

(No Model.)

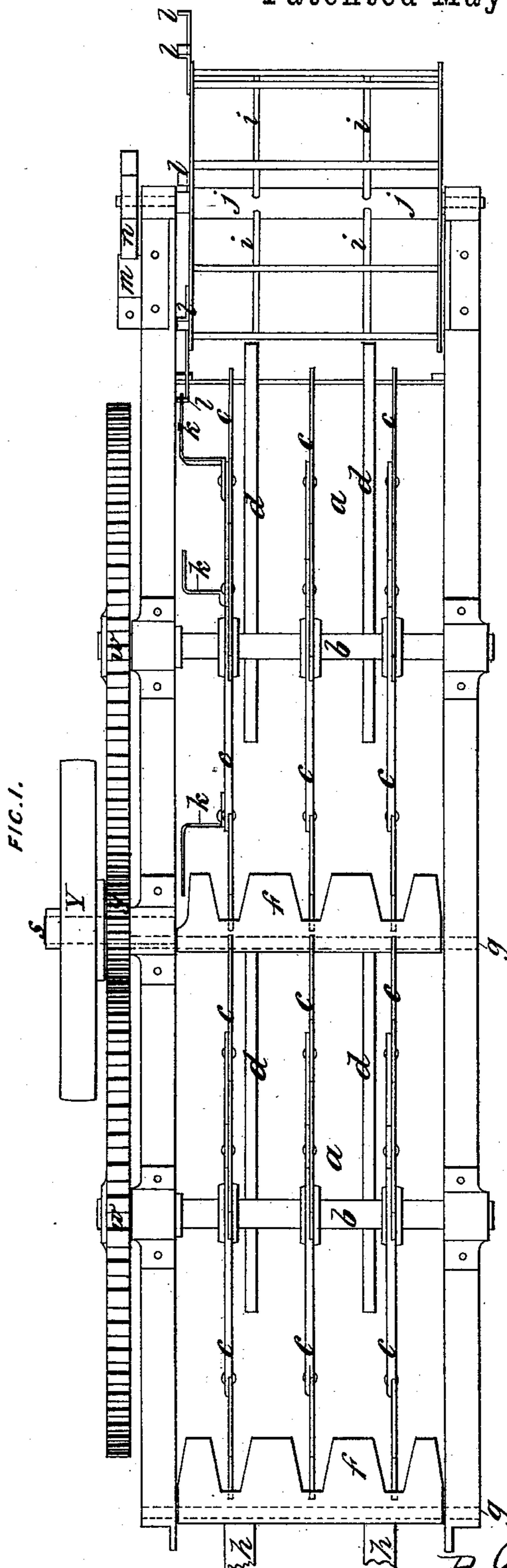
4 Sheets—Sheet 1.

J. ABBOTT.

MACHINERY OR APPARATUS FOR CLEANING TIN AND TERNE PLATES.

No. 428,994.

Patented May 27, 1890.



Witnesses:

E. C. Duffy
Chas. M. Wink

Inventor:

James Abbott

By B. E. Duff
Attorney

(No Model.)

