

No. 765,068.

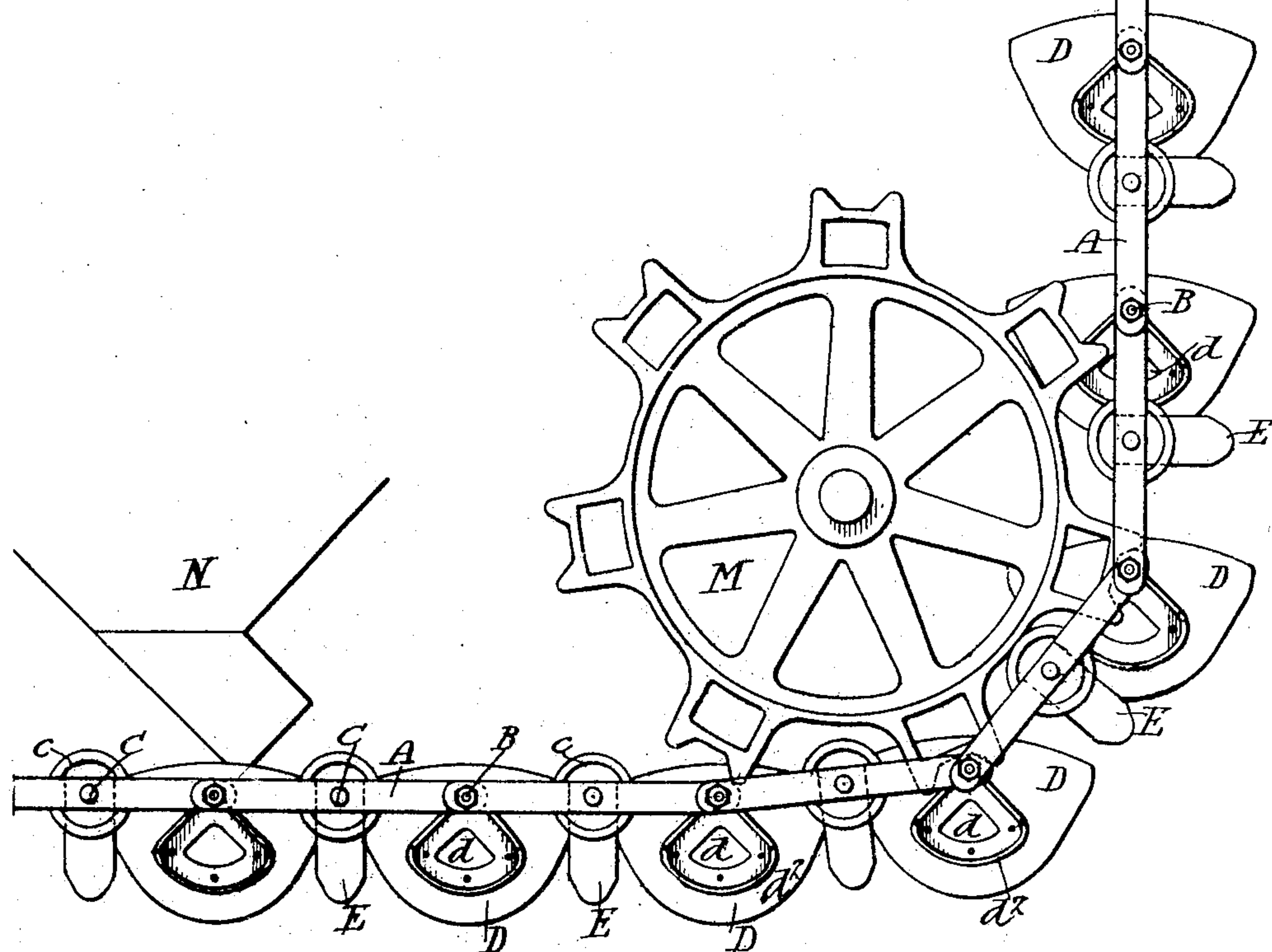
