

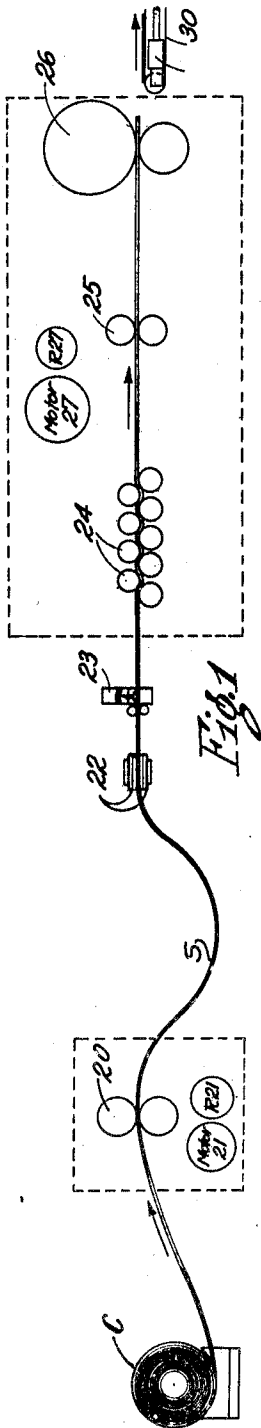
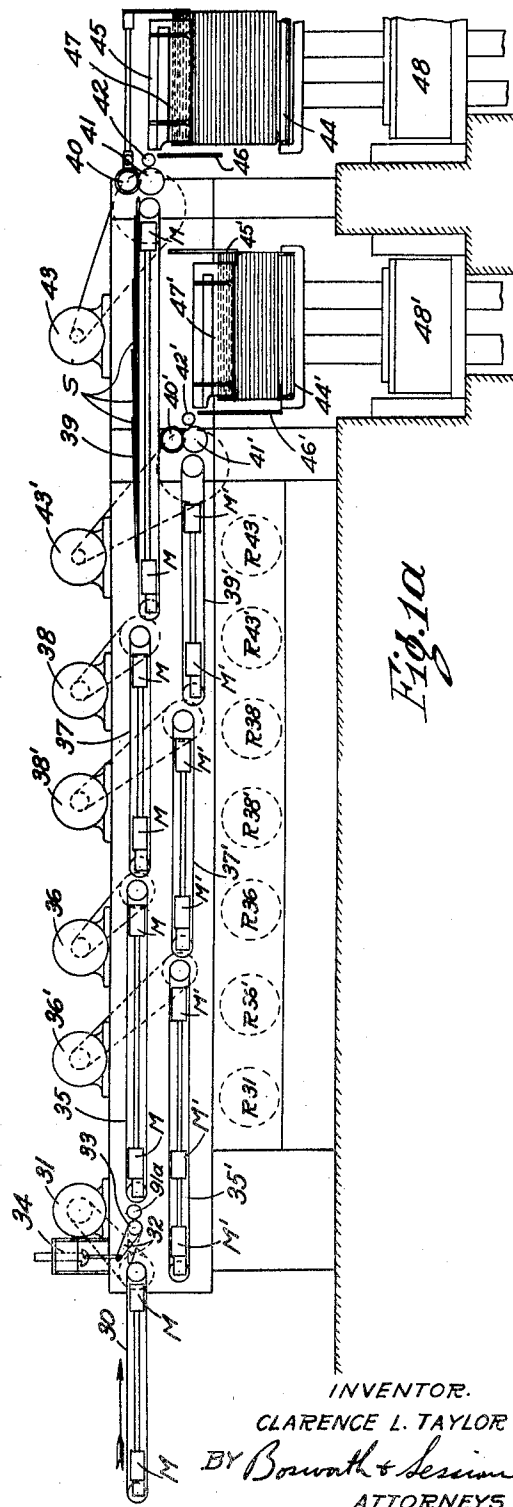
Sept. 7, 1943.

