

Sept. 22, 1953

A. TRAVIS
MEANS FOR FEEDING ROUND METAL STOCK SUCH AS BARS
AND RODS TO STRAIGHTENING OR REELING MACHINES

2,652,877

Filed March 2, 1950.

5 Sheets-Sheet 1

FIG. 1.

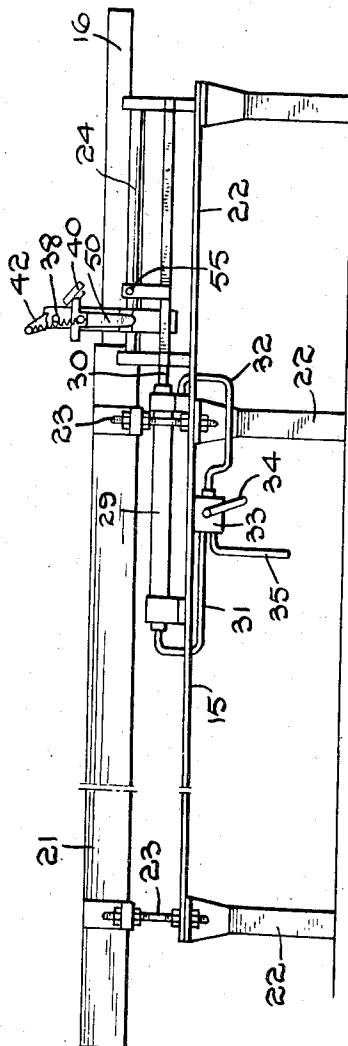
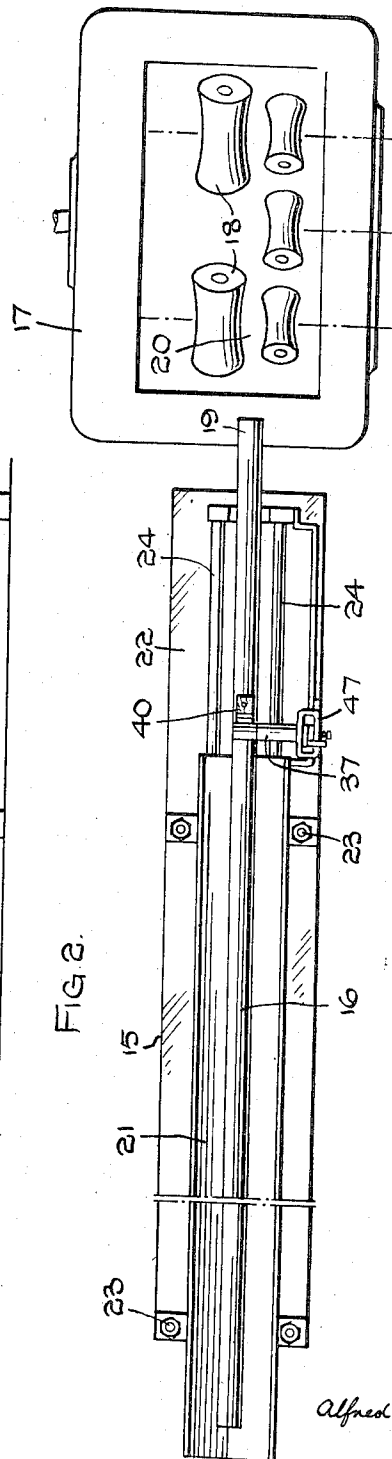


FIG. 2.



