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Patented Aug. 29, 1899.

J. W. PRIDMORE.

APRON TIGHTENER FOR GRAIN HARVESTERS.

(Application filed Jan. 13, 1898.)

(No Model.)

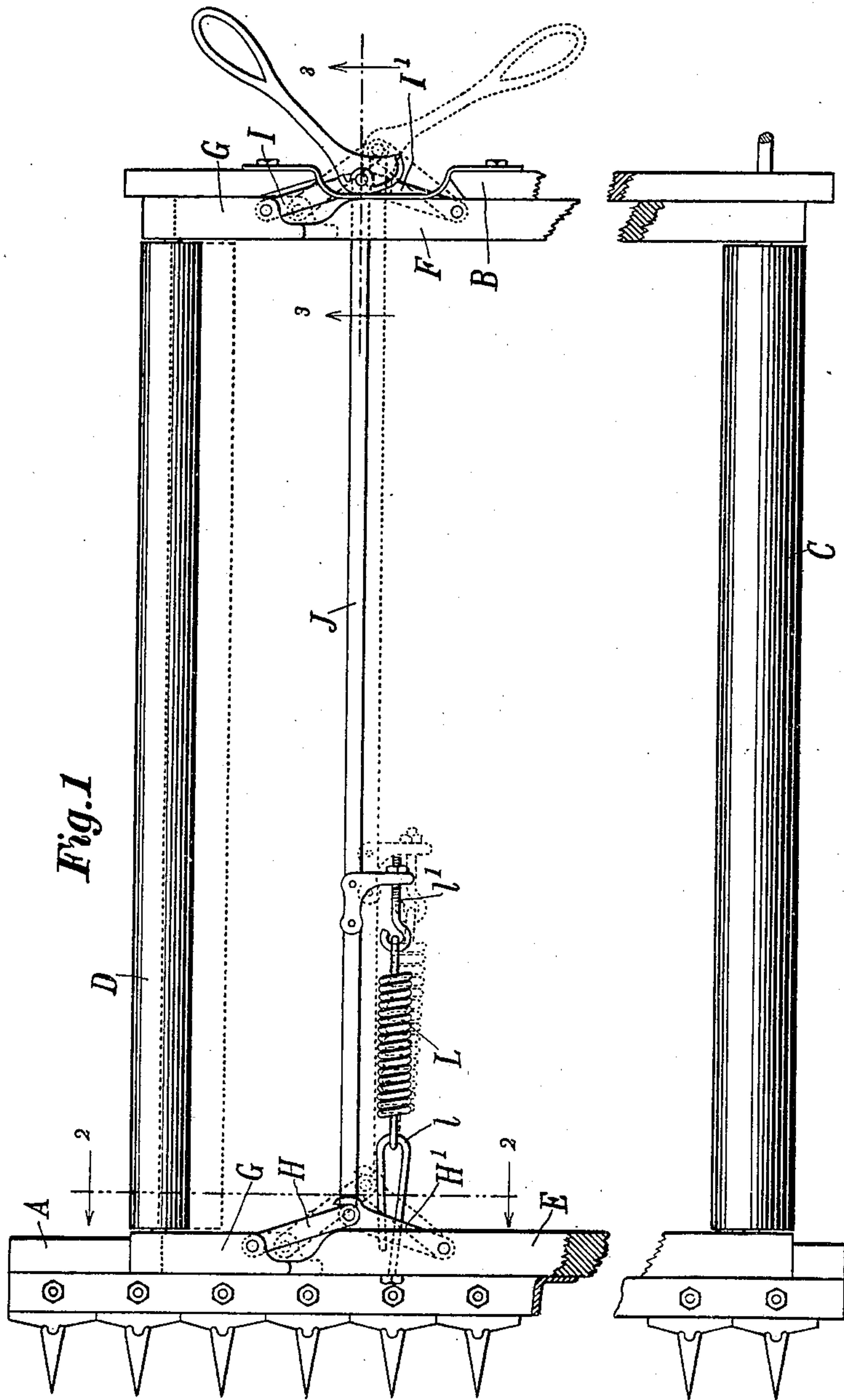


Fig. 3

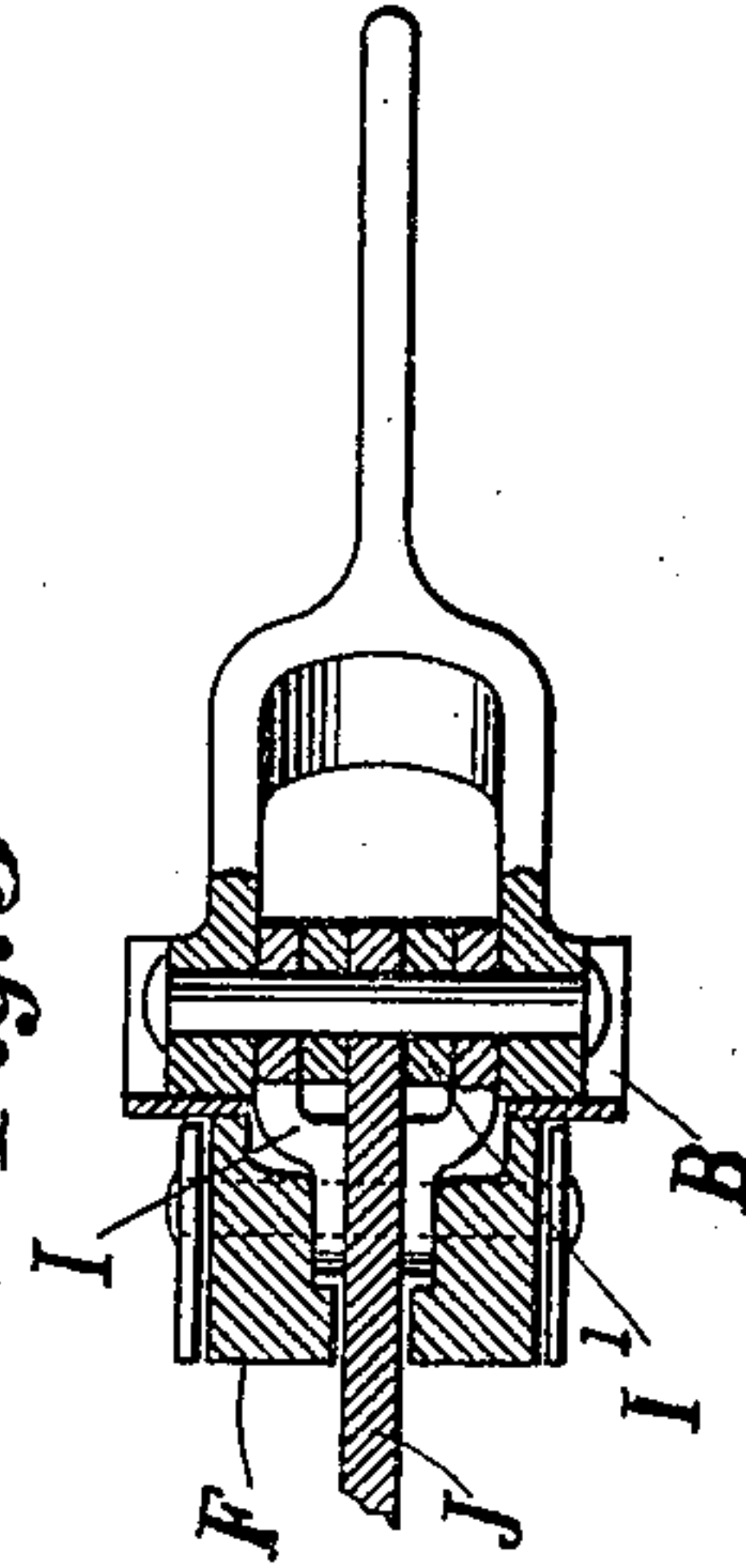
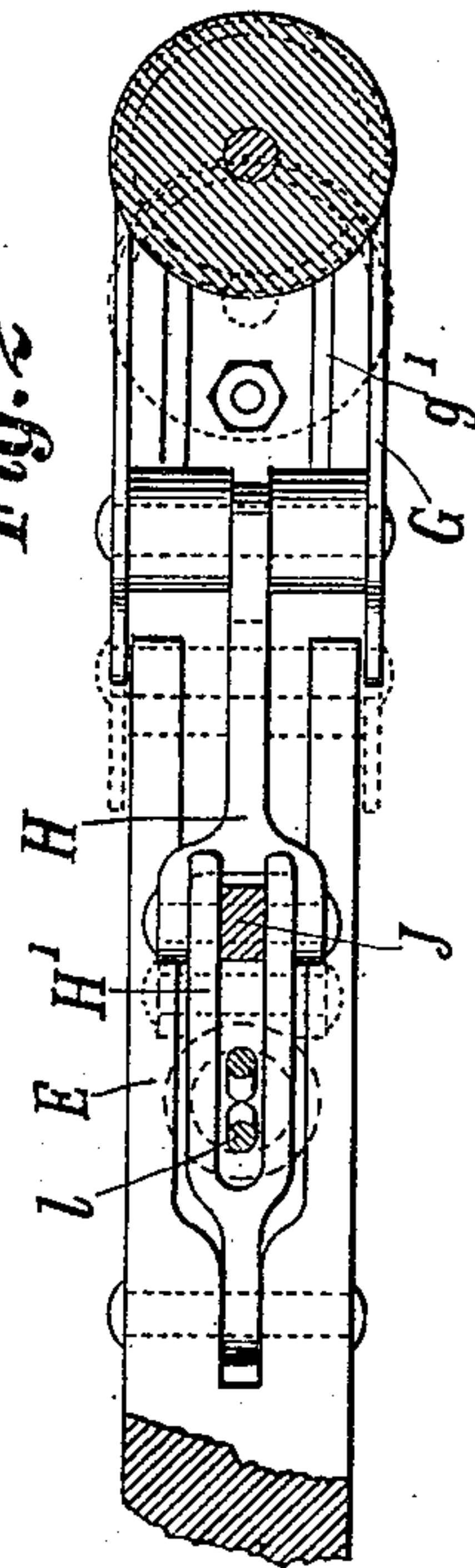


