No. 880,434. PATENTED FEB. 25, 1908.

W. A. WOOD.

AUTOMATIC BLOCKING ATTACHMENT FOR STRIP ROLLS.

APPLICATION FILED NOV. 8, 1905.

2 SHEETS—SHEET 1.

FIG. 1.

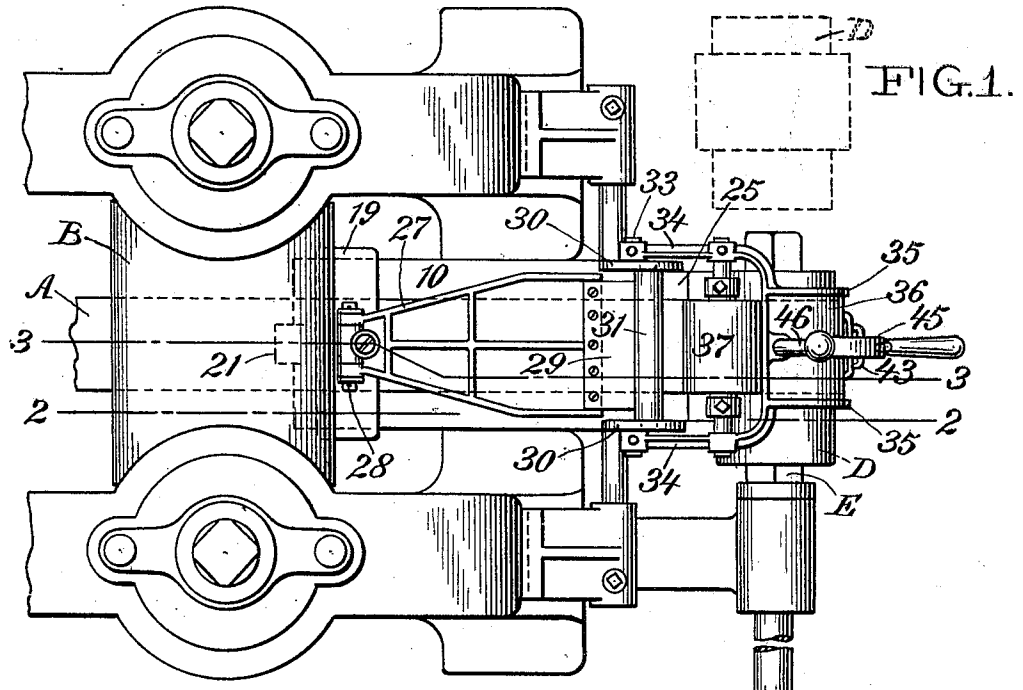
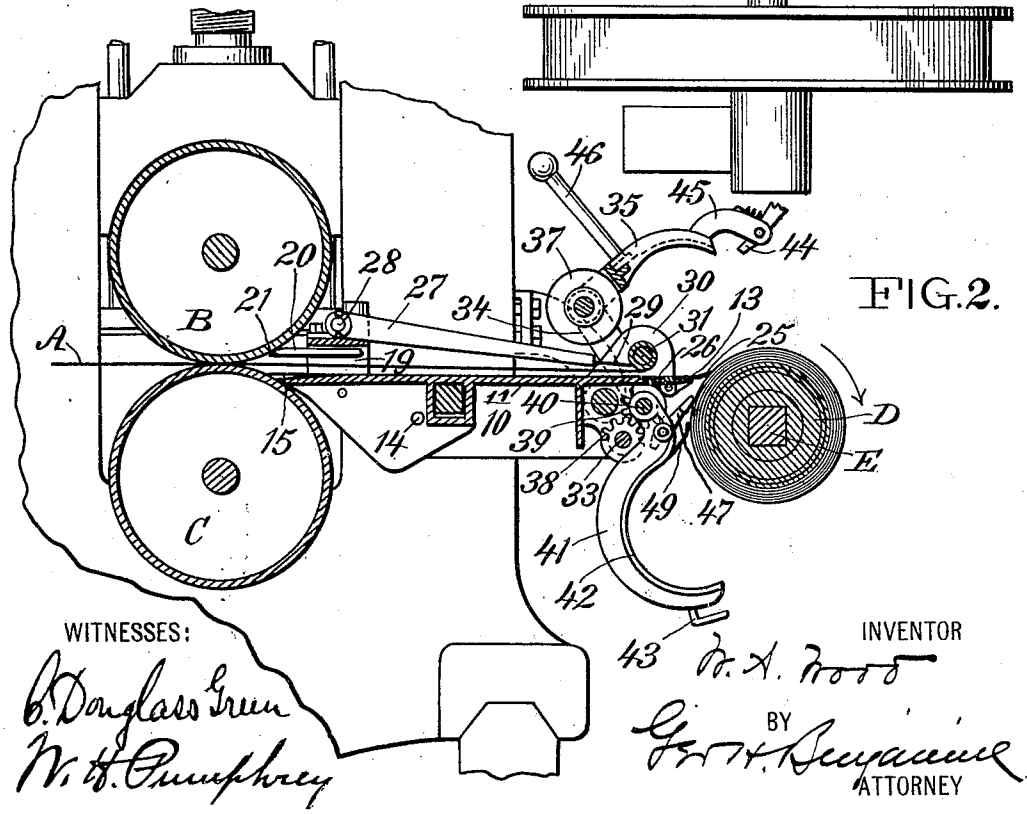


