

May 27, 1930.

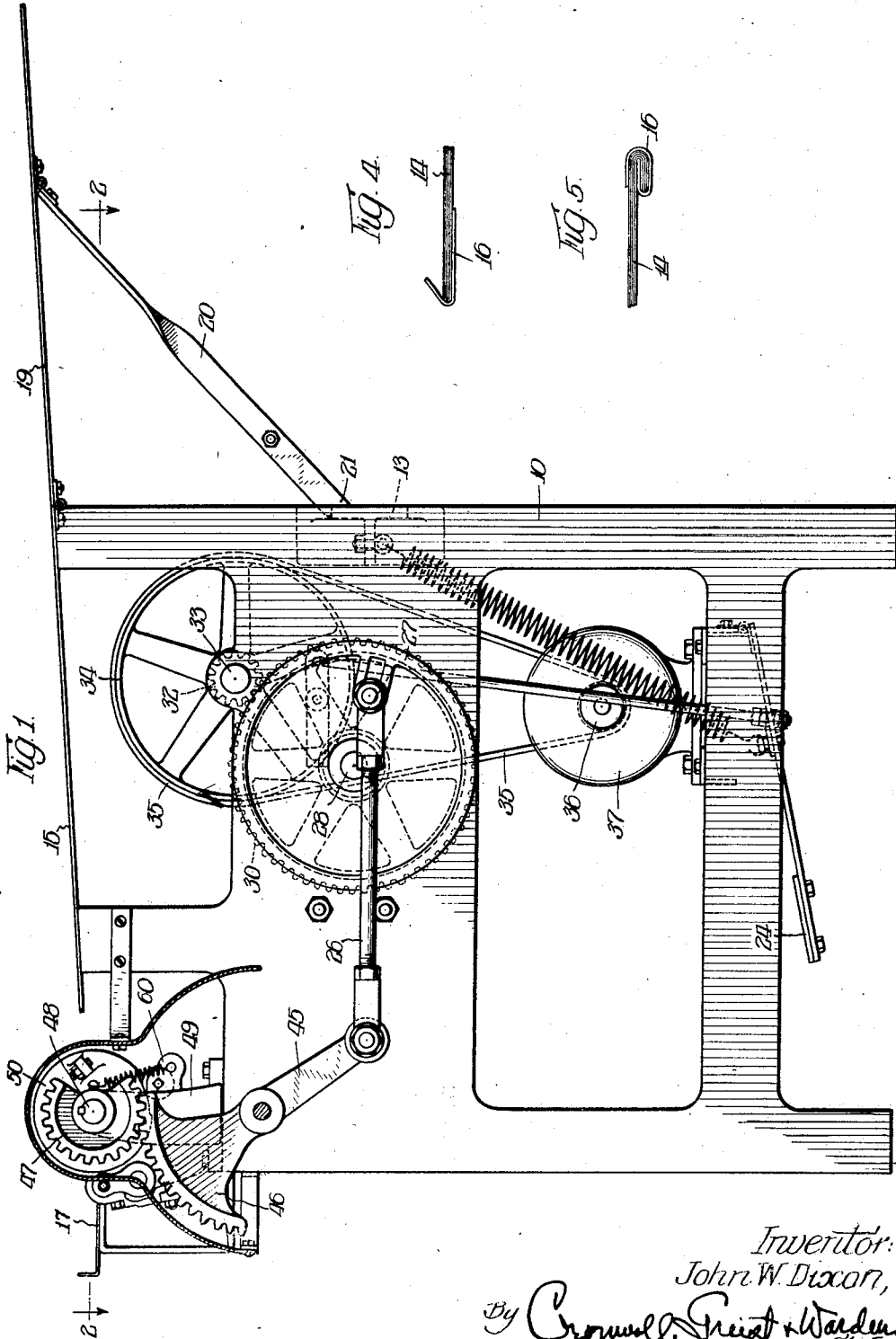
J. W. DIXON

1,760,046

TIN EDGING MACHINE

Filed Aug. 31, 1928

3 Sheets-Sheet 1



Inventor:
John W. Dixon,
By *Crowell, Greist & Warden*
attys.

May 27, 1930.

