

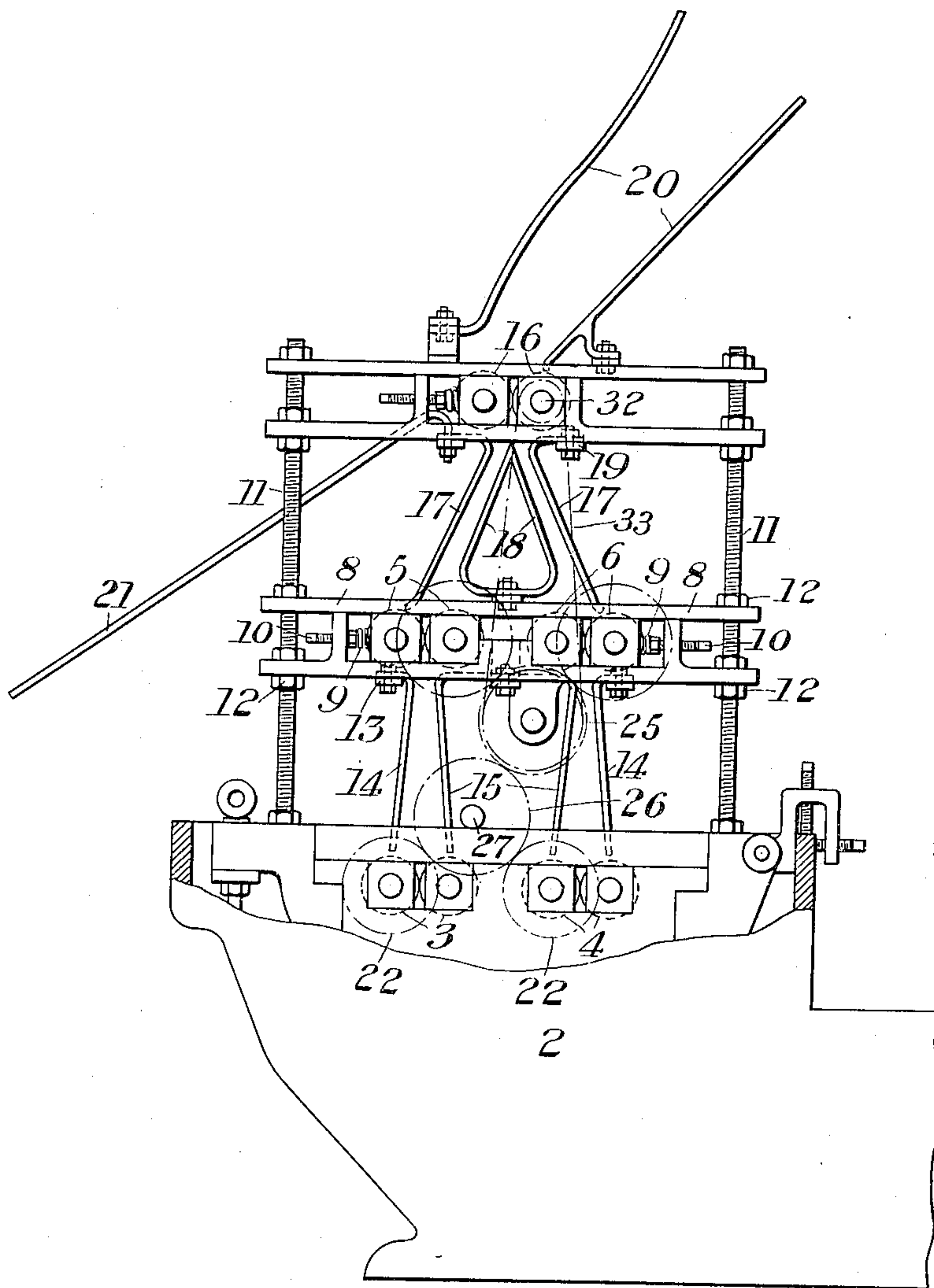
No. 822,698.

PATENTED JUNE 5, 1906.

