No. 696,769. Patented Apr. 1, 1902.

H. SOMMERFELD.

SULKY PLOW.

(Application filed June 28, 1901.)

(No Model.) 3 Sheets—Sheet 1.

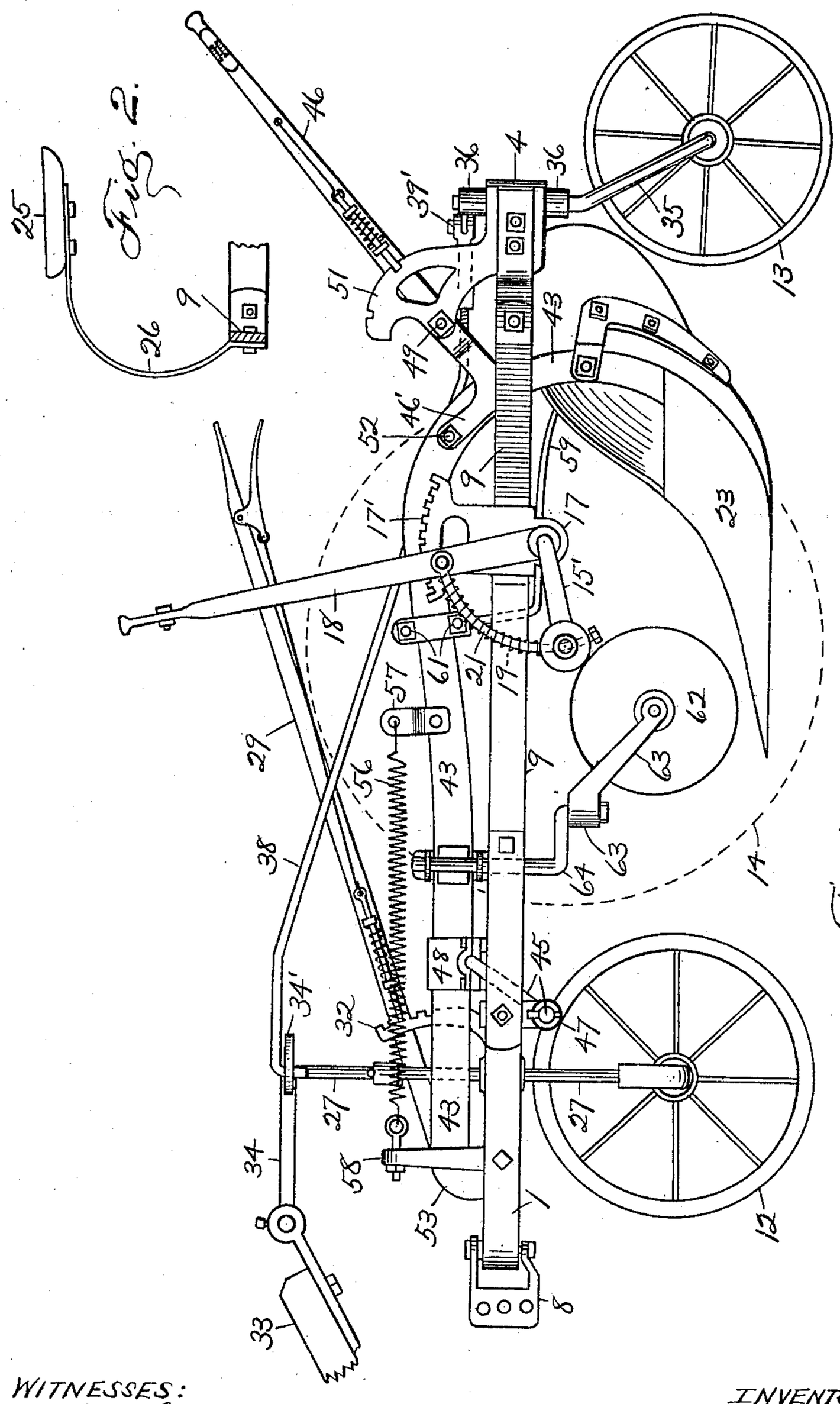

Fig. 2.

Fig. 1.

WITNESSES:
K. M. Imboden,
M. L. Lange

INVENTOR,
H. Sommerfeld.
By Higdon & Higdon,
ATTYS.

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3 Sheets—Sheet 2.

