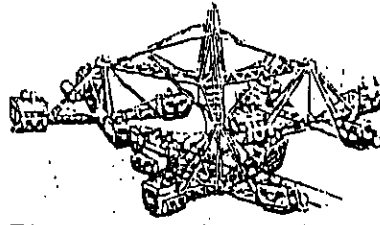
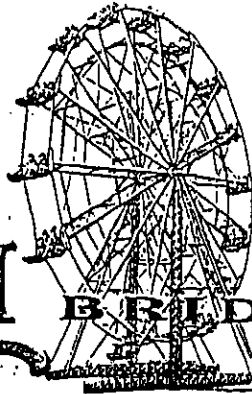


ALL STEEL PORTABLE
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FERRIS WHEELS

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LITTLE WHEEL BULLETIN NUMBER 1

APPLIES TO SERIAL NUMBERS ALL THROUGH

DATE: July 13, 1984

SUBJECT: Lap bar modification of the LITTLE WHEEL handlebar

The basic configuration of the LITTLE WHEEL seat was established 61 years ago in 1923 on the original No. 6 BABY ELI WHEEL, and those basic dimensions were used when the LITTLE WHEEL was introduced last year.

Recently, one owner of the LITTLE WHEEL reported a child leaving a seat on two succeeding days. One slipped under the handlebar and the other went over the back. To our knowledge this is the first time such a thing has occurred on any of our small Ferris Wheels. The owner of this LITTLE WHEEL asked for some method of restraint, and suggested the use of seat belts. Immediately, our representative installed seat belts on that ride.

After a short trial period the owner reported that the seat belts were doing a satisfactory job but that they took additional time during loading and unloading. Also, the seat belt release was available to the passengers and could be released by them, although the owner did not indicate that this had happened.

As a result of this experience, in the interest of safety the lap bar was developed. We believe it to be superior to the seat belt in the following ways:

- a) It is virtually maintenance-free. The pivoting part of the lap bar turns on nylon bushings that should never "freeze up" because of corrosion.
- b) Seat belts tend to fray in service, and in time the teeth of the seat belt lock will become worn and reduce its gripping power on the seat belt.
- c) It does not significantly change the loading and unloading time as compared with the original handlebar.

d) It cannot be opened accidentally or intentionally by a passenger.

Picture No. 1 shows a LITTLE WHEEL seat with a large and small passenger, and with the lap bar in place.

Picture No. 2 shows the purpose of the bend in the lap bar tube. If the tube did not have a bend as shown, it would frequently hit the knees of larger children unless the lap bar is swung up out of the way as shown in Picture No. 3. By gripping the lap bar and handlebar as shown it can be directed into the passengers' laps with that one hand and there should be no knee interference. For the operator who might find it awkward or difficult to hold the lap bar up as shown in Picture No. 3, the lap bar tube has been bent for extra knee clearance.

Note that it is necessary to hold the lap bar up so that it will be guided into the passengers' laps; just closing the handlebar and ignoring the lap bar will put the lap bar out in front of the original handlebar and on top of the passengers' legs. Such a position of the lap bar will provide virtually no additional safety.

Picture Nos. 4 and 5 show details of the lap bar installation.

To install the lap bar you are provided with a bent sheet metal layout template which is to be laid on top and in front of the handlebar. Drill two 9/32" (.281") diameter holes clear through the handlebar, using the template to locate the bolt holes. Insert the two bolts so that the bolt heads are on the side next to the passengers, with the self-locking nuts on the front. Tighten the nuts securely, but avoid collapsing the tube by overtightening.

A precautionary note: In our testing we observed that sometimes the children will hold to the handbar as the operator opens it. When fully opened, the handbar comes quite close to the hairguard at a point about 9" from the center of the handlebar hinge. If a child's hand is wrapped around the handlebar at that point it is possible that it might get pinched even though some clearance has been included. The operator must be on the lookout for this and prevent its happening.

It is our conclusion that this lap bar provides significant improvement in safety over the original handlebar and when seat belts are added.

We consider the installation of this lap bar a mandatory modification, and the necessary parts are furnished at no charge. Please tell us where to send the parts.

