(No Model.) 2 Sheets—Sheet 1.

F. BRUTSCHKE.

STEAM PLOWING.

No. 255,587. Patented Mar. 28, 1882.

Fig. 1.

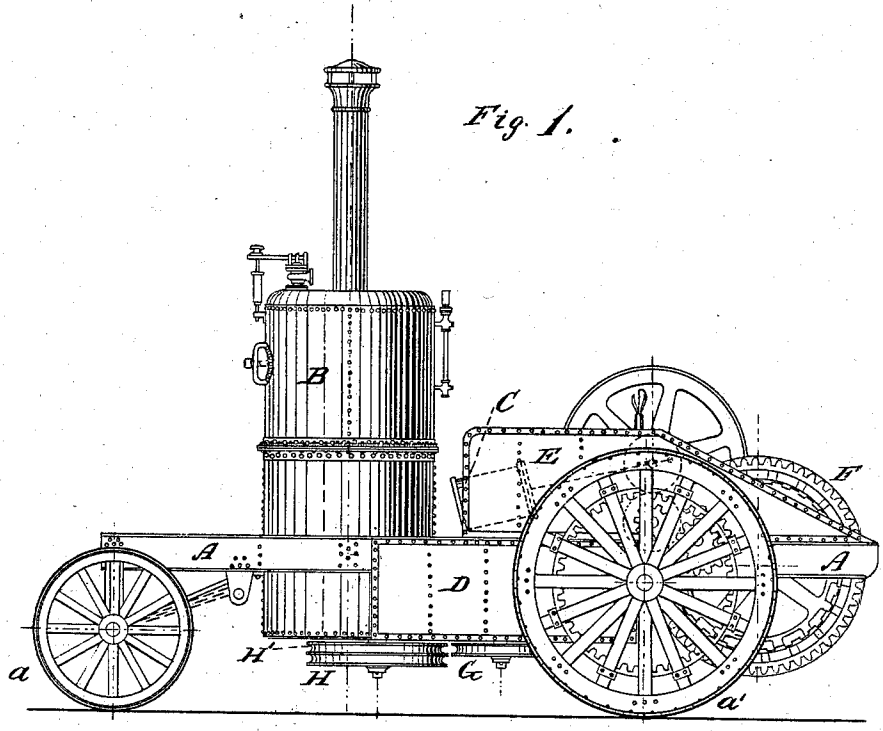


Fig. 2.

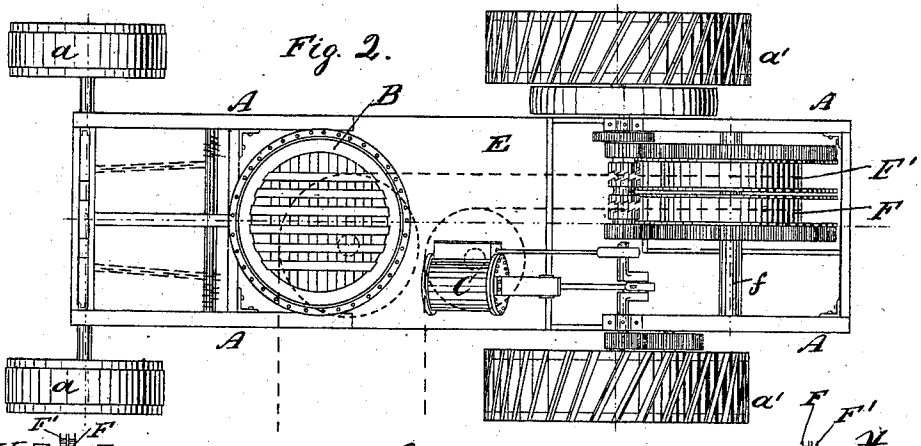
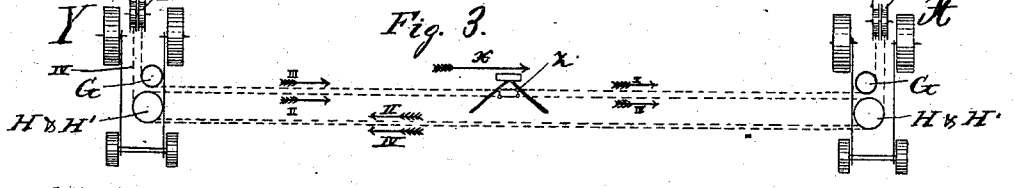


Fig. 3.



Witnesses:
James H. Mandeville.
Jno. A. Madigan

Inventor:
Fritz Brutschke
by Louis Bagger & Co.
his Attorneys.

