J. LEWIS.

COMBINED TINNING AND CLEANING MACHINE.

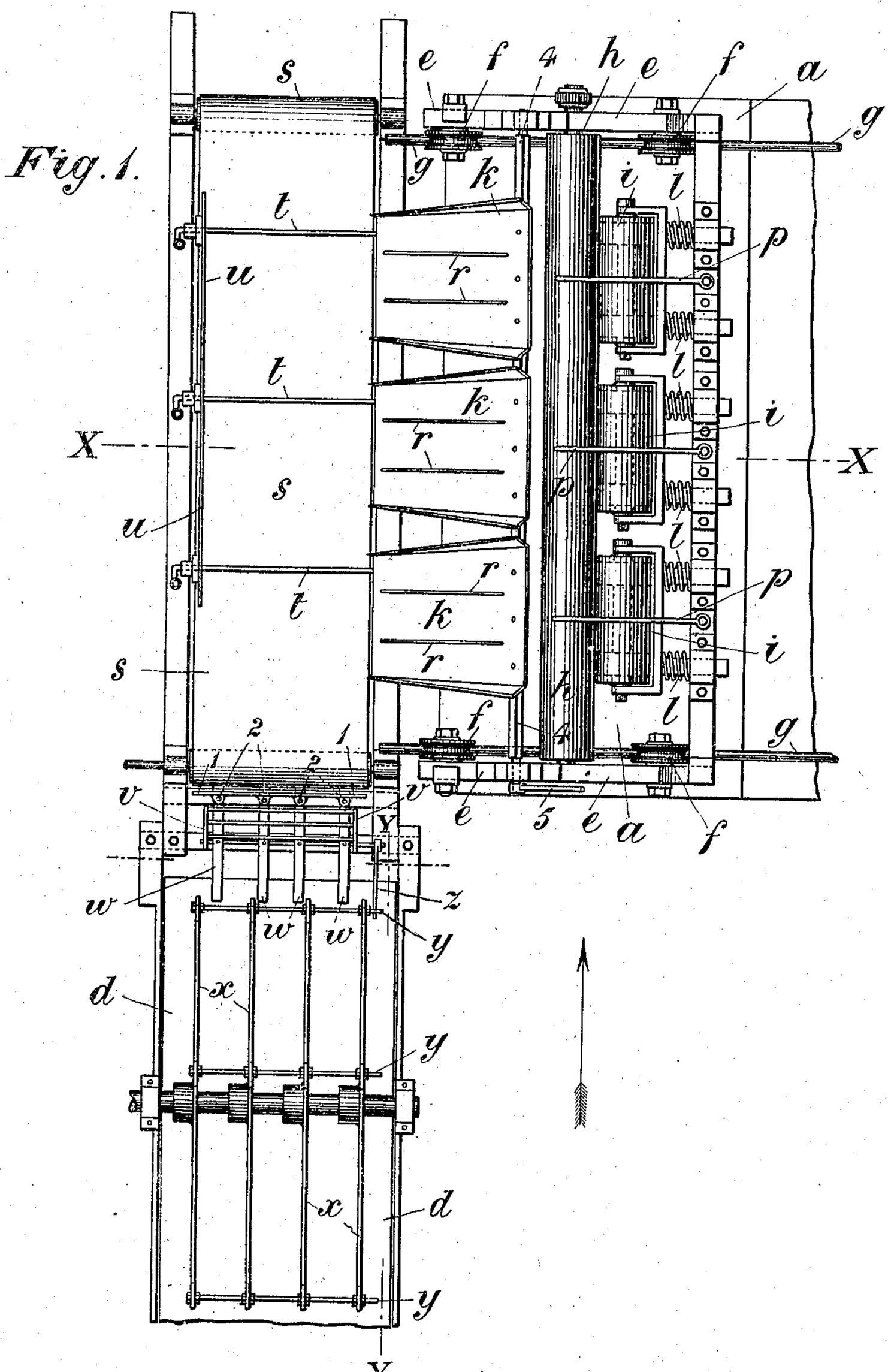
APPLICATION FILED JULY 2, 1907.

899,996.

Patented Sept. 29, 1908.

3 SHEETS—SHEET 1.

Fig. 1.



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3 SHEETS—SHEET 2.

