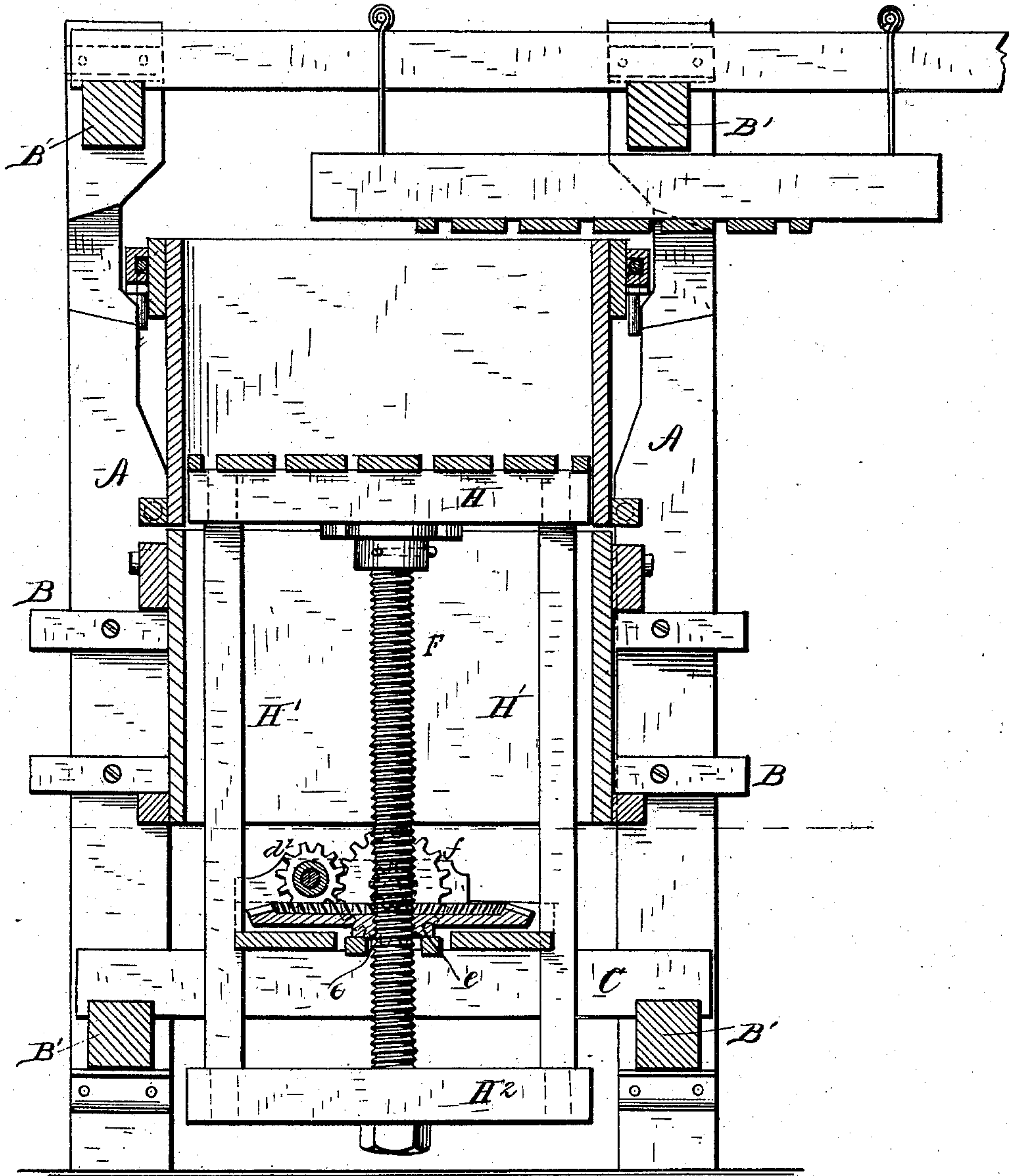


(Model.)

