June 29, 1954 C. G. PREIS ET AL 2,682,344

MECHANISM FOR STACKING SHEET MATERIAL

Filed Aug. 5, 1947 3 Sheets-Sheet 1

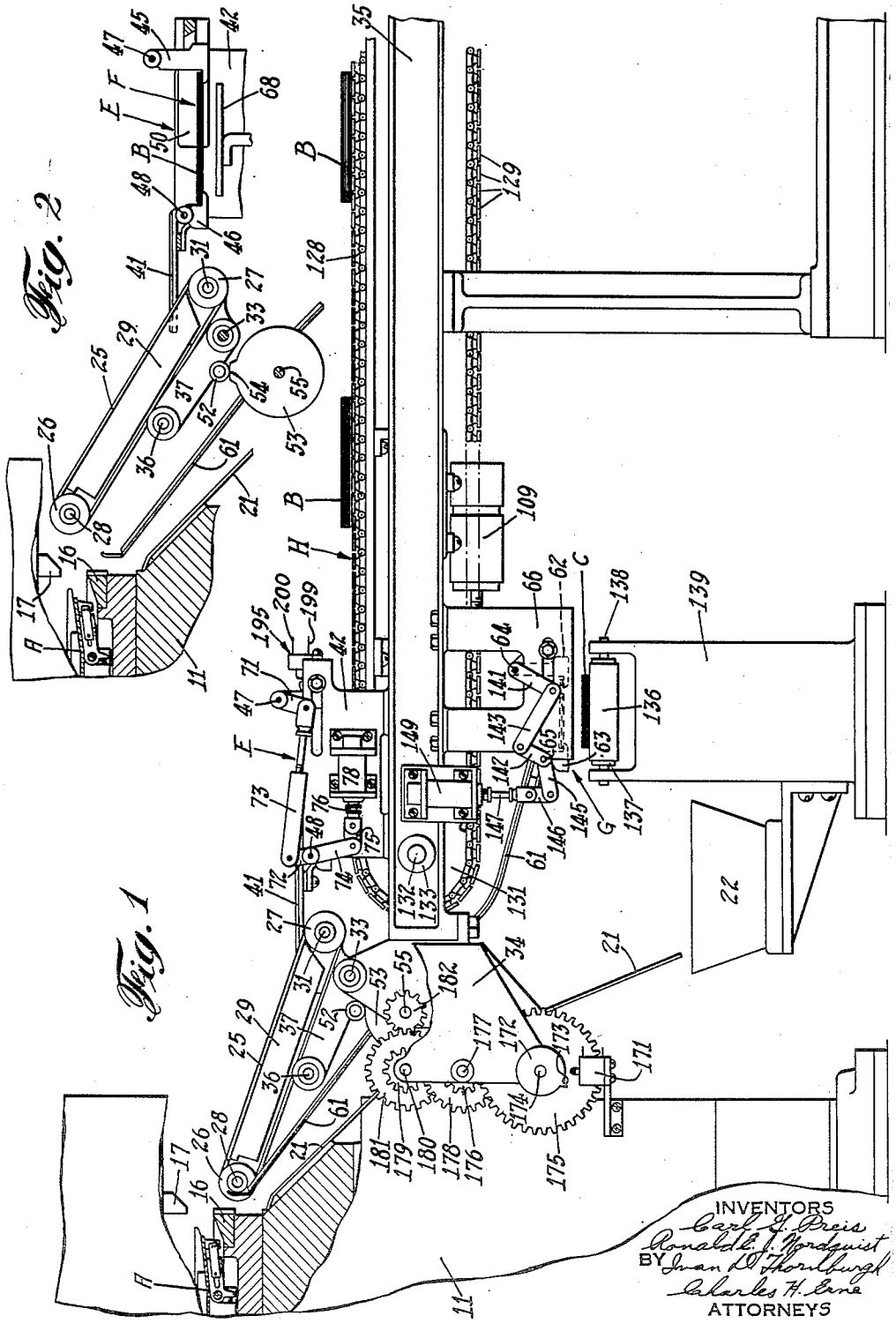


Fig. 2

Fig. 1

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Filed Aug. 5, 1947 3 Sheets-Sheet 2