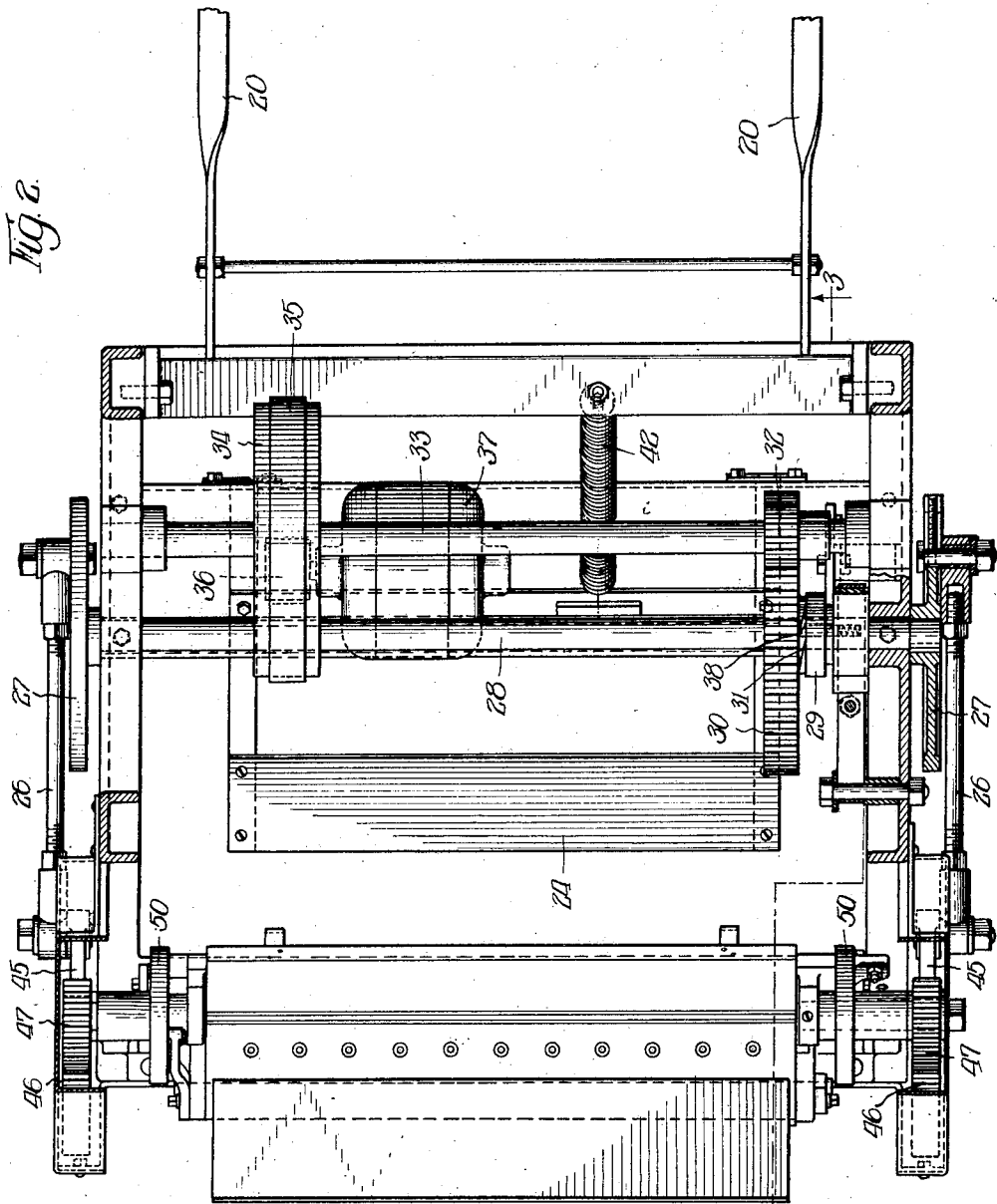
J. W. DIXON

1,760,046

TIN EDGING MACHINE

Filed Aug. 31, 1928

3 Sheets-Sheet 2



Inventor:
John W. Dixon,
By *Cornwell, Grant & Walker*
attys.

May 27, 1930.