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2,328,860

CONVEYER STRUCTURE

Original Filed Jan. 21, 1939 6 Sheets-Sheet 1



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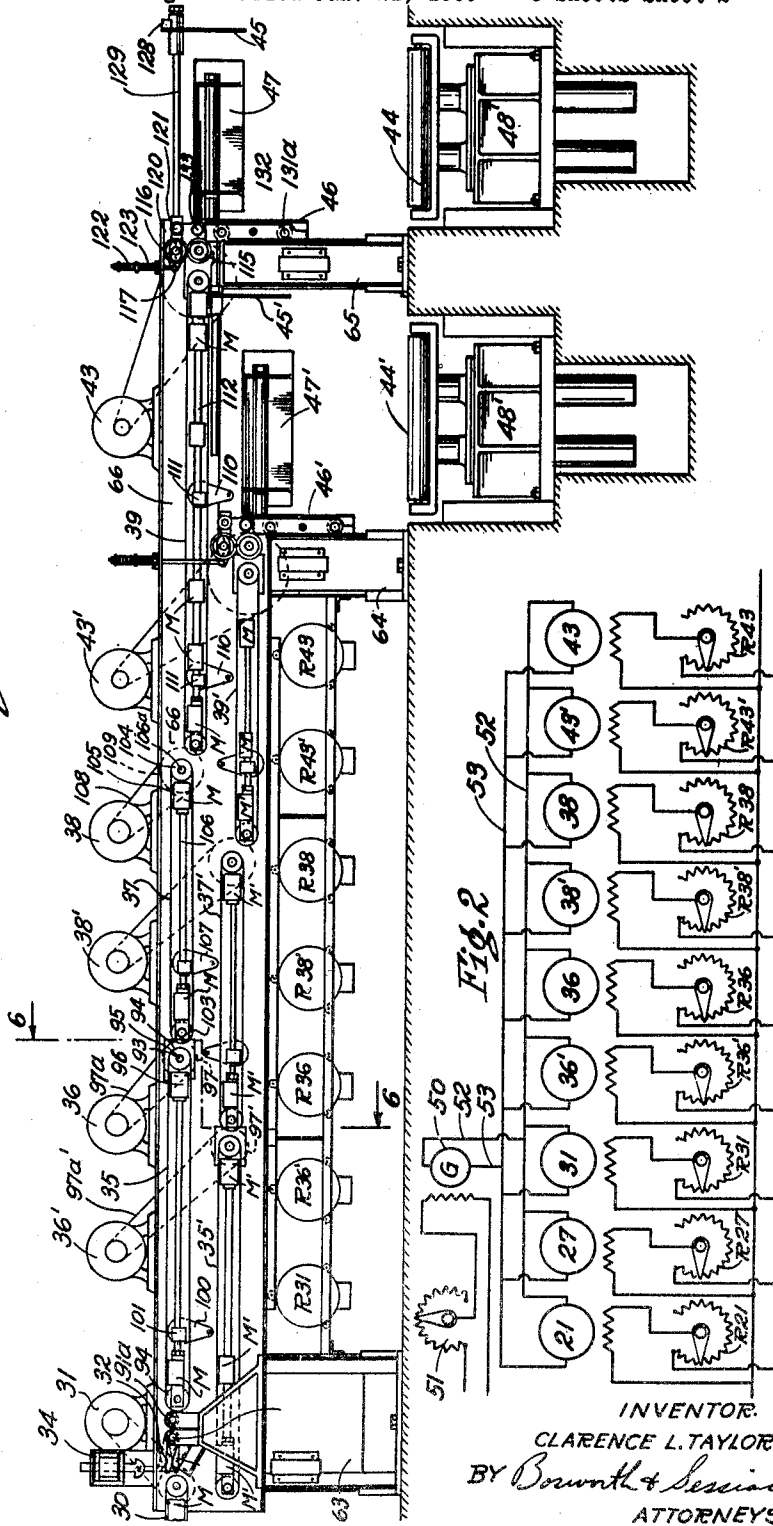
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Original Filed Jan. 21, 1939 6 Sheets-Sheet 2

Fig. 3



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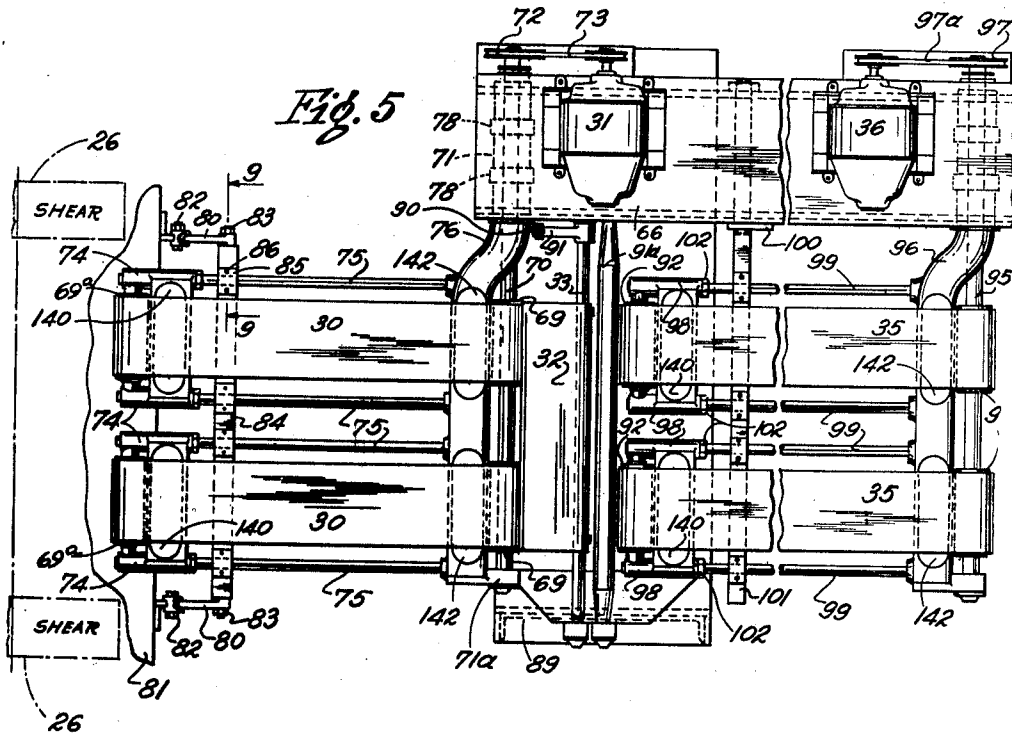
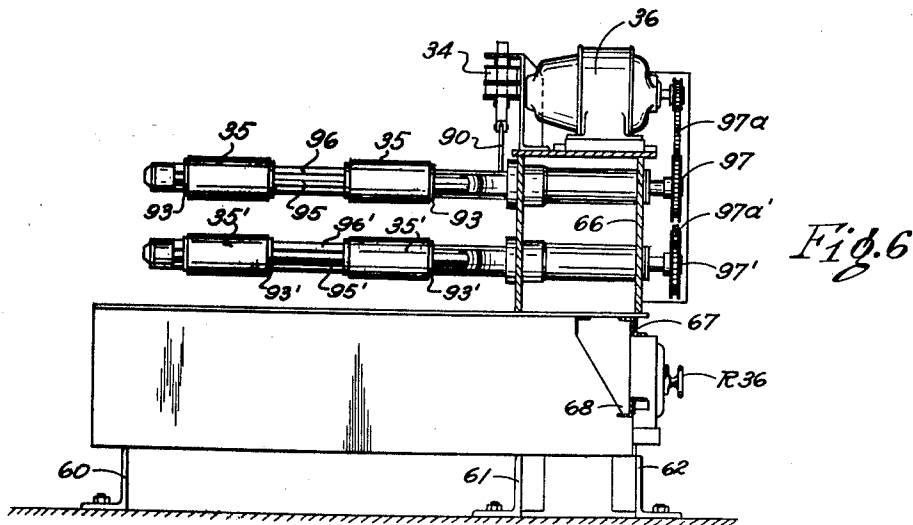
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CONVEYER STRUCTURE

