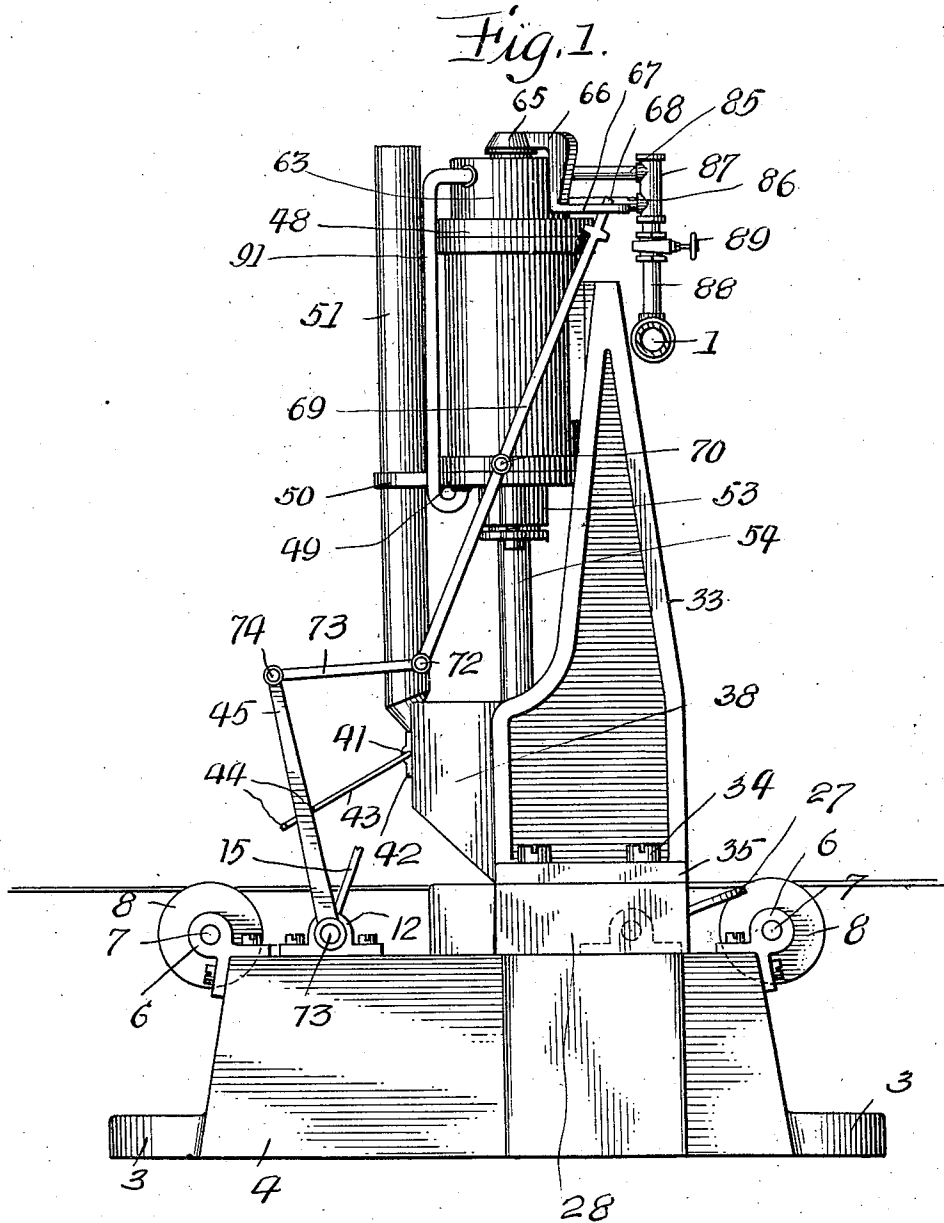


W. G. MILLER.
WIRE WIPING MACHINE.
APPLICATION FILED JUNE 3, 1911.

1,008,180.

Patented Nov. 7, 1911.