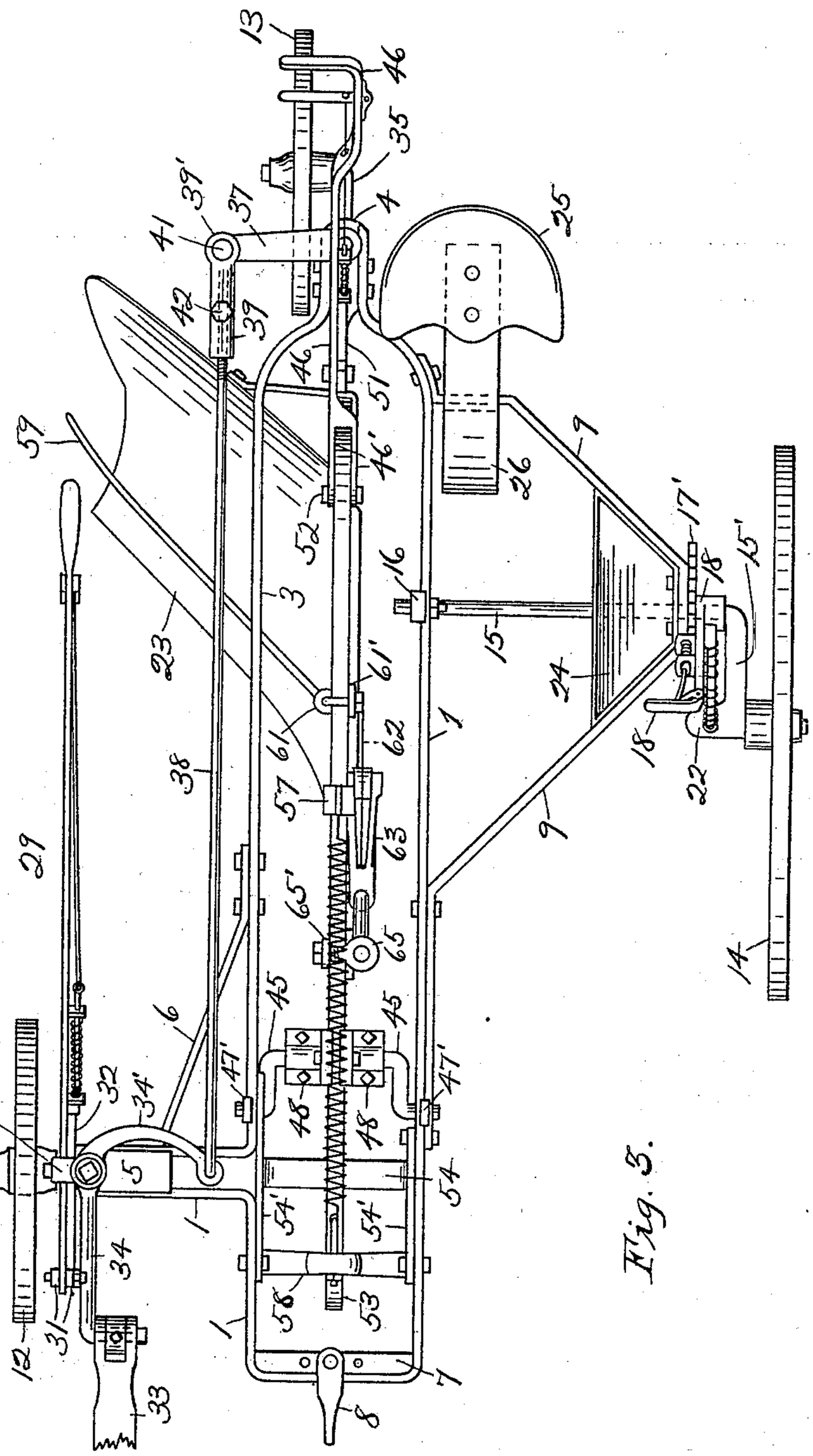

Fig. 5.

WITNESSES:

K. M. Imboden,
M. L. Lange.

INVENTOR,
H. Sommerfeld.

By Higdon & Higdon,
ATT'YS.