William C. Deem

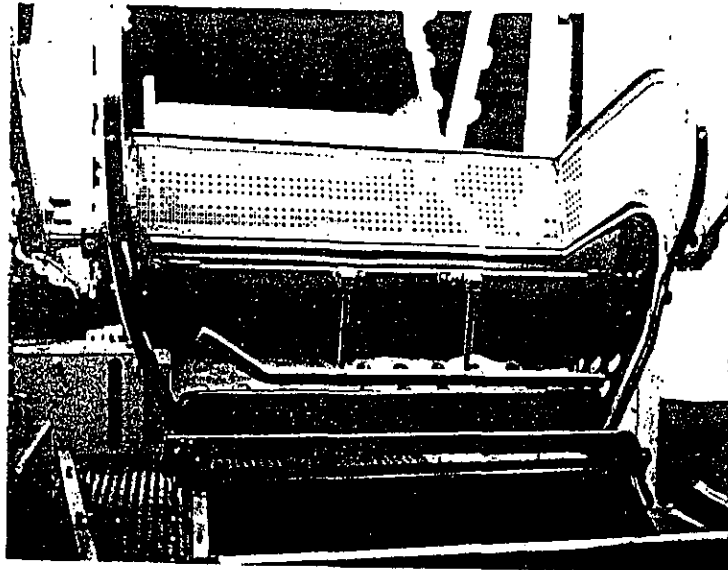
William C. Deem, Chief Engineer

ELI BRIDGE COMPANY

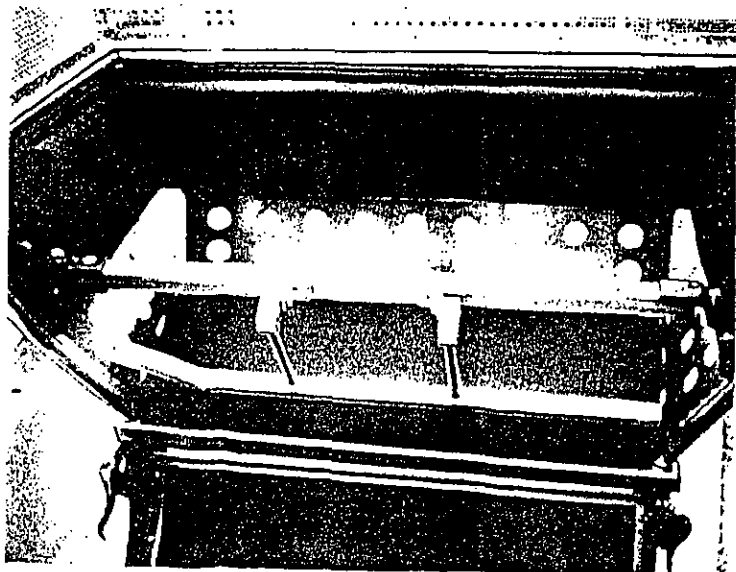




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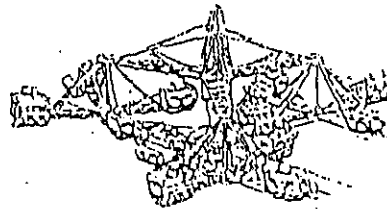
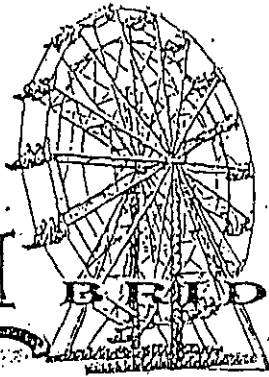


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4

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ALL STEEL PORTABLE
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LITTLE WHEEL BULLETIN NUMBER 2

APPLIES TO SERIAL NUMBERS ALL THROUGH _____

DATE: October 15, 1984

SUBJECT: PASSENGER HEIGHT LIMITATION

The Little Scrambler, the Swing, and the Little Wheel were all designed to carry pre-teenage children and were never intended for the use of adults.

With the Little Wheel we are finding that quite frequently a parent will want to ride with a small child, and this can present a safety problem which we feel we should call to your attention.

With the Little Wheel seat suspended on the two seat pins, two children in the seat are small enough so that their centers of gravity are well below the seat pin centerline, and the seat hangs in a stable position. A large adult may have his center of gravity actually above the seat pin centerline, and if this happens the seat will turn over upside down.

We have demonstrated in our tests that this can happen. If the seat is unstable it can begin to turn over backwards even before the loading platform is lowered. If you see the seat attempting to turn either way, remove the passenger at once. If a seat appears to hang properly but you are not sure if it is really stable, rock it slightly. If it is not stable it will continue to swing back and forth without coming to rest very quickly.

It is our recommendation that a person taller than 5 feet 6 inches should not be allowed on the Little Wheel. From our tests we believe that this size limitation will prevent any dangerous tipping of the seat. Further, we believe that there will be absolutely no problem of stability of the seat so long as pre-teenage children are the passengers.

William C. Deem
William C. Deem, Chief Engineer
E.L.I. BRIDGE COMPANY

ALL STEEL PORTABLE
Big Eli
FERRIS WHEELS

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INCORPORATED

800 CASE AVENUE
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Scrambler
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Big Eli Little Wheel Bulletin No. 3

Applies to No. 6 Baby Eli Wheel, Little Eli Wheel, Trailer-Mounted Little Wheel

DATE: May 2, 1994

SUBJECT: Wear of Seat Pins and "Y" Seat Hanger Castings

We have been asked for acceptable limits on the wear of seat pins and "Y" castings on No. 6 Baby Wheels, Little Wheels, and Little Eli's. These parts are smaller versions of the pins and castings used on adult-sized Wheels. To the best of our knowledge we are not aware of a failure ever occurring on either part, and the design has been in use for 68 years. Even so, wear can reach the point where the part should be replaced.

There are two places on the "Y" casting where wear can occur.

The most obvious place is at the top of the casting where the casting rests on the seat pin, as shown in Figure 1. THE THICKNESS ON THE END IS 3/8". WHEN IT IS WORN DOWN TO A THICKNESS OF 1/4" THEN THE CASTING SHOULD BE REPLACED.