Fig. 3

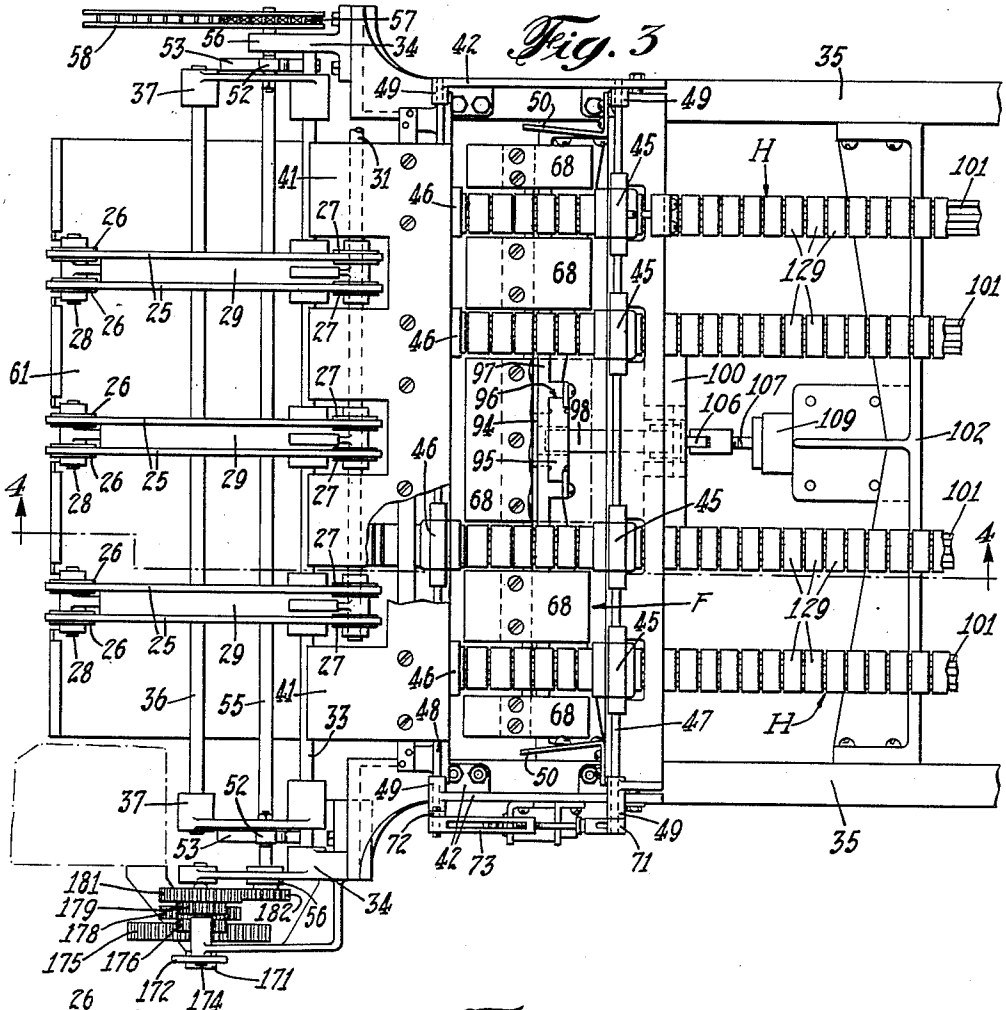
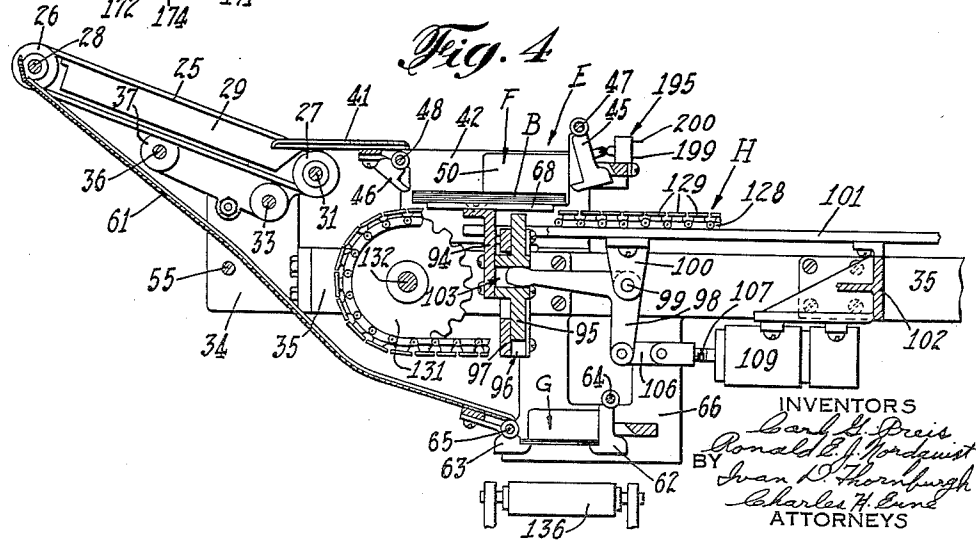


Fig. 4



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Filed Aug. 5, 1947 3 Sheets-Sheet 3