4 SHEETS-SHEET 1.



WITNESSES:

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Robert Butler

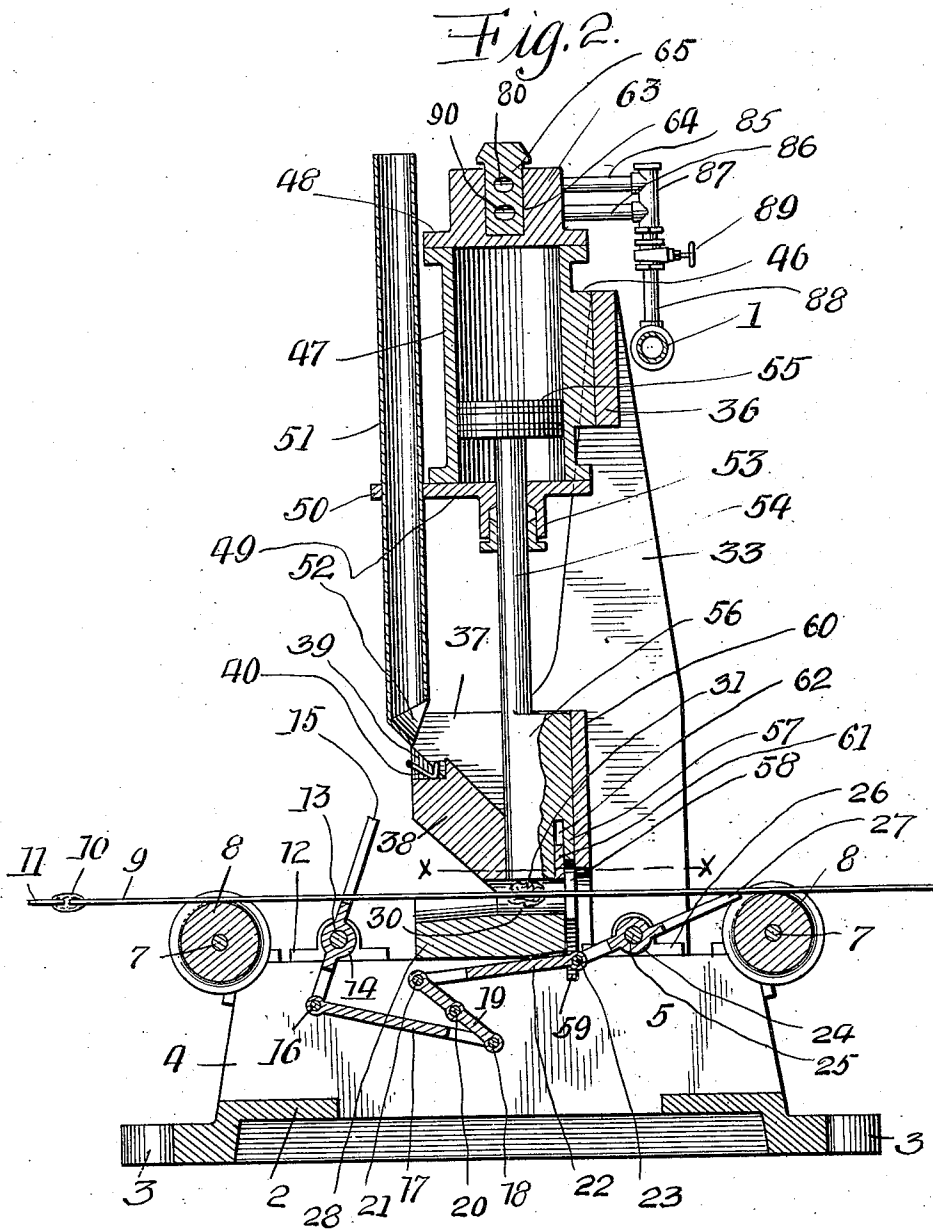
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WITNESSES:

