

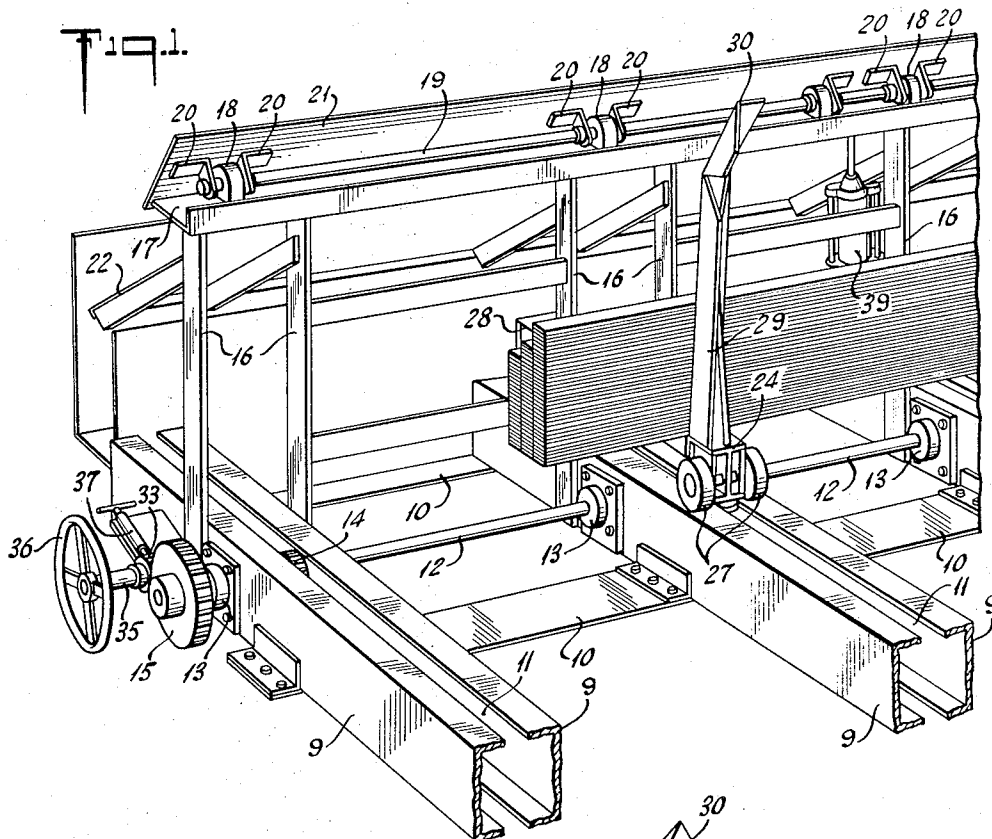
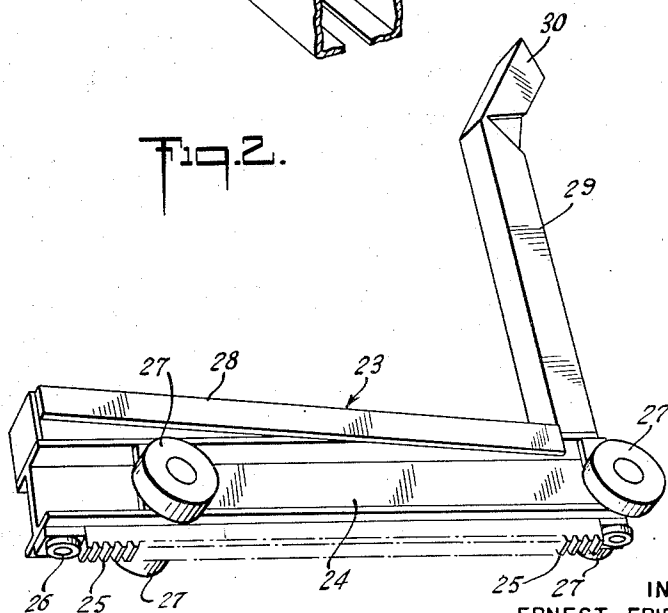
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E. FRIED
STRIP STACK DEVICE