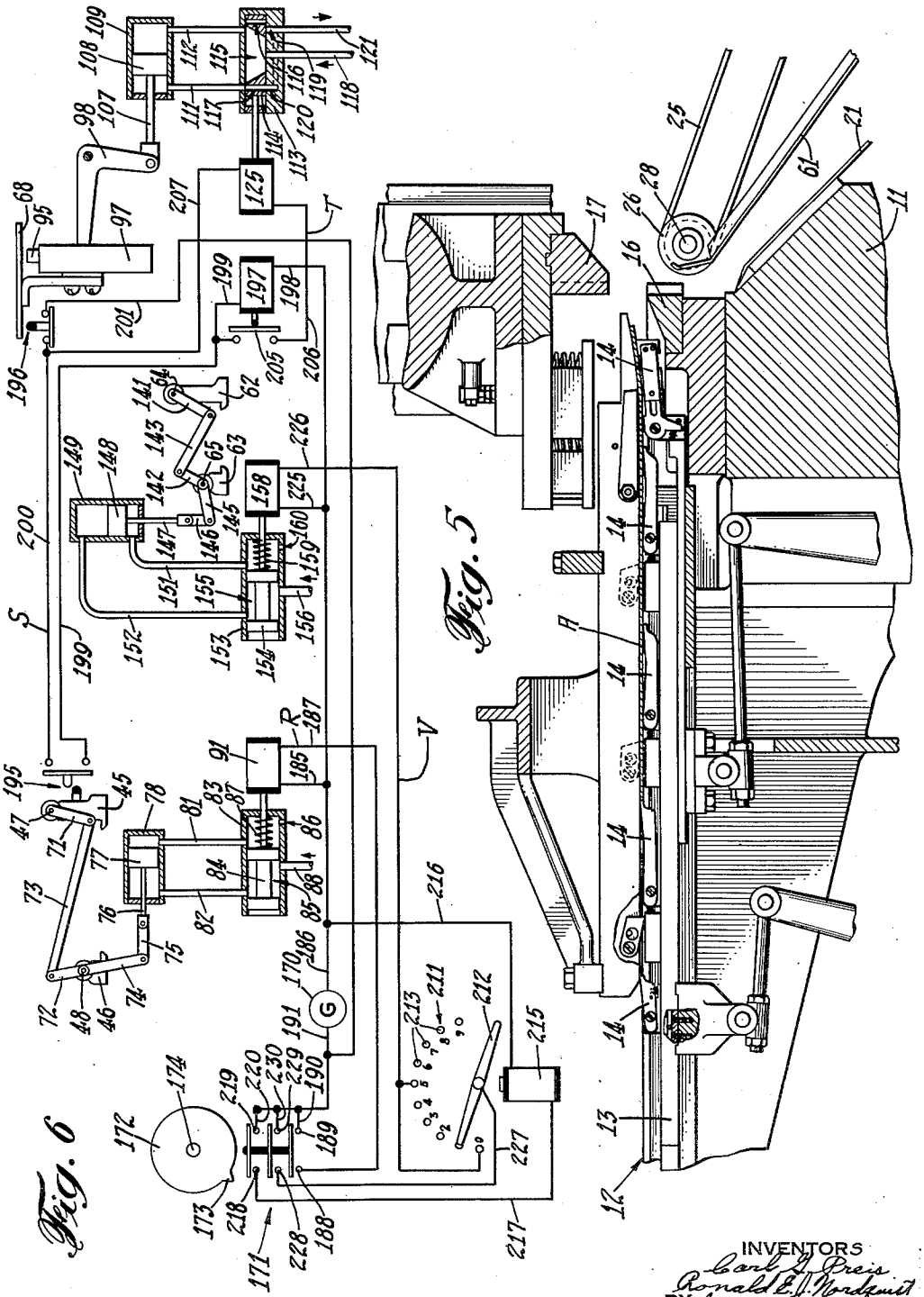


Fig. 5

Fig. 6

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MECHANISM FOR STACKING SHEET MATERIAL

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Application August 5, 1947, Serial No. 766,340

14 Claims. (Cl. 214—6)

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The present invention relates to a mechanism for stacking sheet material and the like and has particular reference to devices for arranging sheets in stacks of a predetermined number of sheets and for conveying the stacks to a suitable place of deposit. This is a companion application to our copending United States applications Serial Number 766,341, filed August 5, 1947, now Patent No. 2,594,346, issued April 29, 1952, and Serial Number 766,342, filed August 5, 1947, now Patent No. 2,542,055, issued February 20, 1951, and Serial Number 766,343, filed August 5, 1947, now Patent No. 2,629,502, issued February 24, 1953, on Mechanism for Loading Sheet Material into Magazines.

An object of the invention is the provision of a mechanism for stacking sheet material wherein orderly stacks of a predetermined number of sheets may be assembled and gently transferred to a conveyor for delivery to a suitable place of deposit in a manner which facilitates rapid and automatic handling of such material.

Another object is the provision of such a sheet stacking mechanism wherein different kinds of sheets may be arranged in different stacks at different rates of speed and handled in the same manner for delivery to different suitable places of deposit.

Numerous other objects and advantages of the invention will be apparent as it is better understood from the following description, which, taken in connection with the accompanying drawings, discloses a preferred embodiment thereof.

Referring to the drawings:

Figure 1 is a side elevation of a sheet stacking mechanism embodying the instant invention, with parts broken away and parts shown in section;

Fig. 2 is a view similar to Fig. 1 and shows a fragmentary portion of the mechanism in that figure with certain of the parts in a different position;

Fig. 3 is a top plan view of the mechanism shown in Fig. 1, with parts broken away;

Fig. 4 is a sectional view taken substantially along the broken line 4—4 in Fig. 3, with parts broken away;

Fig. 5 is an enlarged sectional view of the portion of the mechanism shown at the left in Fig. 1, with parts broken away; and

Fig. 6 is a composite schematic view of the principal mechanical parts and wiring diagram of the electric system used in the mechanism.

As a preferred embodiment of the instant invention the drawings illustrate a mechanism for

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stacking sheet metal strips, such as tin plate or the like material, from which containers or container parts or other articles are subsequently produced, although the invention is equally well adapted to stack other kinds of sheet material for other uses. In the production of can ends, as an example, sheets A (Fig. 5) of tin plate are cut into double row strips B (Fig. 1) and single row strips C prior to the cutting and forming of the can ends therefrom as disclosed for instance in United States Patent 1,920,999, issued August 8, 1933, to J. H. Murch on Shearing Machine. Each sheet usually is cut into a plurality of double row strips B and one single row or butt strip C, the latter being the last strip cut from the sheet.

In the instant mechanism, by way of example, the sheets are cut into five double row strips B and one single row strip C. These different types of strips are arranged in different stacks. When fifty strips have been collected in a stack of either type of strip, the stack is deposited on a conveyor and delivered in timed relation to any suitable place of deposit. Each type of strip has its own conveyor and is delivered to its own place of deposit.

The sheets A are cut into the strips B, C in a scroll shear 11 (Figs. 1 and 5) which may form a part of the instant mechanism and which is of the type disclosed in the above mentioned Murch patent. In this scroll shear, a sheet A is advanced along a horizontally disposed table 12 in a step-by-step or intermittent manner by a pair of spaced and parallel reciprocating feed bars 13 having sheet advancing dogs 14 secured thereto at spaced intervals for engagement behind the back edge of the sheet. Reciprocation of the feed bars 13 advances the sheet between a lower stationary shearing die 16 and a cooperating upper movable die or punch 17, the latter of which is reciprocated vertically in time with the advancement of the sheet as disclosed in the above mentioned Murch patent. This is a conventional scroll shear.

The first cut taken on a sheet A is usually a trim cut and removes a slender trim edge or strip which is waste or scrap material. This trim strip falls from the stationary die 16 onto a chute 21 (Figs. 1 and 5) which directs the strip to a waste bin 22 for subsequent disposal as desired.

Following the trim cut, five double row strips B are cut from the sheet A. As each strip B is cut from the sheet it falls from the front edge of the die onto a plurality of endless delivery belts 25 (see also Fig. 3) disposed adjacent the

delivery end of the scroll shear 11 and arranged in a declining position. The delivery belts 25 are carried on pairs of spaced idler pulleys 26 and driving pulleys 27.

The idler pulleys 26 are mounted on short idler shafts 28 journaled in bearings formed in the upper ends of a plurality of inclined belt brackets 29. The driving pulleys 27 are mounted on a long driving shaft 31 which is journaled in bearings formed in the lower ends of the belt brackets 29. This driving shaft is continuously rotated in any suitable manner preferably by connection with the scroll shear 11, and at a speed fast enough to deliver the strips B from the shear without interference with each other.