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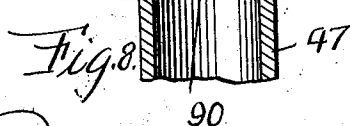
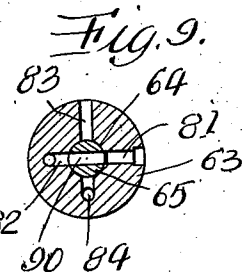
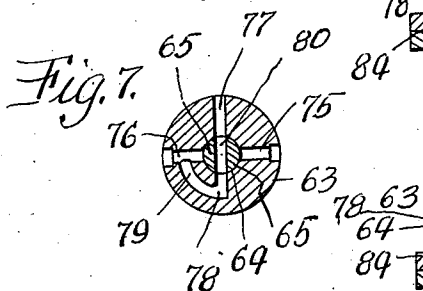
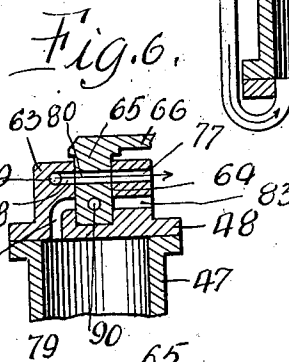
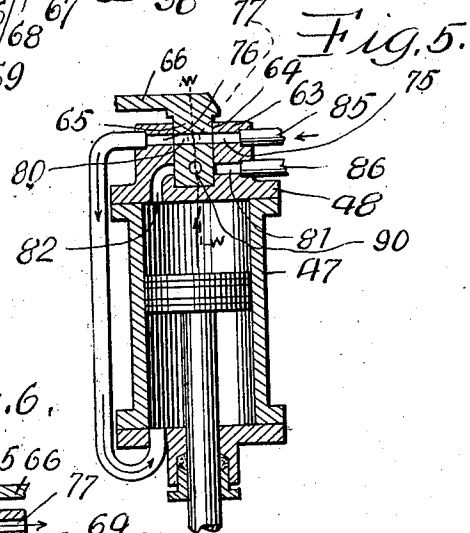
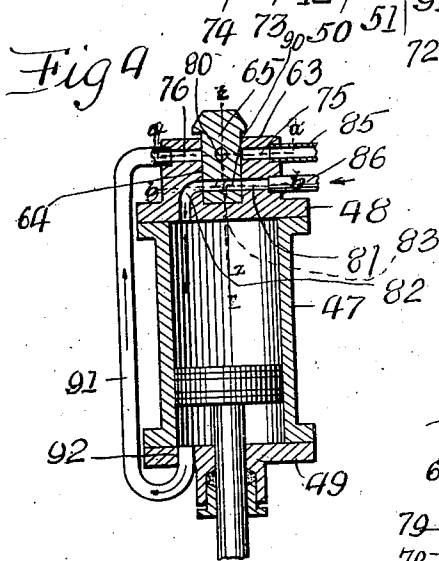
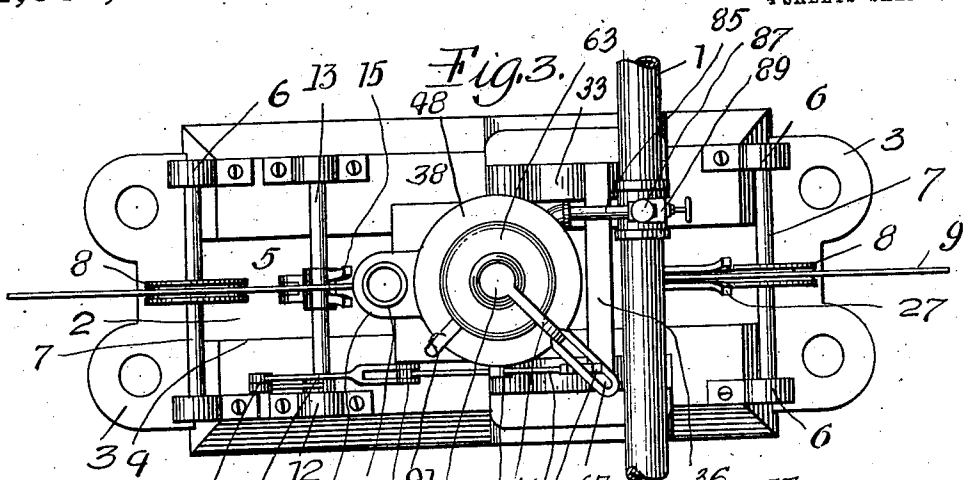
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4 SHEETS—SHEET 3.

