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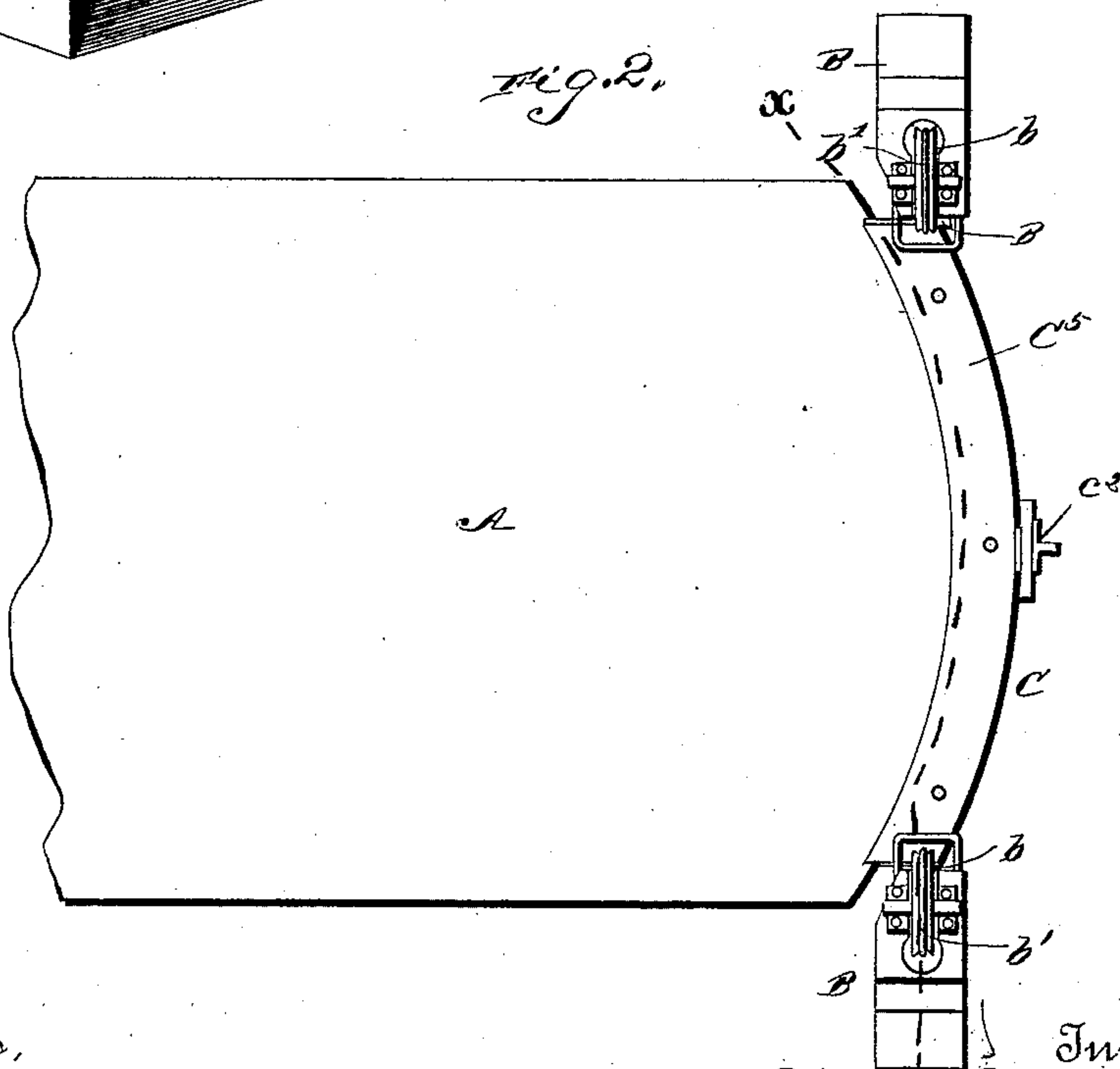
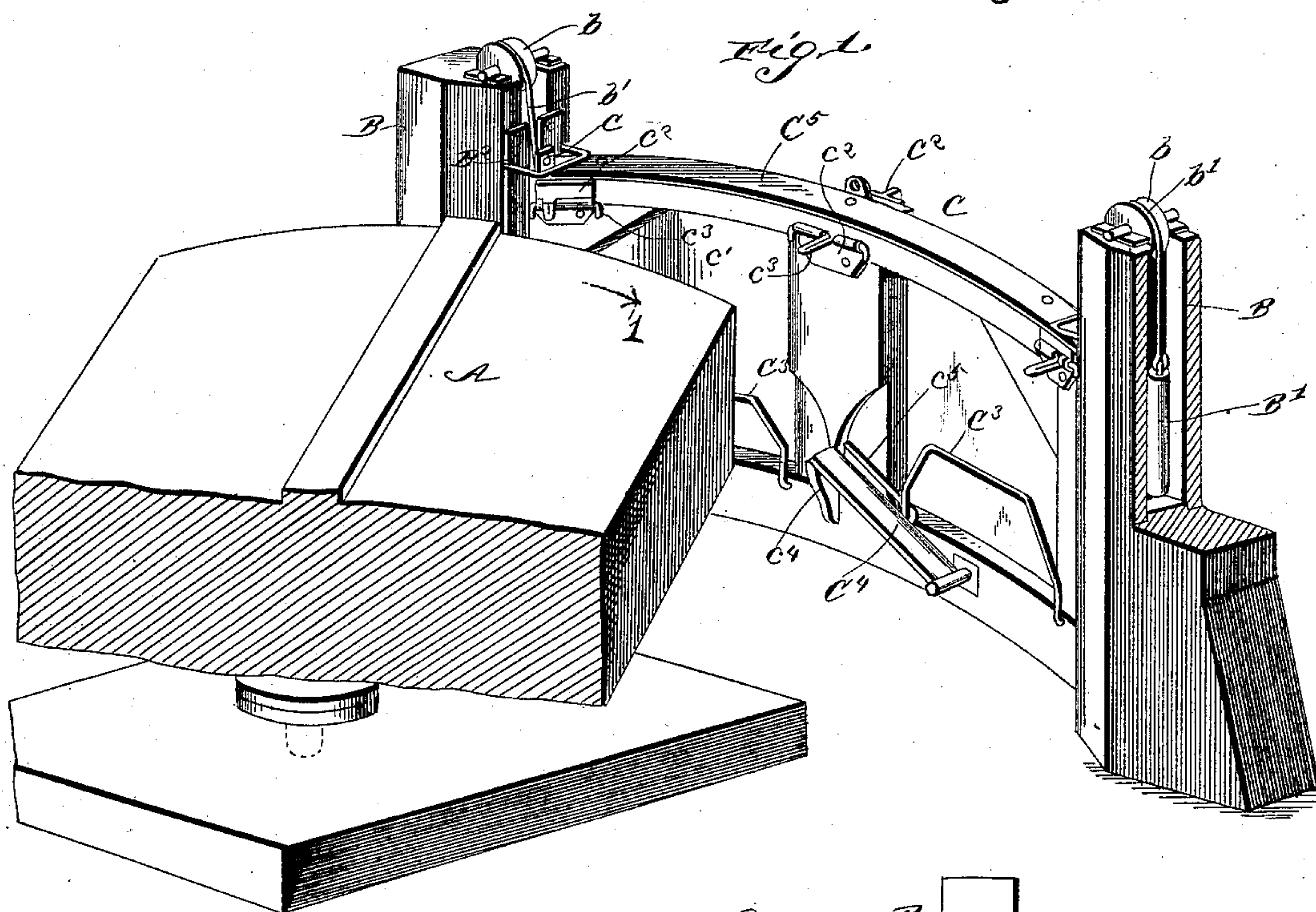
4 Sheets—Sheet 1.

