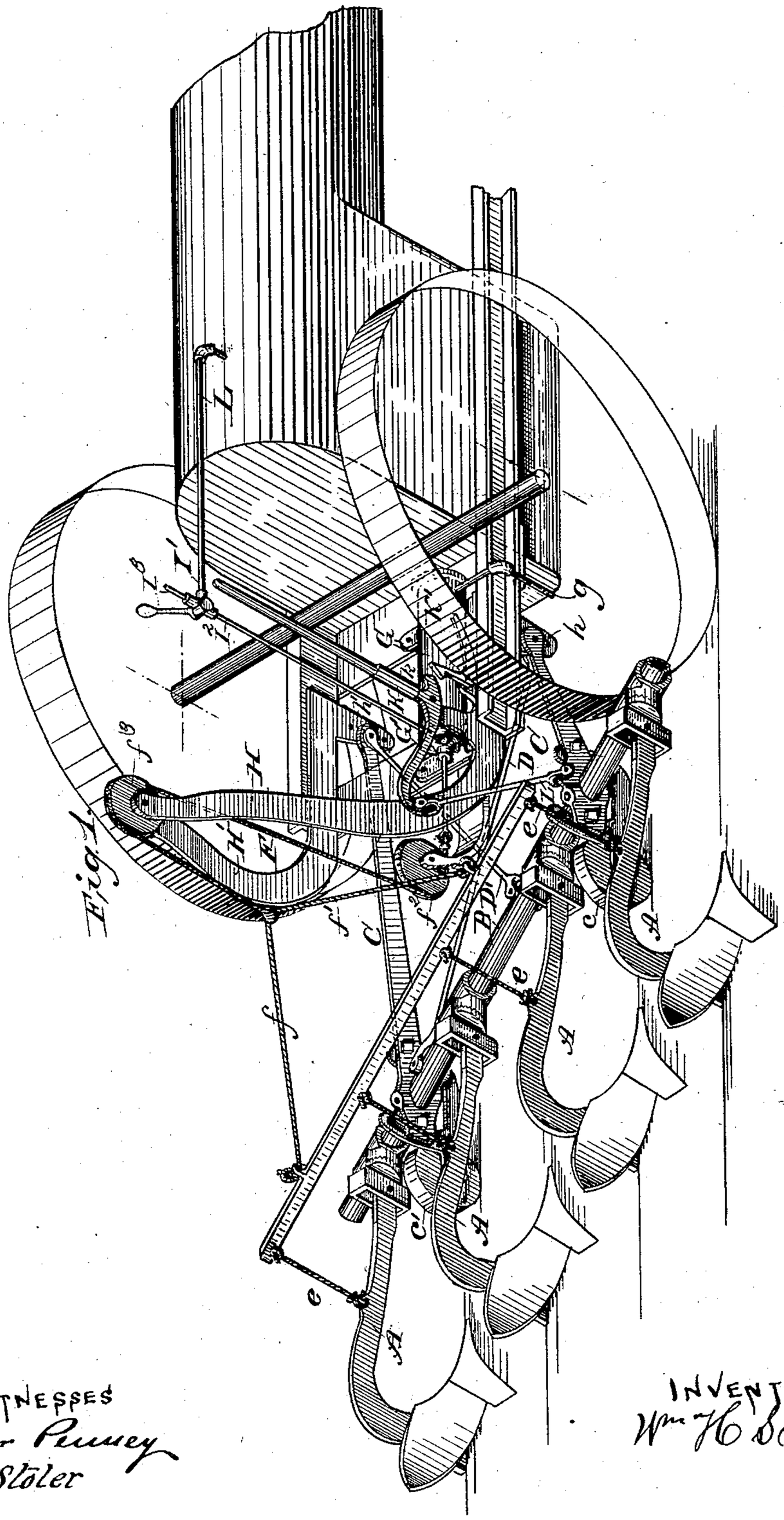
(No Model.)

2 Sheets—Sheet 1.

W. H. SNYDER.

STEAM GANG PLOW.

No. 316,845. Patented Apr. 28, 1885.



WITNESSES
Edgar Penney
S. M. Stöler

INVENTOR
Wm. H. Snyder

(No Model.) 2 Sheets—Sheet 2.

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Fig. 2.

