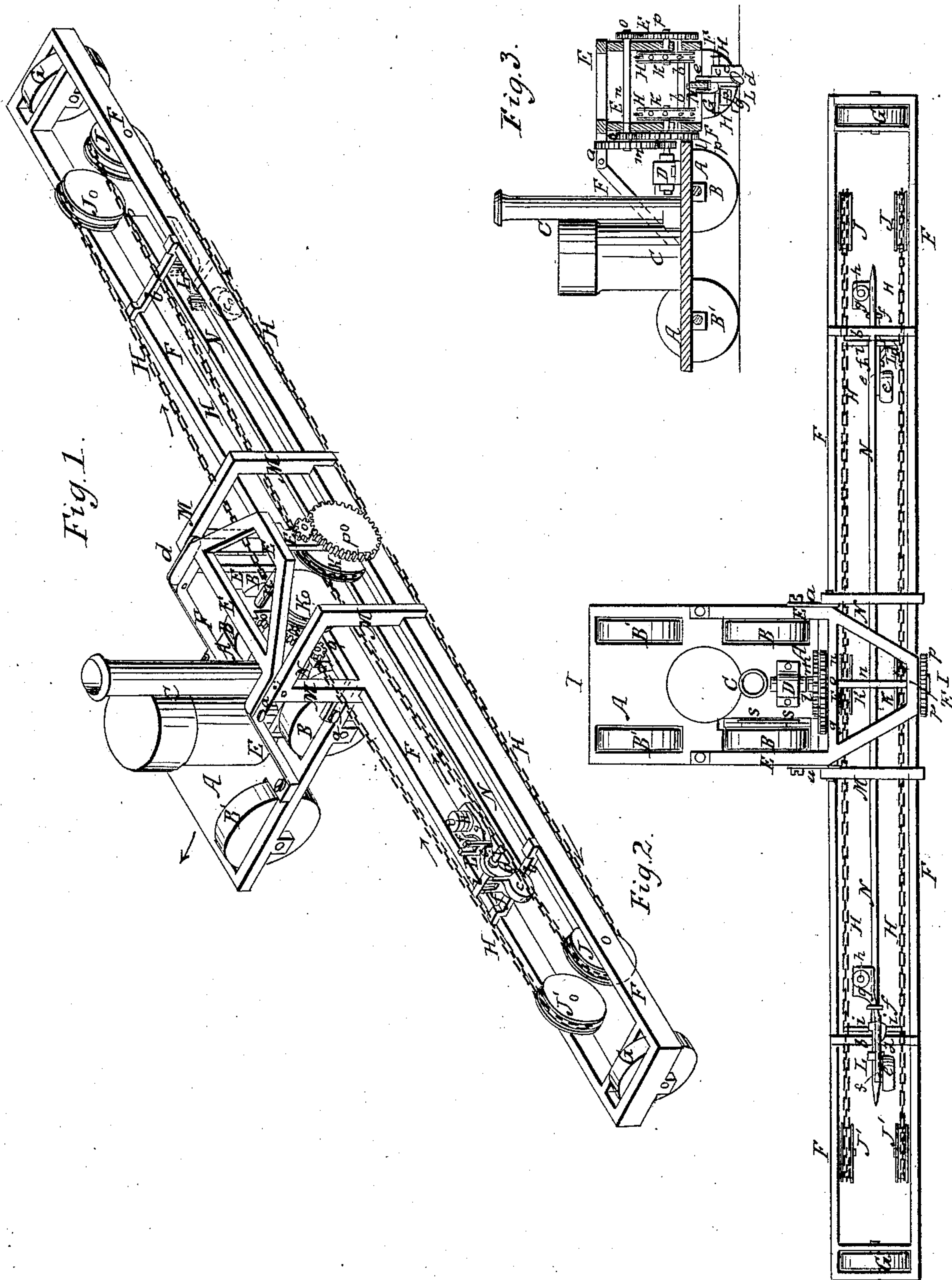


H. MOESER.

Steam-Plow.