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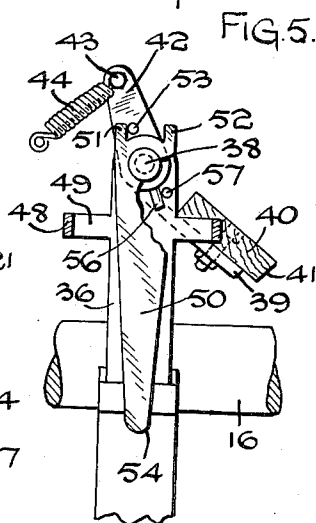
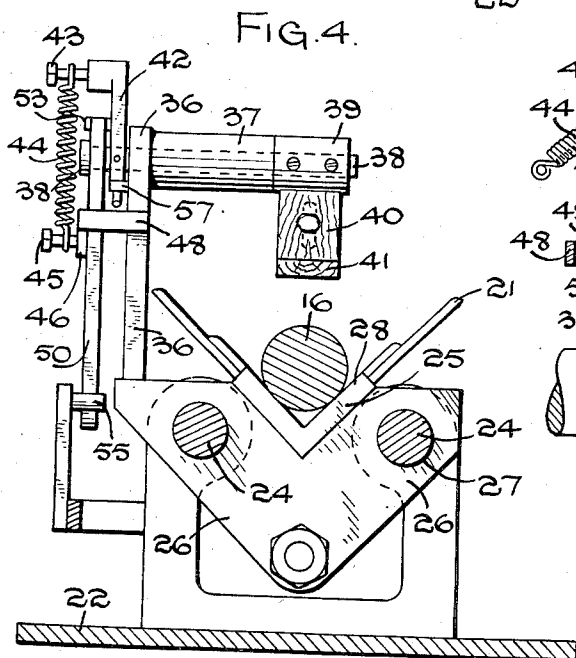
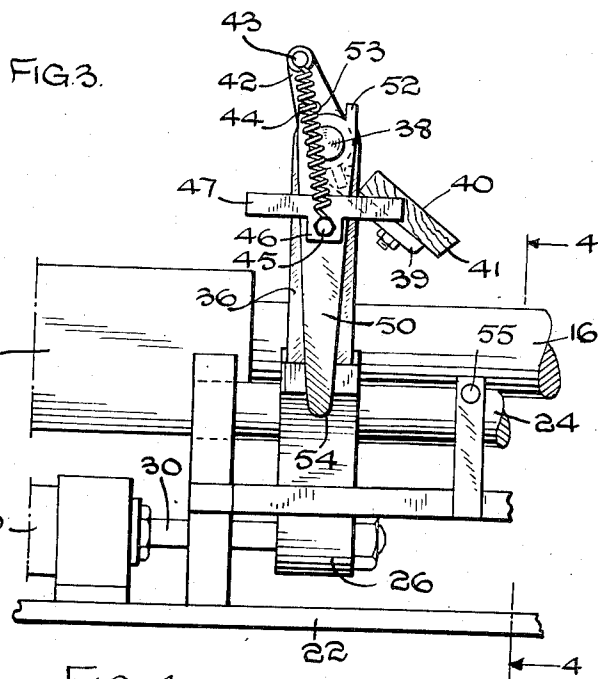
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5 Sheets-Sheet 2



