

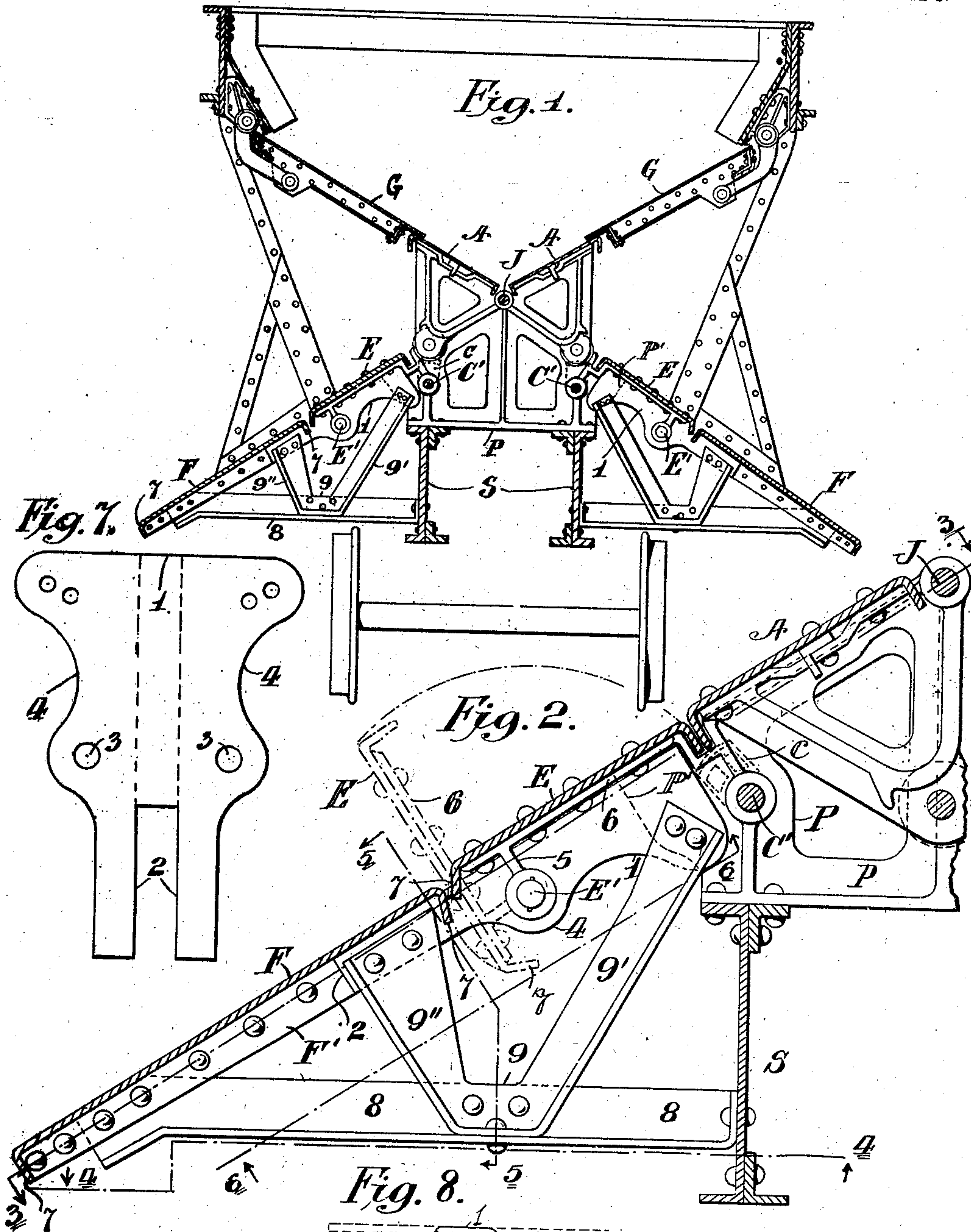
No. 815,285.

PATENTED MAR. 13, 1906.

M. GOODWIN.
GRAVITY CHUTE.

APPLICATION FILED MAY 25, 1905. RENEWED FEB. 5, 1906.