Original Filed Jan. 21, 1939

6 Sheets-Sheet 4



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CONVEYER STRUCTURE

Original Filed Jan. 21, 1939 6 Sheets-Sheet 5

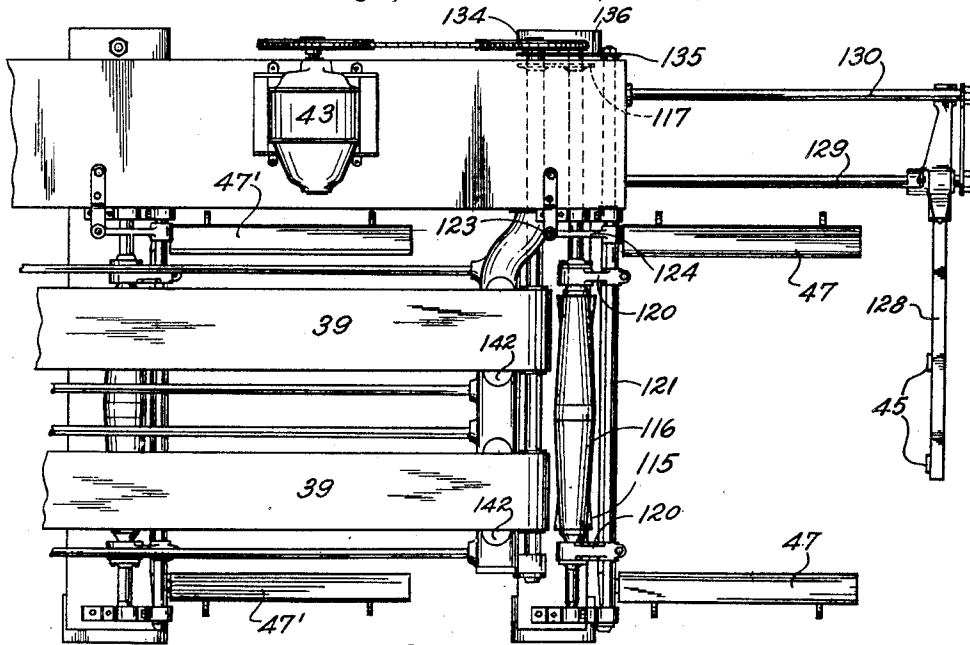


Fig. 7

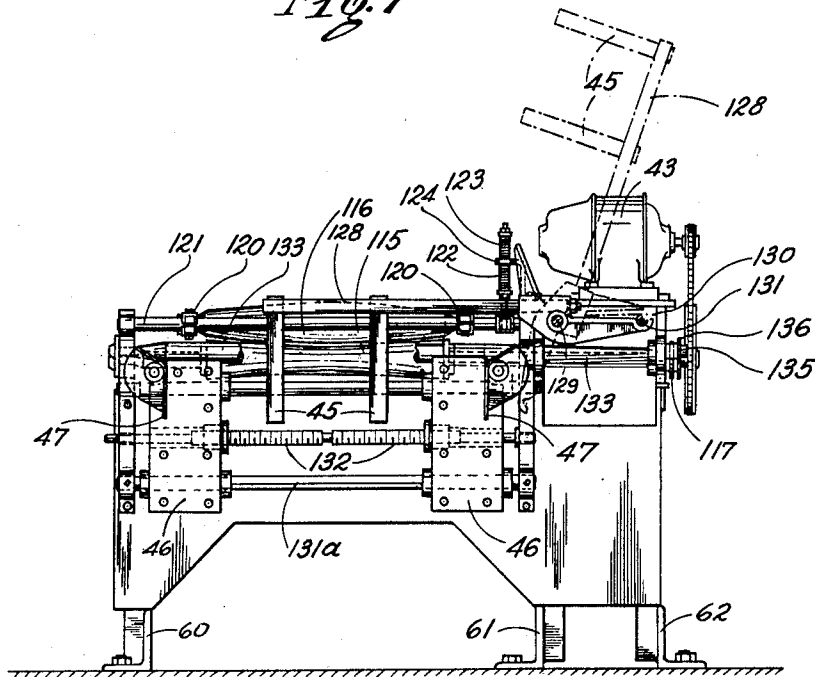


Fig. 8

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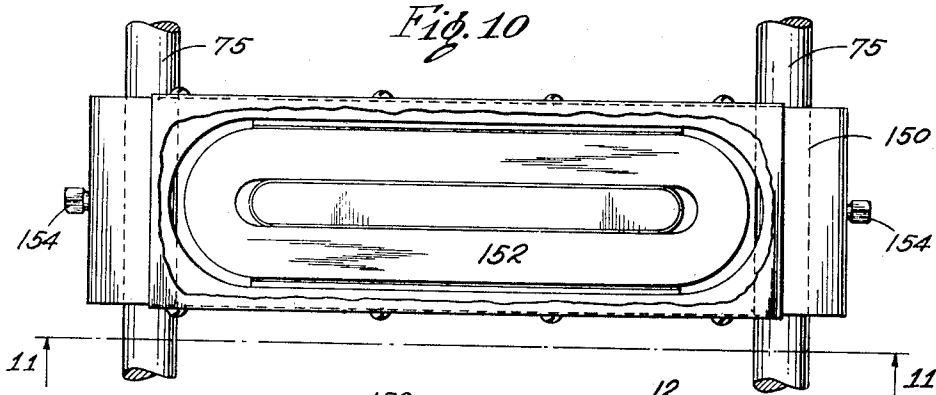
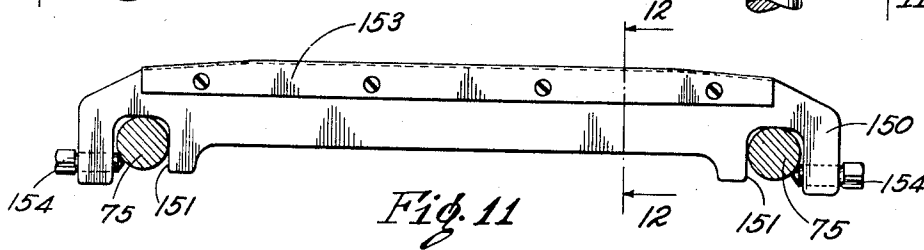
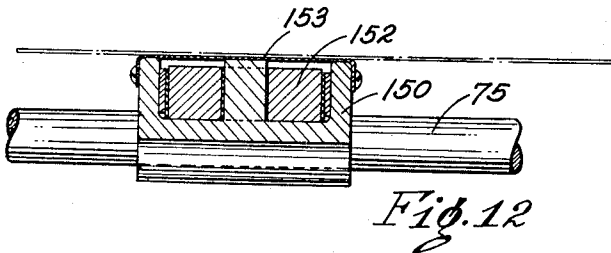
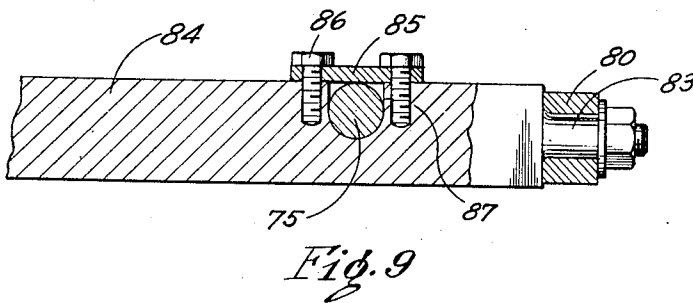
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CONVEYER STRUCTURE

Original Filed Jan. 21, 1939

6 Sheets-Sheet 6



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UNITED STATES PATENT OFFICE

2,328,860

CONVEYER STRUCTURE

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Original application January 21, 1939, Serial No.
252,152. Divided and this application June 12,
1942, Serial No. 446,684

8 Claims. (Cl. 198—41)

This invention relates to classifiers for gaug-
ing sheet materials and separating the gauged
sheets in accordance with variations in their
thickness. The invention is described herein in
its application to the production of tin plate but
it is to be understood that the invention may
be used in conjunction with other materials and
that the description of the preferred form of
my invention contained herein is given only by
way of example. This application is a division
of my application Serial No. 252,152, filed Jan-
uary 21, 1939. The present application contains
claims directed to structural features of the clas-
sifier. The arrangement of magnets disclosed
herein is claimed in my present application
aforesaid, while the mechanism whereby the
sheets are accurately piled without being dam-
aged is claimed in my copending application
Serial No. 446,683 filed of even date herewith.

Users of tin plate require that the thickness
of the sheets furnished them be maintained
within very close tolerances. Sheets that are
too thick or too thin are likely to result in de-
fective products or in the breaking of the dies
of the can making machinery. Therefore it is
essential for manufacturers of tin plate accu-
rately to classify the sheets in accordance with