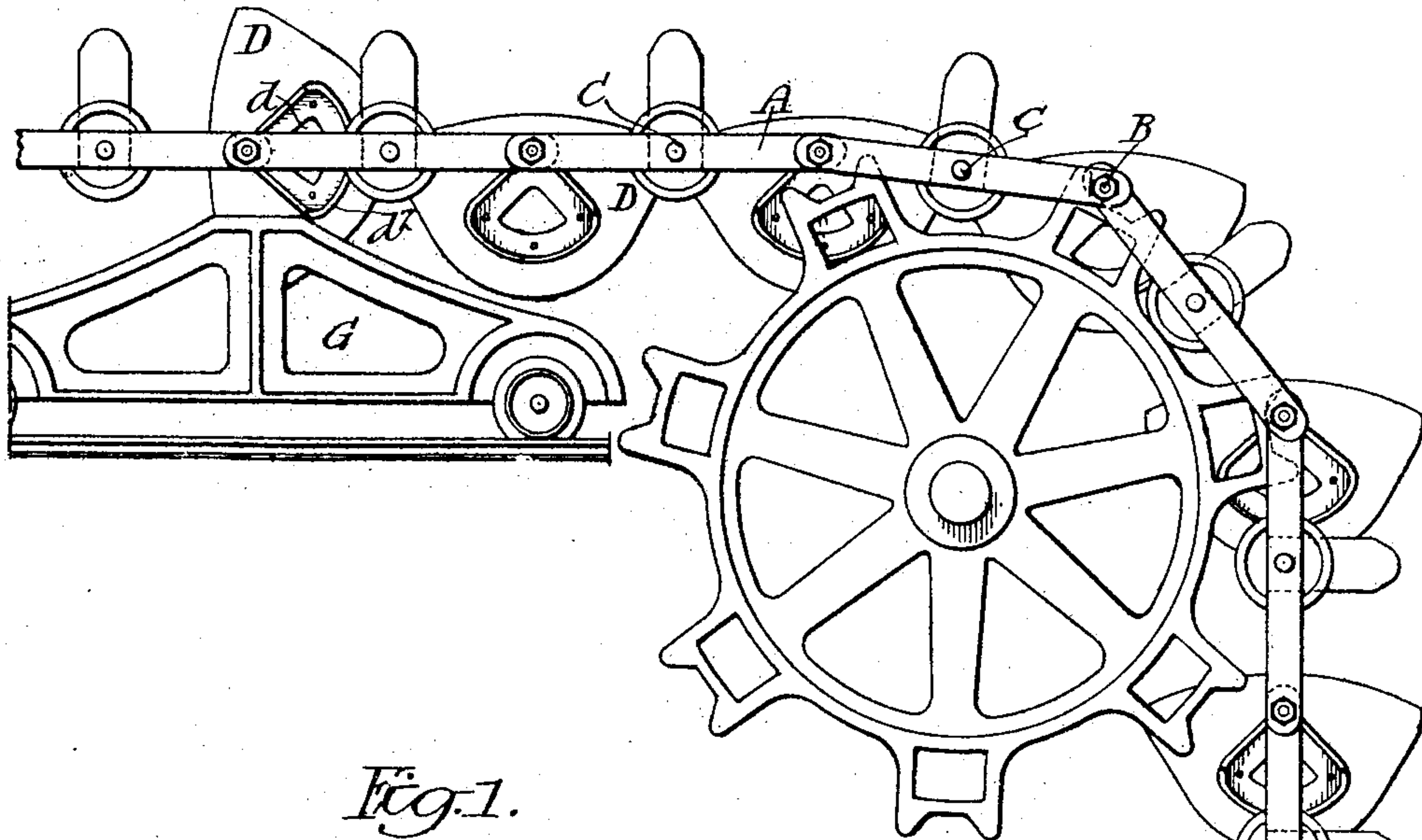
PATENTED JULY 12, 1904.