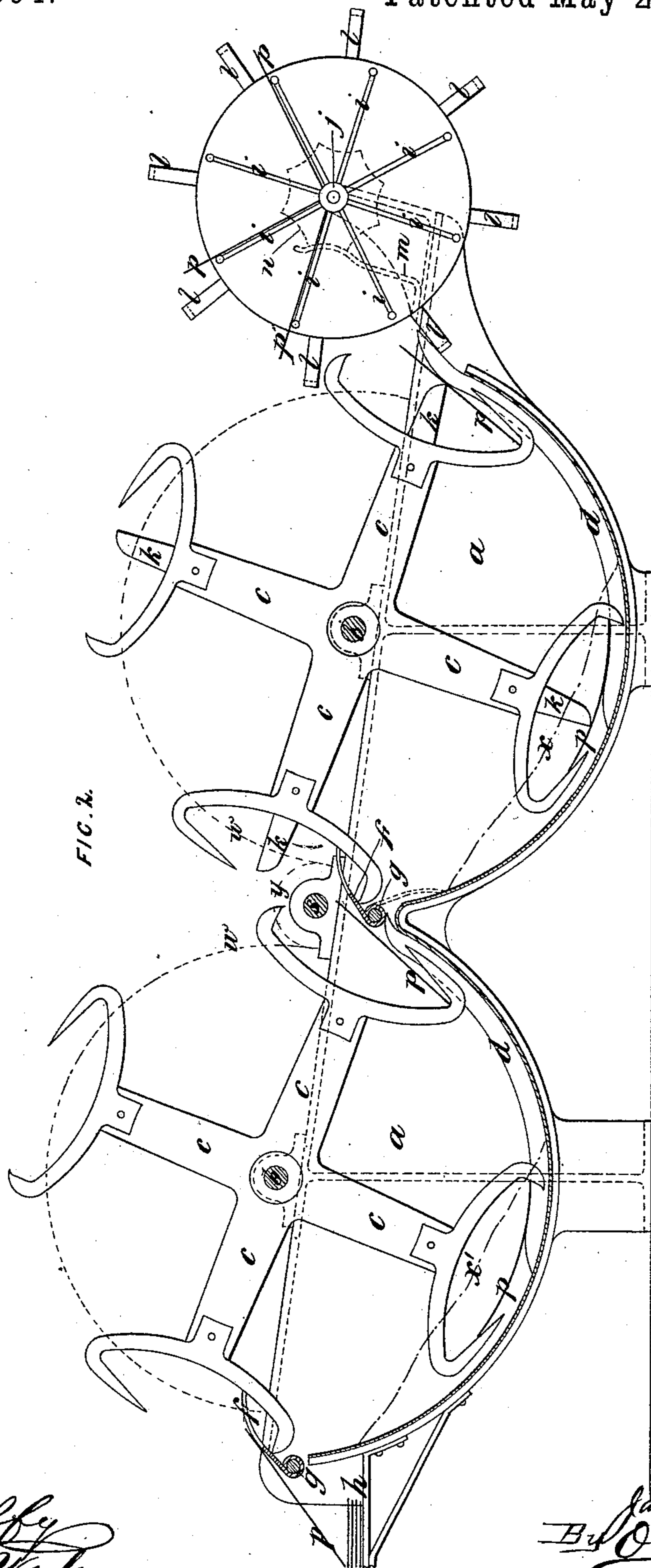
4 Sheets—Sheet 2.

J. ABBOTT.

MACHINERY OR APPARATUS FOR CLEANING TIN AND TERNE PLATES.

No. 428,994.

Patented May 27, 1890.



Witnesses:
E. C. Duffey
Chas. M. Werle

Inventor
James Abbott
E. C. Duffey
Attorney

(No Model.)