3 SHEETS—SHEET 1.



Attest:
Edgeworth
H. H. Hines

Inventor:
John M. Goodwin
by *McKee & Jones* Attys.

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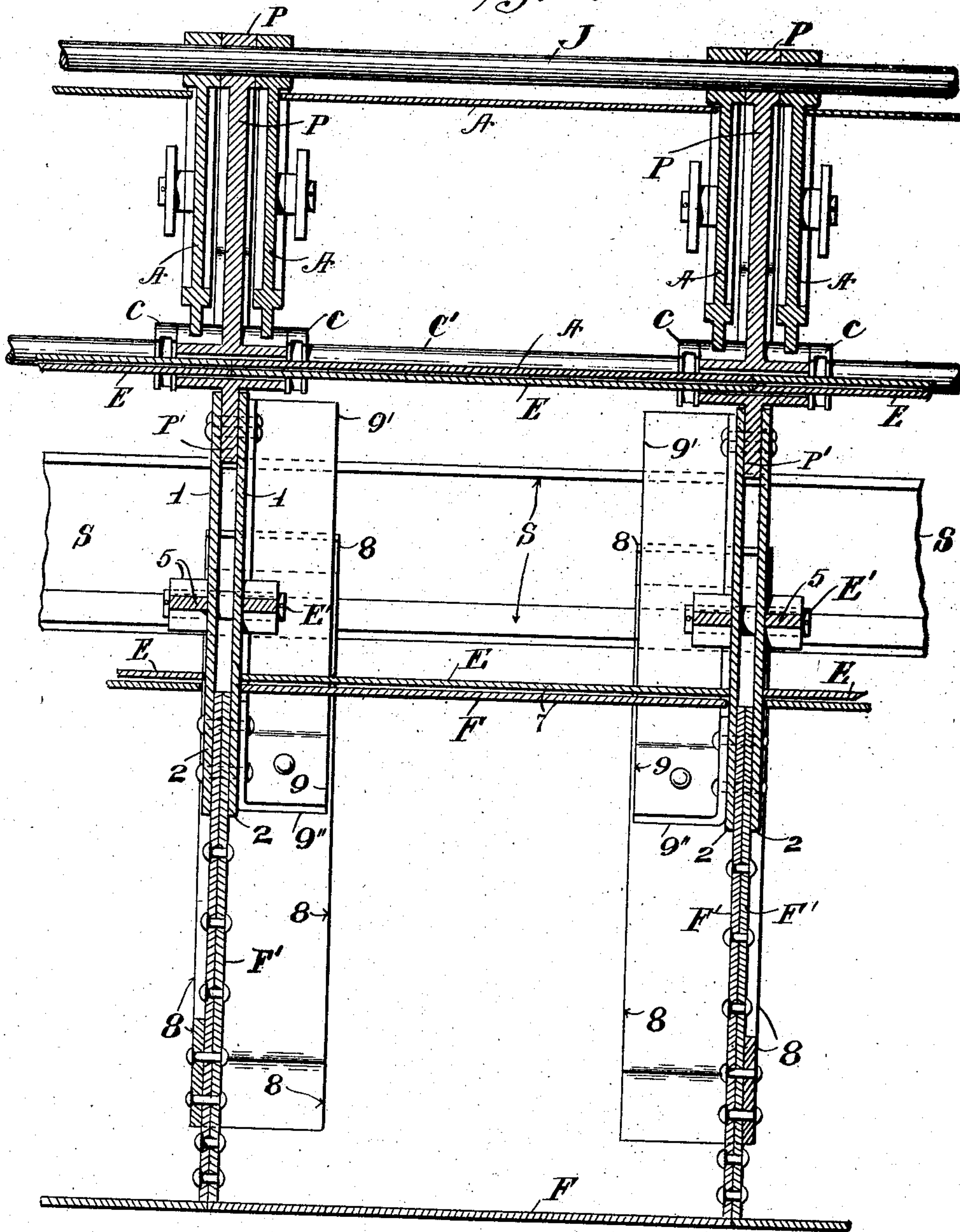
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3 SHEETS—SHEET 2.

Fig. 3.