FIG. 2.



WITNESSES:

C. Douglass Green

W. A. Humphrey

INVENTOR

W. A. Wood

BY

Geo. H. Benjamin

ATTORNEY

No. 880,434. PATENTED FEB. 25, 1908.

W. A. WOOD.

AUTOMATIC BLOCKING ATTACHMENT FOR STRIP ROLLS.

APPLICATION FILED NOV. 8, 1905.

2 SHEETS—SHEET 2.

FIG. 3.

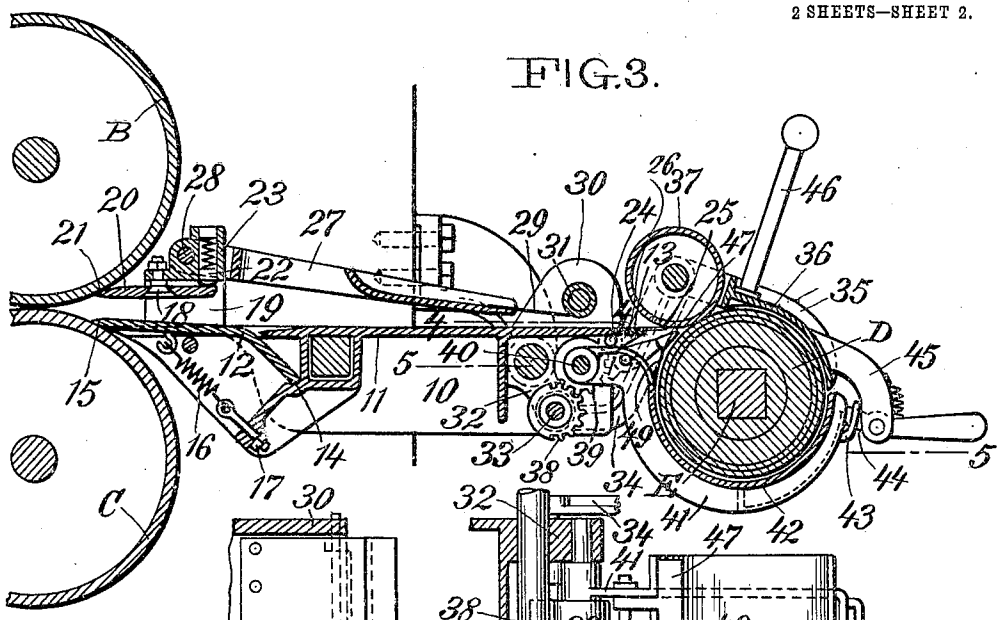


FIG. 4.

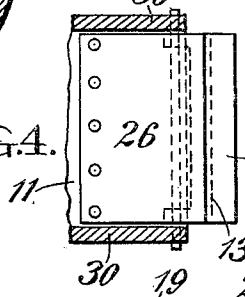


FIG. 5.

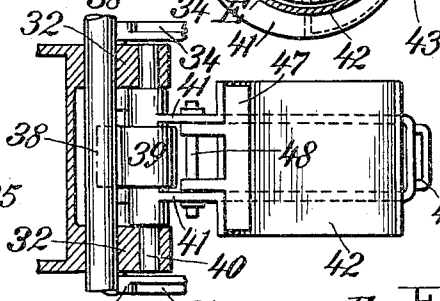


FIG. 9.

