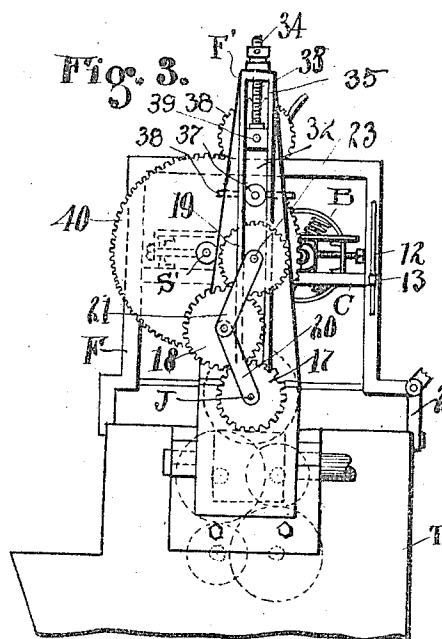
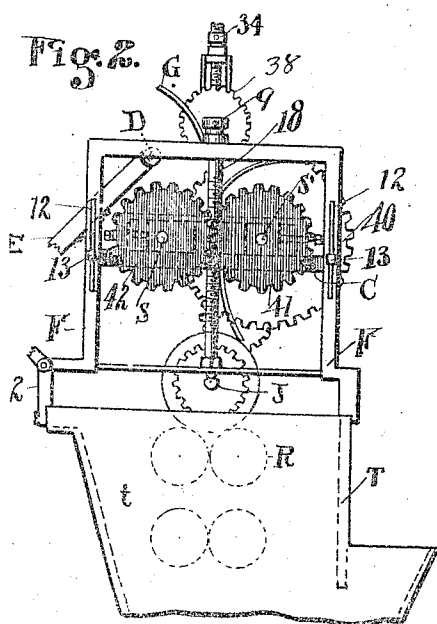
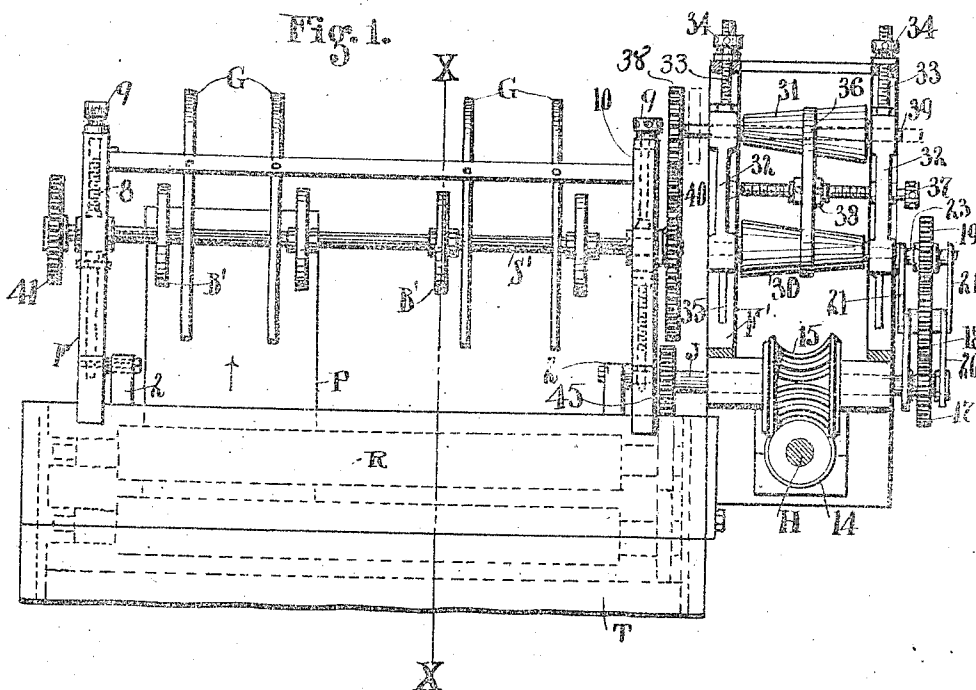


G. J. SZABO.
TIN PLATE CATCHING MACHINE.
APPLICATION FILED OCT. 26, 1908.

970,134.

Patented Sept. 13, 1910.

