

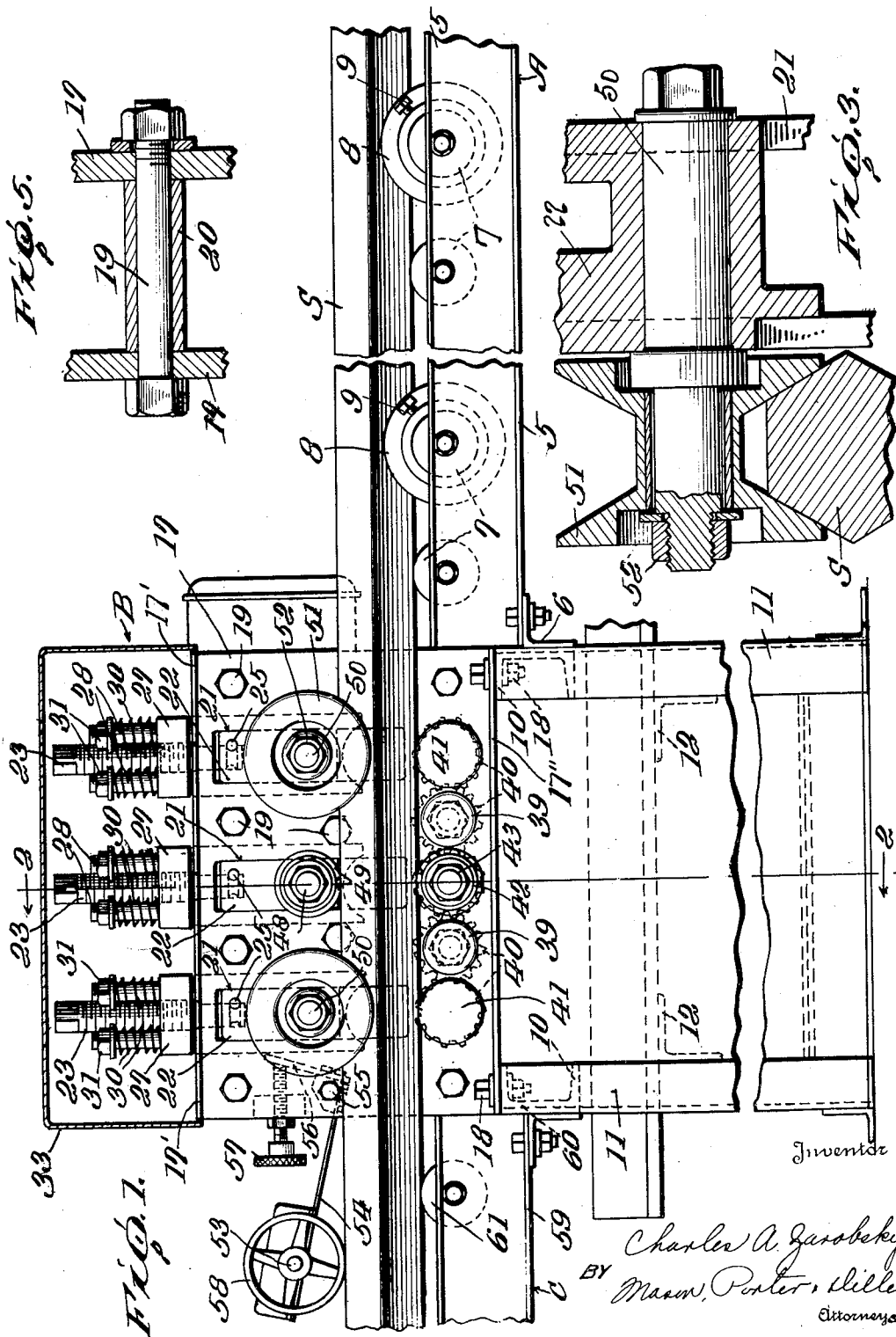
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Filed Nov. 22, 1943