No. 18,596.

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UNITED STATES PATENT OFFICE.

HENRY MOESER, OF PITTSBURG, PENNSYLVANIA.

IMPROVEMENT IN PLOWING-MACHINES.

Specification forming part of Letters Patent No. 18,596, dated November 10, 1857.

To all whom it may concern:

Be it known that I, HENRY MOESER, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and Improved Mode of Operating Plows by Steam-Power; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the annexed drawings, making a part of this specification, and to the letters of reference marked thereon.

The nature of my invention consists in running a plow or a number of plows in a direction transverse to that of the progressing motion of the steam-carriage or propelling machinery by means of a chain or chains, to which the plows are attached, and which are operated by the steam-engine on the carriage, said chains being carried by conducting-rollers on a transverse beam, which is connected with the steam-carriage in such a manner that it may freely accommodate itself to any unevenness in the surface to be plowed, all the parts being made so that the plow or plows may be run transversely such a distance as may be deemed most advantageous when the steam-carriage progresses or moves forward with such a speed only as to allow the plow or each of the plows to take its furrow.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

In the accompanying drawings, Figure 1 represents a perspective view of the steam-carriage and plow arrangement; Fig. 2, a top view of the same, and Fig. 3 a vertical section of the same through the line I I I of Fig. 2.

In all these figures the same letters of reference are marked on like parts.

A is the frame of the steam-carriage; B B B' B', the wheels on which the same is set, and of which B B are the driving-wheels.

C is the steam-boiler and its smoke stack; D, the steam-engine, which is represented here as being a rotary.

E E is a frame-work for supporting the wheel-gearings which communicate the motion from the steam-engine to the chains for pulling the plows.

F is a transverse beam or frame supported on its ends by the wheels G G, and connected with the steam-carriage by means of the parallel links *a a a a*.

M M are braces connecting the two side

pieces of the beam or frame F, and receiving the pivots of the links *a a*.

N is a rail, kept firmly between the two side pieces of the transverse beam F by means of the pieces *b b*, this rail being for the purpose of guiding the plows.

H H are endless chains, to which plows are attached; J J J' J', pulleys on the beam F for supporting and carrying the chains.

K K are the driving-pulleys of the endless chains, they being provided with teeth or projections entering into the links of the said chains.

L L represent the plow-carriages, which are composed of the plow-beams C C, the plows *d d*, fastened on the plow-beams, the guiding-wheels *e e*, which are placed so as to pass in the furrow in front of the plow, and the forked pieces *f f*, by which the plows are guided on the guiding-rail N. The plow-beams C C are extended at the back ends so as to form plates *g g*, which slide over the unplowed ground or land behind the plow, and on which weights *h h* are fastened. Each plow-carriage is connected with the chains H by the transverse shaft *i* on the plow-beam, the end pivots of the same being allowed to turn in the corresponding links of the chains, and the weights *h h* are made sufficiently heavy to counterbalance the weight of the guiding-wheel *e* and other parts of the plow-carriage in front or before the shaft *i*. The whole weight of the plow-carriage is such that the plow is kept by it in the ground. Provisions may be made that the plows can be set lower or higher in relation to the plow-beams, so that a deeper or shallower furrow may be dug.

The motion is communicated from the steam-engine to the endless chains by means of the pinion *l*, set on the engine-shaft, which gears into the cog-wheel *m* and the shaft *n*. The two pinions *o o*, set firmly on the same shaft, drive the wheels *p p*, fastened on the shafts of the driving-pulleys K K. The shaft *n* has to be high enough above the pulleys K K that the plow-carriages do not come into contact with it when passing over the pulleys K K. The whole arrangement of the wheel-gearings *o o p p*, driving-pulleys K K, and conducting-pulleys J J is such that all these parts do in no way interfere with the plow-carriages when passing through between them.

