

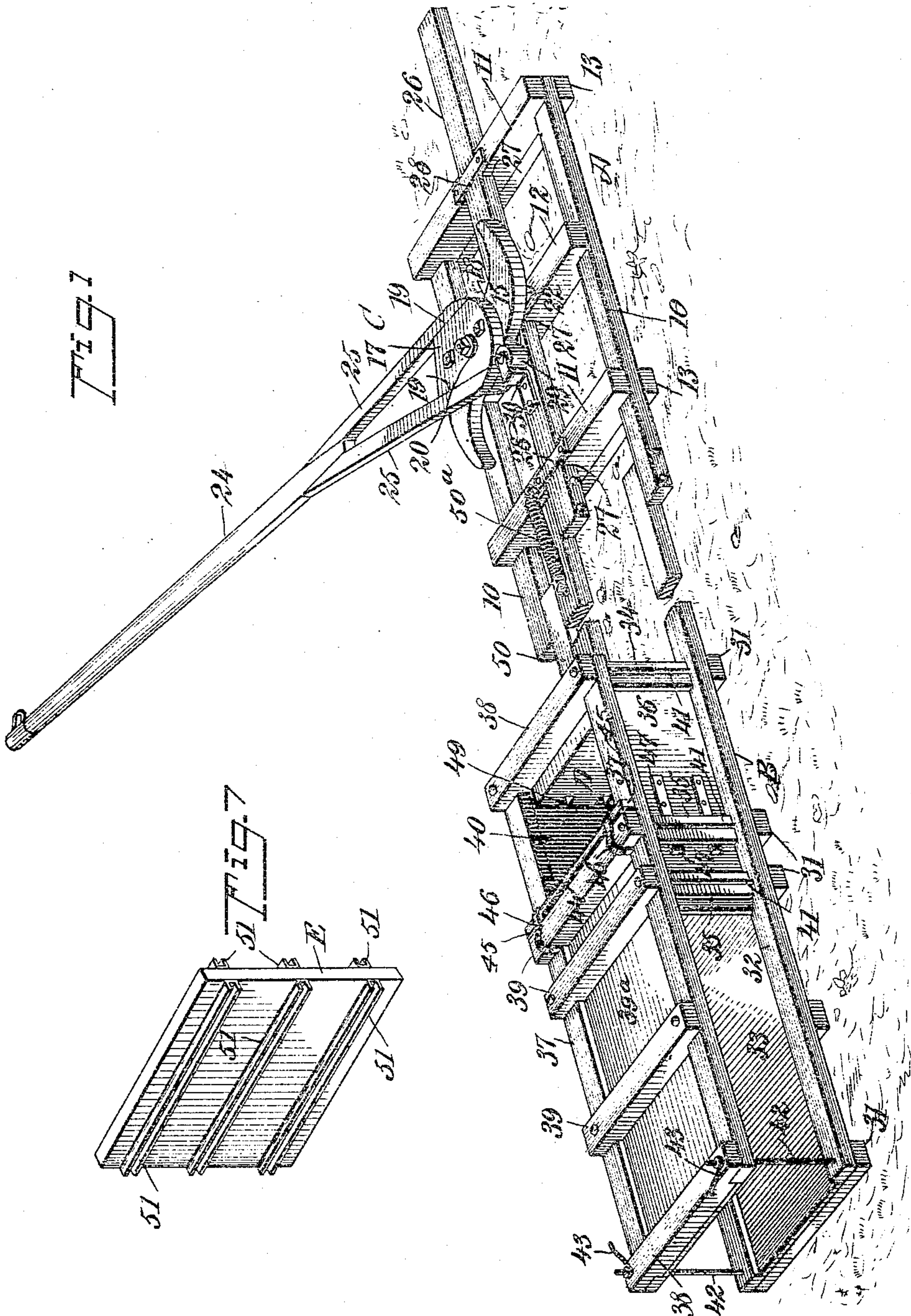
No. 791,898.

PATENTED JUNE 6, 1905.

J. M. GURLEY.
HAY PRESS.

APPLICATION FILED JAN. 22, 1904.