3 SHEETS—SHEET 1.



ATTEST
E. M. Fisher
R. M. Munn.

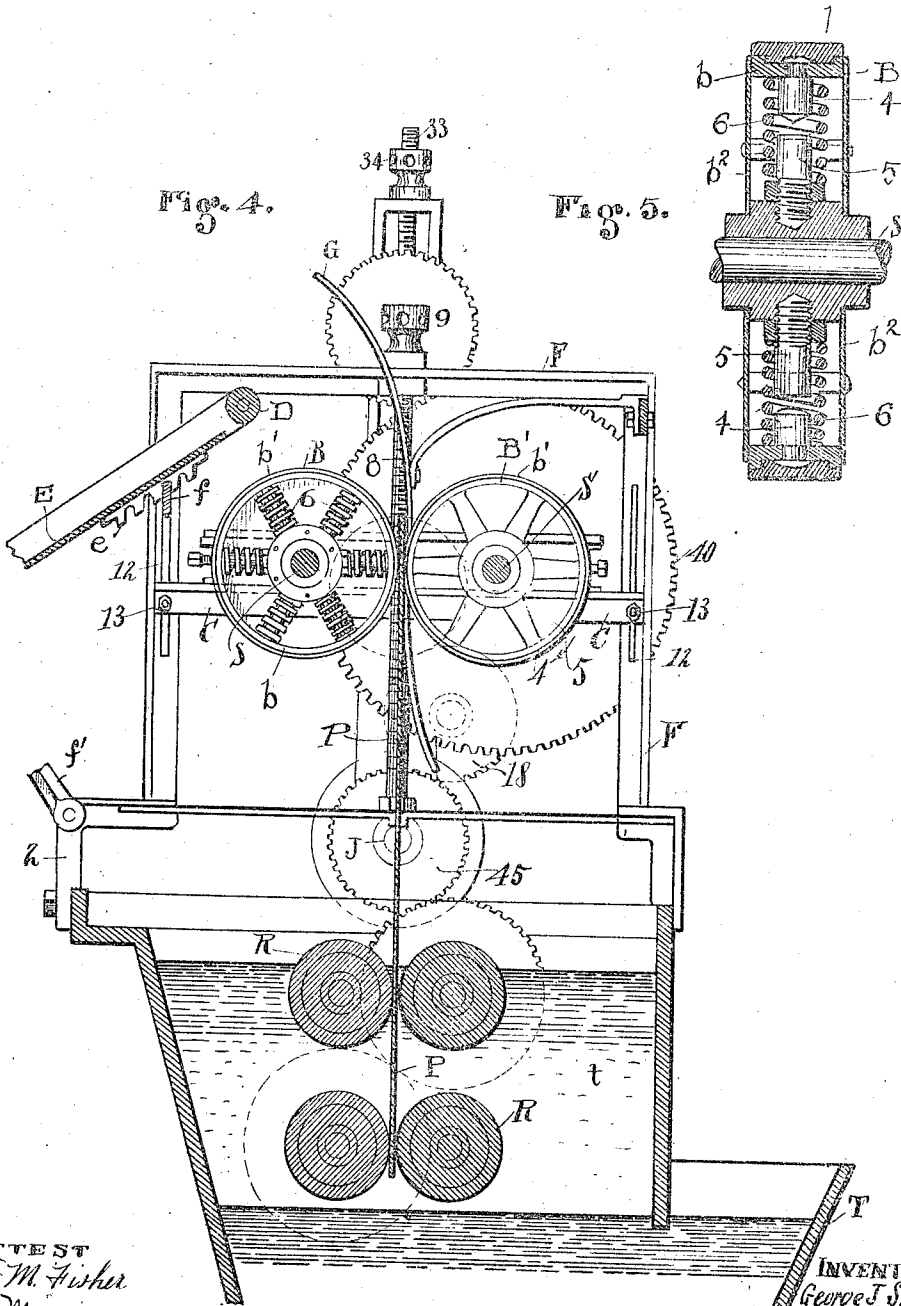
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3 SHEETS—SHEET 2.



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3 SHEETS—SHEET 3.

Fig. 6.

