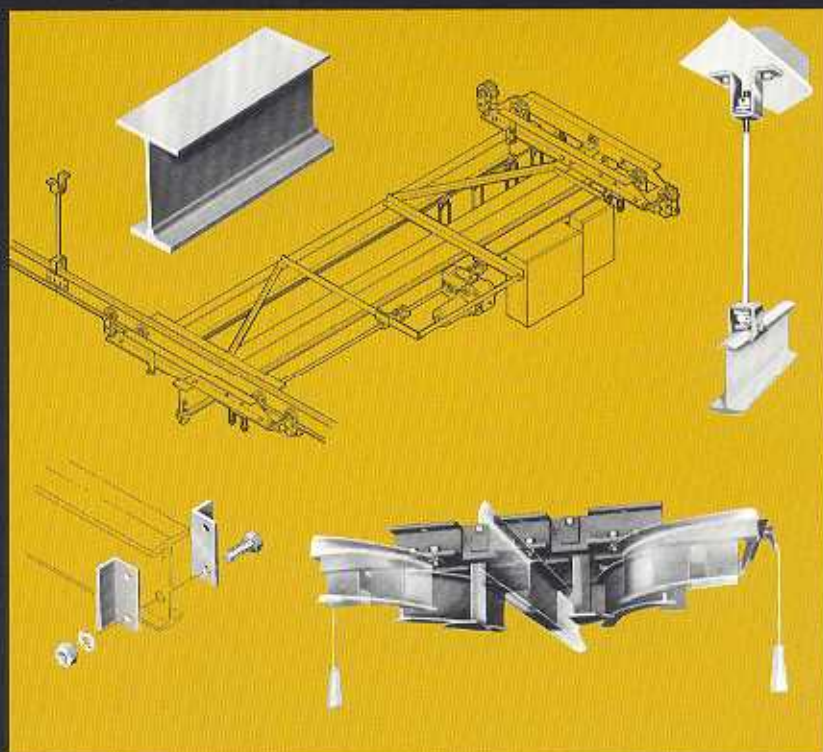


# LOUDEN<sup>®</sup>

## PRODUCTS





# The LOUDEN MACHINERY COMPANY . . . a HISTORY

ESTABLISHED 1867

FAIRFIELD, IOWA.

Back in 1867, the United States Patent Office issued the world's first patent on a hay carrier to William Louden. The advent of this hay carrier meant an end to laborious pitching of hay. It was this invention that made William Louden turn his genius to other devices to make farm work easier, thus beginning the foundation of his company, the Louden Machinery Company.

From this time, the Louden line of barn equipment flourished. The hay carrier was quickly followed by a number of other labor saving devices for dairy barns, including monorail systems for handling litter and feed. One of these devices was Louden "double-bead" track, the first patented track in the United States.

During this period, monorail systems and components were only designed for use in barns, so no attempt was made to sell the track system to industrial plants. However, in 1917, the company was approached to design a monorail system for removal of scrap metal from an industrial plant in Minneapolis, Minnesota. This became the first industrial monorail system. Word spread fast among the industrial communities, and soon, Louden Material Handling Systems were being purchased by companies across the country.

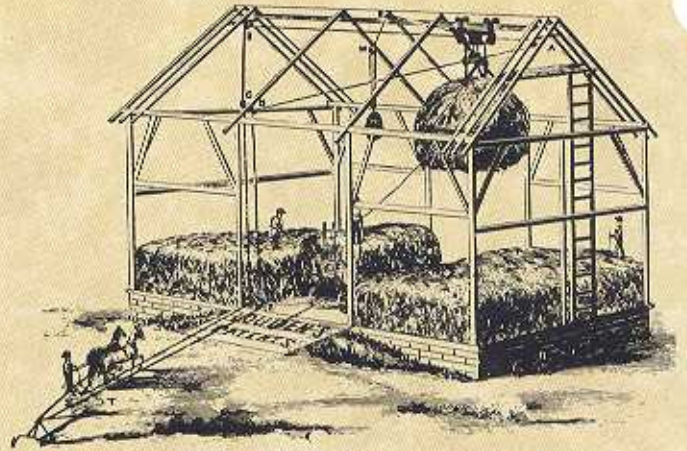
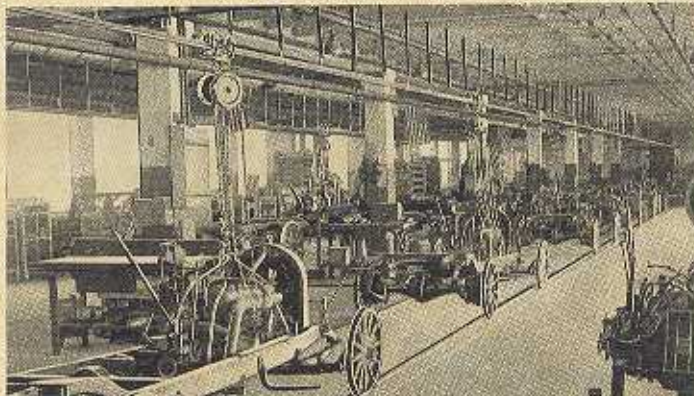
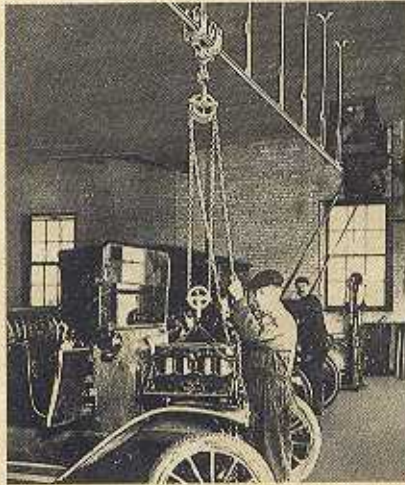


Illustration from 1869 catalog of Louden Machinery Company mechanism for stacking hay.

Since William Louden's early hay carrier, Louden has continued to meet the most challenging demands of today's material handling needs, and remains a leader in material handling systems.



## LOUDEN OVERHEAD CARRYING SYSTEM



*For Factories, Garages,  
Foundries,  
Machine Shops, etc.*

**The LOUDEN MACHINERY COMPANY**  
ESTABLISHED 1867  
FAIRFIELD, IOWA.

*Branches*

<small>ST. PAUL, MINN. DUBUQUE, IOWA ALBANY, N. Y. 1047 BROADWAY</small>	<small>CHICAGO, ILL. 1011 W. 38TH ST. KANSAS CITY, MO. THE HARBOR BLDG.</small>
--	---

CATALOG NO. 5.



# LOUDEN® PRODUCTS...TODAY



Louden monorail transports jet engine and spring beam into a test cell at an airline maintenance center, for automatic connection of wiring and plumbing.

Over a century ago, the *Louden Machinery Company* pioneered the development of overhead monorail conveying. Today, *Louden* provides the ideas, engineering and equipment that marks us as a leader in the growth of material handling technology used in American industry.

*Louden* products serve an almost endless variety of America's prominent manufacturing, processing and fabricating plants. The aircraft, aerospace, automotive, metals, paper, rubber, steel and textile industries as well as others are applying our years of experience and superior engineering know-how to meet today's most demanding challenges.

*Louden* markets a complete line of these material handling systems:

- Crane Systems
- Monorail Systems
- Stacker Systems

Our systems provide you with the best means of material transportation and movement throughout your plant. Our in-depth application experience produces a dependable performance-oriented system designed to reduce your material handling costs. We will continue the design and development of new material handling system equipment to handle tomorrow's various needs.



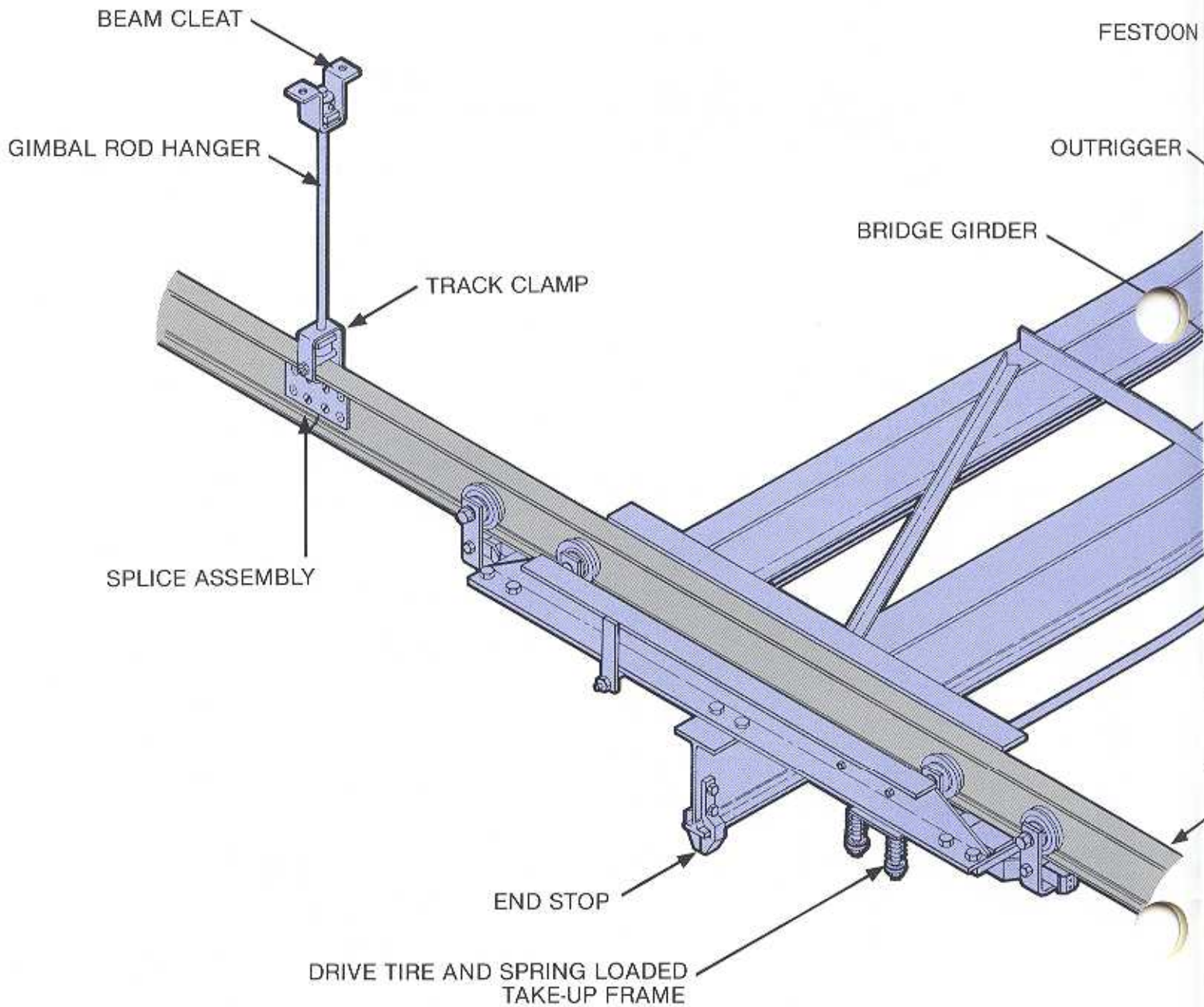
Chassis storage using horizontal automatic storage/retrieval system with two bridge cranes and chassis carriers.

