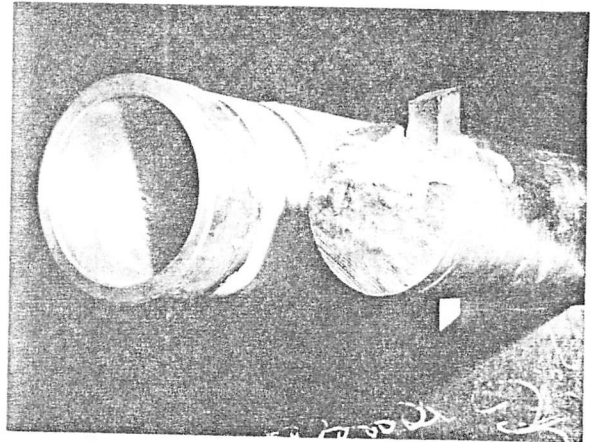


One Lathe Pass Does Work of Four

In the past when the broadside back-up roll chucks had to be resleeved, many steps were required to complete the job. The sleeve was placed in the lathe and a single cutter boring bar was used, requiring at least four cuts before the final reaming and honing could be done.

L. F. Harris, foreman, Machine Shop, installed a methods improvement using four cutters in the boring bar which utilizes two roughing cuts and two finishing cuts simultaneously. With this new method only one pass is now required instead of the four cuts previously required. Mr. Harris is now busy developing further refinements to the operation of reaming and honing so that they will also require less time and be more simplified.

This methods improvement has already resulted in a substantial savings in machine shop time on each sleeve. It permits getting the work out much faster and reduces the cost to the operating departments.



This photo shows the old type cutter bar with only one cutting tool.

**Install Your
Cost Reduction
Ideas Today**



L. F. HARRIS, foreman, Machine Shop, shows us the four cutters that are now used as a result of another one of his methods improvements

Spring 1971

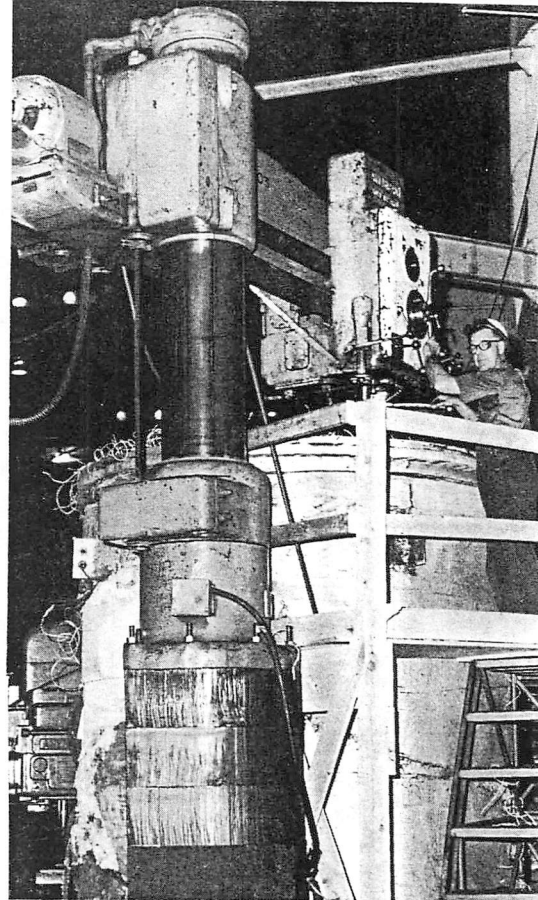


LEONARD F. HARRIS, general foreman machine shop, Maintenance, comes up with another good Methods Improvement.

Drill Press Extended by Spacers, Scaffold

The nitrogen plant stripper reboiler for the ammonia stripping column needs to be retubed approximately every three years. There are 1200 tubes in this reboiler that need to be drilled out the depth of each end plate before the old tubes can be removed. The previous method used in drilling the end plates was to lay the reboiler on its side so the tubes were in a horizontal position and then by using a portable drill with a special adapter they were drilled into the depth of the plate. The material drilled is aluminum and is not difficult to drill but the continued physical effort required to reposition the drill into each opening was tedious and time-consuming, requiring two men to accomplish the task.