1,008,180.



WITNESSES:

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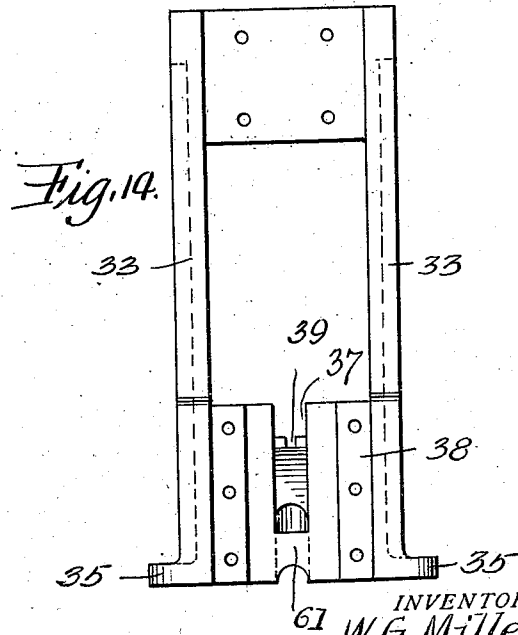
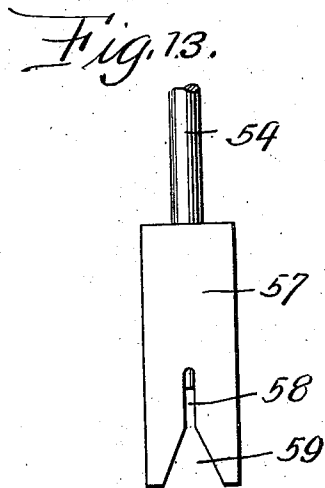
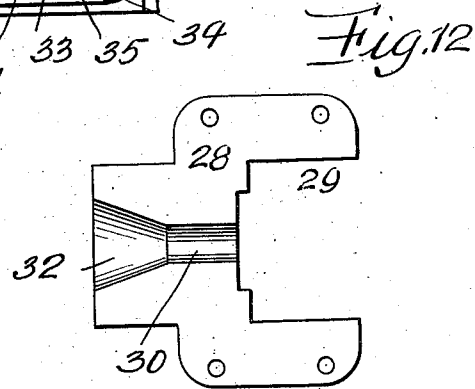
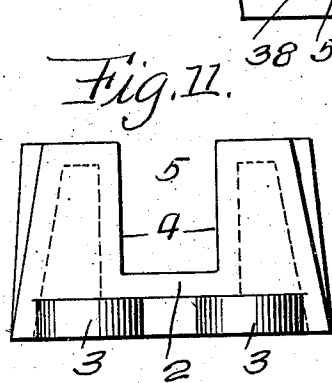
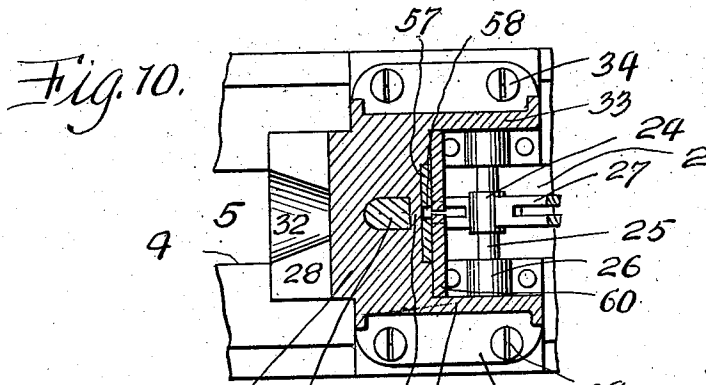
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W. G. MILLER.
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Patented Nov. 7, 1911.
4 SHEETS—SHEET 4.