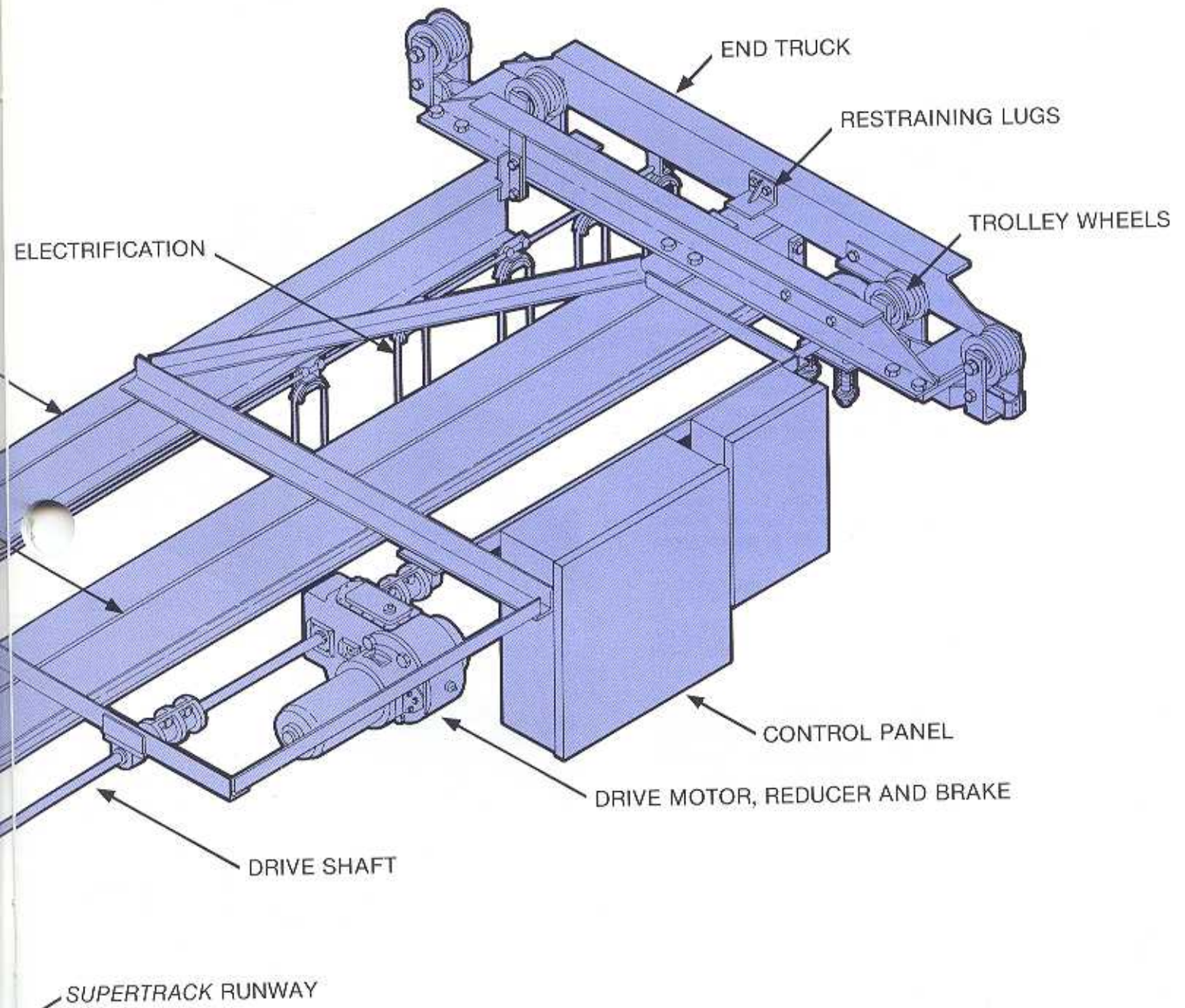
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# CRANE TERMINOLOGY





**WARNING:** Equipment described herein is not designed for, and should not be used for, lifting, supporting, or transporting humans. Modifications to upgrade, rerate, or otherwise alter the original equipment shall be authorized only by the original equipment manufacturer or qualified professional engineer. Failure to comply with any one of the limitations noted herein may result in serious bodily injury or property damage.



# TRACK

Engineered for maximum strength, long wear and ease of installation, *Louden* runway tracks and track fittings are designed to meet span, load and duty requirements for a wide range of applications. Composed of special analysis high carbon, high manganese steel, *Louden SuperTrack*, *SuperTrack Girder*, and *TrojanTrack Girder* sections are manufactured to maintain close tolerances on all dimensions.

*Louden* runway track is tailor-made for your job requirements. Each section of straight track is cut to exact length, all required holes in place and each curve is machine bent at the factory to layout drawings and specifications. Every piece of track is shipped from the factory, ready for installation.

## A. LOUDEN 602.6 SUPERTRACK

*Louden* 2" flange *SuperTrack* is the pioneer heavy-duty monorail track section. It is ideal for non-electrified monorail and crane systems with loads up to two tons. A complete line of hangers and other fittings are available to make this track easily adaptable to the most complicated systems requiring heavy-duty hand propelled equipment.

## B. LOUDEN 603.6 SUPERTRACK

*Louden* 3.33" flange *SuperTrack* incorporates a wider flange allowing the use of wheels with wide treads and extra large bearings. This track provides a beam of exceptional strength for all types of motorized carriers. Since the area of the track receiving the trolley is flat, and the tread of the wheel is also flat, increased wheel and track life is attained.

## C. LOUDEN 603.7 SUPERTRACK\*

*Louden* 3.33" flange *SuperTrack* possesses the same properties as the *Louden* 603.6 *SuperTrack* but can sustain heavier loads due to increase of the size of the compression flange.

A complete stock of fittings is available to make this track adaptable to the most complicated system.

\*Warning: Suspension of 603.7 *SuperTrack* must be made on the 603.6 track section only. Suspension can not be made to the material or bar added to the compression flange.

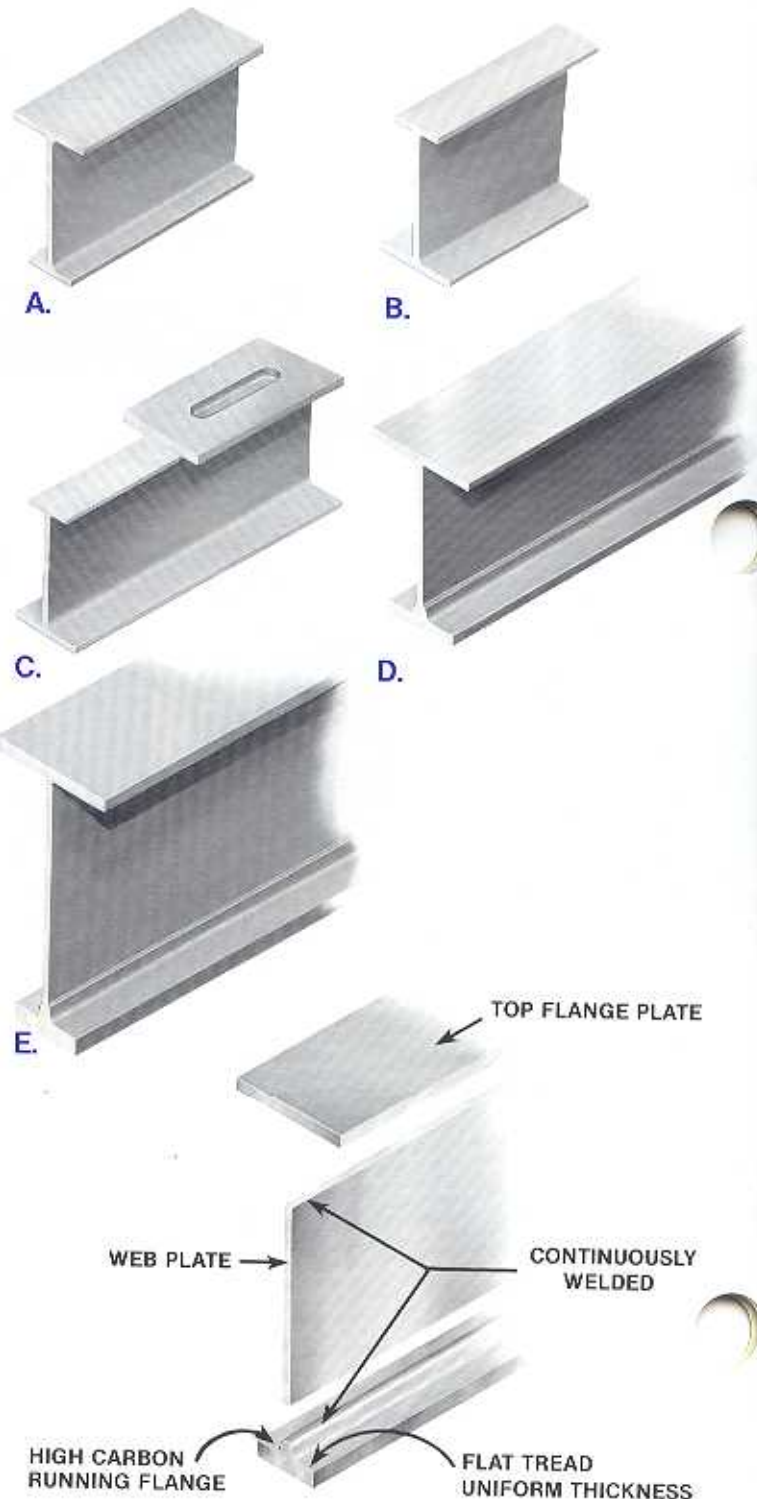
## D. LOUDEN 604 SUPERTRACK GIRDER

*Louden* 3.33" flange *SuperTrack Girder* is designed to meet the requirements of heavy-duty service at moderate expense. *SuperTrack Girder* is constructed with the operating flange continuously welded to a supporting web and top flange. The operating flange is rolled from special analysis billets to exacting specifications and tolerances.

*Louden SuperTrack Girder* is used where loads and building bay-spans are too great to use standard *SuperTrack*. *SuperTrack Girder* provides a beam of exceptional strength and maximum weight economy. The beam strength reduces or eliminates the need for intermediate hangers.