Fig. 2

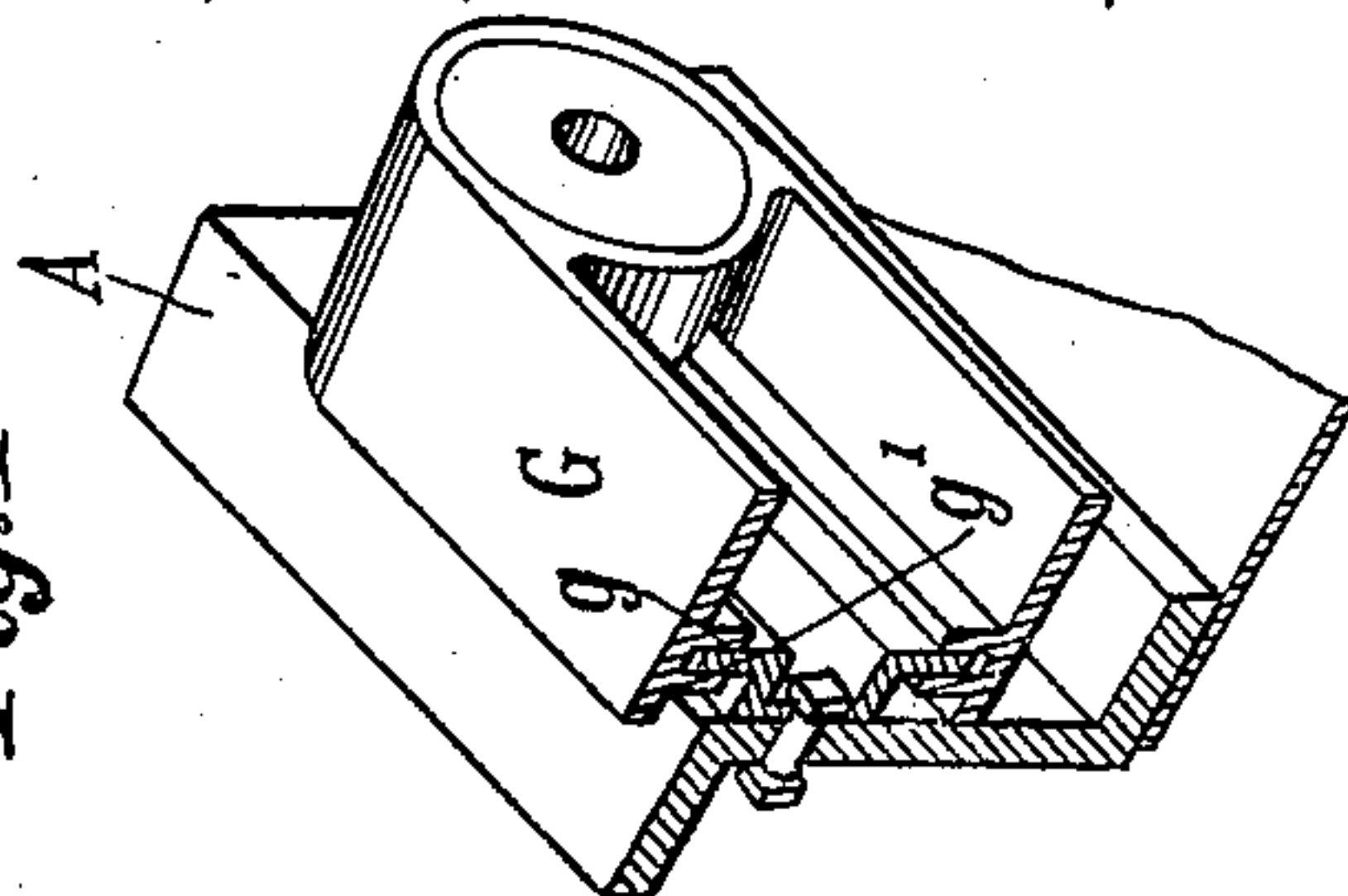


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Fig. 4



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APRON-TIGHTENER FOR GRAIN-HARVESTERS.

SPECIFICATION forming part of Letters Patent No. 632,062, dated August 29, 1899.

Application filed January 13, 1898. Serial No. 666,511. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. PRIDMORE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Apron-Tighteners for Grain-Harvesters, of which the following is a specification.

My invention relates to improvements in apron-tighteners adapted to any of the aprons on side-delivery harvesters, but more especially for tightening the platform-apron; and the objects of my invention are, first, to provide movable boxes to support the idle roller; second, to so connect the two bearings at the ends of the roller as to cause them to move in unison; third, to apply a single spring to the connection so as to distribute its action on the bearings at the ends of the roller, and fourth, to so arrange the parts that a handle can be attached thereto, on the movement of which the roller can be drawn toward the other roller for relieving the apron of strain while the machine is out of operation and for convenience in placing the apron upon the machine. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of so much of the platform of a grain-binder as is necessary to show my improvement, which is attached thereto. In order to economize space the platform-sills have been broken and the driven roller brought closer to the idle roller. Fig. 2 is an elevation on line 2 2 of Fig. 1, showing the connecting-rod, the roller, and the spring-hook in section. Fig. 3 is an elevation looking toward the end of the machine on line 3 3 of Fig. 1, and Fig. 4 is a perspective view of one of the movable bearing-blocks that support the end of the idle roller.

Similar letters refer to similar parts throughout the several views.

A represents the finger-bar of a side-delivery harvester, and B the rear sill of the frame that supports the platform. It is understood that an endless apron is to be placed on the roller C, which is the driven roller, and the roller D, which is the idle roller. The roller C is fixed in the frame, and the apron is supported in front on the guide E, which is bolted to the finger-bar A, and at the rear on