There are three parallel belt brackets 29 arranged adjacent the delivery end of the scroll shear 11 and they are mounted on a pivot shaft 33 (Figs. 1, 2, 3 and 4) the ends of which are carried in bearing brackets 34 bolted to a frame 35 of a strip stacking device disposed adjacent and connected with the scroll shear 11. The belt brackets are tied together by a tie rod 36 which extends through the brackets and which terminates in a pair of rocker arms 37 mounted on the pivot shaft 33 adjacent its ends.

A double row strip B, received on the delivery belts 25 extends transversely of the belts and is carried by the belts toward a short table 41 (Figs. 1, 2, 3 and 4) which extends across the mechanism adjacent and between the belt driving pulleys 27. The outer ends of the table 41 are secured to a pair of vertical brackets 42 which are bolted to the mechanism frame 35. The table terminates adjacent a stacking device E (Figs. 2 and 4) which includes a plurality of pairs of cooperating oppositely disposed L-shaped stack holding fingers 45, 46 which partially define a main magazine F for the strips B. These holding fingers are mounted on a pair of spaced and parallel shafts 47, 48 (see also Fig. 2) the ends of which are carried in bearings 49 formed in the vertical brackets 42.

Hence when a double row strip B falls onto the delivery belts 25, and is carried forward toward the table 41, it gathers sufficient momentum that when it is delivered onto the table, it slides across the table and falls into the magazine F. The delivered strip is caught by the L-shaped holding fingers 45, 46 and is held in a horizontal position as best shown in Fig. 2. As additional strips are received in the magazine they build up into a stack which is supported by the holding fingers. Angularly disposed guides 50 (Fig. 3) located within the magazine F align the strips endwise as they fall into the magazine.

When five double row strips B have been cut from a sheet A and delivered into the double row strip magazine F, the delivery belts 25 are tilted into a further inclined position as best shown in Fig. 2 for the delivery into a different magazine of the next following strip, which is a single row or butt strip C. This lifting of the delivery belts 25 is brought about by a pair of cam rollers 52 (Figs. 1, 2 and 3) which are carried on the rocker arms 37. These two cam rollers 52 ride on a pair of continuously rotating cams 53 having a high spot 54 and which rotate at the rate of one revolution for each sheet A. These cams support the delivery belt brackets 29 in their normally inclined position.

The cams 53 are mounted on and are rotated by a transverse cam shaft 55 which is journaled in bearings 56 formed in the bearing brackets 34. One end of the shaft carries a driving sprocket 57 (Fig. 3) which is driven by an endless chain 58 in any suitable manner from the scroll shear 11.

At the completion of the cutting of the five double row strips B from a sheet A, the high spots 54 of the cams 53 engage the cam rollers 52 and thus lift the delivery belt brackets 29 and the belts 25 into the position shown in Fig. 2. While the brackets and belts are in this raised position the last or single row strip C which is left in the die 16 when the fifth double row strip is cut, is advanced by the foremost scroll shear feed dog 14 across the die 16 and falls onto a stationary chute 61 disposed under the belts.

The single row strip C slides down the chute 61 into a single row strip or auxiliary magazine G (Fig. 4) which is disposed below the double row strip or main magazine F and like this magazine is defined partially by a plurality of pairs of cooperating oppositely located L shaped stack holding fingers 62, 63. These fingers are mounted on a pair of spaced and parallel transverse shafts 64, 65 having their ends carried in bearings formed in depending brackets 66 secured to the mechanism frame 35.

Since five double row strips B and only one single row strip C are cut from each sheet A, only ten sheets must be fed through the scroll shear to accumulate a stack of fifty double row strips B while fifty sheets must be fed to accumulate a similar stack of single row strips C. When a stack of fifty of the double row strips B has accumulated in the magazine F, the holding fingers 45, 46 are moved outwardly and this permits the entire stack to fall. The falling stack is received on a vertically movable stack transfer means or sectional platform 68 which extends across the mechanism just below the magazine F as shown in Figs. 2, 3 and 4.

Movement of the holding fingers 45, 46 is effected by lever arms 71, 72 (Figs. 1 and 3) which are mounted on the outer ends of the finger shafts 47, 48. The lever arms are connected by an adjustable cross link 73 in such a manner that the shafts will rock in opposite directions when the link is shifted. The lever arm 72 is formed with a depending lever 74 which is connected by a link 75 to a piston rod 76 having a piston 77 (see Fig. 6) which operates within an air cylinder 78 secured to the adjacent bracket 42.

The cylinder 78 adjacent its ends is connected by pipes 81, 82, to a slide valve housing 83 containing a slide valve 84 having a central feed channel 85. One end of the valve housing is open. Its opposite end, beyond the slide valve is provided with a vent opening 86. At this vented end of the housing the valve is backed up by a compression spring 87 interposed between the valve and the closed end of the housing. Opposite the pipes 81, 82, the valve housing is connected to an inlet pipe 88 which is always in communication with the central feed channel 85 of the slide valve and which leads from any suitable source of compressed air.

The slide valve 84 is periodically reciprocated within its valve housing 83 by a normally deenergized electric solenoid 91 which is alternately energized and deenergized through suitable electric circuits which will be hereinafter explained in connection with the wiring diagram in Fig. 6. When the solenoid 91 is energized, it shifts the slide valve 84 from the position shown in Fig. 6 toward the right as viewed in that figure where the pipe 81 as well as the inlet pipe 88 is in communication with the central feed channel 85 of the valve.

In this position of the slide valve 84, air under pressure from the inlet pipe 88, flows through the valve channel 85 and pipe 81 into the cylinder 78 in front of the piston 77 and thus pushes the piston toward the left as viewed in Fig. 6. The moving piston forces any air that may be behind it, out of the cylinder through the pipe 82 and the open end of the valve housing 83. This movement of the piston, rocks the links 73, 75 and the lever arms 71, 72, 74 and thus opens or spreads apart the stack holding fingers 45, 46 to release the stack of double row strips B.

