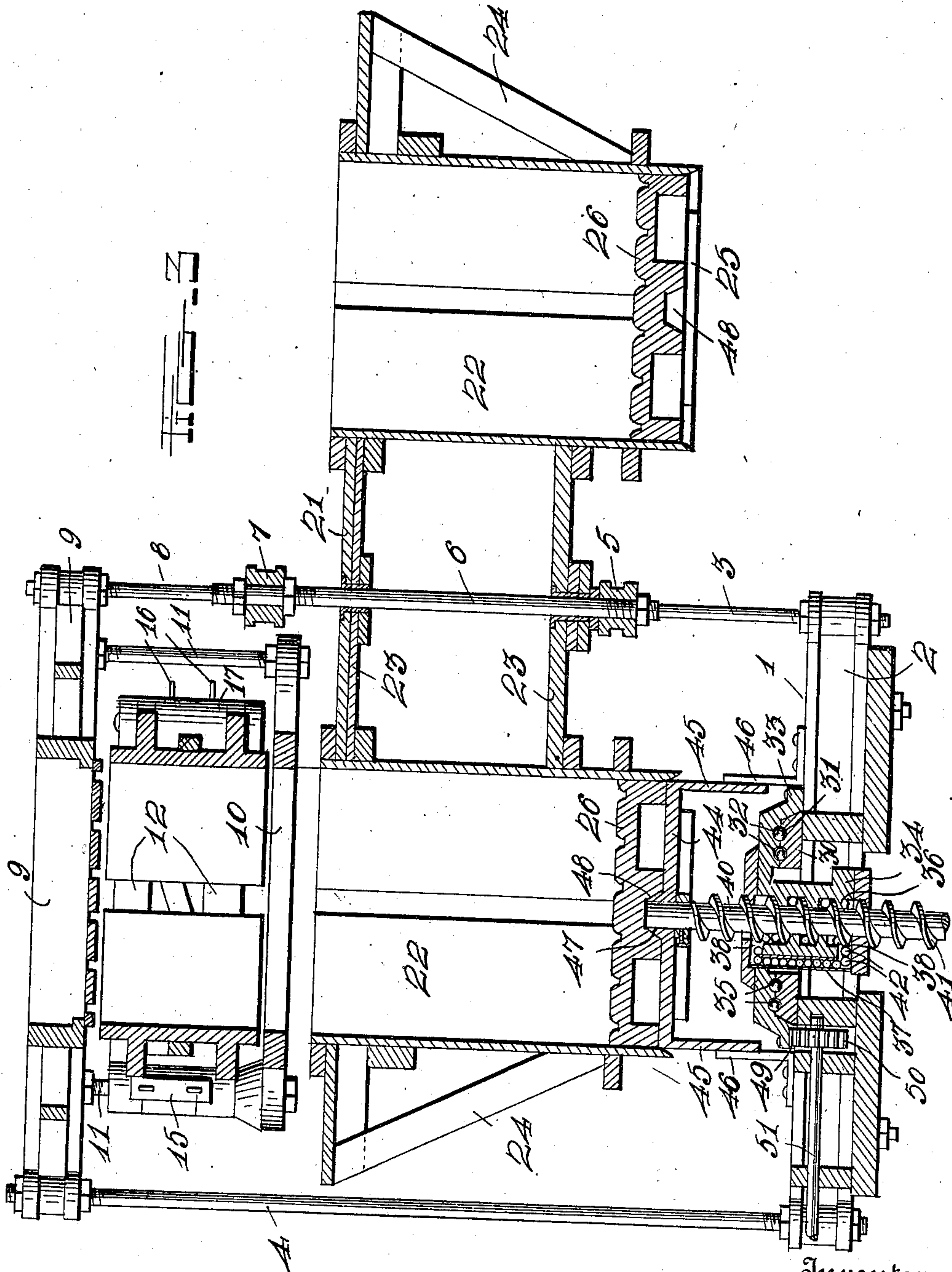
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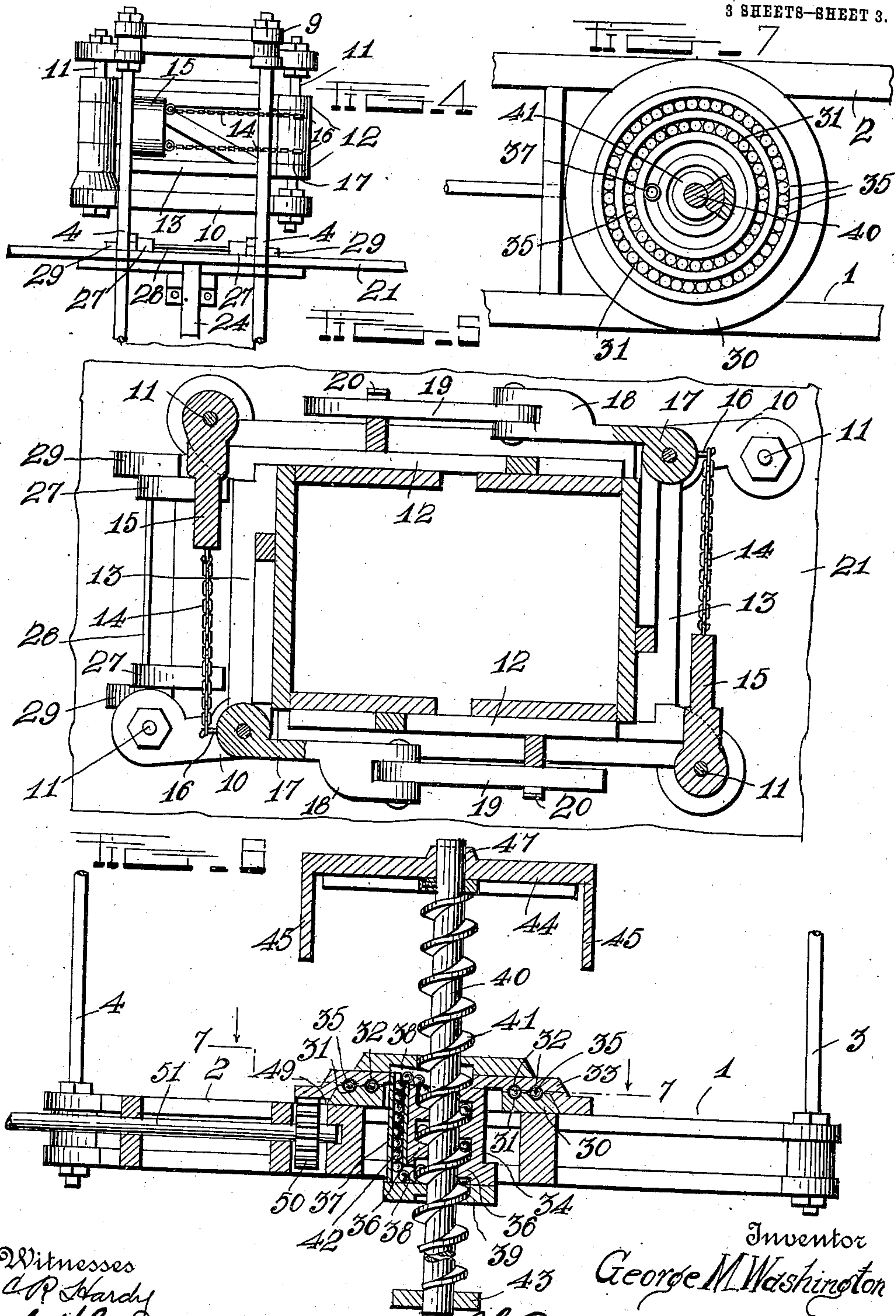
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UNITED STATES PATENT OFFICE.