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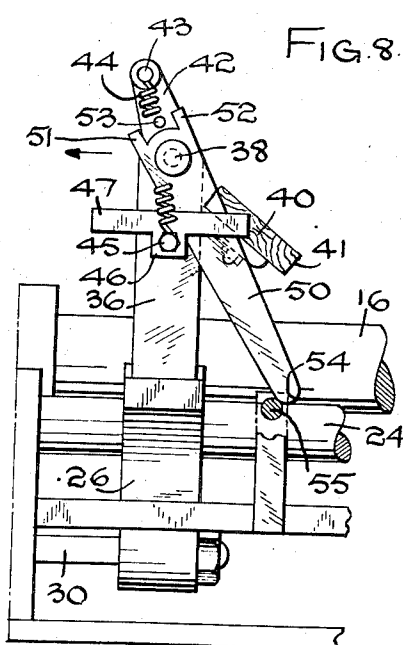
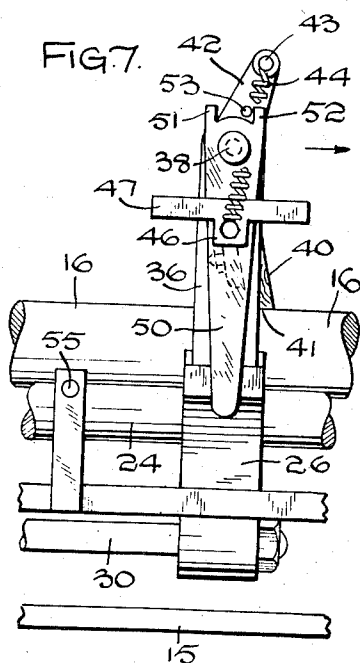
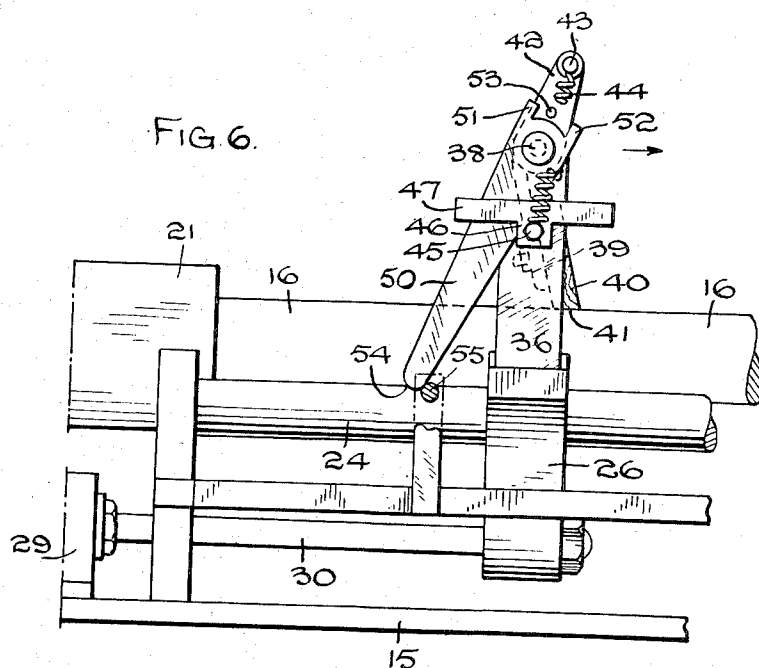
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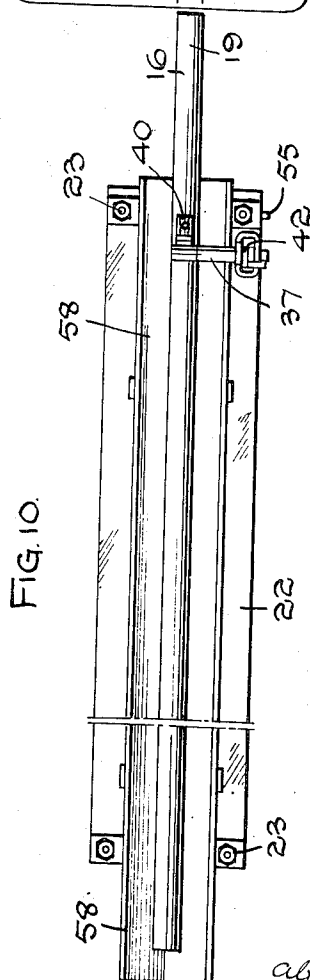
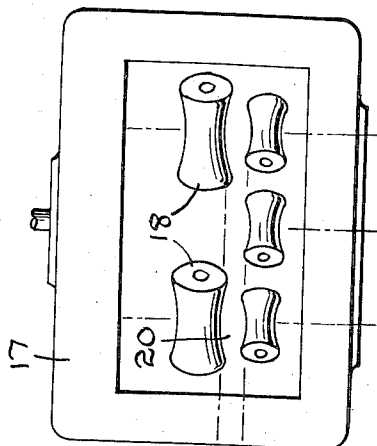
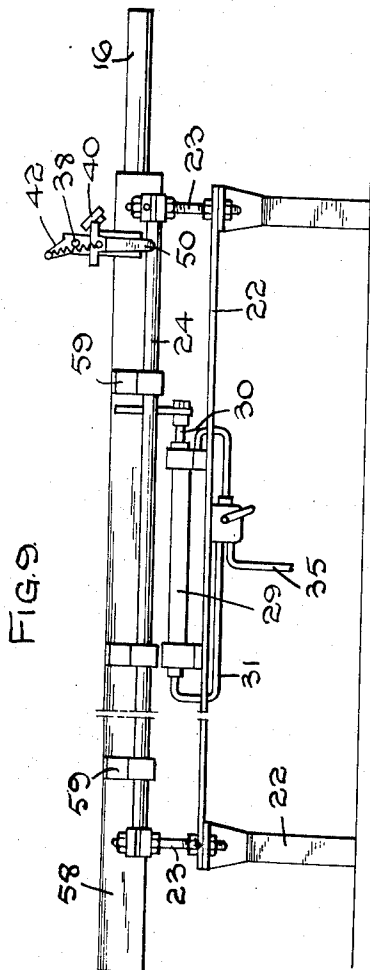
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MEANS FOR FEEDING ROUND METAL STOCK SUCH AS BARS
AND RODS TO STRAIGHTENING OR REELING MACHINES

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INVENTOR

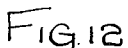
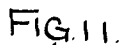
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UNITED STATES PATENT OFFICE

2,652,877

MEANS FOR FEEDING ROUND METAL STOCK
SUCH AS BARS AND RODS TO STRAIGHT-
ENING OR REELING MACHINES

Alfred Travis, Woodley, near Stockport, England

Application March 2, 1950, Serial No. 147,322
In Great Britain March 5, 1949

7 Claims. (Cl. 153-91)

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This invention relates to means for feeding round metal stock of elongated form such as bars and rods to straightening or reeling machines, which machines are hereinafter referred to and included in the generic term straightening machines.

In feeding round metal stock such as bars or rods to a straightening machine it is at present common practice to deliver stock on to a stationary troughlike support along which it is pushed by hand to feed it into the nip of the rolls of the straightening machine, which rolls are disposed in skew fashion so that in addition to gripping the stock to advance the same, they spin it about its longitudinal axis at a considerable speed frequently of the order of 500 to 700 revolutions a minute, for the purpose of effecting the straightening of the stock as this is advanced through the machine.

This spinning of the stock is often accompanied by violent whipping or threshing of its free end or other part thereof, particularly if the stock happens to be bent very much or is bent in more than one place. Thus hand feeding entails great risk of danger to the operative concerned, since he may still have hold of or be pushing the stock at the moment the forward end enters the nip of the rolls of the straightening machine and the stock begins to spin.

