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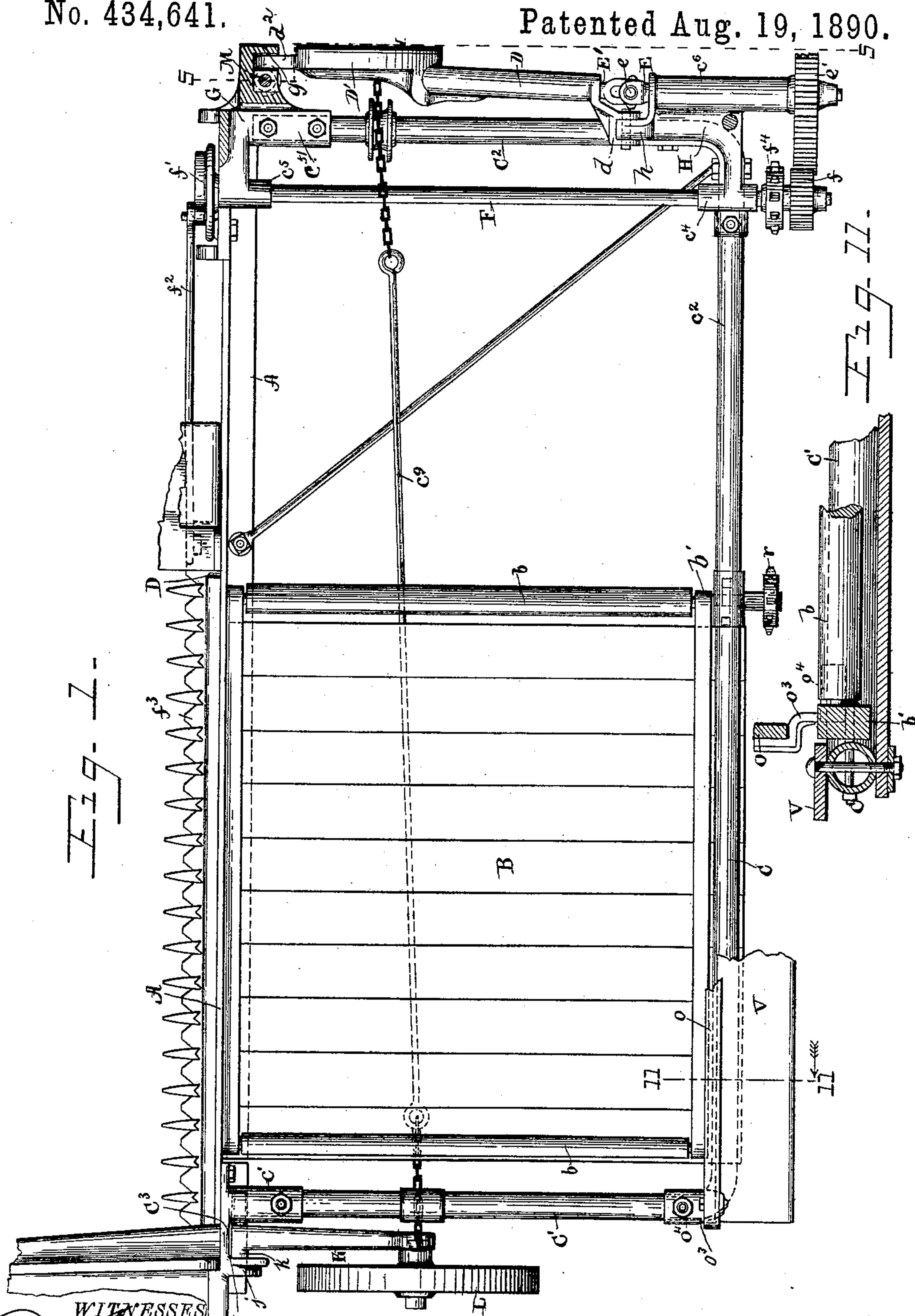
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L. MILLER.

GRAIN PLATFORM FOR HARVESTERS.

No. 434,641.

Patented Aug. 19, 1890.



WITNESSES

WITNESSES
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Robt. M. Bell

INVENTOR

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(No Model.)