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UNITED STATES PATENT OFFICE.

WILLIAM GARFIELD MILLER, OF SOUTH SHARON, PENNSYLVANIA.

WIRE-WIPING MACHINE.

1,008,180.

Specification of Letters Patent.

Patented Nov. 7, 1911.

Application filed June 3, 1911. Serial No. 631,051.

To all whom it may concern:

Be it known that I, WILLIAM GARFIELD MILLER, a citizen of the United States of America, residing at South Sharon, in the county of Mercer and State of Pennsylvania, have invented certain new and useful Improvements in Wire-Wiping Machines, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to a wire wiping machine especially designed for wiping and cleansing galvanized wire as the same is drawn from a galvanizing machine.

The primary object of my invention is to provide a machine for automatically accomplishing what has heretofore been accomplished by manual labor, it having necessitated the employment of men to wipe wires drawn from the galvanizing machine, and in the majority of instances portions of the wires have been overlooked resulting in imperfections that lower the grade of the wire.

Another object of this invention is to provide a machine of the above type that normally wipes the strand of wire, but releases the strand of wire when a connection between two strands is encountered, thus preventing the connection between two strands from tearing or injuring the wiping material.

Another object of this invention is to furnish a machine of the above type with a storing receptacle for wiping material and to arrange a detent in connection with this receptacle that will release a fresh piece of wiping material after each strand of wire has been wiped.

A further object of this invention is to provide a machine of the above type with a movable head for holding wiping material against the strand of wire, the head being moved at predetermined times by air or steam controlled by a rotary four-way valve, which is automatically operated before and after the connection of two strands of wire reaches the machine.

A still further object of this invention is to provide a machine of the above type that is simple in construction, free from injury by ordinary use and highly efficient as a labor saving device.

With the above and other objects in view, the invention resides in the novel construction, combination and arrangement of parts

to be hereinafter specifically described and then claimed.

Reference will now be had to the drawings, wherein like numerals denote corresponding parts throughout the several views, in which:—

Figure 1 is a side elevation of the machine, Fig. 2 is a vertical sectional view of the same, Fig. 3 is a plan of the machine, Fig. 4 is a vertical sectional view of the cylinder and valve of the machine, showing the valve in position to admit steam or air to the cylinder to move the piston in one direction, Fig. 5 is a similar view showing the valve adjusted to admit steam or air to the cylinder to move the piston in the opposite direction, Fig. 6 is a vertical transverse sectional view taken on the line $z-z$ of Fig. 4, Fig. 7 is a horizontal sectional view taken on the line $a-a$ of Fig. 4, showing the exhaust, Fig. 8 is a vertical transverse sectional view taken on the line $w-w$ of Fig. 5, showing the exhaust, Fig. 9 is a horizontal sectional view taken on the line $b-b$ of Fig. 4, Fig. 10 is a horizontal sectional view taken on the line $x-x$ of Fig. 2, Fig. 11 is an end view of the bed plate of the machine, Fig. 12 is a plan of the bottom guide of the machine, Fig. 13 is a front elevation of a detached head of the machine, and Fig. 14 is a front elevation of a detached housing of the machine.

It is the present practice in wire mills to withdraw a large number of wires from the galvanizing machine, the wires being arranged in rows and each row consisting of strands having the ends thereof coupled together, whereby the galvanizing can be uninterruptedly performed. As the wires are arranged in rows, it would be necessary to use a row of machines, and for this reason I arrange an air or steam supply pipe 1 transversely of the direction in which the wires travel, whereby all the machines employed for wiping the wire can receive steam or air from a common source.

Reference will first be had to Figs. 1, 2 and 11, wherein 2 denotes a bed plate having the ends thereof provided with apertured lugs 3 whereby the bed plate can be anchored upon a suitable foundation or support. The bed plate 2 has vertical longitudinal side walls 4 forming a central longitudinal slot 5. The ends of the walls 4, at the upper edges thereof, are provided with bearings 6 for transverse revoluble shafts 7. Mounted

upon the shafts 7, intermediate the ends thereof, are grooved wheels 8 adapted to support a strand of wire 9 above the slot 5 and longitudinally thereof, the end of the strand of wire being connected by a coupling 10 to the end of another strand of wire 11.