To avoid the danger associated with pushing the stock by hand it has been proposed in the specification of application for patent, Serial Number 766,377, filed August 5, 1947, now Patent No. 2,573,669, issued October 30, 1951, to arrange for the troughlike support to be reciprocated towards and away from the straightening machine and to place the stock on the troughlike support with its forward end projecting therefrom so that when the support is advanced towards the machine the projecting forward end of the stock is fed into the nip of the rolls of the machine without it being necessary for the operator, during such advancement of the stock, to hold the same in any way.

It sometimes happens that when the stock is placed on the movable trough shaped support referred to, the stock is so bent that when the support is advanced to feed the stock the projecting forward end thereof does not align with the nip of the rolls of the straightening machine sufficiently accurately for the end to enter freely between the rolls. Further it sometimes happens with iron or steel stock of relatively low mass, for example in the case of stock of short length and of a small diameter of say under $1\frac{1}{2}$ ", the adhesion between the stock and the support is so low and the momentum imparted to the stock by the forward advancement of the support is so low that there is a tendency, when the support is advanced, for the stock to be pushed backwards

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on the support when it first engages with the rolls of the straightening machine instead of being drawn therethrough by the rotating rolls and an extra forward push on the stock is necessary to cause it to enter the nip.

The primary object of the present invention is to provide improved means for mechanically feeding round metal stock of elongated form to a straightening machine that will overcome the danger and disadvantages referred to, the improved means being applicable both where the support is movable and is advanced to effect the feed and also to cases where a stationary support is provided and the stock is fed by being advanced along the support.

Another object of the invention is to provide an improved means for mechanically feeding stock to a straightening machine in which the stock is fed in a particularly expeditious manner with the minimum of attention on the part of the operator.

Other objects of the invention will be apparent from the following description and the drawings accompanying the same.

In its broadest aspect the invention consists in the provision of a pair of gripping jaws adapted frictionally to grip the stock from opposite sides thereof while permitting of it rotating about its own longitudinal axis, a guide supporting said pair of gripping jaws for reciprocation in a direction parallel to the axis of feeding of the stock to the rolls, means for effecting reciprocation of said gripping jaws along said guide, one of said jaws being movable relative to the other jaw and guide transversely of the direction of reciprocation of the said pair of jaws and both into and out of stock gripping position, mechanism connected non-positively to said transversely movable jaw adapted automatically to displace the same into gripping engagement with said stock and to apply gripping pressure to said movable jaw as the two jaws advance in feeding direction while permitting of said stock being advanced relative to said two jaws when gripped by the rolls of the straightening machine, and said mechanism being adapted to displace said transversely movable jaw out of stock gripping position after said stock has been gripped by said straightening machine rolls.

The invention is illustrated in the accompanying drawings wherein:

Figure 1 is a side elevation of one form of device for feeding round metal stock of elongated form to a straightening machine in accordance with the present invention.

Figure 2 is a plan view of the device shown in Figure 1 showing its relation to the straightening machine itself.

Figure 3 is a side elevation to an enlarged scale

of part of the construction depicted in Figure 1 showing the parts in inoperative position.

Figure 4 is a section on the line 4—4 of Figure 3.

Figure 5 is a part sectional view of part of the construction illustrated in Figure 3.

Figure 6 is a view of part of the construction shown in Figure 3 but showing the parts in process of gripping the stock during the advancement of the same to the straightening machine.

Figure 7 is a view similar to Figure 6 showing the parts in their final stock gripping position during the advancement of the stock.

Figure 8 is a view similar to Figure 6 showing the parts in process of returning to their initial inoperative position depicted in Figure 3 after the stock has been gripped by the rolls of the straightening machine.

Figure 9 is a view similar to Figure 1 showing a modified construction.

Figure 10 is a view corresponding to Figure 2 of the construction depicted in Figure 9.

Figure 11 is a side elevation to an enlarged scale of part of the construction depicted in Figure 9 showing the parts in their inoperative position.

Figure 12 is a sectional view on the line 12—12 of Figure 11.

Referring firstly to the construction illustrated in Figures 1 to 8 of the accompanying drawings, the feeding device forming the subject of the present invention is designated generally by 15 and is adapted to feed stock in the form of round metal bars or rods such stock being indicated generally at 16, to a straightening machine of known form indicated generally at 17, such straightening machine embodying in the known manner power driven straightening rolls 18 arranged skew fashion so as both positively to advance the round metal stock and also to rotate the same about its own longitudinal axis at relatively high speed when the forward end 19 of the stock has been engaged within the space or nip 20 between the rearmost pair of rolls in the direction of advancement of the stock.

The stock during its advancement is supported in known manner upon a stationary trough shaped support 21 of V-form in cross section, the stationary support being carried from a supporting base indicated generally at 22 through the medium of adjustable screws 23 whereby the height and slope of the troughlike support 21 may be adjusted, it being understood that normally it is required that the support 21 shall be horizontal and of course aligned with the rolls 18 of the straightening machine.