As soon as the stack of strips B fall out of the magazine F onto the platform 68, the holding fingers 45, 46 immediately close to catch and retain the subsequently cut strips B to form another stack. This return movement of the holding fingers is effected by an immediate deenergization of the solenoid 91 and a return of the slide valve 84 to its original position under the force of the spring 87. In this position of the valve its feed channel 85 is in communication with the pipe 82 as well as the inlet pipe 88 while the pipe 81 is in communication with the port 86 of the valve housing 83.

Thus air under pressure flows from the inlet pipe 88 through the valve feed channel 85 and pipe 82 into the cylinder 78 behind the piston 77 and pushes the piston toward the right as viewed in Fig. 6. Air in the cylinder in front of the piston is expelled through the pipe 81, valve housing 83, and vent opening 86, to the atmosphere. It is this movement of the piston that closes the holding fingers 45, 46 for the building up of another stack of strips B.

The sections of the platform 68 which receive the stack of double row strips B from the magazine F are secured to a support plate 94 (Figs. 3 and 4) attached to a vertically movable slide 95 which operates in a vertical slideway 96 formed in a transverse bracket 97 having its outer ends secured to the mechanism frame 35. The slide is periodically lowered and raised by a bell crank lever 98 which is mounted on a pivot pin 99 carried in a bracket 100 secured to two of a plurality of horizontal chain rails 101 secured to the cross beams 102 of the mechanism frame 35.

One leg of the bell crank lever 98 is engaged in an opening 103 in the slide 95. The other leg is connected by a link 106 to a piston rod 107 having a piston 108 (see Fig. 6) which operates in a cylinder 109 of a conventional oil gear system which circulates oil or any other suitable fluid under pressure through the system. For this purpose the cylinder 109 adjacent its ends is connected by oil pipes 111, 112 to a slide valve housing 113 containing a reciprocable slide valve 114 having a central feed port 115 and a pair of end vent ports 116, 117.

Opposite the pipes 111, 112, the valve housing 113 is connected to a main feed pipe 118 which is always in communication with the valve feed port 115 and which leads from a source of oil under pressure. This side of the valve housing is also formed with a pair of vent channels 119, 120 which connect with a main return pipe 121 which leads to any suitable place of discharge or reuse of the circulated oil.

The slide valve 114 is reciprocated in its housing 113 by a normally deenergized electric solenoid 125 which is alternately energized and deenergized by suitable electric circuits which will be hereinafter explained in connection with the wiring diagram in Fig. 6. When the solenoid is energized it shifts the slide valve 114 from the position shown in Fig. 6 to a position toward the left where the oil pipe 111 as well as the main feed pipe 118 is in communication with the valve feed port 115.

With the valve 114 in this position, oil under pressure from the main feed pipe 118 flows through the valve port 115 and pipe 111 into the cylinder 109 behind the piston 108 and thus pushes the piston toward the right as viewed in Fig. 6. Any used oil which is in the cylinder in front of the piston is pushed out through the pipe 112, aligned valve vent port 116, and vent channel 119 into the main return pipe 121. This movement of the piston carries the platform 68 down into a depressed or stack delivery position.

After delivering the stack of strips B, the platform is immediately raised to its original position by a deenergizing of the solenoid 125. This shifts the slide valve 114 back into its original position as shown in Fig. 6. With the valve in this position, oil under pressure from the main feed pipe 118 flows through the valve feed port 115 and pipe 112 into the cylinder 109 in front of the piston 108 and this pushes the piston and the platform connected therewith, back into their original positions. The used oil in back of the piston is expelled through the pipe 111, aligned valve vent port 117, and vent channel 120 into the main return pipe 121 for discharge or reuse.

During the downward movement of the stack loaded platfrom 68, it delivers the stack onto a conveyor H (Fig. 3) which includes a plurality of endless chains 128 (Figs. 1 and 4) which carry short stack supporting flats or treads 129. There are four of these chains 128 and they are disposed between the sections of the platform 68. These chains operate over sprockets 131 mounted on cross shafts 132 journaled in bearings 133 formed in the mechanism frame 35. The chains are actuated continuously or intermittently as desired, in any suitable manner in time with the other moving parts of the mechanism.

Hence as the platform 68 moves down into a delivery position as mentioned above, it passes down below the upper runs of the conveyor chains 128 and thus deposits or delivers the stack of double row strips B onto the treads 129 of the conveyor. While the platform is in this depressed or lowered position the conveyor carries the transferred stack away from the region of the platform to permit immediate return of the platform to elevated position. The conveyor carries the stack of strips B to any suitable place of deposit. This completes the cycle of operations on the double row strips B.

In a similar manner, the single row stack of strips C is transferred from their magazine G (Fig. 4) to an endless belt conveyor 136 which is disposed under the magazine. This belt conveyor is actuated in any suitable manner and operates over a pulley 137 (Fig. 1) mounted on a shaft 138 carried in bearings formed in a subframe 139 disposed between the scroll shear 11 and the mechanism frame 35.

When a stack of fifty single row strips C have accumulated in the magazine G, the single row holding fingers 62, 63 are opened or moved outwardly and this permits the entire stack to fall directly onto the conveyor 136 to be carried away to any suitable place of deposit. This opening of the stack holding fingers 62, 63 is effected by lever arms 141, 142 (Fig. 1) secured to the finger shafts 64, 65. The lever arms are connected by

a cross link 143. The lever arm 142 is formed with a lever 145 which is connected by a link 146 to a piston rod 147 having a piston 148 (Fig. 6) which operates in an air cylinder 149 similar to the air cylinder 78.

Like the air cylinder 78, the cylinder 149 is connected by air pipes 151, 152 to a slide valve housing 153 containing a slide valve 154 having a central feed channel 155 which is always in communication with an inlet pipe 156 leading from a suitable source of supply of compressed air. The slide valve is periodically actuated by a normally deenergized electric solenoid 158 which is alternately energized and deenergized through suitable electric circuits which will be hereinafter explained in connection with the wiring diagram in Fig. 6.