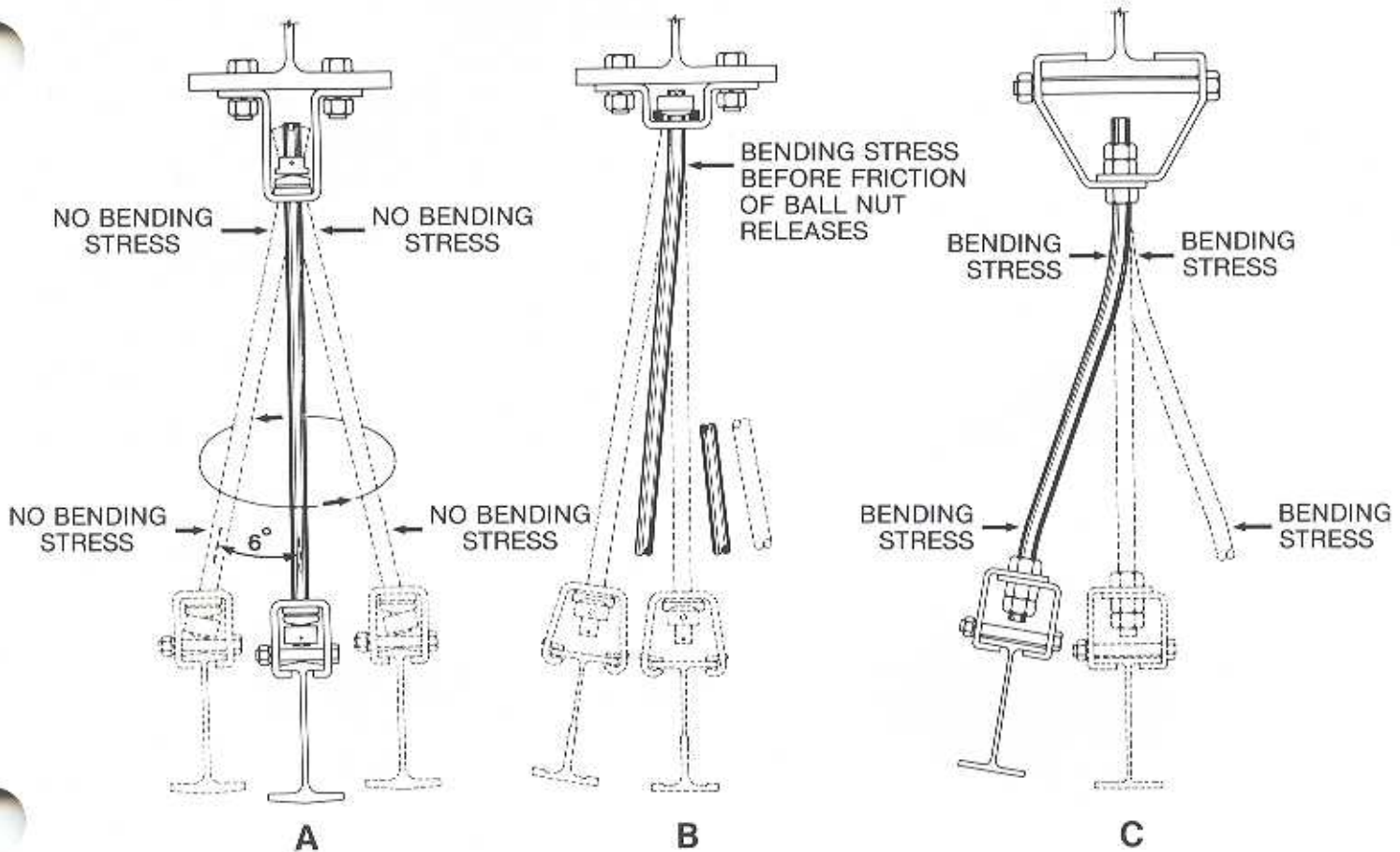
## E. LOUDEN 605 TROJANTRACK GIRDER

*Louden* 3.33" flange *TrojanTrack* has the strongest operating flange of any of our specially rolled monorail track sections. The operating flange design and metallurgy offer a track capable of sustaining large wheel loads under rugged heavy-duty service, while minimizing peening and wear. The girder web and top flange are fabricated from steel plates which are continuously welded to form the girder track section. These girders are of sufficient depth to permit the use of large diameter wheels to move extremely heavy loads under punishing requirements with dependable performance and durability. *Louden TrojanTrack* Girders are designed for maximum structural value as a load carrying member.





# HANGER ROD COMPONENTS



## Exclusive Gimbal Suspension System

The *Louden* gimbal suspension system is one of the most important component improvements in the history of the monorail industry. The system aids in reducing extreme bending stresses that can cause fatigue failure of old style hanger rods. The key to the effectiveness of the system is the multiplane washers at both ends of the hanger rod that give a gimbal effect permitting free movement of  $\pm 6^\circ$  in any direction without bending the rod. The illustration shown at right depicts typical hanger rod assemblies. Note in assembly A how the gimbal washers permit free action in any direction within the  $\pm 6^\circ$  limits.

In assemblies B and C, the rod hangers encounter significant bending stresses that could cause fatigue failure.

## Hanger Rod Components

### High Tensile Steel Hanger Rods

Made from high tensile steel, these rods come with 6" of Unified National Fine threads. Using the minor diameter area method, the  $\frac{3}{4}$ " rod is rated at 8,500 + lbs. and the  $1\frac{1}{8}$ " rod at 20,000 + lbs. Rods are furnished with plastic protected threads for shipping and factory assembled lower nut secured by a roll pin.

### Gimbal Washers

The tapered planes on the top and bottom surfaces permit rod sway of  $\pm 6^\circ$  in any direction. Protruding guides center the washer over the hole in the fitting.

### Adjusting Nut

This hardened steel, cadmium plated nut is secured after adjusting with *Nylok* socket set screw.

### Hardened Bearing Washer (not shown)

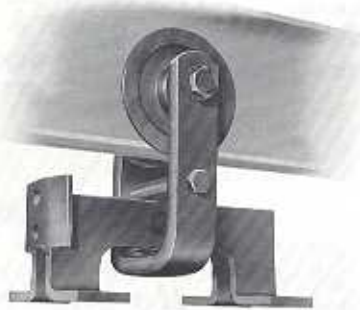
Used when gimbal rods are suspended directly through holes in building steel or superstructure, it is placed between upper gimbal washer and supporting steel. Two sizes are available, for  $1\frac{1}{8}$ " and  $\frac{3}{4}$ " gimbal rods.



# COMPONENTS

Crane and Monorail systems are engineered by using standard components. The following are some of the major components used in creating a crane or monorail system.

## TROLLEYS



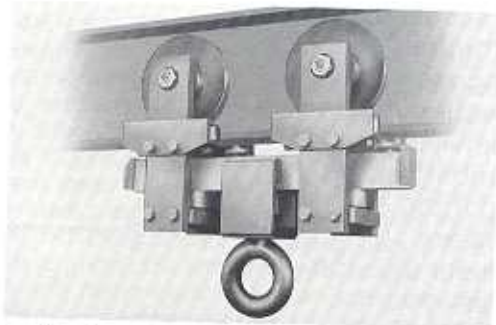
A two wheel trolley with flanged wheels for use with special loadbars, racks and carriers is available for a 2" or 3.33" flange application.



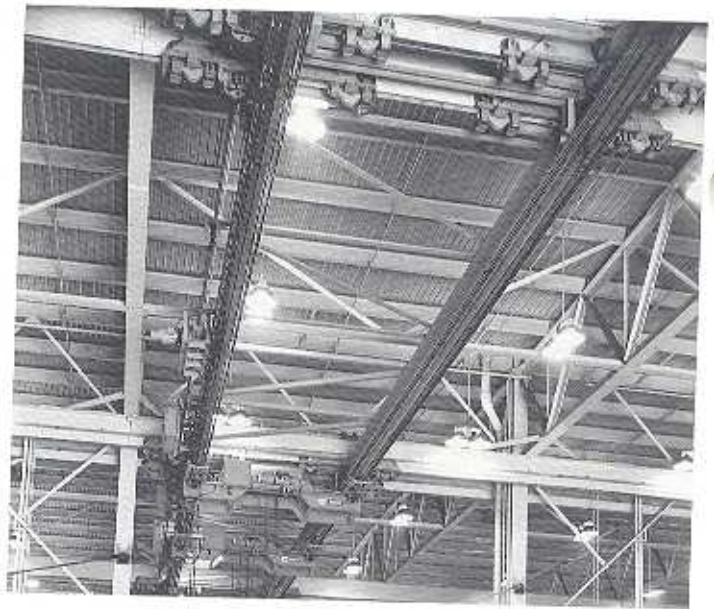
A two wheel trolley with flangeless wheels and guide roller is available to operate on a 2" and 3.33" flange application.



A four wheel trolley with flanged wheels is available to operate on a 2" or 3.33" flange application.



A four wheel trolley with flangeless wheels and guide rollers is available to operate on a 3.33" flange TrojanTrack application.



## BEAM CLEATS



Used to connect Gimbal Rod assemblies to the bottom flange of superstructure beams. They are furnished complete with built-in hardened bearing washer and mounting bolts.

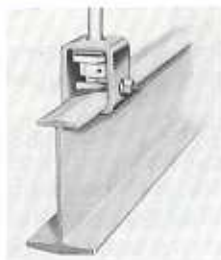
## BEAM CLAMP



Adjustable beam clamps eliminate the need to drill holes in the building steel by rigidly clamping to the superstructure beam flange. The fitting is equipped with a built-in hardened bearing washer.

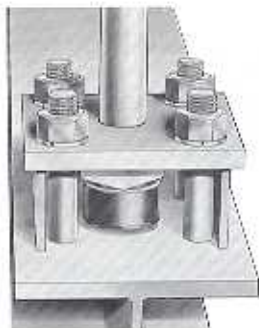


## TRACK CLAMP



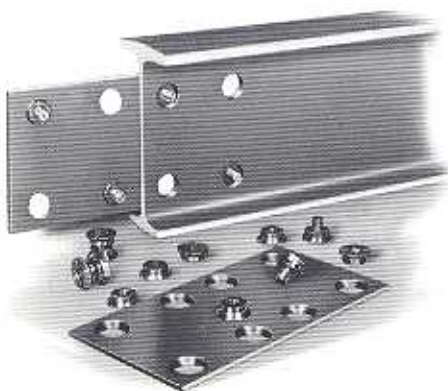
These track clamps have a built-in hardened bearing washer for *Louden* Gimbal Rods. They clamp to the top flange of 603.6 and 603.7 *SuperTrack* at any point in the track system.

## TRACK HANGERS



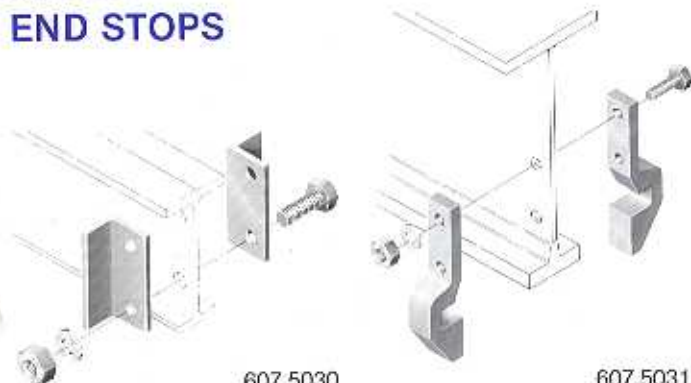
Used to connect *Louden* Gimbal Rod assemblies to girder track, girder track hangers are designed to allow full gimbal rod action.