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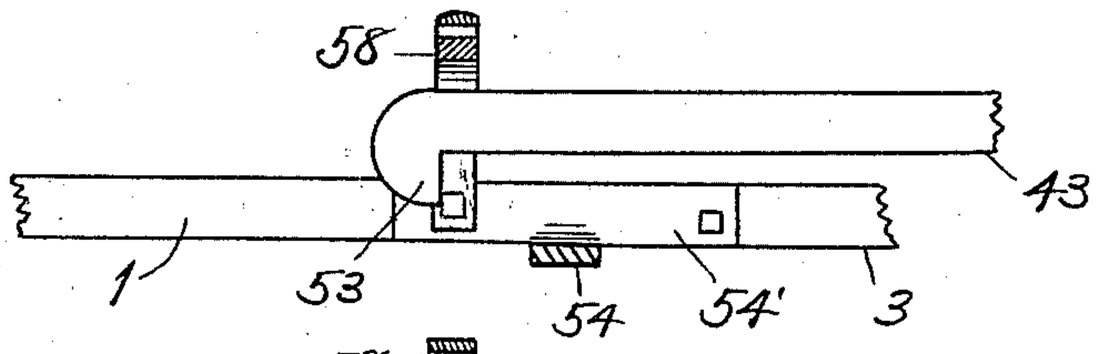

Fig. 4.

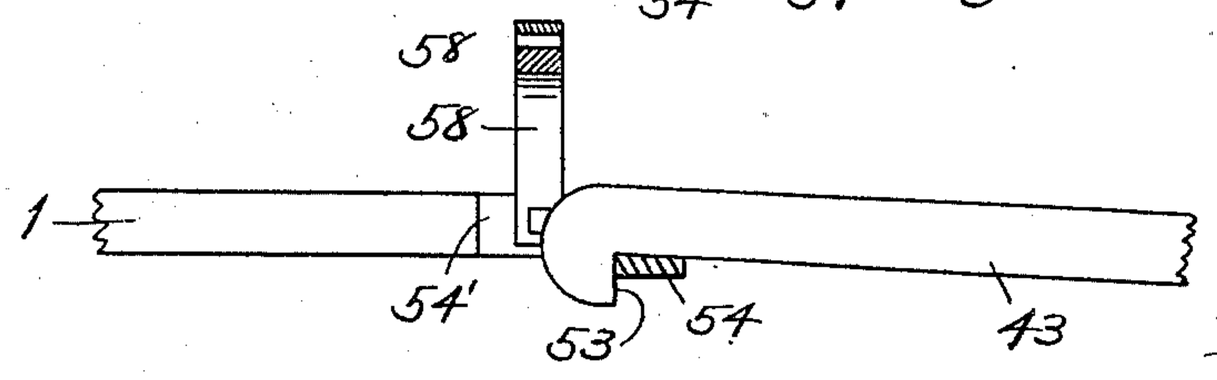

Fig. 5.

