Oct. 8, 1929. J. B. STRAUSS 1,730,595

BASCULE BRIDGE

Filed Feb. 28, 1925 3 Sheets-Sheet 1

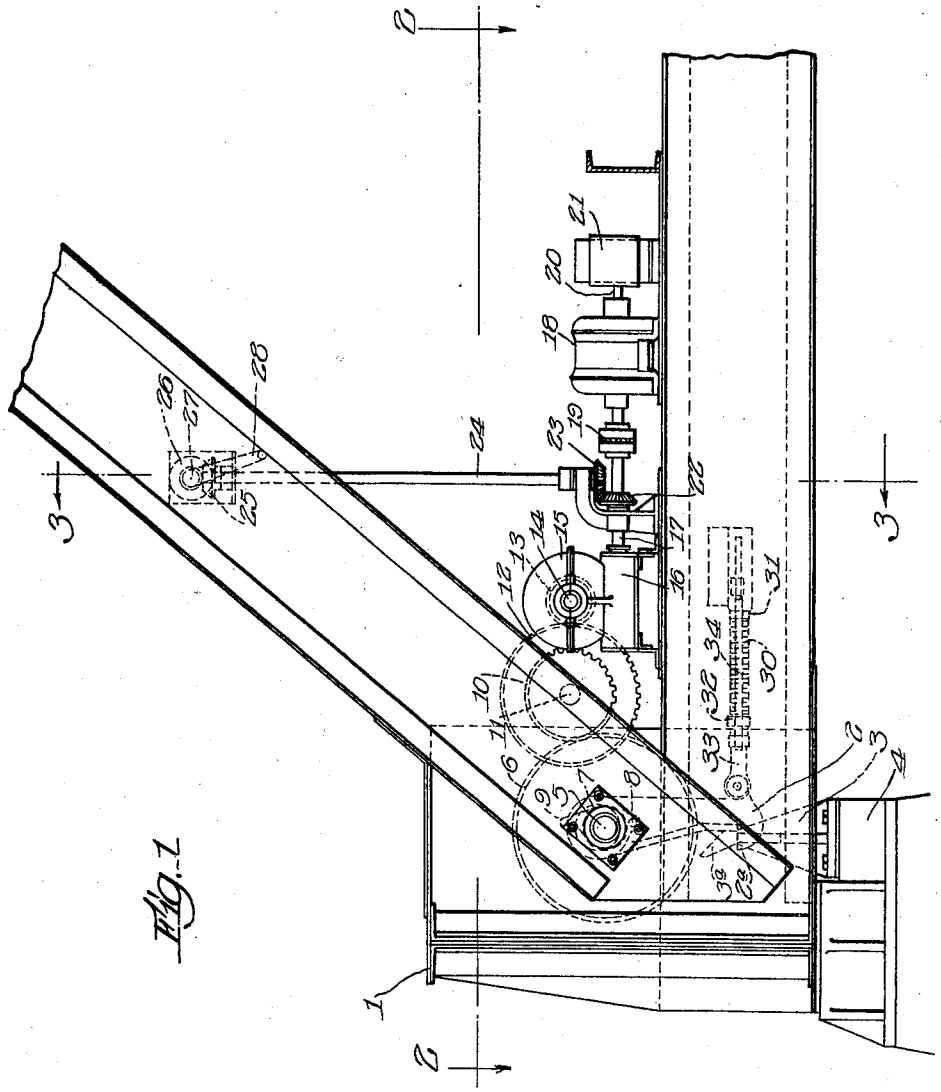


Fig. 1

Inventor:
Joseph B. Strauss
By Parker & Carter Attys.