2 Sheets-Sheet 1



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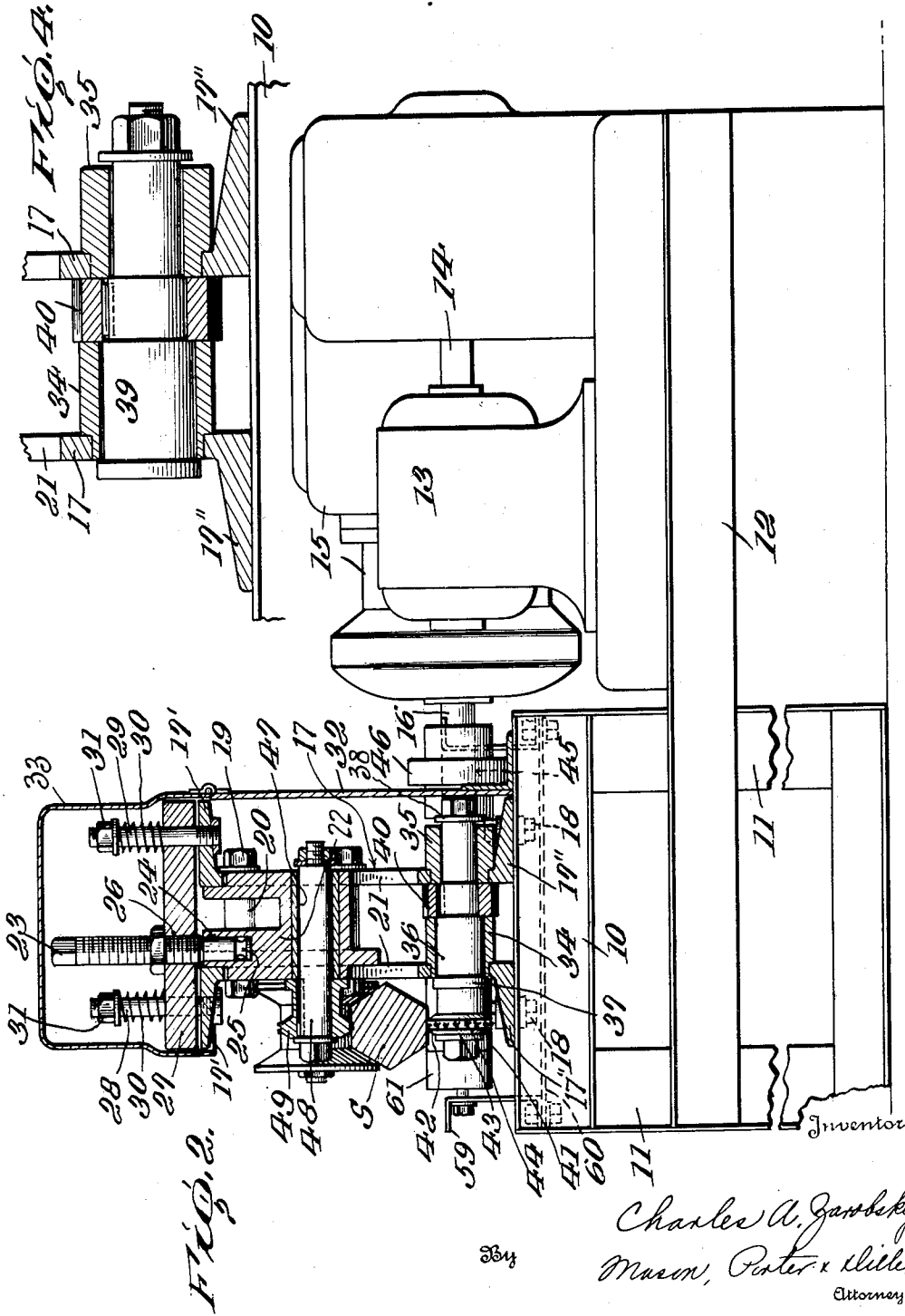
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UNITED STATES PATENT OFFICE