When the solenoid 158 is energized it shifts the slide valve 154 from the position shown in Fig. 6 into a position which brings the pipe 151 as well as the inlet pipe 156 into communication with the valve feed channel 155 and this permits air under pressure to flow into the cylinder 149 in back of the piston 148 and thus push the piston up as viewed in Fig. 6. It is this movement that opens the stack holding fingers 62, 63. Air in front of the piston is expelled through the pipe 152 and a communicating open end of the cylinder.

As soon as the stack of single row strips C has fallen from the magazine G, the holding fingers 62, 63 immediately close for the forming of a new stack. This is effected by a deenergizing of the solenoid 158 and the force of a spring 159 upon the valve. Deenergizing of the solenoid shifts the slide valve 154 back into its original position as shown in Fig. 6 and this permits air under pressure to flow from the inlet pipe 156 through the valve feed channel 155 and pipe 152 into the cylinder 149 in front of the piston 148. This air pushes the piston down and thus closes the holding fingers 62, 63. During this movement of the piston, any air that may be in back of it, is expelled through pipe 151 into the closed end of the valve housing from which it escapes through a vent port 160 in the housing. This completes the cycle of operations incident to forming and delivering a stack of single row strips C.

Reference should now be had to the wiring diagram in Fig. 6 which discloses schematically the various electric circuits which control the operation of the solenoids 91, 125, 158 hereinbefore mentioned, and which transmit electric current from any suitable source of supply, such as a generator 170. These circuits are established through the closing of a normally open triple pole electric switch 171 which is closed and opened by a continuously rotating edge cam 172 having a sharp high spot or actuating protuberance 172 formed thereon.

The cam 172 is rotated at the rate of one revolution for every ten sheets A, i. e. one revolution for every fifty double row strips B or every ten single row strips C. For this purpose the cam is mounted on and is rotated by a short shaft 174 (see Figs. 1 and 3) journaled in bearings formed in the adjacent bracket 34. The shaft is driven by a gear 175 which is mounted thereon and which meshes with a speed reducing pinion 176 carried on a short shaft 177 journaled in bearings in the bracket 34.

The pinion 176 is driven by and is formed integrally with a gear 178 which meshes with a second speed reducing pinion 179 mounted on a short shaft 180 journaled in bearings formed in the bracket 34. This pinion is formed integrally with and is driven by a gear 181 which meshes with a driving pinion 182 carried on the cam shaft 55 which makes one revolution for each sheet A fed into the scroll shear 11. Through this gear train the cam 172 makes one revolution for each stack of double row strips B and thus momentarily closes the triple pole switch 171 for each stack upon completion of its assemblage.

Upon the closing of the switch 171 a circuit R is immediately established which includes the stack holding finger solenoid 91 (Fig. 6). One side of this solenoid is connected by a wire 185 to a main lead wire 186 of the generator 170. The opposite side of the solenoid is connected by a wire 187 to a contact 188 of the switch 171. An opposite contact 189 is connected by a wire 190 to a main return wire 191 of the generator. Current passing along this circuit, when the switch 171 is closed, energizes the solenoid 91 and thus through the slide valve 84 and air cylinder 78 opens the stack holding fingers 45, 46 as hereinbefore explained.

Opening of the stack holding fingers 45, 46 establishes a circuit S which includes a normally open finger switch 195, a normally closed platform switch 196, and a normally deenergized solenoid 197. In this circuit the generator lead wire 186 is connected by a wire 198, to one side of the solenoid 197. The opposite side of the solenoid is connected by a wire 199 to the finger switch 195. The finger switch 195 is also connected by a wire 200 to the platform switch 196 which is connected by a wire 201 to the generator return wire 191.

When the stack holding fingers 45, 46 momentarily open, the finger 45 engages and momentarily closes the finger switch 195. This is done during the momentary period in which the triple pole switch 171 is still closed. Electric current immediately flows from the generator along the circuit and energizes the solenoid 197. The energizing of the solenoid immediately closes a normally open holding switch 205 which establishes and holds a platform circuit T. Closing of the holding switch 205 cuts out the finger switch 195 and the triple pole switch 171 and thus permits these switches to open without affecting the platform circuit.

While the holding switch 205 is closed, electric current from the generator 170 flows along the generator lead wire 186, and wire 198 through the solenoid 197 and along wire 199 to and through the switch 205, then along a connecting wire 206 to and through the platform solenoid 125, thence along a connecting wire 207, through the platform switch 196 and returning along wire 201 to the generator return wire 191. This current energizes the platform solenoid 125 and thus through its slide valve 114 and oil cylinder 109, lowers the platform 68 for the delivery of the stack of strips B onto the conveyor E as hereinbefore explained.

Upon delivery of the stack B to the conveyor, the platform 68 engages and opens the platform switch 196 and this breaks the holding circuit T. The solenoids 125, 197 thereupon become deenergized and thus the platform returns to its normally elevated position and the holding switch 205 opens in readiness for the next stack operation. This completes the operations incidental to the delivery of the stack of double row strips B.

Since there is only one stack of fifty single

row strips C formed for every five stacks of the double row strips B, the electric circuits which control the release of the single row stack are arranged to operate every fifth time the cam 172 closes the triple pole switch 171. This is brought about by a conventional rotary switch or time delay device 211 which is provided with an intermittently rotatable contact finger 212 which as it rotates successively engages against a series of ten contacts 213 numbered 0 to 9 inclusive. The finger is rotated, through the usual pawl and ratchet arrangement actuated by a magnet 215 which is connected by wires 216, 217 respectively to the generator lead wire 196 and a contact 218 of the triple pole switch 171. A cooperating contact 219 is connected by a wire 220 to the generator return wire 191.

Hence every time the switch 171 closes, as explained above in connection with the circuits controlling the stacks of double row strips B, it energizes the magnet 215 and this advances the rotary switch finger 212 from engagement with one of the contacts 213 into engagement with the next succeeding contact. During this stepped advancement of the finger, nothing happens until the finger engages with one or the other of the contacts marked 0 and 5. This occurs after every five advancements of the finger.