W. J. BRIGGS.

DRAW BRIDGE.

No. 387,708.

Patented Aug. 14, 1888.



Witnesses,

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C. S. Hyer

Inventor,

W. J. Briggs.

By his Attorneys,

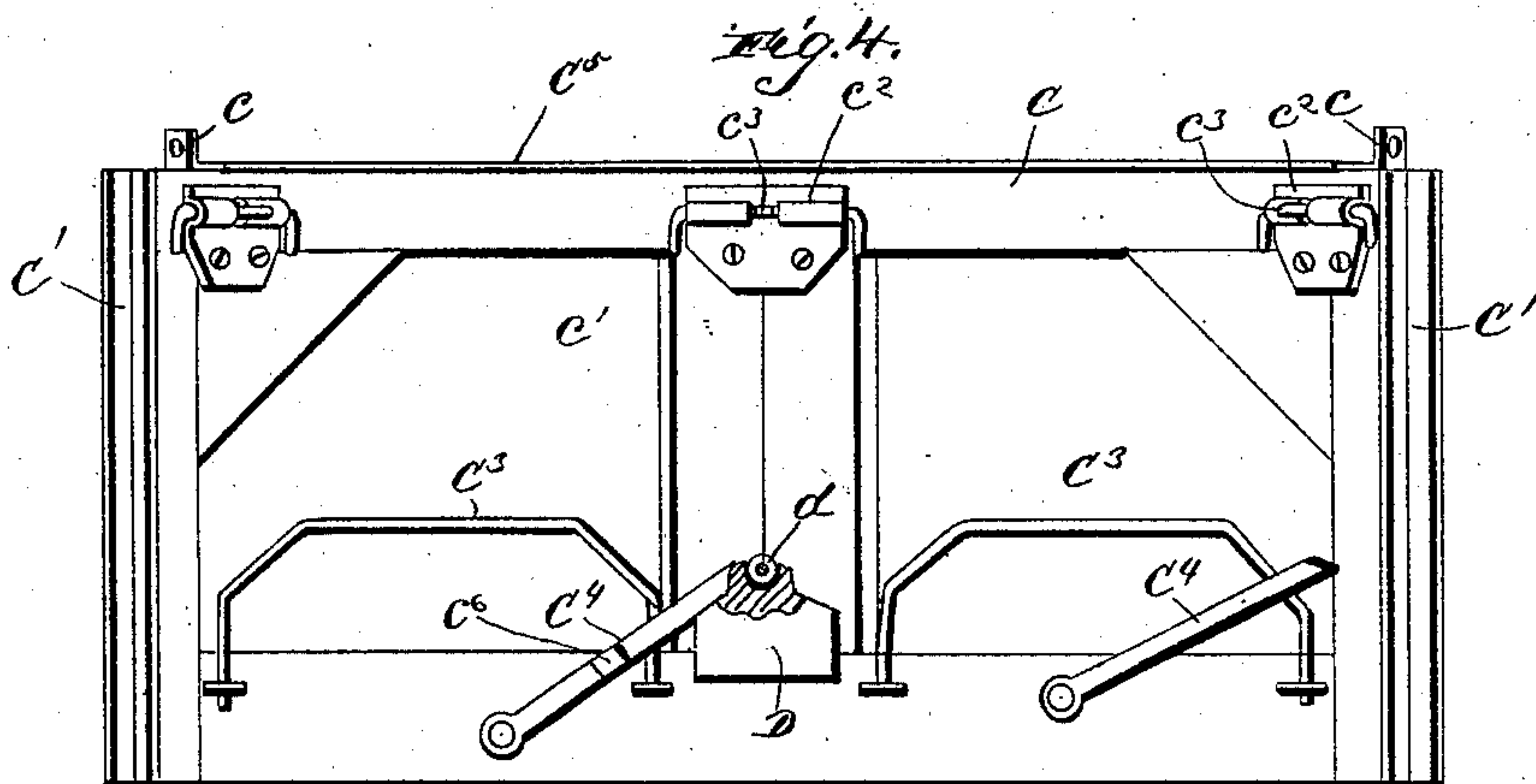
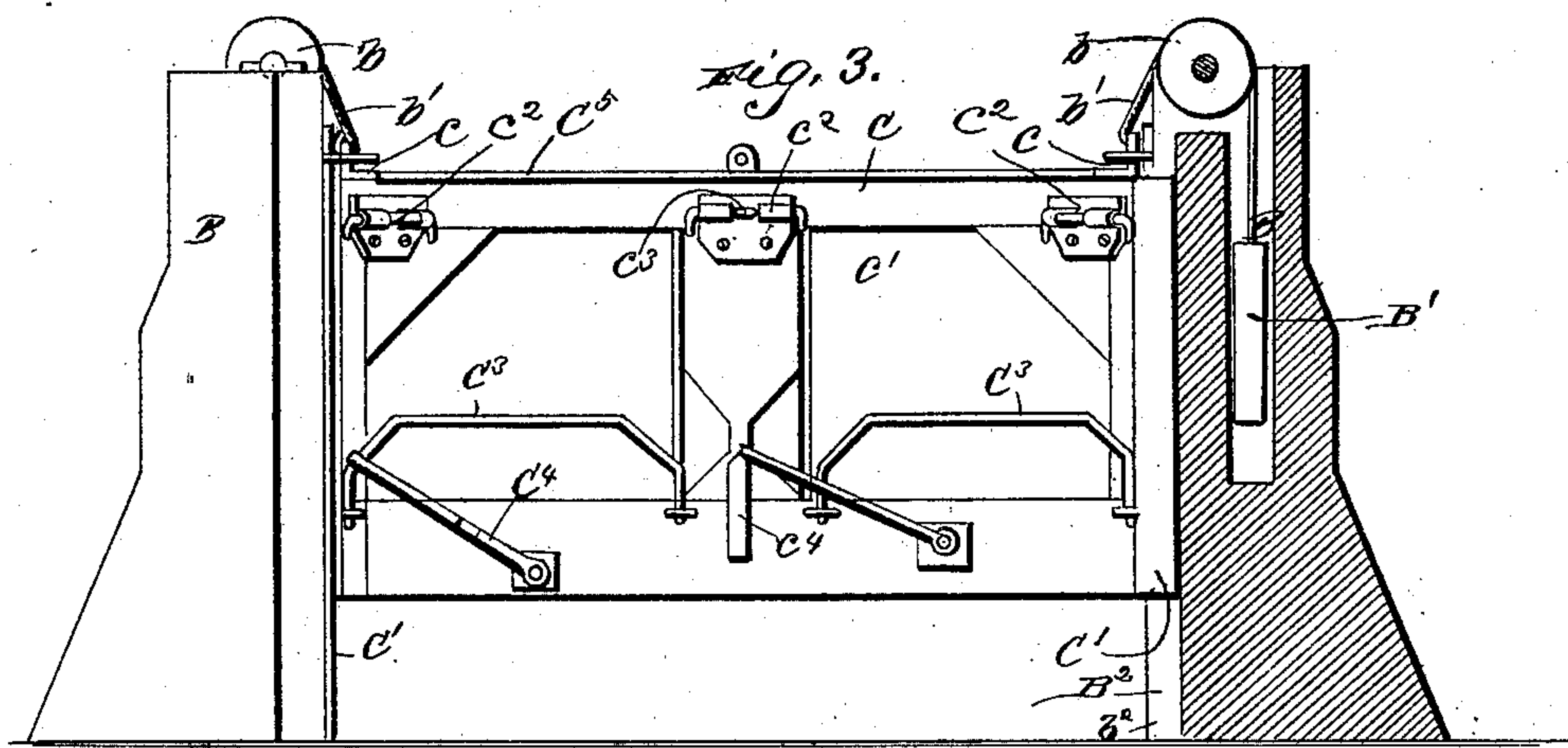
C. A. Snow & Co.