GEORGE M. WASHINGTON, OF HOUSTON, TEXAS.

BALING-PRESS.

995,932.

Specification of Letters Patent. Patented June 20, 1911.

Application filed April 18, 1910. Serial No. 556,226.

To all whom it may concern:

Be it known that I, GEORGE M. WASHINGTON, a citizen of the United States, residing at Houston, in the county of Harris and State of Texas, have invented certain new and useful Improvements in Baling-Presses; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in baling presses.

One object of the invention is to provide a baling press having an improved means for operating the baling plunger whereby the material is pressed into bales.

Another object is to provide a baling chamber having improved means for fastening the same together whereby said chamber may be readily opened to permit the removal of the finished bales.

With the foregoing and other objects in view, the invention consists of certain novel features of construction, combination and arrangement of parts, as will be more fully described and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a side view of my improved press; Fig. 2 is a top plan view of the same; Fig. 3 is a central vertical longitudinal section taken through the baling chamber and hoppers; Fig. 4 is a side view of the upper portion of the press at right angles to the view shown in Fig. 1 and illustrating one end of the baling chamber; Fig. 5 is a horizontal sectional view of the baling chamber; Fig. 6 is an enlarged vertical section of the base of the press and the plunger operating nut; Fig. 7 is a horizontal sectional view through the nut and plunger screw.