J. M. DODGE.
PIVOTED BUCKET CONVEYER.

APPLICATION FILED MAR. 16, 1904.

NO MODEL.

4 SHEETS—SHEET 1.



Witnesses:
T. H. Irons.
Frank L. Graham.

Inventor
James M. Dodge.
by his Attorneys,
Howen & Howen

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4 SHEETS—SHEET 2.

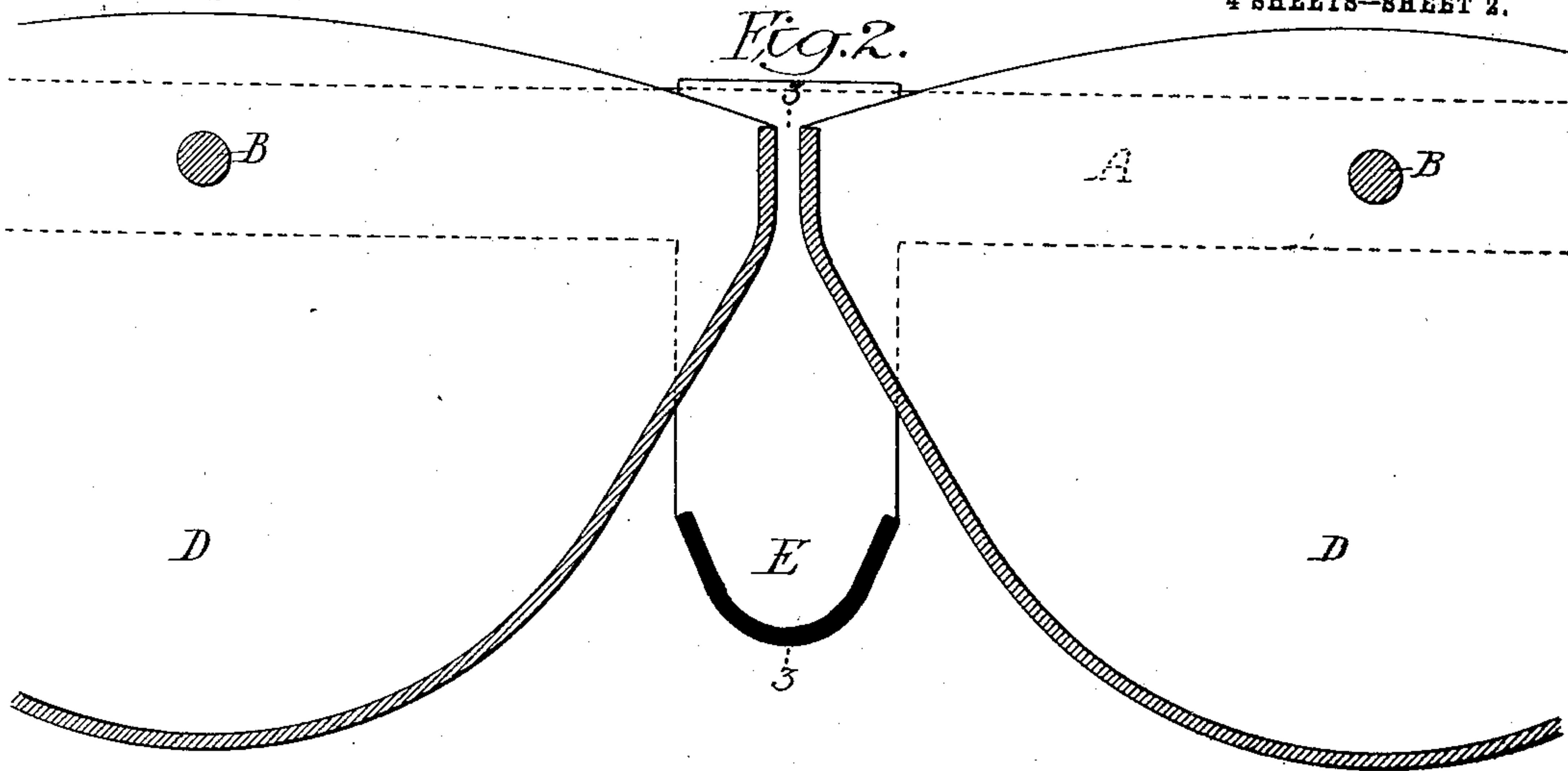
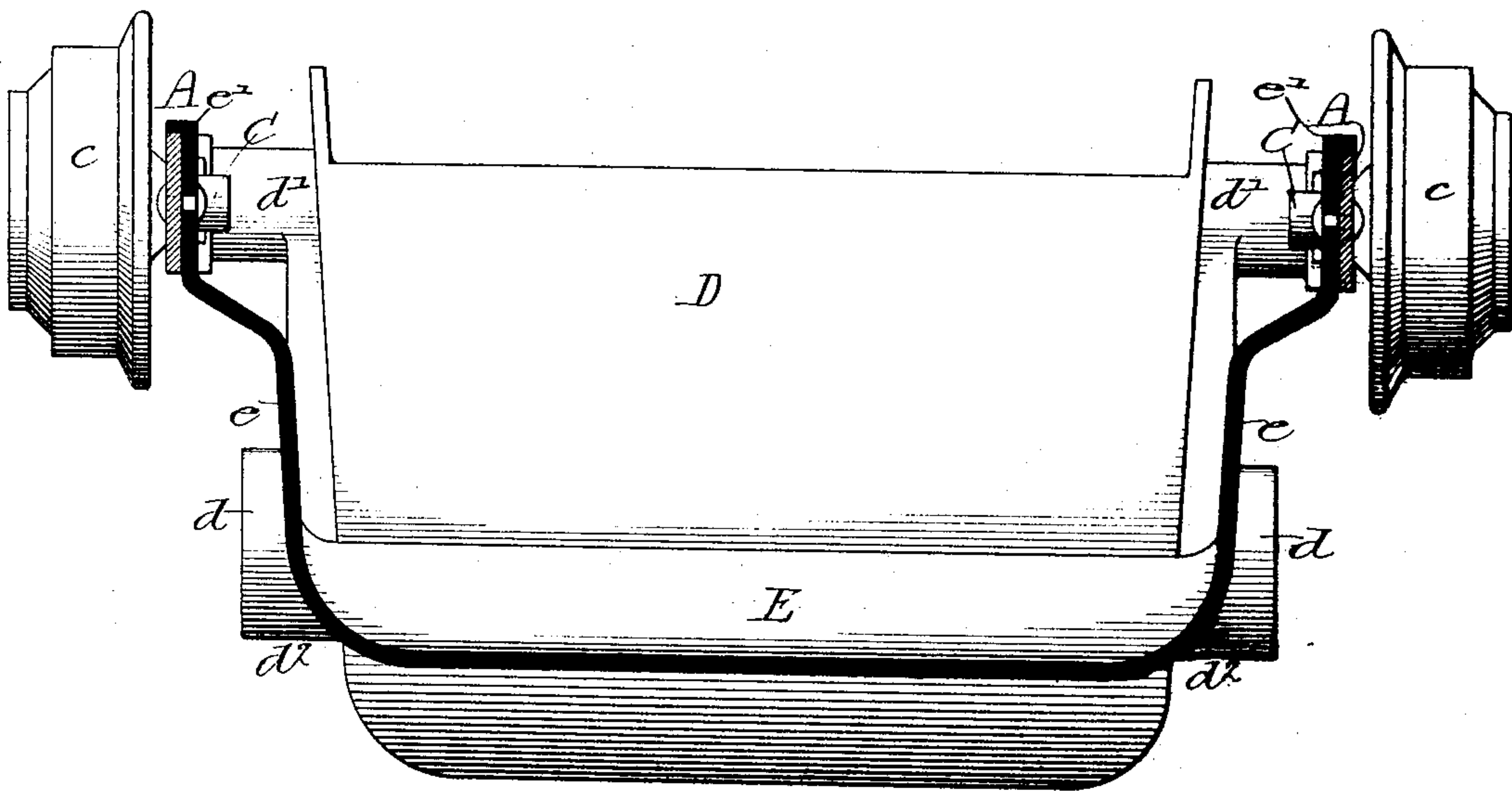