Fig. 2.

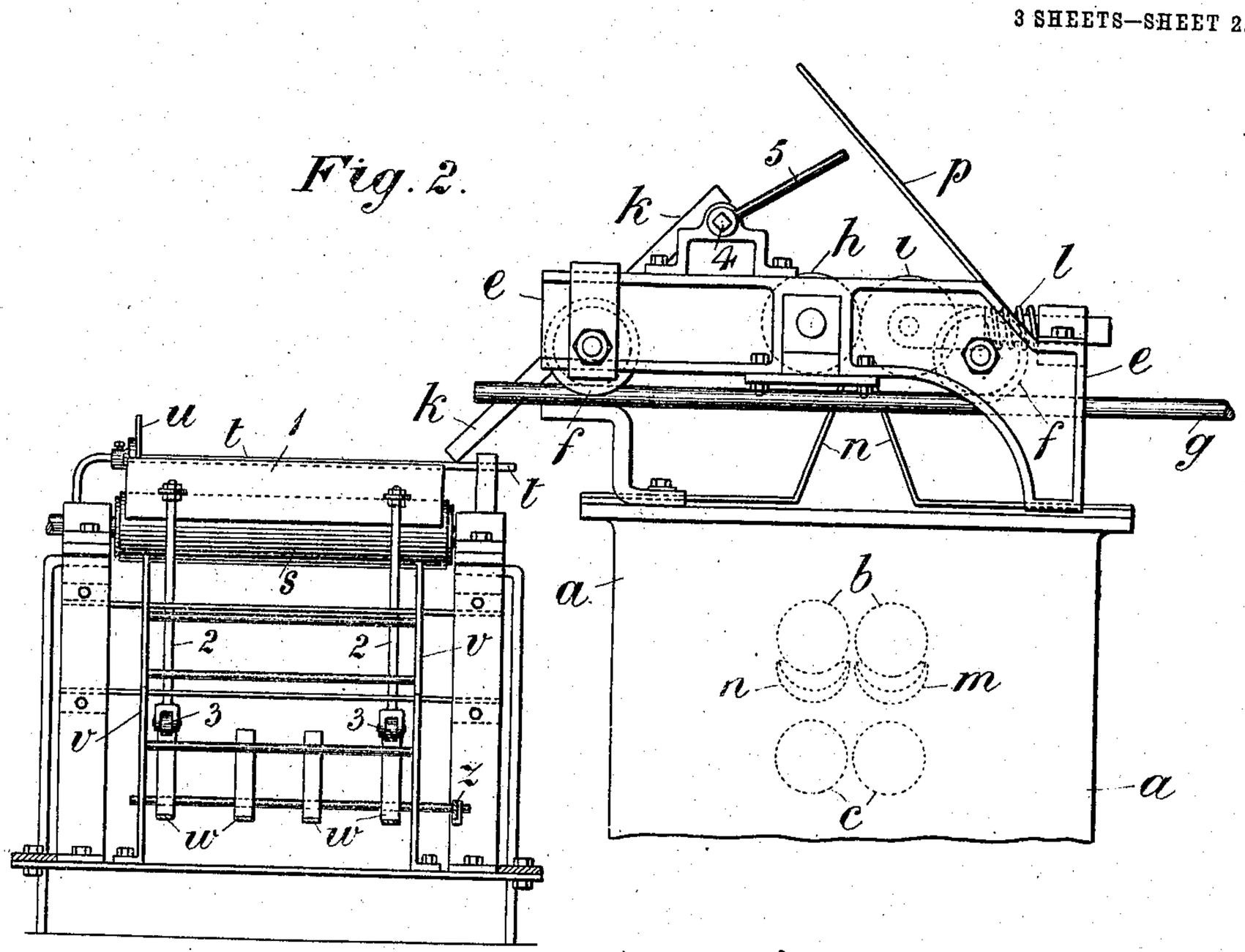
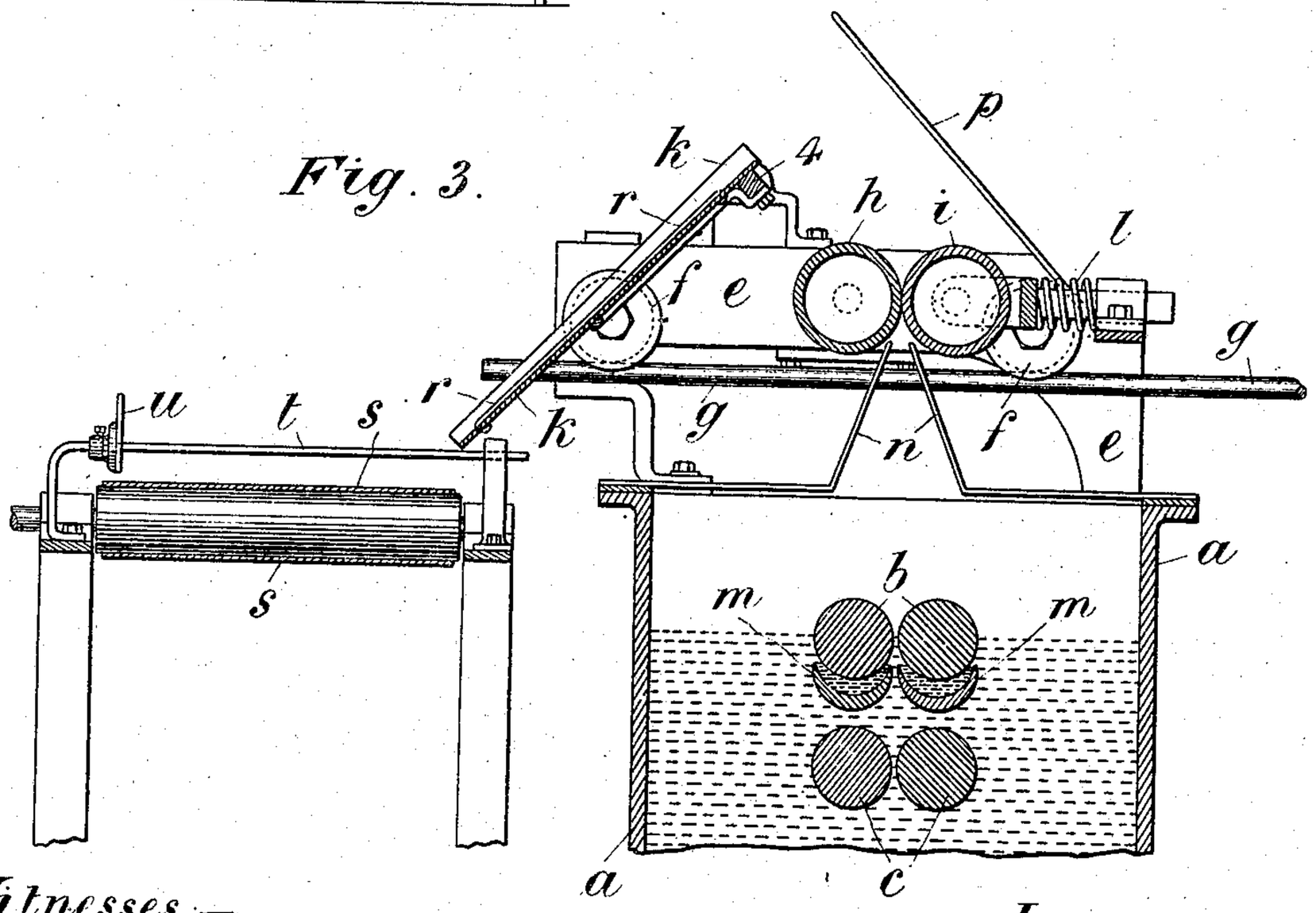