Attest:
Edgeworth
H. H. H. H.

Inventor:
John M. Goodwin
by *H. H. H. H.* Attys.

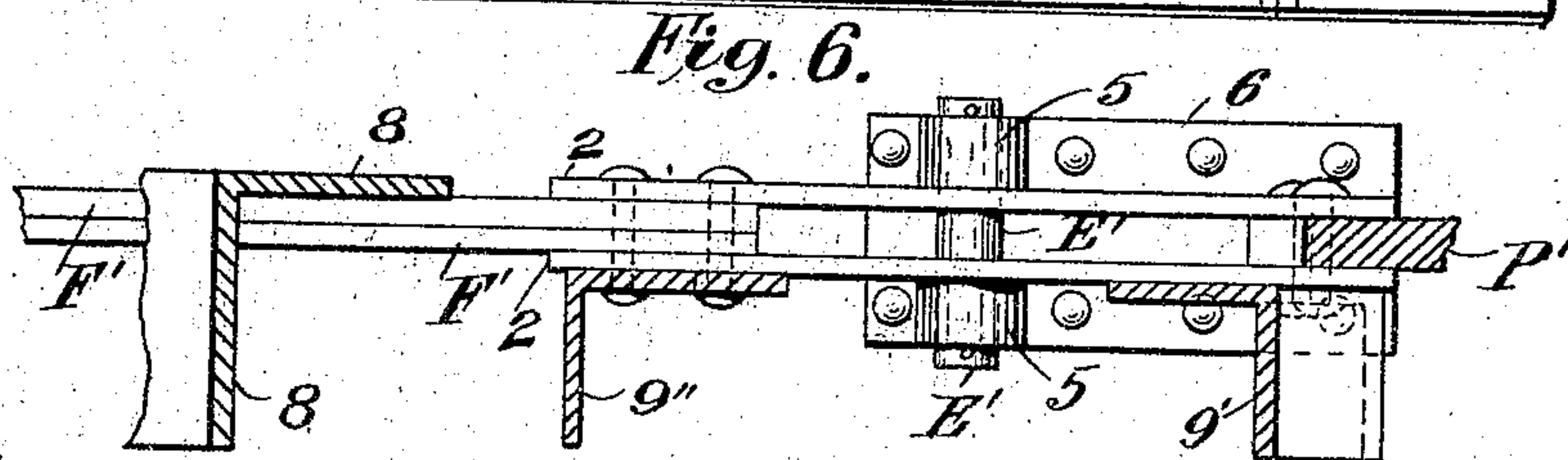
