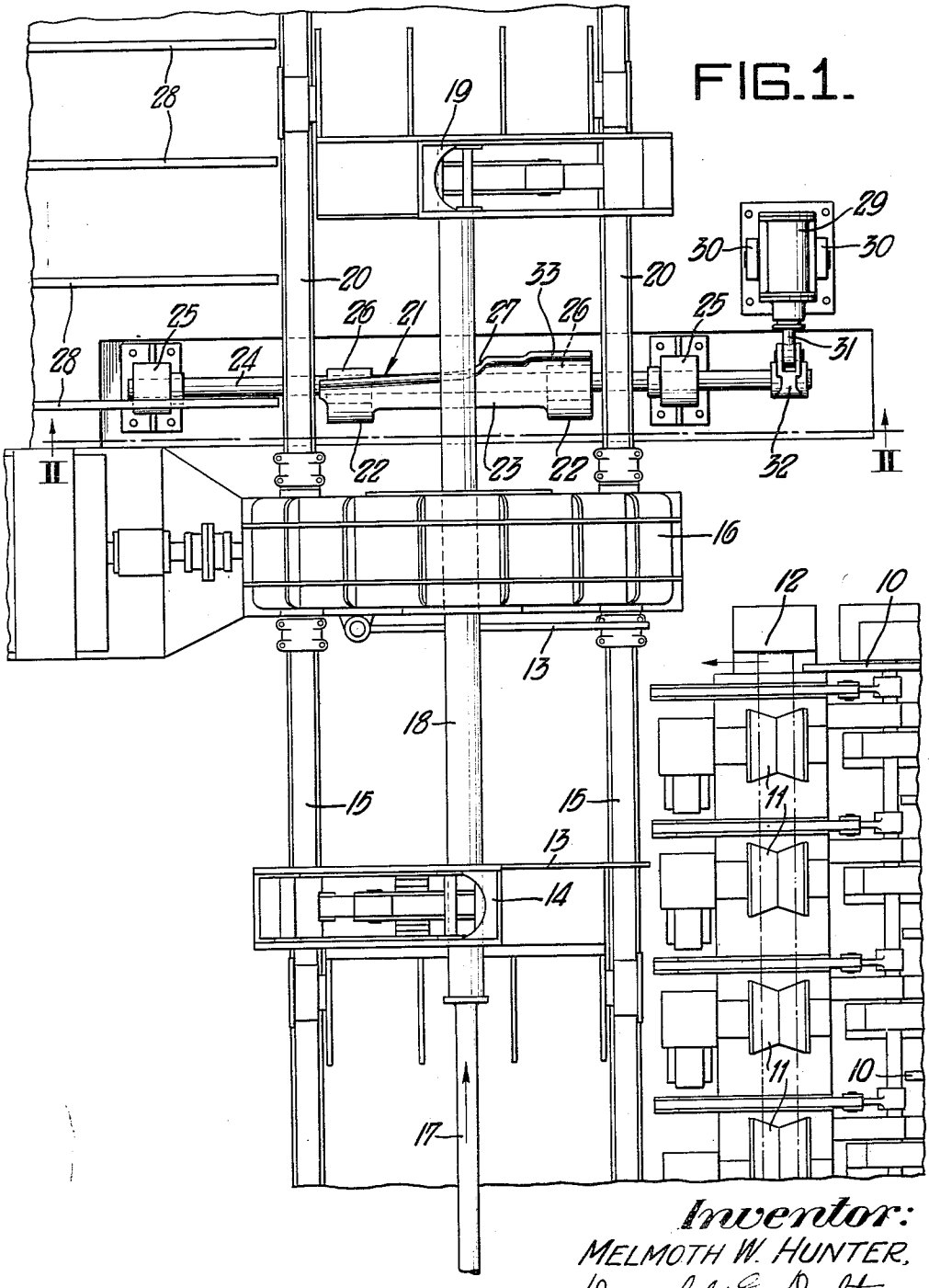
Jan. 15, 1957 M. W. HUNTER 2,777,587

DISPLACEABLE BILLET SUPPORT FOR ROTARY PEELER

Filed Oct. 15, 1953 2 Sheets-Sheet 1

FIG. 1.