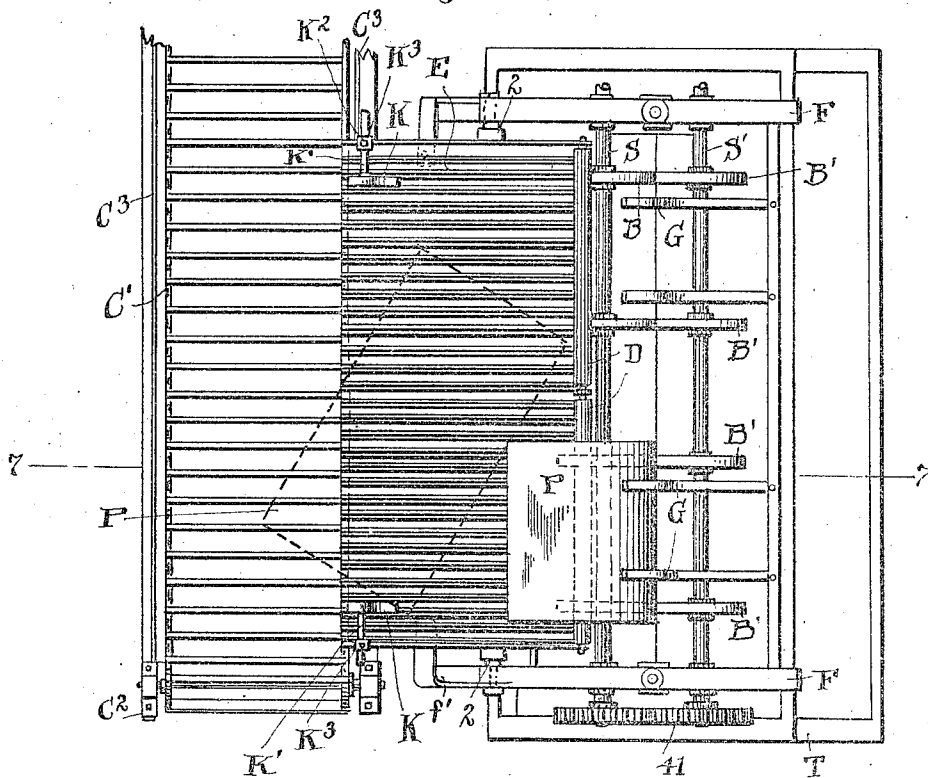
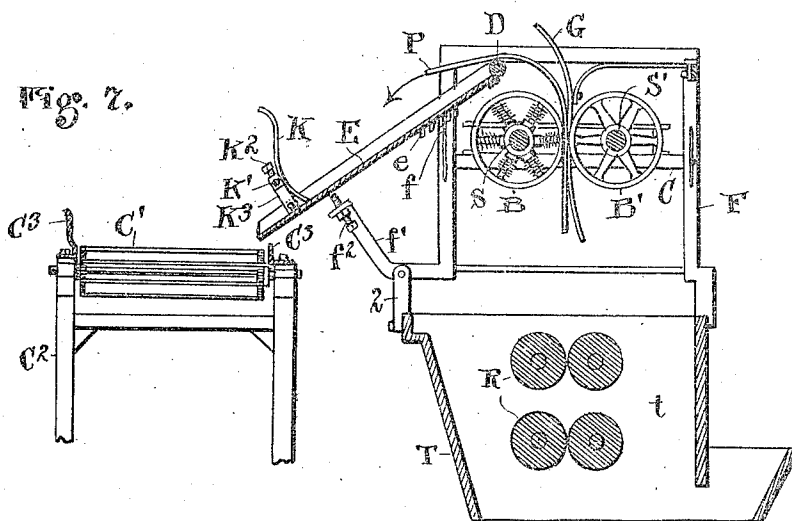


Fig. 7.



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UNITED STATES PATENT OFFICE.

GEORGE J. SZABO, OF PORTVUE, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO JOSEPH TOMCSANYI, OF HOMESTEAD, PENNSYLVANIA.

TIN-PLATE-CATCHING MACHINE.

970,134.

Specification of Letters Patent. Patented Sept. 13, 1910.

Application filed October 26, 1908. Serial No. 459,447.

