

(No Model.)

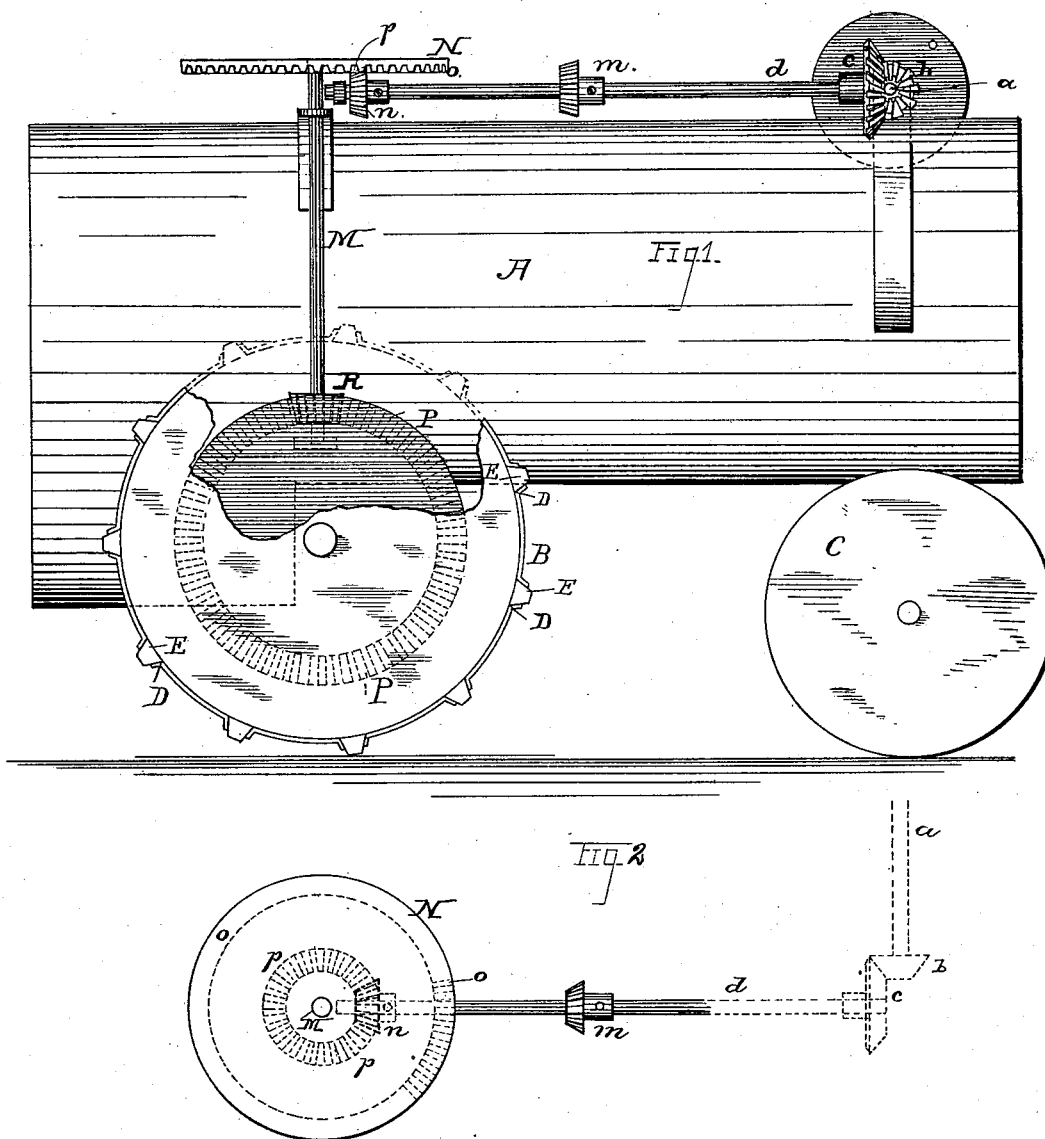
2 Sheets—Sheet 1.

D. LIPPY & J. HUGHES.

TRACTION ENGINE.

No. 261,005.

Patented July 11, 1882.



Witnesses;
Chas. C. Hill
Herman Gustow

Inventors;
David Lippy
Jacob Hughes
By their attys.
Cox & Cox

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Fig. 3.