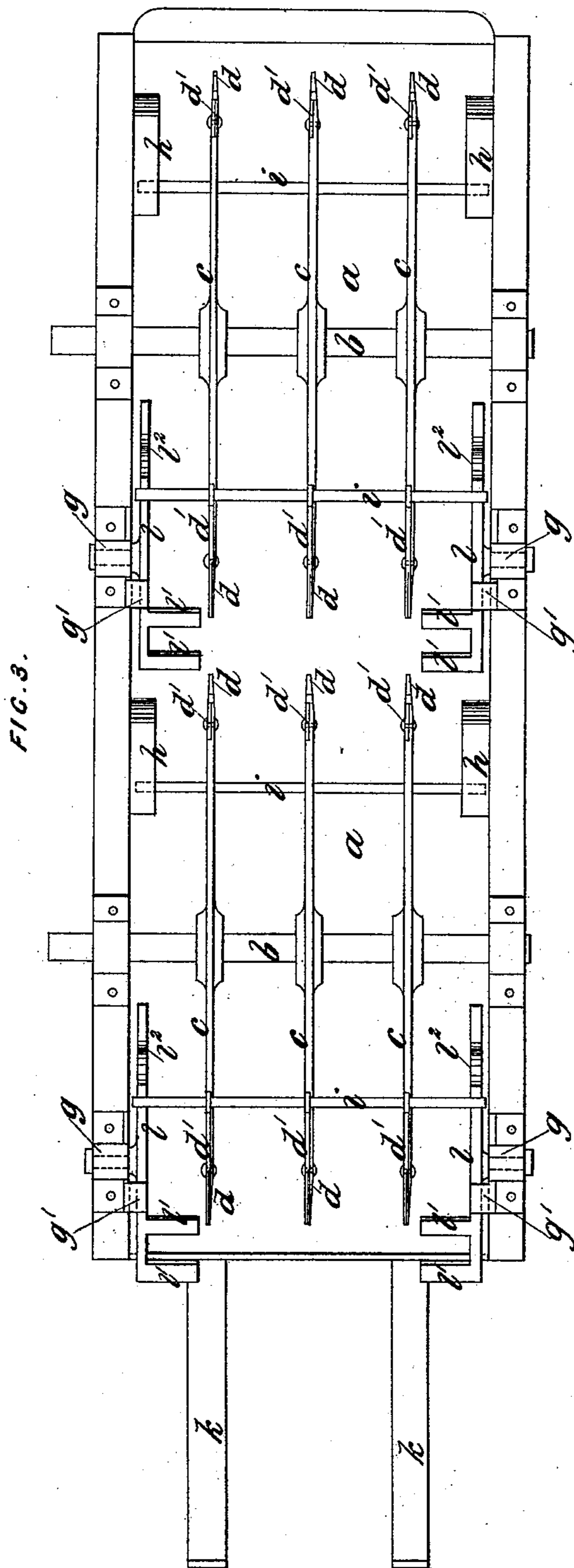
4 Sheets—Sheet 3.

J. ABBOTT.

MACHINERY OR APPARATUS FOR CLEANING TIN AND TERNE PLATES.

No. 428,994.

Patented May 27, 1890.



Witnesses:
E. B. Duff
Chas. M. Werle

Inventor
James Abbott
By *E. B. Duff*
Attorney

(No Model.)

