

(No Model.)

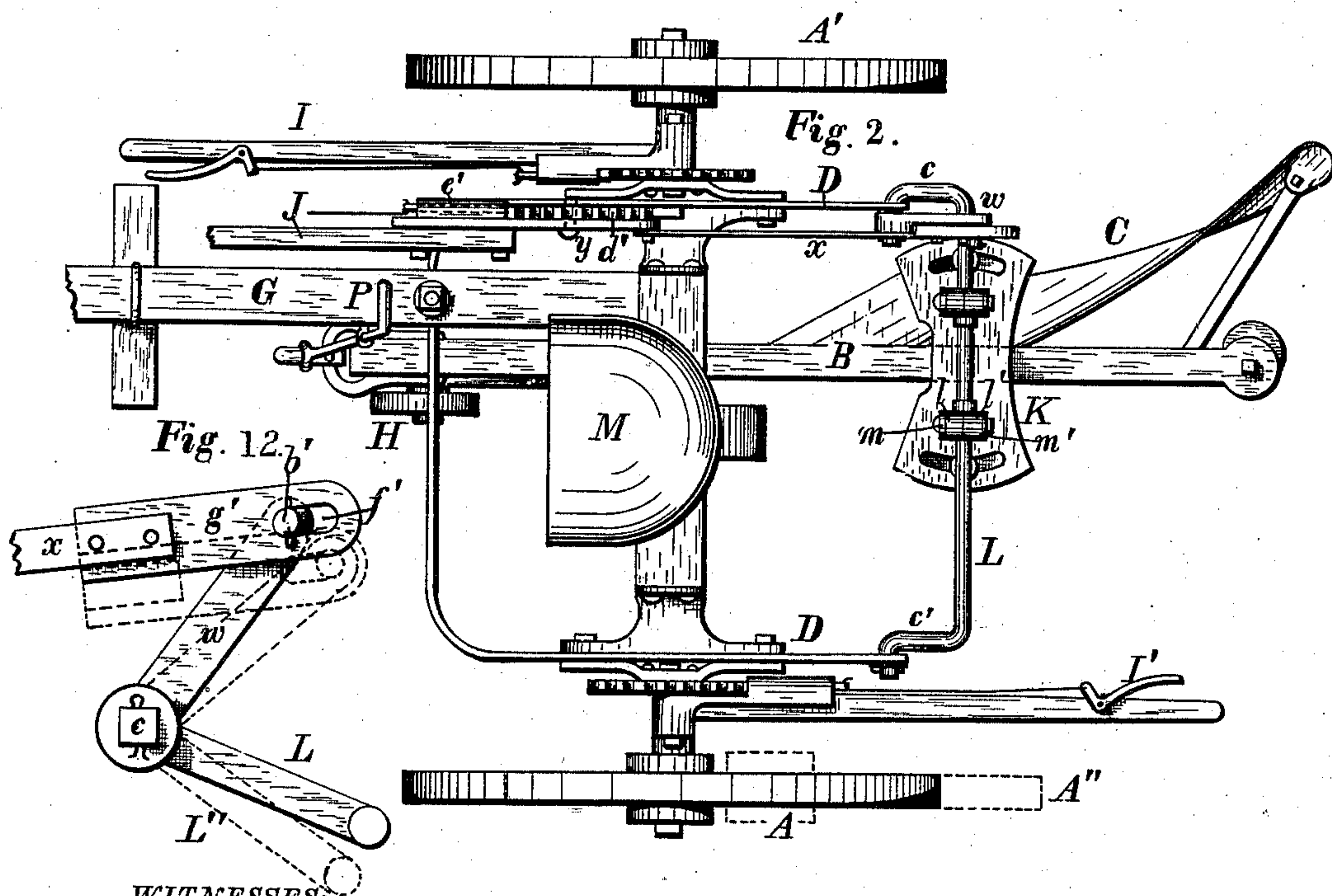
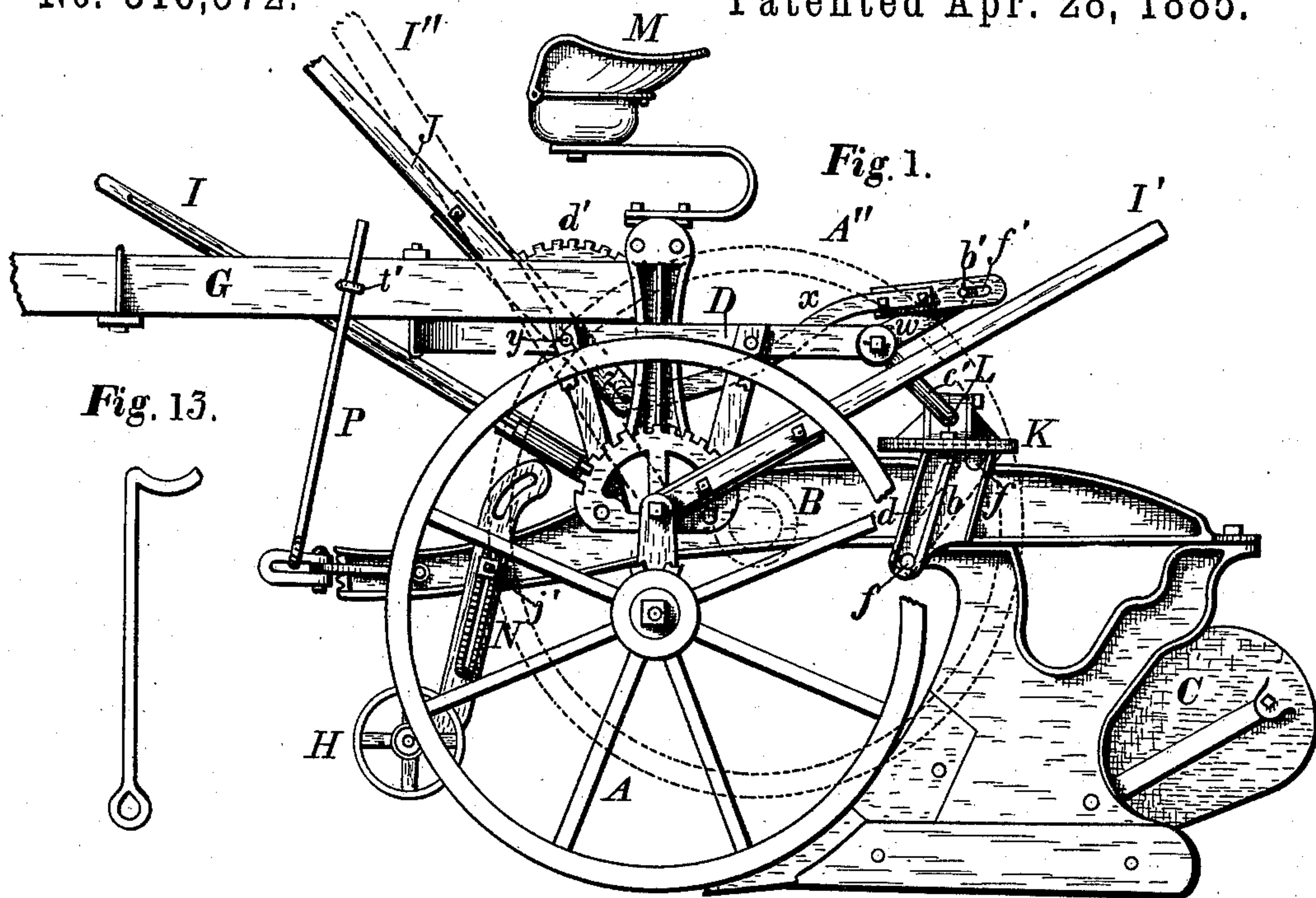
2 Sheets—Sheet 1.

