

F. GILL & D. O. GRAHAM.

BALING PRESS.

APPLICATION FILED APR. 21, 1910.

981,994.

Patented Jan. 17, 1911.

2 SHEETS—SHEET 1.

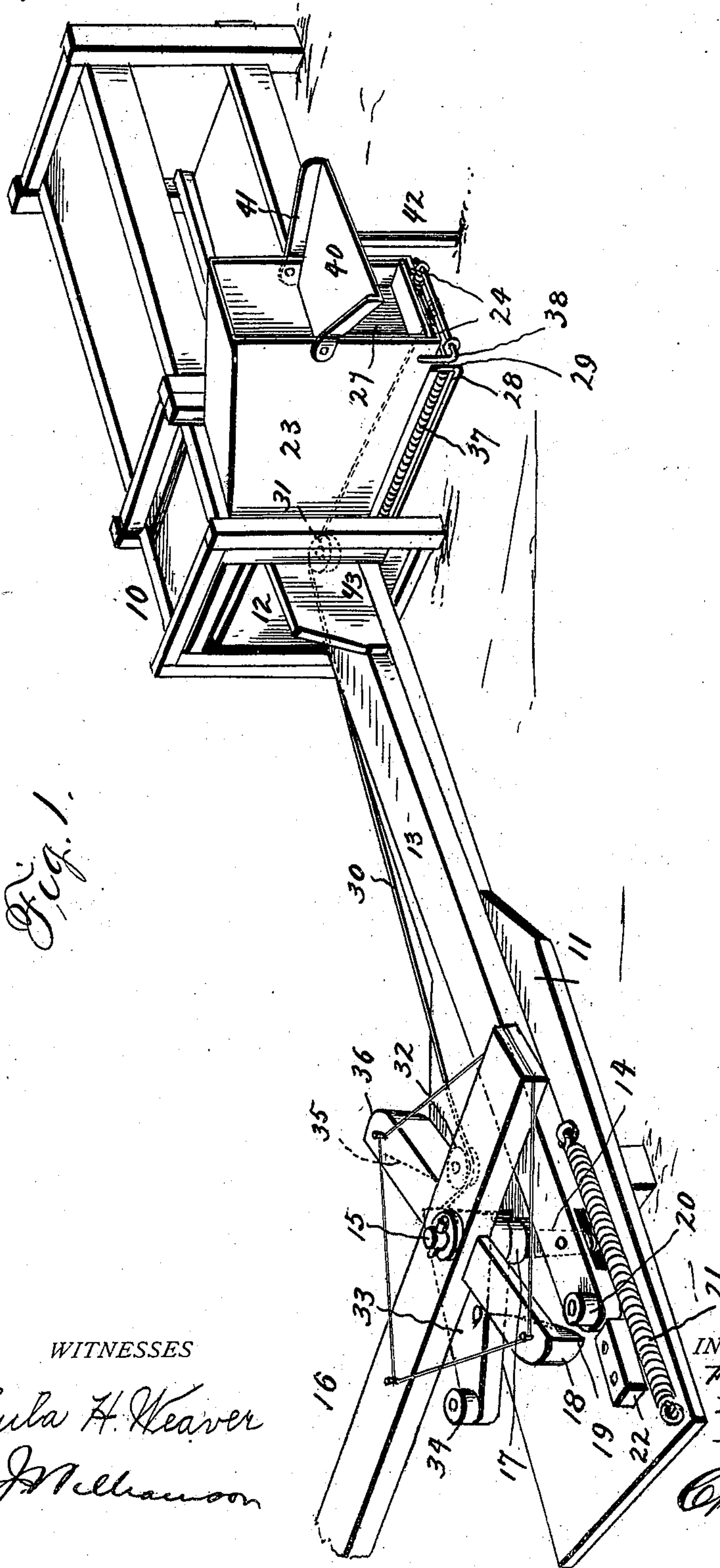


Fig. 1.

