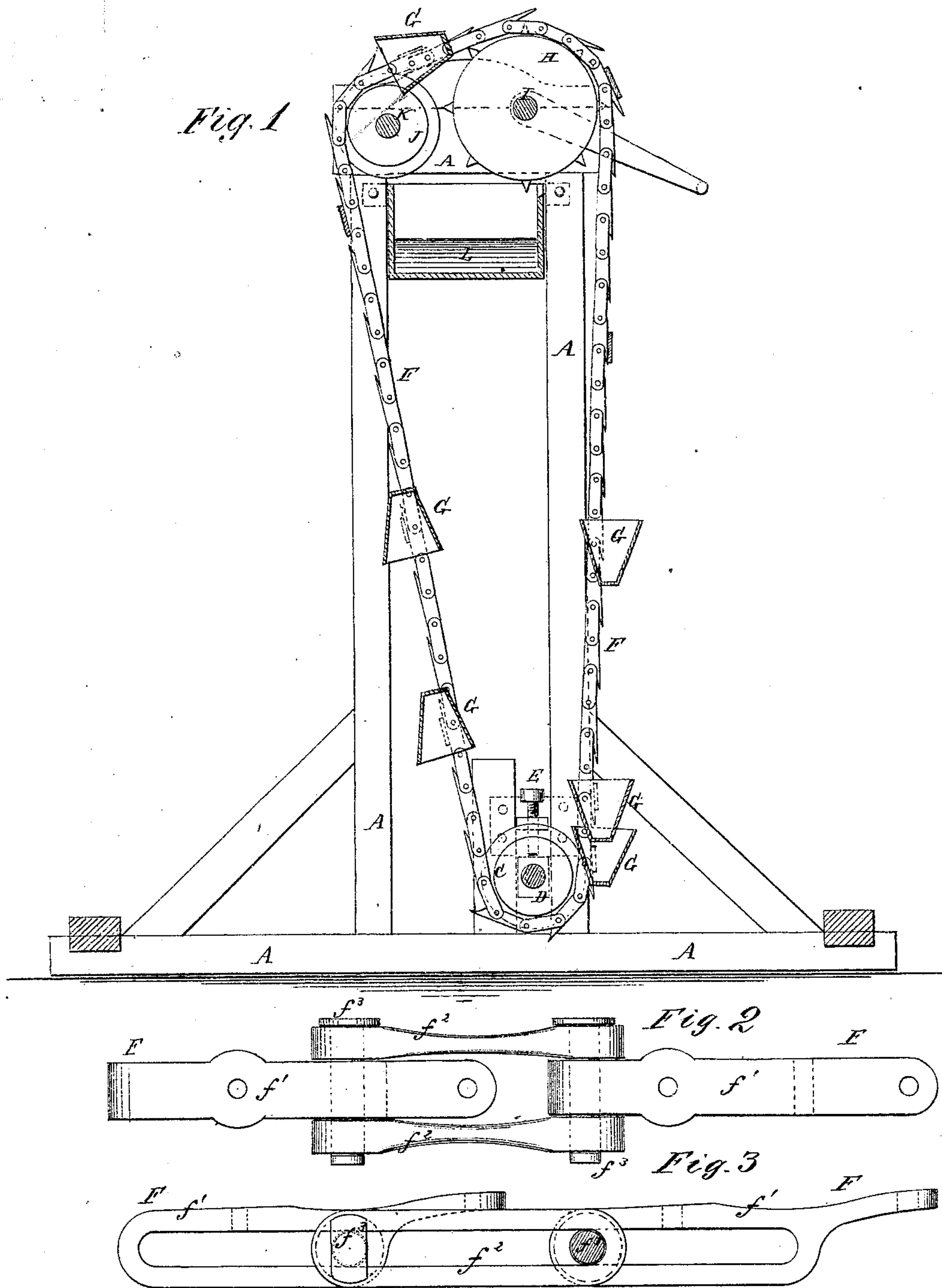


(79.)

HENRY S. STEWART.
Improvement in Elevators.

No. 121,822.

Patented Dec. 12, 1871.



Witnesses:

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121,822

UNITED STATES PATENT OFFICE.

HENRY S. STEWART, OF YREKA, CALIFORNIA.

IMPROVEMENT IN ELEVATORS.

Specification forming part of Letters Patent No. 121,822, dated December 12, 1871.