Inventor:
MELMOTH W. HUNTER,
by: Donald G. Dalton
his Attorney

Jan. 15, 1957 M. W. HUNTER 2,777,587

DISPLACEABLE BILLET SUPPORT FOR ROTARY PEELER

Filed Oct. 15, 1953 2 Sheets-Sheet 2

FIG. 2.

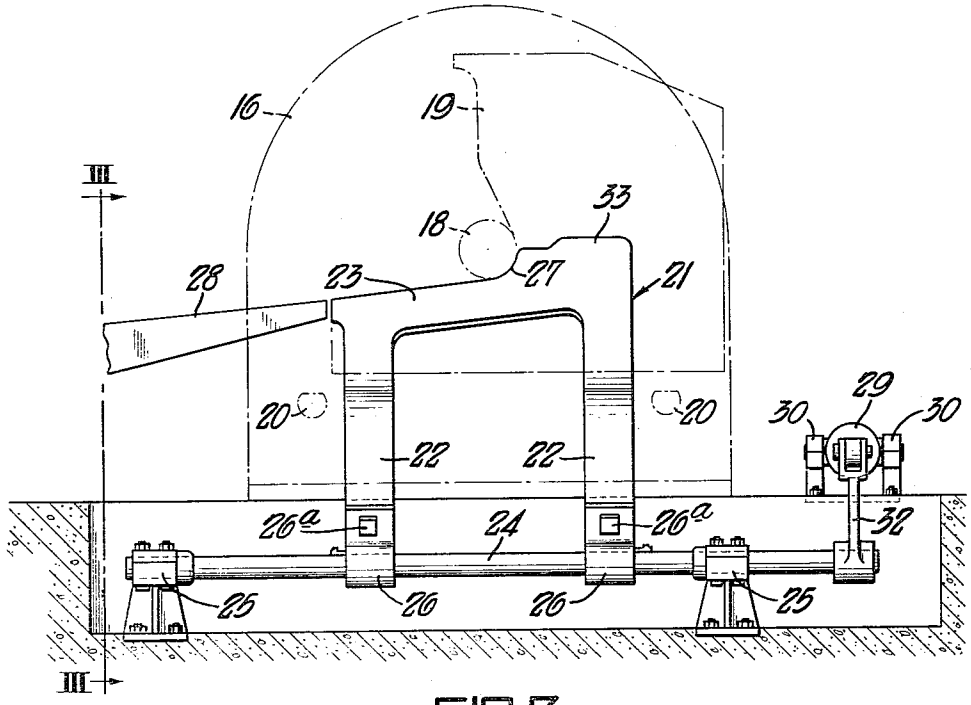
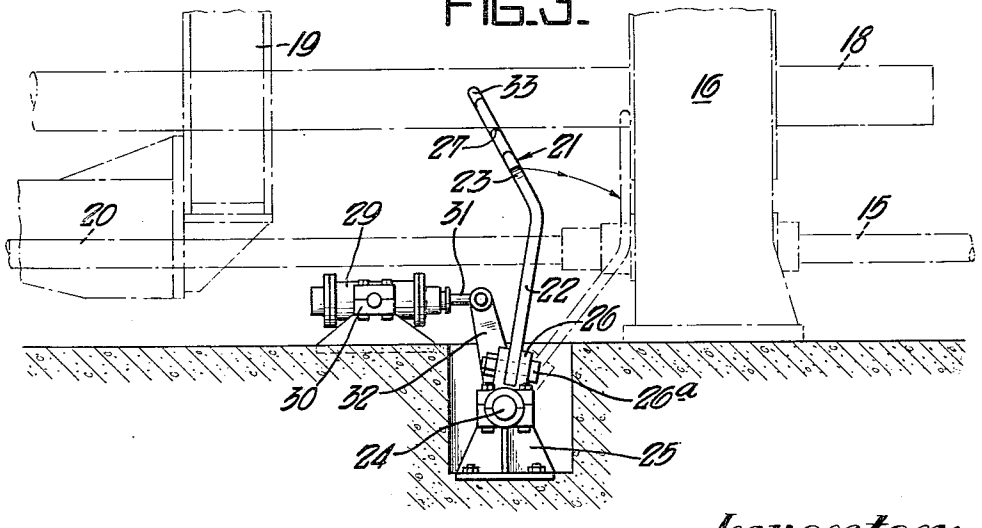


FIG. 3.