## SPLICE ASSEMBLIES



Splice assemblies are designed to hold two lengths of *Louden* track in alignment by clamping the track web of like thicknesses.

## END STOPS

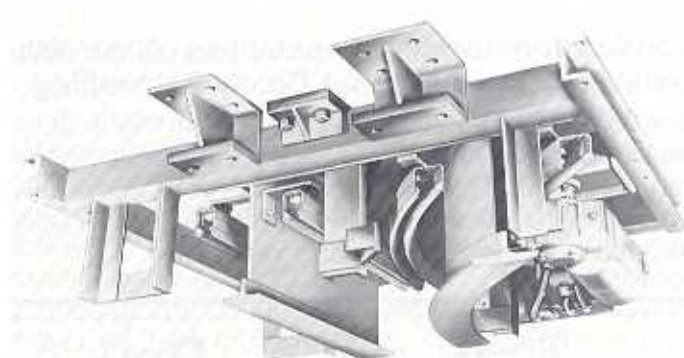


607.5030

607.5031

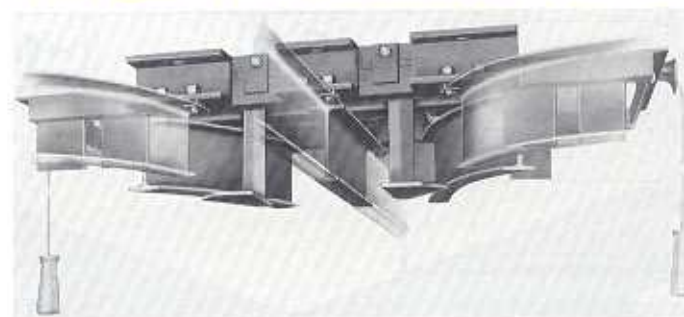
The 607.5030 is an end stop for use with hand pushed systems. The 607.5031 is a universal stop that engages the loadbar of a trolley, carrier or crane.

## ELECTRIFIED SLIDING SWITCHES



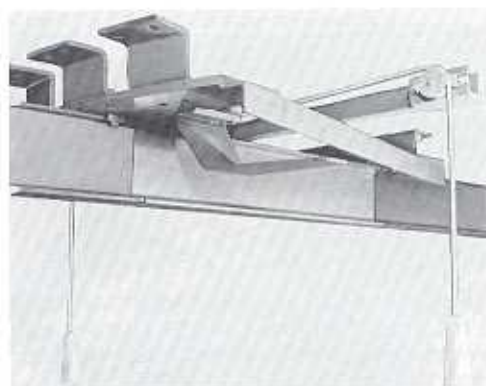
Electrified *SuperTrack* Sliding Switches are available in three configurations; two-way, three-way and wye. These switches may be operated by hand, electric motor or by air cylinders. Sliding switches are designed to be used with *Louden* Motorized carriers equipped with *Louden SuperTrack* trolleys.

## NON-ELECTRIFIED SLIDING SWITCH



*Louden* Non-Electrified *SuperTrack* Sliding Switches are available in three configurations: two-way, three-way and wye. These medium duty sliding switches are used in monorail systems that do not have electrically powered carriers.

## TONGUE SWITCH



*Louden SuperTrack* Tongue Switches are designed to permit one switch to perform four different operations. With only a minimum modification to the operating mechanism, the basic switch may be used as a right-hand, left-hand, wye or three-way tongue switch on non-electrified *SuperTrack* monorail systems. Conversion to wye type switches may be made with no additional parts.

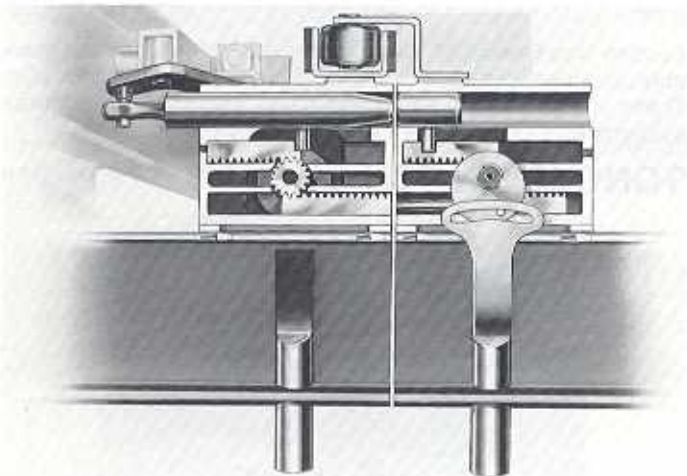
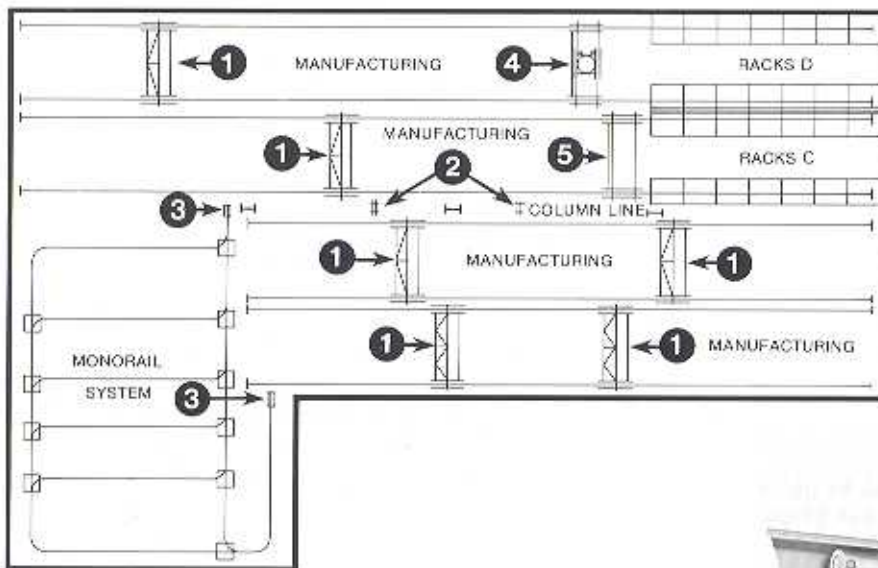
The components shown here are just a few of the necessary elements required for the proper fabrication of a crane or monorail system. *Louden* electrification and controls are shown on pages 15 thru 17.



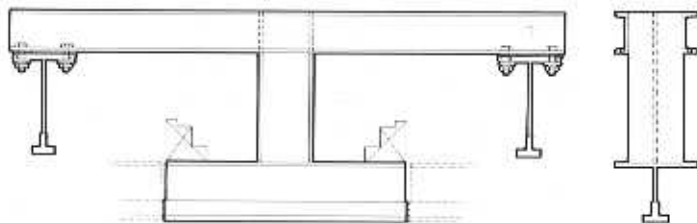
# INTERLOCKING DEVICES

## Louden Interlocking Capabilities Allow Material Movement Without Costly Rehandling

Louden Latching devices range from light duty, hand operated latches to heavy duty motor operated latches. Every latch has been carefully designed to afford positive latching with tracks aligned both horizontally and vertically.



**HAND-OPERATED LATCH** is used for light and medium duty crane and monorail operations, these latching mechanisms give positive track alignment needed for smooth operation of trolley wheels through the latching point.



**TRANSFER SECTION** mounts on adjacent crane runways providing a means for a load to move from one crane to another across a building column line without costly rehandling. Any deflections are equalized, permitting smooth passage of the trolley wheels.

In the illustration below, complete material movement can be achieved without costly rehandling with the use of Louden interlocking devices.

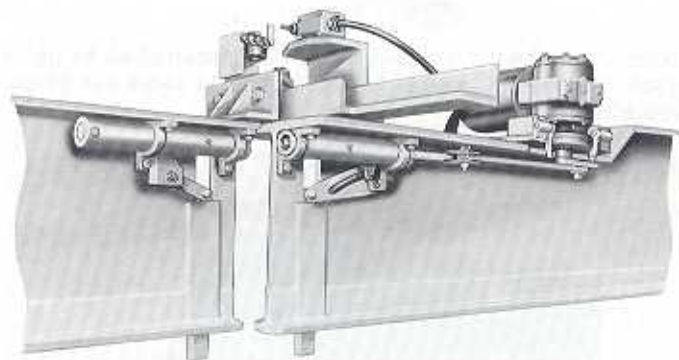
**1. Louden Cranes** - These cranes, equipped with interlocking latches, enable a manufacturer to move loads from one crane system to another without rehandling.

**2. Transfer sections** - Where column lines or walls eliminate the possibility of latching cranes together directly, transfer sections are installed. By latching cranes to the transfer section, loads can be moved from bay to bay without rehandling.

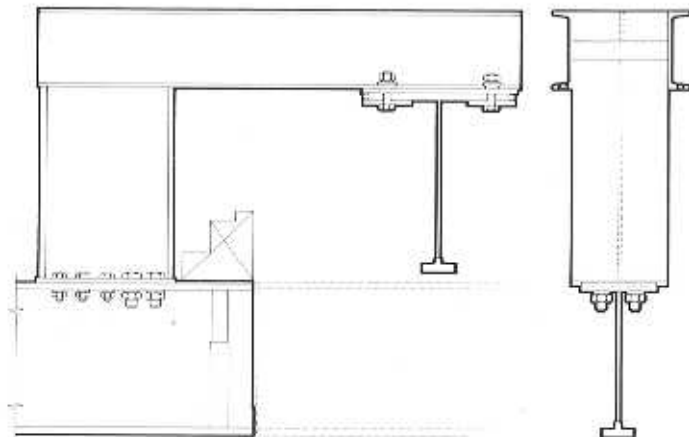
**3. Spur track supports** - Smooth passage of the trolley wheels over the transfer joint from crane to monorail is allowed when the two systems are latched together.

**4. Louden stacker and double girder stacker crane** - Used for high-rise storage of materials, this stacker crane is equipped with latching devices to interlock with stacker crane #5. With the cranes latched together, the stacker is free to transfer from the racks in bay C to bay D.

**5. Louden double-girder stacker crane** - This crane interlocks with crane #4 to give stacker access to racks in both bays C & D.



**MOTOR-OPERATED LATCH** is used for heavier duty crane and monorail operations. This latch is equipped with a channel-shaped guide which functions with a heavy roller mounted on the block to allow latching and proper track alignment.



**SPUR TRACK** support is used to provide smooth passage of trolley wheels over the transfer joint from crane to monorail. Since the end of the spur track is supported on the crane runway, any deflections at the ends of the crane bridge and spur track are equalized. No other support of the spur track should be provided close to a spur track support since this would upset its equalizing effect.

