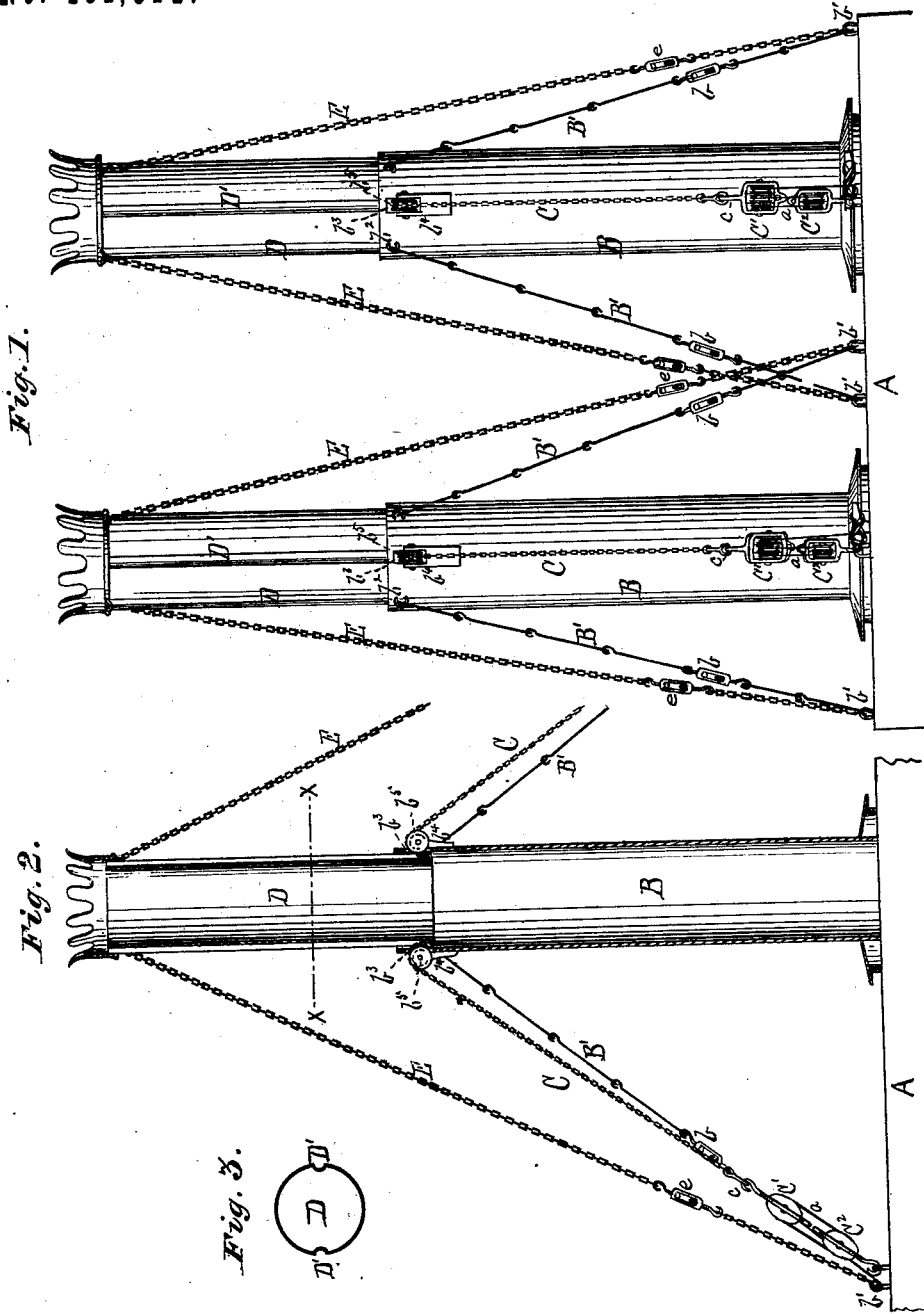


A. L. ROUZE, B. A. LEDFORD & J. O'BRIEN.  
STEAMBOAT SMOKE-STACK.

No. 191,614.

Patented June 5, 1877.



Witnesses:  
John Dennisy.  
John R. Jones.

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# UNITED STATES PATENT OFFICE.

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DENVER, COLORADO; SAID O'BRIEN ASSIGNOR TO SAID LEDFORD.