WITNESSES

Lula H. Weaver
C. J. Williamson

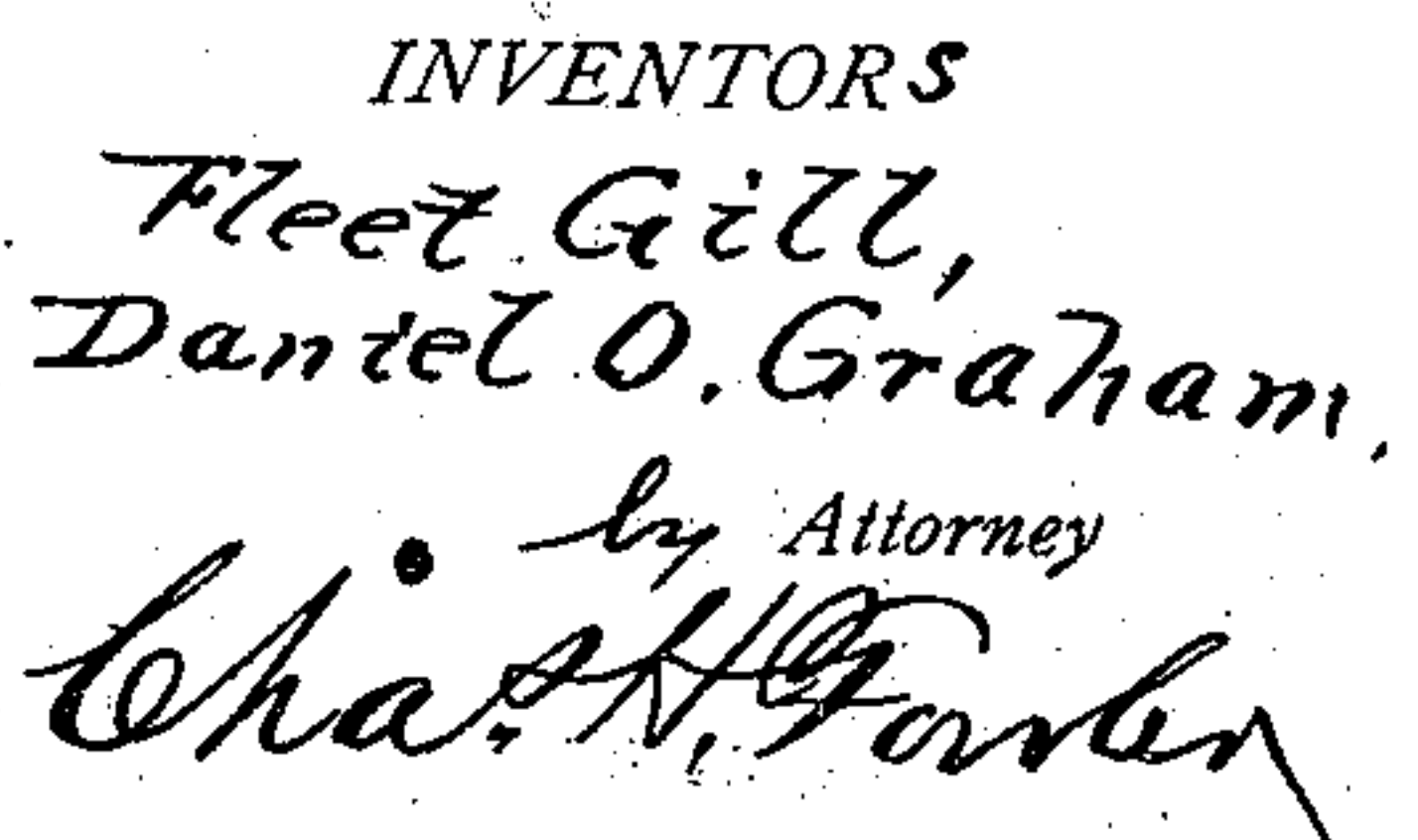
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APPLICATION FILED APR. 21, 1910.

2 SHEETS—SHEET 2:



UNITED STATES PATENT OFFICE.

FLEET GILL AND DANIEL O. GRAHAM, OF COMANCHE, TEXAS.

BALING-PRESS.

981,994.

Specification of Letters Patent.

Patented Jan. 17, 1911.

Application filed April 21, 1910. Serial No. 556,884.

To all whom it may concern:

Be it known that we, FLEET GILL and DANIEL O. GRAHAM, of Comanche, in the county of Comanche and State of Texas, have invented a certain new and useful Improvement in Baling-Presses, and do declare that the following is a full, clear, and exact description thereof.

Our invention relates to baling presses and our object is to provide a press of such construction that it will be powerful and yet simple, so that a minimum of power will be required to operate it, and its operation will be convenient and rapid, and to these ends our invention consists in the construction substantially as hereinafter specified and claimed.

Referring to the accompanying drawings, Figure 1 is a perspective view of a baling press constructed in accordance with our invention; Fig. 2 is a view partly in plan and partly in horizontal section; Fig. 3 is a transverse section on the line 3—3 of Fig. 2.

The baling chamber 10 of our press is of usual construction, and therefore need not be described fully. The floor or bottom thereof has a longitudinal prolongation or extension 11 at one end upon which rests and reciprocates the plunger 12, which is carried on the inner end of a beam 13 whose other end is pivotally connected to the outer end of an arm 14, which is pivoted to the king post 15 extending upward from the prolongation or extension 11. Upon the king post is pivoted a revolving sweep 16, a collar 17 being interposed between a hub on the sweep and the top of the arm 14. Carried by the sweep is a radially extending arm 18 which on its end supports a triangular block 19 the hypotenuse of the triangle being preferably convexly curved and constituting a cam surface to act upon a roller 20 mounted on the upper side of the plunger beam near the outer end thereof. The cam surface by the rotation of the sweep engages the roller at a point on its surface farthest from the cam post, so that as the rotation of the cam, by the turning of the sweep, continues, the point of contact between the cam surface and roller will shift or move progressively inward toward the cam post, or center of rotation of the sweep, and thereby increases the power applied to the plunger to move it into the baling chamber, during a pressing operation,

so that the power applied to the bale increases as the density of the bale increases, which, of course, is a very advantageous condition. When the cam surface passes out of contact with the roller in consequence of the continued rotation of the cam by the sweep, and the compressing effect of the plunger ceases, the plunger is retracted to its former starting position by means of a coil spring 21, which at one end is attached to the plunger beam and at the other end is attached to the floor extension or prolongation. Preferably on the latter is a bumper or stop block 22 against which the end of the plunger beam strikes when it is retracted by the spring. The purpose of the arm pivotally connected with the cam post and the plunger beam is to guide or control the movement of the plunger.