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BAR STOCK MARKING MACHINE

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4 Claims. (Cl. 101—5)

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The invention relates generally to marking devices and primarily seeks to provide a novel, power driven machine structure for rapidly and efficiently marking bar stock so that when the stock is subsequently cut into small pieces incident to the manufacture of units of which valve, coupling or fitting elements, rings, sleeves, collars or like elements constitute examples, said units each will have impressed thereon identifying markings assuring the purchasing public as to the origin or other standards of the product, material specifications or "end use" designations.

It was the practice in the past to hand mark bar stock for the purpose stated, as by daubing identifying colors thereon, but such practices caused trouble in the working of the stock in forging dies or automatic machines and have become obsolete. Machines have been provided heretofore for marking bar stock, but such machines have been limited in efficiency and popularity because of slowness of operation, lack of clearness and uniformity in the marking effected thereby, lack of adaptability to the marking of different types and sizes of stock, or due to the complicated nature thereof and resultant high cost and difficulty in handling. It is the purpose of the present invention to provide a simple and economically constructed machine in which all objectionable features of the nature stated are avoided.

In its more detailed nature the invention seeks to provide a novel machine structure of the character stated in which the bar stock to be marked is fed rapidly between marking rolls which preferably impress the desired marking along opposite sides or faces of the rapidly traveling stock, means being provided for yieldably pressing one said roll toward the other for applying yieldable pressure effective to compensate for any slight inaccuracies in the straightness or size of said stock.

Another object of the invention is to provide a machine of the character stated in which is included means for adjusting the spaced relation of the marking rolls without disturbing the means for yieldably pressing one said roll toward the other.

Another object of the invention is to provide a machine of the character stated in which the opposed marking rolls are flanked by two rotary supporting and driving rolls each opposed by a grooved and spring pressed roll, said spring pressed rolls being adjustable toward and from the driving rolls without disturbing the pressure applying devices.

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Another object of the invention is to provide a machine of the character stated in which the driving rolls and one of the marking rolls have spur gears secured thereto and an idler gear is interposed between and meshes with the marking roll secured gear and the gear attached to the driving roll at each side of said marking roll, driving power being applied to the gear connected train at the position of driving roll farthest along in the direction of feed travel of the bar stock thereby to eliminate back lash and assure that both driving rolls will effectively drive the bar stock.

Another object of the invention is to provide in combination with the bar stock supporting and driving devices, novel means for registering the footage of bar stock marked in the machine, and means for adjusting the position of said registering means incident to the adaptation of the machine for the marking of different sizes of bar stock.

With the above and other objects in view that will hereinafter appear, the nature of the invention will be more fully understood by following the detailed description, the appended claims and the several views illustrated in the accompanying drawings.

In the drawings,

Figure 1 is a fragmentary left side elevation illustrating the marking machine, parts being broken away and in section.

Figure 2 is a vertical cross section taken on line 2—2 on Figure 1.

Figure 3 is a fragmentary vertical cross section taken through the mounting of one of the presser rolls.

Figure 4 is a fragmentary vertical cross section taken at the position of one of the idler shafts.

Figure 5 is a fragmentary vertical cross section illustrating one of the beam spacing bolt equipments.

In the example of embodiment of the invention herein disclosed there are included a feed-in table or support, portion A, on which the bar stock is supported as it is being fed into the marking machine proper, generally designated B, wherein the marking means and also the stock moving or feeding means is incorporated, and the feed-away table or support, generally designated C, on which the bar stock is supported as it is being fed away after having been properly marked in the machine B.