## IMPROVEMENT IN STEAMBOAT SMOKE-STACKS.

Specification forming part of Letters Patent No. **191,614**, dated June 5, 1877; application filed  
April 12, 1877.

*To all whom it may concern:*

Be it known that we, ALANSON L. ROUZE, BENJAMIN A. LEDFORD, and JOHN O'BRIEN, all of Denver, in the county of Arapahoe, and State of Colorado, have invented certain Improvements in Steamboat Smoke-Stacks, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing and the letters of reference marked thereon, making part of this specification, in which—

Figure 1 is a front elevation. Fig. 2 is a vertical sectional view of our smoke-stack. Fig. 3 is a cross-sectional view on the line *x*, Fig. 2.

Our invention relates to that class of smoke-stacks for steamboats that ply upon rivers whose bridges are not provided with drawers, and consequently the smoke-stack has to be lowered when passing the same.

Our invention, therefore, consists in telescoping the upper or movable portion of the smoke-stack in the lower or stationary section, raising and lowering the same by means of chains and pulleys, and at the same time providing the upper portion with grooves designed to keep the hoisting and lowering chains in place when being operated, all as hereinafter more fully described.

The construction and operation of our invention are as follows:

A is the deck of the steamboat. B is the lower or stationary portion of the smoke-stack. From the upper section of the portion B, and at equal distances apart, are secured, by staples *b<sup>2</sup> b<sup>2</sup>*, four link-chains, B' B'. These link-chains extend to the deck, being fastened to the same by means of staples *b<sup>1</sup> b<sup>1</sup>*, and are designed to keep the lower or principal portion of the smoke-stack in position. These link-chains are also provided with turn-buckles *b b*, so that they may be tightened or loosened, as occasion requires, without twisting the links of the chain. At the front and rear of the upper section of the stationary portion B of the smoke-stack, and midway between the staples *b<sup>2</sup> b<sup>2</sup>*, are cut holes or orifices *b<sup>3</sup> b<sup>3</sup>*, while immediately below said holes are secured to the outside of the portion B slotted ears *b<sup>4</sup> b<sup>4</sup>*, having pivoted therein the sheaves or pulleys *b<sup>5</sup> b<sup>5</sup>*. Over these sheaves *b<sup>5</sup> b<sup>5</sup>*, and through the holes *b<sup>3</sup> b<sup>3</sup>*, pass the hoisting and lowering chains C

C. One end of these chains is secured to the lower section of the upper or movable portion B of the smoke-stack, the other end being secured to a hook, *c*, attached to the pulley-block C<sup>1</sup>. This pulley-block C<sup>1</sup> is attached, by means of a cord or rope, *a*, to another pulley-block, C<sup>2</sup>, which is fastened to the deck A. D is the upper or movable portion of the smoke-stack. In the front and rear of this portion D is cut a groove, D', as shown in Fig. 3, which extends the entire length of the portion D and registers with the holes *b<sup>3</sup> b<sup>3</sup>*. When the portion D is telescoped in the portion B the chains C C rest in these grooves D' D', and are thus not liable to prevent the free movement of the upper portion D. To the upper section of this portion D is secured one end of the guide-chains E E. The other ends of these chains are secured to the staples *b<sup>1</sup> b<sup>1</sup>*. These guide-chains E E are also provided with turn-buckles *e e*, and become tightened as the movable portion D is extended or raised.

The operation is as follows: When it is desired to lower the portion D to enable the boat to pass obstructions, such as bridges, the cord or rope *a* which connects the pulley-block C<sup>1</sup> C<sup>2</sup> is loosened and payed out. This, through the medium of the chains C C, allows the portion D to be telescoped into the portion B, its weight being sufficient to cause it to fall. To raise the same, the cord *a* is tightened, and the pulley-blocks C<sup>1</sup> C<sup>2</sup> thus drawn together.

What we claim as new, and desire to secure by Letters Patent of the United States, is—

In a steamboat smoke-stack, the stationary section B, movable section D provided with grooves D' D', chains C C, sheaves *b<sup>5</sup> b<sup>5</sup>*, pulley-blocks C<sup>1</sup> C<sup>2</sup>, guide-chains E E, and link-chains B' B', the whole constructed and arranged to operate substantially as described.

In testimony that we claim the foregoing we have hereunto set our hands this 28th day of February, 1877.

ALANSON L. ROUZE.  
BENJAMIN A. LEDFORD.  
JOHN <sup>his</sup> O'BRIEN.  
mark.

Witnesses:

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