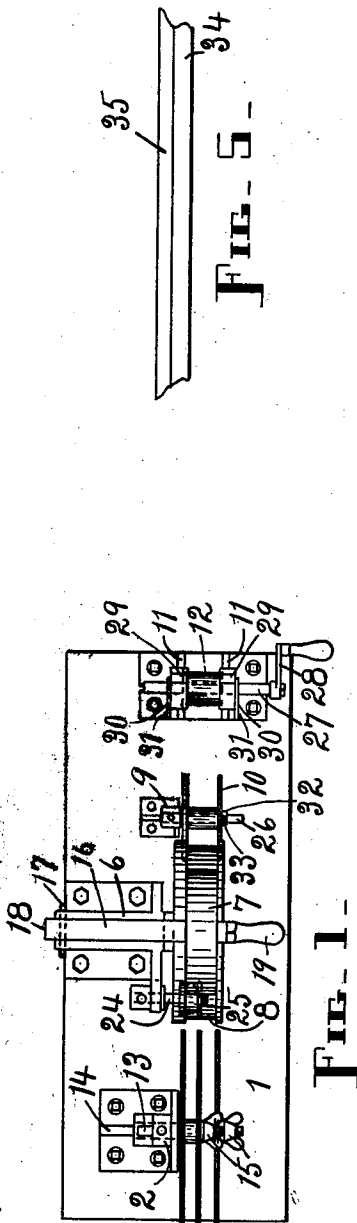


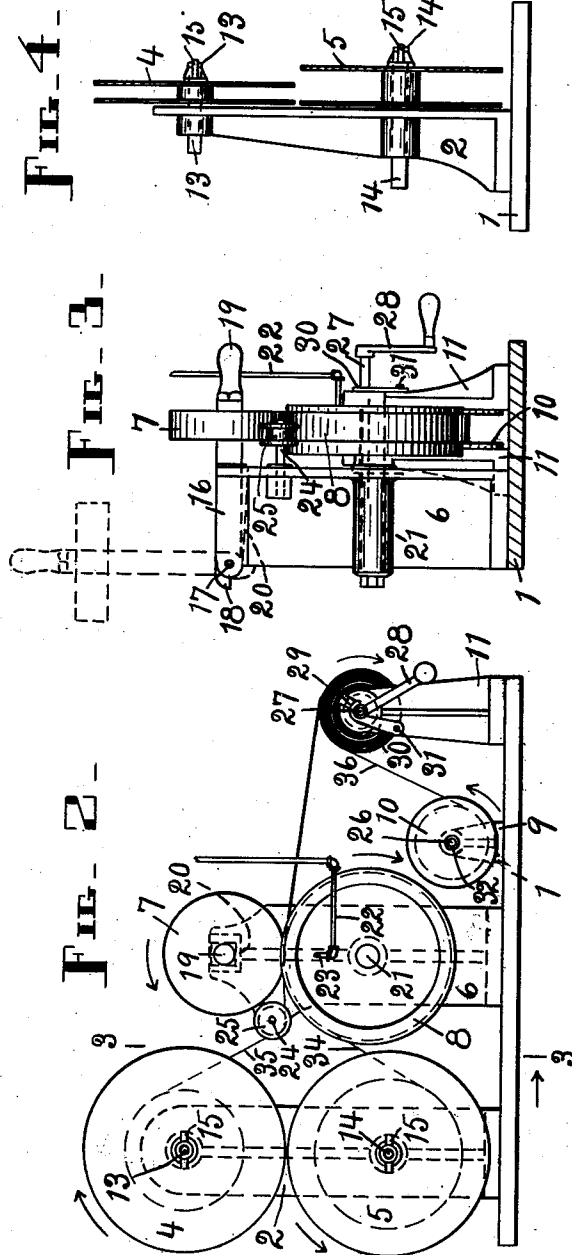
L. W. RHOADES.
MACHINE FOR ATTACHING FABRIC TO METAL.
APPLICATION FILED AUG. 8, 1909.

956,173.