J. S. & E. C. ROBINSON.

SULKY PLOW.

No. 316,572.

Patented Apr. 28, 1885.



WITNESSES:  
H. G. Phillips.  
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J. S. & E. C. Robinson,  
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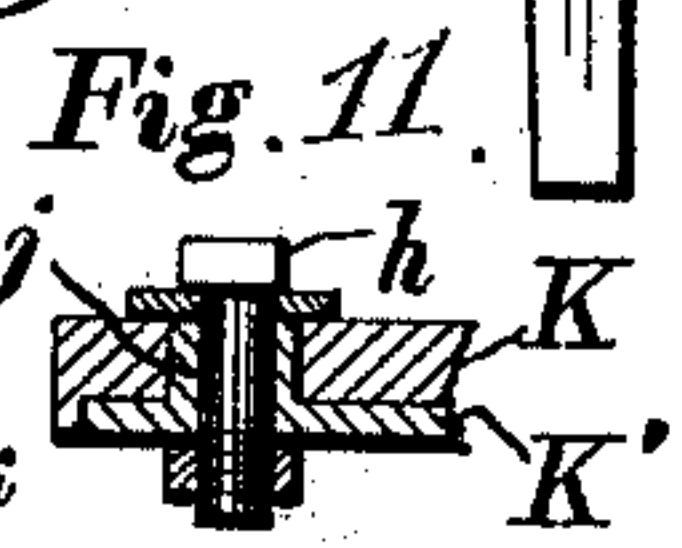
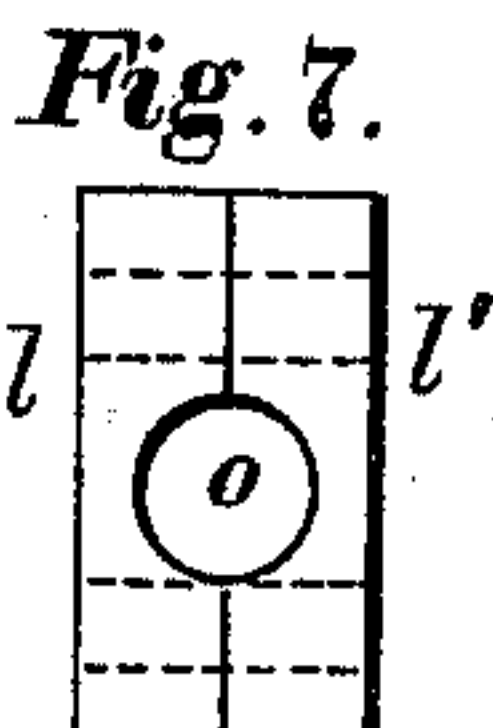
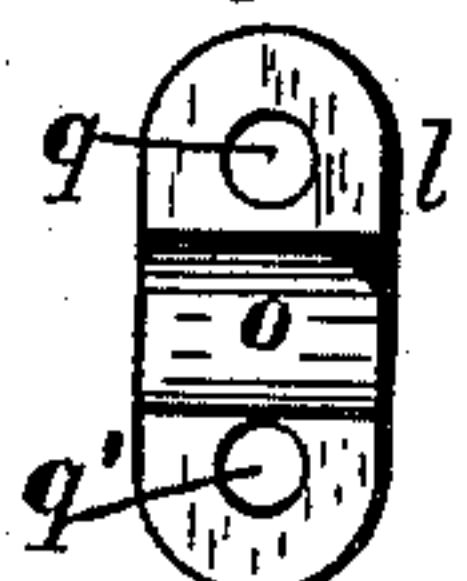