4 Sheets—Sheet 2.

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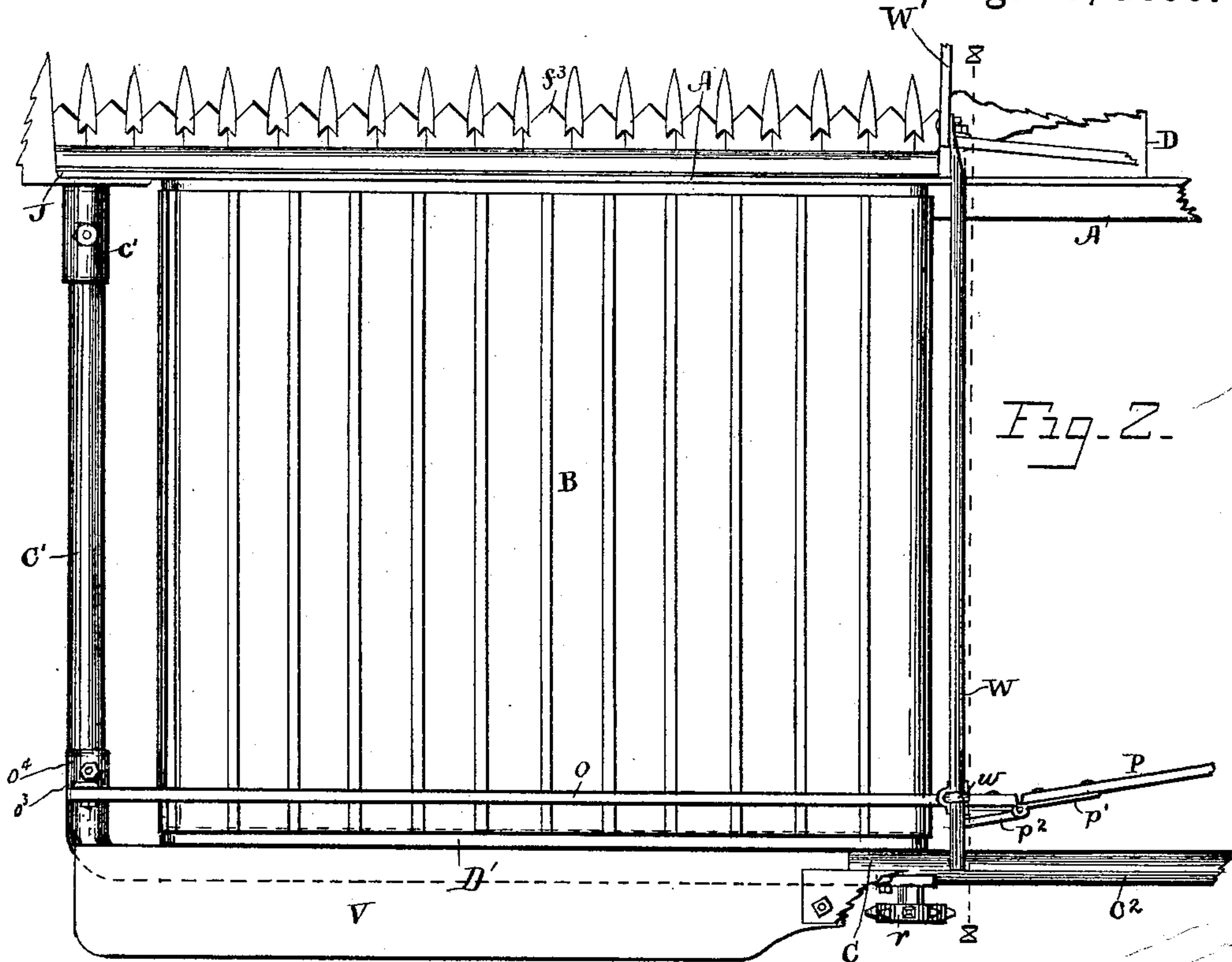


Fig. 2.

Fig. 8.

