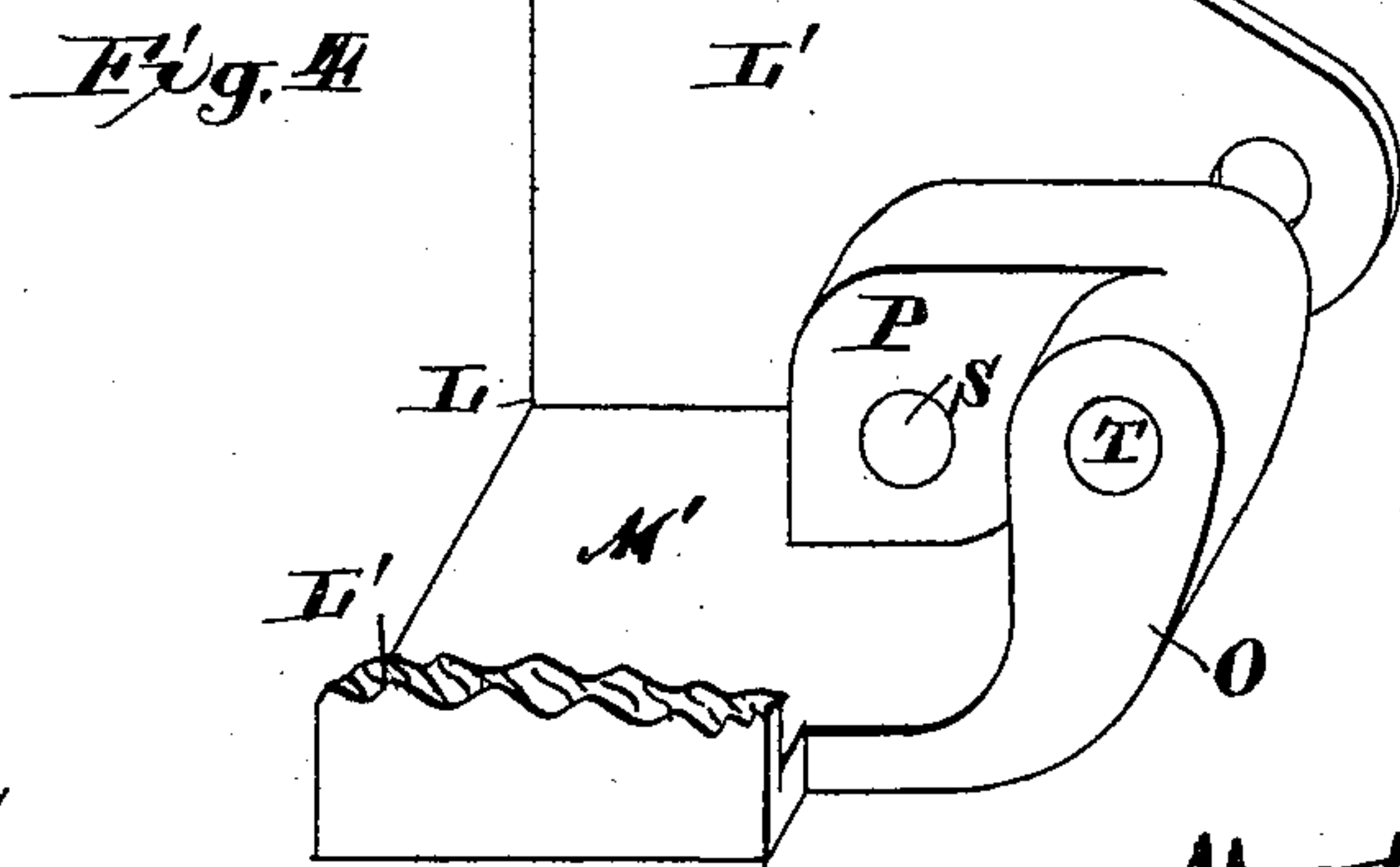
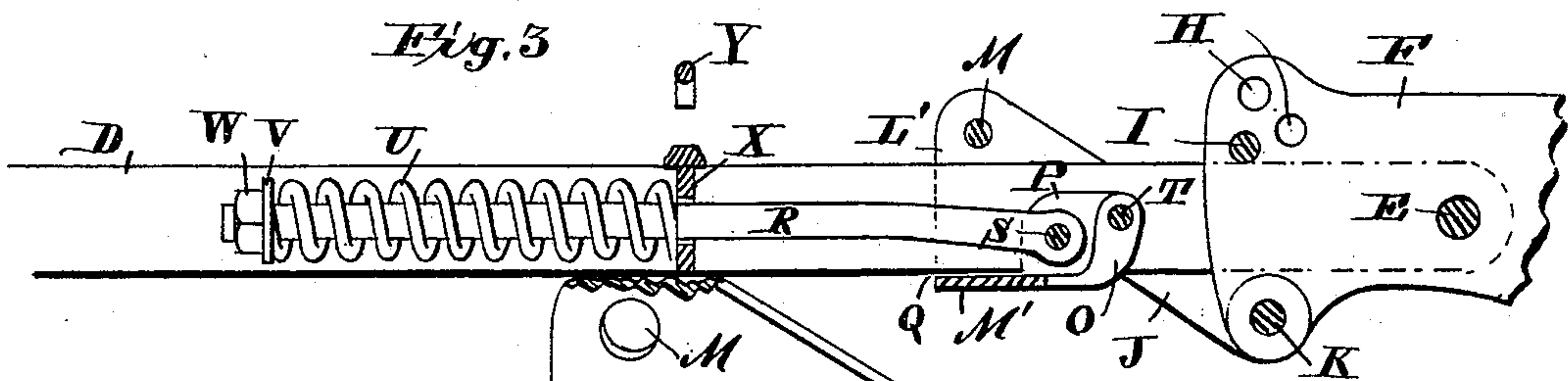