N. PETERS. Photo-Lithographer. Washington, D. C.

(No Model.) 2 Sheets—Sheet 2.

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Fig. 4.

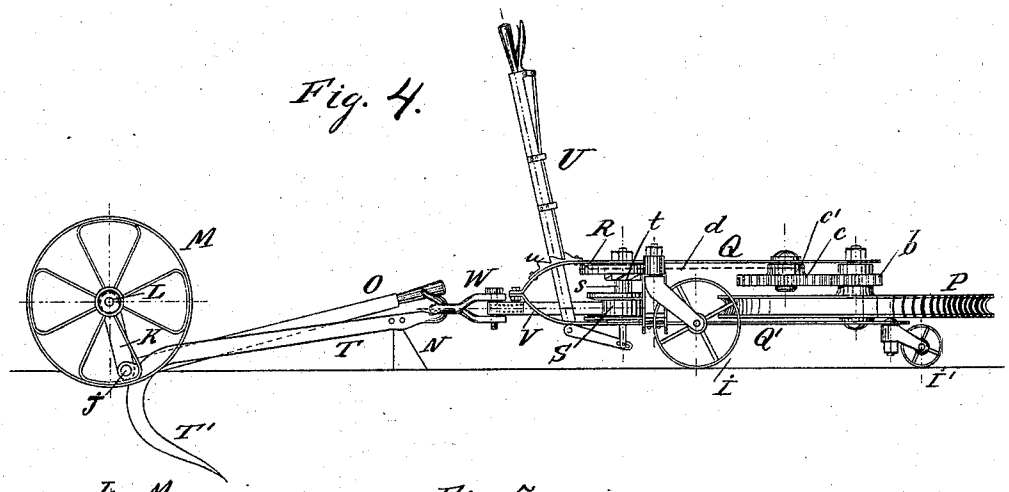


Fig. 5.

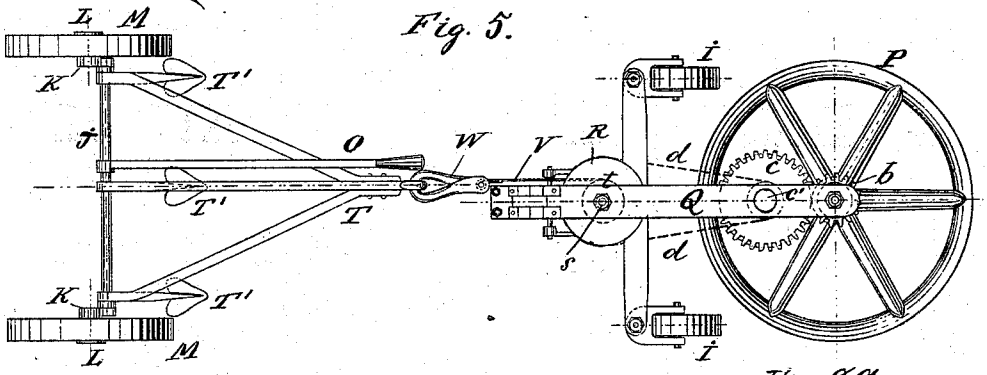


Fig. 6.

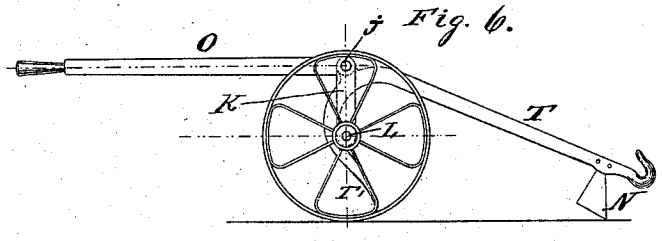


Fig. 8a.

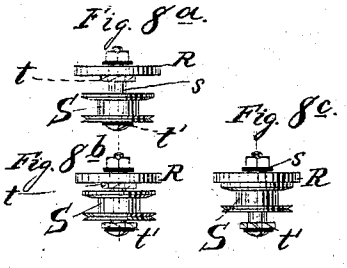
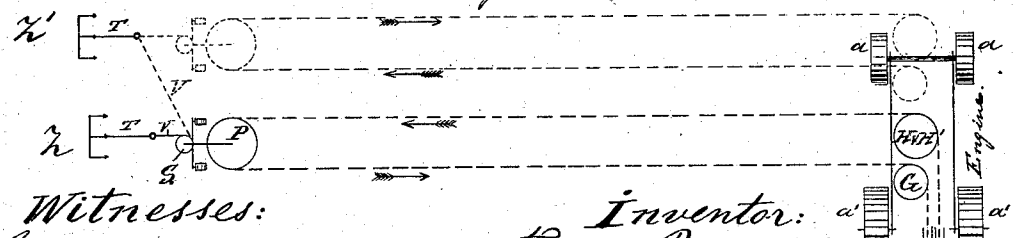


Fig. 7.



