No. 700,697. Patented May 20, 1902.

E. W. MOORE.

HAY PRESS.

(Application filed Dec. 23, 1901.)

(No Model.) 3 Sheets—Sheet 1.

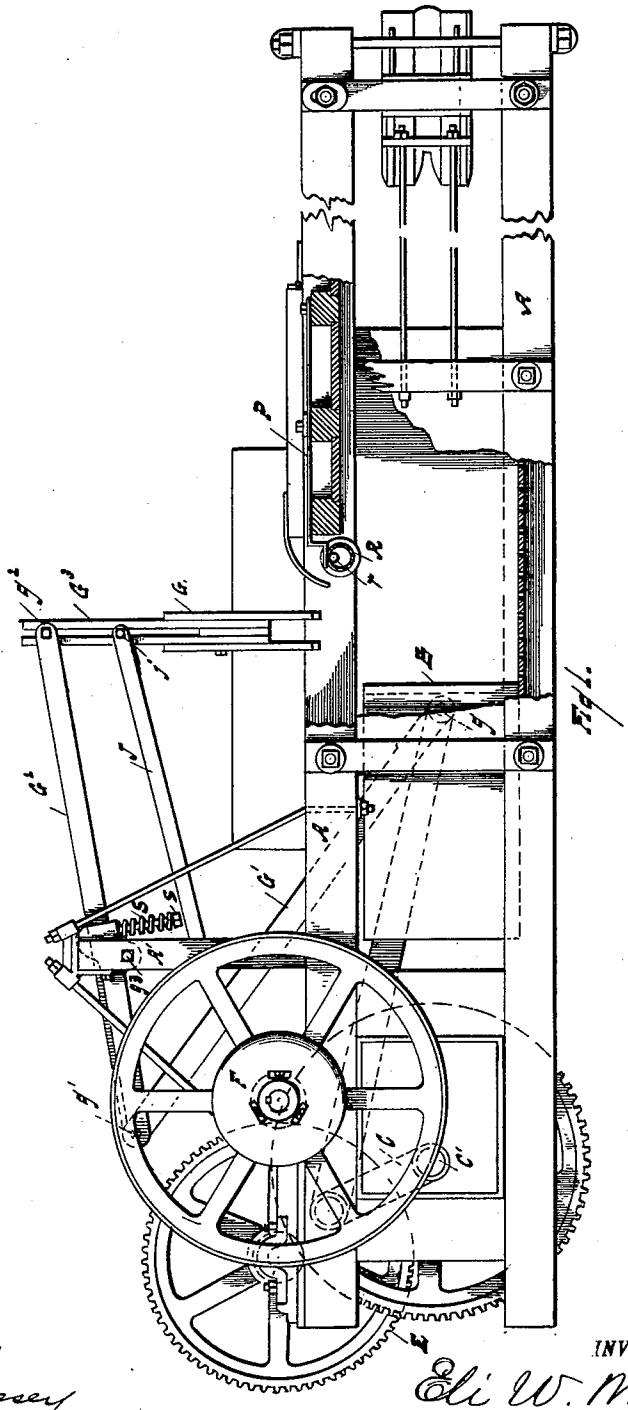


Fig. 1.

