G. A. BEAVER & E. O. ABBOTT.

TRACE DETACHING DEVICE.

No. 187,084. Patented Feb. 6, 1877.

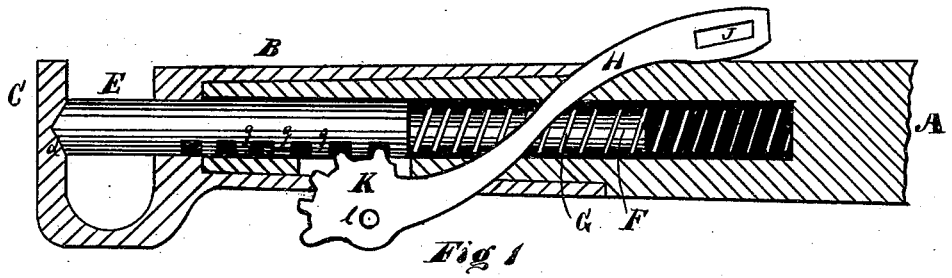

Fig 1

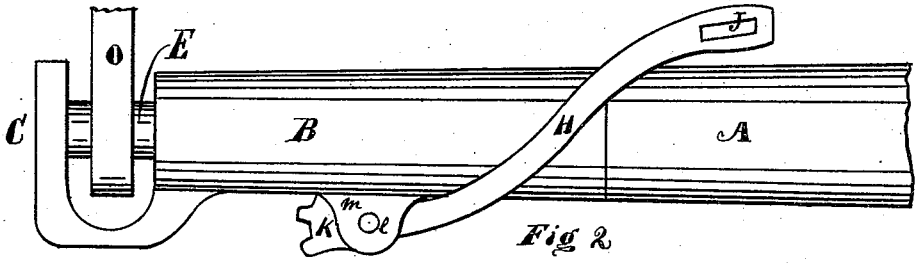

Fig 2

Witnesses:
E. O. Whitney
I. S. Long

Inventors:
George A. Beaver and
Edwin O. Abbott.
Per E. Smith their Atty.

UNITED STATES PATENT OFFICE.

GEORGE A. BEAVER AND EDWIN O. ABBOTT, OF INDIANAPOLIS, INDIANA, ASSIGNORS TO SEBASTIAN C. BARTH, OF SAME PLACE.

IMPROVEMENT IN TRACE-DETACHING DEVICES.

Specification forming part of Letters Patent No. **187,084**, dated February 6, 1877; application filed May 16, 1876.

To all whom it may concern:

Be it known that we, GEORGE A. BEAVER and EDWIN O. ABBOTT, of Indianapolis, county of Marion, State of Indiana, have invented a new and useful Improvement in Trace-Detaching Device for Single or Double Trees, of which the following is a description, reference being had to the accompanying drawings.

Our invention consists of the construction and arrangement of a sliding bolt, arranged to operate in each end of the single-tree by means of a rack formed on said bolt, and a segment of cog-gear arranged at the end of a bent lever, and pivoted to the bolt-case in such a manner that the traces can be held on the bolts or released at a moment's warning. The advantages of my improved trace-detaching device are readily appreciated by users thereof.

Figure 1 represents a sectional view of our improved trace-detaching device, showing the arrangement of parts fully. Fig. 2 is a view of the same, showing the trace on the movable bolt.

A represents the wooden single-tree, on the ends of which are secured the tips B. These tips are made of metal, cored out so as to be firmly attached to the ends of the single-tree, as shown in Figs. 1 and 2. At the outer end of the tip is cast a hook, C, in the manner shown, leaving space enough between the hook C and end of the socket part of the tip B to receive the traces. The movable bolt E is formed in the hook or arm C, as shown in Fig. 1. The bolt E slides in a hole formed in the socket part of tip B, as shown, and on one side of the bolt E are a series of cogs, *g*, forming a rack. At the rear of this rack the bolt E is reduced in size, and is supplied with a coil-spring, G, one end of which acts against the shoulder of the bolt formed by reducing the size of the shaft, and the other end of the spring acts against the end of the hole formed in the end of the single-tree, as shown, and thus the bolt E is held forward with the cone-shaped end in the cone-shaped recess of the hook or arm C.

On the rear side of the socket B are arranged two lugs, *m*, having an open space between them, in which is inserted the segment cog-gear K, which is pivoted at *l* to the lugs *m*, as shown. This segment cog-gear K meshes in gear with the rack-cogs *g* on the bolt E, as shown in Fig 1, and the segment cog-gear K is provided with a lever-arm, H, which curves upward and toward the center of the single-tree, and is provided with a slot, J, at the end to receive a strap or chain, in the manner shown.

When the traces O are to be attached the lever-arm H is moved backward, which causes the segment cog-gear K to partially rotate on its pivot *l*, thus communicating motion to the bolt E by means of the gear or rack *g*, and the bolt E is drawn into the end of the single-tree.

The trace O may be inserted in the space between the end of the socket B and the hook or arm C. Then by letting the lever-arm H move forward the bolt E passes through the hole in the trace, and the end of the bolt E enters the cone-shaped recess *d*, and is held firm.

When it becomes necessary to remove the traces, either to unhitch the horse or to release the horse from the vehicle in case of a runaway, all that is necessary to do is to pull on the strap that is attached to the lever-arms H and J, and the bolts E at each end of the single-tree are drawn in, and the traces released.

What we claim as new, and wish to secure by Letters Patent, is—

A trace-detaching device, consisting of the bolt E, provided with a rack, *g*, and operated in the metallic tips B by means of the segmental cog-gear K, provided with a curved and slotted arm, H, in the manner set forth and described.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

GEORGE A. BEAVER.
EDWIN O. ABBOTT.

Witnesses:
E. O. FRINK,
E. C. WHITNEY.