Fig. 3.



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3 SHEETS—SHEET 3.

Fig. 4.

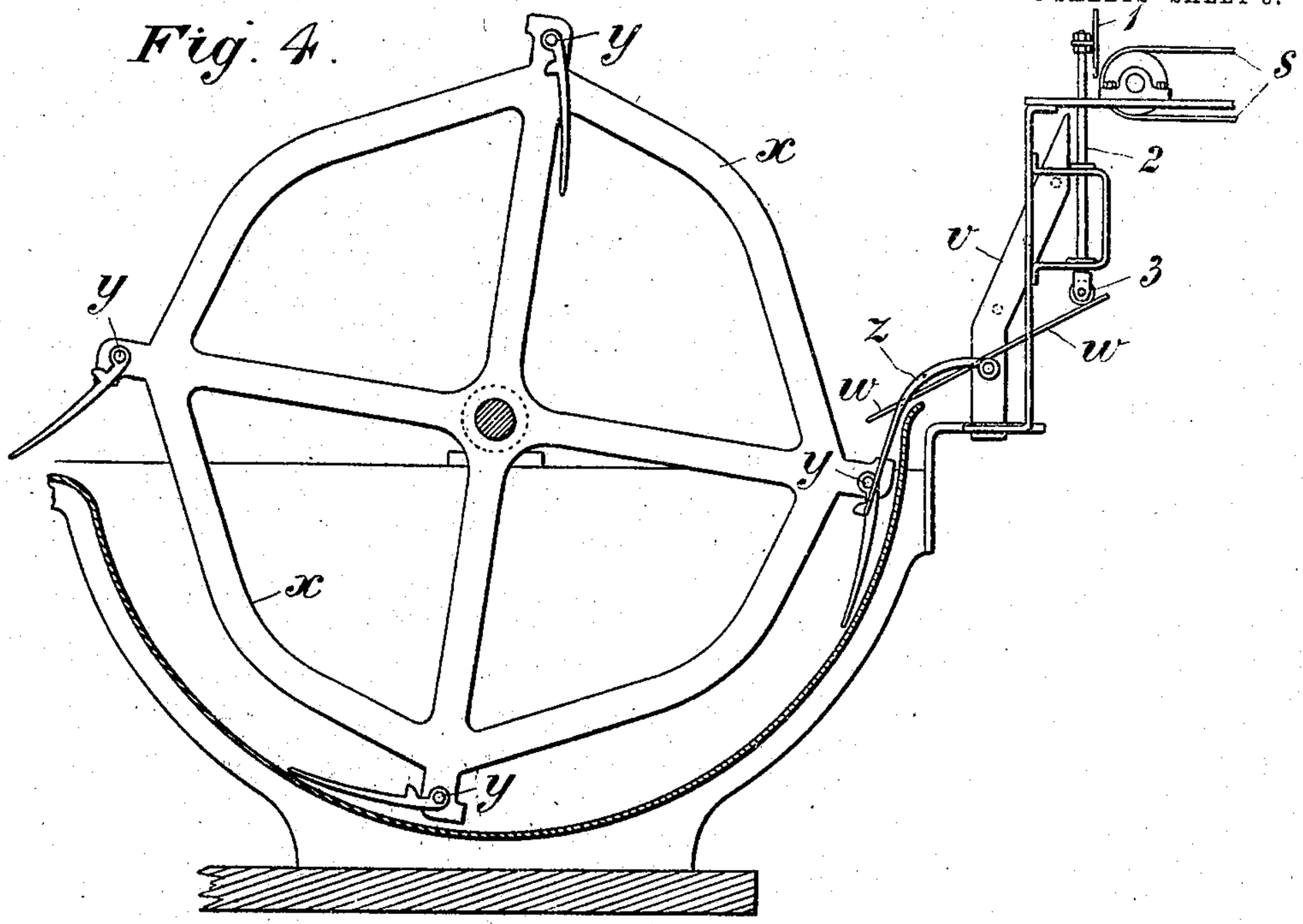
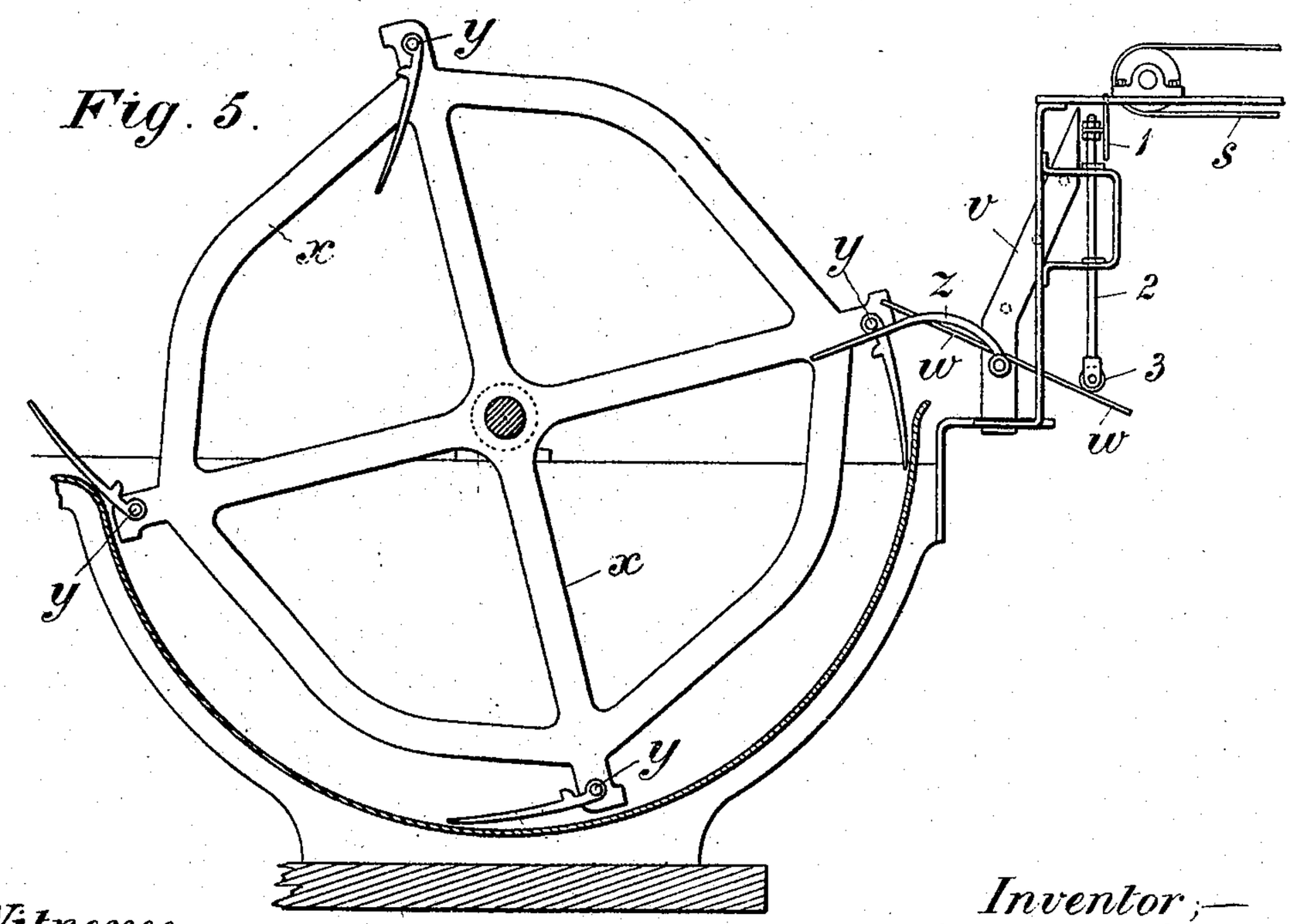