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3 Sheets-Sheet 1



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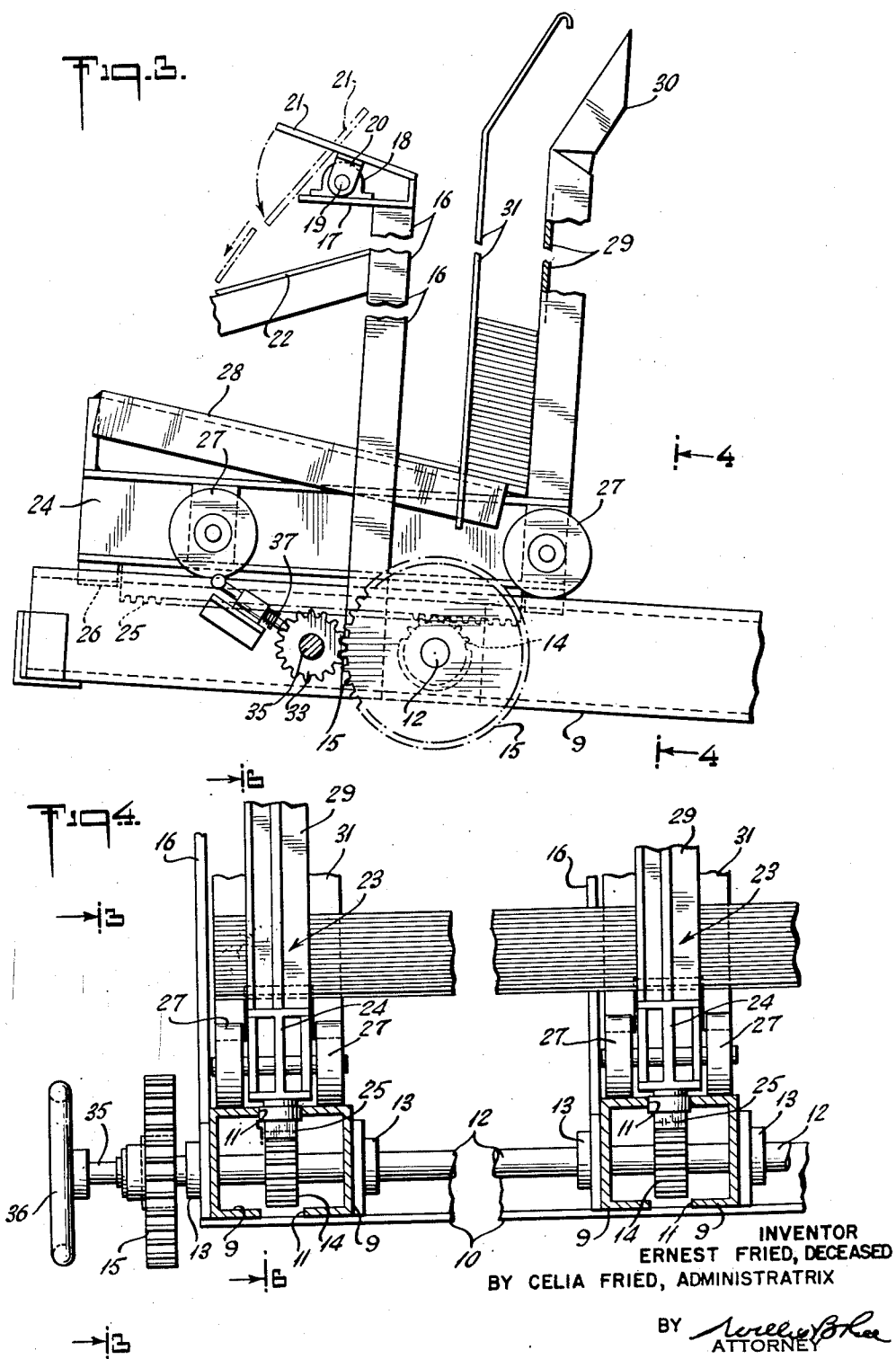
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Fig. 5.

