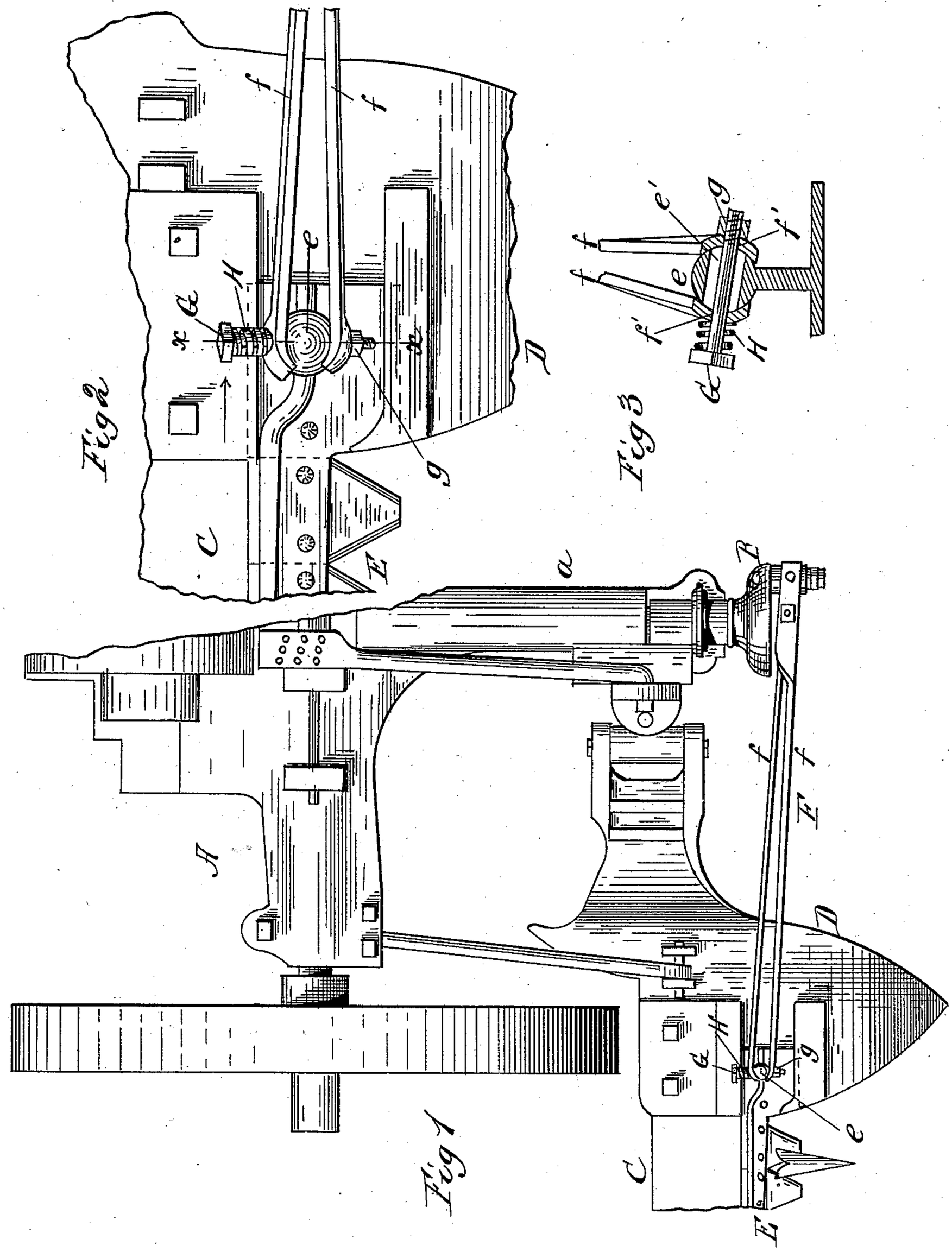
(No Model.)

H. L. HOPKINS.

HARVESTER PITMAN.

No. 357,007. Patented Feb. 1, 1887.



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HARVESTER-PITMAN.

SPECIFICATION forming part of Letters Patent No. 357,007, dated February 1, 1887.

Application filed April 26, 1886. Serial No. 200,206. (No model.)

To all whom it may concern:

Be it known that I, HARVEY L. HOPKINS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Harvester-Pitmen, which are fully set forth in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 represents a plan of a portion of a mowing-machine, showing a pitman-connection embodying my improvements; Fig. 2, a detail plan on an enlarged scale, showing the joint between the pitman and the cutter-bar; and Fig. 3, a section taken on the line *x x*, Fig. 2.

My invention relates to pitmen having a ball-and-socket joint between the pitman and the cutter-bar, and more particularly to a pitman heretofore patented by me in Letters Patent No. 273,082, dated February 27, 1883, this present invention being an improvement on the said patented device.