Fig. 3.



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4 SHEETS—SHEET 3.

Fig. 7.

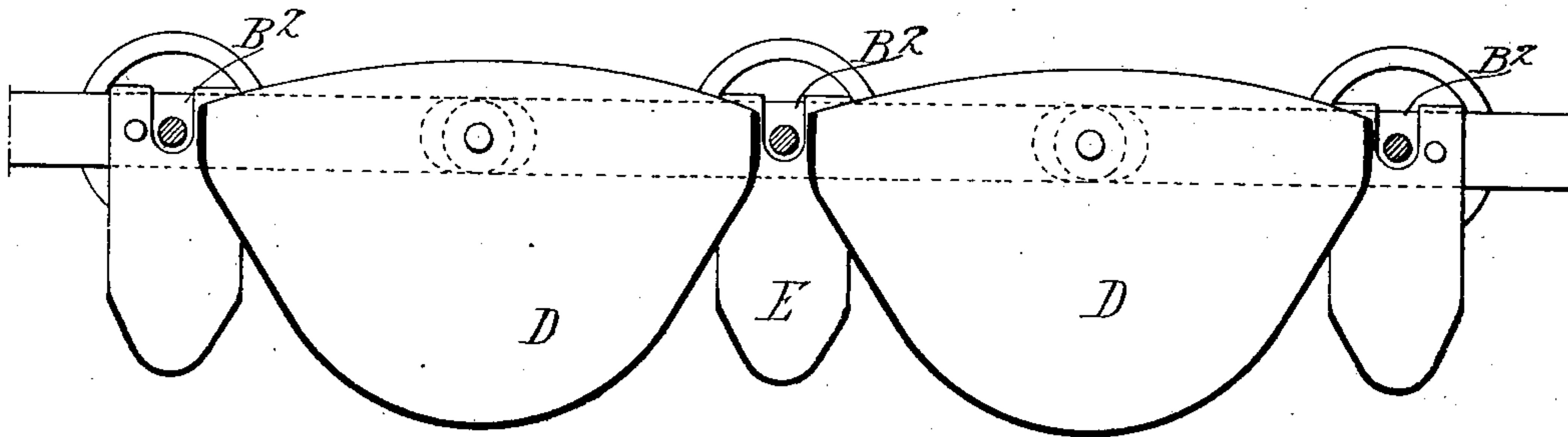
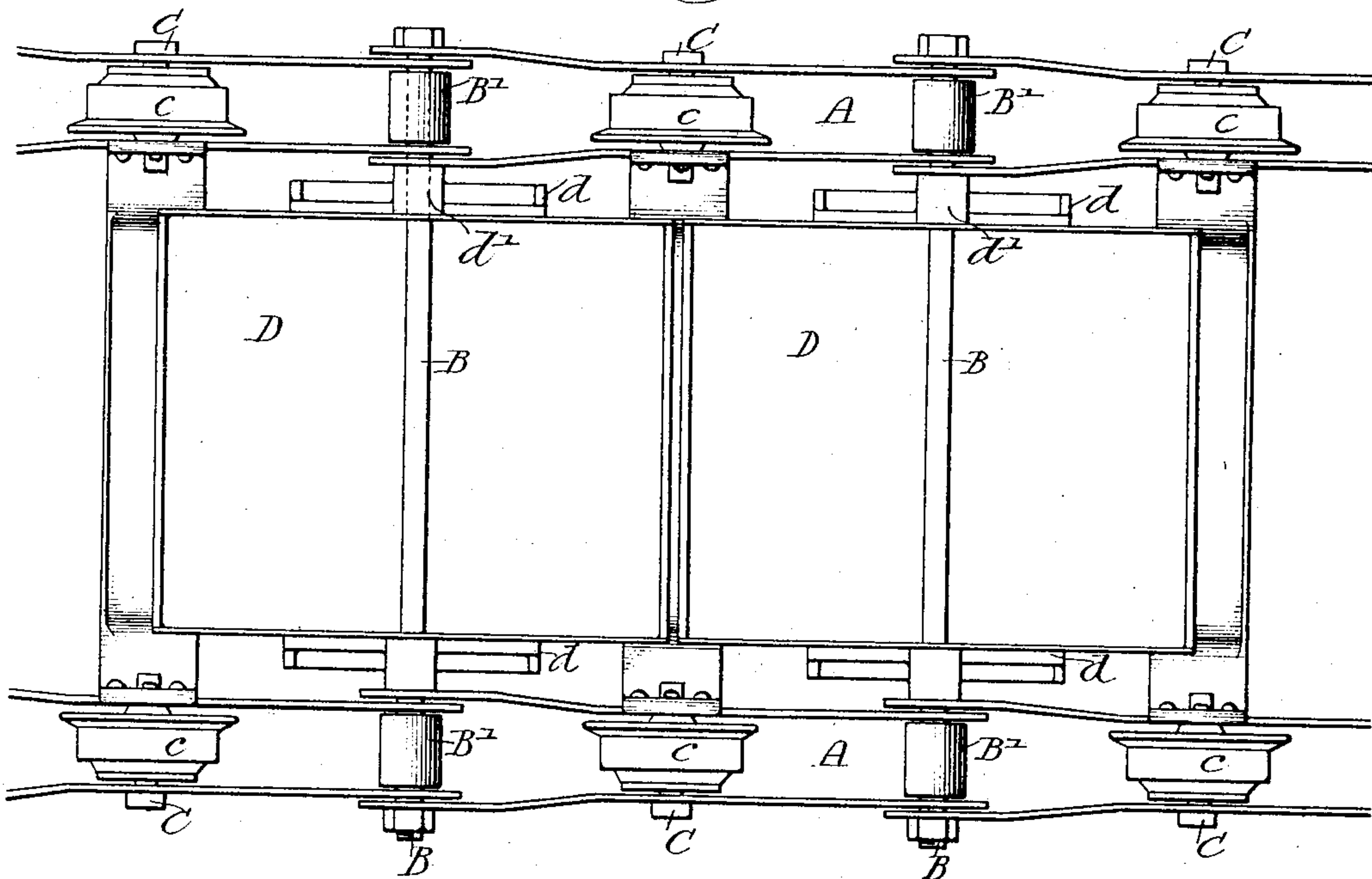


Fig. 8.