WITNESSES

J. J. Massey

Nettie V. Belles

INVENTOR

Eli W. Moore

By Parker & Burton

Attorneys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

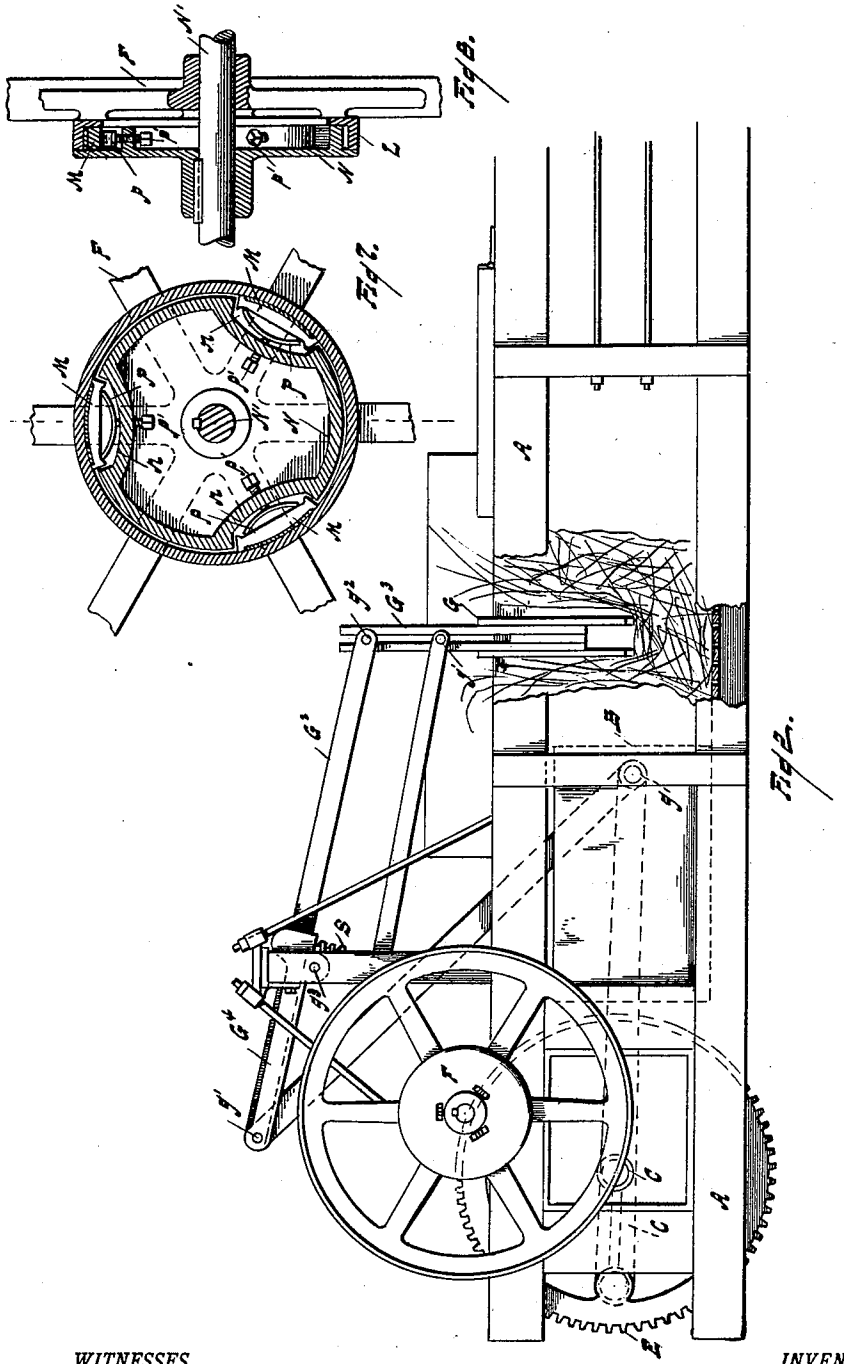
No. 700,697. Patented May 20, 1902.

E. W. MOORE.

HAY PRESS.

(Application filed Dec. 23, 1901.)

(No Model.) 3 Sheets—Sheet 2.