L. C. STEELE.
TIN PLATE CATCHER.
APPLICATION FILED JUNE 28, 1905.

3 SHEETS—SHEET 1.

Fig. 1.



WITNESSES

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Warren W. Swartz

INVENTOR

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by R. A. Balderson
his atty

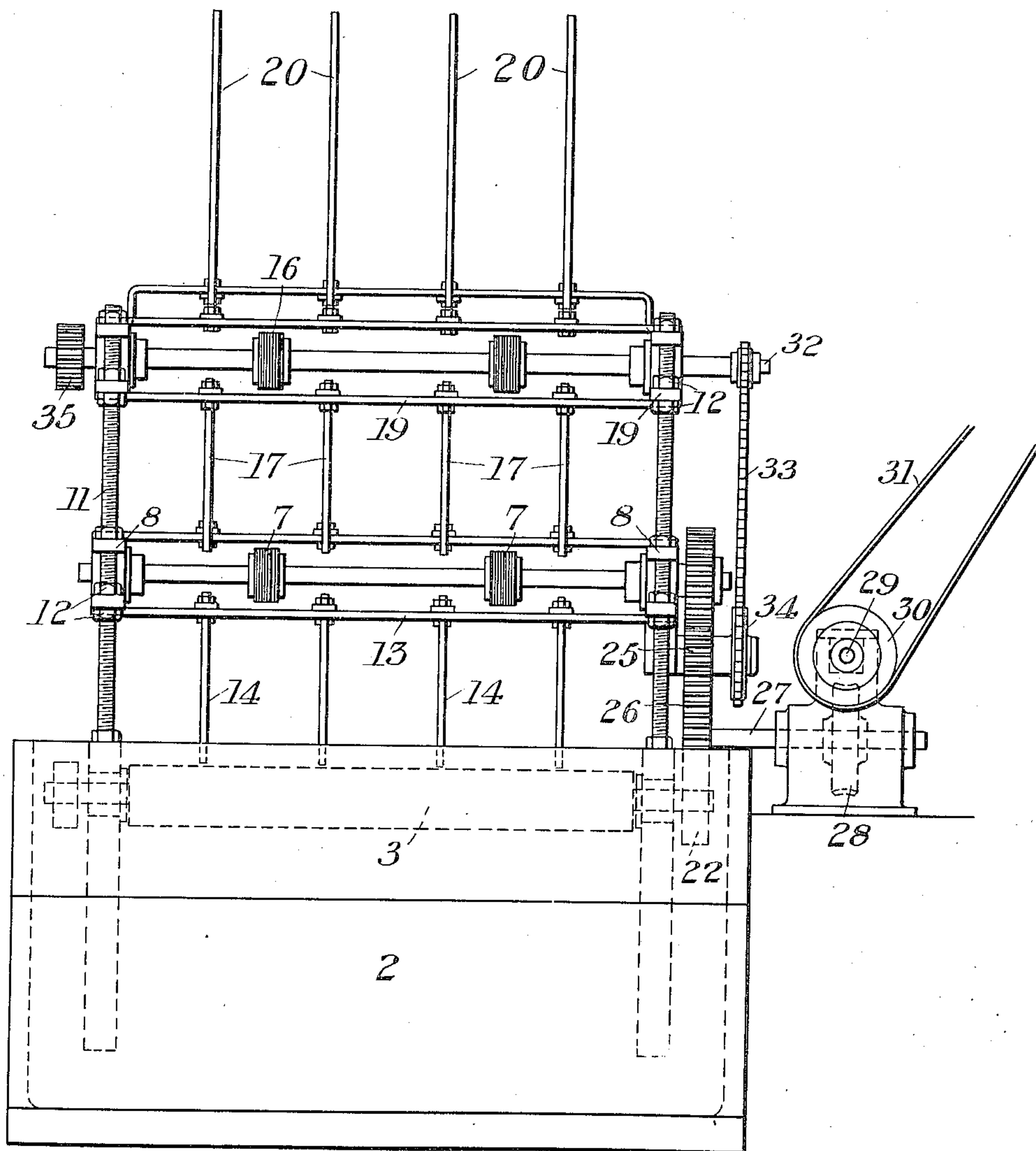
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3 SHEETS—SHEET 2.

