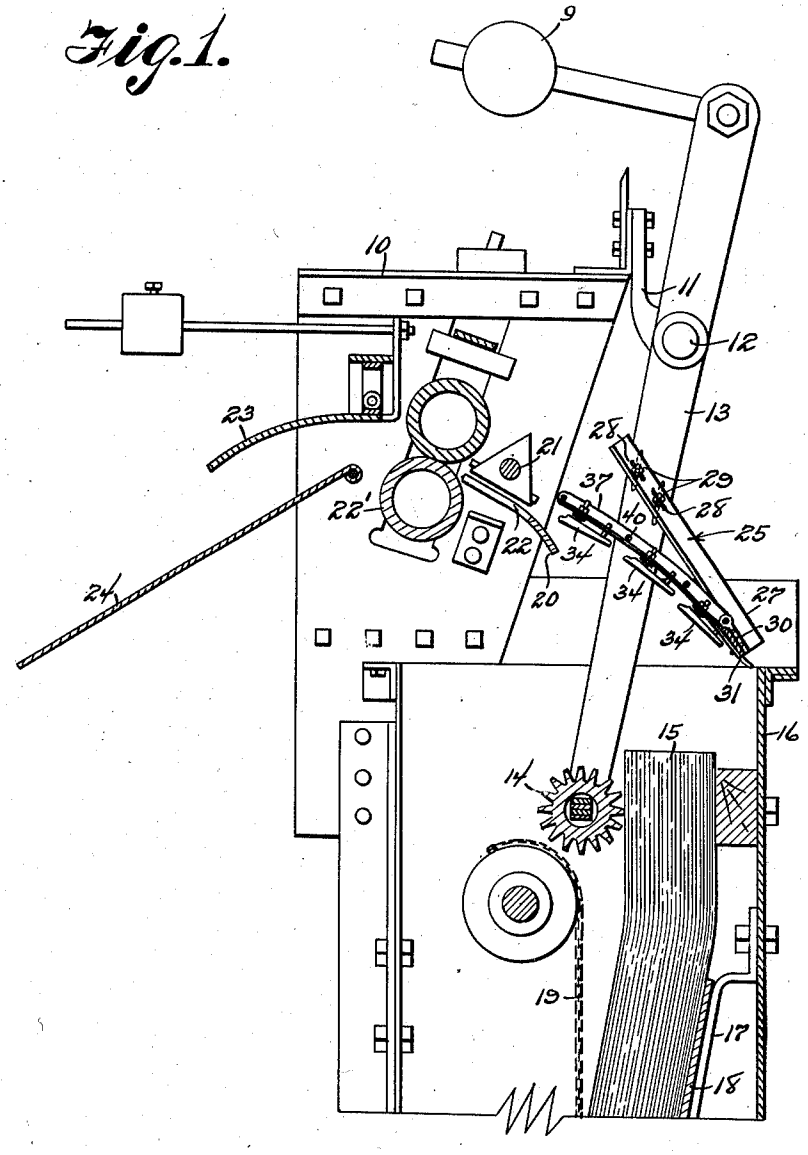
June 2, 1942. C. W. PHILLIPS 2,284,841

PLATE FEED AND SEPARATOR FOR TINNING MACHINES

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Fig. 1.



Charles W. Phillips INVENTOR.

BY Victor J. Evans & Co.

ATTORNEYS

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Fig. 2.

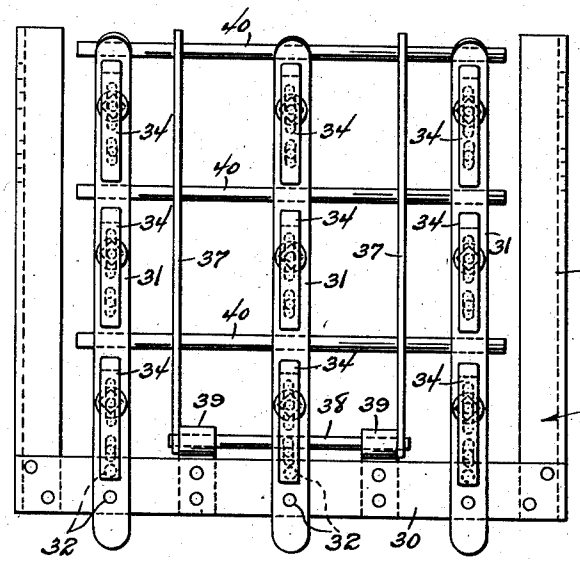


Fig. 3.

