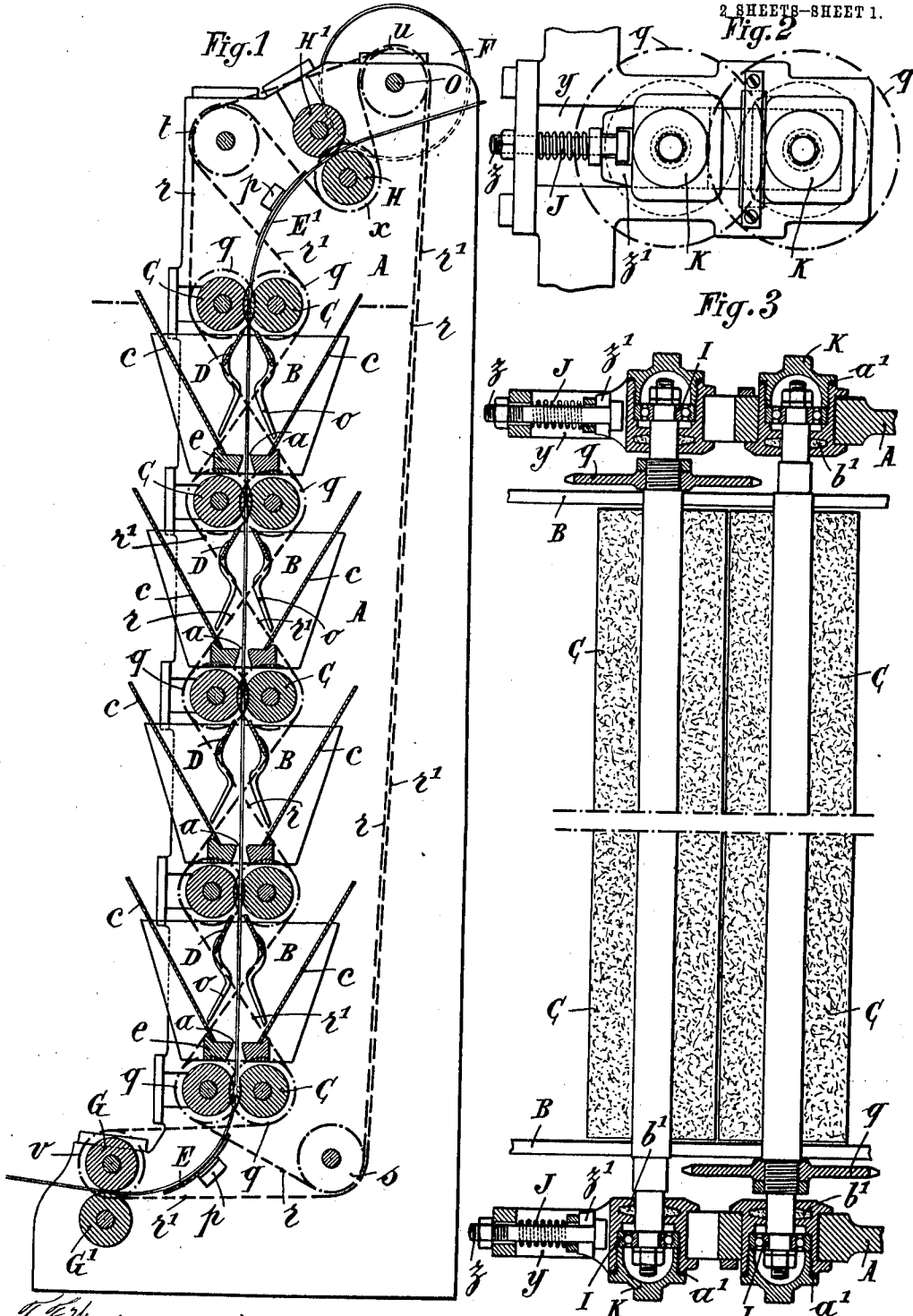


H. PETIN.
MACHINE FOR SCOURING TIN PLATES.
APPLICATION FILED JUNE 2, 1911.

1,035,044.

Patented Aug. 6, 1912.