Inventor:
MELMOTH W. HUNTER,
by: Donald G. Dalton
his Attorney

United States Patent Office 2,777,587 Patented Jan. 15, 1957

2,777,587

DISPLACEABLE BILLET SUPPORT FOR ROTARY PEELER

Melmoth W. Hunter, Lorain, Ohio, assignor to United States Steel Corporation, a corporation of New Jersey

Application October 15, 1953, Serial No. 386,257

2 Claims. (Cl. 214—1)

This invention relates to a displaceable skid or trestle for supporting the trailing end of a round billet after it has been pulled through a rotary peeler.

In preparing round billets for the manufacture of seamless tubes, they are subjected to peeling and centering as a preliminary to piercing. The billets are seized at one end by a traveling gripper which inserts the other end into a peeler. The latter then effects a progressive removal of the skin of the billet. When the leading end of the billet has passed through the peeler, it is seized by a second traveling gripper on the opposite side of the peeler and the first gripper is operated to release the trailing end of the billet to free it for passage through the peeler.

A retractable skid is provided adjacent the discharge side of the peeler to support the trailing end of the billet as it leaves the peeler. Heretofore the skid has usually been pivoted on an axis parallel to the axis of the peeler so it can be lowered out of the way of the second gripper as it advances toward the peeler to seize the leading end of the oncoming billet emerging therefrom. If the operator should fail to lower the skid in ample time before the second gripper advances, however, serious damage to the skid is likely to result with the consequent necessity for repair or replacement involving a shut down not only of the peeler but the entire production line.

I have invented a novel billet-supporting skid so constructed and arranged that it will yield and may be displaced to an out-of-the-way position when engaged by the second gripper. I further provide means for restoring the skid to billet-supporting position. In a preferred embodiment, the skid is in the form of a bent, trestle or horse adjacent the peeler, spanning the path of the billet and mounted for tilting movement toward and from the peeler about a horizontal axis extending transversely below said path. The top of the bent slopes in the direction in which peeled billets are discharged laterally from the peeler to the centering machine. The bent may conveniently be carried on a transverse rock shaft journaled in bearings on opposite sides of the peeler.

A complete understanding of the invention may be obtained from the following detailed description and explanation which refer to the accompanying drawings illustrating the present preferred embodiment. In the drawings,

Figure 1 is a plan view, largely diagrammatic, showing the general arrangement of the peeler and the two grippers and the position of the improved billet support relative thereto;

Figure 2 is a partial transverse section taken along the plane of line II—II of Figure 1, with parts in elevation; and

Figure 3 is a partial side elevation on line III—III of Figure 2.

Referring now in detail to the drawings and, for the present, particularly to Figure 1, round billets rolled to the proper size and cut to length for centering and piercing to form a seamless tube shell, are rolled singly along an entry table 10 toward a roller conveyor 11. Each billet is advanced by the conveyor toward a stop 12 and, after engaging it, is transferred to skids 13 which deliver it into the open side of a gripper 14. The gripper is slidable on spaced parallel guide bars 15 extending from the entering side of a rotary billet peeler 16 of known construction. When the billet is alined with the peeler and has been seized by the gripper, the billet is advanced toward the peeler by a hydraulic pusher 17 engaging the rear end of the billet and the gripper, of course, moves toward the peeler with the billet as the latter is pushed through the former. A billet 18 is shown part way through the peeler. The gripper and peeler are of known construction.

As soon as the leading end of the billet has passed through the peeler, it is seized by a second gripper 19 similar to that shown at 14, and the remainder of its length is thereby pulled through the peeler, the first gripper 14 being actuated to release the billet before the gripper approaches close to the peeler. In order for the gripper 19 to engage the leading end of the billet promptly as it emerges from the peeler, the gripper is moved up close to the latter, sliding on guide bars 20 and actuated by suitable means (not shown). Retraction of the gripper 19 draws the billet through the peeler until finally the trailing end of the billet leaves the peeler.