Engagement of the rotary finger 212 with contact 0 or 5 of the contacts 213 establishes a circuit V which includes the solenoid 158. In this circuit the generator lead wire 186 is connected by a wire 225 to one side of the solenoid while the opposite side is connected by a wire 226 to the contacts 0 and 5 of the contacts 213. The rotating finger is connected by a wire 227 to a contact 228 of the triple pole switch 171. A cooperating contact 229 of the switch is connected by a wire 230 to the generator return wire 191.

Hence when the triple pole switch 171 closes simultaneously with the engagement of the rotary switch finger 212 with either of the contacts 0 to 5 of contacts 213, the circuit V becomes closed or established and this energizes the solenoid 158. Energizing of this solenoid opens the stack fingers 62, 63 and thus delivers the stack of single row strips C onto its discharge conveyor 136 as hereinbefore explained. Since the energizing of this solenoid is of a momentary duration, the stack holding fingers open and close rapidly, the return being effected by the spring 159 as soon as the solenoid is deenergized by the opening of the triple pole switch 171. This completes the operations incidental to the delivery of the stacks of single row strips C.

It is thought that the invention and many of its attendant advantages will be understood from the foregoing description, and it will be apparent that various changes may be made in the form, construction and arrangement of the parts without departing from the spirit and scope of the invention or sacrificing all of its material advantages, the form hereinbefore described being merely a preferred embodiment thereof.

We claim:

1. In a mechanism for stacking sheet material, the combination of a magazine for receiving sheets of material, movable holding elements in said magazine for retaining the sheets in place therein in stacked formation, means connected to said holding elements and operable when a stack of a predetermined number of sheets has been built up in said magazine for withdrawing said holding elements from said magazine and releasing the stack of sheets therefrom, a continuously moving conveyor disposed below said magazine for receiving the released stack of sheets and for carrying it to a place of deposit, a platform mounted for vertical reciprocation beneath said magazine for receiving the released stack of sheets therefrom when the platform is in elevated position, means actuated by said holding elements in their movement to stack releasing position for depressing said platform to transfer said stack of sheets to said conveyor, said platform depressing means being further actuated by the platform when in depressed position to elevate the platform for a succeeding stack transfer operation.

2. In a mechanism for stacking sheet material in the form of wide and narrow cut strips delivered from a sheet cutting mechanism, the combination of a main magazine for receiving said wide strips, movable means adjacent said magazine for directing the wide strips into said magazine, an auxiliary magazine for receiving said narrow strips, means for shifting said movable means for diverting the narrow strips into said auxiliary magazine, holding elements in said magazines for supporting the strips received therein in stacked formation, and primary timing means for withdrawing the holding elements from one of said magazines to release a predetermined quantity of strips therefrom, and secondary timing means operable by said primary timing means for withdrawing the holding elements from the other magazine to release a predetermined quantity of strips therefrom.

3. In a mechanism for stacking sheet material, the combination of a magazine for receiving cut strips from a sheet cutting mechanism, movable holding elements in said magazine for supporting the strips in stacked formation, conveyor means for receiving a stack of strips from said magazine, fluid pressure actuated means connecting with said holding elements and operable to withdraw said holding elements from said magazine to release the stack of strips therefrom when a stack of a predetermined number of strips has been built up in said magazine, and means actuated by said holding elements when withdrawn from said magazine for delivering said stack of strips to said conveyor.

4. In a mechanism for stacking sheet material, the combination of a magazine for receiving cut strips from a sheet cutting mechanism, holding means in said magazine for supporting the strips in stacked formation, a conveyor for receiving successive stacks of strips from said magazine, fluid actuated means connecting with said holding means, electric means connecting with said fluid actuated means and controlling the operation thereof, timing means for controlling the operation of said electric means for withdrawing said holding means from said magazine to release the stack of strips therefrom when a stack of a predetermined number of strips has been built up in said magazine, and means actuated by said holding means when withdrawn from said magazine for delivering said stack of strips to said conveyor.

5. In a mechanism for stacking sheet material, the combination of a magazine for receiving sheets of material, movable holding elements in said magazine for retaining the sheets in place therein in stacked formation, means operable when a stack of a predetermined number of sheets has been built up in said magazine for withdrawing said holding elements from said magazine to release the stack of sheets therefrom,

a conveyor disposed below said magazine for receiving the released stack of sheets and for carrying the same to a place of deposit, a vertically reciprocable platform disposed between said magazine and said conveyor for receiving the released stack of sheets from said magazine and for depositing said stack on said conveyor, fluid pressure means for reciprocating said platform, electric means connecting with said fluid pressure means and energized by said holding elements in their movement to stack releasing position to depress said platform toward said conveyor to transfer the stack of sheets thereto, and other electric means connected to said fluid pressure means and energized by said platform in depressed position for returning said platform to elevated position after transfer of the stack therefrom to said conveyor.

6. In a mechanism for stacking sheet material, the combination of a magazine for receiving sheets of material, holding elements in said magazine for retaining the sheets in place therein in stacked formation, means operable when a stack of a predetermined number of sheets has been built up in said magazine for withdrawing said holding elements from said magazine and releasing the stack of sheets therefrom, a continuously moving conveyor disposed below said magazine for receiving the released stack of sheets and for carrying them to a place of deposit, a vertically reciprocal platform below the bottom of said magazine for receiving the released stack of sheets dropped onto said platform from said magazine when said platform is in elevated position and for depositing it onto said continuously moving conveyor while said platform is lowered, actuating means for operating said platform, and electric means connecting with said actuating means and operable by said holding elements for controlling the operation of said platform.

7. In a mechanism for stacking sheet material, the combination of means for feeding a predetermined number of wide strips and a predetermined number of narrow strips in repetitive order, a main magazine for receiving said wide strips, an auxiliary magazine for receiving said narrow strips, holding elements in each of said magazines for supporting the strips received therein in stacked formation, separate sets of actuating means connecting with the holding elements of each of said magazines and operating said holding elements to release a stack of strips therefrom, electric means connecting with each set of actuating means, timing means actuated in synchronism with said feeding means for controlling the operation of said electric means to operate the holding elements of both magazines simultaneously when a predetermined number of strips have accumulated in one of said magazines, and a time delay device operated by said timing means through said electric means for withholding the operation of the holding elements of said one magazine until said predetermined number of strips have accumulated therein.