their thickness to insure delivery of sheets of
proper gauge to their customer. For the sake
of economy it is essential that the classifier ap-
paratus operate at high speed without damag-
ing the sheets and that the classifier accurately
pile or stack the sheets so that they can be
handled conveniently. Accordingly it is a gen-
eral object of my invention to provide a classi-
fier which will meet the above noted require-
ments. Another object is to provide a classi-
fier of simple and sturdy construction, and in
which the parts are readily accessible for re-
placement and repair. A further object is to
provide such a device wherein the controls are
all conveniently grouped on one side of the ma-
chine. Another object is to provide a structure
embodying a plurality of conveyer belts in which
the belts are all readily accessible from one
side of the machine.

Various other objects of my invention will be-
come apparent from the following description
of a preferred embodiment thereof, reference be-
ing made to the accompanying drawings. The
essential characteristics are summarized in the
claims.

In the drawings, Figures 1 and 1a diagram-
matically illustrate a classifier made in accord-
ance with my invention showing the arrange-

ment of the associated equipment; Figure 2 is
a diagram showing a preferred wiring arrange-
ment for the electrical controls for classifier
and associated equipment; Figure 3 is a side
elevation of the classifier, some of the parts being
omitted for convenience of illustration; Figure 4
is a fragmentary side elevation on an enlarged
scale showing the entering end of the classifier;
Figure 5 is a plan view of the feed end of the
classifier showing approximately the same por-
tion of the machine that is illustrated in Figure
4; Figure 6 is a vertical section taken along line
6—6 of Figure 3; Figure 7 is a plan view of the
delivery end of the classifier; Figure 8 is an
end elevation of the delivery end; Figure 9 is
a detail of a portion of the belt supporting me-
chanism; and Figures 10, 11 and 12 are details
illustrating the construction of the magnets em-
ployed in the classifier to prevent the sheets
from flying through the air.