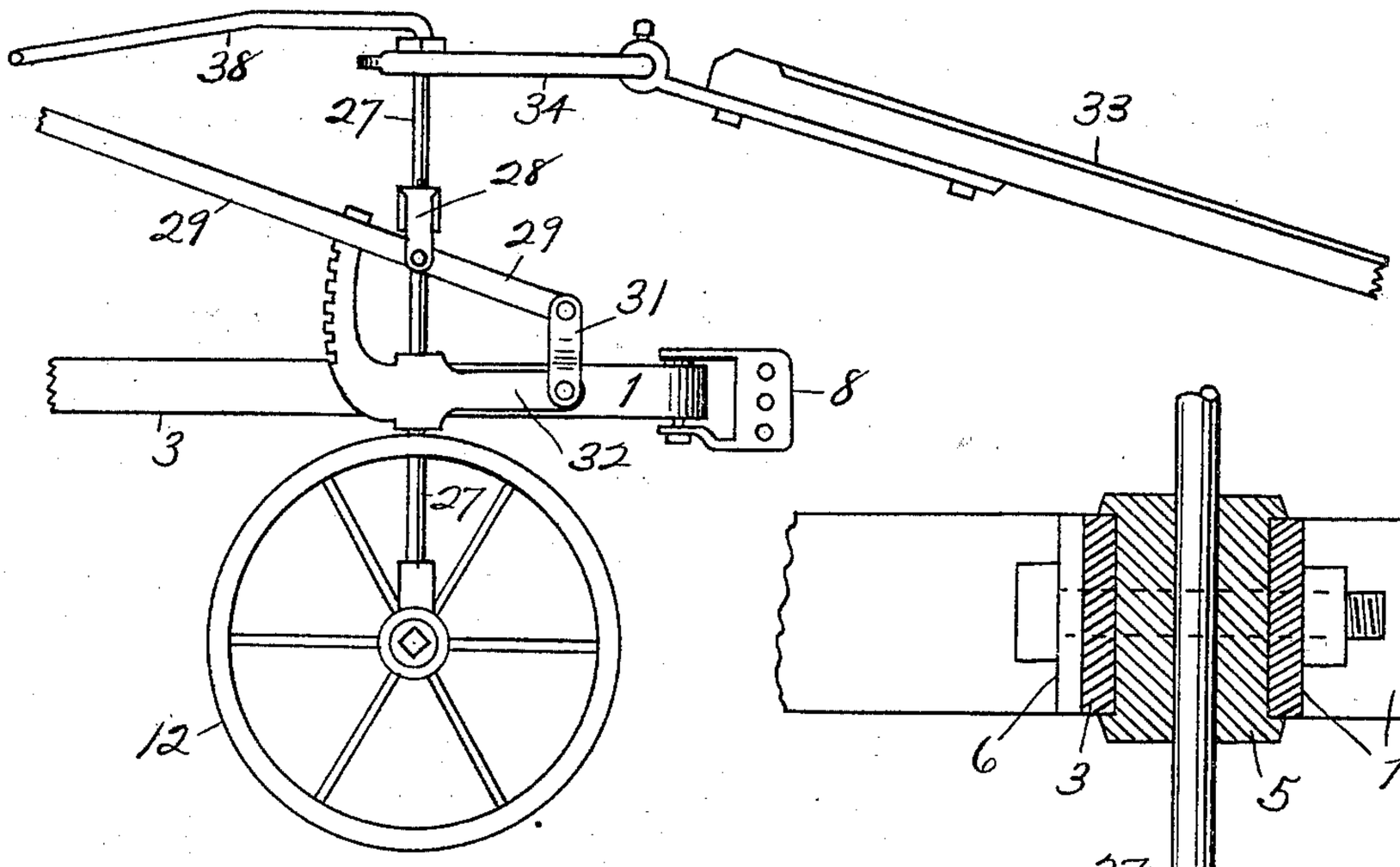

Fig. 6.

Fig. 7

WITNESSES:

K. M. Imboden,
M. L. Langer.

INVENTOR,

H. Sommerfeld.

By Higdon & Higdon,
ATTYS.

UNITED STATES PATENT OFFICE.

HEINRICH SOMMERFELD, OF CANTON, KANSAS.

SULKY-PLOW.

SPECIFICATION forming part of Letters Patent No. 696,769, dated April 1, 1902.

Application filed June 28, 1901. Serial No. 66,340. (No model.)

To all whom it may concern:

Be it known that I, HEINRICH SOMMERFELD, a citizen of the United States, and a resident of Canton, in the county of McPherson and State of Kansas, have invented new and useful Improvements in Sulky-Plows, of which the following is a specification.

My invention relates to improvements in sulky-plows; and the objects of my invention are, first, to provide novel means for bracing the plow-beam when the plow is in use. Said means consists in mounting the plow-beam near its forward end on a cranked shaft, which merely supports the forward end of the beam when the plow is raised out of the furrow, and in forming a shoulder in the lower side of the beam, which drops in front of a rigid cross-bar when the plowshare is lowered, causing most of the pull on the plow-beam to be resisted by said cross-bar.

Another object of my invention is to provide novel means for guiding the plow, which means consists of a ground-wheel at one side of the main frame near the front, having its spindle secured to a vertical rocker-shaft, connected by a crank to the tongue, together with another ground-wheel, similarly mounted at the rear end of the main frame behind the plowshare, having a crank on the vertical shaft, by which said wheel is guided, and a rod connecting said crank with a crank on the vertical shaft, by which the front wheel is guided. Thus any lateral movement of the tongue will change the angles of these ground-wheels simultaneously. Said wheels will be referred to hereinafter as "caster-wheels."

A further object of my invention is to produce novel means by which the plow-frame can be raised or lowered at either side by operating hand-levers, connected as described hereinafter.