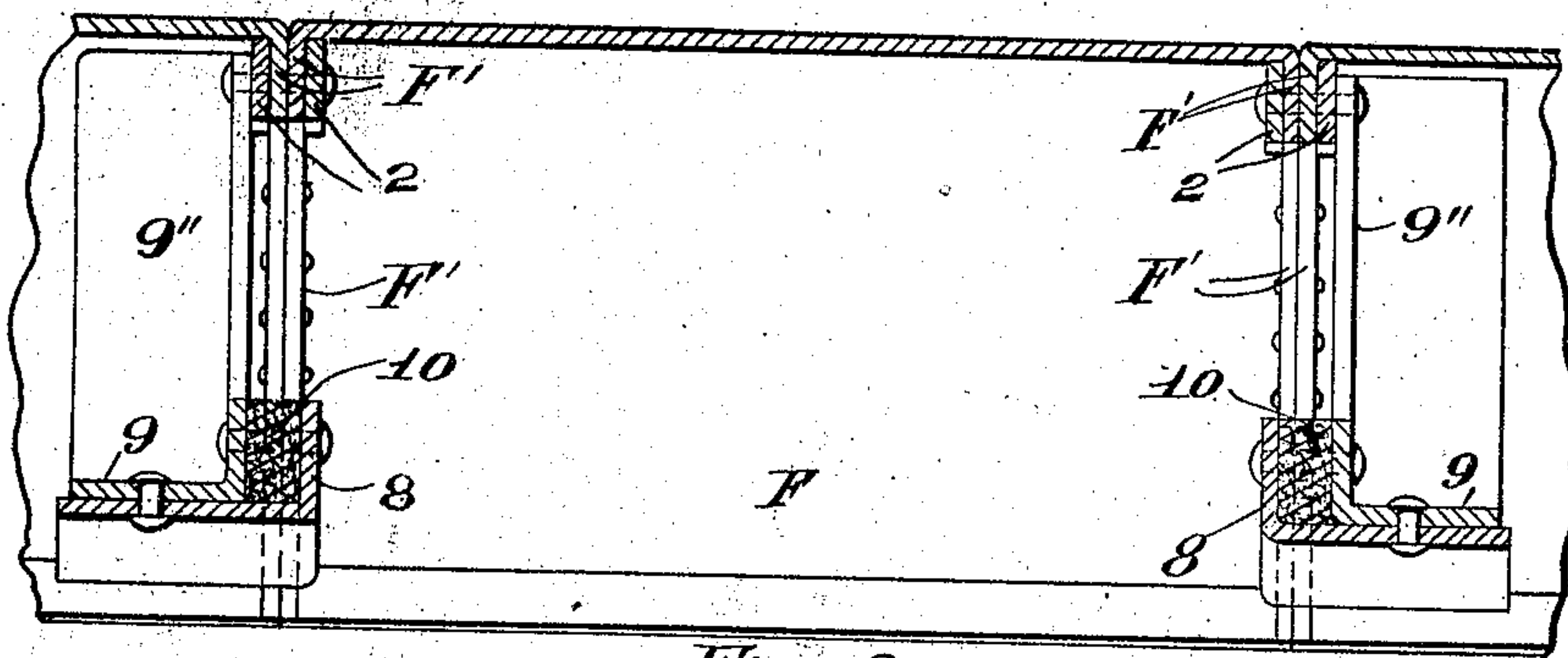
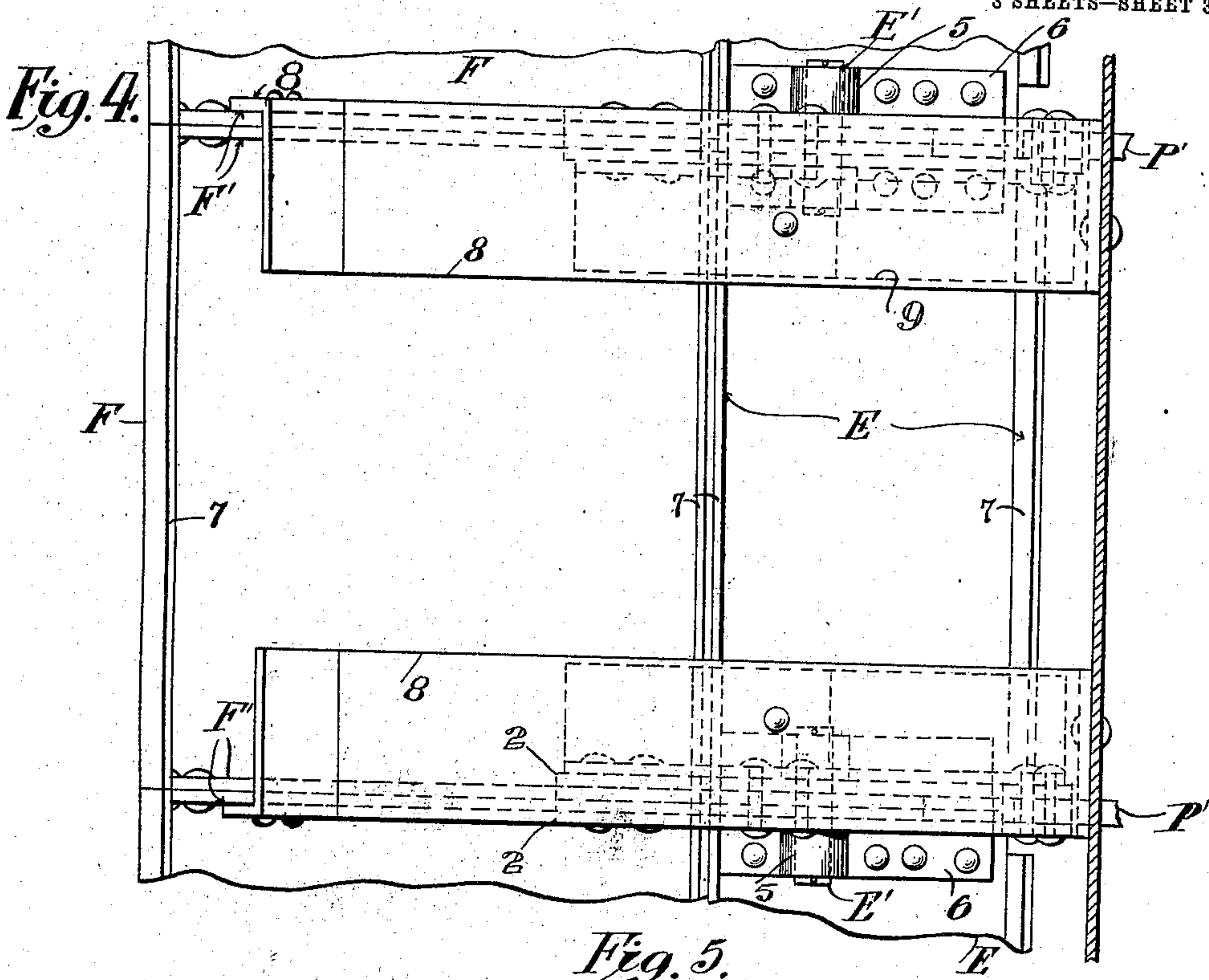
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3 SHEETS—SHEET 3.