The propelling of the steam-carriage is ef-

fectured by means of the pinion *q*, gearing into one of the cog-wheels *p p* and fastened on a screw-spindle or endless screw, *r*, which operates a screw-wheel, *s s*, set on the shaft of the driving-wheels *B B* of the steam-carriage. Thus the carriage receives a slow progressing motion.

In the drawings there is no arrangement shown by which the steam-carriage is steered, as this may be done in any known manner and has no reference to my invention.

The object in connecting the transverse beam *F* with the steam-carriage by links *a a* is to allow the beam to accommodate itself freely to any unevenness in the surface of the ground, said links allowing it to play up or down, or even take an inclined position in relation to the steam-carriage. This variation in the position of the beam does not, however, affect or disturb the true connection and correct operation of the wheel-gearings, which transmit the motion from the engine to the chains by the arrangement of supporting all these parts by a frame-work, *E*, which is firmly fastened to the carriage-frame, and is therefore not influenced by the variations in the position of the transverse beam. The chains *H H*, lying on the driving-pulleys *K K*, will yield sufficiently to allow the frame *F* to play up or down or to incline to the one or other side to such an extent as may be required to accommodate itself to any such unevenness in the ground as may occur.

The operation of the described machine is as follows: The engine, when set in motion, communicates, by the pinion *l*, wheel *m*, pinions *o o*, and wheels *p p* and driving-pulleys *K K*, a continuous circuitous motion to the endless chains *H H*, and thus to the plows attached thereto, in the direction as indicated by arrows. The plows will set into the ground at the pulleys *J J* and be lifted out of the ground at the pulleys *J' J'*, from where they return (above the ground) back to the pulleys *J J* again, &c. The plows are attached to the chains in such distances from each other that the one is just setting into the ground when the other is lifted out. I prefer using only two plows, in which case only one plow is cutting through the ground at the time; but there may be any number of plows used, which have to be distributed so as to be in equal distances apart on the chain. Thus, if four plows are attached, two would always be operating and the other two returning. After a plow is set into the ground (at the pulleys *J J*) the plow-carriage as it moves along gets under

the guiding-rail *N*, so that the forks *f f* branch up on both sides of the rail, whereby the carriage is guided as it continues its motion. Near the pulleys *J' J'* the forks leave the guiding-rail, and the carriages, after being lifted from the ground and returning back, pass above and clear off the guiding-rail. The forks are cut out sufficiently to allow the plow-carriage to rise or sink according to any unevenness in the surface to be plowed. When the plows are in operation the steam-carriage, together with the plow arrangement, receives a slow progressing motion by means of the pinion *y*, screw *r*, and screw-wheel *s* operating on the driving-wheels *B B*, so as to set the same in a slow revolving motion. The progressing motion has to be such that each plow as it sets into the ground takes a new furrow of a proper width. Thus, if two plows are used, as represented in the drawings, the progressing motion is to be twice the width of a furrow for each complete circuit motion of the endless chains, and if six plows were attached to the chains the motion of the steam-carriage would have to be equal the width of six furrows for each complete rotation of the chain, in order to have each plow to take a furrow.

It is obvious that different and various arrangements can be made to communicate the motion from the engine to the chains, and also to the driving-wheels of the steam-carriage. This arrangement depends partly on the kind of engine used, and its location on the carriage. The herein-described means for this purpose show only one manner of effecting these ends in a simple manner.

I do not claim broadly the operating of a gang of plows on an endless chain transversely or obliquely to the line of draft; but

I claim—

1. The arrangement and combination of the transverse beam *F*, connecting-links *a a*, chains *H H*, driving-pulleys *K K*, pulleys *J J'*, and wheels *G G*, or any other equivalent devices, when operating in relation to each other and to the steam-carriage, substantially as herein fully set forth, and for the purpose described.

2. The arrangement of the guiding-bar *N*, supported on the transverse beam *F*, and the forks *f f* on the plow-carriages, or any other arrangement substantially the same, for the purpose of guiding the plow-carriages as described.

HENRY MOESER.

Witnesses:

JOHN KOPPITZ,
AND. MILLASTER.