The upper edges of the side walls 4, adjacent to the forward ends thereof, are provided with bearings 12 for a transverse rock shaft 13. Mounted upon the rock shaft 13, intermediate the ends thereof, is an arm 14 having the upper end thereof bifurcated or forked, as at 15 for a purpose that will presently appear. Pivottally connected to the lower end of the arm 14, as at 16 is a link 17 and said link is pivottally connected, as at 18 to a lever 19 fulcrumed upon a rod 20 arranged transversely of the slot 5 and having the ends thereof mounted in the confronting faces of the walls 4. The upper end of the fulcrumed lever 19 is pivottally connected, as at 21 to the forward end of a link 22. The rear end of the link 22 is pivottally connected, as at 23 to the lower end of an arm 24 mounted upon a rock shaft 25, journaled in bearings 26, carried by the upper edges of the walls 4, adjacent to the rear ends thereof. The arm 24 is bifurcated or forked, as at 27 similar to the arm 14. These arms are adapted to be shifted by the coupling 10, and said arms automatically control the operation of the machine, as will presently appear.

Arranged transversely of the upper edges of the walls 4, intermediate the ends thereof, is a bottom guide 28, said guide being suitably mounted upon the walls 4. The rear edge of the guide is cut away, as at 29 and the top thereof has a longitudinal groove 30 providing a seat for a piece of cleansing material 31, as asbestos. The forward end of the groove 30 is flared, as at 32 to provide sufficient clearance for the strand of wire 9.

Mounted upon the upper edges of the bottom guide 28 is a housing 33, said housing being retained in position by screw bolts 34 that extend through the lateral flanges 35 of the housing and through the bottom guide into the upper edges of the walls 4. The housing 33 has side walls connected at their upper ends by a bearing plate 36, the side walls having extensions 37 connected by an angularly disposed web 38. This web has the upper edge thereof cut away to provide a pocket 39 for a detent 40. The detent 40 is carried by a shaft 41 arranged in bearings 42, carried by the web 38. The shaft 41 has a crank 43 provided with prongs 44 normally engaged by a crank 45 mounted upon the end of the rock shaft 13.

Secured to the bearing plate 36 of the housing 33 is the back plate 46 of a vertical cylinder 47 having heads 48 and 49. The latter has a forwardly projecting bracket 50 for supporting a vertical storing recep-

tacle 51. The lower end of this storing receptacle has a spout 52 terminating at the upper edge of the pocket 39 of the web 38, and this receptacle is adapted to contain pieces of cleansing material 31, the passage of the material from the receptacle being controlled by the detent 40.

The head 49 has a conventional form of stuffing box 53 and movably mounted in said stuffing box is a vertical piston rod 54 having the upper end thereof provided with a piston head 55 within the cylinder 47. The lower end of the piston rod 54 has an off-set head 56 and formed integral with the face of this head is a vertical blade 57 of a greater width than the head 56. The lower end of the blade 57 is provided with a vertical slot 58 having the lower end thereof flared, as at 59. The flared end of the slot provides clearance for the link 22 and the slot 58 provides clearance for the strand of wire 9, said blade holding the piece of cleansing material 31 upon the bottom guide 28, while the strand of wire 9 is drawn through said cleansing material. The head 56 is guided in its movement by the rear edge of the web 38, by a vertical web 60 connecting the side walls of the housing 30, and by a transverse bar 61 connecting the side walls of the housing and extending through a slot 62 provided therefor between the lower end of the head 56 and the blade 57.

The head 48 of the cylinder 47 is provided with a valve body 63, said valve body having a central vertical seat 64 for a valve plug 65. The upper end of the plug has an L-shaped crank 66 and the outer end of said crank is enlarged and provided with a longitudinal slot 67 to receive the upper end of a lever 69 fulcrumed upon the side of the cylinder 47, as at 70. The lower end of the lever 69 is pivottally connected, as at 72 to the lower end of a link 73, and said link is pivottally connected, as at 74 to the upper end of the crank 45.

