

# UNITED STATES PATENT OFFICE.

SAMUEL SMITH, OF MATTOON, ILLINOIS.

## IMPROVEMENT IN DRAFT-EQUALIZERS.

Specification forming part of Letters Patent No. **172,514**, dated January 18, 1876; application filed November 8, 1875.

*To all whom it may concern:*

Be it known that I, SAMUEL SMITH, of Mattoon, in the county of Coles and State of Illinois, have invented a new and useful Improvement in Draft-Equalizers, which is fully described in the following specification, reference being had to the accompanying drawing, in which—

Figure 1 is a plan view of my equalizer, and Fig. 2 an edge or front view of the same with the single-tree detached.

The object of my invention is to bring all the draft attachments upon the median line of the equalizer taken longitudinally.

The invention consists in making the double-tree of two parts, one on each side of the equalizing-beam, and joined together by staples.

In the drawings, A is the equalizing-beam, which is attached to the object to be moved by means of the staple *a*. To the short arm of the equalizing-beam is attached the double-tree B, and the outer end of the long arm is provided with an ordinary swinging staple, *c*. The double-tree B is made of two pieces, *b b*, which are joined together and rigidly held in position by the fixed staples *b' b'*. The double-tree is attached to the equalizing-beam by the bolt *d*, the equalizing-beam being inserted between the two sections *b b* of the double-tree, as is clearly shown in Fig. 2. Whiffletrees C are attached in any suitable way to the staples *b' b'* and *c*, respectively. The short arm of the equalizing-beam is bent forward slightly, so that when the draft-attachments are directly in line with each other the long arm of the equalizing-beam will be nearly at right angles to the line of draft, while the short arm will form an acute angle with the same line.

By this construction the pivotal point of the double-tree is thrown a little forward of the main portion of the equalizing-beam, and,

in connection with the divided construction of the double-tree, permits the inner end of the latter to swing back some distance before it will be stopped by the beam.

With the construction of double-tree described above, the draft attachment is located somewhat farther back than in ordinary draft-equalizers, so that a long awkward staple upon the long arm is unnecessary. At the same time the line of draft upon the double-tree, as well as the whiffletree at the other end of the equalizing-beam, is in a direct line with the longitudinal center of the equalizer, instead of from the top of the equalizer, as in the ordinary construction, and thus the downward thrust of the draft upon the equalizer is obviated.

By bending the short arm of the equalizing-beam and using the divided double-tree in connection therewith, as described, I find, by actual use, that the middle horse is prevented from falling back, as is the case when the double-tree can move backward but a short distance before finding a stop.

The whole attachment, constructed as described, forms an exceedingly cheap and efficient draft-equalizer wherever it is desired to use three or more horses.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The double-tree B, constructed of two pieces, connected together rigidly at their ends by open staples *b' b'*, substantially as and for the purposes set forth.

2. The combination of the divided double-tree B and the bent equalizing-beam A, substantially as and for the purposes set forth.

SAMUEL SMITH.

In presence of—

L. A. BUNTING,  
HEINRICH F. BRUNS.



# UNITED STATES PATENT OFFICE.

CHRISTIAN H. STALL, OF RED FALLS, NEW YORK.

## IMPROVEMENT IN LOCKS FOR TRUNKS, &c.

Specification forming part of Letters Patent No. **172,516**, dated January 18, 1876; application filed October 29, 1875.

*To all whom it may concern:*

Be it known that I, CHRISTIAN H. STALL, of Red Falls, in the county of Greene and State of New York, have invented a new and Improved Lock, of which the following is a specification:

My invention consists of a system of checks to obstruct the turning of the key and prevent the unlocking of the lock, except by one acquainted with the order of operation by which the checks may be displaced or avoided, the said system being as hereinafter described and claimed.

Figure 1 is a side elevation of the lock with the front plate removed. Figs. 2 and 3 are details in side elevation. Fig. 4 is a top view with the top plate removed, and Fig. 5 is a diagram by which to illustrate the order of operating the key to unlock the lock.

Similar letters of reference indicate corresponding parts.

A is the bolt; B, a check-spring for securing it when shot. D is a rod for disengaging the check-spring and engaging the bolt by a check-stud, E. F is a tumbler for working the rod by the key. G is a check-stud to stop the key in the proper place for working the tumbler F, and H is a spring, with a stud, I, which engages the bolt in holes J and K, to hold it locked and unlocked.

The operation is as follows: The key is put in against the spring H, through which the key-pin L passes, and turned until checked by stud G; then it is pulled back in front of the tumbler F, and turned back until the up-

per arm *a* of said tumbler strikes the stud *b* of the bolt, as shown in Fig. 2. This disengages check-spring B and moves the bolt a trifle, so that when the check-spring drops again it will not fall in the notch *d*. Then the key is pushed back and turned back under the tumbler to 1, Fig. 5; then it is pulled forward and turned to the right against tumbler F as far as it will go, which releases stud E from the bolt. Then the key is pushed in again and turned to the right as far as Fig. 2, where it is arrested by check-stud G; then it is pulled forward till it passes check-stud G to the right into the notch M of the bolt; then it is pushed hard against spring H to detach stud I, and turned far enough to the right to throw back the bolt. The stud I then springs into hole K, and holds the bolt back against the spring N, which shoots it forward and locks it, when the key is pressed in against spring H, so as to detach stud I from hole K.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination of tumbler F, bar D, check-spring B, and check-stud E with the bolt A of a lock, substantially as specified.

2. The stud G, combined with the lock-bolt A, having the tumbler F, bar D, stud E, and check-spring B, substantially as specified.

CHRISTIAN H. STALL.

Witnesses:

GEORGE C. FENN,  
FRANK G. LARRAWAY.