I will proceed to describe my invention in detail with reference to the accompanying drawings, in which—

Figure 1 is a side elevation of a plow embodying my invention, the share being in raised position and the large ground-wheel omitted, but indicated by a dotted line, the tongue broken off, and the seat omitted. Fig. 2 is a side view of the seat detached, showing its supporting-bar in section. Fig. 3 is a plan view of the plow with the tongue broken off. Figs. 4 and 5 are broken-away detail views showing the front end of the plow-beam in raised and lowered positions, respectively. Fig. 6 is a broken-away detail view taken from the side opposite that shown in Fig. 1, showing the devices for turning the caster-wheel and for raising and lowering the main frame at this point. Fig. 7 is an enlarged sectional view, referred to hereinafter.

Referring to Figs. 1 and 3, the main frame is composed of two longitudinal bars 1 and 3, the rear ends of which are secured to a block 4 at the rear end of the frame. The longer bar 1 is bent across to form the front end of the frame, then extends rearwardly, then outwardly, as shown, and is secured to a block 5, as shown in detail in Fig. 7. To the opposite side of this block 5 is secured one end of the frame-bar 3. A brace 6 is secured to said frame-bar, as shown. A block 7 of wood or iron is secured to the inner side of the front end of the frame for attachment of the clevis 8. A lateral extension of the frame is formed by a bar 9, secured to bar 1, as shown, at its front end, lying in contact with bar 1 for some distance, then extending outwardly and rearwardly, then inwardly and rearwardly, and having its rear end also secured to frame-bar 1. The frame is supported by two caster-wheels 12 and 13 and by a large wheel 14. The spindle of the large wheel 14 is secured to the cranked portion 15′ of a rocker-shaft 15, which is journaled in depending castings 16 and 17, secured to frame-bars 1 and 9, respectively. The casting 17 extends upwardly and forms a notched sector 17′ for the latch of a hand-lever 18, the hub of which is rigidly secured on rocker-shaft 15 just outside of casting 17. When the lever 18 is turned, it raises or lowers the crank portion 15′ of shaft 15, and thereby lowers or raises the adjacent side of the frame relatively to the wheel 14. A somewhat yielding connection between the frame and the wheel 14 is afforded by a coiled spring 19, mounted on a curved rod 21, one end of which is secured to the lever 18, the other (lower) end extending loosely through a hole in a lug 22, secured to or integral with the end of the crank portion 15′. Said lug may be formed integral with the spindle of wheel 14, if so desired, and made separate from the cranked shaft, so that when the spindle is driven into

its socket the lug 22 would be held rigidly. When the plowshare 23 strikes an obstruction, the spring 19 will be compressed, and thereby relieve the plowshare and other parts from a sudden violent shock.

24 designates a tool-box secured in the angle of the frame-bar 19. The seat 25 is supported by a spring 26, having its lower end secured to a transverse part of bar 9, as shown in Fig. 2.

The purpose of the lateral extension of the frame-bars 1 3 near the front end of the frame is to provide a bearing for a vertical shaft 27, which is supported by the spindle of the forward caster-wheel 12. Said shaft passes slidably and rotatably through the aforesaid block 5, as shown in Fig. 7. Rigidly secured on shaft 27 above said block is a bracket 28, bifurcated to receive a hand-lever 29, pivoted on a pin or bolt 28′ in said bracket. Near this fulcrum the lever 29 is pivotally connected by a link 31 to a forward extension of a casting 32, which is integral with or may be secured to the block 5. This casting 32 extends rearwardly and upwardly in the arc of a circle, as shown, and is provided with notches for the latch of lever 29. It will now be evident that when the handle of lever 29 is depressed its short end connected to link 31 will be raised and by means of said link will raise the casting 32, block 5, and hence the entire forward end of the frame of the plow. Conversely, raising the handle of lever 29 will lower the frame. The object of this construction is to provide means for lowering the frame sufficiently to cause the plowshare 23 to enter the soil far enough to turn the first furrow. The caster-wheel 12 runs on the unplowed ground until a second furrow parallel to the first is commenced. Therefore during the turning of the first furrow the frame and plowshare are lowered by raising the lever 29 the requisite distance, depending on the depth of furrow to be cut; but when the second furrow is being turned the caster-wheel 12 runs in the first furrow, and hence the frame is raised by depressing the lever 29. The plowshare itself may also be raised or lowered independently of the frame by means to be described hereinafter.