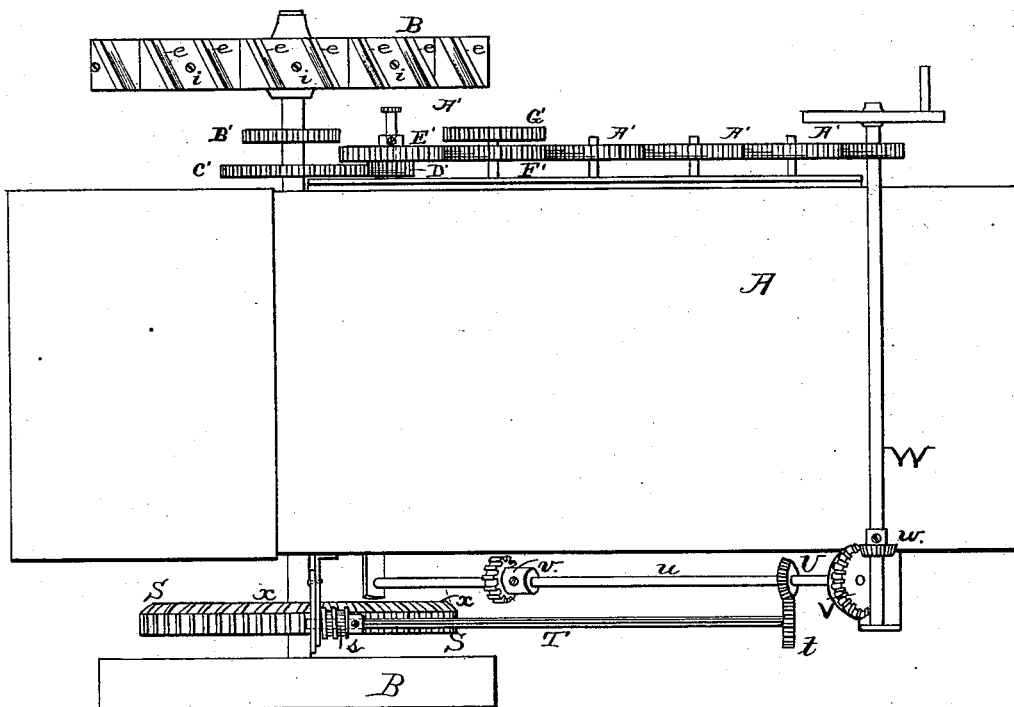


Fig. 4.

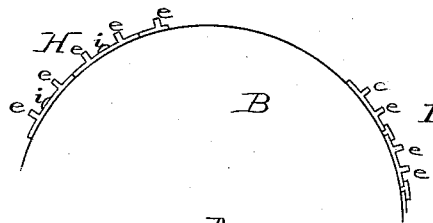
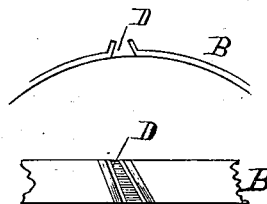


Fig. 5.



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UNITED STATES PATENT OFFICE.

DAVID LIPPY AND JACOB HUGHES, OF MANSFIELD, OHIO.

TRACTION-ENGINE.

SPECIFICATION forming part of Letters Patent No. 261,005, dated July 11, 1882.

Application filed April 3, 1882. (No model.)

To all whom it may concern:

Be it known that we, DAVID LIPPY and JACOB HUGHES, of Mansfield, in the county of Richland and State of Ohio, have invented a new and useful Improvement in Traction-Engines, of which the following is a specification, reference being had to the accompanying drawings.

The invention relates to an improvement in traction-engines, and has for its object the obviation of certain defects which have heretofore existed in engines of this class. The first of these objects relates to the construction of traction-wheels; and it consists in providing the same with segmental tread-blocks which may be removed and replaced at will, and which shall have projections of different sizes, according to the nature of the ground to be traversed, whereby the wheels are supplied with what are known as "interchangeable tread-blocks." In soft or sandy soil we shall employ the tread-blocks having the larger projections, and in passing over hard or firm ground we shall use the tread-blocks having the smaller projections. Thus we are enabled to cause the engine to travel over soils of various nature without difficulty. In the drawings we illustrate various means of forming the traction-wheels to accomplish this object.

Heretofore the traction-wheels of engines have been constructed with projections on their periphery; but these projections have been all of uniform height, and not made so as to be readily interchangeable. Thus the engine was only provided with one set of projections, whether traveling over hard or soft soil.