The feed-in table or support A includes a pair of parallel space support beams 5, which are supported as at 6 on the frame of the machine proper

B and by other suitable supporting standards (not shown). Between the beams 5 are mounted a plurality of bar stock support rolls 7, and at spaced intervals certain of said rolls are provided with spaced guide collars 8, for properly guiding the bar stock to the feeding and marking devices in the marking machine. The guide collars are adjustably secured on the rolls 7, as at 9, so that the lateral spacing thereof may be varied to accommodate bar stock of different sizes, assuming, of course, that the shape of bar stock illustrated in the drawings is maintained.

The machine proper includes a support frame comprising transverse table beams 10, and supporting standards 11. The machine frame also includes transverse support extensions 12 whereon is mounted a driving unit including a motor 13. The drive shaft 14 of the motor is coupled with a speed control gearing unit 15 of any approved type. The drive or power out-put shaft 16 of the unit 15 extends in parallel relation to the motor shaft 14 but in the opposite direction, toward the bar stock feedaway.

Two channel beams 17 are secured as at 18 upon the table beams 10, said beams 17 being held in parallel space relations by bolts 19 and interposed spacer sleeves 20, in the manner best illustrated in Figures 2 and 5 of the drawings. The beams 17 have their upright body webs arranged back to back in spaced relation as shown in Figure 2 with their upper and lower flanges, designated 17' and 17'' respectively, directed outwardly. The upright body webs of the channel beams are equipped with 3 sets of vertical, aligned slots or guide-ways 21, and in each aligned set of guide-ways there is mounted a slide block 22. See Figures 1 and 2. An adjuster screw 23 is rotatably inserted in a bore 24 in the upper surface of each block and secured against end-wise movement in the bore by annular groove and pin connection 25. Each screw 23 extends upwardly through a thread bore 26 in a bar 27 lying transversely across the beams 17 in the upper flanges 17' of the manner clearly illustrated in Figures 1 and 2, and it will be obvious that by rotating the screws 23 the respective slide blocks 22 can be lifted or lowered in the slots 21 in which they are mounted.

Two bolts 28 pass upwardly through the top flange 17' of the beam 17 overlying the bar stock feed-away and through the end of each bar 27 overlying said beam, and a single bolt 29 extends upwardly through the top flange 17' of the other beam 17 and through the end of each bar overlying the same. Compression springs 30 surround the several bolts 28 and 29 between the upper surfaces of the bars 27 and the adjustable nuts or abutment heads 31 mounted on the bolts and serve to yieldably press the bars and the adjustably attached blocks 22 downwardly. A casing wall 32 may be provided and a hinged mounted cover 33 may be utilized to enclose the adjuster screws 23 and the bolts 28, 29 against inadvertent contact.

Beneath each set of guide slots 21, the beams 17 have affixed thereto a bearing sleeve 34 and a smaller bearing sleeve 35 axially aligned with the first mentioned bearing sleeve. Each set of aligned bearing sleeves 34, 35 serves to rotatably support a shaft 36. Each shaft 36 is held against end-wise movement by an affixed head 37 abutting the end of the sleeve 34, and by a removable head 38 abutting the end of the respective sleeve 35. Similar sets of sleeves rotatably support two intermediate idler shafts 39, and all of the shafts

36, 39 have like diameter spur gears 40 secured thereon between the larger diameter part thereof in the sleeve 34 and the adjacent ends of the smaller sleeves on the smaller ends of said shafts. The gears 40 intermesh in the manner clearly illustrated in Figure 1 of the drawings.

The end-most shafts 36 are equipped with bar stock supporting roll extensions 41, and the central shaft 36 has a marking roll 42 removably secured thereon as at 43. See Figure 2. The marking roll is equipped with a marking periphery 44, and it is to be understood that the marking rolls may be selectively mounted so as to provide the particular type of marking desired during a particular setup of the machine.