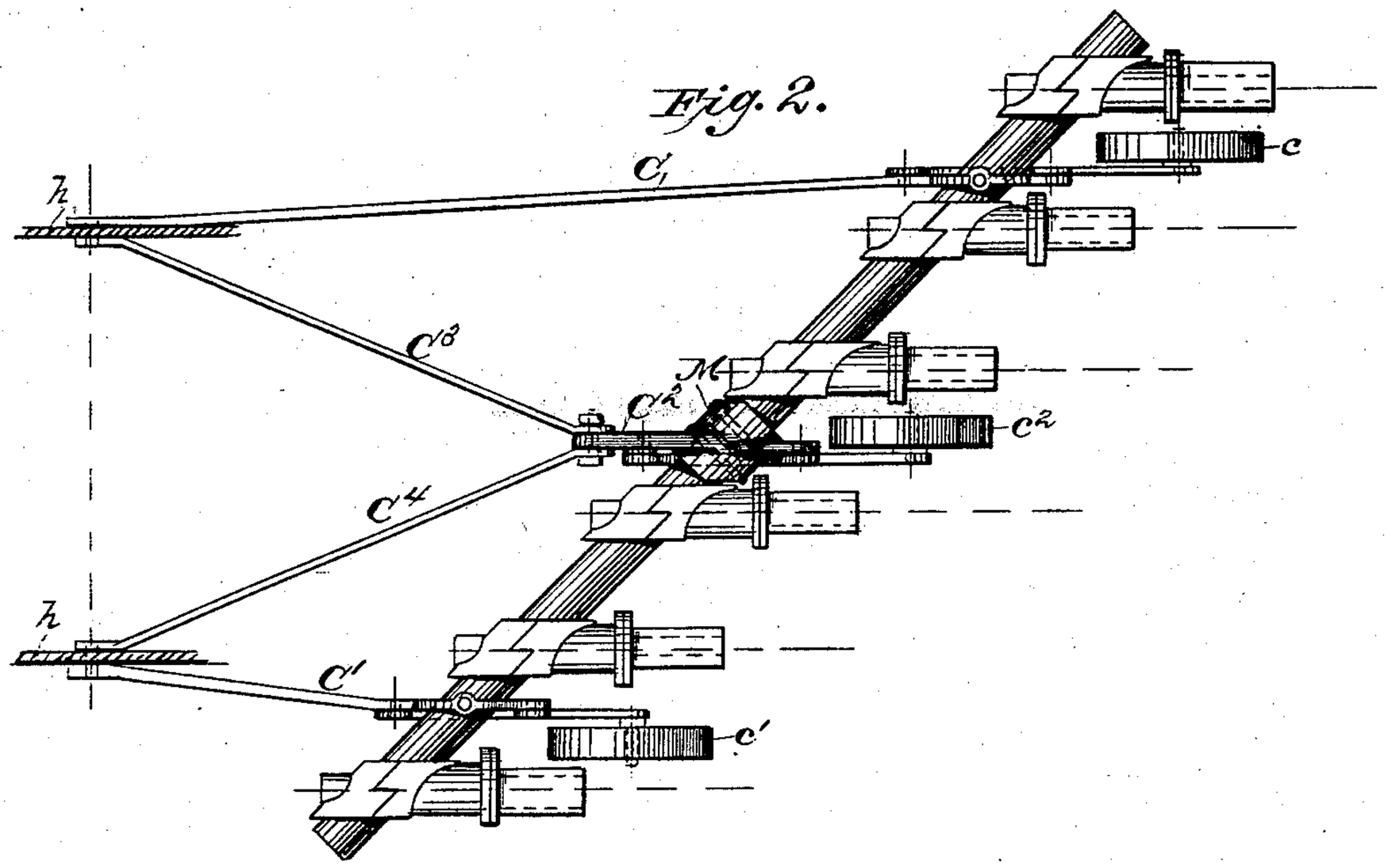

Fig. 3.

WITNESSES
Edgar Penney
S. M. Sloler

INVENTOR
Wm H Snyder

UNITED STATES PATENT OFFICE.

WILLIAM H. SNYDER, OF WAYNESBOROUGH, PENNSYLVANIA.

STEAM GANG-PLOW.

SPECIFICATION forming part of Letters Patent No. 316,845, dated April 28, 1885.

Application filed October 18, 1884. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. SNYDER, a citizen of the United States, residing at Waynesborough, in the county of Franklin and State of Pennsylvania, have invented certain new and useful Improvements in Steam Gang-Plows; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to that type of steam gang-plows wherein the gang of plows is drawn by a traction-engine.

My improvement consists of certain features of construction and of certain combinations of mechanical devices, all specifically pointed out in the claims at the close of this specification.

The practical application and *modus operandi* of the several parts of my invention are clearly set forth in the following detailed description, aided by annexed drawings, of a steam gang-plow constructed in some respects like that described in the joint application by myself and Abraham O. Frick for a United States patent, filed October 18, 1884, Serial No. 145,872. It should be understood, however, that my invention is applicable to other steam gang-plows.

Figure 1 is a perspective view of a steam gang-plow embodying part of my improvements. Figs. 2 and 3 illustrate the remainder of my invention—namely, the construction of and mode of supporting the articulated diagonal hitching-beam.

The same letters of reference indicate identical parts in all the figures.

Each individual plow A of the diagonal gang of plows is hitched to a diagonal tubular hitching-beam, B, (which may be a rigid beam, as shown in Fig. 1, if the part of my invention shown in Figs. 2 and 3 be omitted,) by a coupling substantially such as described in the above-mentioned application for a United States patent; and the hitching-beam is also supported on and connected with the traction-engine by draw-bars C C′, provided with wheels *c c′*, and by cross-braces D D′, all substantially as described in said application. These parts require, therefore, no detailed description here.