It is well known that engines of the class to which the invention relates are with difficulty made to pass over soft soil without the aid of teams in addition to their own motive power, the difficulty principally arising from the fact that in the effort to drive the engine ahead the traction-wheels, instead of moving on, will simply rotate on their axles. Thus in this case it is evident that tread-blocks having larger projections are necessary, whereas should these blocks having the larger projections be continuously employed they would, when the engine is passing over firm ground, cause the machine to jar and probably to be seriously injured. It will be seen, therefore, that the employment of interchangeable tread-

blocks having projections of various sizes is extremely desirable, and is quite necessary for an engine of perfect construction. The exact nature and details of the construction of these traction-wheels are clearly illustrated in the drawings, and will be hereinafter referred to.

Figure 1 is a side view of an engine embodying the elements of the invention. Fig. 2 is a detached top view of part of the gearing, which will be understood by the letters of reference. Fig. 3 is a top view of an engine embodying two modifications of the driving-gear. Figs. 4 and 5 are detached broken views of the traction-wheels, which will also be understood by the reference-letters.

A indicates the boiler, which is of usual construction, and is mounted upon traction-wheels B and the smaller front wheels, C.

The traction-wheels B are of the usual construction in all essential respects, with the exception of the segmental tread-blocks. In the drawings several forms of these tread-blocks are shown; but the preferred construction is that illustrated in Fig. 1. In this construction the periphery of the wheel is provided with the dovetail-shaped grooves D, arranged at regular intervals, in which grooves are placed correspondingly-formed blocks E, one end of the groove and block being made smaller than the other, so that the blocks may be wedged in their base without difficulty. This manner of constructing the traction-wheels permits the blocks E to be readily removed and replaced by blocks of greater height for use in traveling over soft or sandy soil. More than one set of blocks will be provided for the traction-wheels for use in passing over different kinds of soil. In traveling over soft soil a set of blocks of greater height are inserted in the grooves D, so as to increase the hold and friction of the traction-wheels on the soil.

In Figs. 3 and 4 are illustrated other methods of securing the segmental blocks upon the periphery of the traction-wheels. One of these (lettered H) consists in plates having on their faces the projections e. These sections may be secured to the wheel by a screw, i.

The segmental block lettered I is similar to the block H, with the exception that it is secured to the wheel by being dovetailed in its periphery, or by means of small flanges which

secure its ends. The block I may be additionally secured by a screw, if desired.

We do not limit ourselves to any special means of attaching the blocks to the wheel, the essential consideration being that they shall be in segments and capable of removal and having projections of various heights.

In Fig. 1 the interchangeable means of communicating power to the traction-wheels sought to be protected by this application is shown, and consists of the transverse horizontal shaft *a*, beveled-gear wheels *b c*, connecting with the horizontal shaft *d*, having pinions *m n*, the vertical shaft M, having the wheel N on its upper end, said wheel being supplied with two sets of teeth, *o p*, the shaft M being mounted in brackets and provided on its lower end with a pinion, R, which meshes with the beveled-gear wheel P, rigidly secured upon the axle carrying the traction-wheels. This modification will be clearly understood by reference to the annexed drawings.

The pinion-wheels *m n* are secured upon the shaft *d* by means of a set-screw, so as to be capable of being moved, whereby they may be placed in gear with the teeth of wheels *p o*. In passing over level roads, where it is desired to increase the speed, we place the outer pinion, *m*, in contact with the larger rim of teeth *o*; but when traveling over an elevation, where an increased amount of power is necessary, we displace the pinion *m* and allow the pinion *n* alone to remain in contact with the inner rim of teeth *p*.

When in operation motion is communicated through the transverse shaft *a*, horizontal shaft *d*, the pinion *m* or *n*, and toothed rim *o* or *p* to the vertical shaft M, and thence through the pinion R and beveled gear P to the axle of the traction-wheels. The operation of this gearing is simple and easily understood, but very effectual for the purpose described.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. In traction-wheels for engines, interchangeable segments or friction-surfaces provided with projections varying in size, substantially as and for the purposes set forth.

2. The wheel B, having grooves D and interchangeable blocks E, substantially as set forth.

3. In a traction-engine, the shaft *a*, gear-wheels *b c*, horizontal shaft *d*, having pinions *m n*, vertical shaft M, supplied with wheel N, having two sets of teeth, *o p*, the pinion R, and gear-wheel P, mounted on the axle of the traction-wheels, substantially as set forth.

In testimony that we claim the foregoing improvement in traction-engines, as above described, we have hereunto set our hands this 10th day of February, 1882.

DAVID LIPPY.
JACOB HUGHES.

Witnesses:

THOS. E. BARROW,
H. D. B. WILLIAMS.