2 SHEETS—SHEET 1.



WITNESSES:

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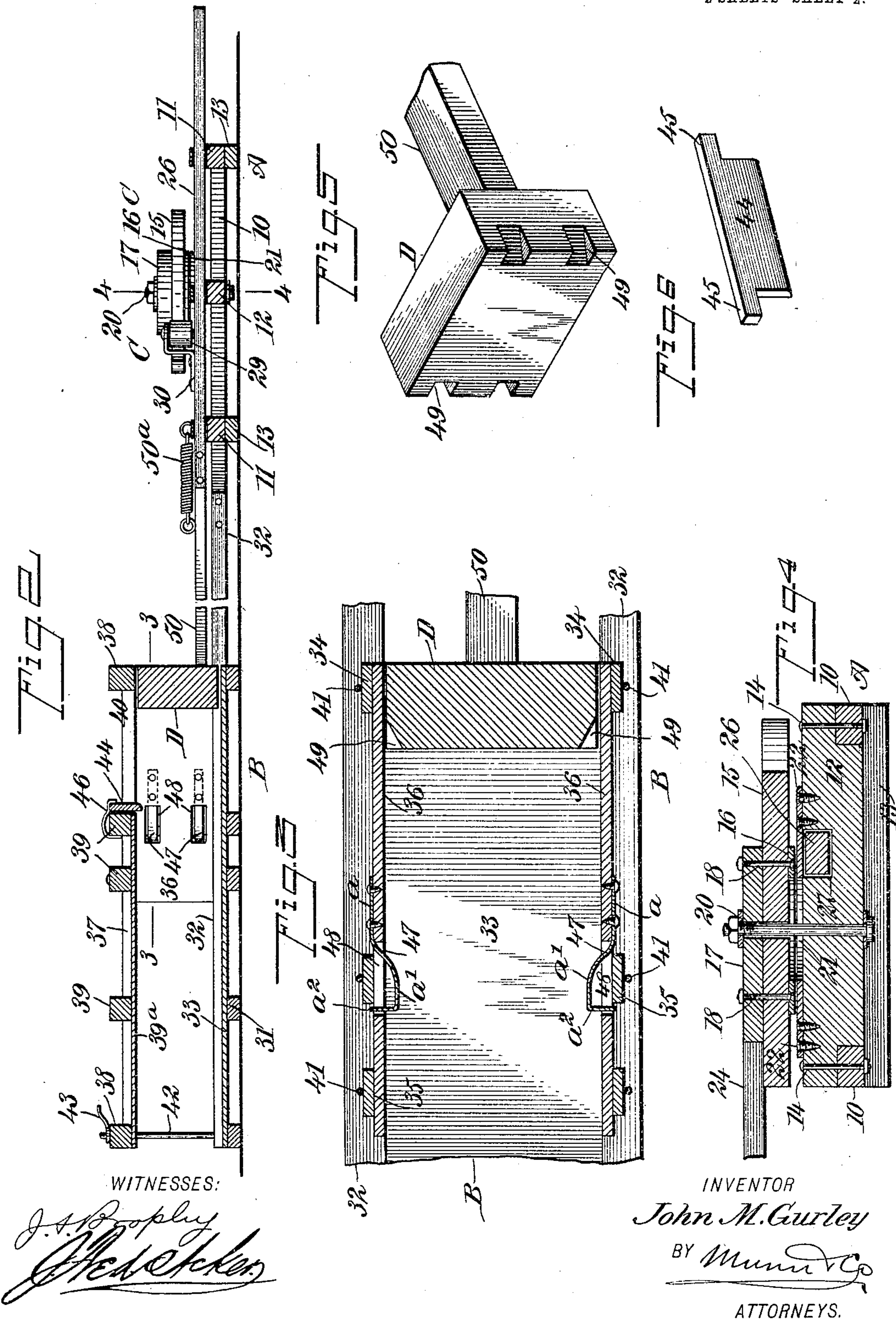
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2 SHEETS—SHEET 2.



UNITED STATES PATENT OFFICE.

JOHN MARK GURLEY, OF DENTON, TEXAS.