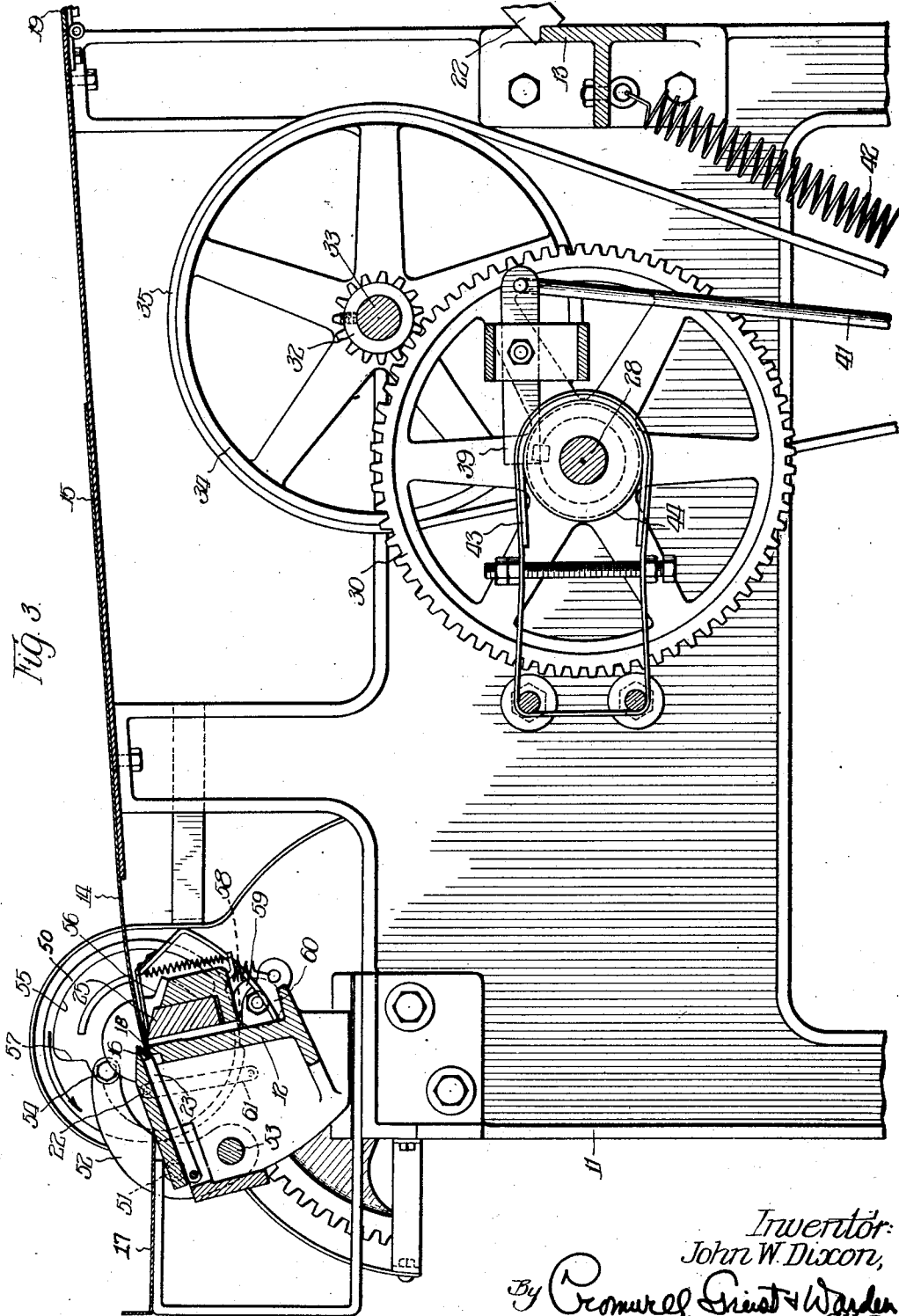
J. W. DIXON

1,760,046

TIN EDGING MACHINE

Filed Aug. 31, 1928

3 Sheets-Sheet 3



Inventor:
John W. Dixon,
By *Permer, Grist & Warden*
attys.

UNITED STATES PATENT OFFICE

JOHN W. DIXON, OF MAYWOOD, ILLINOIS

TIN-EDGING MACHINE

Application filed August 31, 1928. Serial No. 303,175.

The purpose of this invention is to provide a power-operated machine for automatically applying an edging strip of tin or other metal to one or more sheets of paper or other material.

A preferred form of the invention is presented herein for the purpose of exemplification, but it will of course be understood that the invention is susceptible of embodiment in other structurally modified forms coming equally within the scope of the appended claims.

In the accompanying drawings:

Fig. 1 is a side view of the machine;

Fig. 2 is a horizontal section, taken on the line 2—2 of Fig. 1;

Fig. 3 is a vertical section, taken on the line 3—3 of Fig. 2;

Fig. 4 is a transverse section through the strip, before application; and

Fig. 5 is a similar section through the strip, after application.

It will be observed in the drawings that the machine includes two side frame members 10 and 11 which are secured together in spaced relation by two cross frame members 12 and 13. The sheets 14 of paper or other material to be edged are placed upon a large rectangular plate 15 at the back of the machine, as shown in Fig. 3, and the metal strip 16 to be applied to the edges of the sheets is taken from a tray 17 at the front of the machine and placed upon a narrow bed 18 which is formed upon the upper surface of the cross frame member 12. A plate 19 is provided at the back of the machine as an extension of the plate 15 for supporting unusually large sheets. The plate 19 is hinged to the plate 15 and is propped in an elevated position by arms 20 which are pivoted to the plate and are formed with notched ends 21 which fit over the cross frame member 13.