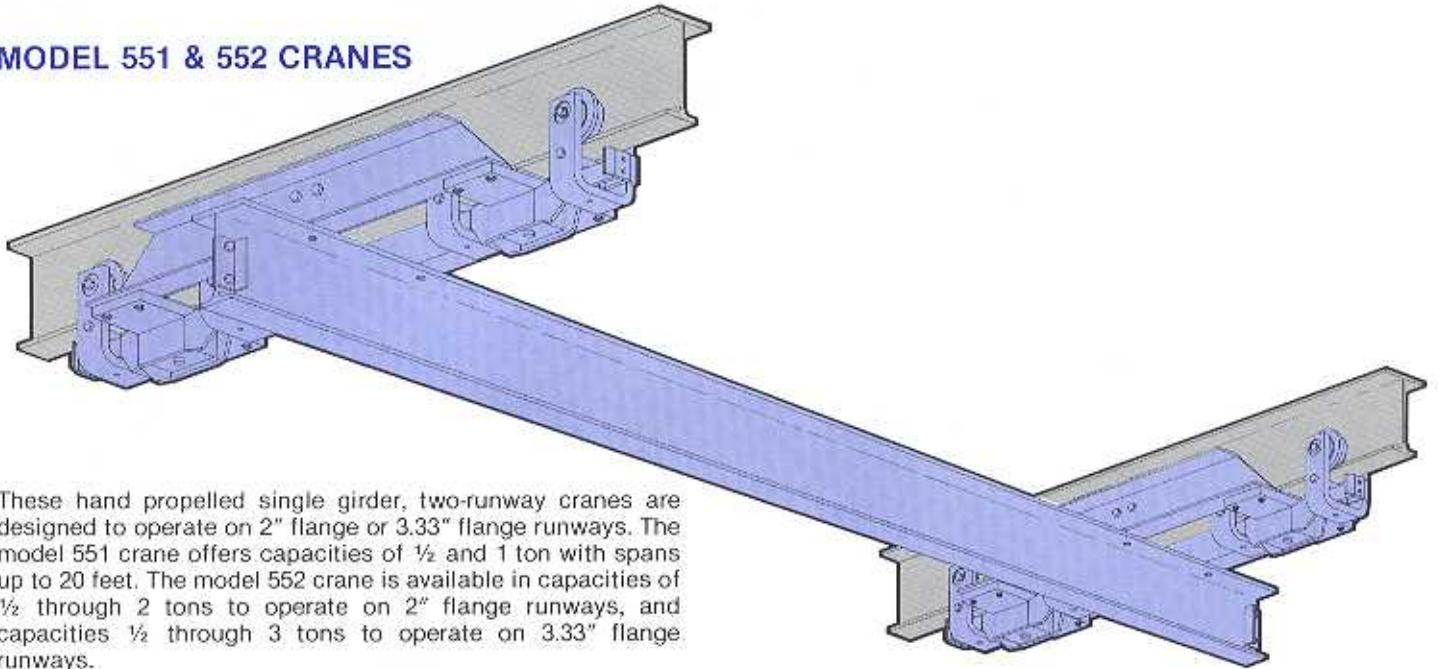


# CRANE MODELS

To permit easy transfer of loads from one system to another without interference, where complete area coverage is desired or where lifting and lowering load points are not definitely established, cranes offer efficient, fast, low cost material handling service. Highly versatile, cranes provide many advantages in handling materials where plant layout and service factors require specialized equipment. Their ability to handle loads over extremely large areas without costly rehandling is one of their many outstanding features. Whether

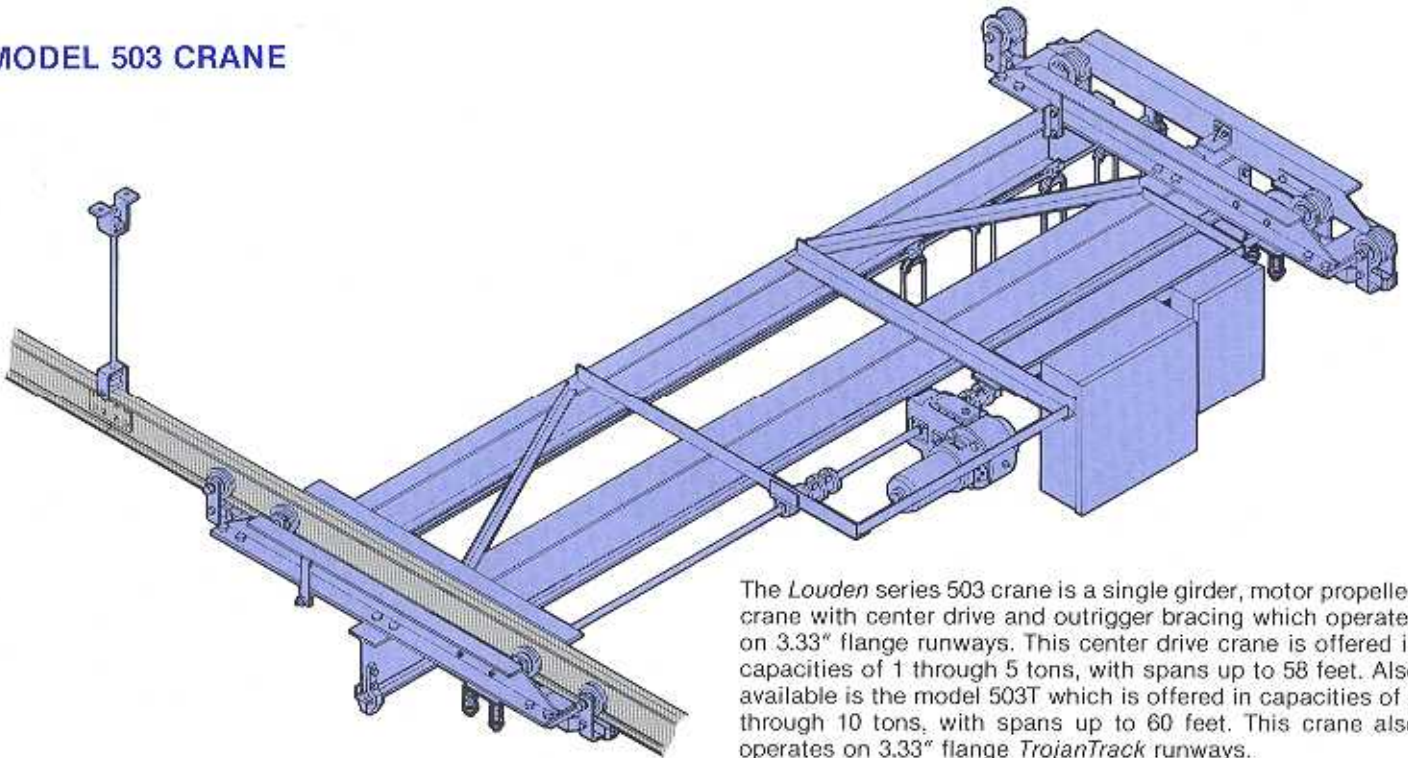
used for intermittent or stand-by service, or frequent and heavy hoisting and conveying, there is a specialized crane for your requirements. Runway tracks paralleling the area's longest dimension carry end trucks for supporting the crane bridge with direction of travel transverse to the crane. The following illustrations show our hand pushed cranes used for light duty service, and our motor propelled cranes used for larger loads or frequent travel. A description of each crane model is provided for a basic understanding of its capabilities.

## MODEL 551 & 552 CRANES



These hand propelled single girder, two-runway cranes are designed to operate on 2" flange or 3.33" flange runways. The model 551 crane offers capacities of ½ and 1 ton with spans up to 20 feet. The model 552 crane is available in capacities of ½ through 2 tons to operate on 2" flange runways, and capacities ½ through 3 tons to operate on 3.33" flange runways.

## MODEL 503 CRANE

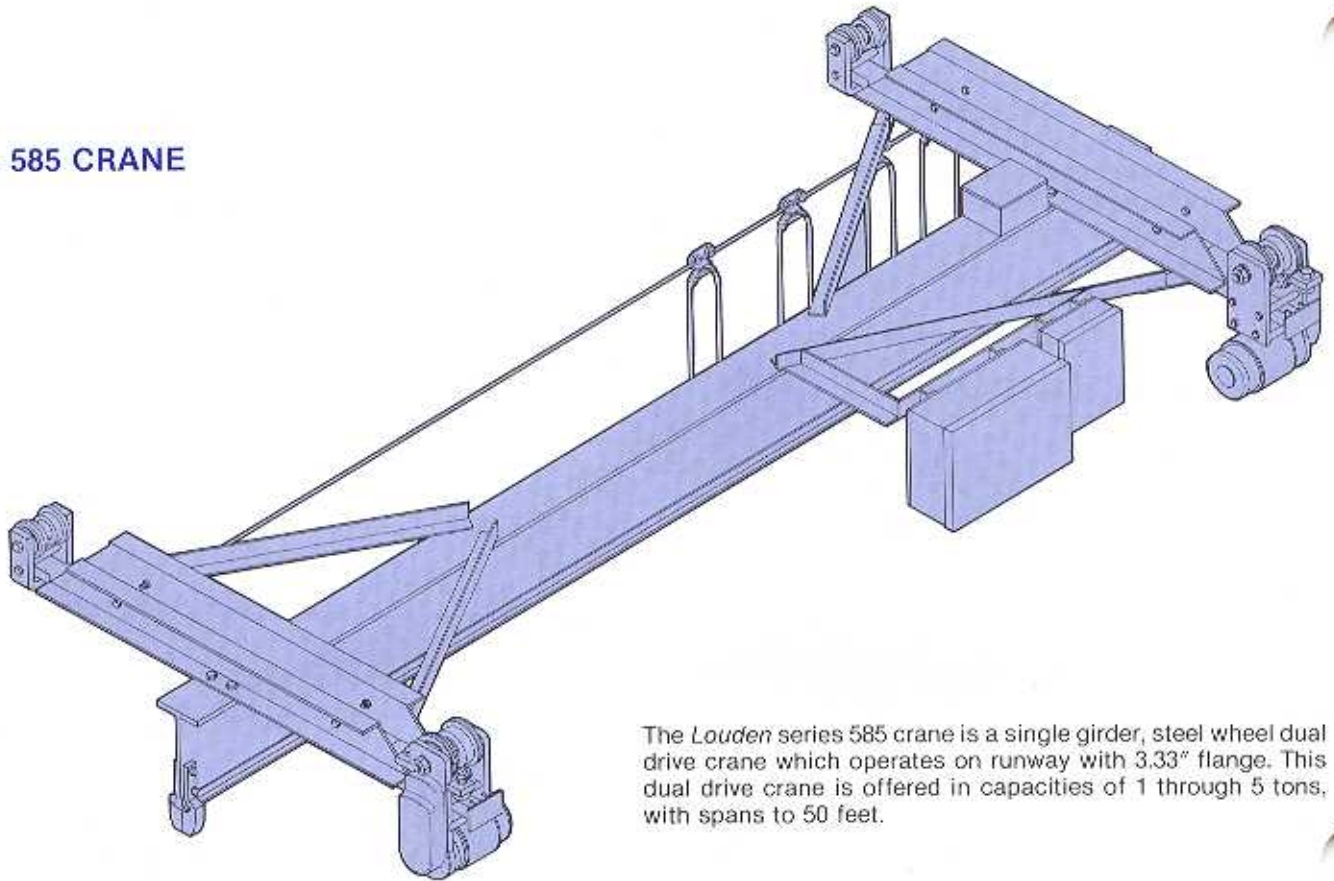


The *Louden* series 503 crane is a single girder, motor propelled crane with center drive and outrigger bracing which operates on 3.33" flange runways. This center drive crane is offered in capacities of 1 through 5 tons, with spans up to 58 feet. Also available is the model 503T which is offered in capacities of 5 through 10 tons, with spans up to 60 feet. This crane also operates on 3.33" flange *TrojanTrack* runways.