HAY-PRESS.

SPECIFICATION forming part of Letters Patent No. 791,898, dated June 6, 1905.

Application filed January 22, 1904. Serial No. 190,132.

To all whom it may concern:

Be it known that I, JOHN MARK GURLEY, a citizen of the United States, and a resident of Denton, in the county of Denton and State of Texas, have invented a new and Improved Hay-Press, of which the following is a full, clear, and exact description.

The purpose of my invention is to provide a construction of hay-press in which will be combined simplicity, economy, durability, and speed and one in which pulleys and wheels and all surplus rollers are dispensed with liable to render the machine clumsy and difficult to keep in repair.

A further purpose of the invention is to snugly locate the power appliance of the machine, which appliance is of simple construction, on a strong frame and to provide for the plunger-shaft operating in well-adapted guides, reducing to a minimum the possibility of the plunger-shaft giving away or breaking.

Another purpose of the invention is to provide a simple and durable form of folder which will automatically act to fold downward the rough ends of the straw forced upward by the plunger, thus giving the bales a neat and smooth appearance and whereby each charge is separated when the ties are taken off from the bales; also to so construct the division-boards or folder-blocks that they will have offset gutters for conducting wires at each face, which conductor-gutters produce impressions in the ends of the bales, enabling the tie-wires to be securely fastened and insuring such wires remaining in position.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a perspective view of the improved hay-press, parts being broken away. Fig. 2 is a longitudinal vertical section through the press. Fig. 3 is an enlarged horizontal section through the receiving-chamber of the press, the section being taken practically on the

line 3 3 of Fig. 2. Fig. 4 is a vertical section through the power appliance, the section being taken substantially on the line 4 4 of Fig. 2. Fig. 5 is a detail perspective view of the plunger-head and a portion of the shaft connected therewith. Fig. 6 is a detail perspective view of the folder for the machine, and Fig. 7 is a perspective view of a follower-block employed.

The frame of the machine is practically in two sections—a forward section A, which carries the power appliance, and a body-section B, which is preferably made somewhat narrower than the forward section A, as is shown in Fig. 1. The forward section A consists of longitudinal side beams 10, connected near their ends by cross-bars 11, and an intermediate cross-bar 12, which cross-bars 11 and 12 are recessed to receive the side beams or bars 10, and the said cross-bars and side bars are usually connected by means of bolts 14, as shown in Fig. 4. Below the forward and rear cross-bars 11 transverse sills 13 are secured in any suitable or approved manner, adapted to rest upon the ground.

The power appliance is designated as C and consists of the following parts: An S-cam 15 is horizontally supported at the central portion of the forward frame A centrally over the intermediate cross-bar 12, and at the lower face of this S-cam 15 a wear-plate 16 is secured, in the form of a ring, as is shown in Fig. 4, and at the upper central portion of the said S-cam 15 a block 17 is located, having two opposing converging sides 19, so that the block 17 at one end is tapered, as is shown in Fig. 1. The block 17 and the wear-plate 16 are secured to the S-cam 15 by means of bolts 18, as is illustrated in Fig. 4. A pivot-pin 20 is passed through a suitable central opening in the block 17 and the S-cam 15 and is then passed through an opening in the central portion of the intermediate cross-bar 12. This bolt 20 is usually provided with a head and washer at its lower end and with a nut and washer at its upper end. A second wear-plate 21, also of ring construction, is located below the wear-plate 16, carried by the cam 15, and the said lower wear-plate 21 is located

on the upper face of the intermediate cross-bar 12 and is provided with diametrically-opposing lugs 22, secured by screws or otherwise to the said intermediate cross-bar 12, as is likewise shown in Fig. 4. A sweep 24 is horizontally placed with reference to the forward frame A, and this sweep at its inner end has diverging arms 25 secured thereto in any suitable or approved manner, and these arms are made to engage with the inclined faces 19 of the block 17, carried by the cam 15, as is shown in Fig. 1, while the outer end of the said sweep is fitted with any appliance whereby a swingle or a double tree may be fastened thereto. It will be observed that by forking the inner end of the sweep 24 an equal bearing is obtained at each side of the block 17, and consequently an equal bearing is obtained with reference to the S-cam 15, to which the said block is secured.