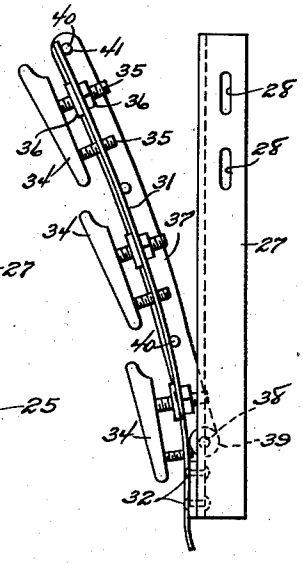


Fig. 4.

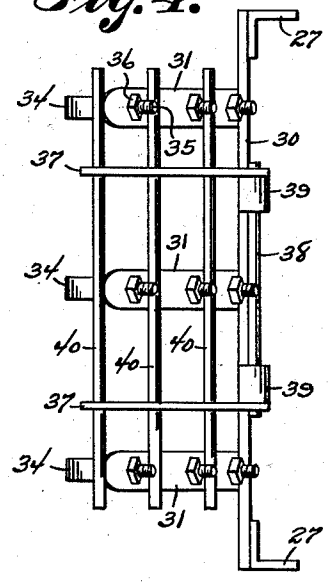
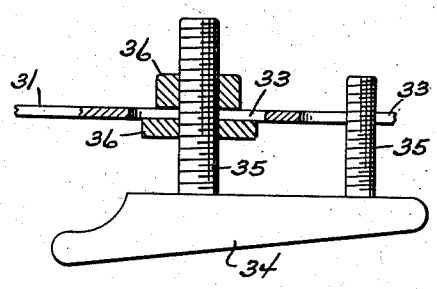


Fig. 5.



Charles W. Phillips INVENTOR.

BY Victor J. Evans & Co.

ATTORNEYS

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UNITED STATES PATENT OFFICE

2,284,841

PLATE FEED AND SEPARATOR FOR TINNING MACHINES

Charles W. Phillips, Warren, Ohio, assignor of twenty-five per cent to David Sieman, Warren, Ohio

Application August 23, 1941, Serial No. 498,125

2 Claims. (Cl. 271—36)

This invention relates to a plate feed and separator for tinning machines.

An object of the invention is to provide apparatus for separating plates moving upwardly from a pile of plates and feeding them to the pot of tinning metal one at a time.

A further object is to provide apparatus of this type in which should the plates move upward from the bosk or plate receptacle with more than one plate adhering together, the edges of the surplus plates will strike against cams which separate the plates of the pack, allowing one plate to pass on its course while holding back the rest of the pack until a single plate has passed on and then will permit a succeeding plate to pass on, this sequence being repeated until the pack of plates is reduced to a single plate to be fed into the pot of the machine for tinning.

A further object is to provide apparatus of this character which will be formed of a few strong, simple and durable parts, which will be inexpensive to manufacture, and which will not easily get out of order.

With the above and other objects in view the invention consists of certain novel details of construction and combinations of parts hereinafter fully described and claimed, it being understood that various modifications may be resorted to within the scope of the appended claims without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings forming a part of this specification:

Figure 1 is a sectional side elevation of the plate feed mechanism of a conventional tinning machine showing a plate feed and separator constructed in accordance with the invention applied thereto.

Figure 2 is a front elevation of the plate feed and separator removed from the machine and looking toward the bottom side thereof.

Figure 3 is an end elevation of the device shown in Figure 2.

Figure 4 is a top plan view of the device shown in Figure 3.

Figure 5 is a detail sectional view showing one of the adjustable cams.

Referring now to the drawings in which like characters of reference designate similar parts in the various views, 10 designates a supporting frame having a bracket 11 attached thereto, the bracket supporting a shaft 12 having arms 13 pivoted thereto. The upper ends of the arms are counterweighted as shown at 9 to dispose a magnetic rotary plate lifter 14, carried on the bottom of the arms, in operative contact with the pile 15 of plates to be tinned. The plates are disposed in a bosk or water container 16 and are supported therein by a pile holder 17 and a plate container 18, which later is adjusted by vertical chains 19.