Witnesses:
James H. Manderville.
Jno. O. Madigan

Inventor:
Fritz Brutschke
by Louis Bagger & Co.
his Attorneys.

N. PETERS. Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

FRITZ BRUTSCHKE, OF BERLIN, GERMANY.

STEAM-PLOWING.

SPECIFICATION forming part of Letters Patent No. 255,587, dated March 28, 1882.

Application filed July 9, 1881. (No model.)

To all whom it may concern:

Be it known that I, FRITZ BRUTSCHKE, a resident of the city of Berlin, Prussia, in the Empire of Germany, have invented certain new and useful Improvements in Steam-Plowing; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a side elevation of my improved locomotive-engine for operating the plow or plows. Fig. 2 is a plan view of the same with the boiler removed. Fig. 3 is a diagram representing the method of operating the plow or plows where two engines are used. Fig. 4 is a side elevation of the anchor with its carriage and appurtenances. Fig. 5 is a plan or top view of the same. Fig. 6 is a side view of the anchor and carriage, showing the former in its elevated position. Fig. 7 is a diagram representing the method of operating the plow or plows by a single engine and its anchors; and Figs. 8^a, 8^b, and 8^c represent details of the "snatch-block" carriage which is used with the anchor.

Similar letters of reference indicate corresponding parts in all the figures.

My invention has relation to plowing by steam with one or two stationary engines; and it consists in the improvements hereinafter set forth, and particularly pointed out in the claims.

I shall first describe the engine and its appurtenances, and then proceed to describe the use of the same, according to whether it is desired to use two engines or only one. The construction of the engines is the same whether two or one is used.

Reference being had to Figs. 1 and 2 of the drawings, the letter A represents an iron frame, preferably of rectangular shape, upon which are placed the boiler B, cylinder C, coal-bins D, and water-tank E. The frame is supported upon a pair of traction-wheels, a', and swiveled front wheels, a, the shaft or axle of the traction-wheels being so constructed and arranged that it may be coupled or uncoupled at will with the engine, so that the latter may be used to propel the machine to and from the field of operations.

Upon a shaft, f, mounted in one end of frame A, is a pair of drums or vertical windlasses (shown at F and F′) provided with concentric gear-wheels engaging with pinions on the drive-shaft of the engine, so that either one may be operated at will.

Below the frame is a horizontal grooved pulley, G, and a pair of grooved pulleys, H H′, the two last-named being of like diameter and mounted upon a common shaft or vertical axle.

Where two of these engines are used no further machinery is necessary to operate the plow; but if one engine is to be used only, I employ the carriage and anchor which are represented in the several figures on Sheet 2 of the drawings.

The ground-anchor (shown at T) has three flukes, T′, and a shaft, J, the ends of which have cranks K K, provided with stub-axles L L, by which the shaft and anchor are mounted upon a pair of light wheels, M M. A lever, O, is secured upon shaft J, so that by raising the lever from the position shown in Fig. 4 to that represented in Fig. 6 the flukes of the anchor will be pulled out of the ground. At the end of the shank or beam T is a hook for coupling it to the pulley-carriage, to be hereinafter described, and also a bench or support, N, as shown.

The pulley-carriage, or "snatch-block" carriage, is mounted upon two pairs of swiveled wheels, I and I′, its frame consisting essentially of a horizontal bed-plate, Q′, and parallel top plate, Q.

P is the horizontal pulley-wheel or snatch-block, the short vertical shaft of which, journaled in bearings in the plates Q and Q′, has a pinion, b, which meshes with a cog-wheel, c, having a small concentric pulley, c'. An endless chain, d, connects pulley c' with another larger horizontal drum or pulley, R, mounted fixedly upon a vertical shaft, s, in the front end of the carriage. Upon this shaft s slides a loose drum, S, which may be adjusted up or down by means of the bent lever U, so as to occupy any one of three different positions upon shaft s, as shown more clearly on the three detail views marked respectively Figs. 8^a, 8^b, and 8^c on Sheet 2 of the drawings. The adjustable drum S is recessed concentrically in its top and bottom to adapt it to engage with a clutch, t', which is fixed in the bed-plate Q′, or a clutch, t, which is fixed upon the under side of and moves with the pulley R.