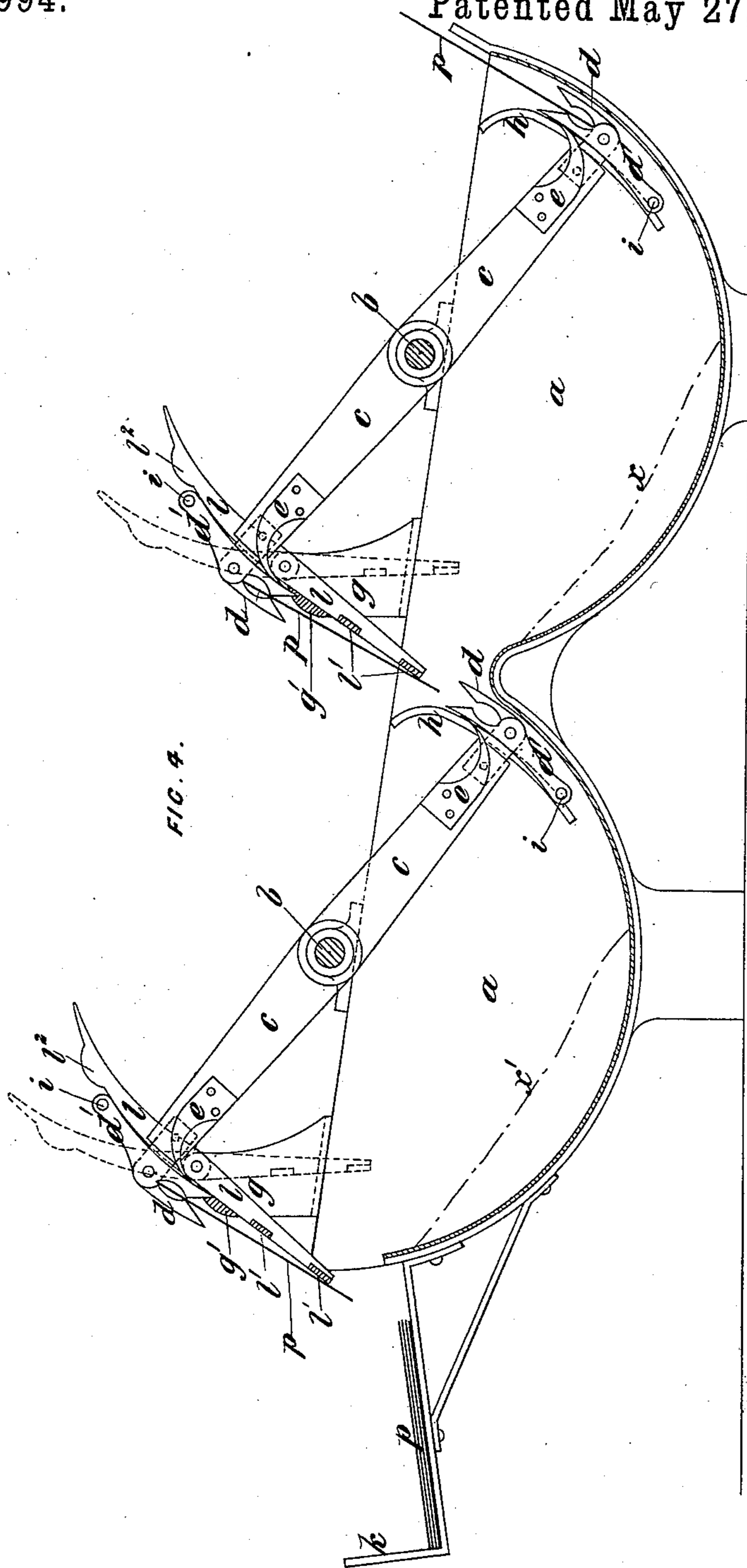
4 Sheets—Sheet 4.

J. ABBOTT.

MACHINERY OR APPARATUS FOR CLEANING TIN AND TERNE PLATES.

No. 428,994.

Patented May 27, 1890.



Witnesses:

E. C. Duffy
Chas. M. Merle

Inventor

James Abbott

By *E. C. Duffy*
Attorney

UNITED STATES PATENT OFFICE.

JAMES ABBOTT, OF BLAINA, COUNTY OF MONMOUTH, ENGLAND.

MACHINERY OR APPARATUS FOR CLEANING TIN AND TERNE PLATES.

SPECIFICATION forming part of Letters Patent No. 428,994, dated May 27, 1890.

Application filed July 12, 1889. Serial No. 317,354. (No model.) Patented in England May 3, 1889; No. 7,366, and June 21, 1889, No. 10,116.

To all whom it may concern:

Be it known that I, JAMES ABBOTT, a subject of the Queen of Great Britain and Ireland, residing at Blaina, Kingdom of Great Britain and Ireland, have invented new and useful Improvements in Machinery or Apparatus for Cleaning Tin and Terne Plates, (for which English patents, No. 7,366, May 3, 1889, and No. 10,116, June 21, 1889, have been obtained,) of which the following is a specification.

This invention relates to the operation of cleaning tin and terne plates by dipping them in bran for the purpose, as is well understood, of removing grease remaining upon them after withdrawal from the grease-pot.

This invention consists, first, in a method of and means for mechanically cleansing both sides of the plates by passing them through two troughs in succession, each trough containing bran and placed one behind the other. The plates are mechanically passed through the front trough and transferred therefrom to the second or rear trough. They are reversed or turned over at the time of transfer. Accordingly, they pass through the second trough having that face downward which was uppermost in the front trough. Approximate uniformity in cleansing each face is thus obtained. On arriving at the rear or delivery end of the second trough the plates are mechanically tilted onto a delivery-table.