Referring more particularly to the drawings, 1 denotes a supporting frame comprising a base 2, and vertically disposed up-rights or standards 3 and 4. The standards 3 are connected together at their upper ends by a cross head 5 in which is secured the lower end of a shaft 6, the upper end of which is secured in a cross head 7. To the cross head 7 is secured the lower ends of short standards 8, the upper ends of which are connected to and support the inner end of a superposed frame 9, the outer end of which is secured to and supported by the standards 4.

To the frame 9 is connected a depending baling chamber comprising a base member 10 having a centrally disposed aperture corresponding to the size of the bale to be formed in the chamber. The base member is held in position by supporting rods 11 arranged at the opposite corners thereof, as shown. To the diagonally opposed supporting rods 11 are pivotally connected one end of the sides 12. To the free ends of the sides 12 are pivotally connected one end of the ends 13 of the baling chamber, said ends being adapted to be swung inwardly at right angles to the side pieces, whereby when the side pieces are in closed position, a rectangular chamber will be formed, in which the bales are pressed in a manner hereinafter described. The sides and ends of the baling chamber are held in closed position by means of fastening chains 14 secured at one end to blocks 15 which in turn are pivotally connected to the supporting rods 11, on which the sides of the chamber are mounted. The outer or free ends of the chains 14 are adapted to be engaged with studs 16 arranged on and projecting from the head 17 of a fastening lever 18 which is pivotally mounted on the pivot bolt which connects the ends and sides of the baling chamber together. Pivotaly mounted in the outer ends of the levers 18 are latch bars 19 which when the levers are in operative position to fasten the sides and ends of the chamber together, are adapted to be engaged with keepers 20 arranged on the outer sides of the side pieces of the baling chamber.

By providing the fastening levers 18 to which the fastening chains are connected, as hereinbefore described, said chains may be readily released to permit the opening of the baling chamber by simply disengaging the latch bars from the keepers and swinging the levers outwardly, thus disengaging the studs 16 from the ends of the chains. When said chains are thus released, the sides of the baling chamber may be swung outwardly on the supporting rods 11, after which the ends of the chamber may be swung outwardly on the side pieces, thus permitting the finished bale to be readily removed from the baling chamber.

Revolubly mounted on the shaft 6, is a hopper supporting platform 21 in which, at diametrically opposite points on the opposite sides of the shaft 6, are formed rectangular apertures in which are secured the

upper ends of hoppers 22. The hoppers 22 project below the platform 21 and are secured together by connecting plates 23 which are also pivotally engaged with the supporting shaft 6. The hoppers 22 are connected at their lower ends with the under side of the platform 21 and securely braced by inclined brace bars 24 as shown. On the inner side of the lower ends of the hoppers are arranged inwardly projecting stop flanges 25 which support the movable bottoms 26 of the hoppers when said bottoms are in their lowermost positions to permit the hoppers to be filled with hay or other material to be baled.

By arranging the hoppers in the revolving platform, as herein shown and described, said hoppers may be successively brought beneath the baling chamber after being filled so that the material therein may be forced upwardly and pressed into the baling chamber by a pressing mechanism hereinafter described. In order to hold the platform against rotation when either of the hoppers therein has been brought into position beneath the baling chamber, I provide suitable platform locking devices which are here shown and are preferably in the form of frames 27 which are pivotally mounted on rods 28 secured at their opposite ends in lugs 29 arranged on the upper side of the platform adjacent to its outer edge and opposite each of the hoppers.

When the platform has been revolved to bring either of the hoppers in position beneath the baling chamber, the frames 27 are swung upwardly between the projecting corners of the base member 10 of the baling chamber thereby preventing further rotary movement of the platform and securely holding the hopper beneath the baling chamber until the bale has been formed and the baling plunger retracted from the hopper, after which the frames 27 may be swung down onto the platform thus permitting the latter to be again revolved to bring the next hopper into position.

In the base 2 of the main supporting frame, is arranged a circular bearing plate 30 in the upper side of which is formed a series of concentric grooves 31 which provide the lower half of ball races, the upper halves of which are formed by grooves 32 arranged in the under side of an annular flange 33 formed on the upper end of a plunger operating nut 34 which is suitably mounted in a centrally disposed aperture formed in the bearing plates 30. In the ball races formed by the grooves 30 and 31 are arranged a series of bearing balls 35, whereby the flange 33 and nut 34 are revolvably supported on the bearing plate. The nut 34 has formed therein a coarse thread 36 and in the outer side of the nut is formed a diagonal passage 37 which communicates at its

opposite ends with grooves 38 formed in the opposite ends of the nut and communicating with the thread on the inner side thereof. The nut is provided on its lower end with an annular flange with which is detachably connected a plate 39 in which is formed a continuation of the thread on the inner side of the nut.