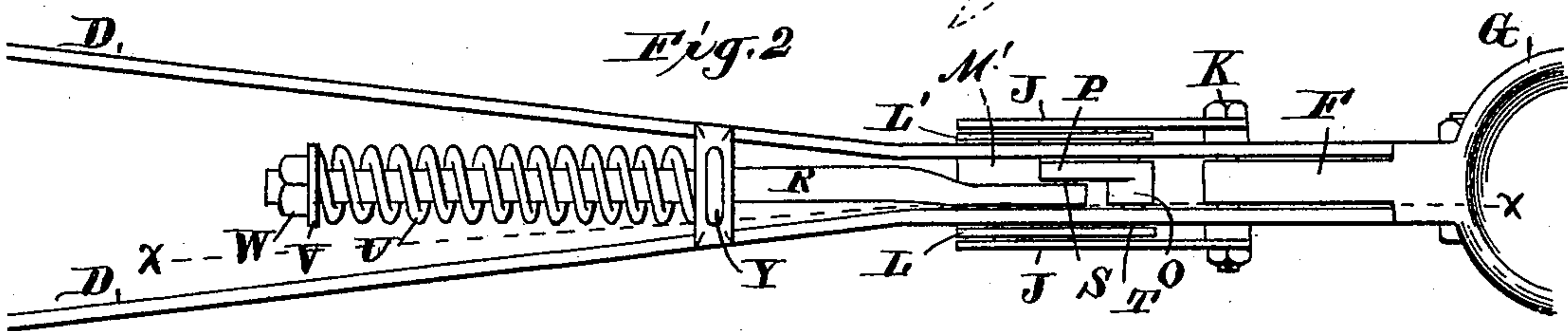
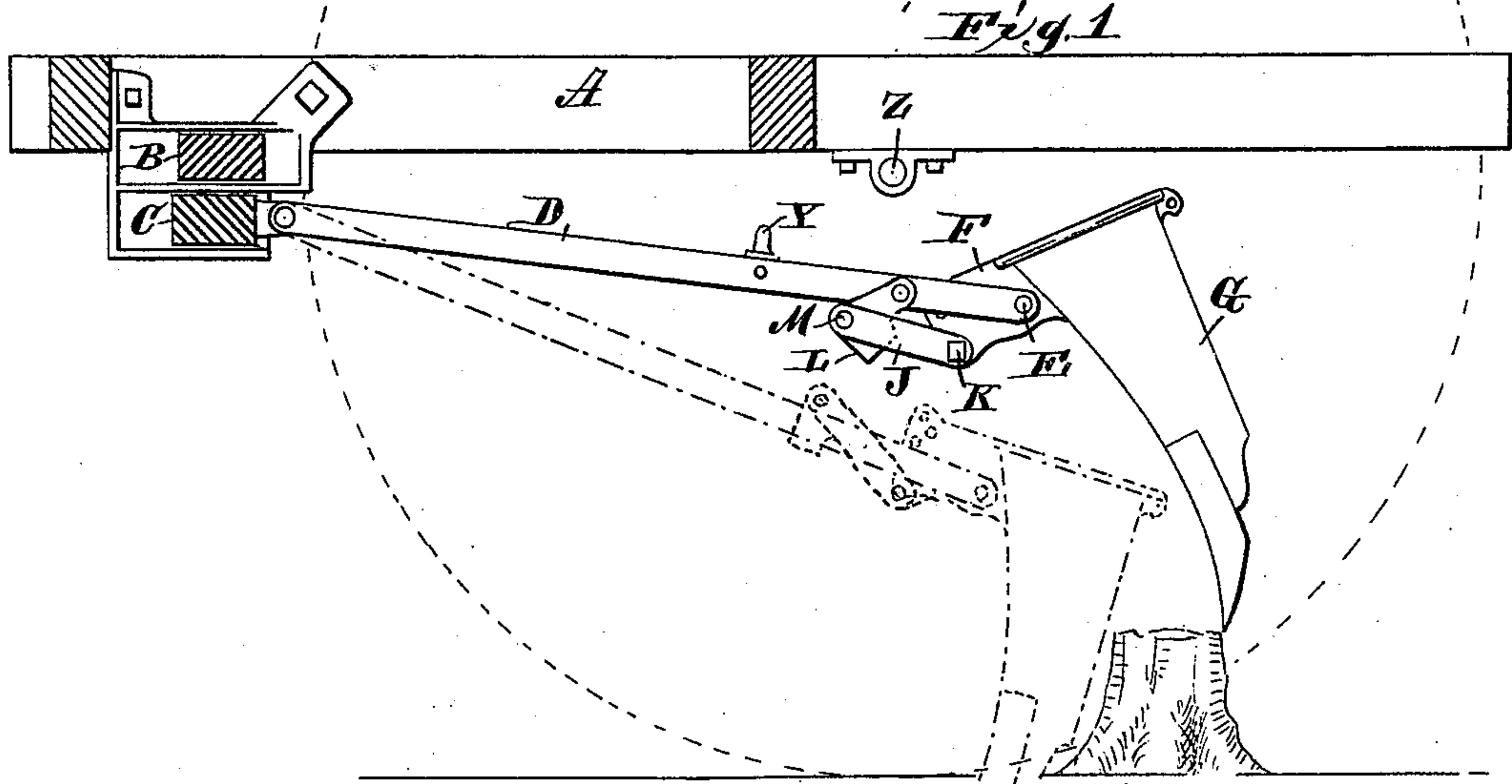