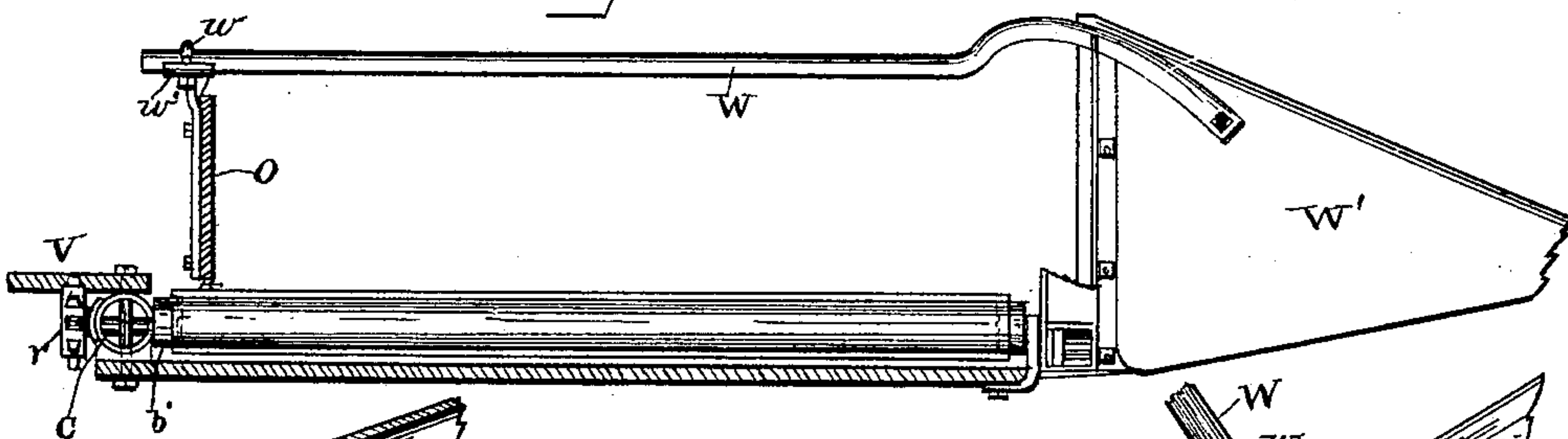
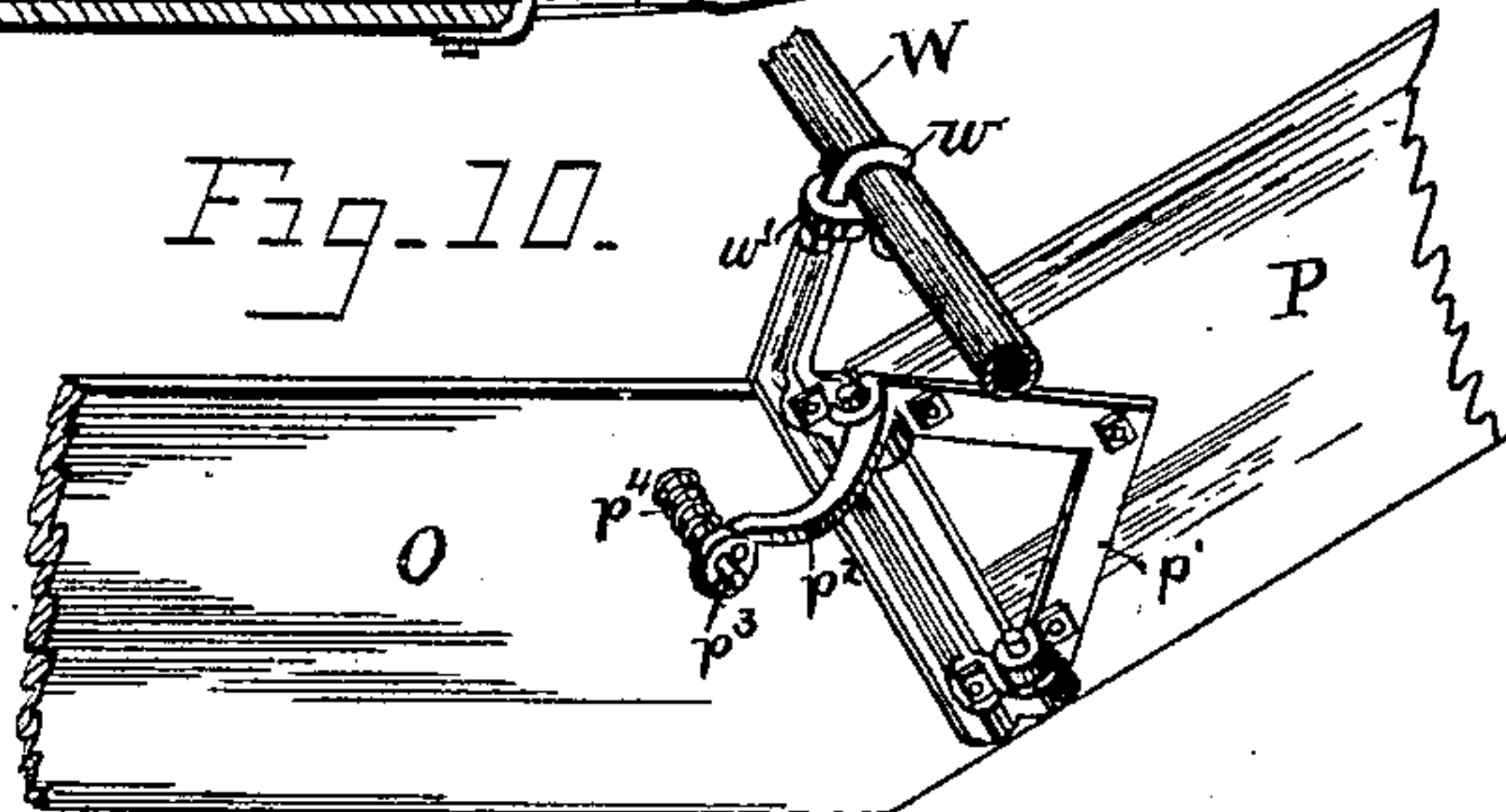