Fig. 5.



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UNITED STATES PATENT OFFICE.

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COMBINED TINNING AND CLEANING MACHINE.

No. 899,996. Specification of Letters Patent. Patented Sept. 29, 1908.

Application filed July 2, 1907. Serial No. 381,876.

To all whom it may concern:

Be it known that I, JOB LEWIS, a subject of the King of Great Britain, residing at No. 16 Bathurst Park, Lydney, Gloucestershire, England, have invented certain new and useful Improvements in a Combined Tinning and Cleaning Machine, of which the following is a specification.

My invention has reference to machines used in the manufacture of tin plates and sheets and other metal coated plates and sheets.

I will describe my invention as applied to the manufacture of tin plates. In the ordinary manufacture of tin plates the plates to be tinned are passed through a tinning machine and afterwards through a cleaning machine, a boy (called "the catcher") being employed to receive the plates as they emerge, one by one from the grease pot of the tinning machine and to transfer them to the cleaning machine.

Various attempts have been made from time to time to dispense with the hand labor hereinbefore referred to in transferring the plates from one machine to the other and thereby to combine the two machines but the combined machines as heretofore constructed have more or less failed to answer the requirements of the manufacture, either from defects in the transferring mechanism of the combined machines or through the non-provision of ready means of access to the grease pot of the tinning machine for supplying molten tin to the top rolls of the grease pot and for permitting of the removal of burnt grease, scruff and the like which collect at the meeting surfaces of the molten tin and grease.