The strip 16, which may be of tin or other suitable material, is reversely bent along one edge, as shown in Fig. 4, and the edges of the sheets 14 are inserted in the resulting channel in the strip. The strip is positioned on the bed 18 with the bent edge of the strip under the edge of a folding blade 22 against

the ends of a number of upwardly spring-pressed gauge pins 23.

When the machine is set in operation, which is accomplished by the action of the operator in depressing a foot pedal 24, the folding blade 22 is drawn down upon the bent edge of the strip to close the channel on the edges of the sheets positioned therein, and a folding bar 25 which underlies the unbent edge of the strip commences to bend the unbent edge upwardly against the edge of the folding blade. When the folding blade 22 moves downwardly, the gauge pins 23 also move downwardly under the pressure exerted downwardly thereon by the folding blade. As soon as the bend thus produced has become sufficiently acute, the folding blade retracts from above the strip and the folding bar proceeds to bend the strip into the shape shown in Fig. 5. Upon completion of the bending operation, the folding bar moves back into its initial position and the folding blade returns while still depressed to eject the finished strip from the bed, after which the folding blade rises up into its initial position to permit insertion of another strip under the same against the ends of the gauge pins.

The movement of the folding bar 25, as well as that of the folding blade 22, is effected through the movement of pitman rods 26 at opposite sides of the machine, which rods are connected eccentrically to wheels 27 which are secured to the ends of a shaft 28 journaled in the side frame members 10 and 11. The stroke of the rods 26 may be increased or decreased either by varying the length of the rods or by shifting their points of attachment to the wheels 27, suitable means being provided for that purpose. A clutch element 29 is secured to the shaft 28 intermediate the wheels 27, and a gear 30 carrying a complementary clutch element 31 is journaled on the shaft 28. The gear 30 meshes with a pinion 32 on a shaft 33, and the shaft 33 carries a pulley 34 over which a belt 35 is trained, which belt passes over a small pulley 36 on the arbor of an electric motor 37. The clutch element 29 carries a spring-pressed key 38 which is adapted to shift axially into engage-

ment with any one of several ratchet teeth on the clutch element 31, and the key 38 is provided intermediate its ends with an inclined shoulder for engagement with a locking finger 39. The finger 39 is pivoted to a bracket 40 carried by the frame member 10 and is connected by a link 41 with the foot pedal 24.

When the pedal 24 is depressed to cause the machine to operate, the finger 39 is lifted out of engagement with the inclined shoulder on the key 38 and the key shifts under spring pressure into engagement with one of the ratchet teeth on the clutch element 31, resulting in rotation of the shaft 28 and wheels 27. As soon as the pedal 24 is released, it is raised by a spring 42, which spring, acting through the link 41, serves to press the nose of the finger 39 downwardly into the path of the key 38. After the key has made one complete revolution with the clutch element 29, the inclined shoulder on the key rides into engagement with the finger 39 and the key is shifted laterally by a camming action and withdrawn from engagement with the ratchet teeth on the clutch element 31. Upon the key being withdrawn, the shaft 28, together with the wheels 27, is immediately brought to rest by the action of an adjustable brake band 43 which engages frictionally at all times with a brake drum 44 on the shaft 28.

The pitman rods 26 are connected to pivoted arms 45 which carry gear sectors 46, and the sectors 46 mesh with pinion sectors 47. Upon each revolution of the shaft 28, the sectors 47 are caused to oscillate first in one direction and then in the other throughout an angle of about 210°. The folding bar 25 is carried by oppositely extending trunnions 48, which trunnions are journaled in brackets 49 supported by the cross frame member 12. The sectors 47 are keyed to the trunnions 48, and cam members 50 are also keyed thereto, which cam members control both the depression and the retraction of the folding blade 22.

The folding blade 22 is pivoted at 51 to arms 52, which arms are pivoted at 53 to the cross frame member 12 and carry rollers 54 which ride in grooves 55 in the cam members 50. When the cam members 50 oscillate in the direction shown by the arrow in Fig. 3, the rollers 54 ride in the inner portions of the grooves 55 until they are engaged and shifted outwardly by shoulders 56 in the grooves. The rollers 54 then remain in outwardly shifted positions in the grooves 55 until during the return movement of the cam members they are engaged and shifted inwardly by shoulders 57 in the grooves. Such inward and outward shifting of the rollers 54 transmits a corresponding movement to the arms 52 and effects the previously described retraction and return of the folding blade 22.