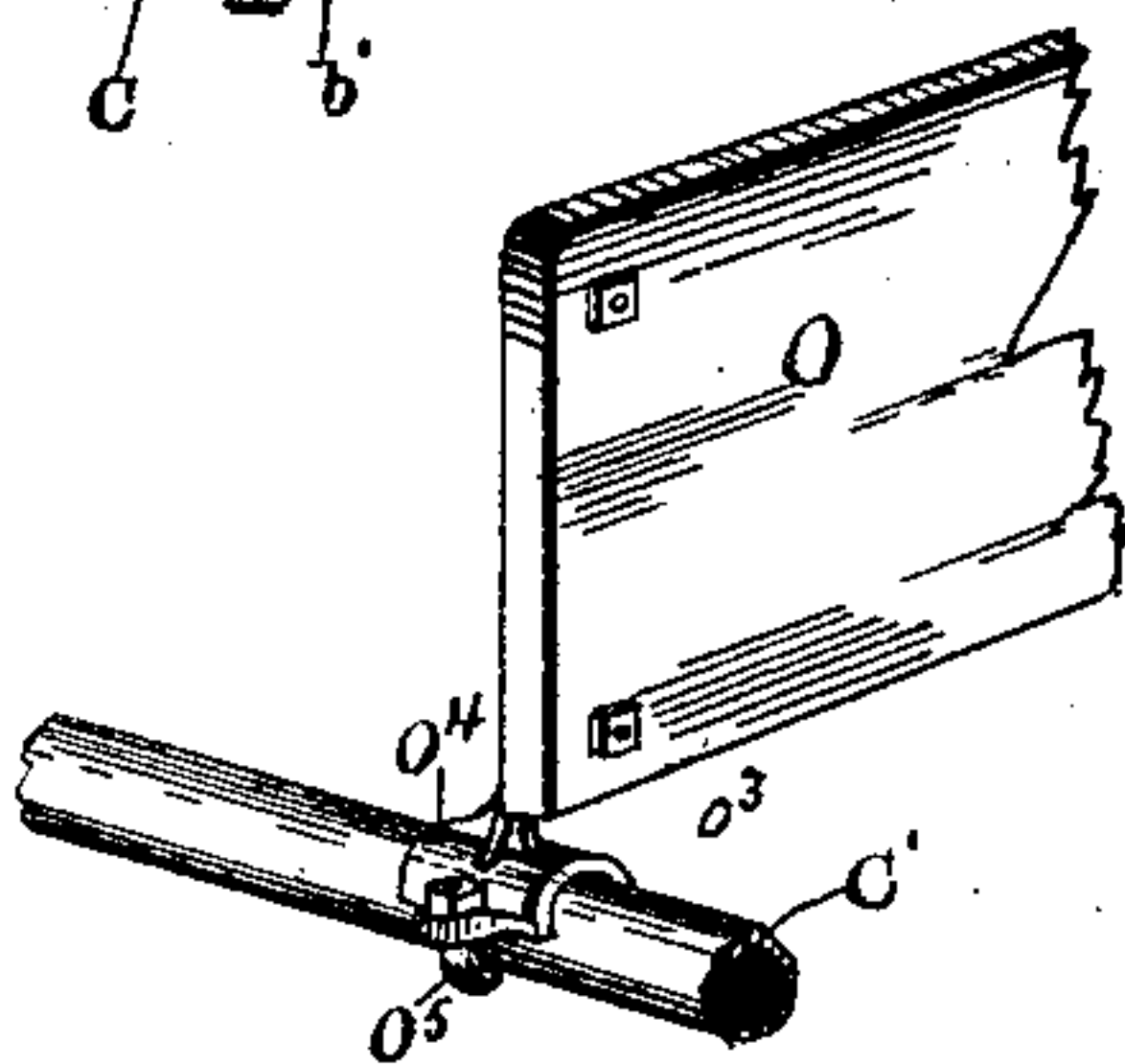