My invention consists of the improvements hereinafter described in and connected with the automatic transferring mechanism of combined machines whereby the said machines are rendered very efficient and the objections heretofore attending combined machines are entirely obviated.

In the accompanying drawings Figure 1 represents in plan so much of a combined tinning and cleaning machine as is necessary for the understanding of my invention. Fig. 2 is a part end elevation and part section of the same looking in the direction of the arrow in Fig. 1; and Fig. 3 is a vertical section on the dotted line X—X Fig. 1. Figs. 4 and 5 are vertical sections taken on the dotted line Y—Y Fig. 1 the parts being in different positions in the two figures. Figs. 2, 3, 4 and 5 are drawn to a larger scale than Fig. 1. The same letters of reference indicate the same parts in the several figures of the drawings.

a is the grease pot forming the rear end of the tinning machine and *b*, *c* are the upper and lower pairs of rolls of the grease pot.

d is the front trough or half of the cleaning machine.

Over the grease pot *a* I arrange a frame *e* with traveling wheels *f*, *f* situated so as to be capable of traveling on the rails *g*, *g*. By this arrangement the frame *e* and parts carried by it can be readily removed from over the grease pot *a* so as to facilitate access to the grease pot when required and can afterwards be as readily returned to its normal position.

The frame *e* carries a long or continuous roller *h*, preferably covered with felt or the like, and three (or other number) of short rollers *i* also covered with felt or the like. In connection with the rollers *h*, *i* are inclined trays or chutes *k*. Instead of short rollers *i* pairs of disk-like rollers may be employed as is indicated in dotted lines in Fig. 1.

To permit the backward and forward motion of the frame *e* the chutes *k* are fixed at or near their upper ends to a spindle 4 having on one end an arm or crank 5 by which the spindle 4 can be turned so as to bring the chutes *k* into a horizontal or approximately horizontal plane and thereby permit them to clear the guides *n* on the grease pot *a*.

The long or continuous roller *h* is positively driven by gearing from the gear wheels (not shown) of the grease pot rolls *b*, *c* but the short rollers *i* (or pairs of disk rollers) rotate under frictional contact with the roller *h* or with the tinned plates passing between the said rollers. Springs *l* are provided to insure a uniform pressure of the short rollers *i* (or pairs of disk rollers) on the long or continuous roller *h*.

In order to render the supply of molten tin to the upper pair of grease pot rolls *b* less frequent than is ordinarily necessary I arrange under the said rolls *b*, *b* troughs *m*, *m* which are filled from time to time with tin so as to insure the rotation of the rolls *b*, *b* in molten tin. Guides *n*, *n* conduct the

tinned plates to the rollers *h*, *i* and inclined rods *p* cause the said plates to fall on to the chutes *k*. To facilitate the motion of the plates down the chutes *k* and to prevent abrasion of the plates stout copper wires *r* are fixed to the said chutes *k* so as to constitute rails on which the plates descend to the endless traveling band or conveyer *s*.

Over the traveling band or conveyer *s* is a series of rods *t* terminating at the outer side of the traveling band *s* in a stop plate or bar *u*. By this arrangement the tinned plates descending the chutes are preserved from contact with the traveling band *s* until clear of the chutes and the plates when clear fall on the side of the rods *t* in the direction of motion of the traveling band *s*.

Although I have represented the tinning part of the combined machine as arranged for the treatment of plates passing through the machine in a series of three parallel rows yet the tinning portion of the machine may be constructed for the plates to pass therethrough in more or fewer than three rows.

At the delivery end of the traveling band *s* is the inclined table or frame *v* of the cleaning machine the said table or frame *v* having near its lower end the pivoted frame *w* on which the edge of the plate delivered on to the table *v* temporarily rests until permitted to enter the cleaning machine *d* in the manner hereinafter described.