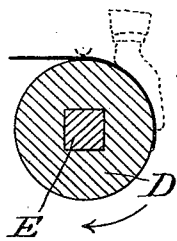


FIG. 6.

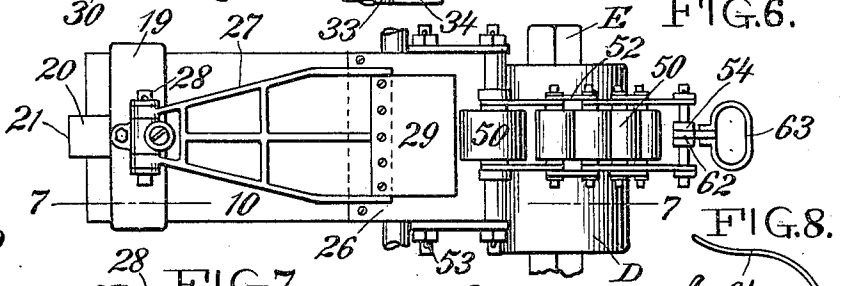


FIG. 8.

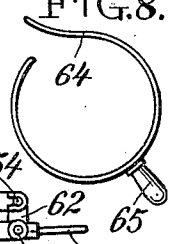


FIG. 7.

WITNESSES:

C. Douglass Green

W. H. Humphrey.

INVENTOR

W. A. Wood

BY Geo. H. Graves

ATTORNEY

UNITED STATES PATENT OFFICE.

WILLIAM ALEXANDER WOOD, OF ANSONIA, CONNECTICUT, ASSIGNOR TO THE COE BRASS MANUFACTURING COMPANY, A CORPORATION OF CONNECTICUT.

AUTOMATIC BLOCKING ATTACHMENT FOR STRIP-ROLLS.

No. 880,434. Specification of Letters Patent. Patented Feb. 25, 1908.

Application filed November 8, 1905. Serial No. 286,385.

To all whom it may concern:

Be it known that I, WILLIAM ALEXANDER WOOD, a citizen of the United States, residing at Ansonia, county of New Haven, State of Connecticut, have invented certain new and useful Improvements in an Automatic Blocking Attachment for Strip-Rolls, of which the following is a specification.

My invention consists in an automatic blocking attachment adapted to be used in connection with the rolls of a strip mill, and which has for its purpose to automatically guide the strip after it passes the rolls of the mill onto and around the block.

The object of my invention is two-fold: First, to do away with the employment of hand blocking, which is exceedingly dangerous to the workman and has resulted in frequent accidents; and second, to increase the capacity of the strip mill, by permitting it to be run at a higher speed.

Heretofore, blocking has been accomplished by hand. This has been done as shown in Figure 9, of the drawings, where the workman places one hand on the top of the strip, pressing it in contact with the block, while with the other hand he guides the strip around the block, until the end of the strip is caught under the horizontal moving portion of the strip. Unless the workman is expert he is very apt to have his arm caught between the block and the strip, which in many cases has resulted in the loss of an arm or serious injury.

My invention, considered broadly, aims to accomplish automatic blocking, and the drawings which accompany this specification show three different constructions, any or all of which may be employed.

Referring to the drawings: Figs. 1, 2, 3, 4 and 5 show one construction, and in these figures—Figure 1 is a plan view. Fig. 2 a section on the line 2—2 of Fig. 1. Fig. 3 a section on the line 3—3 of Fig. 1. Fig. 4 a section on the line 4—4 of Fig. 3, and Fig. 5 a section on the line 5—5 of Fig. 3. Figs. 6 and 7 show a different construction, in which Fig. 6 is a plan view, and Fig. 7 a section on the line 7—7 of Fig. 6. Fig. 8 shows a third construction, as a side elevation of a hand device. Fig. 9 is a section showing the old method of hand blocking.

The general operation of the three forms of devices shown is as follows: The strip A is fed between the rolls B, C, of the mill, and towards the block D, which block is removable from a shaft E, as is common in all strip mills. The rolls B, C, and the block D, are of the ordinary construction. Just before reaching the block D, the strip is fed into the automatic blocking attachment. This attachment guides the strip to the top of the block and around the block, until the end of the strip is caught between the bottom of the advancing strip and the top of the block. As soon as the strip is caught, as described, the blocking attachment is opened, or, if constructed as shown in the device in Fig. 8, withdrawn. When the strip has been fully wound upon the block, the block and strip is removed and a new block substituted.