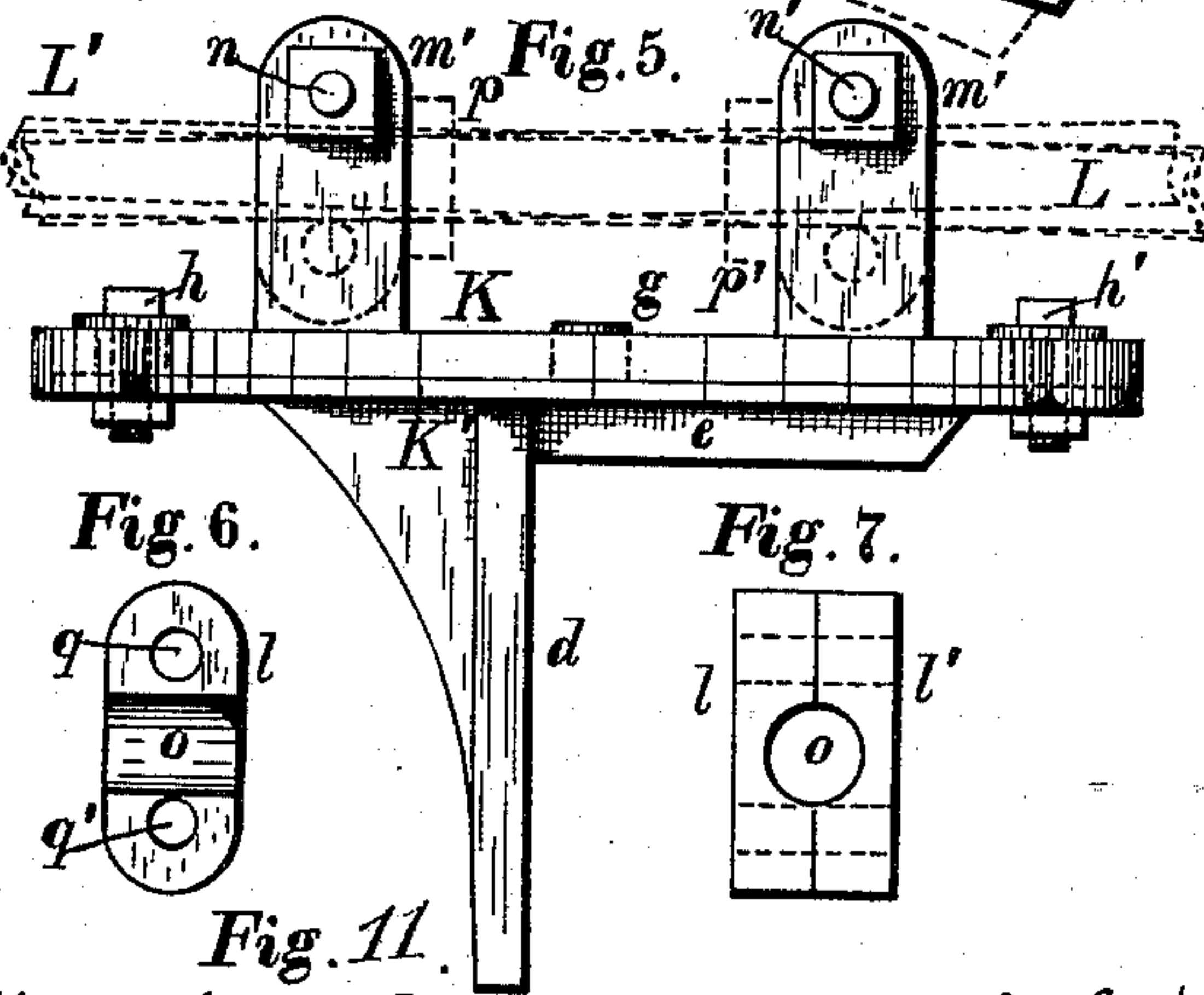
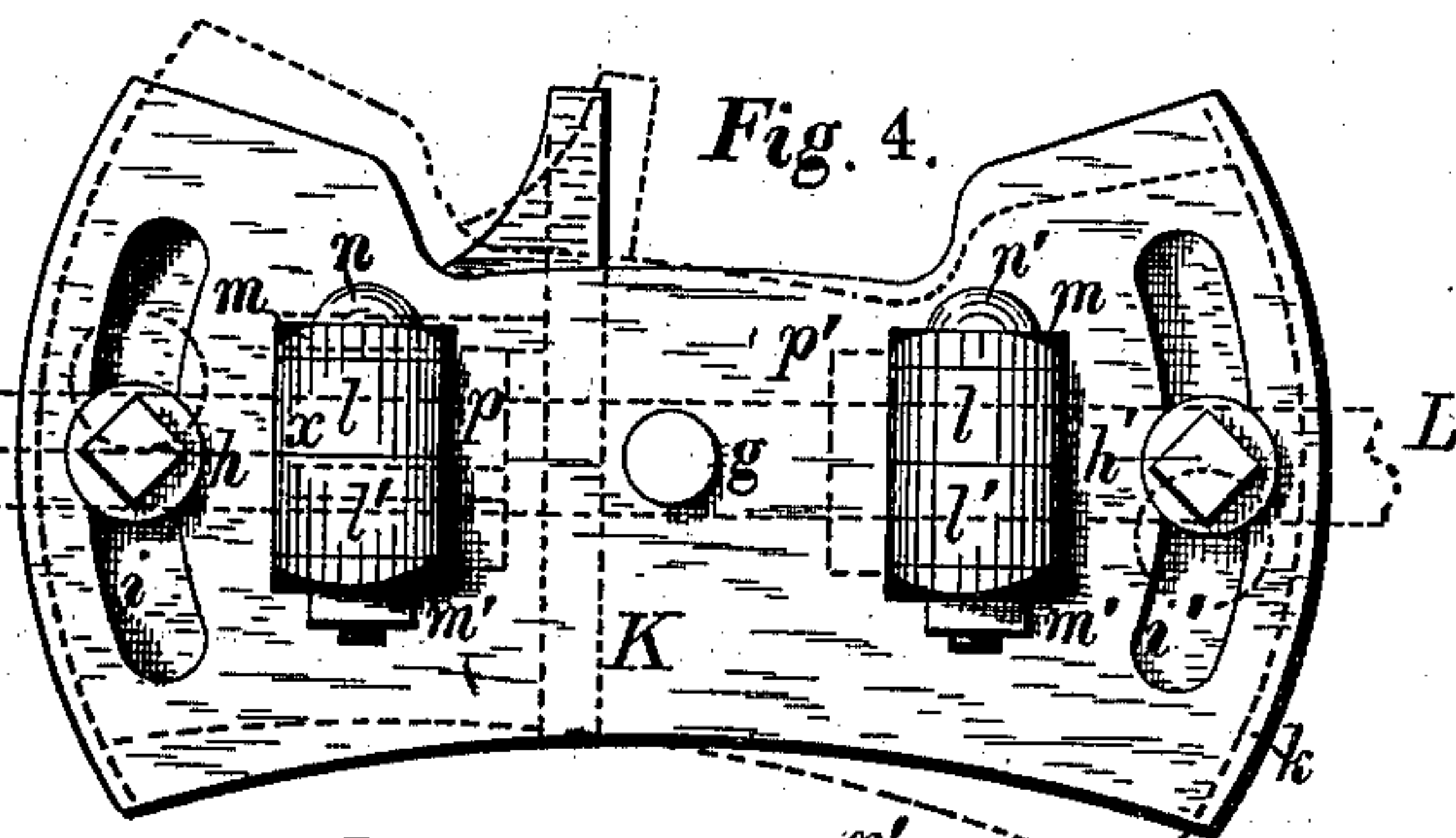