The outer peripheries of the cam members 50 are provided with notches 58 in which rollers 59 are seated at the commencement of the bending operation. The rollers 59 are mounted on the free ends of pivoted and upwardly spring-pressed arms 60, and the arms 60 are connected with the folding blade 22 by links 61. As soon as the cam members 50 commence to turn, the rollers 59 are caused to ride downwardly out of the notches 58 onto the periphery of the cam members 50, and the folding blade is in consequence drawn downwardly to flatten out the reversely bent edge of the strip. After the bending operation has been completed and the cam members 50 have returned, the rollers 59 will be raised up by spring pressure into the notches 58 and the folding blade 22 will also be raised, ready for the insertion of another strip to be bent.

The operation of the machine may be summarized briefly as follows: The motor 37 rotates continuously, causing rotation of the clutch element 31. When the foot pedal 24 is depressed, the nose of the locking finger 39 is raised and the key 38 shifts under spring pressure into engagement with one of the ratchet teeth on the clutch element 31, causing the clutch element 29, together with the shaft 28 and wheels 27, to rotate in unison with the clutch element 31. Rotation of the wheels 27 reciprocates the pitman rods 26 first in one direction and then in the other, which movement of the rods, acting through the sectors 46 and 47 and the trunnions 48, imparts the desired movement to both the folding bar 25 and the folding blade 22, resulting in the bending of the strip 16. After the wheels 27 have made a complete revolution, the nose of the key 38 is forced back into the clutch element 29 by the nose of the finger 39 and the wheels 27 are brought abruptly to rest by the action of the band 43 on the drum 44, in which position of the parts, the machine is ready to bend the next strip.

I claim:

1. A machine for applying an edging strip to one or more sheets of material, comprising, in combination, a bed on which the strip is positioned, a blade against which the strip is folded, a bar for folding the strip, a motor, a power-transmitting connection between the motor and the bar, and a control member for establishing said connection and then automatically releasing the same after the bar has folded the strip and returned to starting position.

2. A machine for applying an edging strip to one or more sheets of material, comprising, in combination, a bed on which the strip is positioned, a blade against which the strip is folded, a bar for folding the strip, an electric motor, a wheel, a pitman rod connected eccentrically with the wheel for moving the bar first in one direction and then in the

other, a power-transmitting connection between the motor and the wheel, and a control member for establishing said connection and then automatically releasing the same after the wheel has made one complete revolution and the bar has folded the strip and returned to starting position.

hinged to the back of the frame to form a continuation of the first mentioned plate, and releasable means for supporting the last mentioned plate in a substantially horizontal position.

In testimony whereof I have hereunto subscribed my name.

JOHN W. DIXON.

3. A machine for applying an edging strip to one or more sheets of material, comprising, in combination, a bed on which the strip is positioned, a blade against which the strip is folded, a bar for folding the strip, an electric motor, a wheel, a pitman rod connected eccentrically with the wheel for moving the bar first in one direction and then in the other, means for increasing or decreasing the extent of movement of the bar, a power-transmitting connection between the motor and the wheel, and a control member for establishing said connection and then automatically releasing the same after the wheel has made one complete revolution and the bar has folded the strip and returned to starting position.

4. A machine for applying an edging strip to one or more sheets of material, comprising, in combination, a generally rectangular frame, a relatively small tray at the front of the frame for supporting the strips to be applied, a relatively large plate at the back of the frame for supporting the sheets to be edged, a strip-folding mechanism intermediate the tray and the plate, an electric motor beneath the plate, a power-transmitting connection between the motor and the folding mechanism, and a control member for establishing and thereafter automatically releasing said connection.

5. A machine for applying an edging strip to one or more sheets of material, comprising, in combination, a generally rectangular frame, a relatively small tray at the front of the frame for supporting the strips to be applied, a relatively large plate at the back of the frame for supporting the sheets to be edged, a strip-folding mechanism intermediate the tray and the plate, an electric motor beneath the plate, a power-transmitting connection between the motor and the folding mechanism, a control member for establishing and thereafter automatically releasing the power-transmitting connection, and a brake for automatically bringing the folding mechanism to rest upon the power-transmitting connection being released.

6. A machine for applying an edging strip to one or more sheets of material, comprising, in combination, a frame, a strip-folding mechanism mounted on the frame near the front of the same, a plate mounted on the frame near the back of the same for supporting the sheets to be edged, an electric motor mounted on the frame beneath the plate, a power-transmitting connection between the motor and the folding mechanism, a plate

70

75

80

85

90

95

100

105

110

115

120

125

130