This invention consists, secondly, in a rack, whereby the plates are mechanically fed in regular succession to the first cleaning-trough.

In Figure 1 of the accompanying drawings is shown a plan of a pair of troughs *a*, arranged and fitted for cleaning tin and terne plates in accordance with this invention. Fig. 2 is a vertical section. Figs. 3 and 4 are similar views to Figs. 1 and 2, respectively, illustrating a modification.

Referring to Figs. 1 and 2, in each trough are three sets of forked arms *c*, each set being mounted at suitable distances apart on a shaft *b*, carried in bearings at each side of the trough. At one end each shaft *b* is fitted with a toothed wheel *w*, gearing with the pinion *y*, driven by the pulley *Y*, keyed on

the shaft *s*. Each trough *a* contains bran, the upper surface of which is roughly indicated by the dotted lines *x x'*, Fig. 2. Each plate *p* on entering in proper turn the front trough is received in a bend of the forks *c*, of which three are presented thereto abreast. By the forks the plate, which is kept raised by guides *d*, is lowered to the bottom of the trough, from which point it is forced upward through the bran to the dentated tilting table *f*, which normally lies in the position indicated in dotted lines, Fig. 2, and is carried on a spindle *g* extending across the trough. The short ends of the forks strike the under face of the table *f*, and in their upward progress they tilt the table *f*, and so dislodge the tin or terne plate, which is then received in the forks presented for its reception in the rear trough. The plate now passes through the second trough and the bran therein (indicated by the line *x'*) in a similar manner to that in which it passed through the first trough, but having that side uppermost which was downward in the first trough. On arriving at the rear end of the second trough the plate approximately uniformly cleansed on each side is tilted by the dentated tilting table *f* onto the shelf *h*. The rack by which the plates are fed to the first cleaning-trough consists of a skeleton drum having radial arms *i* springing from a spindle *j*, carried in bearings, as shown. Upon these radial arms are laid the plates *p* to be cleaned.

Those forked arms *c* which are situated toward one side of the front trough are furnished with strikers *k*, Fig. 1, which as the arms rotate strike in turn against the bent arms *l* fixed to one side of the rack, which latter is thus caused to rotate and to discharge into the trough the plate lowest in the rack. The rack is prevented by the spring *m*, acting on the recessed pinion *n*, from rotating at one time farther than is required to deliver one plate into the trough.

Figs. 3 and 4 show a modification of this invention, under which the plates for cleaning are seized between spring-jaws and drawn through the bran, instead of being thrust through it, as in the arrangement first above

described. On the shafts *b*, driven by suitable gearing, are keyed the arms *c*, which rotate in the troughs *a* as the shafts *b* revolve. At each extremity of each arm *c* is a jaw composed of a rigid member *d* and a member *d'*, capable of turning on the spindle *i*, which connects all the jaws in each separate parallel series. By springs *e*, fixed to the arms *c* and bearing against the hinged members of the jaws, the latter are normally kept closed. Pivoted in brackets *g*, situated toward the rear of each trough, are levers *l*, having fingers *l'* extending inward—that is to say, transversely to the longitudinal axis of the troughs. The levers *l*, which toward their tail have curved projections *l''*, lie normally in the position indicated in dotted lines at Fig. 4. At the front end of each trough, at each side thereof, is a curved bar *h*, so situated relatively to the center of the shaft *b* and the spindle *i* that the latter, when brought into contact with the bar *h*, is thrust outward, and the spring *e*, being thus depressed by the pivoted member *d'* of the jaw, the jaw is opened. Into it is inserted the plate *p*, which is gripped by the jaw as soon as the spindle *i* passes clear of the bar *h*. Assuming now that a plate *p* has been inserted in the jaw at the front of the leading trough it (the plate) is drawn through the bran, the surface of which is roughly indicated by the dotted line *x*, Fig. 4, as the arms *c* rotate with the shaft *b*. On reaching the rear end of the front trough the levers *l* thereat are tilted by the spindle *i* against the stops *g'*, formed on the brackets *g*. The arms continue to rotate, and when the spindle *i* is brought into contact with the raised part *l''* on the levers the springs *e* are overcome, the jaw is opened, and the plate *p*, directed by the levers *l* and fingers *l'*, drop into the jaw on the arm *c*, presented for its reception at the front of the rear trough.