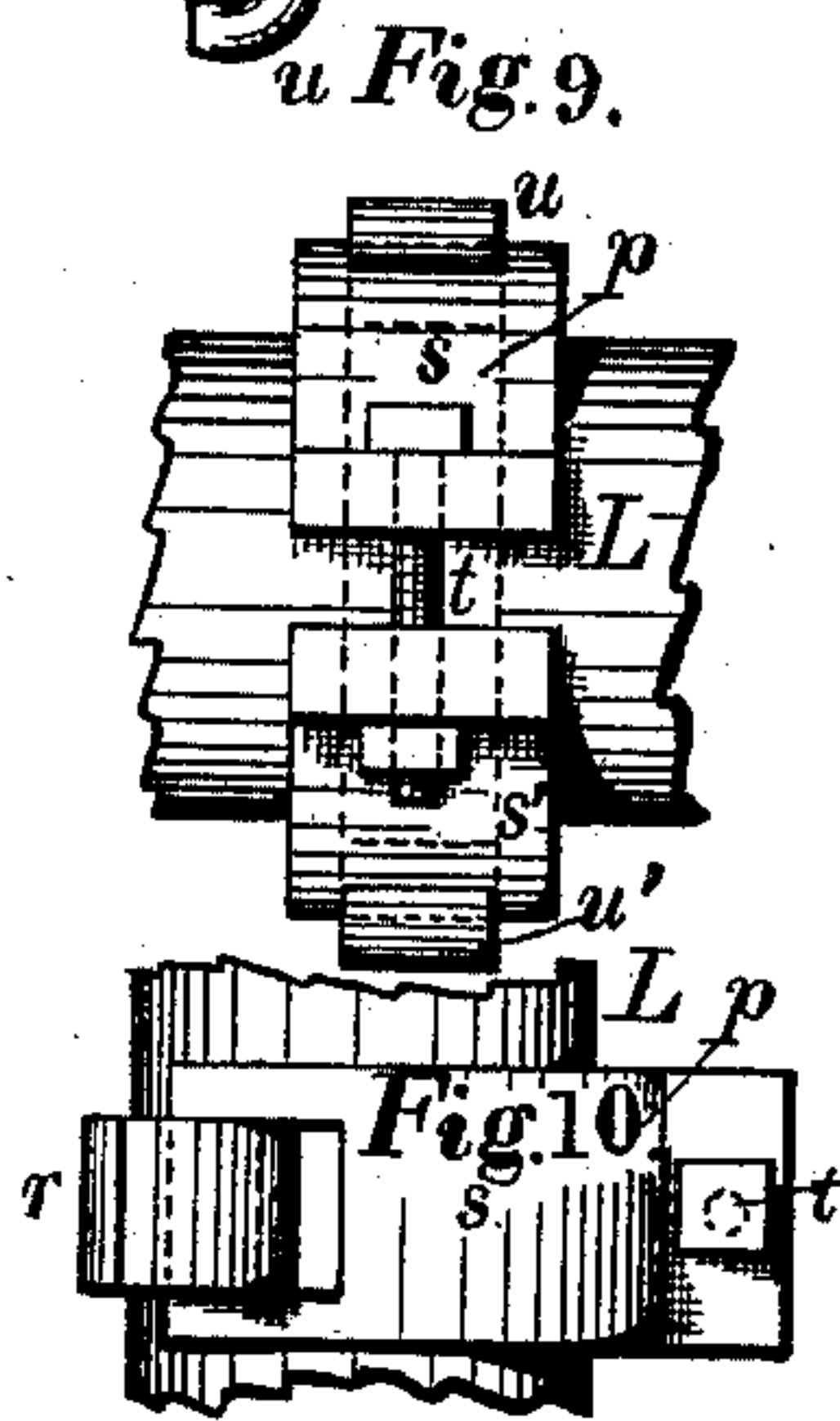
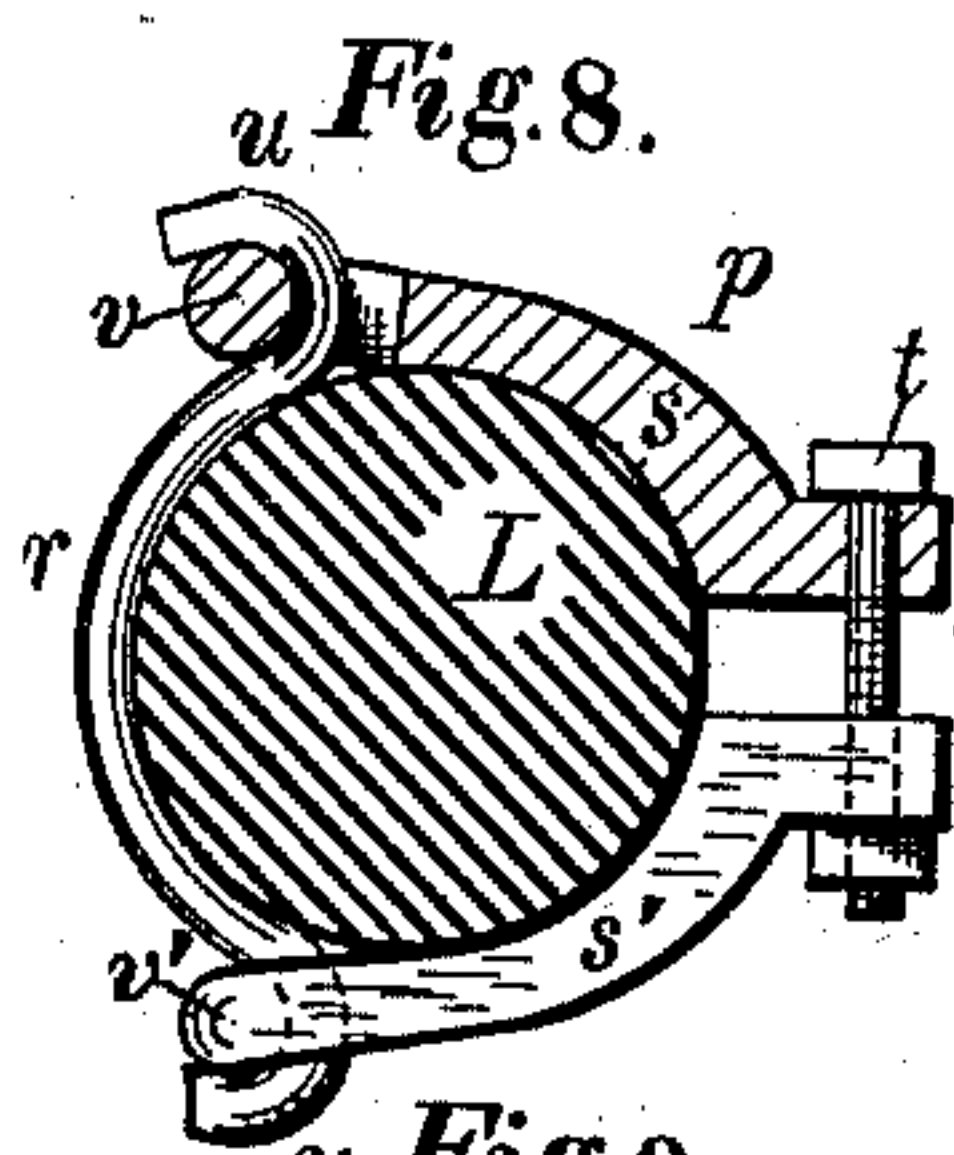
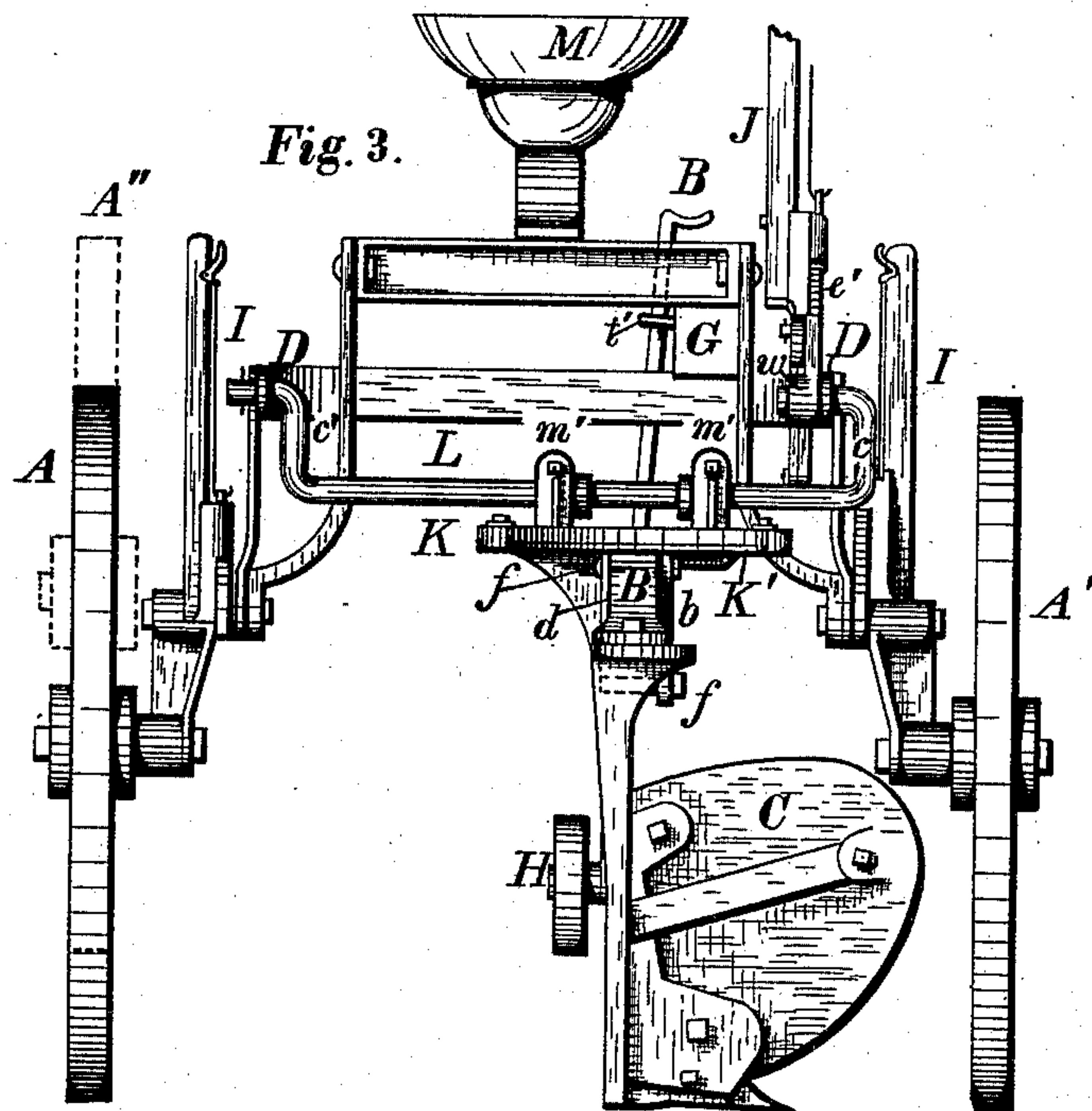
Attorney.