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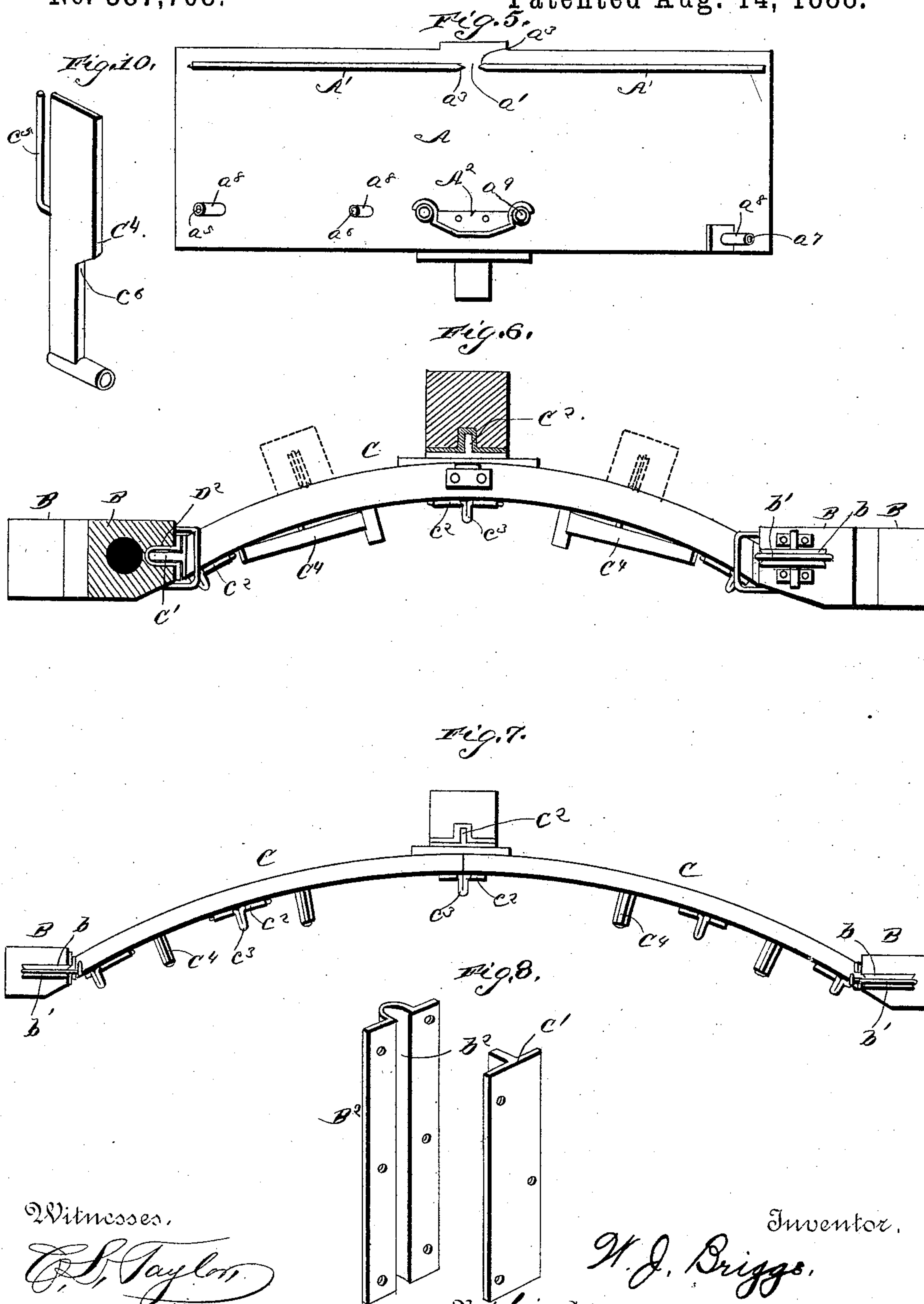
4 Sheets—Sheet 3.