WITNESSES

T. S. Mossey

Nettie V. Belles

INVENTOR

E. W. Moore

By Parker & Burton

Attorneys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

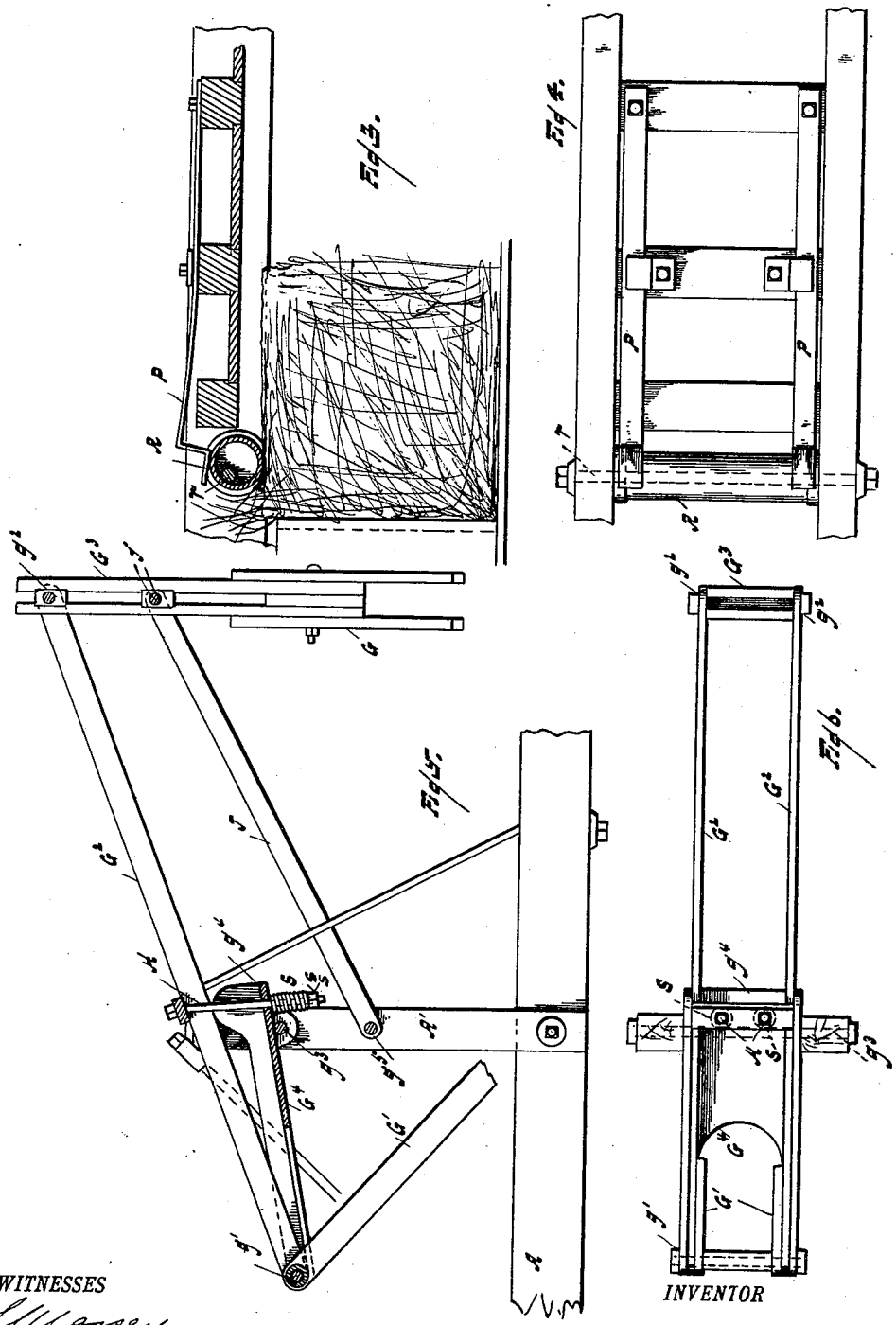
No. 700,697. Patented May 20, 1902.

E. W. MOORE.

HAY PRESS.

(Application filed Dec. 23, 1901.)

(No Model.) 3 Sheets—Sheet 3.



WITNESSES

T. S. Massey.

Nettie V. Belles

INVENTOR

By Eli W. Moore

Parker & Burton Attorneys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

ELI W. MOORE, OF ANN ARBOR, MICHIGAN, ASSIGNOR OF ONE-HALF TO PUSEY W. MOORE, OF ANN ARBOR, MICHIGAN.

HAY-PRESS.

SPECIFICATION forming part of Letters Patent No. 700,697, dated May 20, 1902.