A shaft 26, usually rectangular in cross-section, is mounted to slide in recesses 27, produced in the cross-bars 11 and 12 of the forward frame A, and this shaft is held in position by straps 28, located at the upper portions of the cross-bars and bridging the recesses therein, whereby the shaft 26 may be removed whenever it is found expedient.

At the rear of the S-cam 15 a bracket 30 is secured, and between this bracket and the upper portion of the actuating-shaft a friction-roller 29 is mounted to turn, and as the cam is revolved it has bearing against said roller, moving the adjusting-shaft in direction of the rear. The said shaft is returned forward when the roller is opposite the concaved surfaces of the S-cam by means of a tension device to be hereinafter described.

The body-frame B of the press consists of cross-bars 31 in any desired number, lower side sills 32, secured to the said cross-bars, and a bottom 33, which is constructed between the side sills 32. From the forward end portions of the side sills 32 standards 34 are carried upward a desired height, and at a point between the ends of the side sills intermediate standards 35 are likewise carried upward, as is shown in Figs. 1 and 3. The sides of the baling-chamber are formed by securing side boards 36 to the standards or uprights 34 and 35. In the further construction of the body-frame upper longitudinal or side beams 37 are secured to the uprights or standards 34 and 35, connected by front and rear cross-bars 38 and intermediate cross-bars 39, the forward intermediate cross-bar being spaced a predetermined distance from the forward end cross-bar 38, as is shown in Fig. 1, so as to provide a feed-opening 40 for the baling-chamber. In the further construction of the body-frame B an upper horizontal wall 39^a is formed, extending from one upper side beam 37 to the other and from the forward intermediate cross-bar 39 to the rear cross-bar 38 of said frame. Tie-bolts 41 are carried down

through the upper and lower cross-bars opposite each of the standards 34 and 35, and other tie-bolts 42 are carried up through the end portions of the rear upper and lower cross-bars 31 and 38, having suitable heads at their lower ends. At the upper ends of said tie-rods 42, which ends are threaded, tension-clamps 43 are located, so that the space between the upper wall 39^a of the said body-frame B and the bottom 33 may be increased or decreased, as desired.

In connection with the baling-chamber of the body of the press I employ a folder 44. (Shown in detail in Fig. 6.) This folder is located in front of the forward intermediate cross-bar 39, as is shown in Figs. 1 and 2, and extends down a predetermined distance within the baling-chamber and is provided with lugs 45 at the upper portion of each end, as is specially shown in Fig. 6, adapted to rest upon the upper side beams 37 of the body-frame, and the said folder is held normally in the position just described by means of springs 46, which are attached to the forward intermediate cross-bar 39 and to the upper portion of the folder, extending down at the front of the folder, as is also shown in Figs. 1 and 2. The function of this folder is to press downward the ragged upwardly-inclined ends of the straw forced into the said chamber as the bale is produced, thus giving a finished and clean-cut appearance to the bale.

The straw is held in the baling-chamber while it is being baled by means of tension-arms 47, which tension-arms are in the form of flat springs, (shown in Fig. 3,) and each tension-arm comprises an outer shank-section α , screwed to the outer face of a side wall of the baling-chamber, as is shown in Fig. 3, and an inwardly-bowed section α' , which extends within the baling-chamber through openings 48 in its side walls, together with an outwardly-extending flange member α'' , which is at the free end of the tension-arm and extends out through the said opening 48, receiving the bow-section at the rear end portion of the said opening. These tension-arms 47 are located, preferably, between the center of the sides of the baling-chamber and the rear end of the same, and any desired number may be used at each side of the baling-chamber. Usually, however, two of said tension-arms are employed at each side, located one above the other, as is shown in Figs. 1, 2, and 3.