2 SHEETS—SHEET 1.



J. F. Wallace
René Meunier

Witnesses

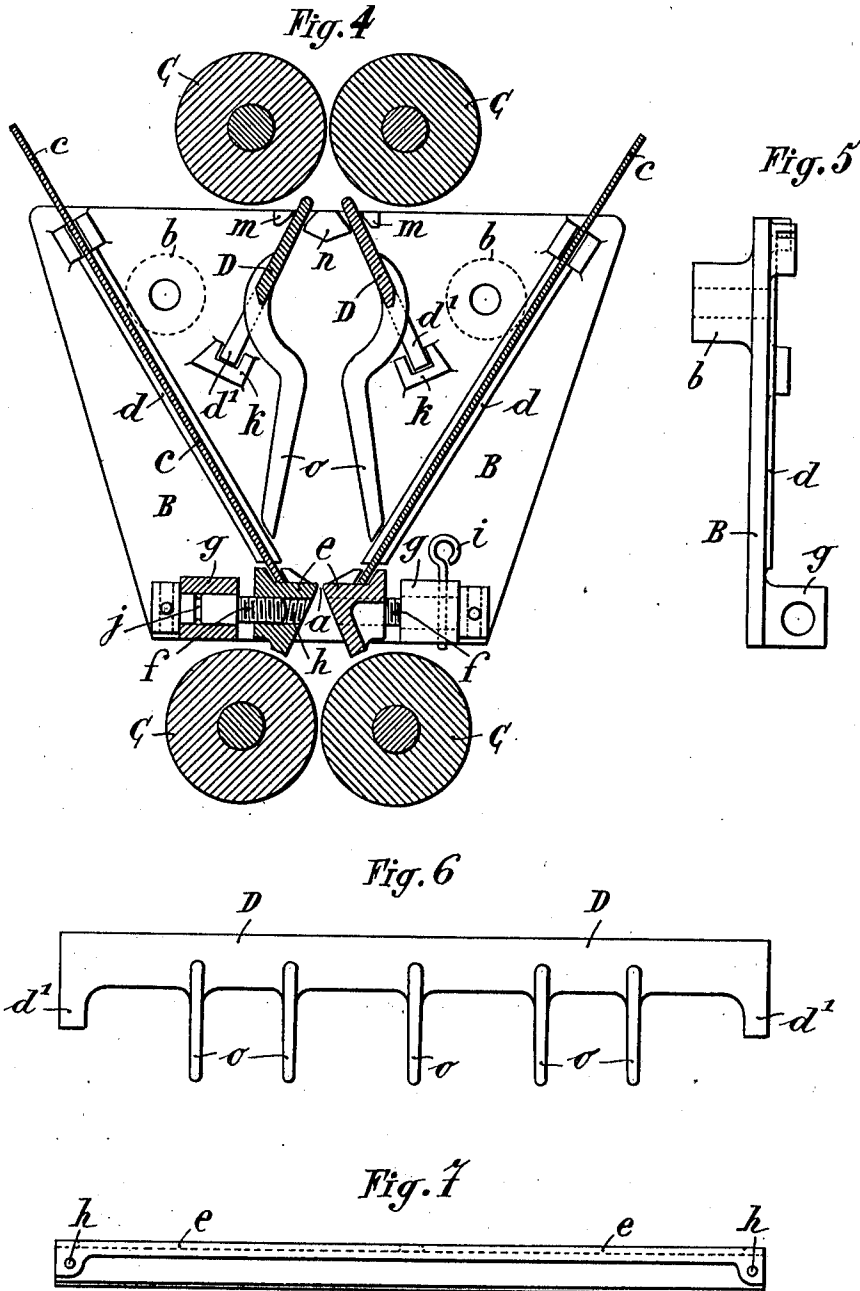
Inventor: Hector Petin,
By Attys. J. F. Wallace, René Meunier

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Inventor:
Hector Petin,
By Atty.
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UNITED STATES PATENT OFFICE.

HECTOR PETIN, OF PARIS, FRANCE, ASSIGNOR TO SOCIÉTÉ DITE: ÉTABLISSEMENTS
J. J. CARNAUD, ET FORGES DE BASSE-INDRE, OF PARIS, FRANCE.

MACHINE FOR SCOURING TIN PLATES.

1,035,044.

Specification of Letters Patent.

Patented Aug. 6, 1912.

Application filed June 2, 1911. Serial No. 630,819.

To all whom it may concern:

Be it known that I, HECTOR PETIN, a citizen of the Republic of France, residing in Paris, France, have invented certain new and useful Improvements in Machines for Scouring Tin Plates, of which the following is a specification.

This invention has for its object a machine for scouring tin plates by simply passing the plates through a series of superposed hoppers containing suitable scouring material, such as gypsum, pink meal, wood saw-dust, etc.

The scouring of the tin plates is an indispensable operation if perfect adherence of impressions on tin is to be assured, which cannot be the case if there be the least trace of grease on the metal plates. The tin plates are fed to the machine, which constitutes this invention, at the lower part thereof, and they rise successively through the superposed hoppers, being properly guided between pairs of rollers, which are employed for transferring them from hopper to hopper, by special guides. These rollers are operated by driving chains in such a manner that the two rollers of each pair are forcibly pressed toward each other so as to insure an efficient and regular feeding of the thinnest plates. A proper contact between the rollers and the tin-plates is, also, attained by allowing one of the rollers in each pair to be free to yield to the irregularities in the thicknesses of the flexible coverings applied to the peripheries of the metal rollers.

