S. E. DIESCHER.

FEED MECHANISM.

APPLICATION FILED JUNE 10, 1912.

1,067,805. Patented July 22, 1913.

FIG. 1

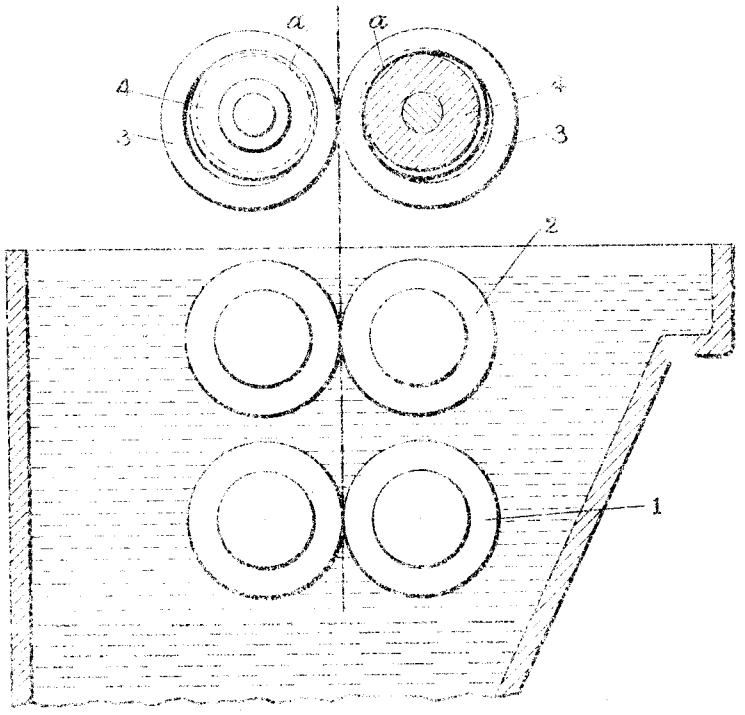


FIG. 2

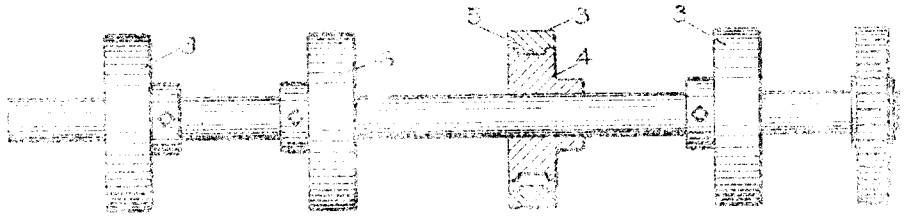


FIG. 3

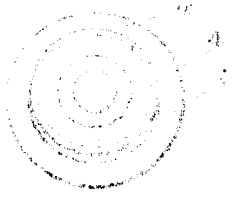


FIG. 4

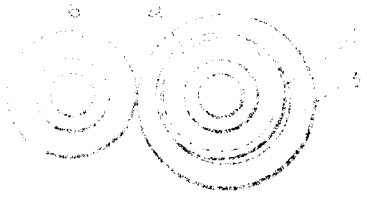
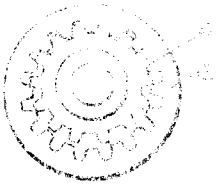


FIG. 5



WITNESSES

INVENTOR

Samuel E. Diescher

by Dennis & Wolcott

Atty

UNITED STATES PATENT OFFICE.

SAMUEL E. DIESCHER, OF PITTSBURGH, PENNSYLVANIA.

FEED MECHANISM.

1,067,805. Specification of Letters Patent. Patented July 22, 1913.

Application filed June 10, 1912. Serial No. 702,775

To all whom it may concern:

Be it known that I, SAMUEL E. DIESCHER, residing at Pittsburgh, in the county of Allegheny and State of Pennsylvania, a citizen of the United States, have invented or discovered certain new and useful Improvements in Feed Mechanism, of which improvements the following is a specification.

The invention described herein relates to certain improvements in rollers for feeding sheets.

While my improved rollers are especially adapted for use in removing sheets from a coating bath they are also adapted for other uses.

The invention is hereinafter more fully described and claimed.

In the accompanying drawing forming a part of this specification, Figure 1 is a sectional elevation of a tinning apparatus having my improved feed rollers applied thereto; Fig. 2 is a side elevation of one of such rollers one of the elements being shown; Fig. 3 is an end view of my improved roll showing the ring hanging free; Fig. 4 illustrates a modification of my improvement, and Fig. 5 illustrates a further modification.