the guide F, which is bolted to the rear sill B. The guides E and F extend nearly the full length of the platform, but terminate just before they reach the idle roller, where the sliding box G continues the guides and gives bearing to the idle roller. The sliding box G, as shown in this construction, is alike for both ends of the roller. A groove *g* on this box fits on a flange *g'* on the guide, thus preventing the box from moving sidewise. A link H connects this sliding box with a link H', which is pivoted to the fixed guide E. The box G at the rear end of the idle roller is connected by a similar link I to a link I', that is in turn connected with the fixed guide F. A rod J connects the links H and H' with the links I and I' at or near the place where the links are pivoted together. The rod J in order to make this connection passes through the rear guide F, which is mortised for that purpose, and the mortise is elongated so that the connecting-rod J can be drawn rearwardly, and thus slide the idle roller toward the fixed roller. The links which connect the idle roller and the frame of the platform in front are the same length as the links which connect them at the rear. Therefore any movement of the connecting-rod J moves the idle roller at both ends the same distance toward the fixed roller. In order to facilitate this movement of the idle roller by the operator, a handle is connected to the end of the rod J. This handle has a projecting portion that extends beyond the pivot of the handle to the rod and which comes against the rear sill B, thus acting as a lever to draw the idle roller toward the fixed roller. In the construction shown in the drawings there is no means attached to the handle to force it in the opposite direction. Another means, however, is provided. The strong coiled spring L is attached to the hook I, that is fastened to the front guide E of the frame. This spring extends along the rod J and is fastened thereto by an adjustable link I'. It is plain that this spring when stretched, as it can be, to varying degrees of tightness by adjusting the link I' will tend to hold the idle roller to the extreme of its outward movement and the adjustable spring will keep the apron at varying degrees of tightness.