Application filed December 23, 1901. Serial No. 86,887. (No model.)

To all whom it may concern:

Be it known that I, ELI W. MOORE, a citizen of the United States, residing at Ann Arbor, county of Washtenaw, State of Michigan, have invented a certain new and useful Improvement in Hay-Presses; and I 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 pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to hay-presses adapted te press hay into bales; and it consists in the novel combinations hereinafter described and claimed.

In the drawings, Figure 1 is an elevation of the press, a portion of it being broken away to show the interior construction. Fig. 2 is a corresponding elevation of a portion of Fig. 1, the vertical beater being dropped to its lowest position. Figs. 3, 4, 5, and 6 are figures showing details of construction. Fig. 7 is a detail figure, showing the relief balance-wheel connected to the beater B through a pitman D, shown in dotted lines in Fig. 1. Fig. 8 is a section of the same.

Similar letters refer to similar parts.

In the drawings, A is the framework of the body of the machine, which is of the usual construction and in which there is nothing new. Within this body there is located, as in the ordinary practice, a plunger or beater B, driven by a crank C on a crank-shaft C'. A train of gearing E is used for driving the machine from any convenient source of power in the usual manner. It also drives a relief balance-wheel F, hereinafter described, and the construction of which is such that in case the plunger or beater B is suddenly arrested by reason of any incomprehensible substance falling into the casing the balance-wheel will continue to revolve without twisting its shaft or breaking any of the connecting parts. A vertical beater G is arranged to operate just in advance of the horizontal beater B in the manner shown in Fig. 2, and in order to have it move in proper relation to that of the beater B and not have it interfere therewith I have devised peculiar mechanism for connecting it to the beater B and also for providing for a relief of the beater G in case it encounters any unyielding substance. This mechanism consists in a supplemental connecting-rod G', pivoted at g to the beater B, and therefore reciprocating therewith. Its opposite end g' is pivoted to a rocking arm G^2, the opposite end of the rocking arm at g^2 being pivoted to the upright portion G^3 of the beater G. A standard A' is rigidly attached to the framework A, and, as is shown more particularly in Fig. 5, it supports the rocking arm G^2 by means of a supplemental arm G^4, which is also pivoted to the arm G' at g' and is pivoted to a standard A' at g^3. It will be noted that it overhangs to a certain extent the pivotal point G^3 at g^4 (see Fig. 5) and that the overhanging portion is connected with the rocking arm G^2 by means of two through-bolts H, and on these are strung two spiral springs S. These springs abut against the lower side of the arm G^4 and extend against the nuts s on the bolt H, being shown in their normal position in Fig. 1 and in a compressed position in Fig. 5. While in the normal position, the arm G^2 rests within the rectangle formed in the hollow upper side of the arm G^4, as shown in Fig. 1 and as indicated in partial section in Fig. 2; but when the plunger G meets any resistance sufficient to overcome the tension of the springs S the arm G^2 is lifted out from its location in G^4, as shown in Fig. 5, and the springs are compressed. In order to keep the beater G substantially perpendicular, a second parallel swinging arm J, pivoted to it at j and to the post A' at g^5, is provided.

I prefer to make the arm G^2 of two side pieces or parts as shown in Fig. 6, which is a plan view from the top of that arm and its upper connections with the post A'. This of course makes no change in principle, but is a convenient means of making the arms and having them light and reasonably strong and rigid.

In order to facilitate the packing of the hay beneath the upper portion or cover A^2 of the packing-chamber, I provide at the outer edge of this cover or upper portion a roller R, and instead of pivoting the roller with a close pivot the roller may be made of thin material, as of iron pipe of any convenient size, and the bolt r, passing through the frame

from side to side and which the pipe or roller encircles, gives it a certain amount of freedom to swing from side to side, as well as to rotate. Impinging upon the upper side of the roller there are at either end located springs P P, (shown in Figs. 3 and 4,) and these allow the roller to yield. The action of this roller is as follows: When the material is being crowded in under the roller by the beater B in order to enter the throat of the packing-compartment, the roller not only yields against the springs, but swings backward, as shown in Fig. 3, in consequence of the large amount of so-called "lost motion" between the pivoted bolt *r* and the internal surface of the roller. When the beater B is withdrawn, the roller returns, rolling down the hay projecting above the beater. This prevents clogging at this the only point where the material which is to be packed comes in contact with the edge of the casing, the two sides and bottom being smooth.

