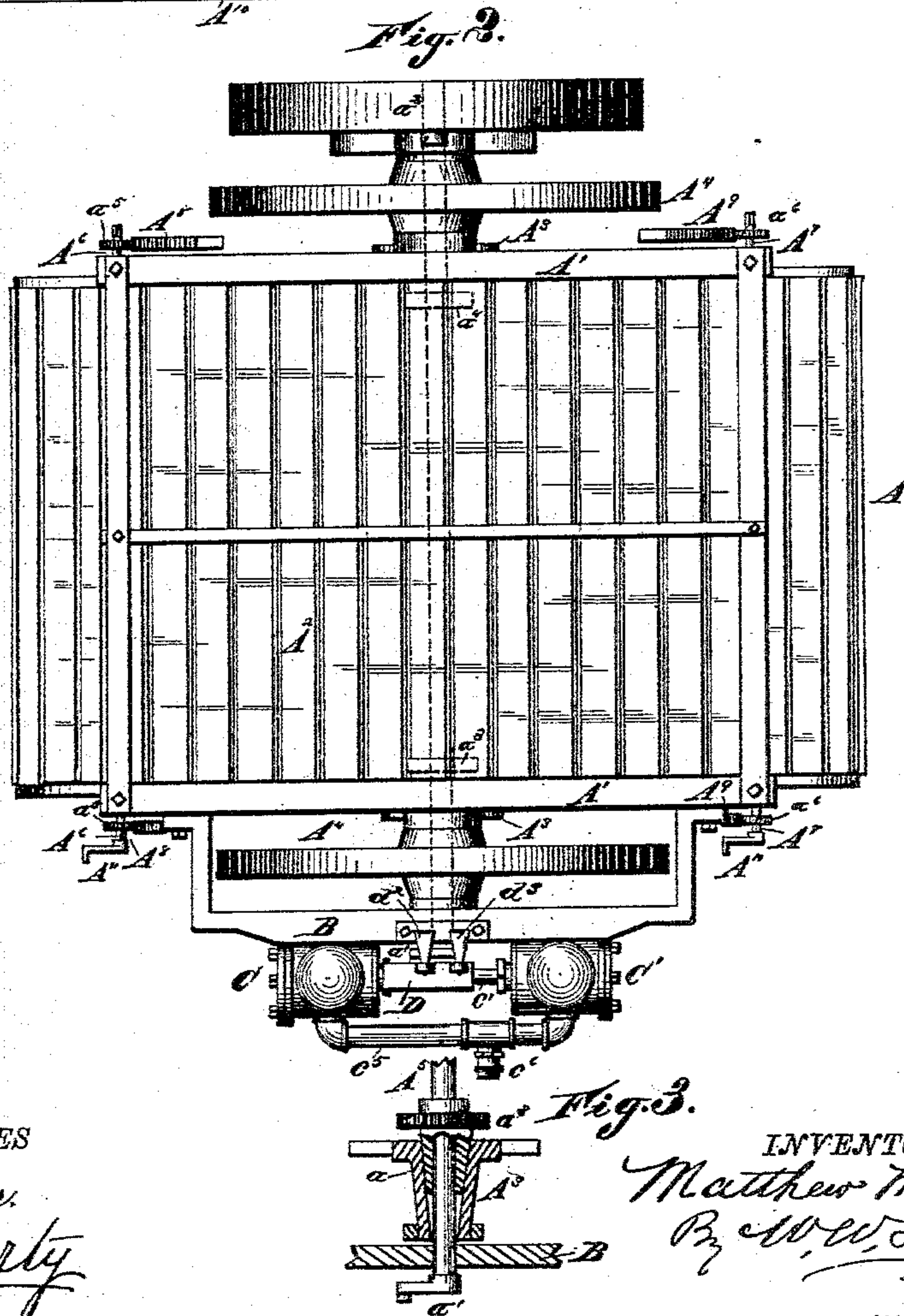
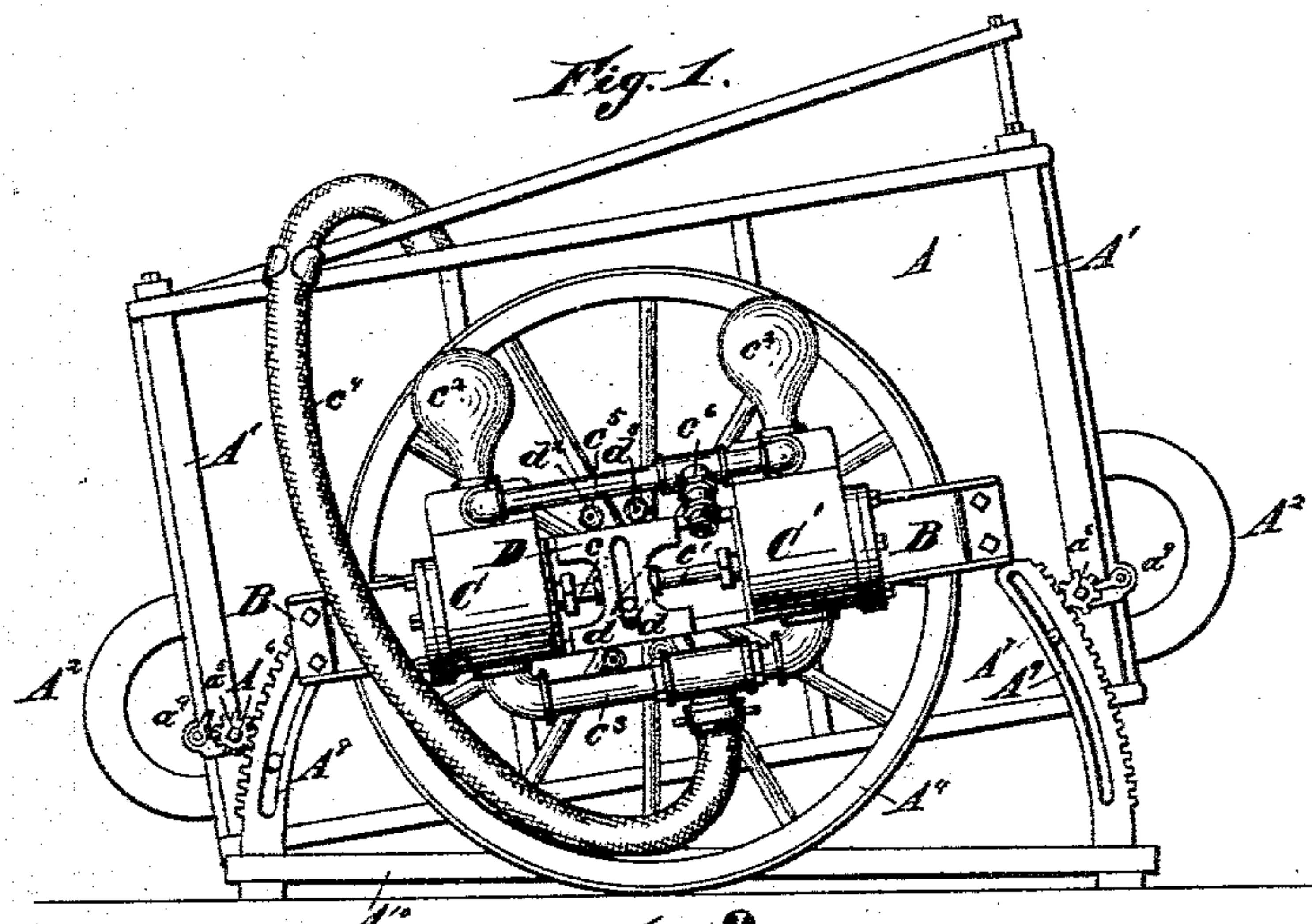