In accordance with the present invention, means are provided for positively feeding the stock forwardly to the straightening rolls and for this purpose the supporting base 22 has mounted thereon at the forward end of the stationary trough shaped support 21, a pair of horizontal shaped parallel guide rods 24 which extend parallel with the axis of feeding of the stock to the rolls, namely parallel to the longitudinal axis of the trough support 21, these guide rods 24 extending from a position on opposite sides of the lower part of the forward end of the trough support 21 and terminating a short distance rearwardly of the straightening machine 17, which guide rods form collectively a guide for supporting for slidable movement in a direction parallel to said axis of feeding, a slidable jaw 25 shown most clearly in Figure 4.

This slidable jaw is mounted upon or forms part of a dependent slide block 26 having a pair

of holes 27 to enable it to slide along the guide bars 24 and the jaw 25 is of the same V-section as that of the trough shaped support 21 having its upper or stock engaging face 28 aligned with the corresponding faces of the lower part of the trough shaped support 21 so as frictionally to engage the stock 16 at two laterally spaced positions on its underside.

Means are provided for reciprocating the jaw 25 along the guide rods 24, such means consisting of a pneumatic cylinder 29 mounted upon the base 22 at a position below the forward end of the trough support 21, the cylinder being fitted with a piston, the end of the rod 30 of which is connected to the slidable block 26 so as positively to reciprocate the same in both directions, the end of the rod being screwed within the block for this purpose.

From the two ends of the cylinder 29, pipes 31 and 32 as shown in Figure 1, lead to a valve 33 having an operating handle 34 for distributing air under pressure to one or the other end of the cylinder and supplied from a suitable source of supply by a supply pipe 35.

The arrangement is such that in one position of the valve 33 air is admitted under pressure to the rear end of the cylinder 29 so as to advance the piston and slidable jaw 25 connected thereto operatively towards the straightening machine.

In another position the valve reverses the air connections so as to admit the air to the front end of the cylinder and displace the jaw 25 in the opposite direction. In a third intermediate position the valve cuts off the supply of air under pressure and opens both ends of the cylinder to exhaust.

The slidable block 26 which carries the jaw 25 is provided at one side with a vertically upstanding bracket 36, the upper end of which carries at a position above the level of the upper side of the stock a bearing sleeve 37 which projects laterally horizontally towards the vertical plane containing the longitudinal axis of the stock and in this bearing sleeve is pivotally mounted a spindle 38 which projects above the axis of feeding of the stock and has vertically mounted thereon an arm 39 to one face of which is secured a second or pivoted jaw 40 constructed as a substantially rectangular block of hard wood, the block occupying an inclined dependent position with its lower or operative side face 41 which is adapted to engage with the upper side of the stock 16 chamfered slightly so that when this side face engages with the upper side of the stock as shown in Figures 6 and 7, the plane of the side face is horizontal and parallel to the longitudinal axis of the stock with the side face 41 disposed somewhat forwardly in relation to the remainder of the block shaped jaw 40—i. e. the jaw is still disposed at a slight inclination to the vertical.

The end of the spindle 38 remote from the jaw 40 has fixedly mounted thereon an upstanding arm 42 carrying a horizontally extending pin 43 which is connected to one end of a tension spring 44, the other end of which spring is connected to a second pin 45 disposed on the opposite side of the spindle 38 in relation to the pin 43 and carried upon the base or connecting portion 46 of a channel shaped plate 47 the arms 48 of which are spaced apart in a direction parallel to the axis of feeding of the stock and having their extremities 49 bent round and connected to opposite vertical edges of the bracket 36.

Thus the base or connecting part 46 of this channel shaped plate 47 is spaced from the adjacent side of the bracket 36 and in this space

is disposed a weighted dependent lever 50 the upper end of which is freely pivoted on the spindle 38 and carries a pair of upstanding horns 51, 52, spaced apart in a direction parallel to the axis of feeding of the stock. Between the horns works an abutment pin 53 so that the pivotal movement of the spindle 38 and associated jaw 40 relative to the lever 50 is limited; the horns 51, 52 being spaced apart by a sufficient distance as to ensure that the pin 43 connected to the upper end of the tension spring 44 can pass over a dead centre position in relation to the spindle axis and the pin 45, for example as will be clear by comparing Figure 3 with Figure 6.

The lower end of the lever 50 is formed as a nose 54 adapted to engage and ride over a striker member 55 in the form of a pin supported in fixed position from the base 22, the spacing of the pivoted jaw 40 from the stock when the jaw is in its inoperative position and the spacing of the lever horns 51, 52 from one another permitting of the lever pivoting through a sufficient angle in either direction from the vertical to ride over this striker member 55 for either direction of advancement of the two jaws 25, 40.

The movement of the jaw 40 in the inoperative direction is preferably limited by providing the spindle 38 with a radial pin 56 adapted to engage a lug 57 on the adjacent part of the bracket 36.

With the construction described, the jaw 40 is adapted to co-operate with the jaw 25 so as to grip the stock from opposite sides thereof, the jaw 40 necessarily moving transversely in relation to the jaw 25 and to the guide as it pivots between its inoperative position depicted in Figure 3 and its operative position depicted in Figures 6 and 7.