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UNITED STATES PATENT OFFICE.

WILLIAM J. BRIGGS, OF FORT WORTH, TEXAS.

DRAW-BRIDGE.

SPECIFICATION forming part of Letters Patent No. 387,708, dated August 14, 1888.

Application filed May 23, 1887. Serial No. 239,125. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM J. BRIGGS, a citizen of the United States, residing at Fort Worth, in the county of Tarrant and State of Texas, have invented a new and useful Improvement in Draw-Bridges, of which the following is a specification.

My invention relates to an improvement in draw-bridges; and it consists in the construction and arrangement of the parts of the same, which will be more fully set forth hereinafter, and pointed out in the claims.

The primary object of my invention is to provide an automatically opening and closing gate for use in connection with the draw of the gate, and which is operated by the revolution of the swinging platform, whether it be to or from the said gate.

A further object of my invention is to provide an automatically opening and closing gate for use in connection with draw-bridges having a vertical ascension and descension in opening and closing, and controlled in said movement by mechanism relatively situated upon the draw-platform and the said gates, which mechanism is of simple and effective construction and operation and positive in its desired ultimate result.

I attain these objects by the construction illustrated in the accompanying drawings, wherein like letters of reference indicate similar parts in the several views, and in which—

Figure 1 is a perspective view of my improvement, showing the draw-platform as just being opened. Fig. 2 is a top plan view of my improvement with the draw closed. Fig. 3 is an elevation of one of the gates removed from connection with the draw-platform. Fig. 4 is a similar view showing a modification in connection therewith. Fig. 5 is a front elevation of one of the ends of the draw-platform. Fig. 6 is a modified form of construction of the gate. Fig. 7 is a modification of construction of a double gate embodying the same principle as in the use with the single gate. Fig. 8 is a detail view of the track-iron B^2 and T-rail C' . Fig. 9 is an enlarged plan view of the draw and gate, showing the position of the parts when the draw is closed. Fig. 10 is a similar view of one of the levers C^4 .

A indicates the swinging platform of the draw, which is constructed in the usual man-

ner and mounted upon a central pivot or fulcrum-pin, as will be readily understood, and, as shown in this instance, adapted to be swung outwardly in either direction. At each end of the draw-platform A, and adjacent thereto, two standards, posts, or brick columns, B B, are formed and suitably mounted, in the upper ends of which suitable sheaves or pulleys, b , are situated and have movement in suitable journal-boxes. Over these pulleys b cords b' pass, which are connected at their one ends to a weight, B' , which is adapted to have movement in the said posts or columns B. The other ends of the said cords, ropes, or cables b' are secured to suitable eyes, c , attached to the two top ends of the gates C. These gates C are constructed of any suitable material, and may be provided with a metallic or other suitable sheathing, c' , for purposes which will be more fully hereinafter described.