Fig. 2.



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3 SHEETS—SHEET 3.

Fig. 3.

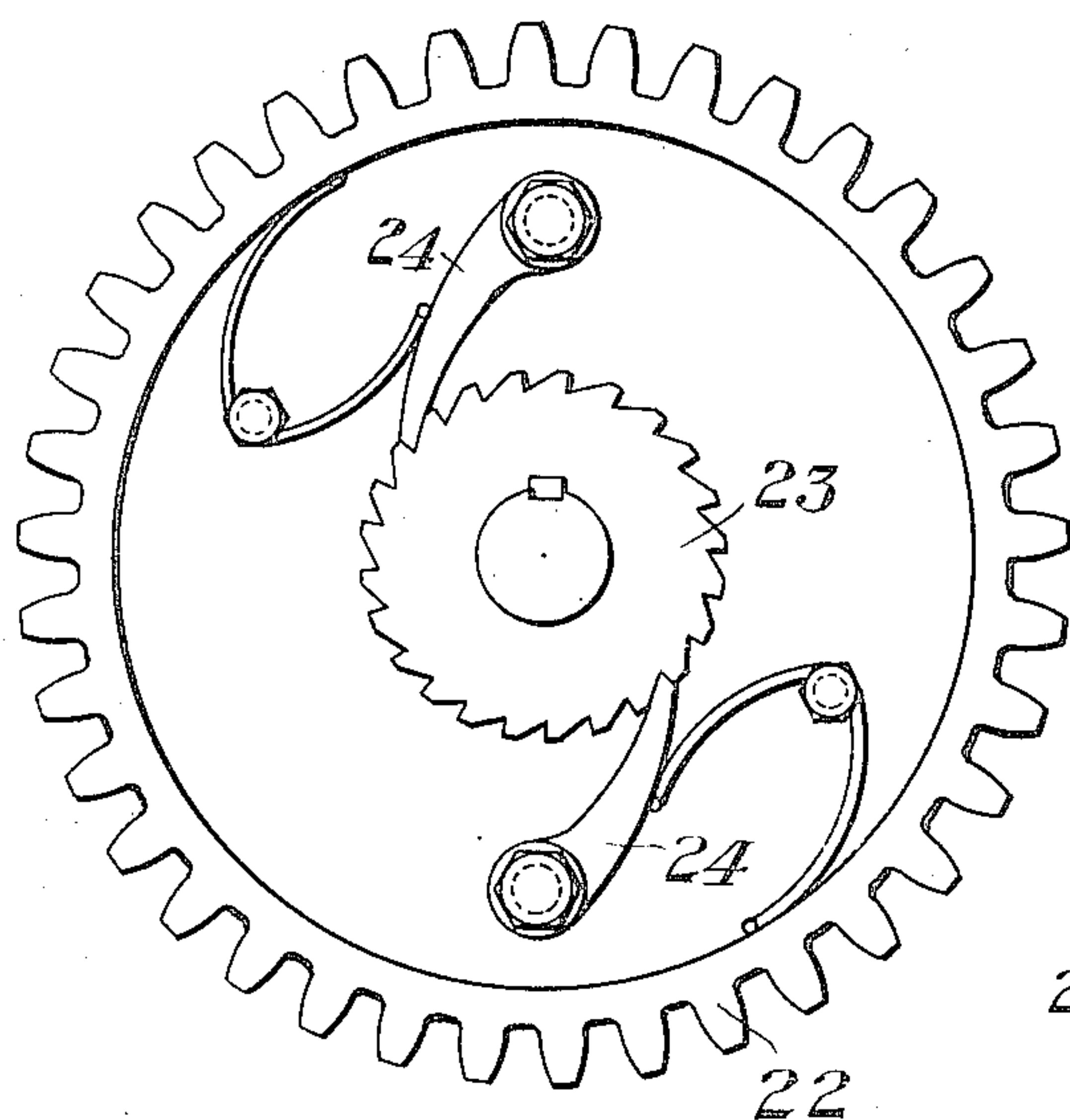