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# UNITED STATES PATENT OFFICE.

JOHN S. ROBINSON AND EDSON C. ROBINSON, OF CANANDAIGUA, N. Y.

## SULKY-PLOW.

SPECIFICATION forming part of Letters Patent No. 316,572, dated April 28, 1885.

Application filed December 6, 1884. (No model.)

*To all whom it may concern:*

Be it known that we, JOHN S. ROBINSON and EDSON C. ROBINSON, citizens of the United States, residing at Canandaigua, in the State of New York, have jointly invented certain Improvements in Sulky-Plows, of which the following is a specification, reference being had to the accompanying drawings.

Our invention relates to certain improvements in sulky-plows, which improvements are fully described in the following specification, and the novel features thereof specified in the annexed claims.

Our improvements in sulky-plows are illustrated in the accompanying drawings, in which Figure 1 is a side elevation. Fig. 2 is a plan view. Fig. 3 is a rear elevation. Fig. 4 is a plan view of the circle-plate detached. Fig. 5 is an elevation of the same. Fig. 6 represents one of the blocks by which the bail is attached to the circle-plate, as seen from the inside. Fig. 7 is a side view of the said blocks. Fig. 8 is a section through one of the collars on the bail. Fig. 9 is an elevation of the same. Fig. 10 is a side view of the same. Fig. 11 is a section through the circle-plates on the line  $x x$ , Fig. 4. Fig. 12 represents the crank attached to the bail, on an enlarged scale. Fig. 13 is a side view of the foot-bar detached.

In the accompanying drawings, representing our improved sulky-plow, A A' are the wheels; B, the plow-beam; C, the mold-board; D, the frame; G, the tongue; H, the plow-wheel; I I', the levers by which the position of the wheels A A' is controlled, and J the lever which raises or lowers the plow.

The plow is connected to the rear end of the frame D by means of the circle-plate K K' and pivoted bail L, the arrangement being such that a certain amount of lateral and vertical adjustment between the frame and the plow is permitted when in operation. The beam is attached to the lower circle-plate, K', by means of the plate  $d$ , bolts  $f f$ , and strap  $b$ , the bolts serving to clamp the beam firmly between the plate and the strap. The upper and lower circle-plates, K K', are connected together, so that they may have a swiveling motion relatively to each other about the stud  $g$ , Figs. 4 and 5, by the bolts  $h h'$ , which pass through the slots  $i i'$  in the upper plate. The

swiveling motion is represented by the dotted lines in Fig. 4, its effect being to allow the plow to yield or swing laterally relatively to the frame or wheels in case the plow strikes an obstruction, or to allow the sulky to make a similar movement relatively to the plow, if necessary. The stud  $g$  is cast on the lower circle-plate, and is fitted to an opening in the upper circle-plate. On the lower side of the lower circle-plate a rib,  $e$ , bears against the upper side of the plow-beam. The bolts  $h h'$  pass through bosses on the lower circle-plate, as represented at  $j$ , Fig. 11, so that the nuts on the lower ends of the bolts may be screwed up tight without interfering with the free swiveling of the plates. The upper circle-plate is preferably provided with the circular ribs  $k$ , projecting downward around the edges of the lower circle-plate. The bail L is provided on each end with the cranks  $c c'$ , which are pivoted in the rear ends of the frame D, being secured therein by split pins or other suitable devices. The bail is attached to the upper circle-plate by the divided boxes  $l l' l'$  and lugs  $m m' m'$ . The lugs  $m m'$  rise up from the upper circle-plate at a suitable distance apart to receive the boxes between them, two pairs of lugs being used on opposite sides of the stud  $g$ . The boxes are secured in the lugs by the bolts  $n n'$ . The bail passes through the opening  $o$ , being allowed to turn freely therein. The bail is prevented from shifting laterally in the boxes by means of the collars  $p p'$ .

As represented in Fig. 6, the holes  $q q'$  for the bolts  $n n'$  through the boxes  $l l'$  are placed at different distances from the opening  $o$ , so that by reversing the position of the blocks the circle-plate and the plow attached thereto can be adjusted at an angle with the bail and frame of the machine, as indicated by the dotted lines L' in Fig. 5. In this way the plow and mold-board may be placed at an angle with the bail and frame, a proceeding which is frequently an advantage in plowing on side-hills.