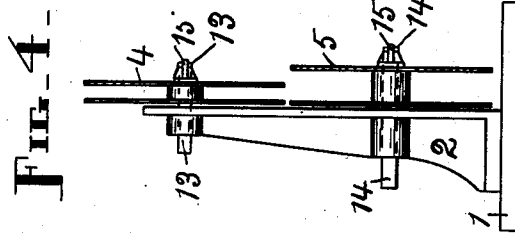
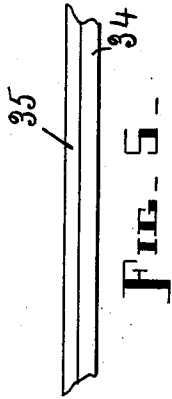
Patented Apr. 26, 1910.



WITNESSES:
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UNITED STATES PATENT OFFICE.

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MACHINE FOR ATTACHING FABRIC TO METAL.

956,173.

Specification of Letters Patent.

Patented Apr. 26, 1910.

Application filed August 6, 1909. Serial No. 511,602.

To all whom it may concern:

Be it known that I, LEONARD W. RHOADES, a citizen of the United States of America, residing at Northampton, in the county of Hampshire and State of Massachusetts, have invented a new and useful Machine for Attaching Fabric to Metal, of which the following is a specification.

My invention relates to improvements in machines designed for uniting strips of paper, cloth, or other fabric to strips of metal, and consists of certain peculiar supply, pressing, and winding rolls, residing partially in their arrangement, together with such auxiliary and subsidiary parts and members as may be needed in order to render the machine thoroughly effective, all as hereinafter set forth.

In the manufacture of certain kinds of tags and other articles out of metal, such tags or other articles being usually punched from the metal while in strip formation, it is necessary or desirable to print thereon descriptive or other matter, and to this end I have produced a machine by means of which paper or other material that can be printed upon readily is securely attached to the metal, so that the objects punched or otherwise formed out of the metal strip have one surface that is capable of receiving and well adapted to receive the printed matter, such machine being simple in both construction and operation and comparatively inexpensive. The printing on the fabric-covered metal and on the fabric side thereof may be done before the finished strip is cut up, instead of afterward, as intimated in the preceding sentence, and it is immaterial so far as this present invention is concerned whether said strip be cut or left intact.

The primary object, therefore, of my invention is to provide a convenient, practicable and efficient machine for producing strips of fabric-covered metal, or, more accurately stated perhaps, to cover with or attach fabric strips to metal strips, the parts being firmly, securely, and permanently united so as to be suitable for any use that may be made of them in this condition, the cutting up and printing upon hereinbefore mentioned being merely subsequent operations required when the finished strip is designed for some of such uses or certain of such uses.

A further object is to furnish means in such a machine for preventing the convolutions, windings or turns in a roll of the finished strip from adhering to each other, tissue-paper or equivalent separating medium being introduced between such windings or turns.

Other objects will appear in the course of the following description.

I attain these objects by the means illustrated in the accompanying drawings, in which—

Figure 1 is a top plan of a machine which embodies my invention in a practical form; Fig. 2, a front elevation of such machine; Fig. 3, an elevation taken on lines 3—3, looking in the direction of the associated arrow, in Fig. 2; Fig. 4, an elevation showing the two main supply rolls at the left-hand end of the machine, and, Fig. 5, a plan of the united strips showing their relative arrangement.

In the drawings, 1 represents a base or bed from which rise or upon which are mounted a support 2 for two supply rolls 4 and 5, a support 6 for two press or squeeze rolls 7 and 8, a support 9 for a third supply roll 10, and supports 11—11 for a winding or receiving roll or roller 12. The support 2 is at one end, the left, of the bed 1, and the supports 11 are at the opposite end of said bed.

Inasmuch as the machine herein shown and described is designed for preparing strips from which tags are to be punched, a portion only of each of which tags is required for printing, the under roll 5 which carries the metal strip supply is wider than the upper roll 4 which carries the fabric (paper in this case) strip supply. The rolls 4 and 5 are really reels for the supply of paper and metal strips, and they are respectively mounted to rotate on two studs 13 and 14 which project outward in front from the support 2, thumb-nuts 15 threaded onto the forward ends of said studs serving to retain said rolls thereon and to produce on the latter whatever tension, if any, may be required by forcing their hubs to be embraced more or less tightly between the face of said support and the thumb-nuts themselves.

