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Patented May 2, 1899.

C. H. SUTTON.

MACHINE FOR REGULATING FLOW IN CHUTES, &c.

(Application filed Jan. 21, 1899.)

(No Model.)

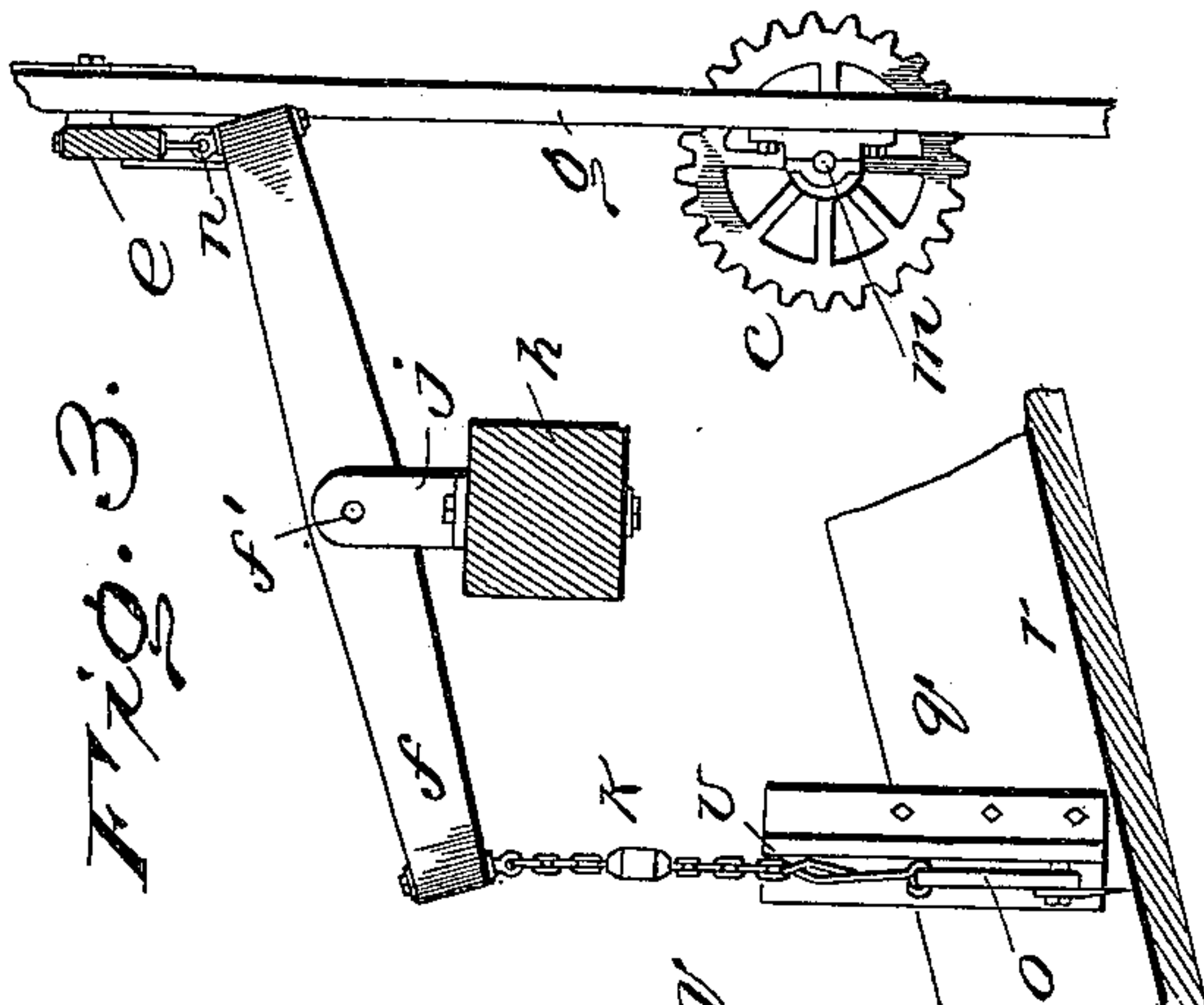


Fig. 4.