Oct. 8, 1929. J. B. STRAUSS 1,730,595

BASCULE BRIDGE

Filed Feb. 28, 1925 3 Sheets-Sheet 2

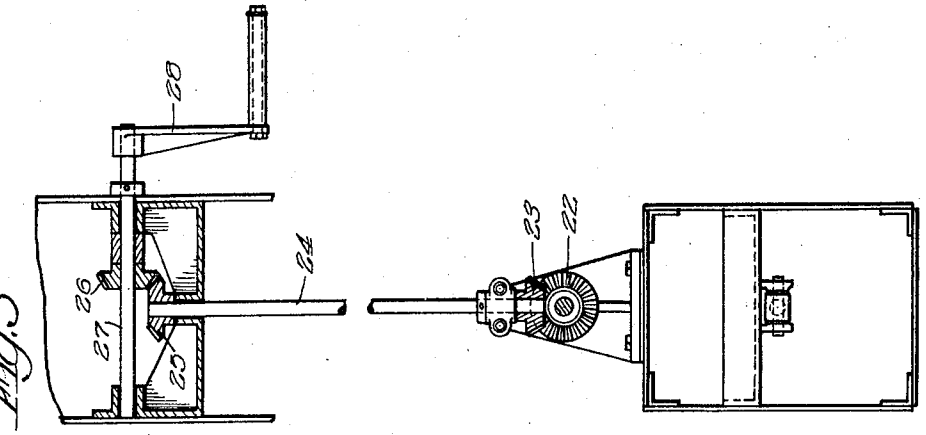


Fig. 3

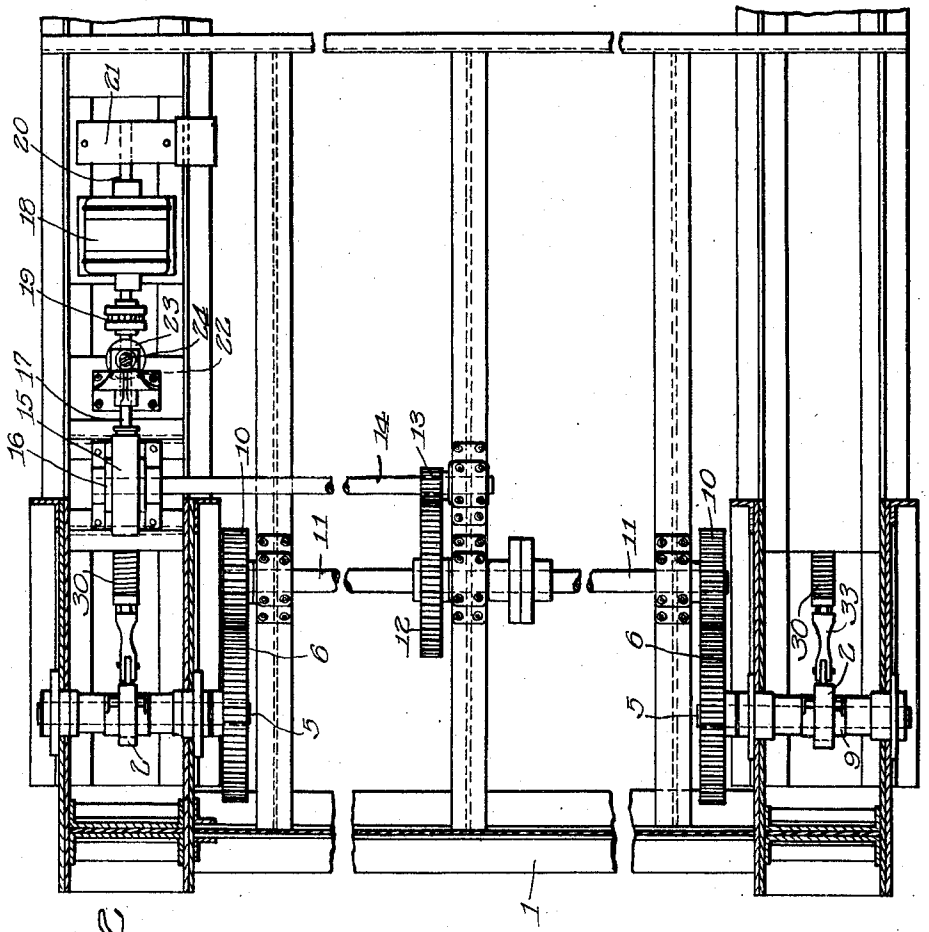


Fig. 2

Inventor:
Joseph B. Strauss.
By Parker & Burton attys.