Operation

In operation with the arrangement described in Figures 1 to 8 of the accompanying drawings, the parts of the feeding device would initially be disposed in the inoperative position illustrated particularly in Figures 3 to 5 in which the pivoted jaw 40 is disposed at its maximum inclination to the vertical—i. e. at its maximum distance away from the slidable jaw 25—being retained in such position by the tension spring 44 being disposed at one side of the axis of the spindle 38, movement of the jaw 40 beyond this position being prevented by the engagement of the pin 56 on the spindle with the lug 57 on the bracket 36. In this position of the parts the weighted lever 50 hangs vertically under its mass with the horn 51 at its upper end closely adjacent the abutment pin 53. In this position of the parts associated with the pivoted jaw 40, the slidable jaw 25 together with the bracket 36 carrying the pivoted jaw is retracted by suitable operation of the valve 33 so that the two jaws are situated adjacent the forward end of the trough support 21—i. e. they are at the maximum distance from the straightening machine 17. In this position of the slidable jaw 25 the lever 50 is disposed on the rear side of the striker member 55—i. e. the side remote from the straightening machine.

A length of stock is now placed by the operator in the stationary trough support 21 in the manner indicated in Figures 1 and 2 so that the forward end of the stock projects beyond the trough support and an appreciable distance beyond the slidable and pivoted jaws 25, 40 when these are in their aforesaid rearmost position in the direction of advancement of the stock.

The valve 33 is now actuated to admit air under

pressure to the rear end of the cylinder 29 so as to advance the slidable jaw 25 and pivoted jaw 40 carried thereby forwardly towards the straightening machine, thereby causing the nose 54 on the weighted lever 50 to engage with the stationary striker member 55. In consequence the lever 50 is pivoted in a clockwise direction viewed in Figures 3 and 5 so that the horn 51 at the upper end of the lever, by its engagement with the abutment pin 53 turns the arm 42 and spindle 38 in a corresponding direction, thereby causing the spring 44 to pass over a dead centre position in relation to the axis of the spindle 38 and causing the arm 42 and jaw 40 connected thereto rapidly to pivot further in this same clockwise direction until further movement of the arm 42 and jaw 40 is arrested by the operative face 41 of the jaw engaging with the upper side of the stock 16. The arm 42 and jaw 40 now occupy the pivotal position shown in Figures 6 and 7 and the jaw 40 is held in gripping engagement with the upper side of the stock by the pressure of the spring 44, thereby tending to press the stock downwardly into tight engagement with the slidable jaw 25.

In consequence if the stock has not already commenced to advance with the slidable jaw 25 as a result of its initial gravitational engagement with the slidable jaw, it is now advanced by the gripping engagement thereon of the two longitudinally advancing jaws, the grip of the pivoted jaw 40 on the stock provided by the spring 44 being assisted by the weight of the jaw 40 and also by the fact that the spindle 38 which is carried by the advancing slidable jaw 25 tends to move forwardly in relation to the upper side of the stock in the event of slip occurring initially between the two jaws and the stock so that the pivoted jaw tends to act as a wedge or toggle in gripping the stock and thereby forcing it downwardly into tight engagement with the slidable jaw 25.

In this operative position of the jaw 40 the abutment pin 53 on the arm 42 has moved through a sufficient distance in a clockwise direction from its initial position shown in Figure 5 to permit of the lever 50 pivoting further in a clockwise direction and its nose 54 riding over the striker member 55 as is shown in Figure 6, the lever then returning by gravity to its normal vertically dependent position as shown in Figure 6 in which the horn 52 is adjacent to but out of operative engagement with the abutment pin 53.

The advancement of the stock by the two gripping jaws 25, 40 continues with the continued advancement of these jaws towards the straightening machine until the forward end of the stock enters the rearmost nip 20 of the straightening rolls.

The speed of advancement of the stock to the straightening machine 17 is much less than the peripheral linear velocity of the rolls 18 so that as soon as the forward end of the stock enters the nip 20, the stock is snatched forwardly in relation to the jaws 25, 40, the stock being permitted to move freely in relation to the jaw 40 by reason of the fact that in its gripping position the jaw is disposed at an inclination to the vertical with its operative face 41 forwardly in relation to the axis of the spindle 38 so that the advancement of the stock relative to the jaws tends to pivot the jaw 40 in an anti-clockwise direction towards its inoperative position.