The valve body 63 is provided with oppositely disposed ports 75 and 76 and with exhaust ports 77 and 78, all of said ports communicating with the seat 64 of the plug 65. The port 78 is curved to communicate with the port 76, as at 79. The valve plug 65 has a transverse port 80 adapted to alternately establish communication between the ports 75 and 76 and the ports 77 and 78. These ports are arranged adjacent to the upper end of the valve body 63 and in the lower part of the valve body there are ports 81 and 82 and exhaust ports 83 and 84, all of said ports being in communication with the seat 64 of the plug 65. The ports 62 and 64 are in communication with the cylinder 47, as best shown in Figs. 4, 5, 6 and 8.

The ports 75 and 81 are connected by pipes 85 and 86 respectively to a steam dome or column 87, carried by a stand pipe 88 in

communication with the air or steam supply pipe 1. The stand pipe 88 has a suitable valve 89 for shutting off the supply of steam or air to the valve body 63. The lower end of the plug 65 has a port 90 adapted to alternately establish communication between the ports 81 and 82 and the ports 83 and 84. The port 76 is connected by a pipe 91 to a port 92 in the head 49 of the cylinder 47, said pipe providing a by-pass for the inlet and exhaust of air from the cylinder.

Operation: When steam or air is admitted to the cylinder 47, through pipe 87, ports 81, 90 and 82, the piston head 55 within the cylinder is lowered. The steam or air below the piston head 55 exhaust through the port 92, pipe 91, ports 76, 78, 80 and 77. When the piston head 55 is lowered, the head 56 engages the piece of material 31 that rolled beneath said head from the inclined web 38 and the head 56 presses the piece of cleaning material upon the strand of wire 9, retaining the piece of material in engagement with the strand of wire while the wire is drawn through the material. The strand of wire will be thoroughly wiped and cleansed during this movement and the blade 57 prevents the cleaning material from being drawn from beneath the head by the strand of wire.

When the coupling 10 impinges the upper end of the rock arm 14, the impact of this coupling is sufficient to move the upper end of the arm downwardly, thereby shifting the links 17 and 22, the lever 19 and the arm 24, said arm being shifted to a vertical position to be struck by the coupling 10 and to restore the arm 14 to its normal position to be impinged by the next coupling. When the arm 14 is rocked, the crank 45 is moved and through the medium of the link 73 the lever 69 is shifted. The upper end of the lever engaging the crank 65 of the valve plug 65 immediately rotates said plug a quarter of a revolution in the seat 64. Steam or air then passes from the pipe 85 through the ports 75, 80, 76, pipe 91 to the cylinder 47 below the piston head 55. The piston head is elevated and the steam or air in the upper end of the cylinder exhaust through ports 84, 90 and 83. As the piston head 55 is elevated, the head 56 is carried upwardly to release the cleaning material, which is shifted from the bottom guide 28 by the coupling 10 and drops between the walls 4 of the bed plate 2. The head 56 and the blade 57 are elevated in sufficient time to release the piece of cleaning material and as the head 56 ascends, a fresh piece of cleaning material rolls off of the web 38 to a point beneath the head 56.

When the crank 45 is moved, said crank shifts the crank 43 downwardly, actuating the shaft 41 to raise the detent 40. This

detent removes a piece of cleaning material from the pocket 39 and the piece of cleaning material rolls down the web 38 to immediately pass beneath the head 56 when the same is sufficiently raised. The detent 40 prevents the escape of pieces of cleaning material from the receptacle 51 until said detent is restored to its normal position, and then a piece of material enters the pocket 39 and checks the other piece of material from passing out of the spout 52 of the receptacle 51.

When the coupling 10 impinges the arm 24 and restores the arm 14 to its normal position, the cranks 43 and 45 are shifted, the former restoring the detent 40 to its normal position and the latter actuating the lever 69 to rotate the valve plug 65 a quarter of a revolution. Steam or air is again admitted to the cylinder 47 from the pipe 86 to force the piston head 55 downwardly whereby the head 56 will hold the fresh piece of cleaning material in engagement with the strand of wire 11.

