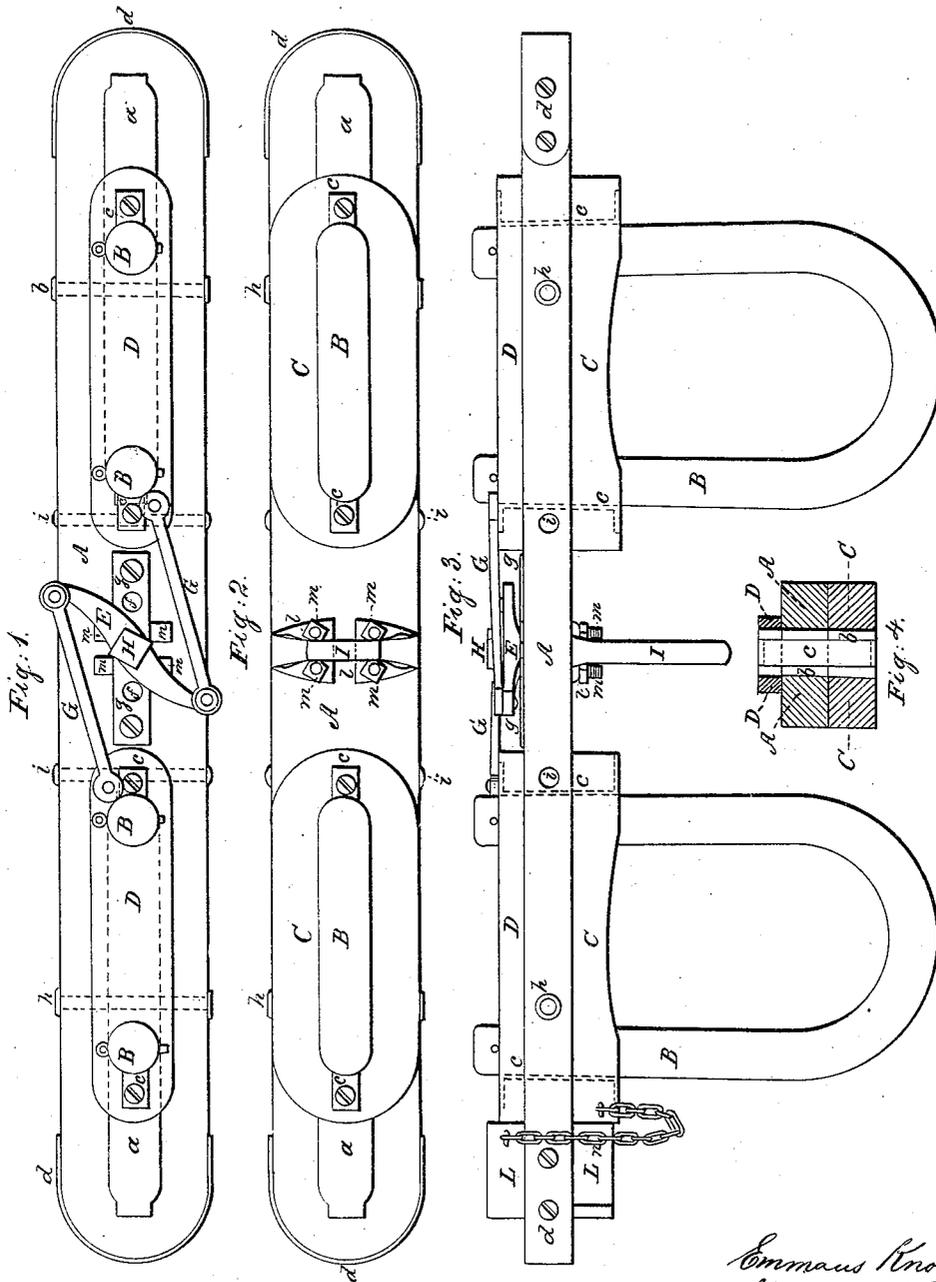


KNOWLTON & SMITH.

Ox Yoke.

No. 88,965.

Patented April 13, 1869.



Witnesses:
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R. S. Turner.

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EMMAUS KNOWLTON, OF STOCKBRIDGE, AND STILLMAN F. SMITH
OF ROYALTON, VERMONT.

Letters Patent No. 88,965, dated April 13, 1869.

IMPROVEMENT IN OX-YOKES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that we, EMMAUS KNOWLTON, of Stockbridge, and STILLMAN F. SMITH, of Royalton, in the county of Windsor, and State of Vermont, have invented an Improved Extension Ox-Yoke; and we do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification—

Figure 1 being a top view of the yoke.

Figure 2, a view of the under side of the same.

Figure 3, a side view thereof.

Figure 4, a cross-section through one of the bow-holes.

Like letters designate corresponding parts in all of the figures.

The principal parts of the extension, or adjustable-bow yoke are the main piece, or beam A, bows B B, sliding neck-blocks C C, and sliding cap-pieces D D.