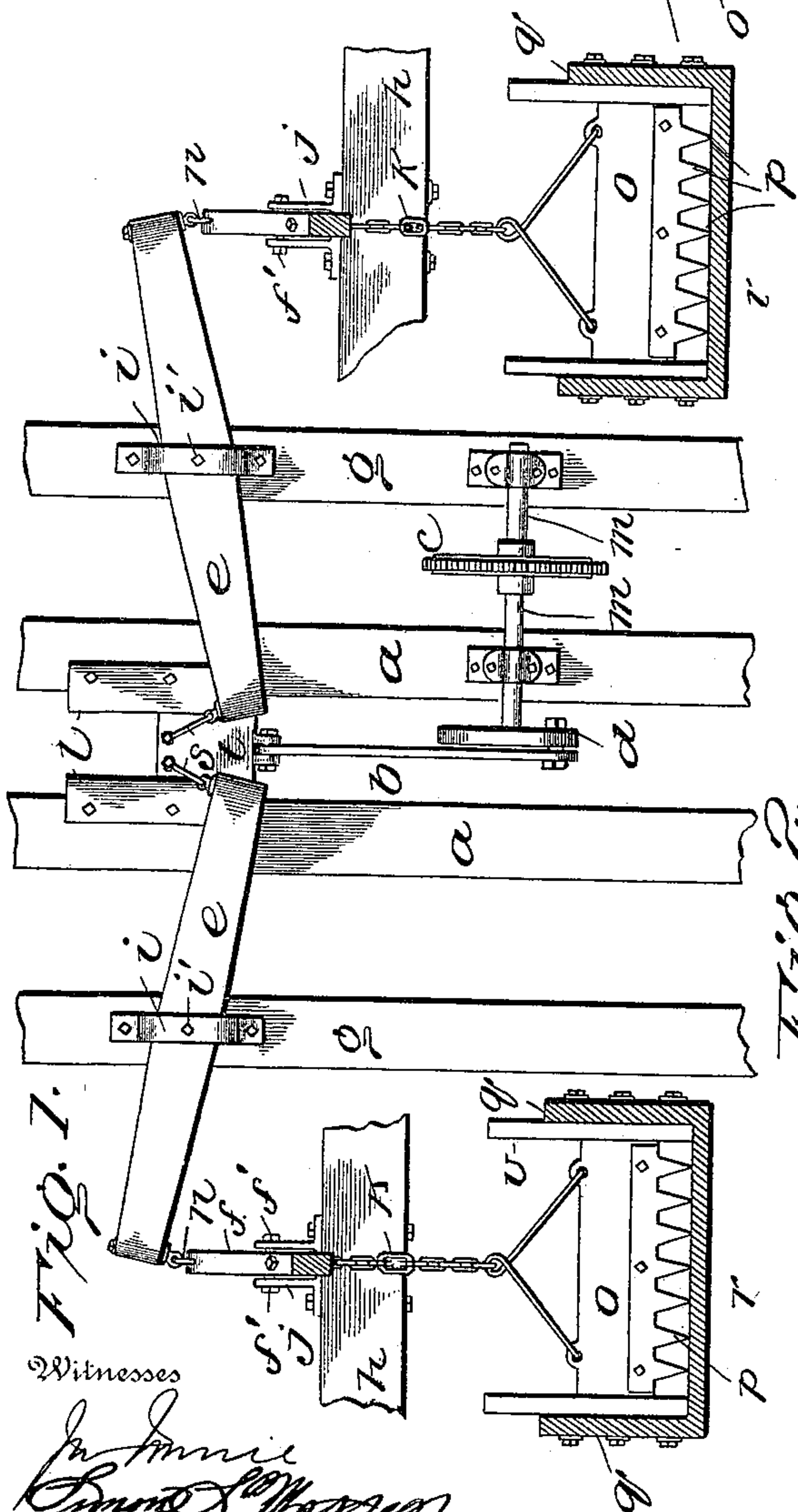
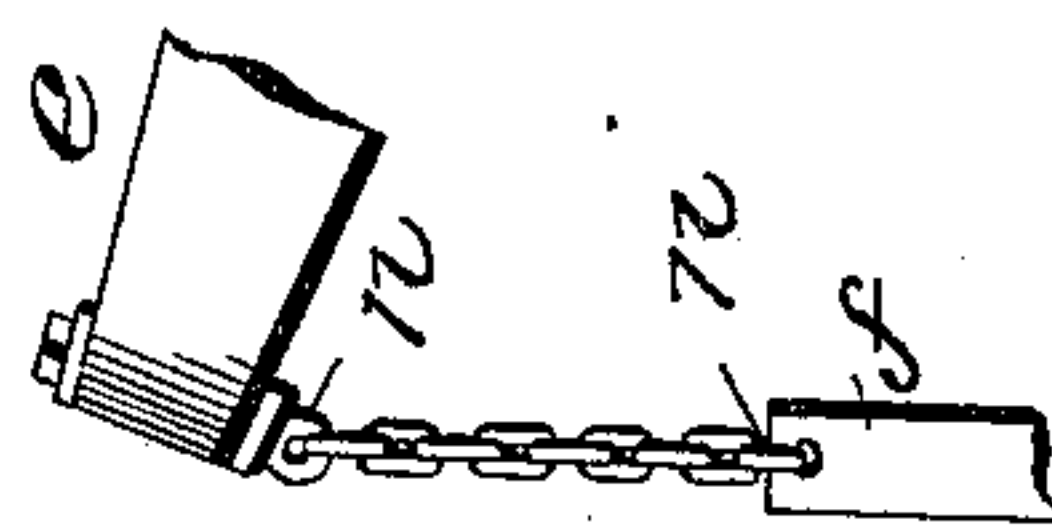