In tinning sheets, the latter one at a time are pushed down into the bath and by suitable guides are directed up between a pair of driven rollers 1. The tin is maintained at or approximately at a level a little below a plane passing through the axes of these rollers, which are caused to exert upon the sheet a pressure proportional to the desired thickness of the coating. The rollers 1 move the sheets up through a body of oil lying on the molten tin and into the bite of the catching rollers. As the oil has a temperature approximately equal to the molten tin, the coating on the sheets is soft, as the sheets leave the rollers 2, and hence the coating can be easily injured, and the movement of the sheets from the rollers 2 until the coating has become hard, must be effected by means which will grip the sheets with sufficient firmness as to insure the onward movement without indenting the coating.

My improved feeding means consists of annular rolls or rings 3 mounted on driven rollers 4 having an external diameter less than the internal diameter of the annular rolls or rings, as clearly shown in Figs. 1, 2 and 3. If the rollers 4 be separated so that the rings do not bear one against the other, the points of bearing *a* of the rings on the rolls will be in vertical planes passing through the axes of the respective rollers 4. If the rollers be moved toward each other so that the rings bear one against the other or against an interposed sheet, the points of bearing *a* of the annular rolls or rings on the respective rollers will move inward toward each other. If the adjustment of the rollers 4 be continued sufficiently far the bearing points *a* of the rings on the respective rollers will closely approach a horizontal plane passing through the axes of the rollers. The annular rolls may be likened to a pendulum. When the rings are out of contact with each other or an interposed object the point of bearing *a* of each ring on its rollers, the axis of said roller and the center of gravity of the ring are in or approximately in the same vertical plane. But as the rollers 4 are moved toward each other there is a shifting of the points *a* and of the center of gravity of the ring away from the vertical plane passing through the axis of the roller 4 but in opposite directions. Hence the pressure exerted by the annular rolls on an interposed sheet will with a given size of rings be proportional to the positions of the rollers relative to each other.

In the construction shown in Fig. 1, the rollers 4 have been so adjusted toward each other that the points of bearing of the rings on the rollers has been moved approximately forty five degrees from the vertical planes passing through the axes of the rollers 4, and the rings will exert a certain pressure on the sheets. This pressure may be varied as required by shifting one or both of the rollers.

It will be observed that the inner faces of the rings do not bear on the rollers in a horizontal plane passing through the points of contact of the rings with the sheet and hence said rings can move apart or toward each other in accordance with variations of thickness of the sheets, and that this automatic adjustment will not substantially change the pressure of the rings on the sheets.

As the sheets vary in gage transversely as well as longitudinally, it is preferred to employ a series of relative short annular rollers, each capable of independent movement on their bearing points *a*. It will be understood however that these annular rolls may be made of any desired length. While not

necessary it is also preferred that the supporting and driven-rollers should be made of a length approximately equal to that of the annular rolls or rings.

Any suitable means may be employed for maintaining the rings in proper alinement with the rollers. In the construction shown the rollers are peripherally grooved and the rings are provided in their inner peripheries with ribs 5 adapted to engage the grooves on the rollers, thus keeping the rings and rollers in alinement without interfering with the pendulum movement of the rings.

As shown in Fig. 4 one of a pair of feed rolls may be made with its peripheral portion unyielding as shown at 6, the grip on an interposed sheet being due to the action of the annular roll or ring. In lieu of supporting the annular roll or ring on a roller of a diameter approximating the internal diameter of the ring, such supporting member can be made substantially smaller than the internal diameter of the annular roll or ring.

Although it is probable that in most cases practical considerations require the rings to be rotated by frictional engagement with the supporting member in order that the rings will not slip on the surface of the sheet being fed, the annular roll or ring may be positively driven by the supporting member, as shown in Fig. 5.

I claim herein as my invention:

1. In a feed mechanism, the combination of two opposed rotatable members, one consisting of a supporting member and an annular roll or ring loosely surrounding and so pivotally resting on the supporting member as to have freedom of movement in a direction at an angle to the axis of the supporting member.

2. In a feed mechanism, the combination of opposed driven supporting members and annular rolls or rings having internal diameters greater than the external diameters of the supporting members and loosely hung on said members and free to swing in directions at an angle to the axes of the supporting members.

3. In a feed mechanism, the combination of opposed annular rolls or rings and rotatable members having a diameter less than the internal diameters of the rings and adapted to bear against the internal peripheries of the rings at points above the centers of gravity of the rings.

4. In a feed mechanism, the combination of two opposed feed members, and means engaging one of said members eccentric to its axis, and permitting free gravital movement of said member relative to the other feed member.

In testimony whereof I have hereunto set my hand.

SAMUEL E. DIESCHER.

Witnesses:

G. G. THILL,

THOMAS B. JOYCE.