The foregoing detailed description relates solely to known practice and construction. My invention concerns supporting means indicated generally at 21 in Figure 1, located adjacent the exit side of the peeler, for holding up the trailing end of the billet when it leaves the peeler, the only other support therefor being provided by gripper 19 engaging the leading end of the billet. Referring now more particularly to Figures 2 and 3, supporting means 21 is in the form of a bent, trestle or horse including legs 22 and a beam 23. The bent may conveniently be formed from steel plate and the legs and beam may be integral as shown or made separately and secured together. The upper edge of the beam is the bearing surface engaged by the trailing end of the billet as it is freed from the peeler.

The bent 21 is mounted on a rock shaft 24 extending transversely of the axis of the peeler and at a level therebelow. The rock shaft is journaled in spaced bearings 25 set in the foundation on which the peeler is carried. Blocks 26 spaced along the shaft are slotted to receive the lower ends of legs 22 which are secured therein by bolts 26a. As clearly shown in Figure 2, beam 23 has a curved shoulder 27 conforming to the section of billet 18, and its upper edge slopes downwardly therefrom to the level of the skids of a delivery table 28. Thus, when a billet has passed through the peeler and is released by gripper 19, it is free to roll down beam 23 in the position shown in Figure 3 and the open side of the gripper, onto table 28.

The mounting of the bent 21 on rock shaft 24 permits the former to be displaced to an out-of-the-way position shown in chain lines in Figure 3, when the gripper moves toward the peeler to seize a billet emerging therefrom. The beam 23 and upper portions of legs 22 form a dihedral angle with the lower portions of the legs so that the beam will lie flat against the peeler housing when displaced. A fluid-pressure cylinder 29 is trunnioned in bearings 30 adjacent one end of shaft 24 and has its piston rod 31 pivoted to a crank arm 32 keyed on the shaft. Fluid under pressure is admitted to one end or the other of cylinder 29 under the control of a suitable valve (not shown) to tilt the bent from the solid-line position of Figure 3 to the chain-line position and vice versa. It will be observed, furthermore, that even should the operator fail to turn the bent down to chain-line position before advancing gripper 19, the latter will engage the beam and

push the bent to retracted position as the gripper comes up close to the peeler. A shoulder **33** on beam **23** raised above shoulder **27** affords a bearing edge to be engaged by the face of the gripper housing nearer the peeler.

In order to permit such automatic actuation of the bent by the gripper without developing excessive pressure as a result of the force exerted on the bent by the advancing gripper, the fluid line to the rod end of cylinder **29** has a suitable relief valve therein.

It will be evident from the foregoing that the billet support of my invention has the advantage that it will be displaced without damage, to an out-of-the-way position, by the advance of the second gripper, even if the operator neglects to move it to such position before moving the second gripper toward the peeler. The detachable mounting of the bent on the rock shaft facilitates changing one bent for another designed for a different size of billet.

Although I have disclosed herein the preferred embodiment of my invention, I intend to cover as well any change or modification therein which may be made without departing from the spirit and scope of the invention.

I claim:

1. Means for receiving the trailing end of a billet as it emerges from a continuous rotary billet peeler having a plane vertical face on the exit side, said means comprising a trestle of plate including spaced upstanding legs and a beam supported thereby sloping downwardly from one of said legs toward the other, said trestle being disposed transversely below the path of the billet on the exit side of the peeler, the upper portion of the trestle forming a dihedral angle with the remainder whereby said upper portion lies flat against said face of the peeler when tilted into engagement therewith, a rock shaft tranverse to and below said path adjacent the exit side of the peeler, said trestle being mounted on said shaft, a crank on said shaft and a fluid-pressure cylinder pivoted to the crank for tilting said trestle toward and from the peeler.

2. The apparatus defined by claim 1 characterized by a shoulder upstanding at one end of said beam adapted to be engaged by traveling means for tilting the trestle independently of said cylinder.

References Cited in the file of this patent

UNITED STATES PATENTS

1,583,486	Paige	May 4, 1926
2,262,432	Rodder et al.	Nov. 11, 1941