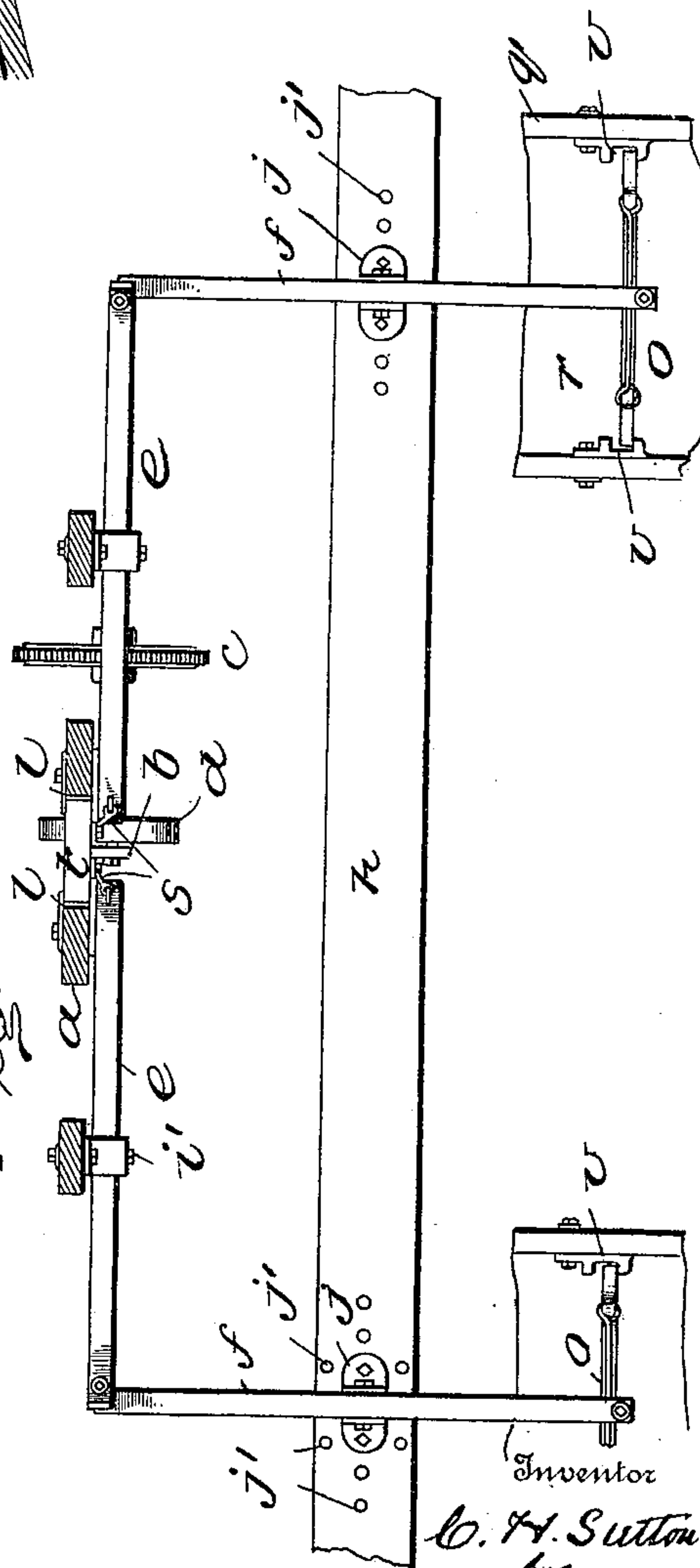