At the far end of the machine, that is at the end toward which the bar stock is fed, the shaft 36 is extended as at 45 and is coupled as at 46 with the drive shaft or power out-put connection 16. By thus connecting the drive shaft of the variable speed reducer unit 15 to the extreme left hand shaft 36 as viewed in Figure 1, all the back lash and free play in the gear train 40 is taken up when the first roll 41 drives the bar. In this manner both rolls 41 and the marking roll 42 serve to urge the bar stock through the machine. Obviously, if the first roll indicated at the right in Figure 1 were connected to the power shaft, then only the first roll would serve to urge the bar stock through the machine because of back lash in the gear train, and the marking roll 42 and the other drive roll 41 would idle without aiding in urging the bar stock through the machine.

The centrally disposed slide block 22 is equipped with a bearing sleeve 47 in which a shaft 48 is freely rotatable. The shaft 48 has a marking roll 49 removably secured thereon in position for overlying and opposing the previously described marking roll 42. The marking rolls 49 and 42 cooperate in indenting the desired identifying marking in the upper and lower faces of the bar stock S in the manner clearly illustrated in Figure 2.

Each of the two remaining or end slide blocks 22 has a shaft 50 affixed thereto in the manner clearly illustrated in Figure 3, and on each said shaft is a grooved presser roll 51, removably mounted as at 52. It is to be understood that the presser rolls 51 can be replaced by other presser rolls of proper shape for engaging and guiding bar stock S of various shapes and sizes, thus serving to perfectly align the rapidly traveling bar stock with the marking rolls 42, 49 between which said stock is fed. It will be obvious that the feeding movement is imparted to the bar stock by the opposing feed roll sets 41, 51. In the machine herein described, the bar stock can be fed and marked at the rate of 3,000 feet per hour when large size bars of hard metals are being marked, and at speeds up to 9,000 feet per hour when smaller and softer bars are being marked.

In order to register the amount of bar stock footage marked in the machine there is provided a registering device 53 which is mounted on a support arm 54, pivoted as at 55 on one of the beams 17 in the manner clearly illustrated in Figure 1. The arm 54 has a crank extension 56 which engages an adjustable screw 57. In practice, the screw 57 is adjusted so that when no bar stock is being fed through the machine the under surface of the wheel 58 will rest approximately $\frac{1}{16}$ " below the level to which it is lifted by contact with the driving bar stock,

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Thus the wheel 58 will move up approximately $\frac{1}{16}$ of an inch when the driven bar stock first engages it. This provides for a little movement of the wheel to compensate for slight inaccuracies in the straightness or size of the bar stock. The wheel is held in engagement with the bar stock by its own weight and the weight of the footage registering device 53.

The feed-away table or support C comprises a pair of parallel spaced support beams 59 which are supported as at 60 on the marking machine framing and upon suitable support standards (not shown), and these beams also mount a plurality of bar stock support rolls 61 in the manner illustrated in Figures 1 and 2 of the drawings.

In adjusting the machine for marking a particular size and shape of bar stock, the bar stock which is to be marked is inserted between the idling rolls 51 and the driving rolls 52, and the screws 23 associated with the idler roll-carrying slide blocks 22, are turned until the idler rolls 51 contact said bar stock. The screws 23 are then given an extra turn to cause the idler rolls 51 to grip the bar stock under spring pressure. This extra turn of each screw causes the rectangular bars 27 on top of the upper flanges 17 of the channel beams 17 to rise slightly from the channels in the manner clearly illustrated in Figure 2. This type of grip on the bar stock permits slight variations in the bar stock size without affecting the penetration of the high grade hardened steel marking dies 49, 42 because the spring pressure maintaining the rolls 51 in contact with the bar stock remains substantially constant for slight variations in bar stock size. It is to be understood, of course, that the upper or adjustably mounted marking die 49 is adjusted in the same manner.