Inasmuch as it may happen, through breaking of connections or otherwise, that the beater G may not get entirely out of the way of the beater B in its reciprocations, by reason of the mechanism provided, and therefore that the beater B may accidentally come in contact with it or with any other unyielding substance, in order to relieve the beater B from the inertia of the heavy fly-wheel K, I have provided means whereby the fly-wheel can be made yielding, and thus continue to rotate, notwithstanding the stoppage of the gearing and the plunger connected therewith. The construction of this fly-wheel is shown in Fig. 7, wherein there is an internal flange attached to the spokes of the fly-wheel, which flange is marked L. The interior of this flange, which is smooth, is adapted to come in contact with a series of friction-plates M M. A spider N is attached fixedly to the shaft N' and rotates with it. This spider has recesses *n n*, within which the friction-plates M M are held. Back of the frictional plates are springs *p p*, held by adjusted nuts *p' p'*, the adjusting-nuts being in flanges in the spider. It is obvious that by this construction the friction-plates on M M are held out against the interior of the flange L, and as the flange L is attached to the spokes of the wheel, if the friction-plates do not slip the driving of the axle, which is loose within the hub of the wheel, will through the medium of the friction-plates drive the wheel, and in case any resistance is brought upon the axle, as through the gearing from the stoppage of the plunger B, the friction-plates would yield and allow the wheel to slip over them, and thereby permit the wheel to rotate continually without bringing very much stress upon the axle, it being well known that two surfaces in contact that are sliding do not hold with the same resistance that they would if the two friction-surfaces were quiescent to each other. Thereby the slipping of the plates not only occurs when the resistance is greater than the frictional resistance, but when the plates begin to slide this is decreased, and it will be noted, therefore, that I have provided safety appliances to guard against the destruction of the machine by the sudden arrest of either of the plungers or by their coming in contact with each other through any deranged action of the machine.

All of the other parts of the apparatus are similar to and not essentially different from ordinary hay-presses, and therefore need no further description, as they will be well understood in the art.

Having described the mode of operation in detail with respect to each point in which improvements are made, it is unnecessary to specify the mode of operation as a whole.

What I desire to claim is—

1. In a hay-press, the combination of a plunger operating longitudinally of the frame of the machine, means for actuating said plunger, a connecting-rod between said plunger and a walking-beam, a perpendicularly-operating plunger actuated by the walking-beam, said walking-beam being divided into two parts and having a spring interposed between the two parts resisting the separation of the two parts at the pivoted center of motion, whereby the perpendicular plunger is enabled to yield on encountering an undue resistance, substantially as described.

2. In a hay-press, a frame containing therein a hopper or rack to receive the material to be packed, a packing-chamber into which said material is compressed, a roller in advance of the top of the said chamber to assist in guiding and transferring the material into the packing-chamber, the roller having a relatively larger diameter than and being mounted upon a fixed axis, a yielding spring or springs mounted above and impinging against said roller whereby said roller is enabled to not only rotate but swing toward the edge of the cover of the packing-chamber, substantially as and for the purpose described.

3. In a hay-press, the combination of a longitudinally-operating plunger, means for actuating said plunger, a connecting-rod between said plunger and a walking-beam, a perpendicularly-operating plunger actuated by the walking-beam, a walking-beam divided into two parts, said parts having at one point a pivotal connection, and at the other point an elastic resistance tending to prevent their separation, substantially as and for the purpose specified.

In testimony whereof I sign this specification in the presence of two witnesses.

ELI W. MOORE.

Witnesses:
NETTIE V. BELLES,
R. A. PARKER.