My apparatus is particularly adapted for use
in conjunction with modern tin mills of the con-
tinuous type in which the metal is delivered
after the rolling operation in the form of bright
annealed electrolytically cleaned coils of tin
plate which require only to be sheared to the
proper length and classified according to thick-
ness before being shipped to the customer. Or-
dinarily there are slight, but important, varia-
tions in the thickness of the rolled strip, and it
is because of these variations that the sheets
must be classified and sheets of the desired
thickness separated from those sheets of greater
or lesser thickness.

In Figures 1 and 1a I have diagrammatically
illustrated a preferred layout of my apparatus
for shearing and classifying strips of tin plate
formed on a continuous mill. As shown in the
drawings, a strip S of tin plate is fed from a coil
C by a suitable uncoiling device through an edge
trimmer indicated at 20. This is driven by an
electric motor 21 which exerts sufficient tension
to unwind the strip from the coil. Beyond the
edge trimmer the strip is allowed to sag, as
shown, to give a little slack in the strip to take
care of fluctuations in the speed of the following
apparatus, and is then passed through felt pads
indicated at 22 which function to remove dust
and chips from the strip. Then the strip is
automatically gauged by a continuous gauging
device 23.

From the gauge 23, the strip passes through
a roller leveler indicated diagrammatically at
24, pinch rolls 25, and thence to the rotary shear
26, the roller leveler, pinch rolls and shear being

driven by a single motor 27. Change speed gears (not shown) are incorporated in the drive of the shear 26 so that the shear can be adjusted to cut different lengths of sheets. The construction and arrangement of the gears, shear and associated mechanism are well known in the art and form no part of the present invention and accordingly will not be described further herein.

From the shear 26, the sheets are delivered to the classifier proper which is illustrated somewhat diagrammatically in Figure 1a. The details of the classifier will be described later, but for the present it will be sufficient to state that the sheets are deposited on a conveyor belt 30 driven by a motor 31. The speed of the belt is greater than the peripheral speed of the shear and the lineal speed of the strip entering the shear so that the sheared sheets will be longitudinally separated as they are deposited on the belt.

After leaving the belt 30, the sheets if they are of proper gauge pass over the flipper or deflector 32 which is pivotally mounted on a shaft 33 and arranged to be raised or lowered by a solenoid 34 controlled by the continuous gauge 23.

The gauge 23 and the control circuit for operating the solenoid 34 do not per se form a part of this invention, a suitable type of gauge being disclosed in United States Patent No. 2,007,840. For the purposes of this specification, it will suffice to say that in the present instance the circuit is arranged so that the solenoid 34 is energized to raise the flipper 32 and thus deflect the sheets downwardly beneath the flipper in the event that the thickness of the strip material varies from a predetermined standard an amount in excess of the established tolerances, while so long as sheets of proper thickness are being delivered the solenoid will not be energized, the flipper will remain in substantially horizontal position and the sheets will pass over the flipper and be delivered to the belt 35. The sheets upon delivery to the belt 35 may be traveling at very high speeds on the order of 1,000 ft. per minute. Necessarily the speed must be reduced gradually in order to make it possible to accurately stack the sheets without damaging their edges. Therefore the belt 35 is driven by the motor 36 at a reduced speed, say 820 ft. per minute, if the belt 30 has been operating at 1,000 ft. per minute. From the belt 35 the sheets pass to belt 37 where the speed is further reduced. In the example given, this belt may be driven at the speed of the shear, say 600 ft. per minute, the drive being accomplished by the motor 32. Thus on belt 37, the sheets will be closely spaced.

From the belt 37, the sheets are discharged onto the final belt 39 disposed at a slightly lower level than belt 37 and driven at considerably slower speed. In the example given the speed of the belt 39 may be about 240 ft. per minute. Because of this very considerable reduction in speed, it will be evident that the sheets will be discharged into belt 39 in overlapping relationship. That is to say, they will be shingled as diagrammatically indicated in Figure 1a of the drawings.

From the belt 39 the sheets are passed between rolls 40 and 41 and over roll 42, all of which are driven in synchronism with the belt by the motor 43, and discharged onto the elevating platform 44, being guided into proper position by guides 45, 46 and 47 associated with the platform. The platform 44 is arranged to be raised

or lowered by a suitable elevating mechanism indicated in general at 48, and in operation the platform is gradually lowered as sheets are discharged thereon.

In the event that a sheet of incorrect thickness is delivered onto belt 30, then by the control mechanism briefly described above the solenoid 34 will be energized to raise the flipper 32 to the full line position of Figure 1a of the drawings as the sheet approaches the solenoid. Thus the sheet will be deflected downwardly to the belt 35' disposed beneath belt 35. Sheets of incorrect gauge are then carried along belts 37' and 39' similar to belts 37 and 39 previously described; the belts being driven by motors 36', 38' and 43'. The discharge mechanism includes rollers 40', 41', 42' and elevating platform 44' with associated guides 45', 46' and 47', the platform being raised and lowered by the elevating mechanism 48'. The sheets are held against the various belts by magnets M and M'. These insure accurate positioning of the sheets and prevent the sheets from planing through the air, all as described in greater detail in my patent application aforesaid. The construction and mounting arrangement of the magnets is described in greater detail below.