Fig. 9.

Fig. 10.



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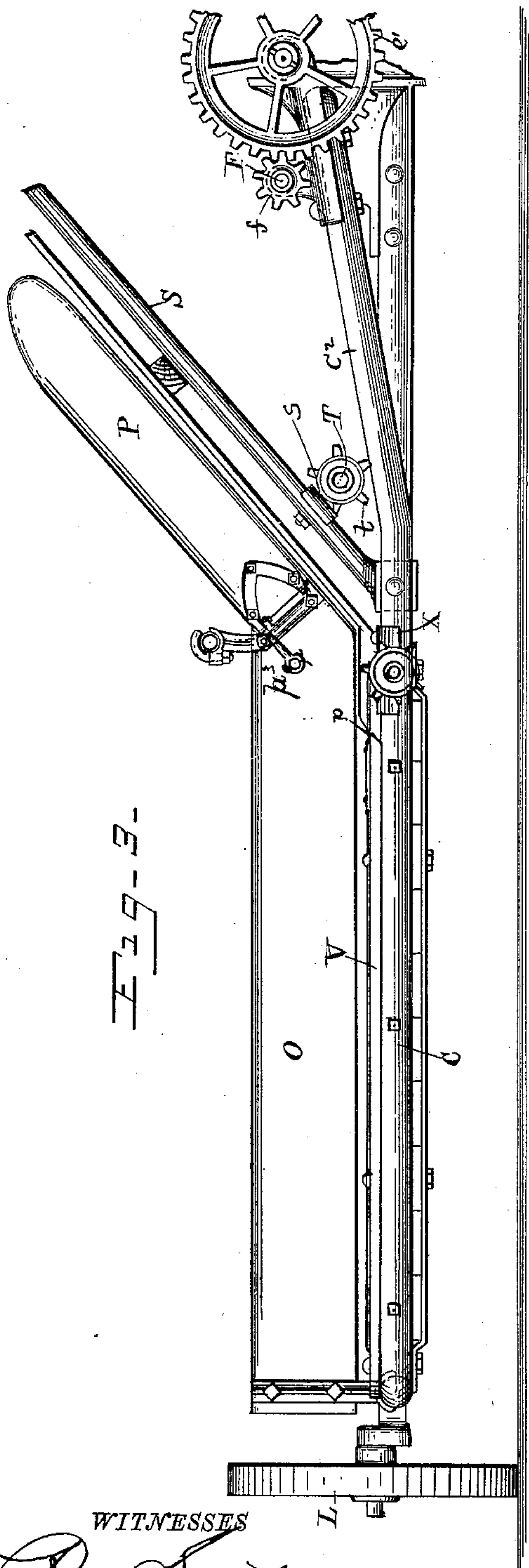
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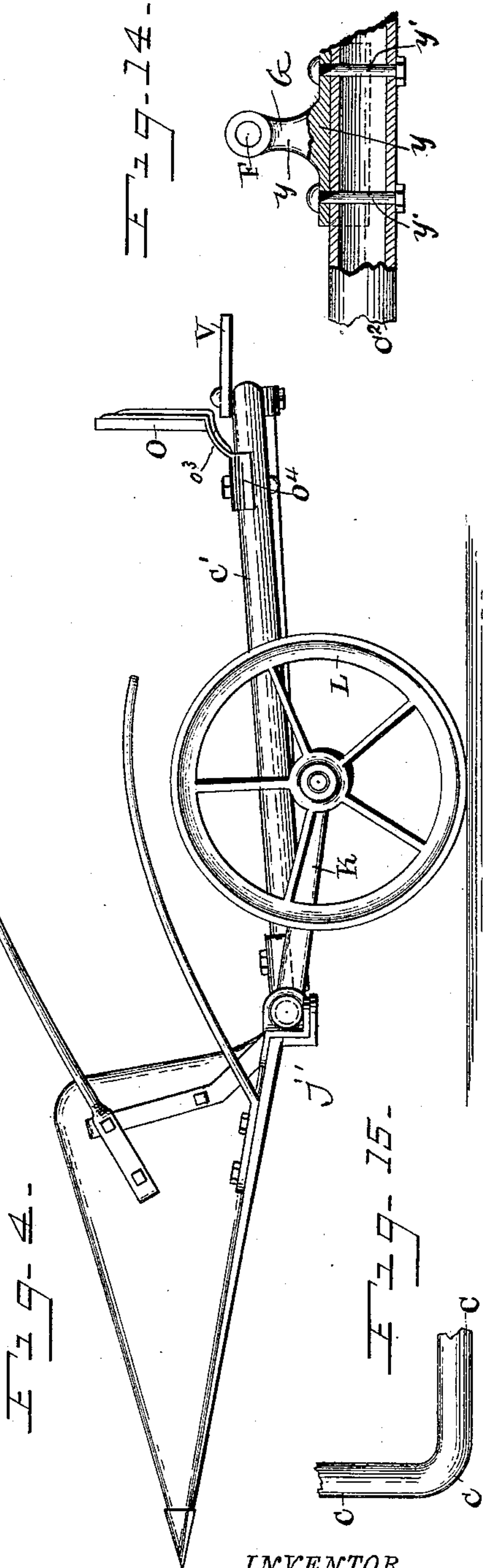
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UNITED STATES PATENT OFFICE.