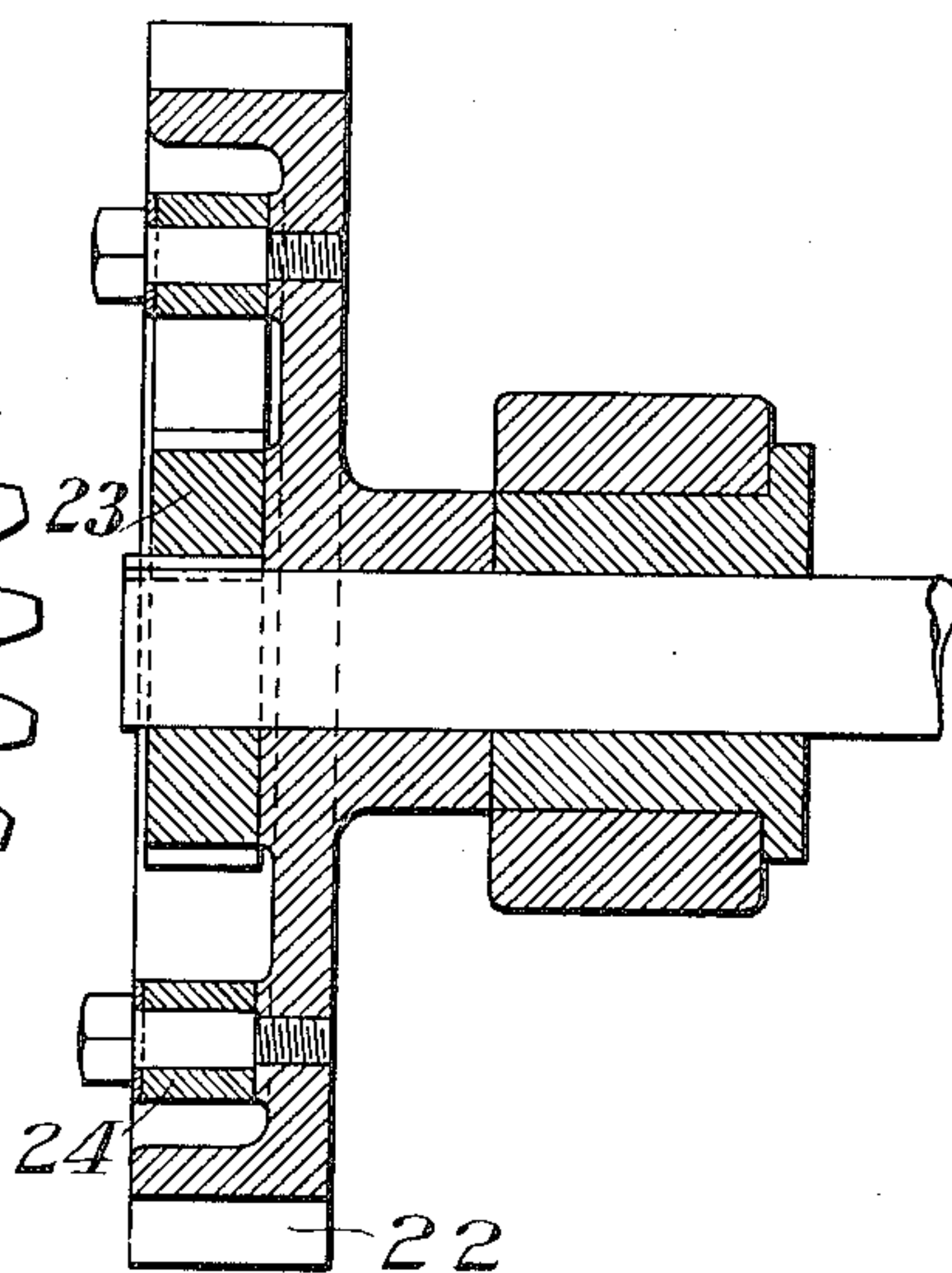


Fig. 4.



WITNESSES

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UNITED STATES PATENT OFFICE.