On the sides of the posts or standards B, adjacent to the ends of the gates C, recessed track-irons B^2 are secured, which have central depressions or recesses, b^2 , and which are engaged by angle-irons or T-rails C' , secured to the ends of the gate, and thereby the said gate is steadied in its upward and downward movement. In the central rear portion of the gate C a T-iron, C^2 , is also secured, which, as shown in Figs. 1 and 7, may have suitable movement in the platform of the bridge, and thereby provide a guide for each gate at this point to steady the movement thereof.

Adjacent to each end of the gates C, and also in the central portion thereof, metallic clip-plates c^2 are secured, which form seats for wire projections c^3 , which are pivoted therein by bending the ends of the wire, and from the central portion thereof the said wires are formed to project outwardly at right angles, or at nearly right angles, from the gate to which they are attached. The normal disengaged position of these wires or iron rods c^3 is slightly on a downward incline. These wires or iron rods c^3 are adapted to engage with two metallic strips, A' , secured to the end of the draw-platform, which strips have an intervening space, a' , between their ends at the central portion of the said platform. This space a' is adapted to receive the central projection, c^3 , of the gate when the parts are at rest. The inner and outer ends of each of these strips

A' are formed with a chisel-edge, a^3 , so as to provide for an easy engagement therewith of the wire rods c^3 . These strips A' project outwardly from the ends of the draw, and have
 5 an intervening space between the inner edges thereof and the ends of the draw-platform to prevent the collection of dirt, ice, or snow therein, which would materially affect the operation of the parts.

10 In the lower portion of each of the gates two guide rods or ways, C^3 , are secured, the said guideways projecting upwardly some distance. Below these guideways C^3 two levers, C^4 , are mounted, which are adapted to be thrown in
 15 either direction in the operation of the draw, and when thrown inward toward the central portion of the gate they are adapted to rest upon a central projection, c^4 , and thereby steady the same and aid in resisting the weight
 20 brought to bear thereupon. Each of the said levers C^4 has a metallic arm, c^5 , secured thereto, which projects upwardly parallel with one side thereof and passes around and has movement in connection with the guide rods or
 25 ways C^3 . By this means the said levers are always caused to remain in true adjustment with the gates C , and thereby prevent any inoperative conflict between the parts, which would necessarily be the consequence if the
 30 said levers were not thus guided in their movement. One of the levers C^4 has a recess, c^6 , formed in its lower portion, for a purpose which will be more fully hereinafter described.

On each end of the draw a series of pins, a^5 , a^6 , and a^7 , are mounted, the said pins being surrounded by suitable friction rollers or collars, a^8 . The pins a^5 and a^6 are arranged at or about the same elevation and of the same length; but the pin a^7 is mounted in a lower position
 40 below the plane of the pins a^5 and a^6 , and is also constructed longer in length than the said pins a^5 and a^6 . In the central portion of the draw-platform A a cam-block, A^2 , is mounted between and supported by two side pins, a^9 , the
 45 said cam-block having a metallic sheathing covering the under side thereof. This block may be constructed of any material preferable and applicable for the desired use. The under side thereof is constructed with a plane
 50 face in a horizontal plane, and from each side of this face the cam-block is formed with upward inclines.

Upon the upper top portion of each of the gates a metallic housing, C^5 , is adapted to be
 55 secured, which covers the opening between the said gate or gates and the end of the draw-platform A adjacent thereto. By this means the congregation of dirt, ice, and snow is prevented, and to further aid in keeping the plat-
 60 form A free from any such deposits a series of openings or recesses are formed at regular intervals therein in the top portion thereof, whereby the dirt may fall therethrough and over the end of the draw when the platform is
 65 being opened, and cleanliness of the parts thereby at all times preserved.