As soon as the stock has been gripped by the rolls, the operator moves the valve 33 into the off position and as soon as the rear end of the stock

has advanced clear of the jaws displaces the valve further into the rear position for admitting air under pressure to the forward end of the cylinder 29, so as to displace the two jaws rearwardly, thereby causing the nose 54 on the lever 50 to engage with the forward side of the striker member 55 so as to cause the lever 50 to pivot in an anti-clockwise direction, with the result that the lever horn 52, by its engagement with the abutment pin 53, displaces the arm 42 and pivoted jaw 40 in an anti-clockwise direction relative to the bearing 37 so that as the lever approaches a position in which its nose can ride over the striker member 55, the arm 42 is pivoted through a sufficient distance to cause the spring 44 again to pass over the dead centre position described into the initial inoperative position shown in Figure 3 in which the pivoted jaw 40 is retained by the spring 44 in the fully raised position. After the lever 50 has passed over the striker member 55 it falls by gravity back to its initial position as shown in Figures 3 and 5, ready for the feeding of the next length of stock which may be placed upon the support 21.

It will be observed that the grip between the two jaws and the stock is purely frictional—i. e. the jaws permit of the stock spinning on its own longitudinal axis as soon as the stock has been gripped by the skew rolls of the straightening machine.

The modified construction shown in Figures 9 to 12 is in principle identical with the preceding construction but in this case, instead of providing a stationary troughlike support for supporting the stock as it is advanced to the straightening machine, the stock is supported from beneath by a reciprocally mounted trough shaped support of V-configuration in cross section, such support being indicated at 58 in the drawing and serving also as a jaw for engaging the underside of the stock in like manner to the jaw 25 of the preceding construction, which jaw the support 58 replaces.

The combined jaw and support 58 is mounted slidably on guide rods 24, being pivoted on opposite sides with guide blocks 59 secured to the sides of the trough shaped jaw support 58, the guide blocks having holes through which the guide rods extend and the latter are mounted adjustably at their extremities by screws 23 in manner similar to the preceding construction.

With this construction the bracket 36 carrying the pivoted jaw 40 is secured to one side of the jaw support 58 at a position near the forward end thereof and the remaining parts of the device are constructed and function in like manner to the arrangement previously described, it being understood that in operation the operator will place the length of stock in the troughlike jaw support 58 with the forward end of the stock projecting beyond the forward end of the member 58 whereupon the valve 33 will be operated in the manner already described, to advance the two jaws towards the straightening machine and the stock will be advanced and gripped and the device will operate in like manner to the preceding construction.

It should be understood that the invention is not to be regarded as being limited to the particular arrangement above described and shown in the accompanying drawings; various changes in the form of the invention may be made within the scope of the appended claims.

What I claim then is:

1. A device for feeding elongated round metal

stock to a straightening machine embodying rolls adapted to grip and advance and simultaneously to rotate the stock about its own longitudinal axis, said device comprising in combination, a pair of gripping jaws adapted frictionally to grip the stock from opposite sides thereof while permitting of it rotating about said longitudinal axis, a guide supporting said pair of gripping jaws for reciprocation in a direction parallel to the axis of feeding of the stock to the rolls, means for effecting reciprocation of said gripping jaws along said guide, one of said two jaws constituting a first jaw and carrying a bearing, said other jaw being supported by said bearing for pivotal movement about an axis transverse of the direction of reciprocation of said jaws between a stock gripping and a stock release position, said pivoted jaw being adapted to engage with the stock at a position along said axis of reciprocation which is in advance of said jaw pivot, a lever element pivotally connected to said first jaw, a fixed striker member, said lever element being adapted to engage said striker member and to ride over the same when said jaws are reciprocated along said guide in either direction and to pivot relative to said first jaw on engaging said striker element, an arm element connected to said pivoted jaw to pivot therewith, a pair of spaced abutments on one of said elements adapted operably one or the other to be engaged with an abutment on the other element when the lever element engages with said striker member in one or the other direction of reciprocation of the jaws to displace said pivoted jaw into one or the other of two positions, and spring means adapted to retain said pivoted jaw releasably in one or the other of its said two positions.

2. A device for feeding elongated round metal stock to a straightening machine embodying rolls adapted to grip and advance and simultaneously to rotate the stock about its own longitudinal axis, said device comprising in combination, a stationary guide extending parallel to the axis of feeding of the stock to the rolls, a jaw mounted slidably on said guide for reciprocation parallel to said axis of feeding and adapted to engage frictionally with one side of said stock, means for effecting reciprocation of said slidable jaw along said guide, a bracket connected rigidly to said slidable jaw, a bearing carried by said bracket, a spindle pivoted in said bearing extending transversely of the direction of reciprocation of said slidable jaw, a second jaw carried by said spindle so as to reciprocate with said first jaw and adapted for frictional gripping engagement with the other side of the stock, said two jaws when in gripping position permitting of said stock rotating about its own axis, said second jaw being pivotally displaceable relative to said first jaw between a stock gripping and a stock release position, said pivoted jaw being adapted to engage with the stock at a position along said axis of reciprocation which is in advance of said jaw pivot, a lever element freely pivoted on said spindle, a fixed striker member, said lever element being adapted to engage said striker member and to ride over the same when said jaws are reciprocated along said guide in either direction and to pivot relative to said first jaw on engaging said striker element, an arm element carried by said spindle, a pair of spaced abutments on one of said elements adapted operably one or the other to be engaged with an abutment on the other element when the lever element engages with said striker member in one or the other di-

rection of reciprocation of the jaws to displace said pivoted jaw into one or the other of two positions, and spring means adapted to retain said pivoted jaw releasably in one or the other of its said two positions.