The improved machine, the object of this invention, is illustrated in the accompanying drawings in which—

Figure 1 is a vertical cross section of the machine; Fig. 2 is an end view to a larger scale of part of the machine showing the ends of two roller drivers; Fig. 3 is a horizontal section to the scale of Fig. 2 of the machine; Fig. 4 is a vertical cross section to a still larger scale, of one of the hoppers; Fig. 5 is a side view of part of the hopper; Fig. 6 is a side view of one of the upper guides within the hopper; and Fig. 7 a front view of one of the lower guides in the lower part of each hopper.

Between the vertical parallel side plates A of the frame of the machine, a number of superimposed hoppers B are arranged,

each of which has at its lower part an opening *a* for the passage of the metal sheets to be scoured. Below each hopper are arranged two rollers C covered with felt, swanskin, caoutchouc or other material that will not scratch the tin plates. Each hopper comprises two cheek plates B, which are fixed to the frame A by bolts engaging in the bosses *b*, and two movable sheet iron sides *c* engaging in slotted brackets or lug pieces *d* resting on lower guides *e*. Between these guides *e* the opening *a* for the passage of the tin plates through the scouring material is formed. The size of the opening may be regulated so that the scouring powder does not fall through by means of screws *f* which turn in the bearings *g* projecting from the inner faces of the cheeks B, and which engage the tapped holes *h* in the ends of the guides *e*, Fig. 7. The head of each screw *f* is held by a pin *i* engaging in a groove *j* formed in the head.

In the interior of each hopper the upper guides D are arranged, one of which is shown in elevation in Fig. 6; these guides are adapted to maintain the tin plates in line. Each of the guides comprises a narrow plate D having projecting brackets or lugs *k*; the upper edge of the plate D fits into the recess constituted by the bosses *m*, *n* on the inside of the cheeks B. The plate D is fitted with or is integral with the curved tooth-like members *o*, the lower extremities of which extend very close to the oblique sides *c*; these toothed guides which at about their middles are bent in toward each other and reach upwardly as far as the drawing or feeding cylinders, assure a proper vertical direction for a tin plate, its maintenance in the plane passing through the points of contact of the successive feed rollers and its entry between the rollers in the most convenient manner.

The above construction of the scouring hoppers and interior guides allows of a rapid dismantling of a hopper in cases where the tin plate has creased up between the rollers or again where it becomes necessary to lift out a hard grain of the scouring material, gypsum or other substance, which is apt to scratch the metal sheets. The dismantling is rapidly effected by raising the sheet iron sides *c* and the guides D, and in case of need the lower guides *e*.

The entry of the tin plates at the lower part of the machine and their exit at the upper part are facilitated by the curved guides $E E^1$, which are fixed between the side plates of the machine by means of the riveted supports p , the heads of the rivets being carefully leveled off so as not to offer any hindrance to the passage of the plates.

The axle of each of the rollers C carries at one of its extremities a single toothed pinion q , all of which pinions are of the same diameter, but the pinions of the two rollers forming a pair are arranged on opposite sides of the frame as in Fig. 3 and the superposed rollers which are disposed on the same side of the central vertical plane traversed by the plates to be scoured have their pinions alternately at their opposite ends. Consequently, counting from bottom to top, roller No. 1 on the left, No. 2 on the right, No. 3 on the left, No. 4 on the right, etc., have their pinions q on one and the same side of the machine frame, and No. 1 on the right, No. 2 on the left, No. 3 on the right, No. 4 on the left, etc., have their pinions on the other side. The pinions are thus situated in two planes, one on one side of the machine, the other on the other side of the machine, and they mesh with two driving chains r, r^1 one of which chains passes from the left hand roller of one pair to the right hand roller of an upper or lower pair and so forth, as in Fig. 1, while the other chain passes the reverse way from a roller on the right to a roller on the left situated above or below. The two chains r and r^1 are endless and travel at the lower part of the machine over two sprocket wheels s and at the upper part over two wheels t , also over two wheels u mounted on the spindle O which carries the power pulley F .

At the lower part of the machine, one of the chains passes over a sprocket wheel v on the axle of which is mounted a roller G tangential to a roller G^1 . It is between the rollers G, G^1 that the tin plates to be scoured are introduced, which then pass along the guide E and enter the first hopper. At the upper part of the machine one of the chains passes around a sprocket wheel x the axle of which carries a roller H tangential to a roller H^1 ; these two rollers H, H^1 draw along the metal plates coming out of the uppermost hopper and directed by the curved guide E^1 .

