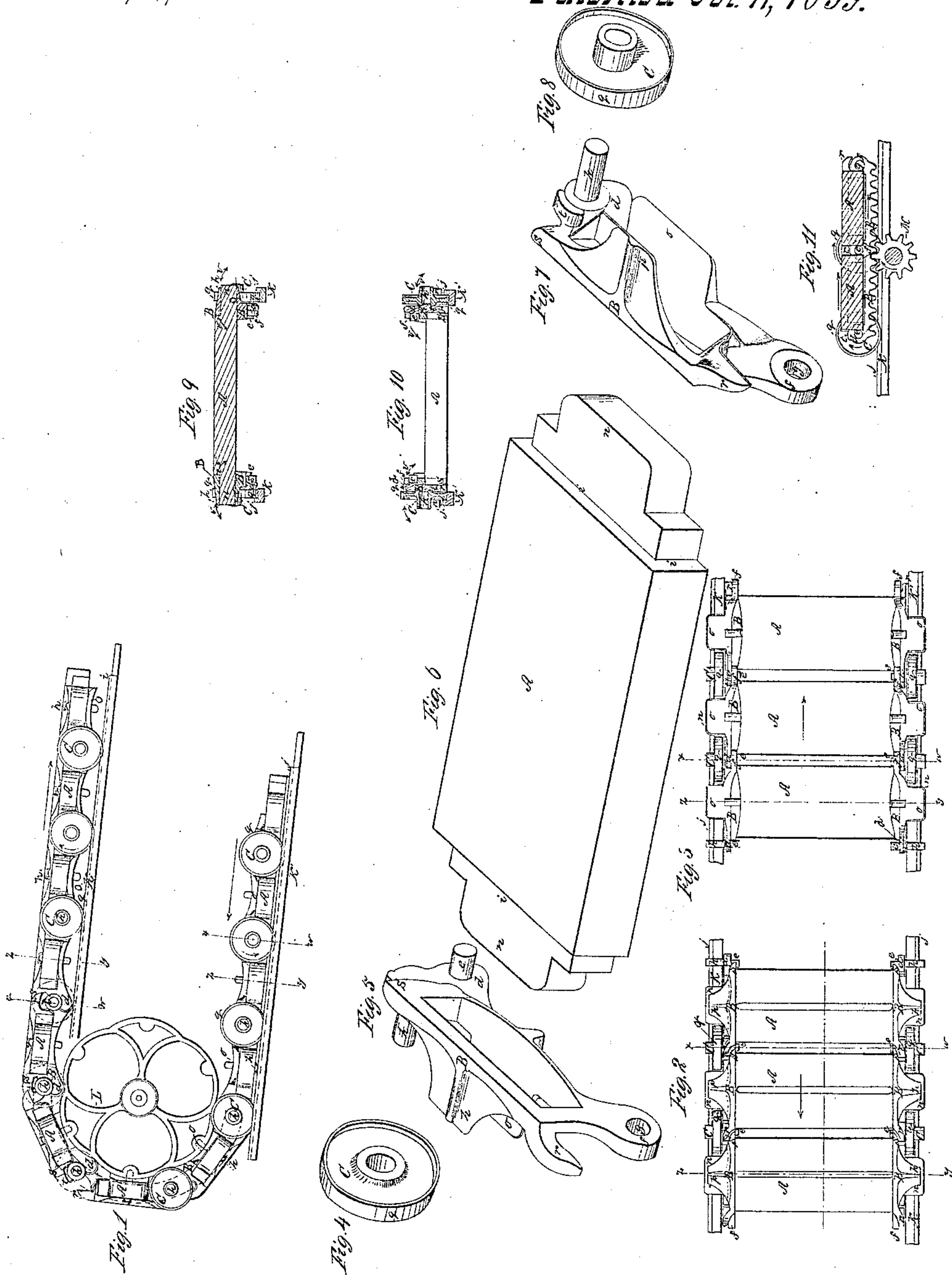


*Lawrence & Gould*

*Horse Power*

*No 25,743.*

*Patented Oct 11, 1859.*



*Witnesses:*  
*William C. Rogers*  
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# UNITED STATES PATENT OFFICE.

I. R. LAWRENCE AND GEO. E. GOULD, OF GREEN ISLAND, NEW YORK.

## ENDLESS CHAIN FOR HORSE-POWER MACHINES.

Specification of Letters Patent No. 25,743, dated October 11, 1859.