My improvement is adapted to be used with

a bridge having a right and left road-center, or with a double right and left drive or tramway, and in the use thereof with a bridge
 70 having a double right and left tramway I propose to use a double form of the gate, each gate embodying the construction of the single form of gate hereinbefore described, and in the use of this double form of gate a central
 75 standard similar to the standards B B will be used, similar to that shown in Figs. 6, 7, and 9, and which may be conveniently used with the gate without interfering with the travel over the bridge. If, however, the breadth of the
 80 bridge is such that the leverage will have to be increased without lengthening the levers, I use a leverage-extension block, D, having recesses in its sides, in which the levers are adapted to rest when thrown over thereagainst,
 85 and a frictional roller, d , mounted in the central portion thereof, to overcome the friction between the same and the cam-block A^2 on the draw-platform, adapted to ride thereon. By this construction the leverage may be ex-
 90 tended without increasing the length of the levers, as by increasing the length of the levers to produce the length of leverage necessary for the proper and desired operation the levers would have to be made of such length
 95 as to render them cumbersome, and in all probability cause them to project above the upper surface of the gate and of the platform of the bridge, which would be objectionable, and would cause an interference of the work-
 100 ing mechanism and an impracticability thereof.

The construction of the levers C^4 is such that they may be raised in a vertical position, and thereby prevent the collection thereon of any depository material which would prove
 105 to be deleterious to the action of the said levers.

Before proceeding to describe the operation of the invention I call attention to the fact that pin a^7 on the draw, Figs. 7 and 9, is longer
 110 than the pin a^5 , and also arranged in a lower plane, Fig. 5; also, that one of the levers C^4 is pivoted on a higher plane than the other. (See Fig. 3.) With these facts in mind, and remembering that the pin a^5 is the first to come
 115 into action when the draw is swung in the position indicated by the arrow in Fig. 1, and that the pin a^7 is arranged on the opposite side of the draw and comes into action when the draw is swung in the opposite direction, I will pro-
 120 ceed. The function of the pins a^5 a^7 is to bear on the inclined levers and depress the gate; but it is not desired, for instance, that the pin a^5 should depress the first lever it reaches in its movement in either direction when closing
 125 the draw. No matter in what direction the draw is moving, the first pin should pass the first lever C^4 without depressing the gate. The function of the cam-block A^2 is to continue the depressing of the gate and when the lat-
 130 ter is lowered completely, to rest on the central projection, c^4 , and hold the gate in its lowered position when the draw is closed. Now suppose the gates are raised, the draw is

opened, and it is desired to close the same. The draw is moved in the position indicated by the arrow in Fig. 1, when the pin a^5 on that side of the draw passes through the recess c^6 of the first lever C^4 and does not touch it. It should be stated that the levers C^4 are then in the inclined position seen in Figs. 1 and 3. When the draw is moving in the opposite direction, the levers are in the position shown in Fig. 4. After leaving the first lever C^4 the pin a^5 continues around, passing under the central projection, c^4 , (as the gate is still raised and the projection c^4 is above the path of the pin a^5), and said pin a^5 strikes the second lever C^4 , which is in the position shown in Fig. 3, and throws or reverses said lever into the position shown in Fig. 4. As soon as the second lever C^4 is reversed, the pin a^5 then commences to ride up the incline of the said lever C^4 and depress the gate. Shortly after the pin a^5 comes into action and commences to ride up the second lever C^4 the cam-block A^2 strikes the first lever C^4 and commences to ride up the same, and thus the combined action of the pin a^5 and cam-block A^2 on the parts mentioned completes the lowering of the gate. In turning the draw the strips A' pass under the projections c^3 until the advancing end of the first strip A' has nearly reached the last of the three projections c^3 . Then the pin a^5 , riding up the second lever C^4 , supplemented by the action of the cam A^2 upon the first lever C^4 , causes the descent of the gate just in time for the said last projection c^3 to pass under the advancing end of the first strip A' . The width of the space between the strips A' and the hinged arrangement of the central projection c^3 permits said central projection to fall into position through said space just as the closure of the draw is effected. About the time when the pin a^5 reverses the second lever the first strip A' on the draw strikes the last end projection c^3 , having passed below the central projection c^3 . When the draw has depressed the gate to its fullest extent, the central projection c^3 rides off the top of the strip A' and drops into the space a' at the meeting inner ends of the said strips. This combination of strips A' and projections c^3 insures an even movement of the gate, overcomes any tendency to rise, and thus avoids any possible binding or friction of the parts.