It will be seen from the above description that no hand labor is required, and as the blocking attachment can be immediately thrown into position when a new block is placed upon the mill, the speed of the mill may be very materially increased, thereby increasing its capacity.

Referring now to the features of construction of the different forms of blocking attachment described. Arranged in front of the rolls B, C, is a guide table 10, suitably supported. In Fig. 3 this guide table is shown as composed of three parts, *i. e.*, the plate 11, which is fixed, the plate 12, near to the rolls, and the plate 13, near to the block. The plate 12 is pivotally mounted at 14, and its forward end 15 presses upon and is maintained in contact with the lower roll C, by means of the spring 16 and bolt 17. Mounted on a universal bearing 18, carried in standard 19 projecting upward from the plate 11, is a plate 20, having its forward end 21 pressed in contact with the roll B, by means of the pin 22 and spring 23. The object of pressing the plates 12, 20 in contact with the rolls C, B, is to insure that the strip will pass between the guides and not follow the periphery of either of the rolls C or B. The plate 13 near to the block, is pivoted to the plate 11 at 24, and carries upon its upper surface a spring plate 25, which projects towards the block D.

Mounted on the top of the plate 11 and overlaying the plate 13 and the spring 25 thereon, is a spring plate 26. Situated over the plates 11, 12 is an arm 27, pivoted at 28, and on the forward end of this arm is mounted a spring plate 29.

Mounted in bearings in standards 30, pro-

jecting upward from the plate 11, is a roll 31. The spring plate 29 on the end of the arm 27 bears, when raised, upon the under surface of the roll 31. The purpose of the roll 31 and the spring plate 29 is to guide the strip under the roll 31 in order that the strip shall move in a horizontal direction from the rolls B, C, to the roll 31, and thence to the surface of the block D.

The construction so far as described, is applicable to the three forms of blocking attachment illustrated in the drawings. I may, however, as shown in Fig. 7, omit the plate 13, in which case the spring plate 26 is carried forward and bridges the space between the plate 11 and the block D.

To guide the strip after passing the guide table 10 to and around the block D, three forms of guides are shown in the drawings. Referring first to those shown in Figs. 1, 2, 3, 4 and 5. Mounted in bearings in plates 32, depending from the plate 11, is a shaft 33, to which is connected the lever arms 34. These arms are carried upward to the right, together and forward, and then bent at right angles to form the guide portion 35, having on its under surface the plate 36, shaped to conform to the curvature of the top of the block. Mounted in bearings situated in the angle of the arms 34, is a roll 37, which, when the parts are in the position shown in Fig. 3, *i. e.*, with the parts closed, bears upon the surface of the strip wound upon the block D. The arms 34 are secured to the shaft 33, and also secured to this shaft is the segmental gear 38. This gear is in mesh with a similar segmental gear 39, on shaft 40. Secured to shaft 40 are the arms 41, Fig. 5, and connected to the forward end of these arms is a concave plate 42, shaped to conform to the curvature of the bottom of the block. On the forward end of this plate is a bail 43, which is adapted to co-act with the latch 44, pivoted in an arm 45, extending, from the portion 35 of the arms 34. Projecting upwards from the portion 35 of the arms 34 is a lever arm 46.

It will now be understood from the description so far as given, that when the latch 44 is released from the bail 43, and the lever arm 46 pushed backward, the parts will be moved to the position shown in Fig. 2; that is, the movement thus imparted to the shaft 33 will be transmitted through the interposed gears to the shaft 40 and thence to the arms 41 and plate 42.

In order to guide the strip to the top of the block when passing under the roll 37, the pivoted guide plate 47 is provided. This plate is pivoted on the rod 48, situated in bearings in the arms 41. In order to guide the strip as it passes around the block upward, and under the strip passing on to the top of the block, I provide the spring plate 49, which is secured at its lower end to the plate 42 and follows the curvature of the block.

The various other details of construction which have not been referred to will be readily understood from an inspection of the drawings.