(No Model.)

M. MORTON,  
HORSE POWER FIRE ENGINE.

No. 356,778.

Patented Feb. 1, 1887.



WITNESSES  
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# UNITED STATES PATENT OFFICE.

MATTHEW MORTON, OF ROMEO, MICHIGAN.

## HORSE-POWER FIRE-ENGINE.

SPECIFICATION forming part of Letters Patent No. 356,778, dated February 1, 1887.

Application filed October 26, 1885. Serial No. 180,970. (No model.)

*To all whom it may concern:*

Be it known that I, MATTHEW MORTON, of Romeo, county of Macomb, State of Michigan, have invented a new and useful Improvement in Horse-Power Fire-Engines; and I declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to certain new and useful improvements in horse-power fire-engines, as more fully hereinafter described, and more fully pointed out in the claims.

The object of my invention is more especially to produce a combined fire-engine and tread-mill horse-power which shall be simple in its construction, not liable to get out of order, efficient in its operation, which may be easily transported, and readily put into use.

Still more definitely, while it is the purpose of my invention to combine such an engine as I hereinafter describe with any suitable horse-power, it is my design to combine said engine with an improved horse-power for which United States Letters Patent were granted to me of date April 27, 1880, No. 227,037, as such a horse-power as I have therein shown and described possesses many decided advantages for such a combination; yet I would have it distinctly understood that I do not limit myself to a horse-power of that particular construction; but I regard the combination of such an engine as I herein describe with any suitable horse-power as coming within the scope of my present invention, which I carry out as follows:

In the drawings, Figure 1 is a side elevation of a device embodying my invention. Fig. 2 is a plan view; and Fig. 3 is a separate horizontal sectional view through the skein of one of the wheels, with a portion of the frame supporting one end of the crank-shaft.