When the spindle of the jaw from which the plate drops has passed the projections *l''* on the levers *l* of the front trough, the said levers swing back to their normal vertical position. The plate now delivered to the rear trough is carried through the bran therein (indicated by the line *x'*, Fig. 4) in the same manner as in the leading trough, but having that face uppermost which in the first trough was downward. The plate is released and discharged onto the delivery-table *k* by similar means to those by which it is transferred from the front to the rear trough.

What I claim is—

1. In a machine for cleaning tin and terne plates, the combination, with two cleaning-troughs, each to contain bran or other cleaning substance, of sets of revolving arms, each adapted to receive and pass a plate through one of said troughs, and a transferring device located between said troughs and adapted to automatically cause a plate to pass from one set of arms in the first trough to another set of arms in the second trough, said device be-

ing operated by the first-mentioned arms, substantially as herein described, for the purpose specified.

2. In a machine for cleaning tin and terne plates, the combination of two cleaning-troughs, sets of forked arms arranged to revolve in each of said troughs, each set of arms being constructed to receive and pass a plate through the trough in which it revolves, a transferring device arranged between said troughs so as to be operated by each set of forked arms in the first trough, and capable of transferring a plate from a set of arms in the first trough to a set of arms in the second trough in such a manner that the sides of the plate will be reversed, and a revolving rack arranged at the front side of the first trough and adapted to hold and feed plates to the said trough, said rack being adapted to be operated by the sets of arms in the first trough, substantially as herein described, for the purpose specified.

3. In a machine for cleaning tin and terne plates, the combination of two cleaning-troughs, sets of forked arms arranged to revolve in each of said troughs, each set of arms being constructed to receive and pass a plate through the trough in which it revolves, a transferring device arranged between said troughs so as to be operated by each set of forked arms in the first trough, and capable of transferring a plate from a set of arms in the first trough to a set of arms in the second trough in such a manner that the sides of the plate will be reversed, and a transferring device arranged at the rear end of the second trough and adapted to be operated by each set of arms in said second trough, substantially as herein described, for the purpose set forth.

4. In a machine for cleaning tin and terne plates, the combination of two cleaning-troughs *a a*, each provided with guides *d*, sets of forked arms *c c*, each carried by a shaft *b* and arranged to revolve in one of said troughs, means for revolving said shafts, a dentated tilting table *f*, arranged between said troughs and adapted to be operated by the sets of arms in the first trough, and a second dentated tilting table *f* at the rear of the second trough adapted to be operated by the sets of arms in this second trough, substantially as herein described, for the purposes specified.

5. In a machine for cleaning tin and terne plates, the combination of two cleaning-troughs *a a*, each provided with guides *d*, sets of forked arms *c c*, each carried by a shaft *b* and arranged to revolve in one of said troughs, means for revolving said shafts, a dentated tilting table *f*, arranged between said troughs and adapted to be operated by the sets of arms in the first trough, and a second dentated tilting table *f* at the rear of the second trough adapted to be operated by the sets of arms in this second trough, a rack

comprising radial arms *i*, carried by a shaft
mounted to rotate, strikers *k*, each carried by
one of the forked arms *c* of each set of arms
in the first trough and adapted to partly ro-
5 tate said rack, and means for holding said
rack when the same is not being actuated by
one of said strikers, substantially as herein
described, for the purposes set forth.

In testimony whereof I have signed my

name to this specification in the presence of 10
two subscribing witnesses.

JAMES ABBOTT.

Witnesses:

R. HUMPHREYS,
Herrwain Terrace, Blaina.
EDWARD HOPKIN THOMAS,
Null Cottage, Blaina.