Our press is provided with an automatic or self-feeding device. For this purpose, the baling chamber is open at one side and from such side there projects a feed box 23 preferably formed of sheet metal having two side walls and either closed or open at the top, with the bottom of each side wall turned inward to form a flange 24 upon which rests and is guided a sliding bottom plate 25 that extends transversely of the baling chamber and projects beyond the opposite side from the feed box. Projecting up from and carried by said sliding bottom 25 is a plunger 27 which by an inward movement carries before it hay or other material to be baled through the feed box into the baling chamber.

The inward or feeding movement of the feeding plunger is effected by the following mechanism: Secured to the under side of the sliding bottom is a frame composed of parallel rods 28 whose ends are upturned and suitably fastened to the sliding bottom, and two cross rods 29 that connect the parallel rods at the ends thereof. To one of said cross rods is attached one end of a chain or cord 30 which thence extends parallel with the sliding bottom transversely of the press and passing around a pulley 31 is then extended parallel with the bottom prolongation or extension to and around a pulley 32 on said bottom extension or prolongation to a lever 33 to which lever the other end of the chain or cord is attached. The lever 33 is pivoted intermediate its ends and on its upper side is provided with a roller 34 adapted to be engaged by a triangular block

35 on the under side of an arm 36 attached to the sweep similar to the arm which carries the similar cam for actuating the plunger during a baling operation. The triangular block 35 by the revolution of the sweep thus rocks the lever 33 which pulling upon the chain or cord 30 causes the transverse movement of the sliding bottom and the feeding plunger thereon, required to feed the hay or other material into the baling chamber. The retraction of the sliding bottom and the feeding plunger after the cam of the block 35 passes out of engagement with the lever roller, is effected by one or more coil springs 37 that are attached at one end to a stationary cross bar 38 fastened to the feed box and which at the other end is attached to the cross rod 29 other than the one to which the chain or cord 30 is attached. The two cam-engaging rollers that we employ are slightly tapered, they being larger at the top than at the bottom to prevent any tendency of the cams to slide upward therefrom.

To facilitate placing the hay or other material to be baled in the feed box, we pivot to the side walls thereon, at the outer end, a table 40 which has at each side vertical flanges 41 through which the pivot pins pass and between which the table bottom extends in the form of a lip between the two side walls. Said table may, when not in use, be turned to a vertical position at the end of the feed box, and to support it in a horizontal position we pivot to its under side a leg 42 which leg will fold in against the bottom of the table when the latter is not in use.

In order to prevent hay or other material passing from the feed box over the plunger beam in rear of the plunger, as the latter is moved inward, there is a vertical side wall or plate 43 attached to the plunger beam in rear of the plunger which traverses across the opening from the feed box in the baling chamber as the inward movement of the plunger proceeds.

It, of course, will be understood that the movements of the feeding plunger and the baling plunger are so timed that the feeding plunger completes its inward movement in time to insure a charge of hay being in the chamber at the time the pressing movement of the plunger commences, and so that the baling plunger is retracted in time to

prevent interference with the entrance of the hay to be baled into the baling chamber.

The press that we have illustrated and described is a double stroke press, but it will be understood that a press embodying our invention can be any desired stroke, merely by varying the number of the plunger-operating cams on the sweep.

We have indicated some of the changes that may be made in our press without departing from our invention and it is to be understood that other changes may be made without departure from our invention.

Having thus described our invention, what we claim is—

1. In a baling press the combination of a reciprocating part and means for actuating the same, comprising a rotary cam, and a co-operating member on said part, the point of contact of cam and said member progressively changing inward to the center of rotation of the cam, the surfaces of a cam and member in contact being at an angle to each other, whereby said parts tend to remain in operative engagement.

2. The combination of a baling chamber, a baling plunger, a rotary cam, and a roller connected with the plunger engaged by said cam, the roller being tapering.

3. In a baling press the combination of a baling chamber, a pressing plunger, means for reciprocating said plunger, a feed box, a sliding bottom for said feed box, a plunger carried by said sliding bottom, a lever, a cord or chain connecting the lever and said sliding bottom, a rotary cam, and a part on the lever coacting with said cam.

4. In a baling press the combination of a baling chamber, a baling plunger, a feed box having side walls with inturned flanges at the bottom, a sliding bottom above said flanges, a feeding plunger carried by said bottom, a frame attached to said bottom, a lever, a connection between said lever and said frame to move the sliding bottom in one direction, spring means to move the sliding bottom in opposite direction, and a rotary cam to actuate said lever.

Witness our hands at Proctor, Texas, this September 14th, 1909.

FLEET GILL.

DANIEL O. GRAHAM.

Attest:

GEORGE P. CALLAN,
ISAAC M. DOUGLAS.