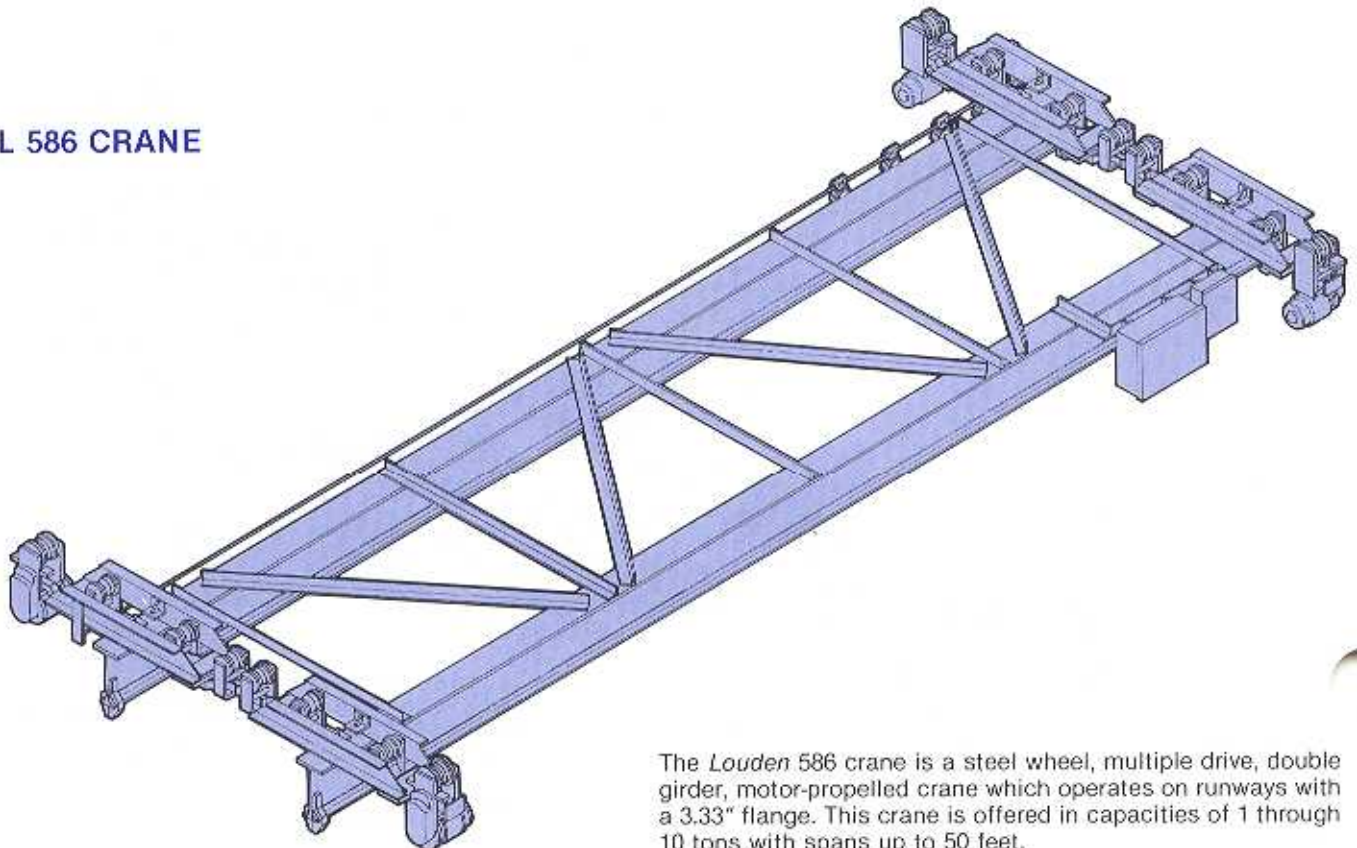
# CRANE MODELS

## MODEL 585 CRANE



The *Louden* series 585 crane is a single girder, steel wheel dual drive crane which operates on runway with 3.33" flange. This dual drive crane is offered in capacities of 1 through 5 tons, with spans to 50 feet.

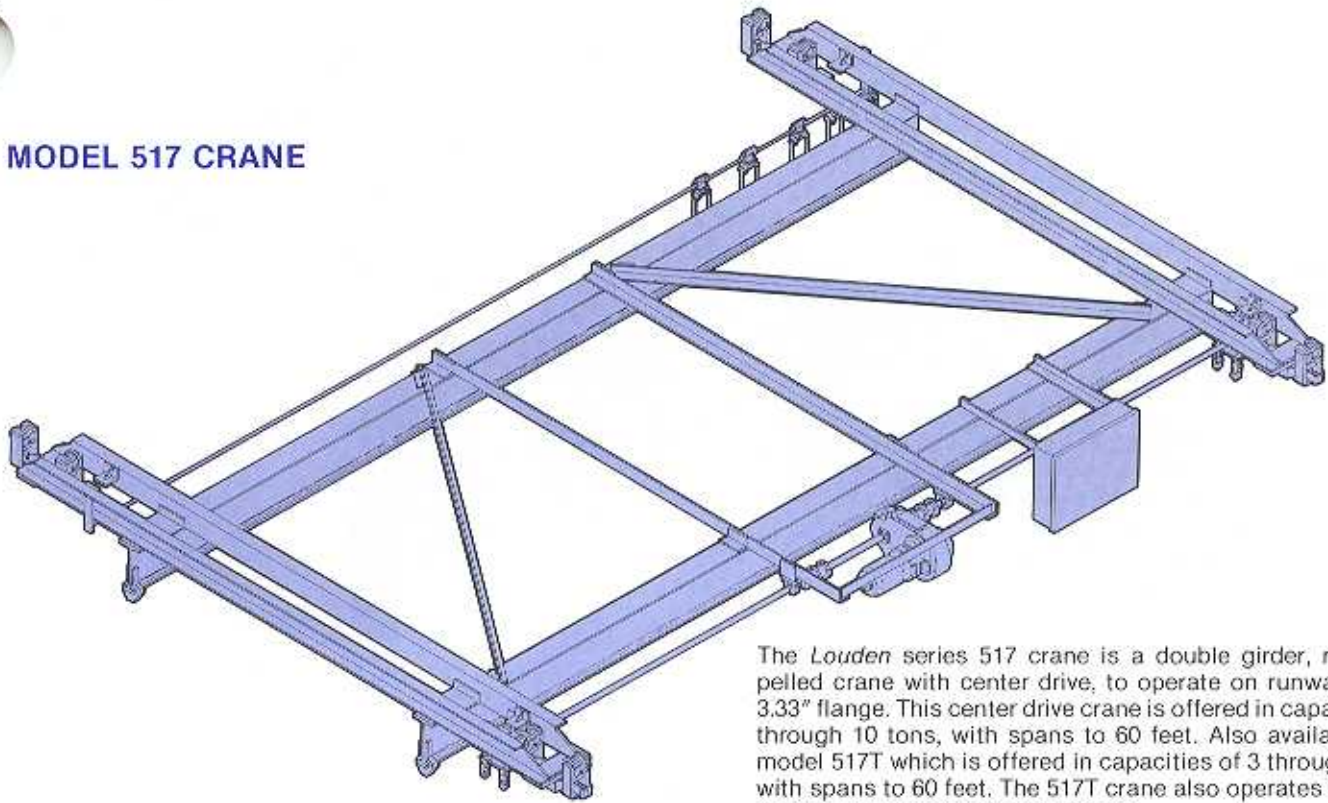
## MODEL 586 CRANE



The *Louden* 586 crane is a steel wheel, multiple drive, double girder, motor-propelled crane which operates on runways with a 3.33" flange. This crane is offered in capacities of 1 through 10 tons with spans up to 50 feet.

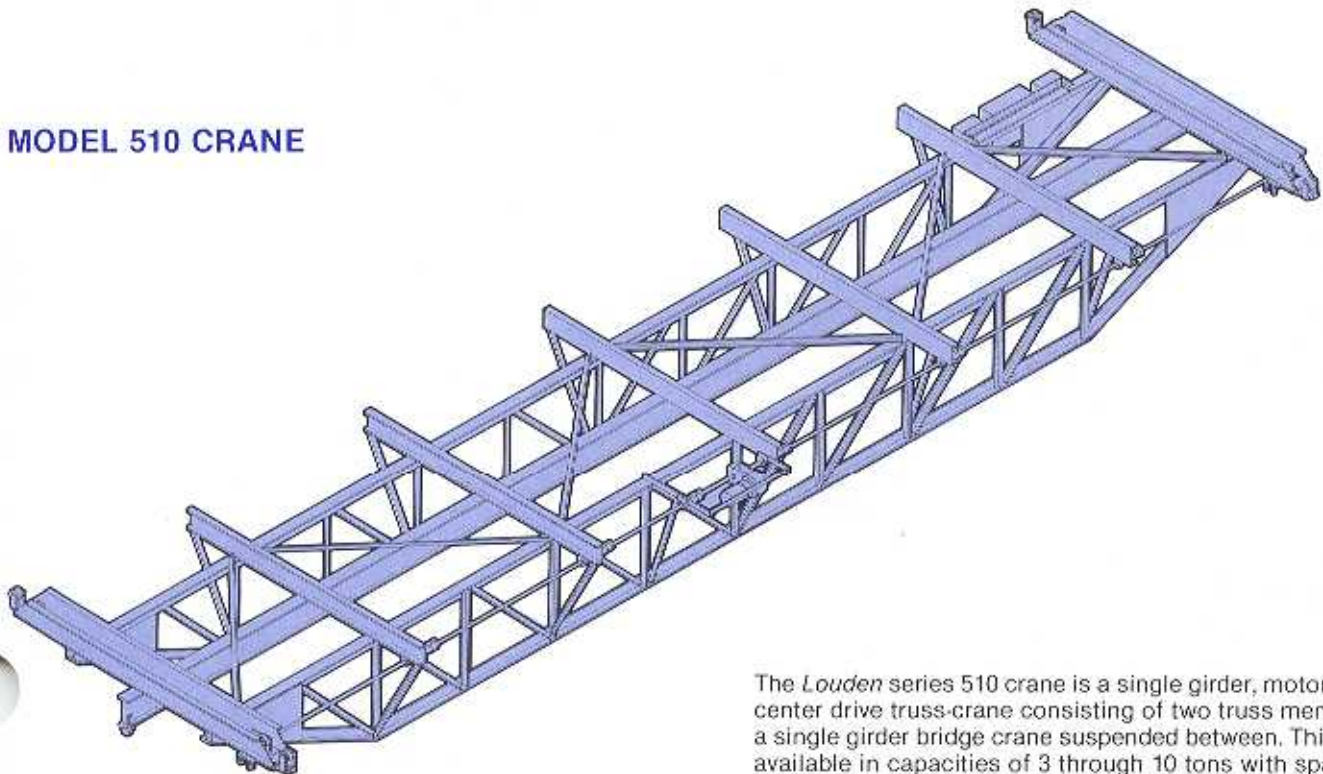


## MODEL 517 CRANE



The *Louden* series 517 crane is a double girder, motor propelled crane with center drive, to operate on runways with a 3.33" flange. This center drive crane is offered in capacities of 1 through 10 tons, with spans to 60 feet. Also available is the model 517T which is offered in capacities of 3 through 15 tons with spans to 60 feet. The 517T crane also operates on *TrojanTrack* runways, with a 3.33" flange.