LEWIS MILLER, OF AKRON, OHIO.

GRAIN-PLATFORM FOR HARVESTERS.

SPECIFICATION forming part of Letters Patent No. 434,641, dated August 19, 1890.

Application filed January 25, 1887. Serial No. 225,497. (No model.)

To all whom it may concern:

Be it known that I, LEWIS MILLER, of Akron, county of Summit, and State of Ohio, have invented a new and useful Improvement in Grain-Platforms for Harvesters, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification.

My invention relates to the construction of the platform-carrier frames of harvesting-machines; and the objects of my invention are, first, to so construct the frame-work as to cheapen its construction and to facilitate the building up of the same; secondly, to relieve the mechanism for adjusting the height of the platform from such strains as are incident to travel over uneven ground, and thirdly, to insure the proper movement of the grain along the platform and upon the elevator-apron and to vary the width or depth of the platform-carrier and elevator apron so as to accommodate different lengths of grain.

To the above purposes my invention consists, first, in a platform the rear sill and the grain and stubble ends of which are formed of a curved tubular bar which is connected to and supports the front sill and cutting apparatus; secondly, in an elastic cushion interposed between the platform, and the connections for adjusting the same; thirdly, in the peculiar and novel arrangement of an adjustable guard upon the platform, and also in the peculiar and novel arrangement of an adjustable guard upon the elevator-apron, all as hereinafter described and claimed.

In order that my invention may be fully understood, I will proceed to describe it with reference to the accompanying drawings, in which—

Figure 1 is a plan view of a carrier-frame constructed in accordance with my invention. Fig. 2 is a similar view of the same with the adjustable guard applied thereto. Fig. 3 is a rear elevation of the construction shown in Fig. 2. Fig. 4 is a grain end elevation of the machine. Fig. 5 is a sectional view on the line 5 5 of Fig. 1, showing the attachment for cushioning the adjusting mechanism. Fig. 6 is a sectional view of the same on the line 6 6 of Fig. 5. Fig. 7 is a plan view of the connections for transmitting motion from the

drive-wheel and for adjusting the platform, as shown in Fig. 5. Fig. 8 is a sectional view on the line 8 8 of Fig. 2. Fig. 9 is a perspective view of a portion of the adjustable guard, showing the connection of the guard to the end bar of the platform. Fig. 10 is a perspective view of the attachment between the guard for the elevator-belt and the platform-guard shown in Fig. 3. Fig. 11 is a sectional view on the line 11 11 of Fig. 1. Figs. 12 and 13 are detached views illustrating details of the construction of the cushioning attachments. Figs. 14 and 15 are detached views illustrating details of the construction of the platform.

In the said drawings, A designates the front sill of the platform-frame, upon which the endless platform-carrier B is mounted, so as to run over the rollers *b b* in the usual manner, the said rollers being journaled at their rear ends in a frame-piece *b'*, which extends longitudinally of the platform-frame, as shown in Figs. 1, 8, and 11.