Referring now to Fig. 7: There is shown as surrounding the block D, two sets of rolls, 50, 51, connected by links 52. The upper set of rolls has its first link pivotally connected at one end 53 to the guide table 10, and its last link carries a pin 54. The lower set of rolls has its first link pivotally connected to a bell crank 55, pivoted at 53 to the guide table 10. The short arm of the bell crank, 57, is connected through a link 58 to a foot treadle 59. Projecting also from the first link is an arm 60, shaped to conform to the curvature of the block D. The last link of the lower series of rolls has pivoted to it, at 61, a latch 62, adapted to co-act with the pin 54. It also has connected to it a handle 63. The two series of rolls serve to guide the strip onto and around the block D, and the foot treadle 59 to tighten the chain of rolls around the block. When the block is to be removed, the latch is opened and the two sets of rolls thrown out of engagement with the block.

The third guiding device shown in Fig. 8. consists simply in a strip of resilient metal 64, bent to the shape shown, and provided with a handle 65. In using this device it is slipped around the block and held in position by the workman.

The three devices described, as previously stated, all serve the same purpose. Two of them are automatic and the third requires human aid. I have illustrated these three forms to bring out the fact that apparatus different in construction, can be employed to accomplish the same result.

I wish it understood that I do not limit myself in anywise to the special features of construction of the devices illustrated. The construction shown in Figs. 1 to 5 is the best of which I am now aware, as such device is wholly automatic and may be depended upon.

Having thus described my invention, I claim:

1. The combination of the revolving block of a strip mill, means for directing and guiding the strip around the block as it comes from the mill, and means whereby the directing and guiding means may be withdrawn from around the block.

2. The combination of the revolving block of a strip mill, automatic means for directing and guiding the strip around the block as it comes from the mill, and manually actuated means whereby the directing and guiding means may be withdrawn from around the block.

3. The combination of the revolving block of a strip mill, means comprising separable

parts for directing and guiding the strip around the block as it comes from the mill, and means for simultaneously separating the parts of the directing and guiding means and moving them clear of the block.

4. The combination of the revolving block of a strip mill, and means for directing the strip passing through the mill to the surface of the block and guiding the strip around the surface of the block, said means comprising separable co-acting members which combine to partially encircle the block.

5. In combination with the revolving rolls and block of a strip mill, a directing table situated between the rolls and the block, and a removable guiding device for the strip arranged around the block.

6. In combination with the revolving rolls and block of a strip mill, a guide table situated between the rolls and block, said guide table having its end at the rolls maintained in elastic contact with the surface of the rolls, and a guiding device surrounding the block.

7. In combination with the revolving rolls and block of a strip mill, a directing table, elastic bridging means interposed between said table and block, means for directing and guiding the strip as it passes from the table to and around the block, said last mentioned means being arranged to exert a variable clamping pressure around the block, and means for moving said directing and guiding means clear of the block.

8. In combination with the revolving rolls and block of a strip mill, a guide table in elastic contact with said rolls, and a spring device interposed between said guide table and revolving block.

9. In combination with a revolving block of a strip mill, means for guiding the strip to the block, and means for guiding the strip around the block, said last named means consisting of a separable device inclosing the periphery of the block when in position but separated from the block when out of position.

10. In combination with a revolving block of a strip mill, means for guiding the strip to the block, and means for guiding the strip around the block, said last named means consisting of two concave plates carried in pivoted arms, with means for locking said plates in the closed position around the block.

11. In combination with a revolving block of a strip mill, means for guiding the strip to the block, and means for guiding the strip around the block, said last named means consisting of two concave plates carried in pivoted arms mounted on shafts, means for locking said concave plates around the block, and means whereby when one of said plates is lifted away from the block the other plate will make a corresponding movement.

12. In combination with a revolving block of a strip mill, means for guiding the strip to the block, and means for guiding the strip around the block, said last named means consisting of two pivoted plates mounted in arms, a roll carried in the upper arm, guides carried in the lower arm, means for locking the plates together, and means for producing a simultaneous separation of said plates and arms away from the block.

13. In combination with a revolving block of a strip mill, a guiding device composed of two pivoted parts, said parts shaped to envelop the block when united and to allow free access to the block when separated.

In testimony whereof, I affix my signature, in the presence of two witnesses.

WILLIAM ALEXANDER WOOD.

Witnesses:
W. H. PUMPHREY,
C. DOUGLASS GREEN.