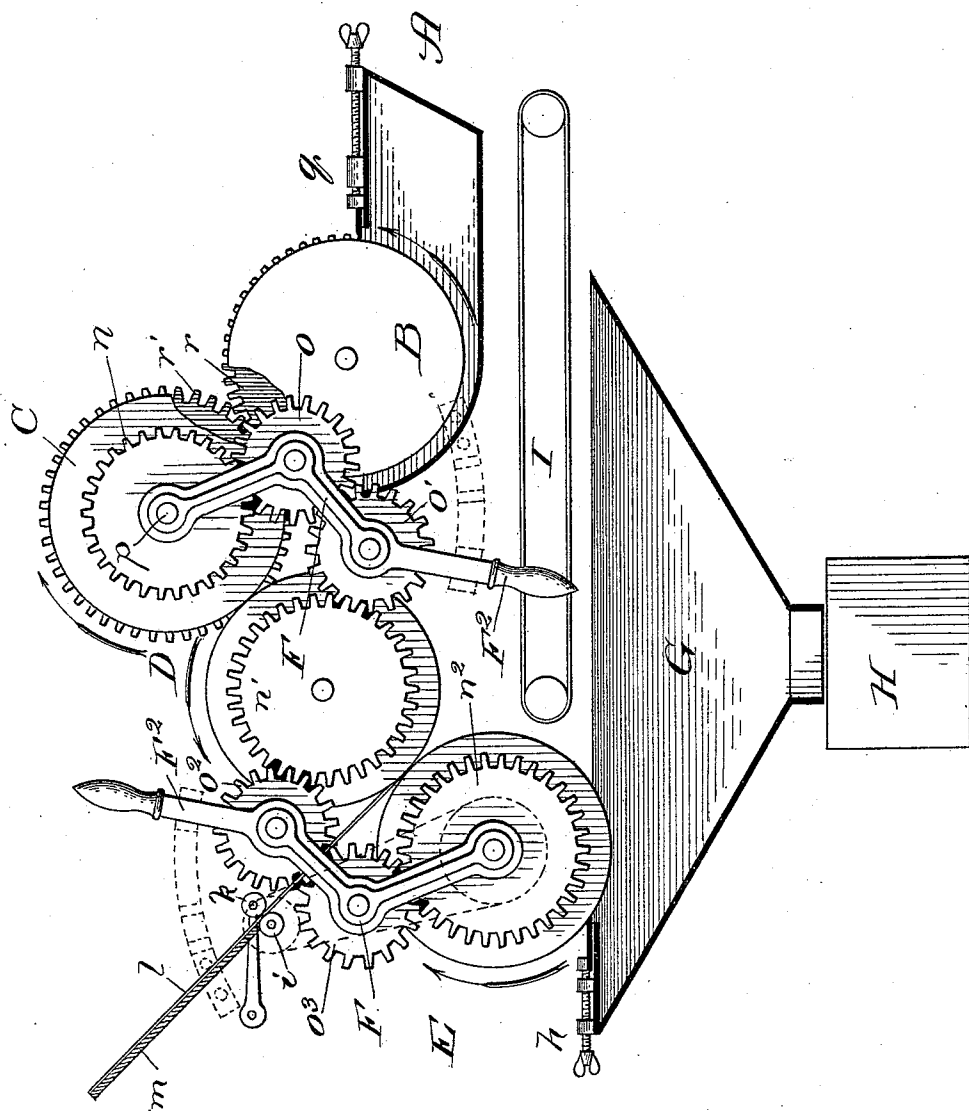


(No Model.)

J. J. CLAUSE.
APPARATUS FOR APPLYING VARNISH.

No. 472,286.

Patented Apr. 5, 1892.



Witnesses:

Thos. E. Gaylord,
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UNITED STATES PATENT OFFICE.

JOHN J. CLAUSE, OF CHICAGO, ILLINOIS, ASSIGNOR TO FRANKLIN RUDOLPH,
OF SAME PLACE.

APPARATUS FOR APPLYING VARNISH.

SPECIFICATION forming part of Letters Patent No. 472,286, dated April 5, 1892.

Application filed September 8, 1891. Serial No. 405,106. (No model.)

To all whom it may concern:

Be it known that I, JOHN J. CLAUSE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Apparatus for Applying Varnish, &c., of which the following is a specification.

This invention relates to an improved apparatus for applying varnish or paint to the surface of sheet metal or other material, and it is in the nature of an improvement in the construction of the apparatus shown and described in Letters Patent of the United States No. 430,269, issued jointly to myself and Franklin Rudolph on the 17th day of June, 1890. The said patent covers the apparatus having a plurality of rolls driven at a successively-diminishing surface speed and rotating in feed-contact with each other, so that each supplies the varnish or paint to its neighbor roll. The differential surface speed of rotation of the rolls may be produced in either of two ways—namely, by variation in the diameters of the rolls and causing them all to complete their revolutions in the same time or by driving the rolls, whether of the same or of varying diameters, at respectively different rates of speed. The first-named construction is specifically set forth in the said patent.

The object of my present improvement is to provide a construction of the apparatus which shall adapt it to be operated in accordance with the aforesaid patented invention to produce the differential surface speed of the rollers by driving them at different rates of speed.

The accompanying drawing shows my improved apparatus in broken end elevation by a view in the nature of a diagram.