When the machine has been adjusted as described above, bar stock to be marked is fed over the feed-in table A, properly guided by the spaced collars 8, and is inserted between the opposing idler and driving roll sets 51, 41 and between the opposing marking dies or rolls 49, 42, so as to be marked on both sides, that is on and along the top and bottom surfaces by said dies. The marking on the bar stock is such that when the stock is cut and machined into fitting, valve or other unit elements, at least one unit of marking will appear on each element or piece. The frictional engagement between the rolls 41 and the bar stock serves to drive the bar stock through the machine while the desired markings are being indented thereon.

The simplicity of operation and set-up are outstanding features in the marking machine herein described. It requires but a moment to change the high grade hardened steel marking dies or rolls or to replace the idler and presser rolls 51 so as to change their shape and size according to the type of stock to be marked. It will be obvious also that the speed of operation of the machine can be varied at will.

It is understood that the details of construction of the cooperating parts can be variously changed without departing from the spirit and scope of the invention, as defined in the appended claims.

I claim:

1. In a bar stock marking machine, power driven gripping roll means for feeding the bar stock in the direction of its length, a rotary roll in supporting engagement with the travelling stock at one side thereof, a frame member, a

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guideway on said frame, a slide block slideable in said guideway toward or from said roll, a presser bar, screw means attached to said block and threaded through said bar and adjustable to positively move the block toward or from said roll and from or toward said bar, spring means urging said bar and block toward said roll, and a marking roll rotatably supported on said block in position for engaging said stock at its opposite side and directly opposing the first mentioned roll.

2. In a bar stock marking machine, two bar stock supporting and moving rolls spaced along the direction of travel of the bar stock, a marking roll disposed beneath the travelling bar stock and with its axis in a plane between said stock supporting and moving rolls in position for engaging and marking the face of the bar stock engaged by said stock supporting and moving rolls, a spring pressed marking roll engaging the stock at the side thereof opposite the side supported on said stock supporting and moving rolls and directly opposing the first mentioned marking roll, a train of intermeshing spur gears connecting the first mentioned marking roll and the stock supporting and moving rolls in driving relation, and means for driving the stock supporting and moving roll last to be engaged by the bar stock.

3. In a bar stock marking machine, two bar stock supporting and moving rolls spaced along the direction of travel of the bar stock, a marking roll engaging the stock at the side thereof opposite the side supported on said stock supporting and moving rolls and with its axis in a plane between said stock supporting and moving rolls, a marking roll engaging the stock in direct opposition to the first mentioned marking roll, and a stock guiding and presser roll for engaging the stock in direct opposition to each feeding roll, a frame member, a slide block rotatably supporting each said presser roll and the first mentioned marking roll for movement of adjustment toward or from the path of travel of the bar stock, a presser bar associated with each said block, screw means attached to each said block and threaded through the associated bar and adjustable to positively move the attached block toward or from the path of travel of the bar stock or from or toward said associated bar and spring means urging each said bar toward the path of travel of the bar stock to yieldably press the associated presser rolls or marking roll against said stock.

4. In a bar stock marking machine, two bar stock supporting and moving rolls spaced along the direction of travel of the bar stock, a marking roll engaging the stock at the side thereof opposite the side supported on said stock supporting and moving rolls and with its axis in a plane between said stock supporting and moving rolls, a marking roll engaging the stock in direct opposition to the first mentioned marking roll, and a stock guiding and presser roll for engaging the stock in direct opposition to each feeding roll, a pair of frame members disposed in parallel spaced relation with flanges oppositely directed, a slide block rotatably supporting each said presser roll and the first mentioned marking roll laterally of one said frame member, the blocks being slidably mounted between said frame members, a presser bar traversing the frame member flanges over each block, an adjuster screw attached to each block and threaded through the associated bar and adjustable to positively move the attached block toward or

from the path of travel of the bar stock or from or toward said associated bar, two compression springs overlying the end of each bar over the flange nearest the presser and block carried marker roll and a single compression spring overlying the end of each bar over the other flange, said springs constantly urging the bars toward the path of travel of the bar stock to yieldably press the associated presser rolls or marking roll against said stock.

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