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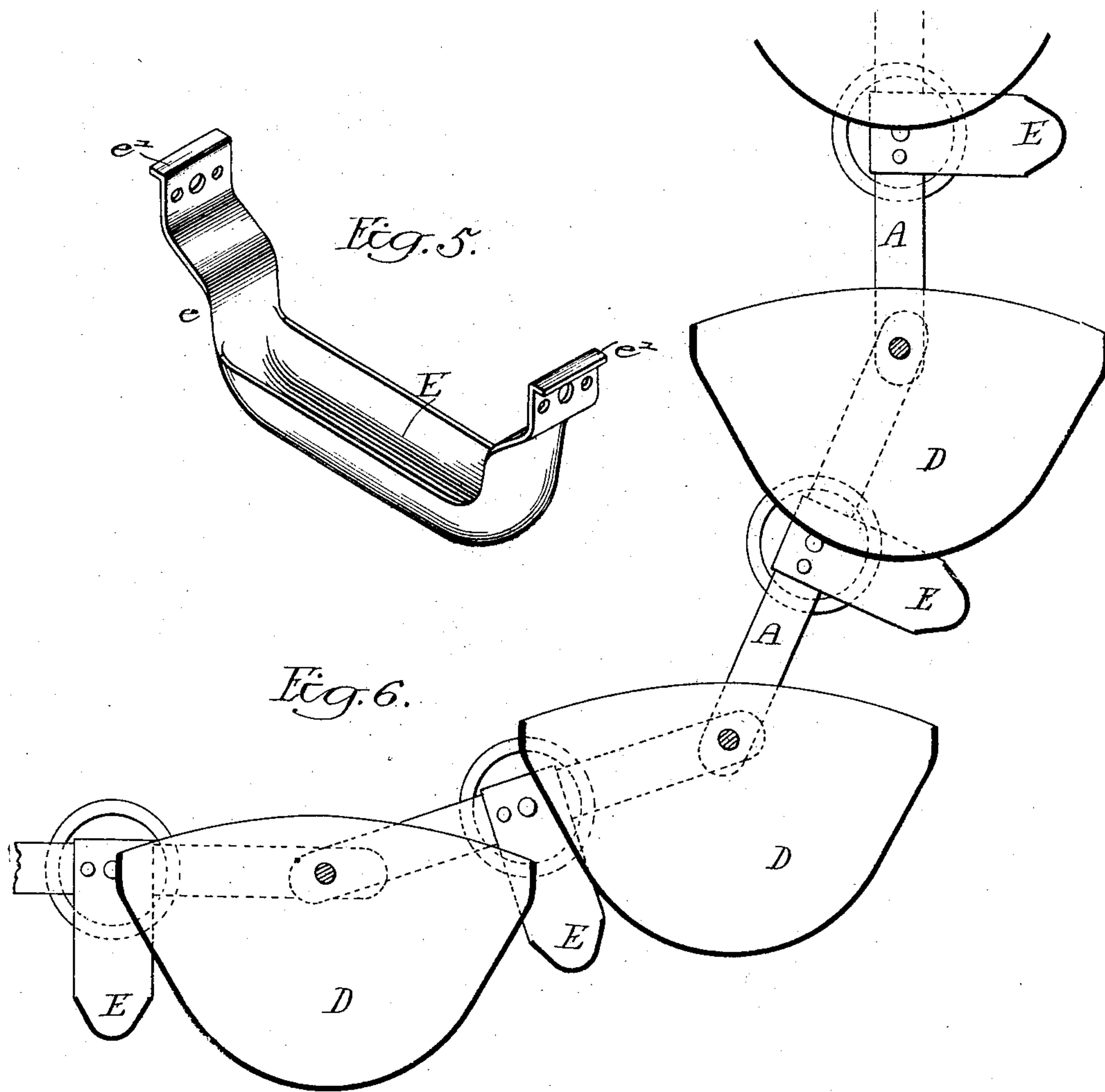
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APPLICATION FILED MAR. 16, 1904.