LAWRENCE C. STEELE, OF WHEELING, WEST VIRGINIA, ASSIGNOR TO
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TIN-PLATE CATCHER.

No. 822,698.

Specification of Letters Patent.

Patented June 5, 1906.

Application filed June 28, 1905. Serial No. 267,383.

To all whom it may concern:

Be it known that I, LAWRENCE C. STEELE, of Wheeling, Ohio county, West Virginia, have invented a new and useful Tin-Plate Catcher, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is an end elevation showing my improved catcher in position on a tinning-pot. Fig. 2 is a front elevation of the same. and Figs. 3 and 4 are detail views of the ratchet-gear mechanism for driving the lower feed-out rollers.

My invention relates to the feeding-out of plates from a bath in which a metallic coating is applied and is designed to provide a simple and improved mechanism which may be used on a duplex pot—that is, one in which the plates are fed up in two series face to face or one in front of the other.

In the drawings, 2 represents the tinning-pot, which is of a proper width to receive two sets of upper tinning-rolls, (numbered, respectively, 3 3 and 4 4.) Above and in line with each upper set of tinning-rolls is a set of feed-out rolls, (numbered, respectively, 5 5 and 6 6.) These feed-out rollers preferably consist of shafts provided with disks 7 of soft material, such as linen or other fabric. The layers of linen are cut to this form, and a number of layers are clamped between metal disks or collars, the fabric projecting beyond the metal disks and contacting with the rising sheets. The bearings for one roller of each feed-out set are movable within the bearing-yoke 8 and are yieldingly pressed toward the stationary bearings of the other roller of the pair by springs 9, having adjusting-screws 10. The yokes for the bearings are preferably mounted on a frame having screw-threaded corner-supports 11, mounted on the pot, thus providing for adjusting of the yoke-frames vertically by the nuts 12. Between the opposite yoke-frames extend cross-bars 13, to which are secured inclined guide-fingers 14 and 15. The outer guide-fingers are provided with flattened heads bolted directly to the cross-bars, while the inner guide-fingers are preferably formed integrally with each other in pairs, each pair consisting of a bar bent to form the intermediate portion and the depending legs. The intermediate

portion is bolted to one of the cross-bars 13. The space between the guide-fingers thus converges or tapers upwardly and directs the upper end of the rising sheet into the nip of the feed-out rollers. Above and between the two sets of lower feed-out rollers is a single upper set of feed-out rollers 16, which are similar in construction to the lower rollers, being provided with separated disks of soft material, or at least having soft material for the facing of the disks. The bearings of one of these rolls are spring-pressed in the same manner as the lower feed-out rollers, and the sheets are guided from each side into this upper and single pair of feed-out rollers by the outer guide-fingers 17 and the inner fingers 18. The fingers 17 are bolted to cross-bars 19 on the yoke-frames, while the tubular guide 18 has its lower portion bolted to the lower yoke-frame. The sheets rising from the upper feed-out rollers pass up between inclined guides 20, which are preferably in the form of separated rods bolted to the cross-bars between the upper yokes. After each sheet is thus fed upwardly between the guides it slides back from the feed-rollers and down the inclined chute 21.

As the upper single pair of feed-out rollers handles the product from both lower pairs of feed-out rollers, it is desirable that this upper pair should be driven at a higher rate of speed than the lower pairs, and I provide suitable connections for so driving the upper rollers at higher speed. In order to prevent the lower feed-rollers from acting as a drag upon the sheet after it engages the upper feed-out rollers, I mount the driving-gears 22 for the lower feed-out rollers loosely upon their shafts. Each of these gear-wheels 22 is recessed on one side to receive a ratchet-wheel 23, which is keyed to the driving-shaft and is engaged by the spring-pressed pawl or pawls 24. The driving gear-wheel 25 (shown in Fig. 1) engages the gear-wheels 22 for each positively-driven gear-wheel of each of the lower pairs. This gear-wheel 25 in the form shown is driven by toothed wheel 26 on a worm-shaft 27, having a worm-wheel 28 engaging a worm on shaft 29, which is provided with a pulley 30, driven by a belt 31 from any suitable power-shaft. I have shown the shaft 32 of one of the upper feed-out rollers as provided with a sprocket-wheel having a

sprocket-chain 33, extending to a larger sprocket-wheel 34 on the shaft of the toothed wheel 25. The shaft 32 has at its opposite end a gear-wheel 35, intermeshing with a corresponding toothed wheel on the shaft of the other upper feed-out roller.