A of the drawings represents any suitable horse-power. The particular horse-power shown is that described in my patent above referred to, consisting of a frame, A', provided with an endless chain, A<sup>2</sup>.

A<sup>3</sup> represents skeins bracketed upon the frame.

A<sup>4</sup> represents the supporting-wheels located thereon.

a is the journal-box, located in the enlargement or recess in the inner end of the skein.

A<sup>5</sup> is the shaft passing through said journal-boxes and skeins, said shaft being provided at one end with a crank-arm, a', and at the other end with a balance-wheel, a<sup>2</sup>. The shaft A<sup>5</sup> is indicated in Fig. 2 in dotted lines, as also its pinions a<sup>3</sup> a<sup>4</sup>, driven by the endless chain.

A<sup>6</sup> and A<sup>7</sup> are the shafts near each end of the horse-power, provided with pinions a<sup>5</sup> a<sup>6</sup>, meshing with the curved rack-bars A<sup>8</sup> and A<sup>9</sup>, secured to sills A<sup>10</sup>, and rods a<sup>7</sup> and a<sup>8</sup>, connecting each set of rack-bars upon opposite sides of the frame, said rods provided with cranks A<sup>11</sup>, for operating the pinions. a<sup>9</sup> represents pawls to lock said pinions engaged with said rack-bars.

The wheels upon which the frame is suspended are located midway of the ends of the frame, permitting either end of the frame to be raised and lowered by means of the rack-bars.

When it is desired to transport the device, the sills A<sup>10</sup> are run up on the proper end, when the weight of the entire frame comes upon the wheels, and there being but the two supporting-wheels the device may be turned in a narrow compass. When desired for use, either ends of the sills A<sup>10</sup> are lowered, as desired, by means of the adjacent rack-bars and their pinions, so that the power rests firm and steady. As stated in said patent, the chain may be elevated at any desired angle, and the operation of the power is reversible.

I will now proceed to describe the fire-engine combined therewith.

B is a bracket or frame secured upon the frame A' of the horse-power, said bracket engaged about one of the supporting-wheels of the frame A' and serving to support the pumps and their attachments.

C and C' represent any suitable pumps. c and c' represent pistons for operating the same.

In the accompanying drawings I have shown two pumps; but I would have it understood that I contemplate one or more pumps as coming within the scope of my invention.

I do not limit myself to any particular construction of the pumps themselves, as any variety or construction of pumps may be employed without departing from the principle of my invention. Preferably they are double-acting, and provided with air-chambers c<sup>2</sup>.



$c^3$  represents an inlet-pipe connecting the two pump-cylinders.

$c^4$  is an inlet-hose communicating therewith.

$c^5$  is an outlet-pipe, also connecting the two cylinders, provided with a hose-coupling,  $c^6$ .

Each of the pistons is rigidly connected with a sliding yoke, D, constructed with an elongated slot, as shown in Fig. 1, in which the crank-pin of the shaft  $A^5$  is engaged, said pin preferably adjustable in the crank-arm  $a'$ , to give more or less throw, and provided with a roller to ride in said slot of the yoke D. Said yoke is supported by the pistons and by rollers  $d$   $d'$ , bracketed beneath the yoke, additional guide-rollers,  $d^2$  and  $d^3$ , being also bracketed above the yoke. By this construction it is evident that by the rotation of the shaft  $A^5$  the pistons will be alternately reciprocated in the pump-cylinders.

Commonly in tread-mill horse-powers the driving-shaft is located at one end of the device, instead of midway of the frame, and it is evident that my invention is adapted for use with such a power as well as with the particular power herein described.

By combining the engine with a tread-power it is evident that the combined machine may be transported and used in narrow places—as, for instance, alley-ways—where a sweep horse-power cannot be used, and therefore be

often set nearer to the fire. The whole mechanism may be readily transported by hand, if desired, and if horses have not arrived a number of persons may jump upon the chain and operate the pumps.

The hose may conveniently be carried in the machine, if desired—as, for instance, a reel may be wheeled up upon the chain for transportation and be readily removed therefrom for use.

What I claim is—

1. The combination, in a horse-power fire-engine, of a cranked driving-shaft, pumps connected by inlet and outlet pipes, a sliding yoke connecting the pump-pistons with the crank-arm of the driving-shaft, and guide-rollers located above and below said yoke, substantially as described.

2. A portable horse power fire-engine comprising an adjustable frame, a reversible horse-power, one or more pumps supported by the power-frame, a cranked driving-shaft, and a sliding yoke for connecting the crank-arm of said shaft to the pump-pistons, substantially as described.

In testimony whereof I sign this specification in the presence of two witnesses.

MATTHEW MORTON.

Witnesses.

N. S. WRIGHT,

M. B. O'DOHERTY.