Attest:
Edgeworth & Co.
W. H. Kinner

Inventor:
John M. Goodwin
by *Edgeworth & Co.* Attys.

UNITED STATES PATENT OFFICE.

JOHN M. GOODWIN, OF MOUNT VERNON, NEW YORK.

GRAVITY-CHUTE.

No. 815,285.

Specification of Letters Patent.

Patented March 13, 1906.

Application filed May 25, 1905. Renewed February 5, 1906. Serial No. 299,512.

To all whom it may concern:

Be it known that I, JOHN M. GOODWIN, a citizen of the United States, and a resident of the city of Mount Vernon, in the county of Westchester and State of New York, have invented certain new and useful Improvements in Gravity-Chutes, of which the following is a full, clear, and concise specification.

My invention relates to the construction and support of gravity discharging-chutes of dumping-vehicles; and it consists in certain relative arrangements, combinations, and subcombinations of the several parts, which will be hereinafter described, whereby said chutes may be economically manufactured with great supporting strength and shock-resisting powers, together with the least possible weight and complication, thereby adapting the same to be used upon railway-cars or marine vessels of large carrying capacity.

Referring to the accompanying drawings, forming part of this application, and in which like reference characters designate similar parts, Figure 1 is a cross-sectional elevation of a dumping-car, such as is now generally known as the "Goodwin" dumping-car, provided with discharging-chutes constructed according to the present invention. Fig. 2 is a similar view in detail, showing one chute enlarged. Fig. 3 is a sectional view of Fig. 2 on the line 3 3 looking in the direction of the arrows. Fig. 4 is a sectional view of Fig. 2 on the line 4 4 looking in the direction of the arrows. Fig. 5 is a similar sectional view of Fig. 2 on line 5 5 thereof looking in the direction of the arrows. Fig. 6 is a similar sectional view on line 6 6 of Fig. 2 looking in the direction of the arrows. Fig. 7 is an enlarged detail view of the blank from which the tension or connecting member 1 is formed, and Fig. 8 is an end view of the same blank after the same has been folded.