Leonard F. Harris, general foreman machine shop, Maintenance Division,



The large spacers in foreground were used to raise the drill press high enough to enable operator DALE EVANS (on scaffold) to drill out the old tubes in the Stripper Reboiler.

proposed that the reboilers be brought into the machine shop and be drilled on the large radial drill press. A modification to the drill press was needed requiring that special spacer blocks be fabricated so the over-all height of the machine could be raised high enough to drill the reboiler while it was standing on end. The spacers needed were in excess of six feet in height. It is a normal practice to raise the drill press with spacers but this is the first time the machine has been extended this high.

A special scaffold was also constructed for the Drill Press Operator to work from and since all the physical work is performed by the machine, the total time to drill out 2400 holes was approximately 400 man hours less than the old method.

United States Patent [19]

[11] 4,000,557

Bawden et al.

[45] Jan. 4, 1977

[54] **METHOD AND APPARATUS FOR
SECURING SWAGE SLEEVES UPON A WIRE
ROPE SPLICE**

3,019,520	2/1962	Wooley	29/252 X
3,032,846	5/1962	Stanton et al.	403/212
3,466,738	9/1969	Mount	29/525
3,651,561	3/1972	Cousin	29/525 X

[75] Inventors: Orval C. Bawden, Orem; Leonard F. Harris, Provo, both of Utah

FOREIGN PATENTS OR APPLICATIONS

[73] Assignee: United States Steel Corporation, Pittsburgh, Pa.

874,492 8/1961 United Kingdom 29/518

[22] Filed: Nov. 10, 1975

Primary Examiner—Charlie T. Moon

[21] Appl. No.: 630,385

Attorney, Agent, or Firm—William A. Danchuk

[52] U.S. Cl. 29/525; 24/115 A; 29/235; 29/252; 29/518; 403/212

[51] Int. Cl.² B23P 19/02

[58] Field of Search 29/525, 518, 252, 235; 24/115 A; 403/212

[56] References Cited

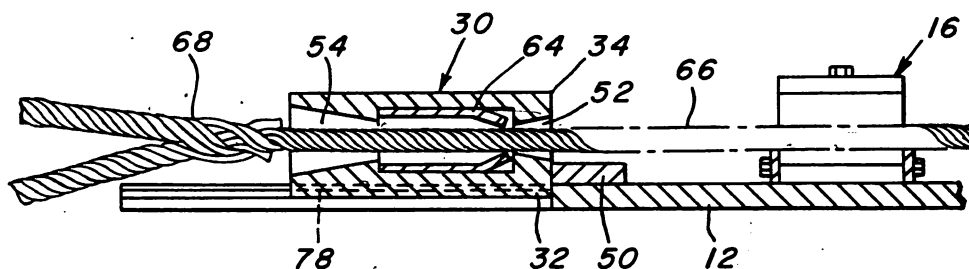
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2,869,906 1/1959 Person 24/115 A X