Adapted to be engaged with and operated by the nut 34 is a plunger screw 40 on which is formed a coarse thread 41 corresponding with the thread in the nut. By forming the thread on the plunger and in the nut in the manner described, a sufficient space is provided between the same to form a spiral passage in which is arranged anti-friction bearing balls 42. The balls are placed in the thread of the nut by removing the plate 39 and as the nut is turned to move the plunger upwardly, the balls are carried up by the threads of the plunger rod and enter the groove at the upper end of the nut and pass through said groove into the upper end of the passage 37 through which they pass to the groove in the lower end of the nut and from thence again enter the threads of the nut and are again carried up in the manner described. By arranging the threads and providing the passage in the nut as herein described, the balls are continuously moved by the threads on the plunger screw, thereby forming an anti-frictional engagement between the plunger rod and nut whereby the operation of these parts is greatly facilitated. On the lower end of the plunger screw is secured a stop collar 43 whereby the upward movement of the plunger screw is limited. On the upper end of the plunger screw is secured a plunger head 44, said head being preferably detachably secured to the screw by set screws or other suitable means. The plunger head 44 is adapted to have a loose sliding engagement with the inside of the hoppers and on the opposite ends of said head are formed guide lugs 45 which project downwardly and are adapted to engage guide brackets 46 arranged on the base 2 when the plunger head has been entirely retracted from the hoppers. The guide brackets and lugs serve to hold the head in position and to guide the same into the hopper when the plunger screw is operated in the proper direction. On the upper side of the head 44 is formed a centrally disposed upwardly projecting flange or boss 47 which is adapted to fit into sockets 48 formed in the underside of the movable bottoms of the hoppers when the plunger head is brought into engagement with said bottoms and the latter raised by the plunger screw and head to force the material in the hoppers upwardly into the baling chamber. After the material has thus been compressed in the baling chamber and secured in the proper manner, the plunger screw is operated in the proper di-

rection for retracting the plunger head, thus permitting the bottom of the hopper to drop back onto the supporting flanges 25 arranged in the lower end of the hopper.

5 The plunger operating nut 34 may be revolved in any suitable manner to actuate the plunger screw, said nut being here shown and is preferably provided on its outer edge with an annular series of gear teeth 49 with
10 which is engaged a spur gear pinion 50 fixed on the inner end of a drive shaft 51 journaled in suitable bearings in the base 2. The shaft 51 may be connected with and operated by any suitable power or driving
15 mechanism. (Not shown).

From the foregoing description, taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without re-
20 quiring a more extended explanation.

Various changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of
25 the invention, as defined in the appended claims.

Having thus described my invention, what I claim is:

30 1. In a baling press, a supporting frame, a baling chamber in the upper end of said frame, said chamber comprising supporting rods, side pieces pivotally mounted on the supporting rods, end pieces pivotally mounted on the opposite ends of said side pieces,
35 fastening blocks pivotally mounted on the supporting rods, pivotally mounted fastening levers, connections between said le-

vers and said blocks, latch bars pivotally connected to said levers, and keepers arranged on the sides of the baling chamber 40 and adapted to receive said latch bars.

2. In a baling press, a supporting frame, a baling chamber arranged in the upper end of said frame, said chamber comprising sup-
45 porting rods, a base member secured thereto, side pieces pivotally mounted on the diagonally opposed supporting rods of said base member, end pieces pivotally mounted on the opposite ends of said side pieces, fastening
50 blocks pivotally carried on said supporting rods, fastening chains connected with said blocks, pivotally mounted fastening levers, studs carried by said levers and adapted to receive said chains, whereby the sides and
55 ends of the chamber are fastened together in operative position, latch bars pivotally connected to said levers, and keepers arranged on the sides of the hoppers and adapted to receive said latch bars, whereby the levers
60 are held in operative position to fasten the sides and ends of the chamber in closed position, and whereby when said latch bars are disengaged from the keepers, said levers may
65 be swung around to release said chains and thereby to permit said baling chamber to open.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

GEORGE M. ^{his} X WASHINGTON.
mark

Witnesses:

W. M. C. DICKSON,
A. Z. HESTER.