The vehicle shown herein comprises the usual receptacle portion with hinged bottom valves G G, which have their inboard ends supported by the two center valves A, and the latter are pivoted on the longitudinal shaft J so that they may swing downwardly to release the bottom valves and allow the contents of the receptacle to escape. The center valves, which thus act as detents to the bottom valves, are supported in their elevated or closed position—the position shown in Fig. 1—by means of two rotary detents C C, respectively carried on rock-shafts C', controlled from the ends of the vehicle. When

either of said shafts is rocked outwardly so as to remove the detent C from under the valve A, the latter falls to the position shown in Fig. 2, wherein its upper surface substantially coincides with the plane of the discharging-chute E F and coöperates with the latter to provide a practically continuous surface for the contents of the vehicle to slide upon. The discharging-chute E F is adapted to conduct the said contents to one side of the vehicle, but may be manipulated to dump the same directly beneath the vehicle. The weight of the vehicle is carried upon or by two or more I-beams, which form the longitudinal center sill S and extend, as shown, the length of the car, being supported at their ends upon bolsters and trucks, (not shown,) and the discharge-chute E F, which is the subject of this invention, is mounted on supporting-frames also carried by the said center sill.

The reference character F designates that portion of the discharge-chute which is fixed, and E represents the movable section, which is pivoted on the pins E so as to be capable of adjustment into the position shown in dotted lines to change the direction of discharge just referred to. Each frame upon or by which both of these sections are carried is built up and supported as follows: Saddle-pieces P are mounted at intervals along the I-beams of the center sill S and are preferably securely fastened to them, these saddle-pieces being formed as castings or forgings and being the parts which provide the journal-seats for the longitudinal center valve-shaft J as well as for the two rock-shafts C' C'. They also serve to reinforce and tie together the members of the center sill when the same is composed of more than one I-beam. The saddle-pieces P are provided with ears or lateral extensions P' P' on each side thereof to provide a means of attachment for the tension or connecting members 1, which join the fixed section of the chute to the saddle-piece. These members 1 are preferably, though not necessarily, formed from a blank of sheet metal and perforated about as shown in Fig. 7 and then forged or bent into the shape shown in Fig. 8. In this condition they are straddled over the ears P' and secured thereto by rivets or bolts, while their parallel extensions 2 at the other end embrace two joined contiguous flanges F' of the fixed chute-section F, being secured to the opposite sides thereof. The apertures 3 of the

folded sides 4 of the said members are adapted to support the longitudinal hinge-pins E', above referred to, which carry the hinge-eyes 5, the latter being formed with long bases 6, which are secured to and serve as reinforcing-cleats for the ends of the several plates which comprise the pivoted chute-section E. The fixed or other section F of the discharge-chute is built up of a number of flanged plates united by their flanges F' or otherwise to form a unitary structure, it being understood, of course, that the chute-sections E and F are both symmetrically located on opposite sides of the center sill, as shown in Fig. 1, and extend substantially the full length of the vehicle. The several plates which form the said sections are preferably formed with the longitudinal flanges or lips 7, as shown in the drawings. The outer or free end of each fixed chute-section is supported and braced from the center sill by means of transverse struts 8, which are formed of ordinary angle-bars suitably bent at their opposite ends for attachment respectively to the contiguous flanges F' of two adjacent plates of chute-section F and to the web or other convenient part of the center sill. The strut as thus connected is reinforced and stayed in position by means of a bracing member 9, which consists of an angle-bar or angle-iron bent into V shape, as shown, with the apex of the V secured to the center portion of the strut. One leg 9' thereof extends to the joint between connecting-piece 1 and the saddle-piece P and is preferably secured to the same by the same rivets which form the said joint, and the said leg 9' serves as a hanger-stay for the strut 8, restraining it from lateral deviation. The other and shorter leg 9'' is connected to the joint between piece 1 and the fixed chute-sections F and serves as a brace reinforcing the said joint and cooperating with the other leg to resolve the pressure on the joint into longitudinal compressive strain in the strut. Fillers (not shown) may be placed between the members of the center sill, if desired, to brace them against the opposite inward pressures to which they may be subjected by the struts. The joint between the apex of the bracing member is most conveniently formed by riveting together the respective parallel flanges thereof, a filler 10 being interposed between the two vertical flanges to compensate for the thicknesses of the flanges F and the extensions 2 of connecting member 1, with which the strut is connected, as clearly indicated in Fig. 5.