To all whom it may concern:

Be it known that I, GEORGE J. SZABO, a citizen of the United States, residing at Portvue, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Tin-Plate-Catching Machines, and do declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to a machine to catch tin plates, and the invention consists in a machine constructed and adapted to operate, substantially as shown and described and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation of the machine, and Fig. 2 is an end elevation thereof. Fig. 3 likewise is an end elevation but opposite to that shown in Fig. 2. Fig. 4 is a cross section of the machine on a line corresponding substantially to $x-x$, Fig. 1. Fig. 5 is an enlarged sectional view of one of the yielding catching wheels for the tin plate. Fig. 6 is a plan view of the main part of the machine showing the chute and conveyer and the means for shifting the plate to lie longitudinally on the conveyer. Fig. 7 is a cross section on line 7-7, Fig. 6.

In these several views like reference characters indicate like parts, and the machine as a whole is intended for use in an establishment where tin plates are manufactured and the plates are taken care of during the time the tin is being applied and immediately thereafter, the term plate catcher or catching being usually employed to describe what is accomplished by this machine.

To these ends the parts of the machine comprise a tank T in or at the bottom thereof and a frame F erected and adapted to be tiltingly fixed thereon, and which carries most or all of the operating mechanism. This mechanism has to do more especially with the sheet plate P as it emerges from the tinning tank or bath T and passes up through the oil space or receptacle t in the upper portion thereof and through the two sets of rolls or rollers R between which the plate is carried upward in the usual way. As to the said tank T and oil reservoir or space in the top thereof and the rolls R it is to be understood that I claim no novelty

therefor as such and alone in this case, and the usual construction of said parts may be adopted. Novelty begins, however, in frame F, which is shown as pivoted on short fixed posts 2 and adapted to be bodily tilted on said pivots so as to afford free access to the oil chamber and tank from above when, for any reason, such access shall become necessary. Otherwise said frame is seated on said tank.

Now, in handling tin plates as they emerge from the molten bath in tank T and pass thence upward between rolls R it is of the greatest importance that said plates be not marred nor otherwise injured upon their surface in such subsequent handling; and while various devices have been employed heretofore to avoid this objection and to promote the delivery of the plates with unimpaired surfaces, I am not aware that any of them have been really satisfactory in operation and effect, and especially am not aware that any such devices for this purpose as constitute my present invention have ever before been known or used. Now, taking up this portion of my improvement in detail, it will be seen that the plates P pass from rolls R to wheels B and B', a series of which are mounted at intervals apart on each shaft S and adapted to engage and carry or raise plates P by direct contact therewith and deposit them on such higher level and in such manner and relation that said plates can be taken care of after passing over discharge rolls D, or their equivalent, in any suitable way, but preferably as hereinafter described. As to said wheels B, it will be seen that they have bands or rims b of greater or less width and radial spokes 4 and 5, or rather that short stubs of spoke sections 4 are on said bands and longer spokes or sections 5 on the hubs of the wheel, and spiral springs 6 encircle each spoke as a whole and exact outward pressure against said band while at the same time they hold the band in right working relation over the wheel and under spring pressure against the plates. The said band, wheels B provide a yielding contact for the plates P and are arranged oppositely to integrally formed wheels B'. Separate sets of said wheels are provided on two parallel shafts S and are near enough together to have at least two sets of said wheels engage a single plate, even if it be of narrow width.

Wider plates might be engaged by three or more sets of wheels. The tension of springs 6 is such as to produce the desired lift or feed of the plate but yet not enough to injure the face of the plate, and thus the safe handling of the stock is assured. As a further prevention of injury to the plates, band 5 of wheel B and the band of wheel B' are provided with encircling rings b' of tin. Plates or disks b² are also fixed upon the hub 10 of wheels B to hold the band against lateral movement but these plates are otherwise free to permit play of the band in respect to shaft S.

The shafts S are supported on cross bars 15 C at their ends, which are vertically adjustable on or in main frame F, and screw rods 8 and nuts 9 serve to make such adjustment to accommodate the elevation of said wheels to the length or elevation of the plate in respect to rolls R. Such elevation and adjustment is further accommodated by slots 12 in the upright posts of frame F, while bolts 13 further help to fix adjustments. Guides G 25 coöperate with wheels B in directing the plates over roller D to the chute E, and thence to conveyer or belt C. Other stays or guides may be used here and there to promote the safe delivery of the plates as may be deemed desirable.