NO MODEL.

4 SHEETS—SHEET 4.



Witnesses:
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UNITED STATES PATENT OFFICE.

JAMES M. DODGE, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO
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PIVOTED-BUCKET CONVEYER.

SPECIFICATION forming part of Letters Patent No. 765,068, dated July 12, 1904.

Application filed March 16, 1904. Serial No. 198,430. (No model.)

To all whom it may concern:

Be it known that I, JAMES M. DODGE, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Pivoted-Bucket Conveyers, of which the following is a specification.

My invention relates to certain improvements in pivoted-bucket conveyers in which material is preferably fed to the buckets in a continuous stream from a hopper or chute.

The main object of my invention is to collect the material which passes through the space between the buckets or spills from the buckets when they are separated; and a further object of the invention is to return the material thus collected to the buckets of the conveyer. These objects I attain in the following manner, reference being had to the accompanying drawings, in which—

Figure 1 is a view of sufficient of a pivoted-bucket conveyer to illustrate my invention. Fig. 2 is a sectional view, drawn to an enlarged scale, through two of the buckets. Fig. 3 is a transverse section on the line 3 3, Fig. 2. Fig. 4 is a reduced plan view of Fig. 2. Fig. 5 is a detached perspective view of the receptacle. Fig. 6 is a diagram view showing a conveyer passing around a curve and a receptacle discharging into a bucket, and Fig. 7 is a sectional view illustrating a modification of my invention.

Pivoted-bucket conveyers used in connection with continuous feeding mechanism are open to the objection that material will pass through the clearance-space between the buckets and also spill from the buckets when they are separated to pass around a curve or sprocket-wheel. Means have been provided to close the space between the buckets; but these means are open to many objections, and they do not prevent the spill when the buckets are separated at the end of a horizontal run. I provide auxiliary receptacles which are so situated that they will catch any material passing through the space between the buckets or spilling from the buckets when separated and return the material thus collected to the buckets.

I have illustrated my invention in connection with an endless-chain conveyer arranged to travel on upper and lower horizontal runs and to receive material while on the lower horizontal run from a continuous feeding device and to discharge material while on the upper horizontal run. The buckets are pivoted and are termed "gravity-buckets," which are discharged by turning them on their pivots.

Referring to Figs. 1 to 4, inclusive, A A are two side chains of a conveyer connected together by cross-shafts B, upon which the buckets D are hung. The buckets are made in the manner illustrated clearly in Figs. 2 and 3 and are so hung that one bucket can swing entirely clear of the other, the space between the buckets being preferably increased to such an extent that there will be no liability of one bucket interfering with the other in the event of the edge of one being slightly bent. The edges of the buckets at each end are preferably vertical, so as to present as little surface as possible for the lodgment of particles of material. Secured to each side of each bucket in the present instance is a plate d , which carries the bearing d' and has a flange d'' , which can be brought in line with the discharge-carriage G (illustrated in Fig. 1) when it is desired to tip the bucket to discharge its contents. Carried by the links midway between the shafts B B are pins C, on which are mounted the flanged wheels c , which travel on suitable rails and support the conveyer while on the horizontal runs. Rollers B' are carried by the cross-shafts B and are so proportioned as to be engaged by the sprocket-wheels M, as clearly shown in Fig. 1. N is the feeding-hopper, so situated in the present instance as to feed the buckets continuously as they travel on the lower horizontal run. G is the discharge-carriage, which can be shifted to any point on the upper horizontal run and with which the flanges d'' of the buckets D come in contact. Attached to the links of the chain midway between the pivots of the buckets are auxiliary receptacles E, preferably trough-shaped, having inclined sides and rounded bottoms, so