A represents a vat containing the varnish or paint to be applied.

B is the initial roll rotating in the vat and which I form as a six-inch metal cylinder provided at one end with a gear r , having a certain number of teeth—say forty-seven.

The vat A supports a scraper g , which is adjustable toward and from the roll B and the function of which is to take off surplus paint adhering to the roll at its upwardly-moving side. The next roll C on the shaft p is of the

same size as the roll B, with which it has surface contact, and it is provided at one end with a gear r' , having a number of teeth—say about forty-nine—greater than the number thereof on the gear r , with which it meshes. The roll C receives the paint from roll B and carries it to the next roll in order, (marked D,) which is preferably a composition roll originally of slightly-greater diameter than either roll B or C to allow for shrinkage to reduce it to the same diameter as the latter. At the end of the roll D opposite that of the roll C, provided with the gear r' , is a gear n' , having a certain number of teeth—say thirty-four—and adapted to be engaged with a similar gear n at the adjacent end of the roll C, but having a less number of teeth—say thirty-one.

The gears n and n' might be of diameters adapting them to intermesh directly. I prefer, however, to produce their engagement by means of intermediate (say three-inch) gears o and o' , journaled to intermesh on a swinging frame F, supported on the shaft p of the roller C and provided with a handle F^2 for adjusting it, means—such as represented by dotted lines—being provided for holding the frame in its adjusted position. The gears o and o' mesh, respectively, with the gears n and n' .

E is a rotary cylinder, like the roll C, except it has no gear r' , but is provided with a gear n^2 , corresponding as to its number of teeth with the gear n' on the roll C, with which it is connected by the intermediate gears o^2 and o^3 , like the gears o and o' , and similarly journaled on an adjustable swinging frame F' , having a handle F^2 and supported on the shaft of the roll E.

The different rolls in the train thereof rotate in the directions indicated by arrows, the roll E being the driver, and connected for the purpose with suitable driving-gear. (Not shown.)

The metal plate or other article to be coated, and which is indicated at l , is fed to the apparatus from a table m by the feed-rolls k and i , the latter being driven at a surface speed substantially uniform with that of the roll E, between which and the roll D the metal plate

is passed while being coated from the last-named roll. The upper roll k of the feed-rolls may be pivotally supported, as indicated, to yield for the accommodation of different thicknesses of the sheet metal, which may also necessitate raising and lowering of the roll D and consequent adjustment of the frames F and F', carrying the connecting-gears, which, besides, tend to steady the operation of the machine, preventing jarring and consequent unevenness in the coating. As will be noticed, the rolls E and D, having similar gears n^2 and n' , rotate at the same surface speed. The roll C, having more teeth on its gear n , is rotated at somewhat slower surface speed than the rolls E and D, and its gear n' , meshing with the gear r , having the less number of teeth on the roll B, drives the latter at a surface speed faster than that of the roll C. As roll E will be in contact with the composition roll D when no coating of the metal is being done, it will take up more or less paint from the composition roll, and to remove this a scraper h is provided, the paint so removed dropping upon an inclined table G, by which it may be conducted to any suitable receptacle, such as that represented at H. An endless traveling belt I serves to carry off the plates after they have passed the painting-roll D. Thus, as will be seen, the several rolls B, C, and D, which, as illustrated, are supposed to be of the same diameter, are geared together to cause the roll B to travel at a faster surface speed than the roll C and the latter to travel at a faster surface speed than the rolls D and E. This differential operation of the rolls is found to produce uniformity in the coating and generally superior work, and the apparatus, furthermore, keeps the under surface of the sheet metal clean, all as in the case of the apparatus constructed as shown in the said former patent.

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

1. In an apparatus for coating metal and other surfaces with varnish and the like, a

plurality of rolls rotating in feeding contact with each other, so that each supplies the coating material to its neighbor roll, and speed-varying gearing on the said rollers, gearing them together to rotate at successively-diminishing surface speed, substantially as described.

2. In an apparatus for coating metal and other surfaces with varnish and the like, the combination of the vat for containing the coating material, a roll B, located in the coating-vat and provided at one end with a gear r , and a roll C, rotating in contact with the roll B and provided at one end with a gear r' , meshing with and having more teeth than the gear r and provided at its opposite end with a gear n , a roll D, rotating in contact with the roll C and provided at one end with a gear n' , having more teeth than the gear n , from which it is driven, and a roll E, having a gear n^2 , similar to the gear n' , from which it is driven, substantially as and for the purpose set forth.

3. An apparatus for coating metal and other surfaces with varnish and the like, comprising, in combination, a vat for containing the coating material, a roll B, located in the coating-bath and provided at one end with a gear r , a roll C, rotating in contact with the roll B and provided at one end with a gear r' , meshing with and having fewer teeth than the gear r and provided at its opposite end with a gear n , a roll D, rotating in contact with the roll C and provided at one end with a gear n' , having more teeth than the gear n , a roll E, having a gear n^2 , similar to the gear n' , intermeshing gears o and o' on an adjustable frame F and connecting the gears n and n' , and an adjustable frame F', carrying intermeshing gears o^2 and o^3 , connecting the gears n' and n^2 , the whole being constructed and arranged to operate substantially as described.

JOHN J. CLAUSE.

In presence of—

M. J. FROST,

J. W. DYRENFORTH.