The adjustments and accommodations 30 hereinbefore provided are found necessary in order to maintain perfect working operations for long periods of time. Thus, it occurs in the operation of the machine that 35 the rolls R have to be trued up occasionally by reason of unevenness developing on their surfaces, and in doing this said rolls become reduced in cross section. Provision 40 is therefore usually made for lateral adjustment in their bearings to take up such wear and reduction, but a reduced diameter effects their speed of rotation. Hence a corresponding speed accommodation must be 45 provided for in the sheet-engaging wheels B, so that they will be timed to turn in exact unison with rollers R. This requires somewhat peculiar transmitting mechanism and which consists in this instance in a series of three gears 17, 18 and 19, or their 50 equivalent, proceeding from shaft J and having intermediate gear 18 supported in more or less extensible angular relation to the other two by links 20 and 21, thereby 55 permitting the upper gear 19 of the series of three to be more or less raised or lowered and maintaining operating relation therewith of the connecting gear 18 in any and all cases. The links 20 connect with shaft 60 J at one end, and links 21 with shaft 23 which carries gear 19, and at their other ends said links connect with the spindle of wheel 18. Now, speed variation or variable- 65 variableness in the sizes and speed of rota-

tion of rollers R, whence gear connection is made with wheels B. To these ends I provide two reversely tapered friction rolls 30 and 31, supported at their ends in a frame 32 adapted to be vertically adjusted in frame F' by means of screws 33 and nuts 34, suitable engagement being provided for said frame 32 with or in slots 35 in said frame F'. A drive band 36 operatively unites said rolls 30 and 31 and is adjusted for working position according to the speed wanted by means of hand controlled screw 37 and a band engaging and confining device 38 mounted on said screw. Power is derived through roll 30 to roll 31 by band 36, and transmitted by gear 38 on shaft 39 carrying said roll 31. 80 This shaft, 39, is lengthwise adjustable to disengage gear 38 when occasion requires and occurs when frame F is tilted, as hereinbefore described, it being understood that frame F' is rigid with the base. The gear 38 meshes with large gear 40, mounted on shaft S' and which carries a gear 41 at its 85 opposite end. This gear meshes with a gear of exactly the same size on the opposite shaft S, so that the wheels B on said shafts rotate exactly alike. The roller D is shown as an idler in this instance, but it may be geared up with the power mechanism if preferred. Power is communicated to feed rollers R by or through gear 45 on shaft J. 95

It is to be understood that I do not confine myself to the exact proportions of wheels or rolls B and B' on shafts S and S', as obviously these rolls may have a wider 10 engaging surface if preferred and even take on the form of rollers more or less like feed rollers R. Other details also may be varied and not depart from the spirit of the invention.

Now, when plate P is carried upward and 10 delivered to inclined chute E, it will slide by gravity down the same until it rests on conveyer C' which will carry it away. Chute E may have an open bottom of slats 110 or it may be corrugated or ribbed as shown to lessen the number and area of contact surfaces with the plate, and said chute is preferably constructed as light in weight as the work will permit and is a detachable 115 and removable part of frame F upon which it is hooked by any one of the series of fingers e when engaged with cross bar f. Arms f' on the frame have set screws f² which bear against the bottom of chute E 120 to adjust the angle of the same more or less in respect to conveyer C'. This conveyer is usually of suitable width to carry plates P of varying widths but as said plates differ very greatly in length, I have provided 125 chute E with turning devices K, one at each side, wherewith the plate will engage at its end edge near one longitudinal side edge thereof on the down travel of the plate. These devices each comprise a curved strip 130

K secured to a rod K' which is adjustably held by a set screw K² in an adjustable bracket K³ on chute E. Thus, when a plate P is fed into the chute, be it at one side or the other, one of said devices K will interrupt it in its downward movement engaging it at one side of its longitudinal center, and the plate will turn of its own accord to substantially right angles to the position it formerly occupied and be deposited in this position on conveyer C'. The dotted lines in Fig. 6 represent a plate P in this turning movement. Frame C² of conveyer C is provided with lengthwise guards C³ at either side to prevent plate C from riding off the conveyer when first transferred thereto and thereafter.