The plows are connected by separate chains or ropes *e* to a lifting-bar, E, which is suspended by the bail chains or ropes *f f′* from one end of the hoisting chain or rope F, the other end of which is secured to the piston-rod G′ of a steam-cylinder, G, preferably arranged longitudinally and horizontally under the rear platform of the traction-engine. The hoisting-rope passes from the piston-rod under a sheave-pulley, f^2, to and renders over an elevated sheave-pulley, f^3. The latter is carried on a fixed crane composed of the converging standards H H′, secured, respectively, to the side beams of the engine-frame. The lower ends of the standards are constructed with forwardly-projecting horizontal extensions, which terminate in downwardly-projecting hitching-arms *h h′*, for the attachment of the draw-bars C C′.

Steam can be admitted to the rear end of the steam-cylinder to drive the piston (not shown) forward, so as to hoist the plows, through pipe I^2 by a three-way cock, I′, from the pipe I, which is connected with the steam-space of the boiler.

When the three-way cock is turned to shut off communication from pipe I, it opens communication from pipe I^2 to exhaust-pipe I^3, to exhaust the steam from the cylinder and permit the piston to be drawn back by the weight of the descending plows.

The front end of the steam-cylinder is either left open or, if closed, is provided with an open-ended pipe, *g*, to provide for the free ingress and egress of air and the escape of any steam which may leak past the piston.

It will be observed that, the hoisting-rig being mounted on the traction-engine, the whole plowing attachment can be lifted above the ground, which has this important advantage, namely: that when the plowing attachment is thus lifted there are no wheels running on the ground in rear of the traction-wheels of the engine, to interfere with the steering of the latter. It is obvious that, so far as this feature of my invention is concerned, it is immaterial where the wheels for supporting the draw-bars, hitching-beam, and forward ends of the plows are applied.

A hand-lever, K, fulcrumed on a lug of standard H in this instance, is connected by

a connecting-rod, L, to the draw-bar C, which supports the plow-hitching beam near its advance end. Rod L may be connected to the hitching-beam direct. By means of this lever and connecting-rod the hitching-beam may be tilted up in such manner, by raising its advance end successively more and more, as to cause the plows, by giving them one after another the required upward pitch, to run out of the ground successively, beginning with the most advanced one, and thus finish the plowing of the strip of ground substantially square. After the plows have been thus tilted up by the hand-lever to cause them to run out of the ground, a latch, K′, hooks over a projection, *k*, on the lever to lock it. The plows are then lifted clear off the ground by the steam hoisting-rig.

It is clear that any suitable known steam hoisting-rig that can be applied conveniently to the rear end of a traction-engine for raising a gang of plows may be substituted for the steam hoisting-rig described; but the latter is specially adapted to steam gang-plows.

In order to adapt the gang-plow for operating on very uneven ground, by allowing the plows to adapt themselves easily to the surface inequalities, I articulate the diagonal hitching-beam as shown in Figs. 2 and 3, although more than one joint may be provided. As shown, the hitching-beam is made of two pieces, the adjacent ends of which are independently pivoted to a coupling, M, which is supported upon a wheel, c^2, the stock of which is constructed and connected to a bar, C^2, in manner as the stocks of wheels *c* and *c′* are constructed and connected to the draw-bars C and C′. Bar C^2 is, in fact, a short draw-bar, the front end of which is connected by rods C^3 and C^4 with the hitching-arm *h* and *h′* on the traction-engine.

I claim as my invention—

1. The combination, substantially as before set forth, of the traction-engine, the draw-bars pivoted thereto, the hitching-beam, the plows coupled to the hitching-beam, the wheels for supporting the draw-bars, hitching-beam, and forward ends of the plows, and a hoisting-rig mounted on the traction-engine for lifting the entire plowing attachment above the ground.

2. The combination, substantially as before set forth, of a gang of plows, a traction-engine, and the described steam hoisting-rig mounted on said engine, and composed of a steam-cylinder, a hoisting chain or rope fastened to the piston-rod thereof, a crane and pulleys for supporting and guiding said rope, and a lifting-bar flexibly connected with the hoisting-rope and with the plows.

3. The combination, substantially as before set forth, of the diagonal hitching-beam of the plows of a steam gang-plow, the draw-bars and wheels for supporting the hitching-beam on the ground at or near both ends, the hand-lever on the traction-engine, and the rod for connecting the lever with the advance end of the hitching-beam.

4. The combination, substantially as before set forth, of the members of the articulated hitching-beam, the coupling to which said members are pivoted, the draw-bar connected with said coupling, and the wheel for supporting the draw-bar.

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

WILLIAM H. SNYDER.

Witnesses:
D. M. GOOD, Jr.,
A. O. FRICK.