The bows B B pass up through bow-holes in the neck-blocks C C, and in the cap-pieces D D, and through oblong apertures, or slots *a a* in the yoke-beam A, between them. These slots are of sufficient length to allow the bows to move in and out, toward and from the centre, as far as may be required, and their ends may serve to limit the movements of the bows both ways.

Since one of the functions of the neck-blocks and cap-pieces is to keep the bows in the proper position in a vertical direction, and to furnish guides to their sliding movement upon the upper and lower surfaces of the beam, the neck-block and cap-piece at each end of the yoke should be firmly connected together. We effect this object by means of cramp-irons *c c*, one extending through each bow-hole at the side thereof next to the adjacent end of the neck-block and cap-piece, toward which their flanches turn at right angles, and are secured to the upper and lower surfaces, respectively, of the said cap-piece and neck-block by screws or bolts, substantially as represented.

These cramps, thus located and arranged, furnish very strong and firm connections. They also serve two special and very useful purposes; first, they serve as guides to the insertion of the bows, directing them from the bow-holes in the neck-blocks to the corresponding holes in the cap-pieces above; second, they leave all the space between the two ends of the bows entirely unencumbered, so that we are enabled to insert a cross-bolt, *h*, through the beam A across the middle of each bow-slot *a*, this being the most desirable position for the insertion of strengthening-bolts, whereas if the neck-block and cap-piece were connected by any means between the ends of the bow, the bolt *h* could not be there located.

In addition to the cross-bolts *h h*, other cross-bolts, *i i*, may pass through the yoke-beam toward the middle thereof.

And we also strengthen the ends of the beams, to

prevent their splitting, by metallic bands *d d*, extending around them, as shown, and secured by screws or otherwise.

The required simultaneous movement of the bows B B, inward and outward, is effected by means of a vibratory lever, E, pivoted on a bolt, H, inserted in the top of the yoke-beam A at or near the centre, and of two connecting-rods, G G, pivoted respectively to the ends of the vibratory lever, and to the two sliding cap-pieces D D, substantially as represented. Thus located on the top of the yoke, the lever E is out of the way of the pole of the cart or sled, and is compactly situated in the space between the cap-pieces.

The lever may be conveniently of the double-curved form of a letter S, as indicated.

In order to give either ox the advantage at any time, instead of giving him the longer leverage by different holes in the lever E, so as to vary the relative distances of the connecting-rods G G from the pivot-bolt H, (which arrangement is ineffectual, because it changes the leverage and consequent advantage from one ox to the other when the position of the lever is reversed,) we shift the pivot-bolt H, from the central hole in the yoke-beam, to one or another of holes *f f*, nearer to one or the other end of the yoke, and thereby give the leverage on the yoke-beam itself, so that it is constant in all positions of the bows.

The bolt H may be made to remove readily, so that the change of the leverage may be made quickly and easily, as when it may be desired to give first one and then the other ox the advantage alternately.

The bolt-holes *f f* are kept from wearing and abrasion, by a metallic guard-plate *g*, as shown.

Whenever it may be desired to hold the bows from self-adjustment, either extended or drawn in, we employ a stop-block, or key L, as shown in fig. 3, of proper form and size, to fit into the end of one of the slots *a a*, and thus prevent the sliding of the bows in the slots. A single block, L, will answer the purpose, since, when one bow is held out or in, the other is also; but if it is desired to take the strain from the lever E and connecting-rods G G, a stop-block may be employed for each bow.

The block may be connected with the yoke by a chain, or cord *n*, as indicated; and since it may be wanted either at the outer or inner end of the slot *a*, it may be so attached as to reach either end.

By an improved construction and attachment of the draught-staple I, we dispense with a centre block under the yoke-beam, thereby rendering the yoke lighter, and, particularly, allowing room for the oxen to come near enough toward each other to prevent their crowding in the winter. This purpose is attained by widening the staple at the upper end to nearly or quite the full width of the yoke-beam to which it is attached, not by passing through it in the usual manner, but by turning its ends inward toward each other, and flattening them

into flanches *l l*, through which screw-bolts *m m m m* pass, and through the beam, and are firmly secured there by nuts. This construction and mode of attachment give great strength to the staple, and do not weaken the beam so much as it would if the ends of the staple were to pass through the beam.

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

The arrangement and combination of the cramps *c c*, bolts *h h*, vibratory lever *E*, shifting pivot-bolt *H*, and connecting-rods *G G*, substantially as and for the purpose herein specified.

Also, the stop-block, or blocks *L*, for the purpose set forth.

Also, the construction of the draught-staple *I*, with its inwardly turned flanches *l l* secured to the yoke-beam by bolts *m m m m*, for the purpose herein specified.

The above specification of our improved ox-yoke signed by us, this 15th day of March, 1869.

Witnesses:
 EMMAUS KNOWLTON.
 STILLMAN F. SMITH.
 M. E. SMITH,
 E. P. SMITH.