It will be seen that the rollers C comprised in any one pair turn in opposite directions and that, the two chains exerting their drawing action on the outer portions of the sprocket wheels, the tensions of the chains tend to draw the rollers closer together thereby insuring a close contact between them and consequently an efficient feed between the rollers of the tin plates

which thus rise progressively from hopper to hopper through the pulverulent material.

To obtain a good contact between the rollers of each pair, it is convenient that one of the rollers in each pair should be free to adjust itself to all the irregularities of thickness in the felt coverings which are applied to the metal portions of the rollers. For this purpose (see Figs. 2 and 3) the ball bearings I , which support the rollers on that side of the machine nearest where the metal sheets enter, that is to say on the left in Figs. 1, 2 and 3, are arranged to slide in horizontally disposed jaws y of the frame being yieldingly retained in position by an adjustable coiled spring J which can yield when the felt covering of the rollers becomes thicker, and can on the contrary expand when the felt is thinner. The spring J is guided by a bolt z the head of which engages a slot formed by two curved ears z^1 integral with the casing for the brass.

Each of the brasses is arranged to prevent the entrance of dust into the ball bearings; for this purpose the casing for the bearings has screwed on to its outer end a cap K , which serves for the introduction into the casing of non-fluid lubricant which may fill completely the space around the bearings. A lead washer a^1 is placed between the shoulder of the cap K and the casing. A felt washer b^1 fitted in a cavity formed in the casing fits tightly and rubs against the roller spindle and stops ingress of dust from the inner side of the casing. This machine advantageously takes the place of those scouring machines that draw along or feed the metal plates by means of metal fingers and it is adapted to scour plates of all thicknesses, even very thin plates, such as tinsel sheets, without any harm.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:

1. A machine for scouring sheets of tin, comprising a number of superposed prismatic-shaped hoppers adapted to contain gypsum, or other scouring material, each hopper having a narrow opening in its bottom, a pair of resiliently mounted contacting rollers below said opening adapted to transfer the tin plates, and guides disposed within the hoppers adapted to maintain the metal plates vertically in the axial plane of the hoppers.

2. A machine for scouring sheets of tin, comprising a number of superposed prismatic-shaped hoppers adapted to contain gypsum, or other scouring material, each hopper having a narrow opening in its bottom, a pair of contacting rollers below said opening adapted to transfer the tin plates, and guides disposed within the hoppers

adapted to maintain the metal plates vertically in the axial plane of the hoppers, said rollers turning inversely to their opposite roller, each roller carrying a single pinion, the pinions of one pair of rollers being disposed so that one of them is on one side and the other on the other side of the machine, and an endless chain coöperating with the pinions on one side of the machine, and another endless chain coöperating with the pinions on the other side.

3. In a machine for scouring sheets of tin or the like, the combination of a number of hoppers, each having an opening at its lower part through which the sheets pass, a series of driving rollers arranged between the hoppers, and driving chains, on each side of the machine for operating said rollers, said driving chains passing around the outside of alternate rollers said rollers being adapted to be drawn together by said chains to seize the sheet of tin passing between them.

4. In a machine for scouring sheets of tin or the like, the combination of a number of hoppers, each having an opening at its lower part through which the sheets pass, a series of driving rollers arranged between the hoppers, and two driving chains, one on each side of the machine for operating said rollers, said driving chains passing around the outside of alternate rollers, and the two driving chains being reversely arranged whereby the rollers are pressed toward each other so as to seize the sheet of tin passing between them.

5. In a machine for scouring sheets of tin or the like, the combination of a number of superposed hoppers, adapted to contain a scouring material, each hopper having at its lower part two adjustable plates with an opening between for the passage of sheets of

tin, and driving rollers for moving the sheet through said hoppers.

6. In a machine for scouring sheets of tin or the like, the combination of a number of superposed hoppers, adapted to contain a scouring material, each hopper having at its lower part two adjustable plates with an opening between for the passage of sheets of tin and removable side plates.

7. A machine for scouring sheets of tin, comprising a number of superposed prismatic-shaped hoppers adapted to contain gypsum, or other scouring material, each hopper having a narrow opening in its bottom, a pair of resiliently mounted contacting rollers below said opening adapted to transfer the tin plates, and removable guides disposed within the hoppers adapted to maintain the metal plates vertically in the axial plane of the hoppers.

8. A machine for scouring sheets of tin, comprising a number of superposed prismatic-shaped hoppers adapted to contain gypsum, or other scouring material, each hopper having a narrow opening in its bottom, a pair of resiliently mounted contacting rollers below said opening adapted to transfer the tin plates, and removable guides disposed within the hoppers adapted to maintain the metal plates vertically in the axial plane of the hoppers, said guides having downwardly projecting separated teeth bent inwardly at the middle and diverging at the lower ends.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

HECTOR PETIN.

Witnesses:

H. C. COXE,
CHARLES MARDELET.