## MODEL 510 CRANE



The *Louden* series 510 crane is a single girder, motor propelled center drive truss-crane consisting of two truss members with a single girder bridge crane suspended between. This model is available in capacities of 3 through 10 tons with spans to 100 feet. It is also available in model 510T using *TrojanTrack* girder bridge beam, and offers capacities of 5 through 20 tons, with spans to 100 feet, to operate on *TrojanTrack* runways.



# MOTOVEYORS

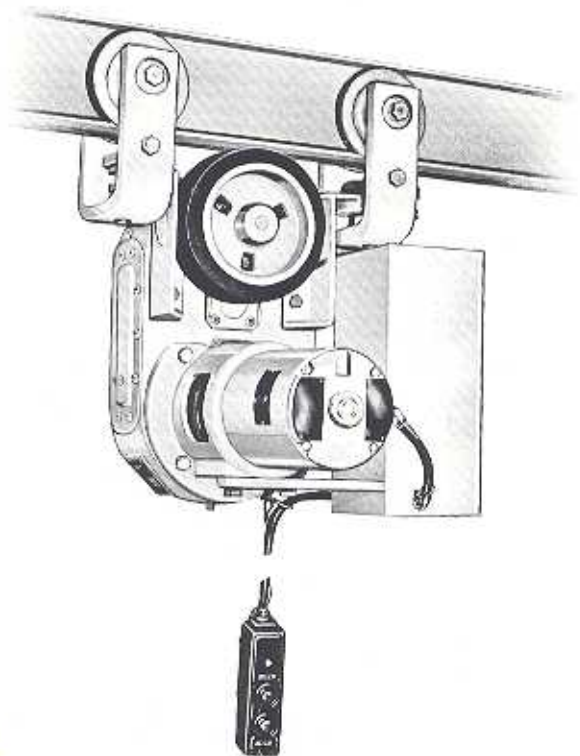
Several *MotoVeyors* are offered to cover a wide range of capacities and travel speeds. These *MotoVeyors* are used primarily to propel hoists or load carriers along a monorail system. This may consist of straight track, curves, switches, lift sections, and on bridge beams which include transfers to monorail spurs or other bridge cranes.

- A. The model 3HL *MotoVeyor* is a rugged, heavy-duty monorail drive unit built to move loads under punishing requirements, with dependable performance and durability. Travel speeds range from 50 FPM up to 250 FPM with horsepowers of  $\frac{3}{4}$  to 5 HP. Travel speeds are single speed, 2 speed and variable speed.
- B. The model M-8 *MotoVeyor* is a compact drive unit designed for medium duty service. The drive unit consists of a motor gear head with integral fluid coupling, and anti-friction bearings. This drive unit is available in speeds of 70 and 125 FPM.
- C. The model 302 *MotoVeyor* is a steel wheel drive unit for use on monorail systems that do not use switches. It may also be used on crane bridges. Travel speeds are available from 50 to 150 FPM single speed, two speed, and variable speed options. This model offers capacities of 2 ton through the maximum of 6 tons.\*

\*Based on maximum hoist weight of 3100 lbs.

- D. *Wright-Way*® Electric Tractor Drive Unit  
A light duty model featuring a 9" diameter drive tire. Travel speeds range from 30 through 80 FPM in both single or two speed models. Units are available for standard I and WF beams with 3-7 inch flange widths and patented track with  $3\frac{1}{4}$ " or 3.33 flange. Capacities available from 1 through 5 tons.

Photo shown is standard I and WF beam model.



A. ▶  
B. ▼



C. ▲



D. ▲



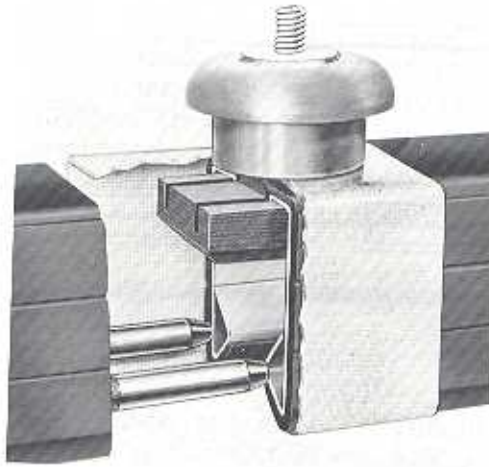
# ELECTRIFICATION

Louden offers three types of electrification for crane, monorail and stacker systems:

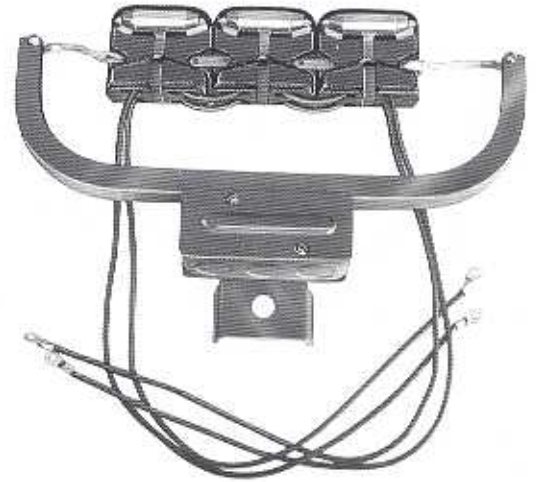
## DUAL CONDUCTOR BOTTOM ENTRY ENCLOSED ELECTRIFICATION



Cross Section of Conductor Section with Collector

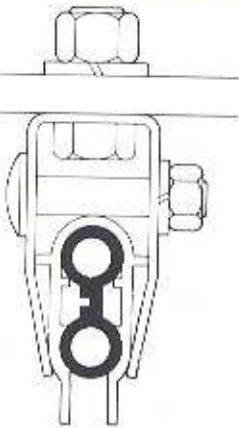


Dual Conductor with Support Insulator



Current Collector

## SINGLE CONDUCTOR BOTTOM ENTRY ENCLOSED ELECTRIFICATION



Cross Section of Single Conductor Bar with Hanger Clamp

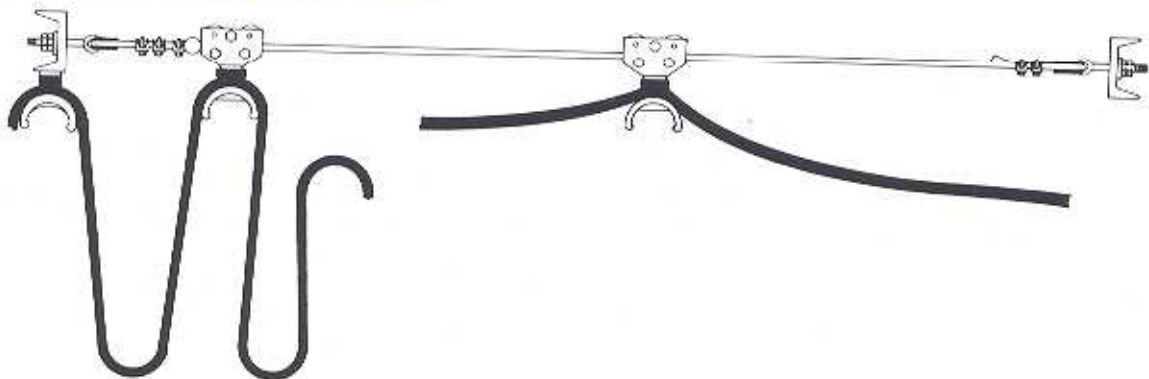


Conductor



Current Collector

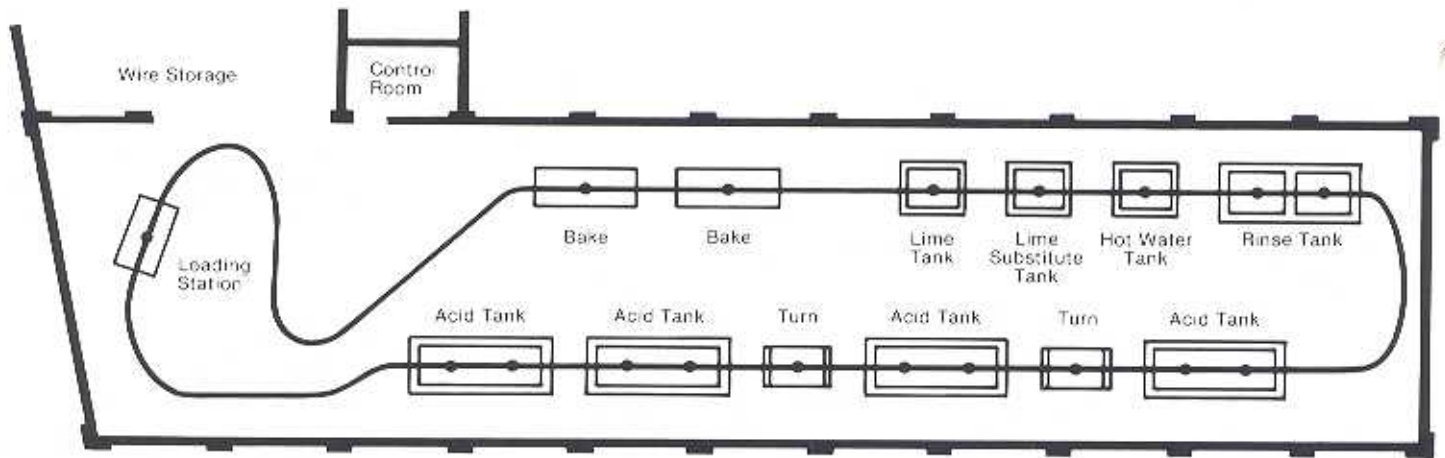
## LOUDEN FESTOONING SYSTEM



Louden Cable or Track Supported Festooning System with Multiple Wires.