From the foregoing it will be observed that I have devised a machine that is automatic throughout, the machine having a four-way valve that controls the raising and lowering of the head 56, which serves functionally as a retaining member for the cleaning material. It is the couplings between the strands of wire that intermittently actuate the machine by causing the valve plug to be rotated and the detent to be shifted, whereby pieces of cleaning material will be released and carried into position and held during the movement of a strand of wire.

While in the drawings there is illustrated a preferred embodiment of the invention, it is to be understood that the structural elements thereof are susceptible to such changes as fall within the scope of the appended claims.

What I claim is:—

1. A machine for wiping moving wire comprising a fluid pressure operated device for holding a piece of cleaning material in juxtaposition to the moving wire, and means for replacing the used piece of material by an unused piece of material.

2. A machine for wiping moving wire comprising a fluid pressure operated device including means for retaining a piece of material in engagement with the wire, and means for automatically and intermittently replacing the used material by an unused piece of material.

3. A machine for wiping moving wire comprising a fluid pressure operated device actuated at intervals by the moving wire for holding pieces of cleaning material in engagement with the moving wire and retaining said material in engagement therewith during the interim of actuation.

4. A wiping machine for moving wires

comprising means adapted to intermittently feed pieces of cleaning material in close juxtaposition to the moving wire, fluid pressure operated means for maintaining the piece of material in engagement with the wire, and means for actuating said fluid pressure operated means.

5. A machine for wiping moving wire comprising means actuated at intervals by the moving wire for simultaneously releasing a stored piece of cleaning material and placing said material in engagement with the moving wire, and means intermittently actuated by the moving wire for maintaining the material upon the wire to clean the same.

6. A machine for wiping moving wire comprising means actuated at intervals for releasing stored pieces or cleaning material, and means including a retaining member adapted to hold the cleaning material in engagement with the wire during the interim of actuation.

7. A machine for wiping wire comprising a storing receptacle for cleaning material, means carried by the moving wire and adapted to release material from the storing receptacle, and means actuated by the first mentioned means and adapted to retain the material in engagement with the moving wire.

8. A machine for wiping moving wire comprising a storing receptacle for cleaning material, a detent actuated by the moving wire and adapted to intermittently release wiping material from said receptacle, and means actuated by the moving wire and including a retaining member adapted to hold the cleaning material in engagement with the wire during the interim of actuation.

9. A machine for wiping moving wire, comprising a storing receptacle for wiping material, a detent adapted to be actuated at intervals by the moving wire for releasing pieces of material from said receptacle, means including a retaining member adapted to place and hold the released piece of material in engagement with the moving

wire, and means actuated by the moving wire and adapted to move the retaining member to release the used piece of material and replace an unused piece of material.

10. A machine for wiping moving wire consisting of a storing receptacle for cleaning material, a detent adapted to be intermittently actuated by the moving wire to release material from said receptacle, and means adapted to be intermittently actuated to place the material and retain said material in engagement with the moving piece of wire.

11. A machine for wiping moving wire comprising a fluid pressure operated device including a retaining member for holding cleaning material in engagement with the wire during travel of the latter, and means intermittently actuated by the wire when traveling for intermittently throwing into operation said fluid pressure operated device.

12. A machine for wiping moving wire comprising means for storing pieces of cleaning material a fluid pressure operated device including a retaining member for holding cleaning material in engagement with the wire during travel of the latter, and an intermittently operated means for releasing the stored pieces of cleaning material.

13. A machine for wiping moving wire comprising a fluid pressure operated device including a retaining member for holding cleaning material in engagement with the wire during travel of the latter, means intermittently actuated by the wire when traveling for intermittently throwing into operation said fluid pressure operated device, and an intermittently operated means for releasing the stored pieces of cleaning material.

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

WILLIAM GARFIELD MILLER.

Witnesses:

A. PAYNE,

B. H. HICKMAN.