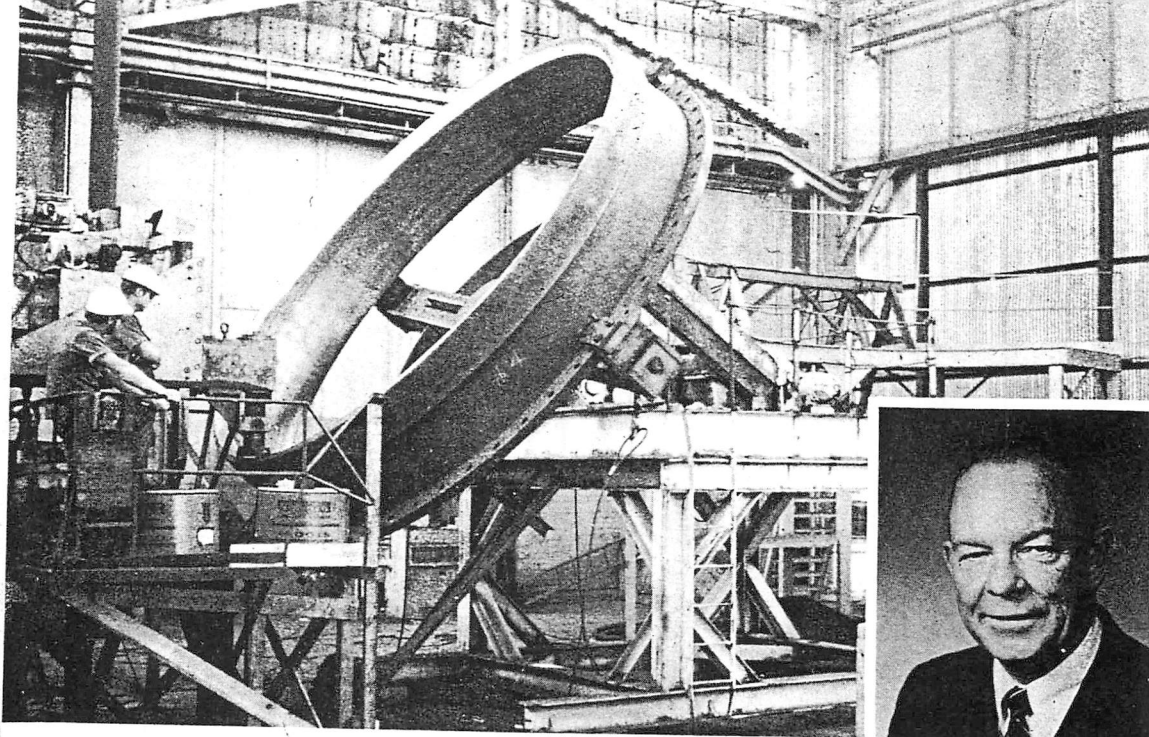
[57] ABSTRACT

Method and apparatus for securing swage sleeves upon a wire rope having a sling spliced thereon. The apparatus includes semi-automatic mechanisms for insuring the full and efficient fastening of the swage sleeve upon the splice in preparation for swaging, thereby effecting a stronger wire rope sling.

9 Claims, 4 Drawing Figures



Winter 1971



Over-all view of the large turning device setup in Cinder Yard where all facets of resurfacing and finishing of B.F. bells and hopper rings is accomplished without moving them to the Machine Shop.

LEONARD F. HARRIS, general foreman, machine shop, Maintenance, proposed the use of his portable milling machine to relieve large shop equipment.

Portable Machine Reduces Bottleneck

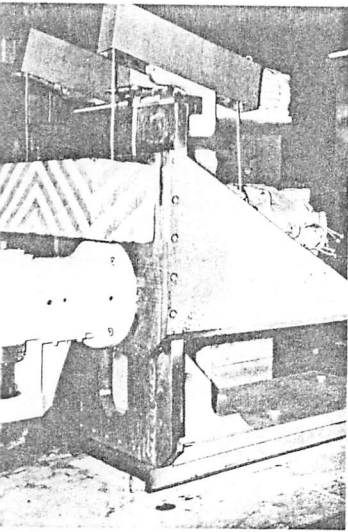
About ten years ago hard surfacing and grinding of large blast furnace bells and hopper rings was initiated by Wes Lane in the Maintenance Shops. This refinishing was done in the machine shop area utilizing some of the large equipment such as the floor type Ingersoll horizontal milling machine. Even though this was a real good methods improvement it still resulted in tying up the equipment for long periods of time. Another good cost improvement idea was subsequently installed a few years later when Leonard F. Harris, general foreman, machine shop - Maintenance, built a three-way portable milling machine which has been used on several critical jobs that required

this type of an application.

For some time the hard surfacing work has been accomplished in the Cinder Yard where a large turn table was installed. However, the bells and rings had to be taken to the machine shop for the refinishing work. Mr. Harris thought that with some adapting, his portable machine could be used on location at the Cinder Yard and that all steps of reconditioning could be done right there. The problems have been eliminated in transporting these heavy pieces back and forth and the large units in the shop are now available for other emergency work because they are not tied up as much as they used to be.



LEONARD F. HARRIS, general foreman, Machine Shop, applies his inventive skills.



A close-up shot of the new versatile milling machine fabricated locally.

Three Way Milling

When the forty-five inch mill housing windows and base became worn to a point where they needed rehabilitation several years ago an eastern specialty firm was asked to bid on a contract for doing the work. Their bid was so high that Leonard F. Harris, general foreman, Machine Shop, thought we could do the work ourselves for much less. The method that was being used at that time was to build up the worn areas with welding rod and then mill them back to print specifications. For his first try at this procedure Mr. Harris used an obsolete planer to mill the sides of the housing. This machine had to be modified and adapted to the work right at the location and although it was rather crude it only cost about one-fifth of the bid price to complete the project.

Rolling Mills supervision recently decided to adopt a new method of realigning their various mills by having the worn areas machined deep enough to accept new replaceable liner plates in both the sides and the bottom of the stands. It is very necessary to expedite this type of a procedure because of the critical limitation of timing which is only a forty eight hour period of downtime. Mr. Harris designed and had built a three-way positioning milling machine that can now machine both the sides and the bottom allowing the machine to move inside the housings with adequate clearance for milling. The milling head is then rotated to the required positions.