# AUTOMATIC CONTROLS



Since the late 1930's *Louden* has provided industry with automatic monorail and crane systems. The first generation of these systems used limit switches, solenoid actuated air cylinders, and other devices to select a specific carrier needed for a particular process from a larger group of carriers.

Approximately ten years later *Louden* developed the first generation of "Selectomatic Control" for use with Figure 8 Bar Electrification. Magic in a box!!! This enabled the carrier to perform many automatic functions, such as raising and lowering the hoist or selecting the shortest route from "point A" to "point B" and traveling there when dispatched from "point A" or called to "point B" from any remote location.

To expand and refine automatic capabilities *Louden*, in the early fifties, developed a revolutionary electrical conductor and current collector system. It allowed spring-loaded control sections to be inserted into the insulated conductor section anywhere on the system where current collector contact was desired. Even today it stands as the only system of its type, designed specifically for automatic operation.

Prior to development of the Programmable Logic Controller, (P.L.C.), all automatic systems used relay-logic to time and signal the carrier its performance functions. Even the world's largest automatic monorail system, used for chemically etching and plating aircraft parts, uses relay-logic. Ninety-one carriers travel over four miles of monorail and through 130 track switches. The control cabinets contain 1200 relays, 125 timers and nearly eighty miles of wire.

*Louden* continues to lead the way by using the

computer and P.L.C. to perform the functions formerly done by relay-logic. Automatic sequencing is now designed, checked, and debugged in our engineering department, resulting in minimum field check-out time. This also increases reliability and flexibility.

Automatic processing with monorail systems or crane systems fits hand-in-glove with today's "Just in Time" method of material flow. Flexible and precise timing can be designed into the system, resulting in improved quality control with exact quantities produced on time.

Why automatic processing? Basically there are three reasons: Reduced inventory of material in process, better quality of finished product, and reduced labor cost plus overhead applied to labor. All result in lower unit cost of processed product. When to use automatic processing: Any process or handling that is repetitive or uses similar steps, even though there might be several variations necessary throughout the process. Some examples are: Intra and inter-plant delivery and retrieval from work stations; dipping systems for surface preparation of metal parts; continuous remote monitoring of fuels or commodities likely to develop "hot spots"; and processes which result in a hostile environment for personnel.

The dipping system shown above is very typical. It's repetitive, with a mildly hostile environment, and immersion time in the tanks is critical to quality control. The system interfaces with peripheral equipment, and uses varied timing and sequencing cycles because of the different sizes of product being processed. The system processes 300,000 lbs. of coiled wire and rod in two-eight hour shifts and is operated by one person per shift.



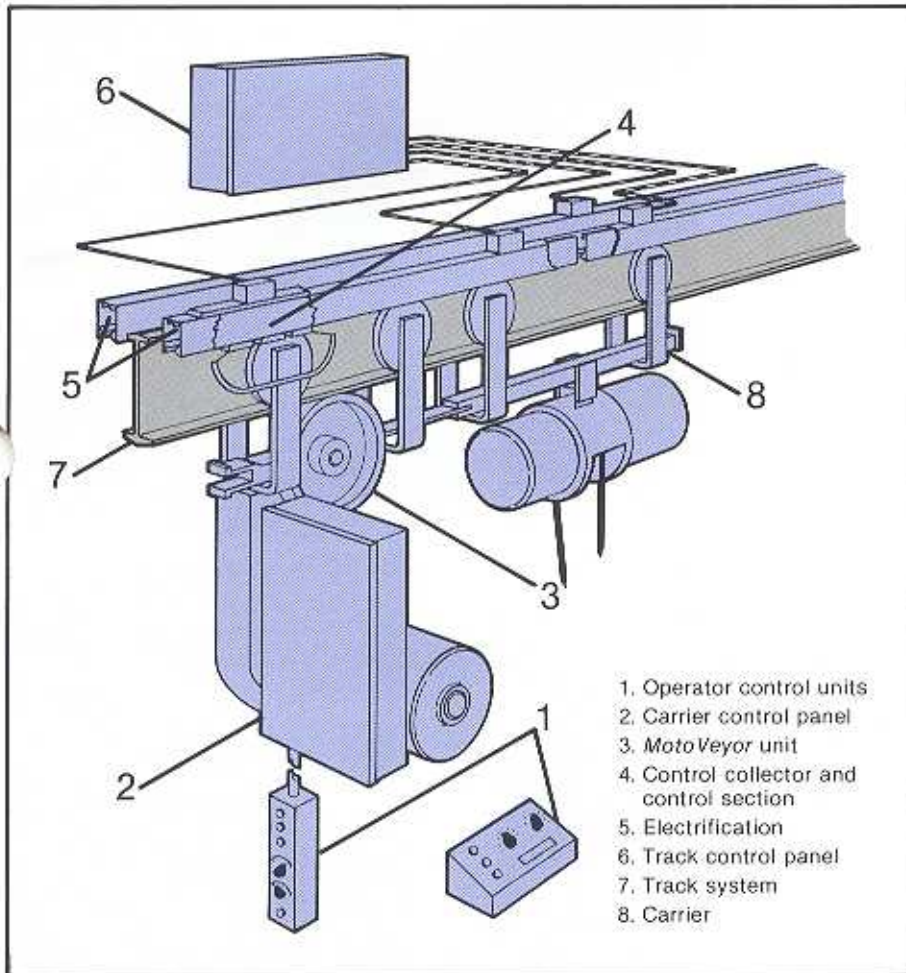
# SELECTOMATIC® CONTROLS

## CONTROL

Our exclusive *Selectomatic* control system adds important flexibility and reliability to a *Louden* monorail or crane system. With such a system, almost unlimited automation is possible, even interfacing with computers for combining monorail and crane functions with other plant operations. *Selectomatic* control logic is similar to that of most solid state control packages, so complete sophistication is easily accomplished.

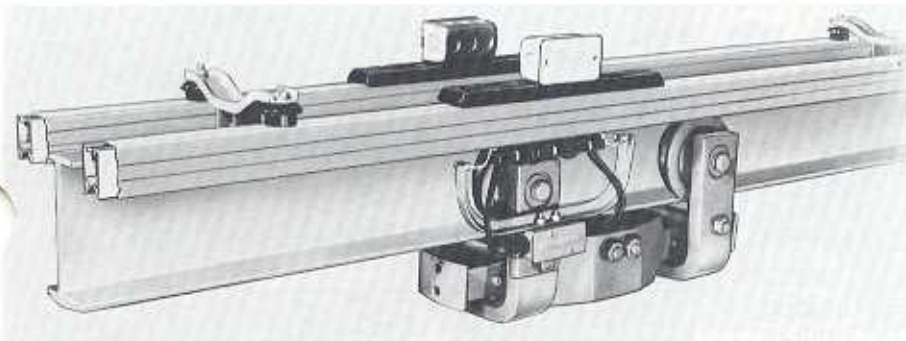
Relying entirely on electrical circuitry, the *Selectomatic* controlled *Louden* monorail system uses no mechanical trips, limit switches or similar mechanical devices.

The operator initiates system movement and functions either by pendant control or from an adjacent remote console.



Some of the functions that can be performed by *Selectomatic* control are:

- Start, accelerate, decelerate and stop the carrier.
- Sound warning at fixed positions for personnel safety.
- Index accurately into load and unload positions.
- While at weigh stations weigh its own load automatically.
- Energize and de-energize vacuum lifters and motorized grabs.
- Select the best route by direct address control.
- Detect and prevent entry into improperly-aligned track section, switch or lift.
- Monitor traffic at fixed or required spacing between carriers for proper work flow control.
- Divert from main to storage lines for later recall.
- Sequence traffic flow into congested areas.
- Lower and immerse loads into baths or vats at timed intervals.
- Time functions such as heating, drying, baking, dipping and pickling.
- Open and close plant and process equipment doors.





# STACKERS

The first *Louden* stacker was built back in 1869 and used for storing hay. Today, more than a century later, *Louden* stackers stack anything from small parts to large bundles of bar stock weighing thousands of pounds. *Louden* offers material storage systems featuring *Louden* stackers, *Man-Stax* manual storage and retrieval, and order picking machines. With a *Louden* system, movement of all sizes and shapes of material is made easy. Floor space is conserved and material is immediately accessible. Moreover, the equipment can operate in narrow aisles, greatly increasing storage capacity and freeing floor space.



## Man-stax®

The *Louden Man-stax* stacker was specially designed to meet small to medium size storage needs at a moderate cost. It is a simple, straightforward, economical approach for handling and storage dies, small parts, tooling and odd sized packages. The *Louden Man-stax* system fits perfectly into operations in tool and die shops, maintenance departments and small warehouses.

### Significant Advantages Include:

- Easy installation
- Fast storage and retrieval
- Simplified inventory control
- Best use of available space
- No rehandling or reshuffling
- Easily expanded
- Easier handling of awkward loads

### Crane Trolley and Rotation Head

Constructed for easy manual movement, the system has flat wheels with guide rollers on the inside of the rotation head carriage. The crane end trucks have double flanged car wheels. The steel plate rotation head uses a large diameter, precision ball bearing to provide easy non-continuous rotation. Lifting is accomplished by a built-in electric hoist.





# INSTALLATIONS



- A. *Louden* cranes in adjacent bays can interlock with transfer sections between bays, permitting a bundle of tubing to be moved from one crane to the other. Each crane is guided by a separate radio control unit allowing operators to stand clear of the load during handling operations.
- B. Continuous 360 degree rotation of *Louden* Stacker Cranes provides complete flexibility in positioning and removing bundles of steel. Transfer sections permit cranes to pick up steel from a bay on one side of the warehouse and deliver them to a staging and loading area on the other side.
- C. *Louden* monorail equipped with a *Wright Work-rated* Hoist lowers tractor cab over chassis while electrical and hydraulic hookups are made. The cab is then attached to the chassis and the carrier drive is mechanically disengaged to release tension on the hoist cable permitting the clamp to be easily detached from the cab.
- D. *Louden* underhung truss crane equipped with a specially designed *Vac-U-Lift* vacuum lifter stacks rolls of paper weighing 3600 pounds, three high in a storage bay.

◀ A.

B. ▼



C. ▲



D. ▲





The productivity goals of today's industrial community can be achieved with the proper choice of material handling equipment. Whether your requirements are simple or complex, we can provide a solution. Call us today for an objective analysis of your needs.

## **WRIGHT®** HOISTS, TROLLEYS & CRANES



## **LOUDEN®** CRANES, STACKERS & MONORAIL SYSTEMS



## **mansaver®** GRABS



## **VAC-U-LIFT®** LIFTERS & TRANSFER SYSTEMS



## **ACCOLIFT™** HOISTS & TROLLEYS



### **Acco Chain & Lifting Products Division**

76 Acco Drive, Box 792, York, PA 17405-0792  
717-741-4863 800-967-7333 Fax 800-715-8897

World Wide Web: <http://www.accolifting.com>  
E-mail: [info@accolifting.com](mailto:info@accolifting.com)

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