8. In a mechanism for stacking sheet material, the combination of a conveyor for feeding strips of different sizes from a supply of sheet material, a main magazine for receiving from said conveyor and for stacking therein all strips of one size, an auxiliary magazine for receiving from said conveyor and for stacking therein all strips of another size, fixed spaced means for directing said strips from said conveyor to said magazines respectively, means operable in time with said conveyor for moving the latter relative to said spaced directing means to selectively direct said strips to their respective magazines, holding elements in each of said magazines for supporting said stacks of strips therein, primary releasing means operable in time with said conveyor for withdrawing said holding elements of said main magazine to release the strips therefrom, and secondary releasing means operable at predetermined intervals by said primary releasing means to release the strips from said auxiliary magazine relatively to the release of strips from said main magazine.

9. In a mechanism for stacking strips of sheet material, the combination of a main magazine for stacking strips of one size, an auxiliary magazine for stacking strips of another size, means for feeding strips of different sizes and for distributing said strips to said magazines, a main magazine stack holding and releasing device, an auxiliary magazine stack holding and releasing device, each of said devices comprising movable fingers for holding the strips in stacks in the respective magazines, fluid operated means for moving said fingers into stack holding and stack releasing positions, a main solenoid for controlling the fluid operated means of said main magazine for moving the fingers in the main magazine into stack holding and stack releasing positions, an auxiliary solenoid for controlling the fluid operated means of said auxiliary magazine for moving the fingers in said auxiliary magazine into stack holding and stack releasing positions, a primary electrical switch operated in time with said feeding means for operating said main solenoid at predetermined time intervals to release a stack of strips from said main magazine at the end of each predetermined interval, and a time delay device including a second electrical switch operated under control of said primary electrical switch for energizing said auxiliary solenoid at predetermined time intervals relative to the intervals at which said main solenoid is operated, said stacks in the magazines being thus relatively released from said magazines at various intervals of time.

10. In a mechanism for stacking sheet material, the combination of a magazine for receiving sheets of material, a conveyor for receiving successive stacks of sheets from said magazine, movable holding means in said magazine for retaining the sheets in place therein in stacked formation, fluid pressure means connected to said holding means and operable when a stack of a predetermined number of sheets has been built up in said magazine for withdrawing said holding means from said magazine to release the stack of sheets therefrom, valve means connected to and controlling the operation of said fluid pressure means to withdraw said holding means from said stack, and means actuated by said holding means when withdrawn from said magazine for delivering said sheet stacks to said conveyor.

11. In a mechanism for stacking sheet material, the combination of a plurality of magazines for receiving cut strips from a sheet cutting mechanism, said magazines respectively receiving uniform strips of varying widths, spaced conveyor means for respectively receiving stacks of strips from said magazines, movable means in each of said magazines for supporting the strips received therein in stacked formation, means operable when a stack of a predetermined number of strips has been built up in one of said magazines for withdrawing said supporting means therefrom to release the stack of strips from said one magazine,

and means actuated by said strip supporting means when withdrawn from one of said magazines for delivering said stack of strips to one of said conveyor means.

12. In a mechanism for stacking sheet material, the combination of a plurality of magazines for receiving cut strips of different widths delivered from a sheet cutting mechanism, each magazine receiving strips of a different predetermined width, movable means operable in time with the delivery of strips to said magazines for alternately and selectively delivering strips of uniform width to said magazines respectively, holding means in each of said magazines for supporting the strips received therein in stacked formation, means operable when a stack of substantially the same predetermined number of strips has been built up in one of said magazines for withdrawing the holding means therefrom to release the stack of strips from said one magazine, conveyor means disposed beneath each of said magazines for receiving the stacks of strips as they are released therefrom and for carrying them to a place of deposit, and means actuated by a said holding means when withdrawn from its magazine for delivering said stack of strips released therefrom to one of said conveyor means.

13. In a mechanism for separately stacking strips of different sizes received from a sheet cutting mechanism, the combination of a first magazine for receiving and stacking therein a preponderance of cut strips of one size, a second magazine for receiving and stacking therein a less number of cut strips of a different size, a movable conveyor disposed in advance of said magazines in the path of travel of the cut strips and in one position receiving and delivering said one size strips to said first magazine, means engageable with said movable conveyor for periodically shifting the same to another position out of the path of strip travel to divert said different size strips to said second magazine, means operative in time with the delivery of the cut strips for actuating said conveyor engaging means to shift said movable conveyor for the described selective strip delivery to said first and second magazines, means for periodically releasing stacks of a predetermined number of said one size strips from said first magazine, means for periodically releasing at less frequent intervals stacks of an equal number of said different size strips from said second magazine, and means responsive to the periodic release of strip stacks from said first magazine for actuating the stack release from said second magazine only after the same predetermined number of strips has accumulated therein.

14. In a mechanism for separately stacking strips of different sizes received from a sheet cutting mechanism, the combination of a first magazine for receiving and stacking therein a preponderance of cut strips of one size, a second magazine disposed beneath said first magazine for receiving and stacking therein a less number of cut strips of a different size, a movable conveyor disposed in advance of said magazines in the path of travel of the cut strips and in one position receiving and delivering said one size strips to said first magazine, a fixed conveyor disposed beneath said movable conveyor for receiving and delivering said another size strips to said second magazine, a rotatable member engageable with said movable conveyor for periodically shifting the same to another position out of the path of strip travel to divert said different size strips to said second fixed conveyor and thence to said second magazine, means operative in time with the delivery of the cut strips for actuating said rotatable member to shift said movable conveyor for the described selective strip delivery to said first and second magazines, means for periodically releasing stacks of a predetermined number of said one size strips from said first magazine, means for periodically releasing at less frequent intervals stacks of an equal number of said different size strips from said second magazine, and means responsive to the periodic release of strip stacks from said first magazine for actuating the stack release from said second magazine only after the same predetermined number of strips has accumulated therein.

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