Oct. 8, 1929. J. B. STRAUSS 1,730,595

BASCULE BRIDGE

Filed Feb. 28, 1925 3 Sheets-Sheet 3

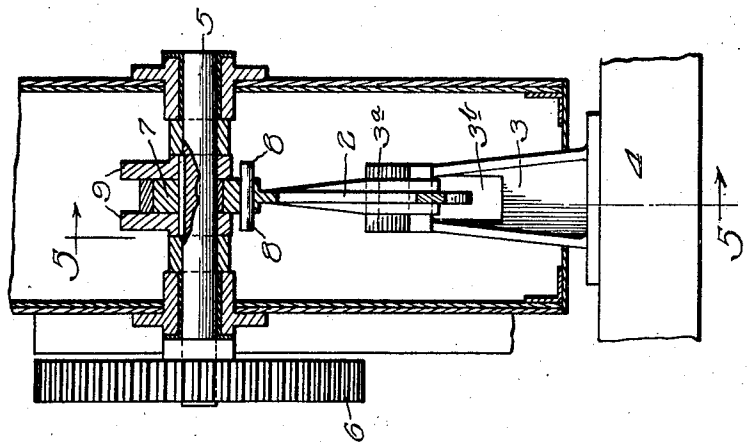


Fig. 6

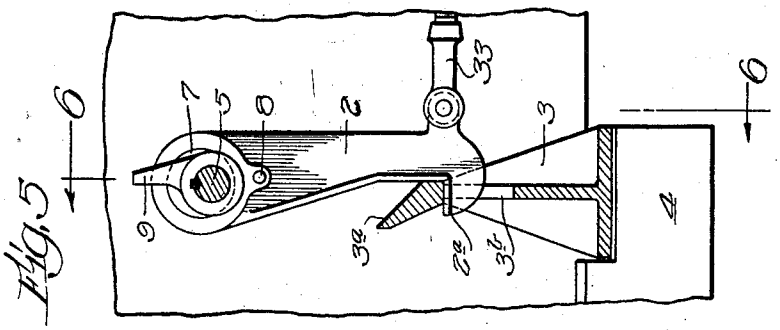


Fig. 5

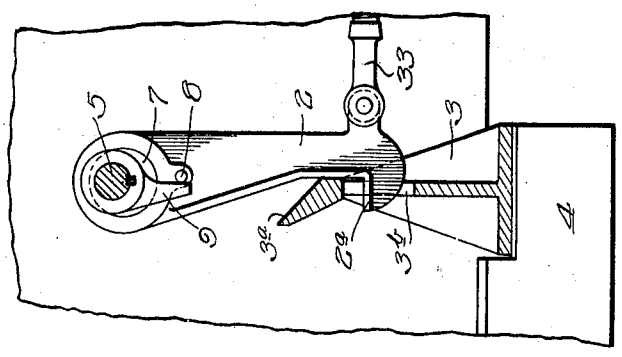


Fig. 4

Inventor:
Joseph B. Strauss
By Parker & Carter attys.

Patented Oct. 8, 1929 1,730,595

UNITED STATES PATENT OFFICE

JOSEPH B. STRAUSS, OF CHICAGO, ILLINOIS

BASCULE BRIDGE

Application filed February 28, 1925. Serial No. 12,323.

This invention relates to bascule bridges and has for its object to provide a new and improved device of this description.

The invention has as a further object to provide a bascule bridge having a moving leaf with a locking device for locking the end of the leaf when in its closed position.

The invention has other objects which are more particularly pointed out in the accompanying description.

Referring now to the drawings,

Figure 1 is a fragmentary view of the end of the moving leaf of the bascule bridge to which the lock is attached with parts in section;

Figure 2 is a sectional view with parts omitted taken on line 2—2 of Figure 1;

Figure 3 is a sectional view taken on line 3—3 of Figure 1;

Figure 4 is an enlarged view in part section showing the locking hook and associated parts with the hook in its released position;

Figure 5 is a view similar to Figure 4 with a hook in its locking position;

Figure 6 is a sectional view taken on line 6—6 of Figure 5.