In the practical operation of a harvesting-

machine the dew is found to keep the roots of the grain wet after the heads have dried off, and the endless apron, which is usually made of thick cotton duck, becomes dampened just behind the finger-bar, while the rear edge of the apron will remain comparatively dry. The apron will thus tend to contract on its front edge, and if the idle roller is rigidly mounted in the frame the apron will be drawn out of true and when dried out will tend to run sidewise. In my invention I remedy this difficulty by connecting the two ends of the roller together, so that any movement imparted to one end is transmitted to the other.

The trouble with previous apron-tighteners has been that while some of them have been designed to move both ends of the roller even though the pressure was brought only upon one end still in practical operation the connections between the ends have bound, the frame carrying the roller has twisted in the platform-frame, and such an amount of friction has resulted as to prevent the spring-tightener from acting. So great has this friction been that even though the spring applied was of great strength still the effective force exerted upon the roller has been very little, not sufficient to keep the apron running when the crop has been heavy. The operators have therefore been forced to buckle up their aprons until the idle roller became rigid in the guides, and the constructions have been of no use, being merely fixed rollers when in practical operation. In my construction I have arranged the links, the connecting-rod between them, and the spring acting upon this rod so as to move the idle roller with the least possible amount of friction. In the construction shown it is possible to get several times the amount of spring force necessary to carry the apron even in the heaviest cutting, while the hand-lever can be quickly operated at night to loosen the roller in the apron, and thus prevent the stretching of the apron when it is not in use, and also making it possible to take the apron off and put it on the machine with much greater ease.

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

1. In combination with the endless apron of a harvester, movable boxes for one of the rollers on which the apron is mounted, said boxes being connected with the frame of the machine by toggle connections, a bar connecting the elbows of the toggles, and a spring reacting on the bar.

2. The combination with the endless apron of a harvester, of mechanism for regulating the distance apart of the carrying-rollers, a spring acting on the mechanism to keep the rollers apart, and a lever acting on the mechanism only to draw the rollers together.

3. The combination with the endless apron of a harvester, of a mechanism for regulating the distance between the rollers, which mechanism consisting of sliding boxes at the ends of the roller, toggle-bars connecting the sliding boxes with the frame of the harvester, a bar connecting the toggles, and a spring reacting on the bar tending to separate the rollers.

4. The combination, to form an apron-tightener for the endless aprons of harvesters, of an idle roller mounted in sliding boxes that are guided by the frame of the machine, links pivoted to the machine at both ends of the roller, the links being practically parallel and of the same length, other links pivoted to the sliding boxes at both ends of the roller and to the first-mentioned links, a rod connecting the links at one end of the roller with those at the other end, a spring reacting between the frame and the connections that control the roller, and a lever, substantially as and for the purpose specified.

5. In a harvester, the combination of a fixed roller at one end of the platform, a roller mounted in sliding boxes at the other end, toggles pivoted at one end to the platform-frame and to the boxes at the other, and means for adjusting the toggles.

6. In a harvester, the combination of a fixed roller at one end of the platform, a roller mounted in sliding boxes at the other end, toggles pivoted at one end to the platform-frame and to the boxes at the other, and an adjusting-lever pivoted to the joint between the links of one of the toggles and having a cam-shaped end adapted to engage the frame.

7. In a harvester, the combination of a fixed roller at one end of the platform, a roller mounted in sliding boxes at the other end, toggles pivoted at one end to the platform and to the boxes at the other, a link connecting the toggles and causing them to move together, a spring tending to force the link in one direction, and a lever pivoted to the joint between the links of one of the toggles and having a cam-shaped end adapted to engage the frame and move the connecting-link in a direction opposite to the tendency of the spring.

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Witnesses:

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