In the operation of the device the tinner feeds sheets alternately through the duplex rolls of the tinning-machine, so that one sheet will engage the feed-out rolls 5 and the next following sheet the feed-out rolls 6. As each sheet passes through the feed-out rolls 5 or 6 its upper end will be deflected and guided into the single upper pair of feed-out rollers, which will draw it forward at a faster speed. The ratchet connections of the lower feed-out gears will then allow the lower feed-out rolls to rotate at a faster speed than that at which they are driven. The sheet is thus drawn rapidly through the upper feed-out rolls and slides back down the chute before the next sheet feeding forward at the slower speed through the other pair of lower rollers is fed forward through the upper rollers.

The advantages of the invention will be apparent to those skilled in the art. The invention provides a simple and efficient feed-out means for duplex pots by which the rising sheets will not interfere with each other, and a large output may be obtained. The feed-out rollers may be changed in form. Other materials may be used for the disks, if such are employed, though I prefer the soft material, as it avoids marking of the sheets. The peripheral speed of the upper pair of feed-out rollers may be obtained either by suitable driving connections or by making them of greater diameter, and many other changes may be made in the form and arrangement of the parts without departing from my invention.

I claim—

1. A feed-out device for duplex coating apparatus, comprising two pairs of feed-out rollers arranged side by side, a single pair of feed-out rollers above them, and guides arranged to feed the sheets from each lower pair to the single upper pair; substantially as described.

2. A feed-out device for coating apparatus, comprising a plurality of lower pairs of feed-out rollers, arranged side by side, an upper pair of feed-out rollers, and guides arranged to feed the sheets from lower pairs to the single upper pair; substantially as described.

3. In a feed-out device for duplex coating apparatus, comprising two pairs of feed-out

rollers arranged side by side, driving connections therefor, a single upper pair of feed-out rollers above and between the lower pairs, and inclined guides arranged to guide the sheets from both lower pairs into the single upper pair; substantially as described.

4. A feed-out device for duplex coating apparatus, comprising two lower pairs of feed-out rollers arranged side by side, a single pair above and between the lower pairs, and means for guiding the sheets from both lower pairs into the upper pair, the upper pair having a higher peripheral speed than the lower pair; substantially as described.

5. A feed-out device for coating apparatus, comprising two lower pairs of feed-out rolls, driving mechanism therefor having connections arranged to allow the rolls to rotate at higher speed than their normal speed, and an upper pair of feed-out rollers having higher peripheral speed than the driving speed of the lower rollers; substantially as described.

6. A feed-out device for duplex coating apparatus, comprising two lower pairs of feed-out rollers, driving connections arranged to turn them at a certain rate of speed, said rollers being arranged to be free to rotate at a higher speed, a single upper pair of feed-out rollers, curved guides arranged to direct the sheets from both lower pairs into the single upper pair, and driving connections arranged to rotate the upper pair at a higher rate of speed than the lower pairs; substantially as described.

7. A feed-out device for coating apparatus, comprising a plurality of lower pairs of feed-out rolls, arranged side by side, an upper pair of feed-out rolls, guides arranged to feed the sheets from the lower pairs to the upper pair, and a pair of inclined guides above the upper pair of rolls and arranged to permit the sheets to slide backwardly over the said rolls; substantially as described.

8. A feed-out device for coating apparatus, comprising a plurality of lower pairs of feed-out rolls, arranged side by side, an upper pair of feed-out rolls, means for guiding the sheet from the lower to the upper rolls, a pair of inclined guides above the upper pair of rolls, and a chute down which the sheets slide; substantially as described.

In testimony whereof I have hereunto set my hand.

L. C. STEELE.

Witnesses:

J. A. FARRELL,
A. H. WILDEBUSCH.