At the forward end of the baling-chamber, which is open, a plunger-head D is adapted to slide, and this plunger-head passes the entire length of the baling-chamber for the purpose of compressing or baling the straw. The said plunger-head D, as is shown in Figs. 1, 3, and 5, is provided at its inner end corners with recesses 49 for the passage of the tension-arms. A shaft 50, which I term a "plunger-shaft," is secured to the outer or front face of the said plunger-head, centrally there-

of, and this plunger-shaft 50 is of sufficient length to closely approach the rear cross-bar 11 of the forward frame-section A when the plunger-head is at the limit of its outer or forward throw, as is illustrated in Fig. 1, and the outer end of the plunger-shaft 50 is secured by bolts or otherwise to the rear end of the shaft 26, which may be termed an "actuating-shaft," mounted to slide upon the forward frame-section A, so that as the cam 15 is revolved and its convex surfaces are brought in engagement with the friction-roller 29 the actuating-shaft 26 is carried rearward and through the plunger-shaft 50 imparts a corresponding inward and compressing motion to the plunger-head D; but as soon as the friction-roller 29 is opposite a concave edge of the cam 15 a spring 50^a acts to return the plunger-head D to its normal position, the said spring 50^a being usually attached to the rear cross-bar 11 of the forward frame-section A and to the plunger-shaft 50 at a convenient point in its length, as is also shown in Fig. 1. The lower side sills 32 of the body-frame B extend forward as far as may be desired and are secured by bolts or otherwise at their forward ends to the inner faces of the rear end portions of the side sills 10 of the forward frame-section A.

It will be observed that a press constructed as above set forth is exceedingly simple yet durable, economic, and efficient and that the power appliance C is particularly simple and positive in its action and that no wheels or pulleys are employed and but a single roller is used.

In connection with the body of the press I employ division-boards or follower-blocks E, one of which is shown in detail in Fig. 7. These follower-blocks or boards are of sufficient size to slide in the baling-chamber and from end to end of the body-section of the press. At each side of each division-board or follower-block transverse channel-irons 51 are secured, extending from end to end of a board or block, forming thereby series of transverse gutters adapted to receive and conduct the tie-wires for the bales. Preferably the wire-conducting gutters 51 are located opposite each other, and they are usually three in number at each side. When a division-board or follower-block is employed, such as has been described, the wire-conducting gutters form grooves or recesses in the ends of the bale in which the tie-wires sink, enabling the said wires to be drawn tightly around the bale and to be securely fastened, and, furthermore, such grooves effectually prevent the tie-wires from slipping from the position in which they were placed.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a baling-press in combination, a baling-chamber and plunger adapted to reciprocate therein, a shaft carrying said plunger, a cam having substantially the form of a rudimentary S, a sweep adapted to rotate said cam, a roller carried by said shaft and rolling on the convex and concave faces of said cam and means for constantly constraining said shaft in the direction of said cam whereby said roller is always in contact with the surface of said cam.

2. In a hay-press, in combination, a compressing-chamber, a plunger adapted to reciprocate therein, a shaft carrying said plunger, a roller carried by said shaft, a cam having substantially the form of a rudimentary S, means for rotating said cam and a spring constraining said shaft in the direction of said cam and maintaining said roller against the surface thereof, the convex faces of said cam being adapted to advance said plunger and the concave faces of said cam cooperating with said roller and spring to return said plunger.

3. In a hay-press in combination, a baling-chamber having openings in the side walls thereof and a feed-opening in the upper wall thereof, a folder consisting of a transversely-disposed bar at the forward edge of said feed-opening and projecting into the interior of said chamber, springs constraining said folder downwardly, resilient retainers attached at said side openings and projecting inwardly therethrough into the interior of said chamber, said retainers presenting abrupt faces on the sides remote from said feed-opening, a plunger having a head adapted to reciprocate in said chamber, said head having recesses adapted to receive said retainers, a shaft carrying said plunger, a roller carried by said shaft, a substantially S-shaped cam, upon the convex and concave faces whereof said roller runs means for rotating said cam and a spring constraining said shaft in the direction of said cam and maintaining said roller constantly against the face thereof, the convex faces of said cam operating with said roller and spring to advance said plunger and the concave faces of said cam cooperating with said roller and said spring to return said plunger.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN MARK GURLEY.

Witnesses:

L. T. FOX,
W. R. ORR.