Having closed the gates, suppose it is desired to open the draw in the direction indicated by the arrow: As the draw moves, the strips A' pass over the projections c^3 of the gate and prevent the latter from rising. For instance, the first strip A' continues to ride over the first end projection c^3 as the cam-block A^2 leaves the central projection c^4 . As the draw moves, the pin a^7 strikes the first lever C^4 , reverses the same so as to correspond with the second lever C^4 , and the said pin a^7 rides up the first lever C^4 , holding the gate from rising. About the time when the first strip A' commences to act on the end projection c^3 the second strip A' engages with the center projection

c^3 , riding over the top of the same, and as soon as the second strip A' leaves the center projection c^3 it engages with the last end projection c^3 . As the draw swings around, the pin a^7 cannot strike the second lever C^4 , because the latter is above the plane of the pin a^7 . As soon as the second strip A' leaves the last end projection c^3 , the gates are free to rise under the action of the weights.

The draw can be closed or opened from either side, and the operation in either case is essentially the same. In closing the draw from the side opposite to that indicated by the arrow in Fig. 1 the pin a^7 first comes into action; but it does not strike the first lever. It passes under it, as the plane of the lever is higher than the plane of pin a^7 . Said pin a^7 strikes the second lever, reverses the same, and the operation is proceeded with in the same manner as before.

The advantage of the construction and operation as just described is the practicability with which the draw-platform A may be opened or closed from either side and the operation and effectiveness of the improvement preserved.

A further advantage of my improvement consists in using the sheathing or covering for the several gates as an advertising medium, which are readily adapted for the reception of advertisements, which may be applied by means of stencils or in any other desired manner.

The novelty and utility of my improvement being obviously apparent and appreciable, it is unnecessary to further enlarge upon the same herein.

It is obvious that many minor variations in the construction and arrangement of the several parts may be made and substituted for those shown and described herein without in the least departing from the nature and principle of my invention.

It will be understood that the pins a^5 a^7 on the draw form contact-points to act on the levers C^4 , while the projections c^3 on the gate form corresponding contact-points to be acted upon by the strips A' on the draw.

Having thus described my invention, I claim—

1. The combination, with the gates adapted to ascend and descend in a vertical plane, of the levers C^4 , mounted in connection with the lower portion thereof, and the pins a^5 and a^7 and central cam-block, A^2 , mounted in connection with the end of the draw-platform, as herein set forth, whereby the said gate may be raised or lowered in whatever direction the draw-platform may be swung, substantially as described.

2. In combination with the gates having the levers C^4 in the lower portions thereof, the projecting wires or rods c^3 in the upper portions thereof, the projecting pins arranged at different elevations upon the end of the draw-platform, the central cam-block on the draw-platform, and the metallic strips A' , having a

space between their central ends, all arranged as and for purposes herein set forth, substantially as described.

3. The combination, with the gates C, of the
5 posts D, the guiding-connection between the
said gate and posts, the levers C', mounted in
the lower portion of said gates, the central
projection c', and the pins and central cam-
10 block arranged in connection with the ends
of the draw-platform, substantially as de-
scribed.

4. The combination, with the gate C, of the
levers C', arranged in the lower portion thereof
and steadied in their movements, as set forth,
15 one of said levers being recessed, and the pins
a^b a' and the central cam-block, A², substan-
tially as described.

5. The combination, with the lower central
portion of the gate C, of the leverage-extension
20 block D, and the levers C', and the draw hav-
ing the contact-points to act on the levers,
substantially as described.

6. The combination, with the upper portion
of the gate, of the wire rods or pins c³, and the
25 strips A', secured to the end of the draw-plat-
form, substantially as described.

7. In combination with the gates having the
levers C', which are adapted to be reversed
from side to side and to assume an inclined

position, the contact-points on the draw to co- 30
act with the levers to reverse the same and
bear thereupon, as set forth.

8. In combination with the gates having the
levers C', which are adapted to be reversed
from side to side and to assume an inclined 35
position, the contact-points on the draw to co-
act with the levers, the strips A' on the draw,
and the contact points or projections on the
gates, against which projections the strips A'
coact, as set forth. 40

9. The combination, with the gate posts or
columns B B, of the gate having its ends guided
in the posts or columns, and provided at its
center with the vertical guide-iron C², having
movement in the platform of the bridge, the 45
rope or chain connected to the gate, the weight
attached to the rope or chain and working in
the posts or columns, and the draw acting on
the gate to depress the same when the draw is
closed, substantially as specified. 50

In testimony that I claim the foregoing as my
own I have hereto affixed my signature in pres-
ence of two witnesses.

WILLIAM J. BRIGGS.

Witnesses:

E. G. SIGGERS,
MYRTLE STALNAKER.