The tongue 33 is connected to a crank-arm 34, secured on the upper end of shaft 27, whereby every lateral movement of the tongue rocks said shaft and guides the wheel 12. Integral with crank-arm 34 is a transversely-extending crank-arm 34′, the use of which will be stated below. At the rear of the frame I place another caster-wheel 13, which also partially supports the frame. The spindle of this wheel is secured to or integral with an upwardly and forwardly extending shaft 35, the upper portion of which is vertical and is journaled in the block 4, referred to hereinbefore. 36 designates collars rigidly secured on said shaft above and below said block. Rigidly secured on the upper end of shaft 35 is a crank-arm 37, which is connected to crank-arm 34′ on shaft 27 by a rod 38. The rear end of rod 38 is screw-threaded and enters an internally-threaded sleeve 39, the rear end of which is preferably forked into two ears 39′, between which the outer end of crank-arm 37 is held by a pivot-pin 41. It will thus be seen that every rocking motion of shaft 27 of the front caster-wheel 12 is transmitted through rod 38 to shaft 35 of the rear caster-wheel 13 and that said wheels will be turned in opposite directions thereby. In other words, both of said wheels are guided by movements of the tongue 33, which is of course turned by the horses. (Not shown.) The forward end of the rod 38 may be detached from crank-arm 34′ in order to adjust the length of the rod by turning it in the sleeve 39. When the proper adjustment is made, the rod is connected to the crank-arm 34′, and a set-screw 42 in sleeve 39 is tightened against the rod to prevent its turning.

The plow-beam 43 when in raised position (shown in Fig. 2) is supported near its front end by a cranked shaft 45 and near its rear end by the short arm 46′ of a hand-lever 46. The ends of the cranked shaft 45 are mounted in hangers 47, having upwardly-extending plates 47′ integral therewith, bolted to the frame-bars 1 and 3, respectively. The middle portion of said shaft 45 extends through a boxing 48, secured to the beam 43. The hand-lever 46, with its short bent arm 46′, is pivotally secured at 49 to a sector-plate 51, which is preferably integral with block 4. The sector-plate 51 is provided with notches for the latch of lever 46 for holding said lever in raised and lowered positions, respectively. The bent arm 46′ of said lever is preferably bifurcated, as shown in Fig. 3, and is secured pivotally to the plow-beam 43 by a bolt 52. Thus the plow-beam 43 is swung upward and forward when lever 46 is lowered and swung downward and backward when said lever is raised.

As shown in Fig. 4, the front end of the plow-beam 43 has a depending shoulder 53 formed thereon for engagement with a cross-bar 54. (See also Fig. 3.) This cross-bar is preferably integral with two plates 54′, turned up from its respective ends and bolted to the frame-bars 1 3, as shown in Figs. 3 and 4. When the plow-beam 43 is held by lever 46 in its raised position, the shoulder 53 is above and forward from the cross-bar 54, as shown in Fig. 4. When the plow-beam is lowered by lever 46, the shoulder 53 descends obliquely and drops just in front of said cross-bar. The greater part of the pull on the plowshare 23 when plowing is thus received by the cross-bar 54 through the beam 43. In raising the plow by lever 46 the operator is assisted by a strong spring 56, one end of which is secured to a clip 57, secured to the beam 43, the other end to a yoke 58, having its depending ends bolted to frame-bar 1.

59 designates a "weed-hook," (the use of

which is well known,) secured to the plow-beam 43 by eyebolts 61, connected by a tie-plate 61′. I provide also a rolling colter 62 for cutting the soil in front of the share 23. This colter is mounted rotatably in a yoke 63, which has a sleeve 63′, mounted rotatably on a depending shaft 64, which is preferably bent, as shown, and is secured to the plow-beam 43 by two eyebolts 65, connected at the opposite side of the beam by a tie-plate 65′.

Having now fully described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

In a wheeled plow, a frame, a cranked shaft mounted near the front end thereof, a plow-beam having a depending shoulder at its front end and connected to said cranked shaft, a cross-bar forming a part of the frame, beneath the front end of the plow-beam, and a hand-lever fulcrumed in the frame and connected pivotally to the plow-beam, for raising and lowering the same, said shoulder being in contact with the front edge of said cross-bar when the plow-beam is in fully-lowered position, substantially as described.

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

HEINRICH SOMMERFELD.

Witnesses:
H. M. COONS,
JAS. S. COONS.