C designates the tubular bar which forms the rear sill of the platform-frame, and which is bent or curved at its ends, as shown in Fig. 15, so as to be continued to form the grain end *C'* and stubble end *C²* of the platform-frame, as shown in Fig. 1. The curved portion of the rear sill C at the rear corner of the stubble end of the platform passes through a curved socket in an angular casting H, to be hereinafter more particularly described, while the forward ends of the tubular sections *C'* *C²* are inserted, respectively, into tubular sockets *c'* *c²* in corresponding castings G J, also to be more particularly described hereinafter. The inner or stubble end of the rear sill C is extended obliquely upward, as shown at *c²*, and serves to support at its end the rear portion of the gearing for operating the cutter-bar and carrier and elevator-apron, as hereinafter more fully described. The angular casting H, referred to as having a curved socket for the reception of the inner rear corner of the platform-frame bar *C²*, and which is secured thereto by suitable bolts for stiffening the frame at that point, has also a sleeve *c⁶* formed on it for the reception of a shaft E, and at its forward end is provided with a perforated lug or ear *h*, engaging a bifurcated ear *d* on the rear end

of the sleeve D, a pin d' passing horizontally through the ears d and h , serving to pivot the sleeve D to the casting H, and through the latter to the frame, in line with the sleeve c^6 . The sleeve D has a shaft E' journaled in it, which at its forward end is connected by a universal joint at e , in the same transverse line with the pin d' , with the shaft E, and forms in connection therewith a tumbling-shaft, permitting relative movement of the sleeves D and c^6 on the pin d' . The rear end of the shaft E carries a gear-wheel e' , which meshes with a gear-pinion f upon the rear end of a crank-shaft F, extending parallel with the shaft E and working in tubular bearings or sleeves $c^4 c^5$, formed on the castings H G, respectively. The casting G is also formed with a lateral extension g , in which is formed a recess to receive the adjusting mechanism, to be hereinafter particularly described.

Upon the forward end of the sleeve D is formed a shield or casing D', within which is placed a beveled gear-wheel (not shown) secured to the main carrying-wheel. This gear-wheel is engaged by a bevel gear-pinion e^2 , fast on the front end of shaft E', so that as the wheel revolves its motion is transmitted to the shaft E and thence to the shaft F, and through a crank-disk f' on the front end of the shaft F and a connecting-rod f^2 the movement of shaft F is transmitted to the cutter-bar f^3 , so as to reciprocate the latter. A sprocket-wheel f^4 is mounted upon the shaft F near its rear end, around which a drive-chain is designed to be run to a sprocket-wheel r on the inner carrier-roller b , as shown.

The front corner of the outer or grain end of the platform is formed by a casting J, to which the front sill A is bolted, and upon which the tubular socket c' is formed, as shown. This casting J is also formed with a rearwardly-extending lug j , which is perforated to form a bearing for the extension h of an arm K, upon which the grain-wheel L is mounted. An adjusting-rod c^9 extends longitudinally beneath the platform, and is connected at one end by a chain to the arm K and at its opposite end by a similar chain passing over a pulley c^7 on the bar C² to the shield D', so that when the inner end of the platform is raised or lowered the outer end shall be correspondingly adjusted.

Upon the front side of the shield D' is formed an extension d^2 , having gear-teeth on its inner side, said extension lying within the recess of the extension g , before referred to. M designates a rod which extends downward into said recess, and upon the lower end of this rod is formed a worm m , which engages the teeth upon the extension d^2 , the arrangement being such that when the rod M is turned the inner end of the platform is raised or lowered so as to vary the height of the cutter-bar as required. The upper part of the rod M is surrounded by an elastic cushion N, which is confined between a shoulder m' on

the rod and inwardly-extending flanges $c^9 c^{11}$ at the upper end of the recess in the extension g . By virtue of this arrangement the devices for adjusting the height of the platform are relieved of all strains incident to the jolting of the machine over uneven ground. A rod M' is connected to the upper end of rod M by a knuckle-joint m^2 and extends upward to within easy reach from the driver's seat, the purpose of said rod being to impart the required turning movements to the rod M.