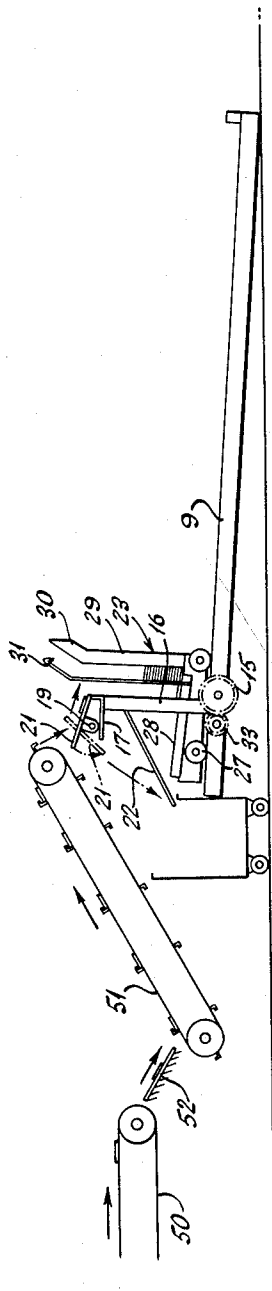
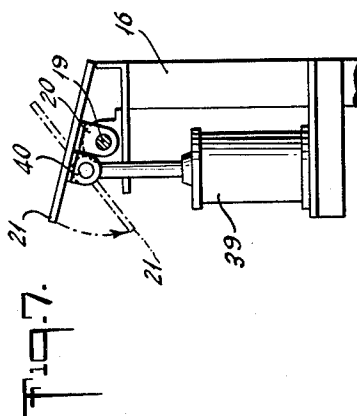
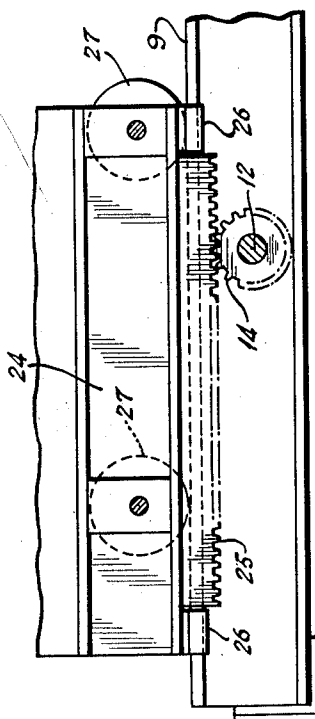


Fig. 6.



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STRIP STACK DEVICE

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3 Claims. (Cl. 214—8)

This invention relates to a strip-stacking machine.

It is the object of this invention to provide a machine which will receive strips as they are delivered from a shearer and stack them up in an orderly pile to facilitate their handling, either for shipment or use.

It is the further object to provide a machine of the character described which will receive the cut strips and guide them to fall accurately, one on top of the other, but which, when the pile reaches a certain height, may be used to pile a new stack, adjacent to the one already formed, so that a plurality of stacks may be thus formed successively.

It is a further object to provide a machine which can be made to reject a strip of irregular or improper width, as for example, one which may be cut from an edge piece of the sheet or which may be cut by an improper setting of the machine.

The machine contemplates the receipt of the successive strips upon a movable carriage and the movement of the carriage by the width of the strip, when each stack is formed.

It is a further object to provide a carriage in the form of a plurality of spaced carriage members together with means for moving these members in unison whereby the strip may be made to fall upon, and to be supported by a plurality of said members at the same time, but the plurality of members may nevertheless, be moved completely in unison to function as though they were a single truck or carriage.

It is a further object to provide a machine having means which may be set to move the carriage outward at the close of each stacking, by the proper amount, to receive the next stack.

Other objects will be in part obvious and will in part appear herein.

In the drawings, Fig. 1 is a perspective view of the machine taken from the rear, the nearest carriage member being omitted. Fig. 2 is a perspective view of one of the carriage members. Fig. 3 is a side elevation of the device shown in Fig. 1 from the direction of 3—3 in Fig. 4. Fig. 4 is a rear elevation thereof from the direction 4—4 of Fig. 3. Fig. 5 is a side elevation showing the relationship between the stacker and the conveyors which lead to it. Fig. 6 is a fragmentary view taken on the line of 6—6 of Fig. 4. Fig. 7 is a detail of the reject mechanism.

In the drawings the number 9 represents a plurality of horizontal hollow track members extending in parallel relation near the ground, held in spaced relation by strips 10. Each one of these track members may be composed of two channel irons, with the flanges facing each other as shown, spaced apart to leave a slot 11. A shaft 12 extends transversely through all of the track members, preferably being journaled at 13 in each of them, and fixed upon this shaft within each track member is a pinion 14. A drive gear 15, on the end of the shaft 12, is used to drive the shaft, as will be described later.

A plurality of legs 16 extend upwardly from the track members near one end thereof, and these support, at their upper ends, a table 17 on which are mounted bearings 18 in which is journaled a shaft 19. Fixed upon this shaft 19, are brackets 20 which support an apron 21 which by rotating the shaft 19 may be caused to overlie the table 17 and slant downwardly and outwardly to cause strips lying upon the table to slide outwardly over the edge of the apron or to be tilted downwardly and for-

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wardly as shown by dotted lines in Fig. 3, so that any strip resting upon the apron will fall downwardly as shown in the dotted line position of Fig. 3. The strip will not be fed to the stacking unit over the right hand edge of the apron, as is usual, but on the contrary will be thrown backwardly as will be clearly seen in Fig. 1. Beneath the table 17 is an inclined deflector 22 to receive rejected pieces sliding off the apron 21, and throw them out of the machine, as will be seen more clearly in Fig. 5.