This new machine has a ten inch diameter carbide cutter and can very successfully make a three sixteenth inch cut on each pass. It was built so that it can be moved right into location and has remote controls so that it can be operated by the machinist from a position where he can better see what is happening. As a

Machine Reduces Cost

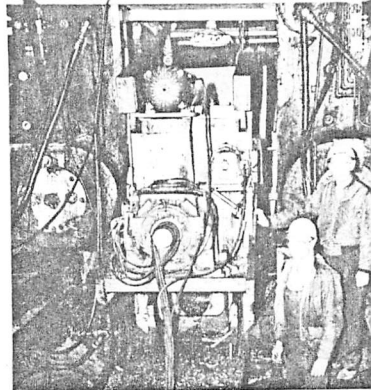
safety factor, because of the high speed of the cutter, a second machinist holds a large plexiglass shield above the face being milled so that the flying particles can be contained. There are other mills, etc. that this equipment can be adapted to, so it will be used considerably here at Geneva.

The ninety degree milling head was taken from an Ingersoll Milling Machine, the gear reduction units came from the Salvage Yard and scrap material was used wherever possible. The cost of building this machine has already been saved on the one project on which it was used.

Because the problem of realigning mills is a universal problem throughout the steel industry, it is felt that this machine could have such a wide application that a patent is being applied for by the submitter through our patent officer.



One machinist operates the pendant control buttons while another holds a plexiglass protective shield over the milling head to contain any flying particles.



MR. HARRIS supervises the proper setting of his machine by machinist EARL JACOB.



A picture of the liner plates installed on the sides and the base is milled for two more.

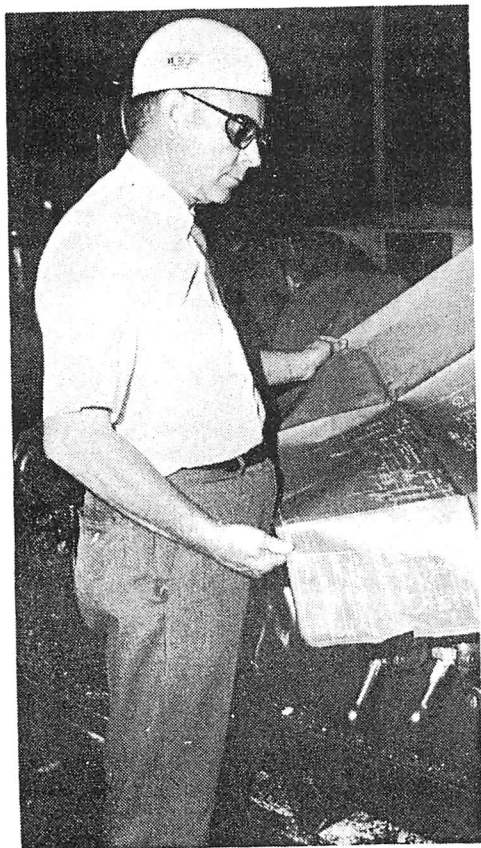
April 1971

Geneva Works **BULLETIN**



The Geneva Works Bulletin is published monthly by the Training Division of the Personnel Services Department, Geneva Works, U. S. Steel Corporation. Any suggestions, news items, or questions should be directed to the Training Division, telephone extension 6712, mailing address P. O. Box 510, Provo, Utah 84601.

HARRIS ISSUED PATENT



Leonard F. Harris

Leonard Harris, General Foreman - Machine Shop, Maintenance and Utilities Division, was recently issued a patent for a portable machine for conditioning coke oven door jambs. Coke oven door jambs are usually made of cast iron and are bolted in the coke oven door opening in a fixed position. During the operating life of a coke oven, the door jambs become warped and a deposit of carbonaceous material builds up on the seats or faces of the door jambs. When this condition occurs, the coke oven door cannot be properly seated. With the door imperfectly seated, gases escape from the coke oven during coking operations and cause smoke and fumes to be emitted into the atmosphere.

The new invention fits in the frame of a coke oven door with the door off. In operation, the cutter of the machine moves longitudinally up the door jambs, and machines both door jambs simultaneously.

The use of this machine eliminates the need for discarding and replacing warped and caked coke oven door jambs and will greatly reduce coke oven operation interruptions.