2 Sheets—Sheet 1.

W. J. F. LIDDELL.  
Hay and Cotton Press.  
No. 241,384. Patented May 10, 1881.

*Fig. 1.*



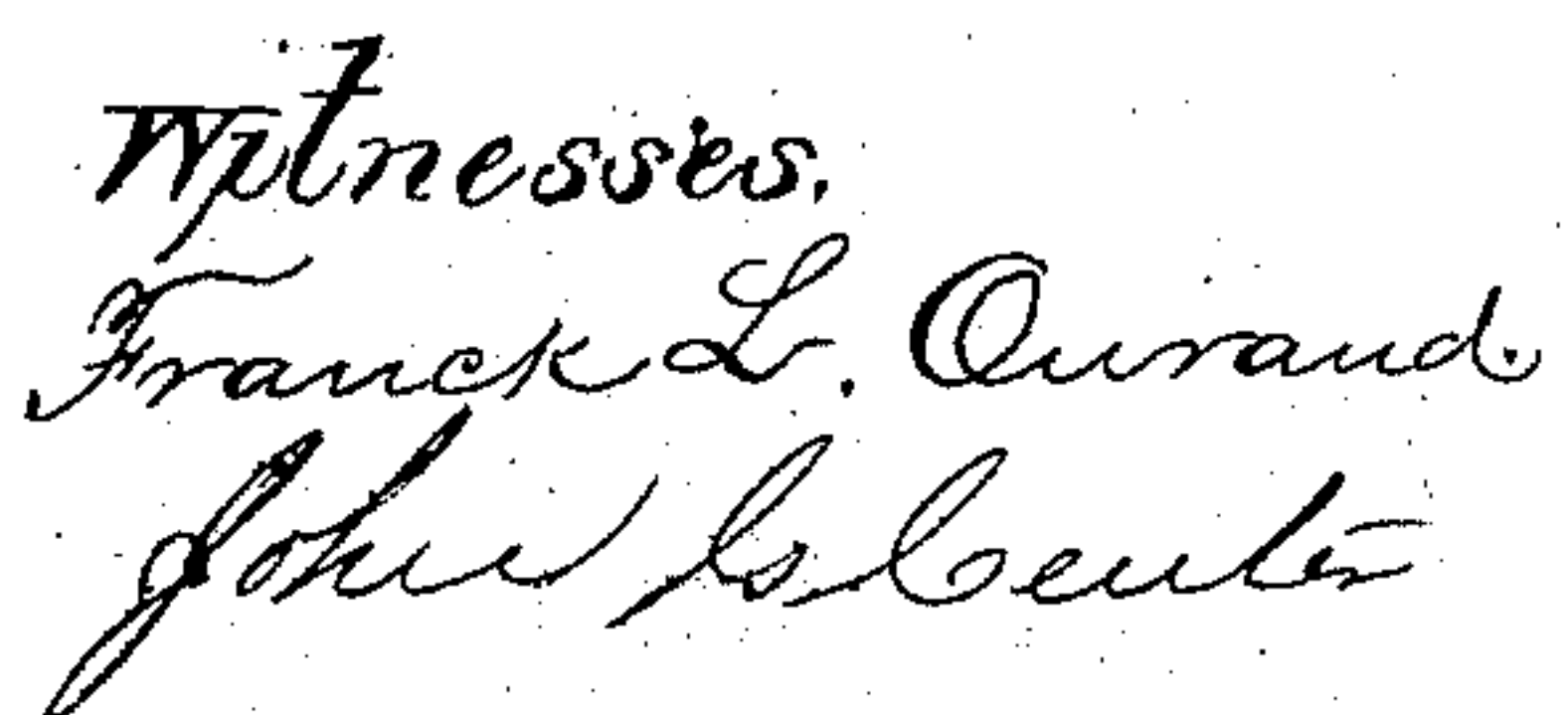
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2 Sheets—Sheet 2.

**No. 241,384.**

**Patented May 10, 1881.**



Inventor.  
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# UNITED STATES PATENT OFFICE.

WALTER J. F. LIDDELL, OF CHARLOTTE, NORTH CAROLINA.

## HAY AND COTTON PRESS.

SPECIFICATION forming part of Letters Patent No. 241,384, dated May 10, 1881.

Application filed January 13, 1881. (Model.)

*To all whom it may concern:*

Be it known that I, WALTER J. F. LIDDELL, of Charlotte, county of Mecklenburg, State of North Carolina, have invented certain new and useful Improvements in Hay and Cotton Presses, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a transverse vertical section through my improved press. Fig. 2 is a section on the line *yy*, Fig. 1, to show the arrangement of gearing. Fig. 3 is a partial section of one end of the press; and Fig. 4 is a similar view of the side.