What I claim is:

1. In a machine for handling tin plate, two series of rolling members opposite each other having spring pressed bands about their periphery adapted to engage the plate between them.

2. In a tin plate machine, two series of rolling members oppositely arranged to catch and carry the plate and shafts supporting the same, said members having bands about their periphery and spokes with springs to cushion the bearing of the bands upon the plate.

3. A tin plate catching machine having a series of catching members with two part radial spokes, springs about said spokes and bands about said wheels.

4. A tin plate catching machine having feed rollers in its base and carrying rolls above the same, in combination with speed varying mechanism adapted to vary the speed of said rolls.

5. The combination of the base and the frame thereon and the plate catching rolls mounted on said frame, speed varying mechanism for said catching rolls and a separate frame in which the same are mounted upon said base, and means to operatively connect and disconnect said speed varying mechanism with said plate catching rolls.

6. A tin plate catching mechanism having oppositely disposed catching members and a frame adapted to be tilted carrying the same, in combination with a fixed frame and speed varying mechanism for said rolls adjustably mounted on said fixed frame and adapted to be operatively disconnected from said rolls, said speed varying mechanism comprising oppositely tapered rolls and a belt over the same.

7. In a tin plate catching machine, a set of wheels to catch and feed the plates comprising a rotatable supporting body and an endless band and springs to yieldingly support the band thereon, means on said body to prevent lateral movement of said band, and a plate gripping face upon said band composed of relatively soft metal.

8. In a tin plate catching machine, the combination of a conveyer, with means to lift the plates vertically and discharge the same horizontally upon the conveyer, and means to turn said plates crosswise in their travel to the conveyer.

9. In a tin plate catching machine, the combination of means to catch and lift the plates when tinned, a gravity chute to receive the plates, and means to intercept said plates to turn the same crosswise in their descent down said chute.

10. In a tin plate catching machine, the combination of means to catch and lift the plates vertically and to discharge the same laterally and horizontally, an inclined chute to receive said plate, and a plate engaging finger mounted within said chute to engage the plates at one side of their longitudinal center, whereby the plates are turned in their travel.

11. In a tin plate catching machine, the combination of means to catch and discharge the plates at the side thereof, with an inclined chute to receive the plates, and an adjustable member within said chute, adapted to engage the plate at its end edge to turn the same in its descent.

12. A catcher for tinning pots, comprising a pair of parallel shafts, a plurality of circular rolling members carried by each of said shafts, the rolling members of one shaft being in opposing relation to those of the other, and having peripheral spring-pressed circular non-flexible bands for exerting a yielding pressure upon plates interposed between the opposing rolling members.

13. A catcher for tinning pots, comprising a pair of parallel shafts, a plurality of rolling members carried by each of said shafts, the rolling members of one shaft being in opposing relation to those of the other, and having peripheral non-flexible plate-engaging bands, and yieldable elements interposed between the shaft of the last mentioned rolling members and their bands whereby the latter are caused to exert a yielding gripping pressure upon a plate rising from the rolls of the tinning pot between the bands and the opposing rolling members.

14. A catcher for tinning pots, comprising a pair of parallel shafts, a plurality of pairs of rolling members carried by each shaft, the rolling members of one shaft being in opposing relation to those of the other, one rolling member of each opposing set having a circular spring-pressed non-flexible band which exerts a yielding gripping pressure upon a plate interposed between it and the opposing rolling member.

15. A catcher for tinning pots, comprising a pair of parallel shafts, a plurality of rolling members arranged in pairs carried by each shaft, the rolling members of one

shaft being in opposing relation to those of the other, each rolling member of one shaft having a circular yieldingly mounted non-flexible band and means for forcing said band outwardly whereby said band is adapted to exert a yielding pressure upon a plate rising from the rolls of the pot between it and the opposing rolling member.

16. A catcher for tinning pots, comprising a pair of parallel shafts, a plurality of rolling members carried by each shaft, the rolling members of one shaft being in op-

posing relation to those of the other, each rolling member of one shaft having a peripheral band, and yieldable elements interposed between the shafts of said rolling members and the band. 15

In testimony whereof I sign this specification in the presence of two witnesses.

GEORGE J. SZABO.

Witnesses:

HENRY BARACS,
E. M. FISHER.