At one side of the wheel *x* of the cleaning machine *d* are projections or tappets *y* which come in contact with an arm *z* on the shaft or spindle of the pivoted frame *w* as is illustrated in Fig. 5. The further or continued rotation of the wheel *x* effects the turning of the arm *z* and pivoted frame *w* as is illustrated in Fig. 4 for the purpose of delivering the plate on the table or frame *v* into the trough of the cleaning machine *d*. To prevent a plate falling directly from the traveling band *s* into the cleaning machine when the pivoted frame *w* is in the position Fig. 4 I combine with the pivoted frame *w* and inclined table or frame *v* a stop plate or frame 1 carried by vertically guided rods 2, 2 rollers 3, 3 on the lower ends of which rods rest on rearward extensions of the bars of the pivoted frame.

From the description hereinbefore given it will be understood that the stop plate or frame 1, constituting a gate, is raised and lowered by the angular motion of the pivoted frame *w* worked by the tappets *y* and arm *z*.

Having now described my invention what I claim as new and desire to secure by Letters Patent is:—

1. In a machine for tinning and cleaning metal plates, the combination with cleaning devices and a grease pot of a metal coating bath, of a frame movable in opposite directions over the grease pot and fully removable from the latter, movable devices carried by the frame for engaging the plates and for transferring said plates from the metal coating bath to the cleaning devices, and means over the grease pot for movably supporting said frame, said means being in a position to permit free access to the grease pot when the frame is withdrawn.

2. In a machine for tinning and cleaning metal plates, the combination with cleaning devices and a grease pot of a metal coating bath, of a frame movably and removably supported over the grease pot, rollers carried by the said frame for receiving the plates between them and continuing the upward movement of the latter, and guides between the said grease pot rolls and the rollers carried by the frame, the guides being held in the top portion of the grease pot and the frame longitudinally movable over said pot.

3. In a combined tinning and cleaning machine for coöperating with metal plates, the combination with a grease pot of a metal coating bath, of a frame longitudinally movable over and removable in relation to the grease pot, rollers carried by the frame to receive the plates between them and continue the upward motion of said plates, chutes carried by the said frame, and guides between the rollers of the frame and the chutes and between the grease pot rolls and the rollers of the frame, the chutes being pivotally supported by the frame and movable to horizontal and inclined positions.

4. In a combined tinning and cleaning or other machine, the combination with the grease pot of a metal coating bath, of a frame, rollers, guides, inclined chutes, and rails on the grease pot, the frame being movable on the rails.

5. The combination with the traveling band or conveyer of a combined tinning and cleaning or other like machine, of chute means pivotally mounted to assume horizontal and inclined positions and operating to deliver the plates or sheets to the traveling band, arms in line with the said chute means and situated over and crossing the traveling band, and a stop means at the outer terminals of the said arms.

6. The combination with the traveling band or conveyer of a combined tinning and cleaning machine or other like machine of a chute or chutes for delivering the plates or sheets on to the traveling band, arms in line with the said chutes situated over and crossing the traveling band and a stop plate or bar at the outer ends of the said arms substantially as and for the purpose herein set forth and shown.

7. In a tinning and cleaning machine or other like machine for treating metal plates or sheets and in which the plates or sheets are conveyed and delivered into the cleaning part of the machine by an endless traveling

band or conveyer, the combination with the band or conveyer, of an inclined table or support at the front of the cleaning trough, a pivoted frame near the lower end of the table or support, a stop plate or gate carried by vertical guide rods and raised and lowered by the motion of the pivoted frame so as to temporarily arrest any plate or sheet reaching the delivery end of the traveling band when the pivoted frame is in its non-supported position, a rotating wheel having a tappet means, and an arm or crank on the spindle of the pivoted frame actuated by the said tappet means.

8. In a combined tinning and cleaning or other like machine, the combination with the grease pot of the metal coating bath, of guides in operative relation to the grease pot, rails supported on the grease pot, and a frame having wheels engaging the rails and longitudinally movable over the grease pot, rollers carried by the frame, and chutes also movably held by the frame.

9. In a combined tinning and cleaning or other like machine, the combination with the grease pot of a metal coating bath and a traveling band or conveyer, of a frame shiftably mounted over the grease pot and having coöperating devices for engaging the plates, and chutes pivotally held at one side of and shiftable with the frame, the chutes being adjustable to either a horizontal or an inclined position and provided with means for positively maintaining them in either of said positions.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JOB LEWIS.

Witnesses:
GEORGE T. PITCHER,
E. M. TOLERTEN.