Like numerals refer to like parts throughout the several figures.

Referring now to the drawings, I have shown a moving leaf 1. Mounted on this leaf is a movable locking part 2, which is shown in the form of a hook. This movable locking part cooperates with another locking part 3, which is fastened to a fixed part 4 in proximity to the end of the moving leaf when said leaf is closed. Means is provided for moving the two locking parts into a cooperating locking position when the leaf is closed, and for disconnecting them when it is desired to open the leaf. The movable locking member 2 is mounted on a shaft 5, which is rotated by a gear 6 operatively connected with a suitable source of power, which may be a motor or hand power or both. The part 2 is mounted upon an eccentric 7 on the shaft 5 and is provided with projections 8 on opposite sides thereof, which may be formed by a pin. Mounted on the shaft 5 so as to rotate therewith are operating parts or projections 9 which engage the projections 8 when the shaft is rotated and cause the movable part 2 to move away from the part 3, that is, to its unlocking position. The part 3 has an inclined face 3^a which is engaged with the part 2 in the downward movement of the moving leaf so as to move the part 2 to one side. In the construction shown the gear 6 (see Fig. 2) is connected with a gear 10 on a shaft 11, and this shaft is connected by gears 12 and 13 with a shaft 14. The shaft 14 is provided with a worm gear 15 which engages the worm 16 on a shaft 17 connected with the motor 18, there being preferably a flexible coupling 19 between the shaft 17 and the motor 18, the worm and worm wheel 15 and 16 and the connecting shafts and gears acting as a speed reducing mechanism, and are so proportioned as to secure the desired movement of the shaft 5. The motor shaft 20 is provided with a suitable brake 21 which may be of the solenoid type. Some means is provided for moving the shaft 5 by hand. For this purpose the shaft 17 (see Fig. 1) is provided with a beveled pinion 22 which engages a beveled pinion 23 on the shaft 24. This shaft has at its other end a beveled pinion 25 which engages a beveled pinion 26 on the shaft 27. The shaft 27 is provided with a non-circular end and has a crank 28, the parts being arranged so that when the crank is rotated the shaft 5 and intermediate parts will be rotated so as to move the movable part 2. The part 2 of the lock is preferably provided with some means for automatically pushing the hook end 2^a thereof into the receiving space 3^b so that said hook end will engage the part 3 and prevent the separation of the parts 2 and 3. In the construction herein shown this is accomplished by means of a spring 30 which is compressed when the part 2 is moved away from the part 3 as it slides down along the beveled face 3^a, and which then acts to move the hook end 2^a of the part 2 into the receiving space 3^b when the part 2 comes opposite said space. The spring 30 has one end engaging a fixed stop 31 and the other end engaging a movable piece 32, which is connected by the piece 33 with the part 2. A rod 34 also preferably runs through the spring to keep it from buckling. I prefer to

have two of the locking parts 2 and 3 upon the bridge, one at each side thereof, and, in that event, the shaft 11 is extended to the other side of the bridge and is connected by the gear 10 with the gear 6 on the shaft 5 of the other mechanism, which is a duplicate of the mechanism first described.

I have described in detail a particular construction which embodies the invention, but it is of course evident that the parts may be varied in many particulars without departing from the spirit of the invention as embodied in the claims hereto appending.

The use and operation of my invention are as follows:

When the bridge span is closed, the parts are in the position illustrated in Figures 1 and 5, so that the locking parts 2 and 3 are tightly engaged, so as to hold the span against movement. When it is desired to open the bridge the motor 18 is set in operation, and this turns the shaft 17 and the motion of this shaft is communicated through shafts 14 and 11 and the associated gears to the gear 6 and the shaft 5 on both sides of the span. When the shaft 5 is moved the eccentric 7 is moved so as to cause the hook end 2^a of the part 2 to move downwardly out of engagement with the part 3, as shown in Figure 4, so as to loosen these two engaging parts, and after this shaft 5 is moved a predetermined amount the projections 9 engage the projections 8 on the part 2 and move said part outwardly against the compression of the spring 30, so as to move the hook end 2^a to a position where it will not engage the part 3 when the bridge is lifted. The motor is then stopped and the moving leaf lifted in the ordinary manner, the hook end 2^a passing freely by the part 3.