(No Model.)

M. L. KISSELL.  
HOE FOR GRAIN DRILLS.

No. 404,845.

Patented June 11, 1889.



Witnesses  
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# UNITED STATES PATENT OFFICE.

MARTIN L. KISSELL, OF SPRINGFIELD, OHIO, ASSIGNOR TO THE P. P. MAST & COMPANY, OF SAME PLACE.

## HOE FOR GRAIN-DRILLS.

SPECIFICATION forming part of Letters Patent No. 404,845, dated June 11, 1889.

Application filed February 16, 1889. Serial No. 300,136. (No model.)

*To all whom it may concern:*

Be it known that I, MARTIN L. KISSELL, a citizen of the United States, residing at Springfield, in the county of Clark and State of Ohio, have invented certain new and useful Improvements in Hoes for Grain-Drills, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to improvements in hoes for grain-drills, and has special reference to the arrangement and construction of those features which enter into the organization of a spring or yielding connection between the hoe and its beams or draft-bars. I am aware that, broadly considered, a spring or yielding connection between such hoes and their draft-bars, by means of which the hoes are allowed to give or deflect when obstructed by objects which afford greater resistance than the normal strains brought upon the hoes as incident to the ordinary operation of drilling grain, is old, and therefore wish to be understood as laying claim to my improvements in the light of the state of the art as at present developed.

In the accompanying drawings, forming a part of this specification, and on which like reference-letters indicate corresponding parts, Figure 1 represents a sectional view of a grain-drill and a hoe and its draft-bar with my improvements applied thereto; Fig. 2, an enlarged plan view of my improvements in connection with a hoe and its draft-bars; Fig. 3, a longitudinal sectional view on the line  $x-x$  of Fig. 2, and Fig. 4 a detail perspective view of a stop-lever.

The letter A designates the essential portion of a grain-drill frame of any approved construction, but preferably of the type manufactured and sold by my assignees of this invention, P. P. Mast & Company, of Springfield, Ohio, and in which are embodied two adjustable transverse beams B and C, to which the forward ends of the hoe draft-bars are pivotally connected, the draft-bars alternating from first one and then the other of the beams B and C. By preference these draft-bars are composed of separate pieces D D, and at their rear ends they are connected by a pivot-pin E to a suitable part of the wing F, extending from the hoe G, which is of the usual or any

approved type. This wing has a series of holes H for the reception of the usual fragile or wooden brake-pin I, the function of which is well known. To the lower forward portion of the wing F is pivoted two links J—one at either side of the bolt K. These links extend upwardly and forwardly from this pivot-bolt a suitable length, and are pivotally connected to the upper forward side pieces of the stop-lever L, as suggested at M. This stop-lever is composed of two side pieces L', a body portion M', curved upward at its rear end, as seen at O, and of a short stout arm P. These several parts are by preference integral, and may be cast-iron, malleable iron, or may be forged of iron, or they may be constructed of steel.