It follows that when the drum S is in the position shown in Fig. 8[a] it will remain fixed or stationary, (held by the fixed bottom clutch, t',) while shaft s and pulley R revolve. If in the position represented in Fig. 8[b], it is disengaged from both clutches t and t', while if in the position shown in Fig. 8[c] it engages with the top clutch, t, and rotates with pulley R. The lever U may be fixed in any one of its three positions by a spring-catch, which engages with a rack-bar, u, as shown in Fig. 4, where drum S is shown in its down or fixed position.

Fastened to and wound around this drum is a band, V, at the free end of which is a link or eye, W, which may be hooked upon the anchor-hook, the bench or support N of the latter keeping it on an elevation with drum S, as shown clearly in Fig. 4 of the drawings.

When two engines are used in operating the plow I proceed as follows, reference being had to the diagram shown in Fig. 3, in which the letters X and Y represent the two engines located in a line with one another at opposite sides of the field, and z represents the gang of plows drawn forward and back between them.

A chain or wire rope (designated by I) is attached at one end to the plow, and then passes around the horizontal sheave or pulley G, underneath engine X, and up around the windlass F, in which its other end is fastened. Another chain or rope, III, is in like manner attached to the other side of the plow and carried around pulley G of the sister engine, Y, and up around and secured in its windlass F. Fastened in the windlass F′ of engine X is another chain or rope, II, which passes from said windlass down and around the horizontal sheave or pulley H, and then across the field, as shown by the arrow, to the pulley H′ of the opposite engine, Y, and, passing around this pulley, its free end is secured to the plow. The fourth and last chain (indicated by IV) starts in like manner from the windlass F′ of engine Y, passes down and around pulley H of said engine, and then across the field to pulley H′ of engine X, and around said pulley back to the plow z, to which it is fastened opposite to the fastening-point of chain II.

Supposing the plow to go in the direction of the large arrow, marked x, it will thus be seen that it is drawn by the chain I of engine X and chain IV of engine Y, while, when, after reaching the end of its track, its course is reversed, it is drawn by chain III of engine Y and chain II of engine X. At the end of each course both engines are moved forward a distance corresponding to the width of the set or series of furrows last made by the plow.

Where one engine only is used and the anchor and snatch-block carriage come into play, the operation is as follows, reference being now had to the diagram shown in Fig. 7 of the drawings: Two anchors (designated respectively by Z and Z′) are placed at one end of the field, at a distance apart corresponding to the width of two sets or series of furrows as made by the gang of plows, which is in this case indicated by the arrows. Only one chain or wire rope is used, the opposite ends of which are fastened respectively in the windlasses F and F′, the course and arrangement of the chain and snatch-block carriage being clearly represented in the diagram. Meanwhile the band V, which connects the snatch-block carriage with its anchor, is held taut and prevented from winding off by the drum S being adjusted by lever U in its "down" position, engaging with the fixed bottom clutch, t'. When, after the plow has completed its course, the engine is moved forward, the band V is unrolled by shifting drum S into its middle position, (shown in Fig. 8[b],) and the link or eye W is shifted to the hook of the next anchor at Z′, as shown by the dotted line. This done, the engine is started, the drum being at the same time shifted by lever U to the position represented in Fig. 8[c]—that is, coupling with clutch t of the revolving sheave or pulley R, which rotates the drum and winds up the band, thus drawing the carriage into the position shown in dotted lines, parallel to its former position. Anchor Z is now lifted and placed above Z′, ready for the next course of the plow, and so on, the snatch-block carriage being secured alternately to the two anchors, which are alternately shifted to correspond to the progress of the engine over the field.

Having thus fully described my invention, I claim and desire to secure by Letters Patent of the United States of America—

1. The snatch-block carriage mounted upon swiveled wheels I I′, and composed of a frame, Q Q′, sheave P, having pinion b, cog-wheel c, having concentric pulley c', band d, shaft s, sheave or pulley R, keyed upon said shaft, and provided with the clutch t, band-drum S, vertically adjustable upon shaft s, means for adjusting said drum, clutch t', fixed in the bottom plate, Q′, of the carriage-frame, and band V, having the link or eye W at its free end, constructed and combined substantially as and for the purpose herein shown and specified.

2. The combination, with a fixed pair of anchors, Z Z′, of a snatch-block carriage, engine, and chains connecting the snatch-block with the engine, as described, so that after the band which connects the snatch-block carriage with anchor Z has been shifted to and coupled with the next anchor, Z′, the snatch-block carriage may be drawn into its operative position in a line with anchor Z′ and the engine by the operation of the latter and the chains which connect it with the snatch-block, substantially as and for the purpose herein shown and set forth.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

FRITZ BRUTSCHKE.

Witnesses:
ALFRED LORENTZ,
BERTHOLD ROI.