The rolls 4 and 5 when empty are removed from their respective studs 13 and 14, after first unscrewing and taking off the thumb-

nuts 15, for the purpose of being replenished, and then these or other full rolls are placed on said studs and said thumb-nuts again screwed on outside of the fresh rolls. If
 5 tension be desired, the thumb-nuts 15 are seated against the roll hubs with some degree of force, the amount varying according to the amount of tension to be produced.

The roll 7 is loosely mounted on the front
 10 terminal of an arm 16, which latter has its rear end pivoted at 17 to the top of the support 6 behind. This is the upper press roll and is solid and heavy. The arm 16 has a
 15 projection at the back end that forms a stop 18 to retain said arm with its roll in position when elevated, as shown by dot-and-dash lines, in Fig. 3, such stop then bearing against the back side of the support 6; and
 20 said arm terminates at its forward extremity, in front of said roll, in a handle 19, by means of which the arm and roll can be easily raised and lowered. When the arm 16 is down with the roll 7 in operative or
 25 active position on the roll 8 or the materials between said rolls, the back part of said arm lies in a trough-like bearing 20 in the top of the support 6 and is thus firmly held against lateral movement. This roll, the rolls 9 and
 30 10 and the roller 12 are each of the same width as that of the roll 5. Obviously the roll 7 is a gravity roll, that is to say, its action on the material is due to the weight of the roll.

The roll 8 is in the form of a hollow drum,
 35 open in front to receive some kind of heat-producing device or appliance, and loosely mounted on a stud 21 that projects from the front of the support 6. This is the lower press roll, and the heating roll as well. As
 40 already noted, the roll 7 bears on the roll 8 when said roll 7 is in normal position. The roll 8 may be heated or have its periphery heated from any suitable source of heat and by any suitable appliance, a section of gas-
 45 pipe 22 supporting a burner 23 within said roll and beneath said periphery at a point adjacent to the contacting contiguous portions of this periphery and the periphery of the roll 7 being provided for that purpose
 50 in the present instance and as shown in Figs. 2 and 3.

Mounted between the rolls 4 and 7 and in line with and of the same width as the former, on a stud 24 secured to the support 6,
 55 is a small roll or idler 25 for the paper, said idler directing the paper from said roll 4 to the bite between the rolls 7 and 8.

The roll 10 carries the supply of the separating medium and is loosely mounted on a
 60 stud 26 which extends forward from the support 9. The aforesaid separating medium is anything that is suitable to be wound into the finished roll for the purpose previously explained, and may be here considered to
 65 consist of tissue-paper.

The roller 12 is mounted between the heads of the supports 11 on a shaft 27 which is journaled in such heads and is provided on its front end with a crank 28. A slot 29
 70 in each support 11 leads from the bearing for the shaft 27 therein outward through the edge thereof to enable said shaft with its roller to be readily lifted in and out of its bearings, such slot preferably inclined upwardly and toward the right from said bearing.
 75 Hooks or latches 30 are pivoted at 31 to the outer faces of the supports 11 and arranged to close over the protruding terminals of the shaft 27 to prevent said shaft when in motion from following up the slots
 80 29. When said latches are thrown over to the left until they stand clear of the shaft, then the latter can be removed by way of the slots from the supports 11, and returned in the same way. Thus provision is made
 85 for easily and quickly removing the roller 12 when full and replacing it with an empty one.

A collar 32 pinned to the stud 26 at 33 in front of the roll 10 prevents said roll from
 90 coming off of said stud, but by driving out the pin and taking off said collar the roll is released and can be removed for replenishing with a new supply of tissue-paper. The replenished roll or another one previously
 95 filled is then slipped onto the stud and the collar 32 and pin 33 replaced.

In Fig. 2 a strip of metal (aluminum for example) is represented at 34, which strip
 100 passes from the roll 5, between the rolls 8 and 7, to the roller 12; a strip of paper is represented at 35, which latter strip passes under the idler 25 and between said rolls 8
 105 and 7, on top of said strip 34, to said roller 12; and a strip of tissue-paper is represented at 36, which last-mentioned strip passes beneath the strip 34 now provided with the superimposed strip 35, to the roller 12, being
 110 wound up in the roll formed on said roller and so separating the convolutions of the prepared strip. The arm 16 is raised so as to locate the roll 7 out of the way while the strips 34 and 35 are being adjusted in the machine preparatory to starting the operation of attaching the paper strip to the
 115 metal strip, after which said roll is brought down onto the two strips now on the roll 8. The present arrangement of the members locates the paper strip 35 adjacent to the back edge of the metal strip 34, but such location
 120 is not to be considered as arbitrary. The paper strip is coated or otherwise so treated that its under or inner surface is caused to permanently and securely adhere to the metal strip when pressure and heat are
 125 brought to bear thereon.