3. A device for feeding elongated round metal stock to a straightening machine embodying rolls adapted to grip and advance and simultaneously to rotate the stock about its own longitudinal axis, said device comprising, in combination, a stationary horizontal trough adapted to support the stock in horizontal position from beneath in alignment with its axis of feeding to the rolls, a stationary guide extending parallel to said axis of feeding, a jaw mounted slidably on said guide for reciprocation parallel to said axis of feeding and adapted to engage frictionally with the underside of said stock in advancement of said trough relative to the direction of feeding of the stock, means for effecting reciprocation of said slidable jaw along said guide, an upstanding bracket connected rigidly to said slidable jaw, a bearing carried by said bracket, a spindle pivoted in said bearing extending horizontally transversely of the axis of feeding of the stock at a level above the base of said trough and slidable jaw, a second jaw depending from said pivot and displaceable pivotally downwardly from a stock release position into a stock gripping position in which it engages frictionally with the upper side of the stock during its feeding to the rolls, said pivoted jaw being adapted to engage with the stock at a position along said axis of reciprocation which is in advance of said jaw pivot, said two jaws when in gripping position permitting of said stock rotating about its own axis, a weighted lever element carried by said spindle and depending therefrom, a fixed striker member, said lever element being adapted to engage said striker member and to ride over the same when said jaws are reciprocated along said guide in either direction and to pivot relative to said first jaw on engaging said striker element, an upstanding arm element carried by said spindle, a pair of spaced abutments on one of said elements adapted operably one or the other to be engaged with an abutment on the other element when the lever element engages with said striker member in one or the other direction of reciprocation of the jaws to displace said pivoted jaw into one or the other of two positions, and spring means adapted to retain said pivoted jaw releasably in one or the other of its said two positions.

4. A device for feeding elongated round metal stock to a straightening machine embodying rolls adapted to grip and advance and simultaneously to rotate the stock about its own longitudinal axis, said device comprising, in combination, a stationary horizontal guide extending parallel to the axis of feeding of the stock to the rolls, a jaw in the form of a trough of V configuration in cross section mounted slidably on said guide for reciprocation parallel to said axis of feeding and adapted to engage frictionally with the underside of said stock and support the same in horizontal position, means for effecting reciprocation of said slidable jaw along said guide, an upstanding bracket connected rigidly to said slidable jaw, a bearing carried by said bracket, a spindle pivoted in said bearing extending horizontally transversely of the axis of feeding of the stock at a level above the base of said trough and slidable jaw, a second jaw depending from said pivot and displaceable pivotally downwardly from a stock release position into a stock gripping

position in which it engages frictionally with the upper side of the stock during its feeding to the rolls, said pivoted jaw being adapted to engage with the stock at a position along said axis of reciprocation which is in advance of said jaw pivot, said two jaws when in gripping position permitting of said stock rotating about its own axis, a weighted lever element carried by said spindle and depending therefrom, a fixed striker member, said lever element being adapted to engage said striker member and to ride over the same when said jaws are reciprocated along said guide in either direction and to pivot relative to said first jaw on engaging said striker element, an upstanding arm element carried by said spindle, a pair of spaced abutments on one of said elements adapted operably one or the other to be engaged with an abutment on the other element when the lever element engages with said striker member in one or the other direction of reciprocation of the jaws to displace said pivoted jaw into one or the other of two positions, and spring means adapted to retain said pivoted jaw releasably in one or the other of its said two positions.

5. A device according to claim 1 wherein said spring means comprises a tension spring connected at one end to said first jaw and at the other end to said arm element, the point of connection of the tension spring to the arm element being adapted to move over a dead centre position in relation to the point of connection of the spring to the first jaw and the axis of pivoting of the pivoted jaw as the latter moves between its said two positions, means being provided for limiting such movement of the pivoted jaw in a direction away from the stock.

6. A device according to claim 2 wherein said spring means comprises a tension spring connected at one end to said first jaw and at the other end to said arm element, the point of connection of the tension spring to the arm element being adapted to move over a dead centre position in relation to the point of connection of the spring to the first jaw and the axis of pivoting of the pivoted jaw as the latter moves between its said two positions, means being provided for limiting such movement of the pivoted jaw in a direction away from the stock.

7. A device according to claim 4 wherein said spring means comprises a tension spring connected at one end to said first jaw and at the other end to said arm element, the point of connection of the tension spring to the arm element being adapted to move over a dead centre position in relation to the point of connection of the spring to the first jaw and the axis of pivoting of the pivoted jaw as the latter moves between its said two positions, means being provided for limiting such movement of the pivoted jaw in a direction away from the stock.

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