The rotary magnet plate lifter 14 elevates the plates between the arms into engagement with guide strips 20 where the plates are intercepted in single file by locking fingers 21 which rotate through slots 22, the plates passing successively along the guide strips 20 to rotary pinch rollers 22' which are supposed to feed the plates singly between a guide plate 23 and an apron 24 to the tinning pot of the machine. Sometimes the plates stick together so tightly that the fingers fail to function, thus causing jamming of the machine. All the structure above described is conventional. In carrying out the invention a plate feed and separator 25 is mounted on the pivoted arms 13 to intercept the plates of the pile 15 on route to the guide strips 20 when the plates are lifted by the magnetic plate lifter 14.

The plate feed and separator is shown in detail in Figures 2 to 4 inclusive and comprises a U-shaped frame the sides of which are formed of angle bars 27 having slots 28 therein through which adjusting bolts 29 are engaged, see Figure 1, these adjusting bolts being passed through the arms 13 which support the magnetic plate lifter 14.

The U-shaped frame has secured to its transverse member 30 three nonmagnetic bars 31, preferably formed of brass, the bars being secured in parallel relation to the side bars 27 of the frame by bolts 32, or other connectors, see Figure 2. Each bar is provided preferably with three pairs of longitudinal slots 33 for the attachment of a corresponding number of cams 34.

The cams 34 may be formed of porcelain, soap stone, or other suitable nonmagnetic material and each cam is in the nature of an elongated tapered block having a flat bottom surface and being thicker at the forward end, that is the upper end, see Figure 1. Each cam is provided on the upper surface with a pair of spaced threaded studs 35 which are engaged through a respective pair of the slots 33 in a respective bar 31 and one of the studs is equipped with a pair of nuts 36 disposed above and below the bar to adjustably mount the cam longitudinally on the bar.

The magnetic feed of the device comprises a pivoted frame including side bars 37 connected at the lower ends to a shaft 38 which is journaled near the ends in bearing eyes 39 secured to the transverse member 30 of the U-shaped frame.

A plurality of transversely disposed magnetic rods **40**, preferably three in number, are engaged through openings **41** formed in the angle bars **37** of the pivoted frame. The magnetic rods **40** extend transversely of the upper faces of the cam carrying bars **31**, see Figures 3 and 4.

It will be observed that the cam carrying bars **31** and the magnetic rod carrying bars **37** are slightly arcuate and that these bars diverge from the U-shaped frame so that when the U-shaped frame is secured by the adjusting bolts **29** in downwardly and rearwardly inclined position, the cams **34** of the magnetic rods **40** will overlie the pile **15** of plates to be tinned and will be inclined forwardly and upwardly to a point directly above the guide plates **20**, see Figure 1. When the rotary magnetic plate lifter **14** elevates more than one plate at a time from the pile **15** the edges of the pack of plates thus lifted will strike the cams. The cams separate the plates of the pack and allow one plate to pass onto the guide strips **20** while simultaneously holding back the plates of the rest of the pack until the traveling plate has passed onto the guide strip **20**. Continued operation of the rotary magnetic plate lifter **14** forces the rest of the pack upward against the cams, one of the plates being then separated by the cams and allowed to pass onto the guide strips **20**, to reduce the pack.

From the above description it is thought that the construction and operation of the invention will be fully understood without further explanation.

What is claimed is:

1. A plate feed and separator for tinning machines comprising, a support for a pile of plates, magnetic means for feeding the plates endwise upwardly from the pile, a row of cams offset upwardly with respect to each other above the pile adapted to intercept a pack of the plates adhering together and separate the pack to permit single plates being fed successively therefrom by the magnetic means, and magnet rods between the cams coacting with the cams in holding back the rest of the plates of the pack while the magnetic means is reducing the pack.

2. A plate feed and separator for tinning machines comprising, a support for a pile of plates, counterweighted arms pivotally mounted on the support, magnetic means on the lower ends of the arms for feeding the plates endwise upwardly from the pile, a frame adjustably mounted on said arms above the magnetic means, longitudinally disposed nonmagnetic bars on the frame inclined upwardly and forwardly, a row of cams adjustably mounted on each bar, the cams of each row being offset upwardly relatively to each other and being adapted to intercept a pack of plates adhering together and separate the pack to permit single plates being fed successively therefrom by the magnetic means, and magnetic rods disposed transversely on the bars between the cams coacting with the cams in holding back the rest of the plates of the pack while the magnetic means is reducing the pack.

CHARLES W. PHILLIPS.