The invention relates to a novel arrangement of cross-head and uprights in connection with the platen or plunger, and with the screw and combined bevel-wheel, and nut for operating the same, whereby the screw is made to act with a drawing action in compressing the bale, as hereinafter described.

In the accompanying drawings, A A represent the upright posts, secured together by means of the cross-bars or timbers B B and B' B'. The timbers or cross-bars B' B' are made narrower than the upright posts A, and are mortised in said upright posts, being secured in position by means of pins *a*. These bars are further secured to the upright posts by means of angle-irons or plates *b*. These plates *b* are made of a width corresponding to the width of the upright posts A, and have at their upper ends an angular projection, *a'*, which is let into said posts, and are secured to said posts A and to the cross-bars B' by means of pins or bolts. By this construction of frame it will be seen that the frame is thoroughly braced, and by making the angle-irons or plates of the same width as the uprights, which are necessarily wide, the cross-bars or timbers can be made lighter.

To the two lower cross-bars or timbers B' are secured two transverse bars, C C, which form the support for the gear-frame and gearing, and upon which said frame is secured. The gear-frame D is cast in one piece with the lower boxes for the shafts, and this frame, when secured in position, serves as an additional brace for strengthening the frame.

E is a bevel-wheel mounted in suitable bearings in the gear-frame, and provided centrally with a hub or collar, *e*, in which is cut a screw-thread matching a corresponding screw-thread on the screw F, hereinafter explained.

*d d d' d'* are bearings in the gear-frame, two of which, *d d*, are in line with the center of the bevel-wheel E, on opposite sides, and the other two, *d' d'*, parallel therewith and at one side thereof. The bearings *d d* have short shafts *e' e'* mounted in them, each of which carries a spur-wheel, *f*, and a bevel-pinion, *f'*, the bevel-pinions meshing with the bevel-wheel E. The bearings *d' d'* have mounted in them a long shaft, G, extending across the machine, and from which power is communicated to the gearing. This shaft has mounted upon it at each end, between the bearings, two spur-gears, *d<sup>2</sup> d<sup>3</sup>*. These spur-gears are provided with clutch-faces on their inner sides, the purpose of which will be explained. A sliding sleeve, G', feathered on the shaft G, is provided at each end with a clutch-face corresponding to the clutch-faces on the spur-gears *d<sup>2</sup> d<sup>3</sup>*, and said sleeve being of such length that when one of the clutch-faces is in engagement the other is thrown out. This sleeve is provided with a grooved collar, *g*, with which the forked arms of a shifting-lever, G<sup>2</sup>, are connected for shifting said sleeve.

The spur-gears *ff* are of different diameters, as are also the gears *d<sup>2</sup> d<sup>3</sup>* meshing therewith, for changing the speed of the plunger. When the plunger is being moved up to compress the material in the box it is necessary to exert the most power, and therefore to have a slow motion imparted to it. This is accomplished by throwing the sleeve into engagement with the gear-wheel *d<sup>2</sup>*, which is in gear with the gear-wheel *f*, leaving the wheel *d<sup>3</sup>* free to turn on its shaft. When the plunger is being lowered, after the bale has been compressed, it is desirable to give a high speed to it, so as to lower it quickly. This is done by throwing the sleeve into engagement with the wheel *d<sup>3</sup>*, which is in gear with the gear-wheel *f* on the opposite side.

The plunger H is of any usual or preferred construction, and is moved by means of the two arms or bars H', which are rigidly connected to it, and are connected at their other ends to a cross-bar, H<sup>2</sup>, in which one end of

the screw F is secured. These arms H' serve to steady the plunger and keep it level, and also to take all strain from the screw.

5 The moving head-block, as also the folding doors, are similar to those described in a former patent granted to me April 8, 1879, and need not therefore be described here.

Having now described my invention, I claim—

10 The propelling-screw F, operated by means of and through the rotating bevel-wheel E, which forms the actuating-nut, as described,

in combination with the uprights or bars H' H' and cross-head H<sup>2</sup>, connecting the platen or plunger with the lower end of the screw, where- 15 by the latter is given a drawing instead of a thrusting action in compressing the bale, said parts being arranged and operating substantially as described.

WALTER J. F. LIDDELL.

Witnesses:

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