To all whom it may concern:

Be it known that I, HENRY S. STEWART, of Yreka, in the county of Siskiyou and State of California, have invented certain Improvements in Central-Discharge Endless-Chain Elevators; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing forming a part of this specification.

Figure 1 is detail vertical section of my improved elevator. Fig. 2 is a detail outside view of a portion of one of the endless chains, enlarged to show its construction. Fig. 3 is a detail side view of the same, one of the bolt-heads being cut off.

Similar letters of reference indicate corresponding parts.

My invention has for its object to furnish an improved elevator, which shall be so constructed that the buckets will discharge their contents centrally or close to the upper driving-shaft, thus especially adapting it for raising water, dirt, and other substances in mines and other confined situations, and which may be conveniently taken apart for slackening or tightening the endless chains, detaching buckets, transportation, or other purposes; and it consists in the construction and combination of various parts, as hereinafter more fully described.

A represents the frame-work of the elevator. B is the lower shaft, to which the lower wheels C for the endless chains are attached. The journals of the shaft B revolve in movable bearings D, that slide up and down in slots or ways formed in or attached to the frame A, and which are kept from rising too far by set-screws E, against the lower ends of which the upper sides of the bearings D strike. F are the endless chains, to which the buckets G are attached, and which pass around the chain-wheels C. The endless chains F pass over the spur or chain-wheels H attached to the shaft I, the journals of which revolve in stationary bearings attached to the upper part of the frame A. The spurs of the wheels H enter the cavities of the links of the endless chains F and prevent the said chains from slipping upon the said wheels. The sweep of, or the curve described by, the endless chains F and buckets G at the top of the elevator may be enlarged by

means of another set of chain-wheels, J, attached to a shaft, K, the journals of which revolve in bearings in the frame A. The wheels J may be placed upon the same level as the wheels H; but I prefer to place them a little lower, as shown in Fig. 1. The endless chains F are formed of the two kinds of links, $f^1 f^2$, and the bolts f^3 . The main links f^1 , with which the buckets G are connected, are so formed that their outer sides may rise a little from their upper or forward ends toward their rear ends to bring them into a more convenient position for the attachment of the buckets. The connecting links f^2 are placed upon the opposite sides of the rear ends of each preceding link f^1 and of the forward end of each succeeding link f^1 . The links f^1 and f^2 are connected with each other by the bolts f^3 , one of which passes through the rear end of the cavity or slot of the links f^1 and through the forward ends of the cavities or slots of the two links f^2 , and another of which passes through the forward end of the cavity or slot of a link, f^1 , and the rear ends of the cavities or slots of the two links f^2 . The bolts f^3 are made with a solid head upon each end, one of said heads being made round, and of such a size that it cannot pass through the slots or cavities of the links $f^1 f^2$, and the other of said heads being made in the form of a cross-head, as shown in Figs. 1 and 2, so that when the links are slipped toward each other the said bolts f^3 may be conveniently withdrawn or inserted. The tension of the chains when in position prevents the links $f^1 f^2$ from having these movements upon each other, and renders it impossible for the bolts f^3 to work out accidentally. The chains F may be readily slackened to allow the bolts f^3 to be withdrawn and inserted by turning up the screws E a little and raising the lower shaft B.

This construction allows any of the links to be taken out when desired with their attached buckets, or the chains to be parted for transportation or other purposes.

G are the buckets, which are made of such a length as to fit in between the endless chains F, and have lugs or plates attached to their ends, which lugs or plates are bolted or riveted to the links f^1 of the chains F. The inner sides of the buckets G are made inclined, so that the upper edges of said sides may project within the paths of the endless chains F, as shown in Fig. 1.

This construction of the buckets G causes them to discharge their contents before they have quite reached the tops of the upper chain-wheels instead of after they have come to said top, so that the spout L, to receive and carry off the substance raised, may be placed within the upper part of said chains, whether the second shaft K and its chain-wheels J be used or not.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—
The endless chains F, formed by the combina-

tion of the links f^1 , links f^2 , and bolts f^3 , made with a solid round head at one end and a solid cross-head at the other end, substantially as herein shown and described, and for the purpose set forth.

The above specification of my invention signed by me this 18th day of October, 1871.

HENRY S. STEWART.

Witnesses:

JAMES T. GRAHAM,

T. B. MOSHER.

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