Upon the platform is mounted an adjustable guard O, which extends longitudinally of said platform, and is so connected therewith as to be adjusted toward and away from the front sill in order to vary the width of the platform to correspond with the varying lengths of grain. The guard is supported at its outer end upon an L-shaped bracket o^3 , as best shown in Fig. 11, the lower end of which is formed with a saddle o^4 , secured movably upon the frame-section C' by a clip o^5 . By virtue of this construction the guard is readily adjustable and can be securely set in any desired position of adjustment.

In Figs. 3 and 10 is shown the guard P for the elevator-apron, said guard being designed to operate in conjunction with the guard upon the platform. This elevator-guard is hinged at its lower end to the inner end of the guard O by a bracket p' , which carries a curved arm p^2 , the outer end of which works upon a bolt p^3 , and is held rearward by a spring p^4 , surrounding said bolt, the purpose of said spring being to hold the guard P against the grain being carried upward by the elevator-apron.

A tubular cross-bar W extends rearwardly from the inner divider W', and the inner or stubble end of the wind-board O is suspended from said bar W by means of a yoke w' , arranged to slide or be adjusted backward and forward on said bar. (See Figs. 2, 8, and 10.) The grain passes freely underneath the bar W, and by suspending the guards O and P therefrom they may be freely adjusted back and forth to adapt them to the length of the straw, and at the same time the inner end of the platform-carrier and the lower end of the elevator-table are relieved from all obstruction to the free passage of the grain.

S designates a tubular bar, which is attached at its lower end to the rear sill C, and which extends obliquely upward therefrom. From the under side of this bar S extends a hanger s , bolted to said bar and having at its outer end a bearing for the picker-shaft T. On the rear end of this shaft T is mounted a sprocket-wheel t , which is engaged by the upper part of the drive-chain running over the sprocket-wheels $f^4 r$, so as to drive the pickers.

G, in Fig. 14, designates a modified form of bearing for the rear end of the crank-shaft F, said bearing being designed for use in lieu of the sleeve c^4 , before described. This bearing G is formed with an extended base y , which

embraces the upper end of the oblique portion C² of the sill-bar C, and said base *y* is secured to the portion C² by two bolts *y*'.

Upon the rear sill C of the platform-frame 5 is bolted an extension-plate V, which extends the full length of the platform.

It will be seen from the above description that the platform-frame is so constructed that its several parts may be readily and 10 cheaply produced and assembled with great facility; also that the carrying-strain is entirely removed from the platform-adjusting devices, and that the area of the platform-carrier and of the elevator-apron may be 15 quickly varied to accord with the varying lengths of grain.

The adjustable guards O and P serve, in addition to the purposes above described, as 20 wind-boards to prevent the escape of the grain from the platform and elevator.

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

1. The grain-platform frame provided with 25 the rear sill and end bars formed from a single bar of metal bent into the required shape, in combination with the socketed corner-piece for stiffening said bar at its inner angle, provided with a bearing-sleeve for the secondary 30 or bevel-wheel shaft, substantially as described.

2. The combination, with the platform-frame composed of the front sill and the rear sill, the latter formed in one piece with the 35 end bars of said frame, of the socketed inner rear corner-piece for stiffening the frame, the axle arm or sleeve hinged to said frame-piece, the drive-wheel journaled on said arm, and gearing connecting said driving-wheel with a

secondary shaft having bearings in said rear 40 inner corner frame-piece, substantially as described.

3. The combination, with the platform-frame, of the grain guard or fender adjustable 45 backward and forward on said frame, and the elevator-guard attached to and adjustable with said fender, so that the grain will be guided from the platform-carrier and up the elevator, said fender and elevator-guard being 50 connected to each other and upheld at their junction by a support connected to the platform-frame only at a point in advance of the path of the grain over said frame, substantially as described, whereby all obstruction 55 to the passage of the grain is removed, as set forth.

4. The combination, with the main or platform frame, of the grain guard or fender O, adjustable backward and forward on said 60 frame, the elevator-guard P, hinged to said guard O, and the interposed spring, arranged and operating substantially as and for the purpose described.

5. The platform-frame provided with the 65 grooved guiding-standard, in combination with the drive-wheel arm pivoted at one end to said frame and at its other end engaging said standard, and the cushion in said standard interposed between said frame and drive-wheel arm, and on which the frame rests for 70 relieving it from the jolting of the drive-wheel, substantially as described.

In testimony whereof I have hereunto set my hand this 14th day of January, A. D. 1887.

LEWIS MILLER.

Witnesses:

O. L. SADLER,
W. K. MEANS.