*To all whom it may concern:*

Be it known that we, ISAAC R. LAWRENCE and GEORGE E. GOULD, each of the village of Green Island, in the county of Albany and State of New York, have jointly invented certain new and useful Improvements in the Construction of a Certain Class or Kind of Railway-Chains for Horse-Powers; and we do hereby declare that the following contains a full and exact description of our joint invention, reference being had to the annexed drawings, making a part of this specification, in which drawings—

Figure 1 is a side elevation, Fig. 2 a plan of the top or outer side, and Fig. 3 a plan of the inner side, of a part of one of our improved chains; Figs. 4, 5, 6, 7 and 8, perspective views, on a larger scale than the other drawings, of all the pieces or parts that are required to constitute one section or joint of one of our improved chains, shown in part by Figs. 1, 2, and 3, Fig. 9 a cross section at the line *xy*, and Fig. 10 another, at the line *xw*, of the chain shown by the above mentioned figures; and Fig. 11 a transverse section of two joints or sections of another of our improved chains. The same letters refer to like parts in all the figures; and the arrows therein indicate the directions in which the parts move.

One part of our invention consists in so forming and extending both the lags, A, at their ends, *n*, and the links B at whatever part or parts (as at *o*, or *p*,) the lags rest upon while passing along the railway K or K' of the machine, laterally to or past the treads, *g*, of the wheels, C, carried by the axles *h* cast on the links, (see Figs. 5, 7, 2, 3, 9 and 10,) as to thereby cause the weight of, or the downward pressure by, the lags upon the links, to practically keep or help keep the links upright or from being tilted over sidewise in the directions pointed by the arrows *v*, while running along the said railway or railways of the machine. By thus forming and extending both the lags and the links laterally to or past the rims or treads, *g*, of the railway-wheels C, carried by axles cast on the links, we are not only enabled to dispense with the use of the wrought iron rods, which are required in many railway horse-power chains, to extend across from the links, B, on one side of the chain to those on its other side; but also

avoid the necessity of using any bolts, screws, keys, or any analogous fastenings whatever, in connecting the lags to the links; and are not even obliged to have the lags fit tight in or upon the links, to keep the links upright and in place while running on the railways, for we can, and do always or generally prefer to have the lags loosely fitted and inserted in the links so that they shake around a little therein; and thus avoid having any rigid fastenings or connections there that can be broken or damaged by the strong, sharp blows of the horse's feet upon the lags, and make the joints there so that the lags and links will yield a little thereto, and thus promote the durability of the chain; and so that the whole or any portions of the chain can at once be taken apart and put together, whenever necessary for repairs, &c., by the hands alone, without requiring the aid of, any screw-driver, wrench, or other tool or implement whatever.

Another part of our invention consists in so forming and arranging projections, *r*, and *s*, on the ends of the links, B, at the opposite corners to those occupied by the male lugs, *d*, and female lugs, *f*, (see the drawings,) that thereby the links, while passing along the railways, K, K', of the machine, will then be so locked together as to more fully support each other under the heavy pressure of the feet of the horse or horses on a few of the lags; and so that none of the links can then be separately pushed out laterally or wrenched around sidewise so as to become displaced on the lags or unhooked from each other by reason of any accidental treading of the horses upon the links or any other cause which, if the projections *r* and *s* were not thus arranged on the links, might be sufficient. The projections *r* may either rest or not rest on the seats *t*. It is obvious that the forms of those parts, of the lags and links, that so extend out to or past the treads, *g*, of the wheels, C, as to make the lags and links support each other by their downward pressure merely, without the use of any rods, screws, or bolts—when the wheels C are carried on axles, *h*, cast on the links, may be greatly varied; and that the pivots, *e*, may be arranged either above the axles *h*, or below them as seen in Figs. 1 and 10, or on a line with them as in Fig.



11,—and that in the latter case the links may be pivoted together by, and the wheels turn upon, the same pivots or axles *h*; and that one end of each link of the chain may be provided with a male lug *d*, and the other end with a female lug, *f*, as shown in Figs. 5 and 7; or else, that one half of the links of the chain may have female lugs on each of their ends, and the other half of the links have male lugs on both ends,—and the chain still contain the distinguishing characteristics of our invention.

What we claim as our joint improvement on such endless, traveling, platform-chains for horse-powers as have their links pivoted together by, and their railway or friction wheels carried upon, pins or axles cast and arranged upon the links substantially as

herein set forth, and desire to secure by Letters Patent is—

1. Extending both the lags, A, and the links, B, of such chains, to or beyond the treads, *q*, of the friction-wheels, C, carried by axles, *h*, cast on the links, substantially as and for the purpose herein described.

2. We also claim forming and arranging projections, *r* and *s*, on the links, B, of the chain, substantially as and for the purpose herein set forth,—the links being provided with male lugs, *d*, and female lugs, *f*, substantially as herein described.

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Witnesses:

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