The second location for wear is the length "B" in Figures 2 and 3 (shown on page 2). The length "B" is normally 1-1/2", and the length "A" is 1-5/8". The seat pin can rub against either end of the "B" length, and if the outer end of the casting becomes substantially worn away the end of the seat pin can rub against the outside of the seat, as shown in Figure 3. With excessive wear the end of the pin can actually wear a hole through the side of the seat.

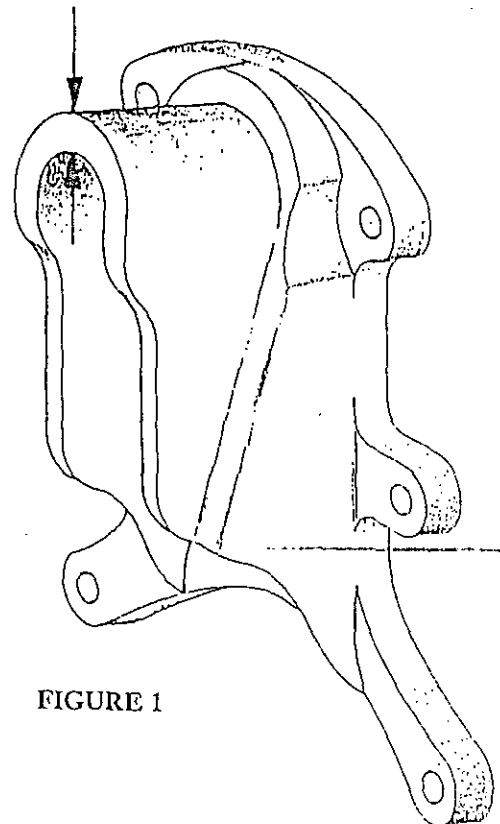


FIGURE 1

DATE: May 2, 1994

SUBJECT: Wear of Seat Pins and "Y" Seat Hanger Cas

We do not regard this as a safety hazard, but if you find that the end of the seat is being marked by the seat pin, this will be an indication that either the seat pin and/or the "Y" casting has become worn excessively.

The end of the pin was originally made with a fairly sharp corner on the end, and it is this corner which will dig into the side of the seat when wear becomes excessive. All seat pins for all sizes of Wheels now are manufactured with a 1/8" radius on this edge. Grinding a smooth 1/8" radius all around the contacting edge where the seat pin touches the side of the seat (Figure 3) will reduce any contact of the seat pin with the side of the seat.

The "Y" casting is an iron molding with tapered surfaces for release from the molding sand. As the outer end of the "Y" casting is worn away the thickness at the top of the casting will actually become greater because of the tapering. The wear limit on dimension "B" should be 1-7/16". If that dimension is less than that, then the casting should be replaced.

The seat pin has a reduced diameter where it fits up inside the "Y" casting. See Figures 2 and 3. When the seat pin is locked in place the head of the pin is held by the recess in the "Y" casting. With wear, the dimension "A" will increase from the original 1-5/8" and when it has reached 1-11/16" the seat pin should be replaced.

The reduced diameter of the seat pin was originally .746". If this diameter decreases to .625", then the seat pin should be replaced.

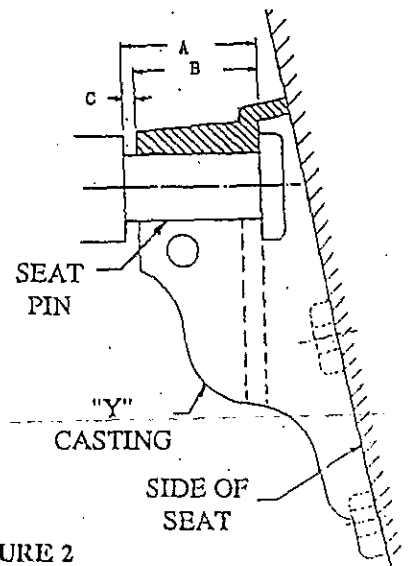


FIGURE 2

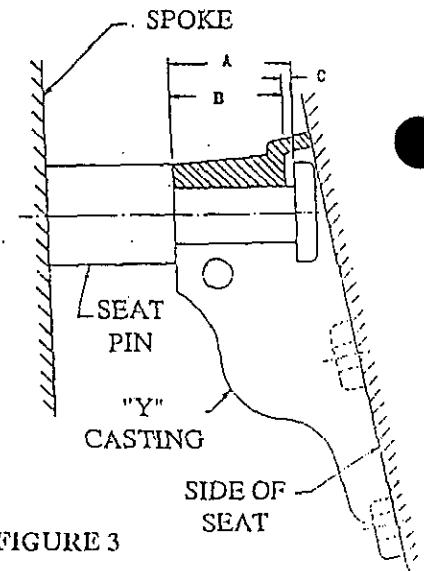


FIGURE 3

Lee A. Sullivan

Lee A. Sullivan

Chairman of the Board
ELI BRIDGE COMPANY