I term the device a "stop-lever," because it acts in the capacity of a lever and in the capacity of a stop to preserve the normal and proper relations of the several parts by engaging with the under edge of the draft-bar, as seen at Q in Fig. 3, in which the parts are in normal position.

It will be seen from Figs. 2 and 4 that the arm P is located nearer one of the pieces L' than the other, so as to accommodate the rear end of the spring-rod R, which is pivotally connected with the arm P by a pin S. The stop-lever is itself pivoted to the draft-bar by a pin or bolt T, which passes through the portion O and through the pieces L'. A clear idea of the arrangement of the parts may be gotten from a view of Fig. 2. The relative position of the pivots K, T, and M will also be clearly seen from Fig. 3, from which it will be observed that the pivot T is slightly above a line drawn through the centers of the pivots K and M. This relation of the pivots, it will be understood, is necessary in order to bring the strains sufficiently to one side of the pivot T to turn the lever on that pivot when the hoe is unduly obstructed, as suggested in Fig. 1, in which a stump is illustrated as located in the path of the hoe. The brake-pin gives away, and the strains are then thrown upon the spring-rod, the connection of which through the spring U, about to be described, brings the hoe back to normal position, as suggested in dotted lines in Fig. 1. The spring U is of spiral type, and



is placed around the rod R between a washer V, held by a nut W, and a plate X, secured to and between the draft-pieces D of the draft-bar. A hook Y may be formed on the upper  
 5 end of the plate X, for engagement with the device for lifting and sustaining the hoes when not in operation.

It will be observed that my improved arrangement and construction avoids the pro-  
 10 jection of parts to any considerable distance above the draft-bar, and that when the parts are swung to the position shown in Fig. 1 they are all below the draft-bar save the hoe, which is at the rear of the axle Z. This ar-  
 15 rangement is important and of value in practice, because it admits of the draft-bars being raised up to the axle without obstruction from the parts of the spring-connection, whereby higher stumps and other objects can be passed  
 20 over by the hoe without breaking one or more parts of the machine, as is the case when a hoe lodges on a high stump, or other high obstruction, and raises the draft-bar high enough to cause the parts which project above to  
 25 catch on the axle before the hoe is over the stump or other object. When this latter occurs, some vital part of the machine is almost invariably broken, and delay and expense of repairs incurred, and this probably at a time  
 30 when most inconvenient to the farmer. By my improvements, however, this trouble is entirely avoided by the absence of the parts projecting above the draft-bar when the latter is thrown up.

35 It will also be observed that the stop-lever L is a cheap and strong device, admirably adapted to its functions, and doing the double office of a lever and a stop.

The brake-pin may or may not be used.  
 40 The holes in the wing are simply provided so as to temporarily use the pin in case of breakage in the spring-connection until such breakage is repaired.

Having thus fully described my invention,

what I claim as new, and desire to secure by 45 Letters Patent, is—

1. The combination, with a hoe and its draft-bar pivotally connected to it, of a spring-rod carried by the draft-bar, a lever pivoted to the draft-bar at one end, links pivoted to the  
 50 hoe and to the other end of said lever, a stop constituted by said lever between said last pivots, and a pivotal connection between the lever and the spring-rod.

2. The combination, with a hoe and its draft- 55 bar pivotally connected thereto, of a spring-rod carried by the draft-bar, a lever composed of an upwardly-turned rear portion pivoted to the draft-bar, a body locked under and across the said bar and side pieces at the  
 60 sides of said bar, and an arm within the draft-bar, a pivotal connection between the said arm and the spring-rod, and links pivotally connected with the hoe and with the said side pieces of the lever. 65

3. The combination, with a hoe, its draft-bar composed of two pieces pivoted to the hoe, a plate and rod between said pieces, a spring between the plate and an enlargement on the forward end of the rod, a stop-lever composed  
 70 of a rear upwardly-extending portion pivoted to said draft-pieces, an arm extending from said portion and pivoted to said rod, a body beneath and across said draft-pieces and side pieces, and links pivoted to the upper forward  
 75 ends of the side pieces and to the hoe below its pivotal connection with the draft-pieces.

4. A stop-lever composed of a horizontal body portion, side pieces extending above said portion, a rear upwardly-extended part, 80 and a short arm projecting forward from said part, all of said parts being integral.

In testimony whereof I affix my signature in presence of two witnesses.

MARTIN L. KISSELL.

Witnesses:

C. C. KIRPATRICK,

H. STILLMAN FOLGER.