It will be understood that any desired number of supporting-frames and saddle-pieces as above described may be located along the length of the center sill and of course that the flanged joints of the chute-section F are disposed in the same vertical planes, respectively, as the saddle-pieces, so that the several members of the frame may

be properly hung from them in the manner above indicated; but the proportions of the several parts is a matter which is entirely within the realm of the builder and may be modified and adapted in various ways to suit requirements. Moreover, the specific manner of forming the several frame members and of joining the same together may also be modified and substituted by other well-known expedients.

Having described my invention, what I claim, and desire to secure by United States Letters Patent, is—

1. In a dumping-vehicle, the combination with the longitudinal center sill thereof and a saddle-piece mounted thereon, of structural supporting-frames hung respectively on opposite sides of said saddle-piece and braced against the opposite sides of said center sill, and inclined discharging-chutes supported upon said framework.

2. In a dumping-vehicle, the combination with the longitudinal center sill thereof and a saddle-piece mounted thereon, of structural supporting-frames hung respectively on opposite sides of said saddle-piece and braced against the opposite sides of said center sill, and inclined discharging-chutes supported on said frames having respectively inner sections pivoted to said frame and outer sections fixed thereto.

3. In a dumping-vehicle, the combination with the longitudinal center sill thereof, of a saddle-piece mounted thereon, inclined sheet-metal chutes located on opposite sides of the sill and connected at their upper convergent ends with the said saddle-piece and transverse struts secured respectively to said center sill and the free ends of said chutes.

4. In a dumping-vehicle, the combination with the longitudinal center sill thereof and a saddle-piece mounted thereon, of inclined chutes located respectively on opposite sides of the sill and connected with said saddle-piece, transverse struts bracing said chutes from the sill and stays depending from the saddle to reinforce said transverse struts.

5. In a dumping-vehicle, a longitudinal center sill, a saddle-piece mounted thereon, inclined chutes located respectively on opposite sides of the sill, and transverse struts bracing said chutes from the sill, in combination with a V-shape bracing member respectively having one leg serving as a stay for its adjacent strut and the other extending between said strut and an adjacent portion of the chute.

6. In a dumping-vehicle, a longitudinal center sill, a saddle-piece mounted thereon, inclined chutes located respectively on opposite sides of the sill and transverse struts bracing said chutes from the sill, in combination with bracing members between the struts and said supports formed of angle-bars bent into a V shape and connected at their

apices with said struts, with one leg serving as a stay for its adjacent strut and the other as a supporting-brace for the chute-support.

5 7. In a dumping-vehicle, a longitudinal center sill and a saddle-piece mounted thereon, in combination with inclined discharging-chutes located respectively on opposite sides of the sill, connecting members joining the upper ends of said chutes with the saddle-
10 piece and transverse struts bracing said chutes from the said center sill.

8. In a dumping-vehicle, a longitudinal center sill, a saddle-piece supported thereon, inclined discharging-chutes located respec-
15 tively on opposite sides of the sill and transverse struts bracing said chutes from said sill, in combination with tension members connecting the upper convergent ends of said chutes to the saddle-piece and pivoted chute-
20 sections, adapted to serve as valves, carried by said members.

9. In a dumping-vehicle, an outer discharging-chute composed of a plurality of flanged plates, united to form a unitary struc-
25 ture, in combination with means for supporting the same from the center sill of the vehicle comprising tension members and trans-

verse struts respectively secured to the flanges of said plates.

10. In a dumping-vehicle a longitudinal 30 center sill, a saddle-piece thereon and an inclined discharging-chute composed of a plurality of flanged plates united to form a unitary structure, in combination with a sheet metal connecting member secured to said 35 saddle-piece and to both sides of the upper ends of the contiguous flanges of said plates, and means for supporting the outer end of said chute.

11. In a dumping-vehicle, a longitudinal 40 center sill, a saddle-piece thereon and an outer inclined discharging-chute composed of a plurality of flanged plates, in combination with a folded sheet-metal tension member se-
45 cured to the flanges of said plates and movable chute-sections mounted on said members and pivoted to the depending flanges thereof.

In testimony whereof I have signed my name to the specification in the presence of two subscribing witnesses.

JOHN M. GOODWIN.

Witnesses:

PHILIP H. LANTZ
J. T. GILMAN.