Preferably before the bridge is lowered, the motor is operated to move the parts back to their initial position. When the bridge is lowered, the end of the part 2 engages the inclined face 3^a of the part 3 so as to move the part 2 of the hook end 2^a to one side, that is to the right in Figure 1. This movement of the part 2 causes the piece 32 to compress the spring 30, and when the hook end 2^a comes opposite the receiving space 3^b this spring expands and forces the hook into this space so as to instantly lock the parts 2 and 3 together, thereby preventing rebound of the main span. Before the closing of the main span the parts need not be completely moved back to their initial position by the motor, and if they are not so completely moved back to their initial position, then when the hook end 2^a is moved into the receiving space 3^b the motor may then be operated to move the parts back to their initial position. If the motor is out of operation, or if for any other reason it is desider to move the parts by hand, they may be so moved by means of the crank 28 and associated parts. When the bridge is lowered, it will be seen that the two locking parts 2 and 3 are automatically brought together.

I claim:

1. A bascule bridge comprising a moving leaf, a shaft carried by said leaf, a moving locking part on said shaft and extending downwardly therefrom when the leaf is closed, a stationary locking part located on a fixed portion of the structure and with which the movable locking part cooperates, controlling means on said shaft for controlling said movable locking part, and means for moving said shaft to actuate said controlling means.

2. A bascule bridge comprising a moving leaf, a shaft carried thereby, a movable locking part on said shaft, a fixed locking part separate from the leaf with which said movable locking part cooperates, an engaging part on the shaft which engages the movable locking part when the shaft is rotated so as to move said movable locking part.

3. A bascule bridge comprising a moving leaf, a locking part movably connected with the end of said leaf, a stationary locking part located in a fixed portion of the structure and with which it cooperates, and means carried by the leaf and separate from the actuating mechanism of the leaf for actuating the moving locking part, cooperating engaging faces on the two locking parts by means of which they are moved relatively when the moving span is moved to its closed position.

4. A bascule bridge comprising a moving leaf, a movable locking part movably mounted on said leaf, a fixed locking part separate from the leaf, cooperating faces on the two locking parts by means of which they are moved relatively by the movement of the moving leaf, and separate means for moving the two locking parts relatively independent of the movement of the leaf.

5. A bascule bridge comprising a moving leaf, a shaft mounted thereon, an eccentric on said shaft, a movable locking part mounted on said eccentric, an actuating part on said shaft for engaging the movable locking part so as to give it a rotary movement when the shaft is rotated, and a fixed locking part separate from the moving leaf adapted to be engaged by the movable locking part when the moving leaf is closed.

6. A bascule bridge comprising a moving leaf, a locking device therefor comprising a movable part on the leaf and a fixed part, means for automatically connecting the parts when the bridge is lowered, means for moving said movable and fixed parts relatively to clamp them together after they are connected, and mechanical means located on the leaf but separate from the actuating mechanism of the leaf for disconnecting them when it is desired to operate the bridge.

7. A bascule bridge comprising a moving leaf, a shaft mounted thereon, means for mov-

ing said shaft, an eccentric on said shaft, a locking part mounted on said eccentric, a locking part separate from the leaf which cooperates with said first mentioned locking part, and means controlled by said shaft for moving said first mentioned locking part to disengage it from the locking part separate from the leaf.

8. A bascule bridge comprising a moving leaf, a shaft mounted thereon, means for moving said shaft, an eccentric on said shaft, a locking part mounted on said eccentric, a locking part separate from the leaf which cooperates with said first mentioned locking part, and means controlled by said shaft for moving said first mentioned locking part to disengage it from the locking part separate from the leaf, and means for automatically bringing the two locking parts together when the leaf is lowered.

Signed at Chicago, county of Cook, and State of Illinois, this 21st day of February, 1925.

JOSEPH B. STRAUSS.