that they will readily discharge when tilted at a given angle. These receptacles E are situated directly in line with the open spaces between the buckets, and as they are rigidly attached to the links of the chain of the conveyer they depend from the chain on the lower horizontal run and are under the adjoining ends of the buckets, so as to receive any material passing through the space between the buckets, and are so proportioned that they occupy the space between the bodies of the buckets. The receptacles also catch any material escaping from the buckets as they are separated at the point where they leave the horizontal run on which they are filled, as shown in Fig. 6, as material in many cases collects on the edge of the buckets and is not released until the buckets are separated. The receptacles E are rigidly attached to the links of the chain, so that when the conveyer passes around a sprocket-wheel M or around a curved rail each receptacle will be turned bodily to such a point as to discharge its contents, and as the buckets D swing on their pivots they each assume a position under a receptacle E to receive the contents of said receptacle, as shown in Fig. 6, so that it will be seen that the auxiliary receptacles travel with the buckets, receive, carry, and deliver to the buckets material escaping between or from the latter. When the conveyer is traveling on the upper run, the receptacles are above the buckets, so that the discharge mechanism can tilt the buckets to discharge the material; but as the movement of the conveyer continues the buckets assume a position on the lower run, and the receptacles are then in position to collect the material escaping between the buckets as they are being filled. In fact, each receptacle makes a complete revolution around a bucket as it travels from the loading-point to the discharge-point and back to the loading-point. The receptacles may be made in many different shapes and attached to the conveyer-chains in any manner. In Figs. 3 and 5 I have shown a preferred form. The body of the receptacle E is trough-shaped and has two arms *ee*, having lips *e'*, which extend over the links of the chain A and are perforated for the securing bolts or rivets and perforated or slotted for the passage of the pins C.

In Fig. 7 I have illustrated a slight modification of the invention, in which the buckets are pivoted to studs or pins projecting from each chain. The cross-shafts B² extend from one chain to the other through the space between the buckets, and each receptacle E is attached to the chain and is in line with the space between the buckets.

While I have shown and described the side members as chains, it will be understood that ropes would be the equivalent, and the shape of the buckets and type of chain may be modified without departing from my invention.

It will be understood that while I have

shown a conveyer in which the buckets are loaded on the lower run and discharged on the upper run my invention can be used in connection with a conveyer in which the buckets are loaded on the upper run and discharged on the lower run or loaded and discharged on either run.

I claim as my invention—

1. The combination with a pivoted gravity-bucket, of an auxiliary receptacle at one end of the bucket adapted to receive material passing the upper edge of the bucket, substantially as described.

2. The combination with a pivoted gravity-bucket, of an auxiliary receptacle at each end of the bucket adapted to receive material passing the upper edge of the bucket, substantially as described.

3. The combination with a pivoted gravity-bucket, of an auxiliary receptacle in line with the space between the buckets adapted to receive material passing through said space, and a conveyer to which the buckets and receptacle are attached, substantially as described.

4. The combination of a conveyer, buckets pivoted thereto, and auxiliary receptacles alternating with the buckets and attached to the conveyer and adapted to receive material passing through the space between the buckets, substantially as described.

5. The combination with the buckets of a pivoted-gravity-bucket conveyer, of auxiliary receptacles alternating with the buckets and operating to receive, carry and deliver to the buckets material escaping from the latter, substantially as described.

6. The combination with a pivoted gravity-bucket and a conveyer chain-link, of an auxiliary receptacle connected to the said link so as to travel with the same in a path around the bucket, substantially as described.

7. The combination in a conveyer, of a chain, buckets pivoted thereto, auxiliary receptacles carried by the chain and situated in line with the space between the buckets and adapted to receive material passing through said space, substantially as described.

8. The combination in a conveyer, of two chains, buckets mounted between the chains and pivoted thereto, trough-shaped auxiliary receptacles attached rigidly to the chains and in line with the space between the buckets, substantially as described.

9. The combination of a link chain, buckets pivoted in line with the pivots of the chain, auxiliary receptacles attached rigidly to the links of the chain midway between the pivots and in line with the space between the buckets, substantially as described.

10. The combination of a link chain, pivots for the links, buckets mounted between the chains and hung from the pivots so as to swing, a receptacle having a trough-shaped body portion, with arms provided with lips at their ends extending over the links of the chain and

rigidly attached to the links midway between their pivots and in line with the space between the buckets, substantially as described.

11. The combination in a pivoted-bucket
5 conveyer, of the two chains consisting of links pivoted together, pins midway between the pivots, wheels on the said pins, buckets pivoted to the chains at the pivots, a receptacle carried by the chains and rigidly attached to
10 the links thereof midway between the pivots

and in line with the space between the buckets, substantially as described.

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

JAMES M. DODGE.

Witnesses:

WILL. A. BARR,
JOS. H. KLEIN.