To provide for the convenient control of the various motors, a system of the Ward-Leonard type may be employed. The wiring arrangement for such a control is shown diagrammatically in Figure 2 in which the variable voltage generator is indicated at 50. The field current of the generator is controlled by the rheostat 51 which varies the output of the generator. The current generated is delivered through conductors 52 and 53 to armatures of the motors 21, 27, 31, 33, 36', 38, 38', 43 and 43' which are all connected in parallel with the result that if the rheostat is adjusted, for example, to increase the field current of the generator the speed of all of the motors will be increased, and conversely if the generator field is weakened the speed of all of the motors will be reduced. Individual control to separately adjust the relative speeds of the motors is attained by the motor field rheostats R-21, R-27, and R-31, R-36, R-36', R-38, R-38', R-43 and R-43', respectively, which are carried by the frame of the classifier. Weakening the shunt fields of the motors by means of the rheostats increases their speed, and strengthening the fields reduces their speed. By this arrangement very flexible control is obtained. The speeds of all of the motors can be adjusted to best advantage by the various field rheostats and the entire machine can be stopped or started or varied in speed during operation by rheostat 51 without changing the individual setting of the field rheostats. By this control scheme not only can the machine be operated to best advantage but also no time is wasted when the machine must be stopped, for instance to supply a new coil of material, as the entire apparatus can be stopped by the rheostat 51 and immediately started again with all of the various motors operating at correct relative speeds.

Referring to Figures 3 to 8, inclusive, it will be seen that the mechanism is supported on a suitable floor or base by frame members 60, 61 and 62 and suitable vertical frame members 63, 64 and 65 which are duplicated on opposite sides of the machine. The motors and associated driving mechanism are supported by a girder or beam 66 which extends longitudinally of the machine along one side thereof and which is supported

by the vertical members 63, 64 and 65. It will be noted that the girder 66 is a box construction and as shown particularly in Figure 6 supports all of the driving mechanism and the belts, except for the supports furnished immediately adjacent the upright members 63, 64 and 65. Beneath the girder 66, longitudinally extending members 67 and 68 are provided which function to support the field rheostats R-31, etc. for controlling the speeds of the individual motors, the backs of these rheostats being shown in Figure 3. By this construction, the driving mechanism and controls are all concentrated along one side of the machine, making them readily accessible to the operators, while the opposite side of the machine is open except in the immediate vicinity of the vertical supports 63, 64 and 65. Thus the conveyor belts are readily accessible and can be replaced easily without tearing down the machine. Because of this open construction the operation of the machine can be clearly observed so that any necessary adjustments can be made.

As previously pointed out, the sheared sheets are discharged from the shear 26 onto the conveyor belts 30 which operate on rollers or pulleys 69 and 69a, the pulleys 69 being driven by a shaft 70 while the pulleys 69a are idlers. The shaft 70 is supported by bearings 71 and 71a mounted in bracket 76 at opposite sides of the machine, and at its end is provided with a sprocket 72 so that it may be driven by the motor 31 through the chain 73.

In order to provide means whereby the level of the belts 30 may be adjusted to accommodate the belts to variations in the level of the pass line through the shear, the bearings for the pulleys 69a are supported by suitable brackets 74 on longitudinally extending rods 75, which are in turn mounted on the transversely extending bracket 76 supported by bearings 78 in the girder 66 (see Figures 4, 5 and 6). The end portion of the bracket 76 is concentric with the shaft 70 and the bearings 71 are disposed within the end of the bracket 76. Thus the bracket and arms 75 may be rotated about the axis of shaft 70 to raise and lower the belts 30 without changing the distance between the pulleys 69a and the pulleys 69.

The belts 30 are supported at the desired level, either at or slightly below the pass line of the shear, by rods 80 pivotally mounted at their lower ends to a suitable frame member or support 81 as at 82. At their upper ends, the rods are pivotally connected as at 83 to a transversely extending bar 84 extending within the belts 30 and channeled to receive the rods 75, the bar preferably being cut away as indicated at 87 in Figure 9, and provided with cover plates 85 secured in clamping engagement with the rod 75 by screws 86. It will be evident that by loosening the screws 86, the bar 84 can be slid along the bars 75 in either direction to raise or lower the pulleys 69a supporting the belts 30. Further adjustment of the level of the pulleys 69a and belts 30 can be made by means of turn buckles 83 which are preferably incorporated in the supporting rods 80. By this means the belts 30 can be adjusted vertically to a sufficient extent to insure that the sheets will be properly delivered by the shear.

From the belt 30 the individual sheets pass either above or below the flipper or deflector 32, depending upon whether the sheets are of standard thickness or not. The deflector 32 is mounted upon a shaft 33 which is supported for

rotation by suitable bearings in the girder 66 and in the bracket 89, mounted upon the frame member 63. The deflector 32 is rotated from one position to another by the solenoid 34 through a connecting rod 90 and crank arm 91 keyed to the shaft 33, the solenoid being actuated in response to changes in strip thickness as described above. As long as strip of standard thickness is being fed through the gauge, the deflector 32 remains in its lower position as shown in Figure 4 of the drawings, but if the thickness of the strip varies either above or below the standard thickness by the amount exceeding the established tolerances the deflector 32 will be raised to deflect the sheets downwardly onto the lower series of belts. Assuming that the sheets delivered to the belts 30 are within the established tolerances, then the sheets will be delivered over deflector 32 to the belts 35, a roller 91a being interposed between the deflector and the belts to reduce the friction on the sheets in traveling between the successive belts.

The belts 35 are carried by pulleys 92 and 93, the arrangement being generally similar to the supporting mechanism described in conjunction with the belts 30; i. e., the pulleys 93 are driven by a shaft 95 which extends through and is supported by a bracket 96, similar to the bracket 76, and mounted in suitable bearings carried by the girder 66. The end of the shaft 95 is provided with a sprocket 97 so that the shaft may be driven through the chain 97a by motor 36. The idler pulleys 92 are supported by suitable bearings carried by brackets 98 mounted on rods 99 which are supported by the transversely extending bracket or arm 96.

To provide for vertical adjustment of the belts 35, a bracket 100 mounted on the girder 66 and supporting a bar 101 generally similar to bar 84, is employed. The rods 99 and pulleys 92 may be raised and lowered by rotating the bracket 100 about its pivot and sliding the bar 101 along the rods 99. Only a small amount of adjustment is provided for the level of the belt 35 as no great range of adjustment is required. The tension on the belts 35 can be adjusted by moving the brackets 98 along the rods 99 by means of nuts 102 in threaded engagement with the rods. A similar scheme is employed for adjustment of the tension on the belts 30.