The carriage itself comprises a plurality of members 23 such as shown in Fig. 2, each comprising an I-beam 24, carrying on its underface a rack 25, with the teeth extending downwardly. This rack preferably runs almost the entire length of the I-beam, and is attached to the I-beam by screws 26. The rack 25 is of a width to fit in the slot 11, and the rack 25 slides down into the slot 11 to the point where the teeth engage a pinion 14.

Rollers 27 are mounted upon the I-beam 24, extending just slightly below the lower flange of the I-beam, as will be seen more clearly in Fig. 4, so that the carriage members 23 may move on the track member 9 with the minimum of friction whenever the shaft 12 is rotated.

The upper face of the carriage members 23 is inclined forwardly. This may be accomplished by attaching to each carriage member 23 a plurality of strips 28 having their upper face inclined.

At the rear end of each carriage member 23, there is provided an upright post 29, which may be inclined somewhat to the rear as shown in Fig. 3, so that when strips fall, they will tend to slide toward the upright post 29. The top of the post 29 is bent still further to the rear as shown at 30, to deflect the strips into position if they, by accident, should strike it. The leg 16 is also inclined, and this leg 16 and the post 29 are substantially parallel.

In operation the carriage members 23 are moved to the point where the space between the leg 16 and the post 29 is substantially equal to the width of the strip, and held in this position until the stack is formed between them. Thereafter the carriage members 23 are moved backwardly in unison by slightly more than the width of the stack, and a separator 31, which may be a relatively thin strip of sheet metal, bent as shown, to conform to the forward face of the post 29—30, is then inserted against the forward face of the stack already formed, and another strip is dropped between it and the legs 16, to hold the separator 31 in place. Thereafter, the machine continues in operation to form a new stack between the separator and the legs 16.

When the second stack is formed, the machine may be moved forward again, a like amount, and the operator may remove the separator 31, and insert it in front of the second stack, or he may leave it in place and insert a new separator. This operation may be continued until the full length of the carriage member 23 is filled with stacks.

When the carriage members 23 are completely filled, they may be moved out to the back end of the track member 9, and the stacks may be removed by a lifting truck, and carried to any point desired. By reason of the construction here shown, as soon as the weight of the strips is taken off the carriage members 23, by the lifting truck, the carriage members themselves, may be raised out of engagement with the pinions 14, and removed from the track members 9, to permit the strips to be carried off in the lifting truck. Thereafter, the carriage members 23 may be replaced with the proper teeth enmeshed with pinion 14. The drive gear 15 is itself operated by a pinion 33, the pinion being considerably smaller than the gear, to give leverage to the turning of the shaft 12 to move the carriage member 23. A hand wheel 36 is provided on the shaft 35 to turn it, and a spring catch 37 engages the teeth of the pinion 33, to hold it in any position to which it may be set.

The apron 21 may be tilted by means of a piston and cylinder 39, the rod of which is pivoted to the apron 21, at 40, and the piston and cylinder 39, may be operated from any convenient point upon the machine, at will. It will be obvious, also, that the piston and

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cylinder 39 may comprise a solenoid for the same purpose.

Fig. 5 illustrates the manner in which the device is operated in conjunction with the other mechanism, for feeding the strips from the shearer. For example, at 50 there is shown a conveyor leading from the shearing mechanism, which may deliver the strips on to an inclined conveyor 51, thru the medium of a slide plate 52. The conveyor 51 raises the strips and deposits them on the apron 21, from which they slide down into position, as we have already described.

Should, however, the operator notice that the strip which is being fed to the stacker, is irregular, he may operate the piston and cylinder 39, to tilt the apron 21 to reject that particular strip.

What is claimed is:

1. A device for stacking flat metal strips comprising a conveyor for feeding strips having a delivery end, a plurality of parallel tracks extending out from below said delivery end, a carriage unit mounted upon each track, each unit having a vertical post on the end remote from said conveyor, an upright fixed to each track substantially parallel to said post whereby on movement of said carriage upon said track the distance between the post and upright may be varied, the said floors of said different units being completely separate whereby the bottom of a pile of strips resting on said units is accessible to a lifting device to be lifted from the units, said conveyor being positioned to deliver strips onto the floor of said units through the said space each of said carriages having a downwardly facing rack upon its under face, and a

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shaft transverse to said tracks having a plurality of gears thereon, one gear being in position to co-operate with each of said racks whereby the movement of said units may be completely coordinated.

2. A device according to claim 1 having a tilting table in position to receive strips from said conveyor and tiltable to deliver said strips either between said post and upright for stacking, or through another pathway for rejection.

3. A device according to claim 2 in which the conveyor is arranged to deliver the strips to the table at spaced intervals to permit inspection.

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