I will proceed to describe in detail one way in which I have carried out my invention in practical form, and will then point out definitely in the claims the special improvements which I believe to be new and wish to protect by Letters Patent.

It will not be necessary to show and describe here a complete machine, as the invention may be applied to any harvesting-machine of ordinary construction. I have, therefore, illustrated by drawings only so much of a machine as is necessary to understand the construction, application, and operation of the present improvements, and some of these parts will be only briefly referred to.

In the drawings, A represents a portion of the main frame of a mowing-machine, which is here shown provided with a central portion, *a*, drooping forward, in which the crank-shaft is mounted, carrying upon its outer end the crank-wheel B. The finger-beam C has a shoe, D, as usual, at its inner end, and is jointed to the main frame. The cutter-bar E is of any ordinary construction, except that it is provided with a ball, *e*, at its inner end. The pitman F is in this instance shown composed of two rods or bars, *f*, which are twisted and connected to the crank-wheel, as described in my patent referred to above. These arms of the pitman are shaped at their outer or lower ends to conform to the ball on the cutter-bar, so as to embrace and hold the latter in a kind of circular socket, or, rather, partial socket. Heretofore these arms have been secured to the ball and held in place by passing a bolt or pin through them back of the joint to the cutter-bar, and applying thereto an adjusting-nut and sometimes a spring, by means of which the grip of the arms upon the ball has been regulated. Now in this old construction the arms, which are more or less elastic, are compressed somewhat by this fastening, in order to obtain a sufficient hold upon the ball to make a secure connection. This brings an extra strain upon the pitman-bars, and increases the liability to breakage. In the ordinary movement of the pitman in use there is of course a slight vertical vibration, so that there will always be a movement of the bars upon the ball with each vibration of the pitman.

The old fastening device described above, making a tight clamp upon the ball, necessarily produces a great deal of friction between the bars and the ball, which makes the wear very rapid at this joint, and also increases the power necessary to drive the pitman and cutter-bar. In order to overcome these difficulties, I connect the pitman directly to the ball on the cutter-bar in the following manner: The ball *e* is provided with an aperture, *e'*, and a fastening bolt or pin, G, is passed through this opening and apertures *f'* in the ends of the bars *f* and is secured by a nut, *g*. The hole through the ball is made considerably larger than the fastening-pin to provide for the rocking of the finger-beam, which necessitates the turning of the ball in a direction across the line of the pitman.

If desired, this aperture may be flared somewhat at each end, which will facilitate the rocking.

In order to make the connection sufficiently elastic or yielding, I place a buffer-spring, H, around the pin, preferably in rear of the cutter, as shown in the drawings, this spring being held between the head of the pin and the rear arm of the pitman. Now with this fastening, which secures the pitman directly to the ball, it is not necessary to clamp the bars tightly upon the latter, and so this spring is made very light, being just strong enough to

hold the bars in place, but yielding readily whenever any movement of the finger-beam requires it.

It will be seen at once that there is no extra strain brought upon the pitman-bars, and that they are attached positively to the ball of the joint, so that there is no danger of disconnection, while at the same time the friction between these parts is reduced to the minimum.

I do not wish to be understood as limiting this invention to the particular twisted pitman heretofore patented by me, and shown in the drawings. Pitmen with forked or spreading arms, intended to embrace the ball of a ball-and-socket joint, have been heretofore employed, of different forms and construction. This present invention of mine is applicable to any such pitman-connection; and hence I wish to be understood as claiming it applied to any pitman-joint consisting of a ball embraced by forked or opposing arms. The joint may also be applied elsewhere than at the cutter-bar. It may be possible to adapt it to the attachment of a pitman to the crank-wheel in some instances, and I wish to be understood as including in my invention the application of this joint to this point or any other where it may be found applicable and desirable.

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

1. In a harvester-pitman, a cutter-bar provided with a ball, in combination with forked or opposing pitman-arms adapted to embrace the ball on the cutter-bar, and a fastening pin or bolt passing through the arms of the pitman and the said ball at the meeting joint, substantially as and for the purposes set forth.

2. The opposing pitman-arms, in combination with the ball on the cutter-bar embraced by said arms, the fastening bolt or pin passing through both arms and ball, and a buffer-spring arranged on the fastening-bolt outside of the pitman, substantially as and for the purposes set forth.

3. The ball *e* on the cutter-bar, provided with an opening, *e'*, elongated vertically, the pitman-arms *f f*, provided with sockets at their ends to embrace the ball, the fastening-bolt G, passing through holes in the arms and the enlarged opening *e* in the ball, and the buffer-spring H, arranged around the pin in rear of the cutter, substantially as and for the purposes set forth.

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