The construction of the collars  $p p'$  is represented on an enlarged scale in Figs. 8, 9, and 10. The collars consist of a bent strap,  $r$ , and two clamps,  $s s'$ , attached together so as to cause friction on the bail L by means of the



screw or bolt *t*. The construction is such that the collar can be readily removed from the bail by taking out the bolt *t*. The strap *r* is provided at each end with the hooks *u u'*, which engage with the bars *v v'* on the ends of the clamps, a recess being formed in the end of the clamps for the reception of the hooks. The strap is bent to fit the bail, and the interior surface of the clamps is formed of a corresponding shape.

It will be observed that when the clamps *s s'* are drawn together by the bolt *t* the assemblage of parts constituting the collar will be firmly clamped on the bail, so as to prevent the bail from shifting laterally through the boxes *l l'*. This construction of the collar in three parts enables the collar to be used on bails of different diameters, or on those which have become worn from use. It also insures an effective grip on the bail.

As already described, the cranks *c c'* on the end of the bail are pivoted in the rear end of the frame *D*.

In order to provide for raising the plow out of or throwing it down again into the furrow, the bail is connected by means of the arm *w* and connection *x* with the lever *J*, which is pivoted to the frame *D* at *y*, so that its upper end may be conveniently within reach of the driver riding on the seat *M*. The lower end of the lever is pivoted to the connection *x* at *z*, Fig. 1. The connection reaches backward, being given a suitable upward bend, and is pivoted at its rear end to the pin or stud *b'* in the arm *w*, which is fastened to the crank *c* of the bail *L*. The arrangement is such that by pulling the upper end of the lever *J* backward the arm *w* will be swung forward, thereby lifting up the bail and the plow attached thereto, and, if desired, drawing the plow entirely out of the furrow. By this means the plow is withdrawn from the ground at the end of the furrow, and again lowered into the ground at the commencement of the next furrow. These operations are effected by throwing the lever *J* forward or backward, as may be required. A notched segment, *d'*, secured to the frame, with the notches of which a spring-catch, *e'*, engages, enables the driver to fasten the lever *J* in any desired position. The pin *b'* on the end of the arm *w* passes through a slot, *f'*, Fig. 12, in end of the connection *x* for the purpose of allowing a limited rise in the sulky without lifting the plow in passing over irregular ground or obstructions.

The operation will be readily understood from Figs. 1 and 12, the parts being shown in full lines in Fig. 12 in the position occupied by them when the sulky is in its usual or customary position relatively to the plow, the pin *b'* being at the front end of the slot, and in dotted lines *L''* when the sulky rises to pass over an obstruction, the pin *b'* moving toward

the rear end of the slot to permit the bail to swing a short distance downward to effect the necessary relative adjustment of the sulky and the plow. While the sulky rises to pass over the obstruction the bail swings downward, the pin *b'* traveling outward or rearward in the slot *f'*, so that the plow is not raised, but continues its course. The slot *f'* may be made in the end of the connection *x*; but we prefer to fasten to the end of the connection a casting, *g'*, Fig. 12, in which the slot *f'* is formed. We have found this arrangement to operate successfully in practical use. The arm *w* may be attached to the squared end of the crank *c*, being fastened thereon by a split key and washer.

The lever *J* is conveniently formed of two parts, the upper end being of wood.

The depth of the furrow made by the plow is regulated by the wheel *H*, attached to the plow-beam by the standard *N*, the wheel *A* being set when the plow is in use so as to run on the ground alongside of the plow, as indicated by the dotted lines *A''*, Figs. 1 and 3, while the right-hand wheel *A'* runs on the bottom of the last furrow plowed.

In order to enable the driver to hold the plow down to its work on encountering a hard piece of ground, we attach to the plow-beam or the clevis the foot-bar *P*, which extends upward alongside the tongue and has its upper end adapted to receive the pressure of the driver's foot when necessary. The foot-bar passes freely through an eye or loop, *t'*, Fig. 1, on the tongue, being held in the proper position thereby.

We claim—

1. The combination, in a sulky-plow, of the main frame *D*, and bail *L*, provided with arms *c c'*, pivoted in the rearward extension of the said frame, and provided with crank *w*, connected with lever *J* by the slotted connecting-bar *x*, substantially as described.
2. The combination, with the main frame and plow of a sulky-plow, of the slotted circle-plates *K K'*, attached together by bolts *h h'*, substantially as described.
3. The combination, with the main frame and plow of a sulky-plow, of the circle-plate *K'*, attached to the plow-beam, and the circle-plate *K*, provided with lugs *m m'*, and connected to the bail *L* by means of the divided blocks *l l'*, substantially as described.
4. The combination, with the main frame and plow of a sulky-plow, of the divided reversible blocks *l l'*, arranged to permit the adjustment of the plow at an angle with the frame, substantially as described.

JOHN S. ROBINSON.

EDSON C. ROBINSON.

In presence of—

J. HENRY METCALF,  
GEORGE B. COOLEY.