As previously noted, only sheets of standard gauge are carried by belts 35, the velocity of the sheets as they are delivered to belts 35 is substantially the velocity of the belts 30, for example about 1,000 ft. per minute, and the slowing down of the sheets so that they can be stacked accurately and without damage is started on the belts 35. Thus the belts 35 may be operated at a speed of about 800 ft. per minute. From the belts 35 the sheets are delivered to belts 37 where the velocity is further reduced, preferably to such an extent that the sheets are deposited on the belt with very little space between the sheets. The belts 37 are carried by pulleys 103 and 104, and supported by a transversely extending bracket 105, rods 106 and adjusting bracket 107, all substantially identical with the mechanism described for supporting the belts 35. The driven pulleys 104 are keyed to shaft 105a which is driven by motor 38 through chain 108 and sprocket 109.

The belts 37 deliver the sheets to belts 39 which are driven by motor 43 through mechanism similar to that previously described at a velocity

less than the velocity of belt 37 and less than the peripheral speed of the shear. The belt is preferably disposed at a lower level than the belt 37, so that the sheets are deposited thereon in overlapping or shingled relationship as indicated in Figure 1a and carried thereby in this shingle arrangement to the piler mechanism at the delivery end of the machine. The pulleys for supporting the belts 39 and the associated brackets are similar in all material respects to the mechanism described previously with respect to belts 35 and 37 except that two brackets 110, similar to the brackets 100 and 107 previously described, are employed in conjunction with two bars 111 for supporting the longitudinally extending bars 112, because the belts 39 are considerably longer than the belts 35 and 37, the additional length being necessary to convey the sheets beyond the piler mechanism for the off-gauge sheets which have been deflected by the flipper 32.

The piling apparatus is illustrated particularly in Figures 3, 7 and 8. As illustrated, the sheets in their shingled arrangement on belts 39 are passed between the concave and convex fabric rolls 115 and 116, the roll 115 being driven by a chain 117 and suitable sprockets at substantially the speed of the belt 39. The rolls 115 and 116 are constructed of cotton or other suitable material much in the manner of buffing wheels, and are given concave and convex contours so that the sheets passing between the rolls are bent in such a manner that their upper surfaces are concave, thus increasing the rigidity of the sheets and preventing their forward ends from bending downwardly until the rear portions of the sheets have been released from the rolls.

To provide adequate pressure between the rolls 115 and 116, the upper roll 116 is supported by bearings mounted on brackets 120 carried by a rotatably mounted shaft 121. The adjustable springs 122 and 123, mounted on the main frame and engaging above and below lever 124 rigidly connected to shaft 121 maintain the roll 116 in engagement with roll 115 with the desired pressure.

The sheets as they are discharged immediately assume their previous flat condition and are projected forwardly and downwardly onto a suitable platform 44 which may be elevated by the elevating mechanism 48 to a position so that the top of the pile of sheets is within the area enclosed by the side guides 47 and the members 45. The position of the elevator may be manually controlled by any ordinary means, the practice being to gradually lower the platform as sheets are deposited thereon.

The stops or guides 45 are carried by an arm 128 pivotally and slidably mounted on rod 129, and the end of the arm engages the underside of rod 130 as indicated at 131. Thus the arm can be slid along to vary the position of the stop for different size sheets and also can be swung upwardly and out of the way as indicated in dotted lines in Figure 8.

The side guides 47 may be moved toward or away from each other along a supporting rod 131a by screws 132 extending transversely of the end of the main frame member, the sheets being guided laterally by the side guides and being projected against the end guide or stop member 45 with the result that a straight pile of sheets is formed.

To insure that each sheet will be projected with sufficient velocity from the pinch rolls 115

and 116 to cause it to abut the end guide 45 and also to straighten out any sheets that may be slightly deflected in their travel through the machine, I preferably employ a roller 133 of polished steel driven by sprockets 134 and 135 and chain 136 at substantially the same velocity as the belt 39. The sheets dropping from the grip of the pinch rolls are given a slight forward impetus by the roller which is sufficient to straighten out the sheets and give them sufficient velocity to cause them to be piled in a straight pile with their forward edges abutting the stop 45.

As described in conjunction with Figures 1 and 1a, magnets are preferably employed to control the passage of the sheets through the machine and to hold the sheets down on the various conveyer belts. These magnets are disposed beneath the belts and are of generally two types. At the forward end of each belt, a magnet is provided with is incorporated in the bracket supporting the forward pulley. For example, the forward magnets for the belts 30 and 35 are set in recesses indicated at 140 in the brackets 74 and 98, respectively. Throughout the machine magnets for the remaining belts are similarly disposed. Magnets are also provided adjacent the rear pulleys of each belt, the coils for these magnets being set in recesses 142 in the supporting brackets such as brackets 76 and 96.

The magnets intermediate the ends of the belts are preferably constructed as illustrated in Figures 10, 11 and 12 so that they may be adjusted to the most desirable position. As shown, the magnets may comprise body portions 150 provided at their ends with grooves 151 adapted to receive the belt supporting bars, such as the bars 75 for the belts 30 or the bars 99 which support the belts 35. The body portions are provided with oval recesses to receive the magnet coils 152, the recesses being closed by the cover plates 153. The magnets may be slid to any desired position along the belt supporting rods and may be retained in their adjusted position by set screws 154. Current may be supplied to all of the magnets by any convenient conductors (not shown). The magnets function to hold the sheets in engagement with the various belts, thus preventing the sheets from planing and also assisting in preventing the sheets from being twisted or turned in their passage through the machine.

