(No Model.)

F. G. SUSEMIHL.

COAL CHUTE.

No. 493,949. Patented Mar. 21, 1893.

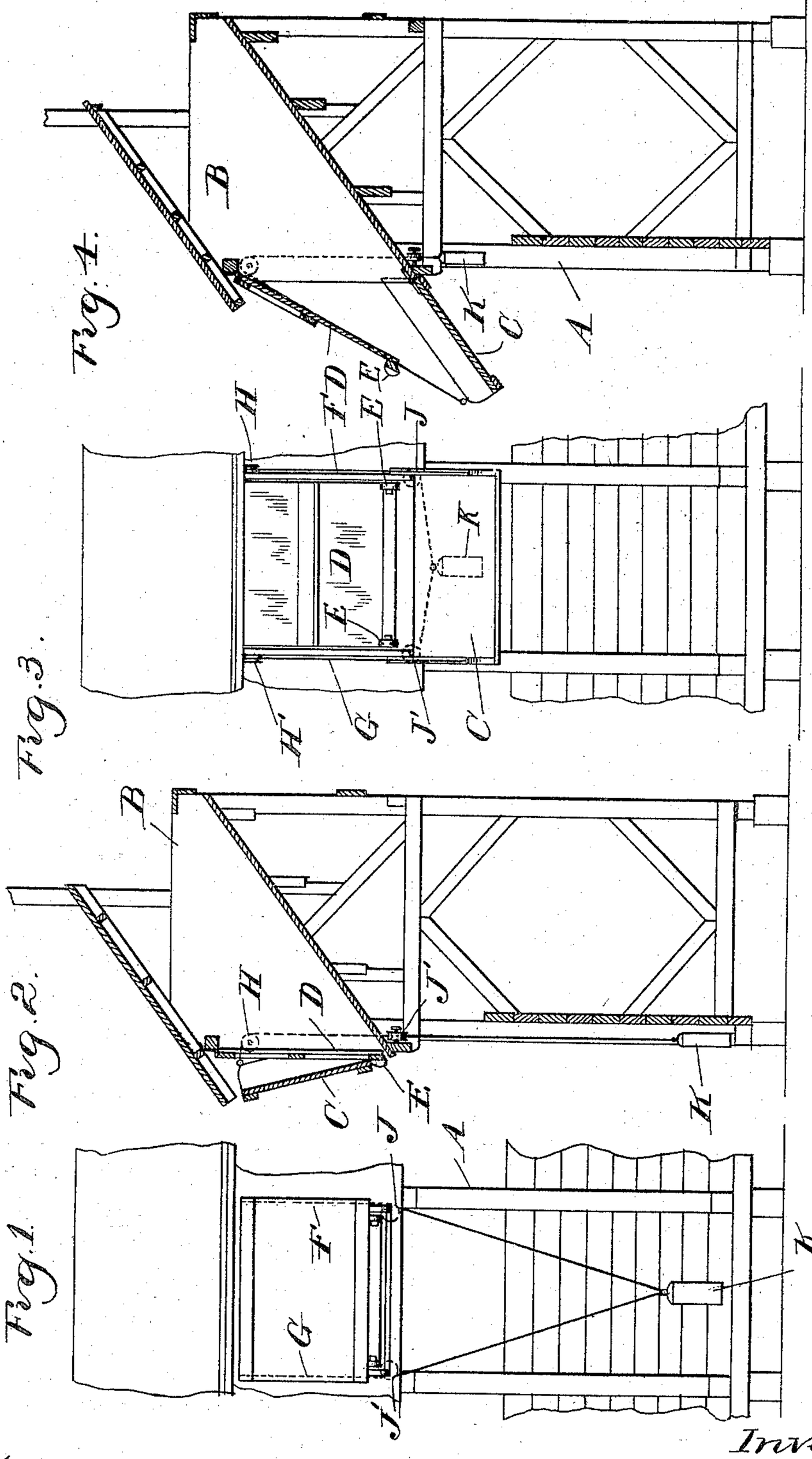

Fig. 4.

Fig. 3.

Fig. 2.

Fig. 1.

Witnesses
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UNITED STATES PATENT OFFICE.

FRANCIS G. SUSEMIHL, OF DETROIT, MICHIGAN.

COAL-CHUTE.

SPECIFICATION forming part of Letters Patent No. 493,949, dated March 21, 1893.

Application filed November 18, 1892. Serial No. 452,380. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS G. SUSEMIHL, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Coal-Chutes, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention consists in the peculiar construction of the balancing device for the hinged apron upon which the coal is delivered from the bin to the boat or locomotives.

The invention more particularly consists in the peculiar manner of suspending a weight by means of chains or cables from the apron, so that as the apron descends the weight will be lifted by the combined pull of both chains or cables as the weight rises from the vertical toward the horizontal, all as more fully hereinafter described.

In the drawings, Figure 1 is a front elevation of a coal chute embodying my invention showing the apron up. Fig. 2 is a vertical, central section thereof. Fig. 3 is a front elevation showing the apron lowered to discharge the coal. Fig. 4 is a central section through Fig. 3.

In coal chutes as ordinarily constructed the space beneath the bin is utilized to swing the weights for counterbalancing the apron. Many railroad companies desire to use that space for the storage of coal or other articles, and in order that this space may be left clear from the counterbalancing apparatus, and that the resistance to the apron may increase in proportion to the increase of power in its descent I have devised the herein described balancing device.

A is the framework for supporting the coal bin B which has the usual inclined bottom. Near the lower edge of this bottom is hinged the apron C.

D is a door hinged to the upper part of coal bin having locking lugs E E which bears against the lower inner edge of the apron C and is held closed thereby until that apron has reached a substantially horizontal position, and is then released to allow coal to be discharged from the bin over the apron into a tender or boat, this construction being substantially as shown in my Letters Patent No. 416,018 dated November 26, 1889.

To counterbalance the apron as it descends I secure to the outer corner at each end chains or cables F and G, which pass over supporting pulleys or sheaves H H′ at the upper side of the bin, these pulleys being suitably grooved to guide the chains or cables and prevent accidental displacement. The chains then descend to the lower side of the bin at each side thereof and pass over the guiding pulleys J J′, and from thence they pass downward and support at the lower ends the counterbalancing weight K.

The parts being thus constructed and in the position shown in Figs. 1 and 2, to discharge the coal, the operator draws down upon the apron until it has reached substantially the horizontal position or slightly inclined downward, when, the locking bearing on the door being released, the coal will run down the inclined bottom of the bin and out over the apron which forms the chute into a tender or boat. As the apron is lowered the chains will draw over the pulleys H H′ and J J′ raising the weight K in a straight line between the converging chains or cables, and as the weight ascends the line of draft of these chains upon the weight will gradually approach the horizontal, opposing each other, and upon the well known principle that as the angle of pull is changed from the vertical toward the horizontal the power required to lift the weight a given distance will be increased. It is apparent that the counter-balancing effect of the weight will increase as it rises substantially in proportion to the power exerted by the downward movement of the apron, and in closing the apron will be substantially balanced at all points throughout its upward movement and thus it may be easily accomplished by the operator.

What I claim as my invention is—

In a coal chute, the combination with a hinged discharge apron, of a weight below the apron, flexible connections extending from the weight in opposite directions to and connected with the opposite sides of the apron and pulleys above and at the base of the apron over which the connections pass, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

FRANCIS G. SUSEMIHL.

Witnesses:

M. B. O'DOGHERTY,

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