Fig. 2.



Witnesses

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MACHINE FOR REGULATING FLOW IN CHUTES, &c.

SPECIFICATION forming part of Letters Patent No. 624,126, dated May 2, 1899.

Application filed January 21, 1899. Serial No. 702,980. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. SUTTON, a resident of Lee, in the county of Luzerne and State of Pennsylvania, have invented certain new and useful Improvements in Machines for Regulating Flow in Chutes and the Like; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

The invention relates to machines and apparatus in which material is charged, fed, or conveyed lengthwise of a chute, floor, or the like, and has for its object to regulate the feeding of such material.

The invention consists in the construction herein described and pointed out.

In the accompanying drawings, Figure 1 is a front elevation of the improvement adapted for feeding coal through a chute, the supporting-frame being partly broken away and two chutes shown in section. Fig. 2 is a plan of the same, partly in section; and Fig. 3 is a side elevation, partly in section; and Fig. 4 is a partial elevation of a modified detail.

The reference-letters *a* and *g* denote frame posts or uprights, and a transverse beam is denoted by *h*. Chutes for feeding coal to the screens or the like (not shown) are denoted by *q*, and *r r* indicate the inclined bottoms of said chutes.

In practice it is important to regulate the charging of the coal in screening it to avoid overcharging the screens, thereby obstructing their work, breaking the driving-belts, and producing other injuries. By the present improvement these evils are avoided and the passage of the material through the chutes made uniform. To effect this, I provide gates *o*, having on the lower edge teeth *p*.

v v denote ways arranged, preferably, in a vertical plane, in which the ends of the gates play. Said gates may be operated by any mechanism adapted to suitably reciprocate them, as by lifting them and then permitting them to fall or otherwise.

c indicates a wheel to be suitably driven from any conveniently-situated driving-shaft. Either sprocket-wheels and a chain or pulleys and a belt may be employed to drive a short shaft *m*, having a crank *d*, and suitably supported in the frame, as shown.

b denotes a connecting-rod whereby the rotation of the crank-shaft *m* reciprocates a block sliding in ways *l*, fixed to posts *a*. This block is loosely connected to the proximate ends of two levers *e* in any convenient manner, as by links *s*.

The levers *e* have fulcrums *i'*, which pass through the boxing *i* into the posts *g*.

From the outer end of each lever *e* is loosely suspended one end of a lever *f* by means of eyebolts *n* or the like. The levers *f* have fulcrums *f'* in the adjustable brackets *j*, bolted or otherwise removably secured to the frame member *h*.

From the outer end of each lever *f* a gate *o* is suspended by means of a chain having a turnbuckle *k*, whereby to adjust the length of the chain.

The rotation of the crank-shaft *m* reciprocates the block *t* and oscillates the levers *e* and *f*, with the effect to alternately lift the gates and permit them to drop. The gate-teeth are thereby caused to penetrate the moving body of coal and temporarily check its descent or the descent of a part of it, with the effect to render the flow uniform. These teeth are not essential in all cases—as, for example, if the material be very fine or soft.

The distance of the fall of the gates can be regulated by the turnbuckles, and obviously the rapidity of their movements could be varied by usual changes of the driving mechanism.

Since the levers *f* are loosely suspended from levers *e*, they can be operated in any desired plane, said levers *e* remaining operative in one plane. To provide for operating levers *f* in different planes to fit them and the gates to cooperate with chutes having various situations, the brackets *j*, which support the fulcrum of lever *f* and are hereinafter termed the "fulcrum-support," are made adjustable, holes *j'* being indicated for the purpose. These brackets can be turned without moving them lengthwise of their supporting-beam, and, if desired, they may be moved lengthwise the supports, the connection between levers *e* and *f* being made of suitable length for the purpose, as by a chain connecting the eyebolts *n*, as indicated in Fig. 4.

The above-described mechanism properly actuated, as set forth, is adapted to automat-

ically regulate the flow of any material that can be conveyed in chutes or the like and will be found useful in cases where the charging of the material is irregular or where the constitution of the material varies in manner to vary the rapidity of its movement.

Having thus described my invention, what I claim is—

1. In combination, a chute, a reciprocating regulating device, an oscillating lever connected to driving mechanism, and a lever suspended from the outer end of the first lever and connected to the regulating device.

2. In combination, a chute, a reciprocating regulating device, an oscillating lever connected to driving mechanism, and a lever suspended from the outer end of the first lever and connected to the regulating device, said suspended lever having an adjustable fulcrum-support.

3. In combination, driving mechanism, a

sliding block, levers *e* loosely connected to the block, a plurality of chutes, regulating devices for checking the flow of material in said chutes, and levers *f* freely suspended from said levers *e* and flexibly connected to the regulating devices.

4. In combination, driving mechanism, an intermediate movable part actuated by said mechanism, a plurality of chutes each having a regulating device and connections between said intermediate part and each regulating device whereby the flow of material in a plurality of chutes may be regulated by the movement of said intermediate part.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

CHARLES H. SUTTON.

Witnesses:

S. W. WILLIAMS,
H. F. HANKS.