As previously described in connection with Figure 1a, the flipper 32 is raised by the solenoid 34 whenever a sheet of incorrect gauge is approaching the flipper so that any such sheets will be deflected downwardly onto the lower series of belts 35', 37' and 39' and finally discharged onto the elevating platform 48'. The arrangement of the belts and their supporting and driving mechanism is in all material respects the same as the arrangement of the upper series of belts described in detail above, and the description will not be repeated here. Corresponding parts in the lower series of belts are marked with reference characters corresponding to those applied to the upper series.

It is to be noted, however, that a series of conveyer rollers 160, 161 and 162 (see Figure 4) are mounted in suitable bearings on opposite sides of the frame structure and disposed generally beneath the deflector 32 so that the downwardly deflected sheets will be conveyed across the rollers and deposited on the first lower belt 35'. The forward magnet 163 beneath the belt 35' assists in holding the sheets in the proper course, and preferably one of the adjustable magnets is posi-

tioned as indicated at 164 beneath the belt 35' at about the point where the downwardly deflected sheets will strike the belt. By this arrangement, rapidly moving sheets can be deflected and properly deposited on the lower belt 35' without damage to the sheets and without danger of the sheets being displaced from their proper paths in passing through the machine.

By reason of its various novel features, my apparatus can accurately classify sheet material at very high speed. Because of my arrangement of belts and magnets, material is handled without damage thereto and without danger of the sheets flying through the air. The apparatus is of simple and sturdy construction, and as one side of the apparatus is open for substantially the entire length of the machine the belts can be readily removed and replaced when necessary and required adjustments can be made with a minimum loss of time. The supporting structure for the magnets is simple and compact, and enables the magnets to be correctly positioned to give the desired results. Further, the arrangement of the frame structure is such that all of the controls may be grouped conveniently along one side of the apparatus.

In the foregoing specification I have described in detail a preferred form of my invention. Various changes and modifications can be made therein without departing from the spirit and scope of my invention, and it is therefore to be understood that my patent is not limited to the preferred form described herein or in any manner other than by the scope of the appended claims.

I claim:

1. In a machine of the character described, a conveyer belt and means for supporting said belt comprising a frame, a driven shaft projecting transversely therefrom, a driving pulley for said belt mounted on said shaft, a transversely extending bracket having an end portion supported by said frame and concentric with said shaft and an offset portion extending substantially parallel to said shaft and spaced therefrom, a longitudinally extending member carried by said bracket, and an idler pulley for said belt carried by said longitudinally extending member

2. In a machine for classifying thin sheet material, a conveyer belt and means for supporting said belt comprising a frame, a driven shaft projecting transversely therefrom, a driving pulley for said belt mounted on said shaft, a transversely extending bracket having an end portion pivotally supported by said frame and concentric with said shaft, and an offset portion extending substantially parallel to said shaft and spaced therefrom, a longitudinally extending member carried by said bracket, and an idler pulley for said belt carried by said longitudinally extending member, and adjustable means for supporting said member carried by said frame and spaced from said bracket.

3. In a machine for classifying thin sheet material, a plurality of conveyer belts extending in the same generally horizontal direction, a frame extending only along one side of said belts, and supporting and driving means for each of said belts, each such means comprising a driven shaft projecting transversely from said frame, a driving pulley for one of said belts mounted on said shaft, a transversely extending bracket having an end portion supported by said frame and con-

centric with said shaft and an offset portion extending substantially parallel to said shaft and spaced therefrom to provide clearance for said pulley, a longitudinally extending member carried by said bracket, and an idler pulley for said belt carried by said longitudinally extending member.

4. In a machine of the character described, a conveyer belt and means for supporting said belt comprising a frame disposed at one side of said belt, a bracket supported solely by said frame and projecting therefrom, a shaft supported by said bracket, a pulley for said belt mounted on said shaft, a member extending substantially parallel to said belt extending from said bracket, another pulley for said belt carried by said member, a magnet adjustably carried by said member and disposed between the upper and lower reaches of said belt, and adjustable means for supporting said member carried by said frame and spaced from said bracket.

5. In a machine of the character described, a conveyer belt and means for supporting said belt comprising a frame disposed at one side of said belt, a bracket supported by said frame and projecting therefrom, a shaft supported by said bracket, a pulley for said belt mounted on said shaft, a member extending substantially parallel to said belt extending from said bracket, and another pulley for said belt carried by said member.

6. In a machine of the character described, a conveyer belt and means for supporting said belt comprising a frame disposed at one side of said belt, a bracket supported solely by said frame and projecting therefrom, a shaft supported by said bracket, a pulley for said belt mounted on said shaft, a member extending substantially parallel to said belt extending from said bracket, another pulley for said belt carried by said member, and adjustable means for supporting said member carried by said frame and spaced from said bracket.

7. In a machine of the character described, a conveyer belt and means for supporting said belt comprising a frame disposed at one side of said belt, a bracket supported by said frame and projecting therefrom, a shaft supported by said bracket, a pulley for said belt mounted on said shaft, a member extending substantially parallel to said belt extending from said bracket, another pulley for said belt carried by said member, and a magnet adjustably carried by said member and disposed between the upper and lower reaches of said belt.

8. In a machine of the character described, a generally horizontal conveyer belt and means for supporting said belt comprising a frame disposed at one side of said belt, a bracket supported by said frame projecting therefrom and extending between the upper and lower reaches of said belt, a pulley for said belt supported by said bracket, a member extending substantially parallel to said belt extending from said bracket and lying in a plane parallel to and disposed between the planes of the upper and lower reaches of said belt, another pulley for said belt carried by said member, a magnet carried by said bracket and a magnet carried by said member, said magnets being disposed between the upper and lower reaches of said belt.

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