From the foregoing it is plain that, with the part arranged as shown in Fig. 2 and assuming that the roll 8 is being warmed or heated to whatever extent may be called for,
 130

upon turning the crank 28 in the proper direction the material from the supply rolls 4 and 5 will be drawn therefrom between the rolls 8 and 7, at which point the adhesive surface of the paper is caused to attach itself to the metal by reason of the softening effect produced by the heat on such surface and the action of the press rolls or the force exerted by them on the two strips between, and wound with the tissue-paper 36 on the roller 12, the strips 34 and 35 to all intents and purposes having merged into one after leaving said press rolls. The rolls 7 and 8 are revolved, of course, by the material which is drawn between them by and to the roller 12.

From time to time the several supply rolls must be exchanged for full ones or themselves renewed and the winding roller 12 taken away to give place to an empty one, all of which has been previously explained.

It is clearly apparent to any one skilled in the art, that various changes in the shape, size, and construction of some or all of the parts of my machine may be made without departing from the nature of my invention or going beyond the scope of my claims.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, in a machine of the class specified, of a revoluble supply roll adapted to feed a metal strip wound thereon, such roll being provided with end members to hold said strip against lateral movement, a second revoluble supply roll adapted to feed a fabric strip wound thereon, such second roll being narrower than and having one end approximately in line with the corresponding end of the first roll and also provided with end members to hold said fabric strip against lateral movement, suitably mounted revoluble press rolls arranged to receive between them the strips from said supply rolls, means to heat one of such press rolls, and a suitably mounted revoluble winding or receiving roller for the material from the supply rolls after such material has passed between said press rolls.

2. The combination, in a machine of the class specified, of a revoluble supply roll adapted to feed a metal strip wound thereon, such roll being provided with end members to hold said strip against lateral movement, a second revoluble supply roll adapted to feed a fabric strip wound thereon, such second roll being narrower than and having one end approximately in line with the corresponding end of the first roll and also provided with end members to hold said fabric strip against lateral movement, suitably mounted revoluble press-rolls arranged

to receive between them the strips from said supply rolls, guide means in line with said second supply roll and between the latter and said press rolls to direct the fabric strip to the press rolls and prevent it from diverging laterally from its course, means to heat one of such press rolls, and a suitably mounted revoluble winding or receiving roller for the aforesaid strips after they have passed between said press rolls.

3. The combination, in a machine of the class specified, of suitably mounted revoluble supply rolls, for metal and fabric strips respectively, arranged one above the other, suitably mounted revoluble press rolls adjacent to said supply rolls, a suitably mounted revoluble supply roll for a separating medium, and a suitably mounted revoluble winding or receiving roller for the material from the two first-mentioned supply rolls, after such material has passed between such press rolls, and for the material from the third supply roll, the latter being situated below the plane which connects the bite of the press rolls with the periphery of the winding or receiving roller.

4. The combination, in a machine of the class specified, with suitably mounted revoluble supply rolls at one end, a suitably mounted revoluble winding or receiving roller at the other end, and a suitably mounted revoluble roll intermediate of said supply rolls and said winding or receiving roller, of an arm pivotally attached at its back end and adapted to lie in a horizontal position and to be raised into a vertical position, and a roll revolubly mounted on the free terminal of said arm and capable of resting on said intermediate roll when said arm is down, said two last-mentioned rolls constituting press rolls for the material as it is drawn between them from said supply rolls to said winding or receiving roller.

5. The combination, in a machine of the class specified, of suitably mounted revoluble supply rolls arranged one above the other, such rolls being removable, suitably mounted revoluble press rolls adjacent to said supply rolls, one of such press rolls being a gravity roll and adapted to be raised from the other, and a suitably mounted revoluble winding or receiving roller for the material from the supply rolls after such material has passed between said press rolls, said winding or receiving roller also being removable.

LEONARD W. RHOADES.

Witnesses:

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MARY A. O'DONNELL.