

Nov. 5, 1963

B. M. FINGERUT
 DEVICE FOR COLLECTING AND STACKING MASONRY
 REINFORCEMENTS AND THE LIKE

3,109,543

Filed May 29, 1961

4 Sheets-Sheet 1

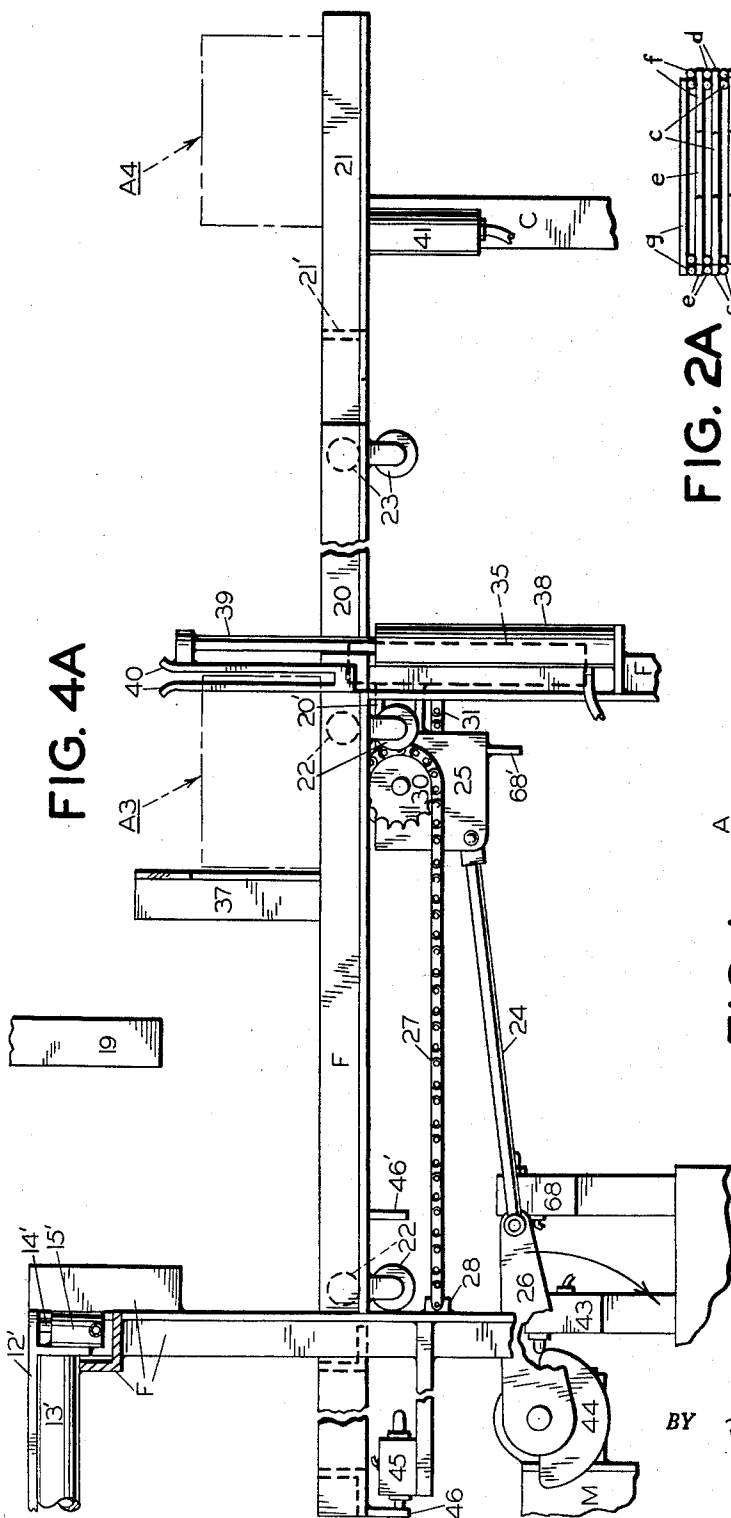


FIG. 4A

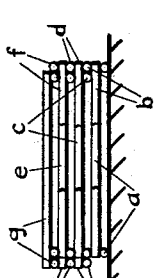


FIG. 2A

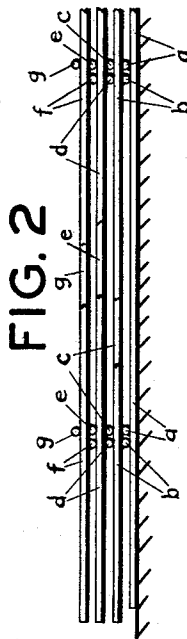


FIG. 2

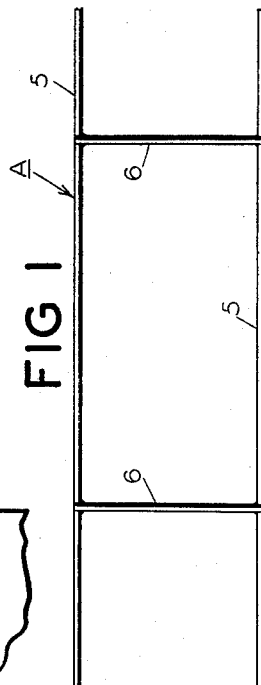


FIG. 1

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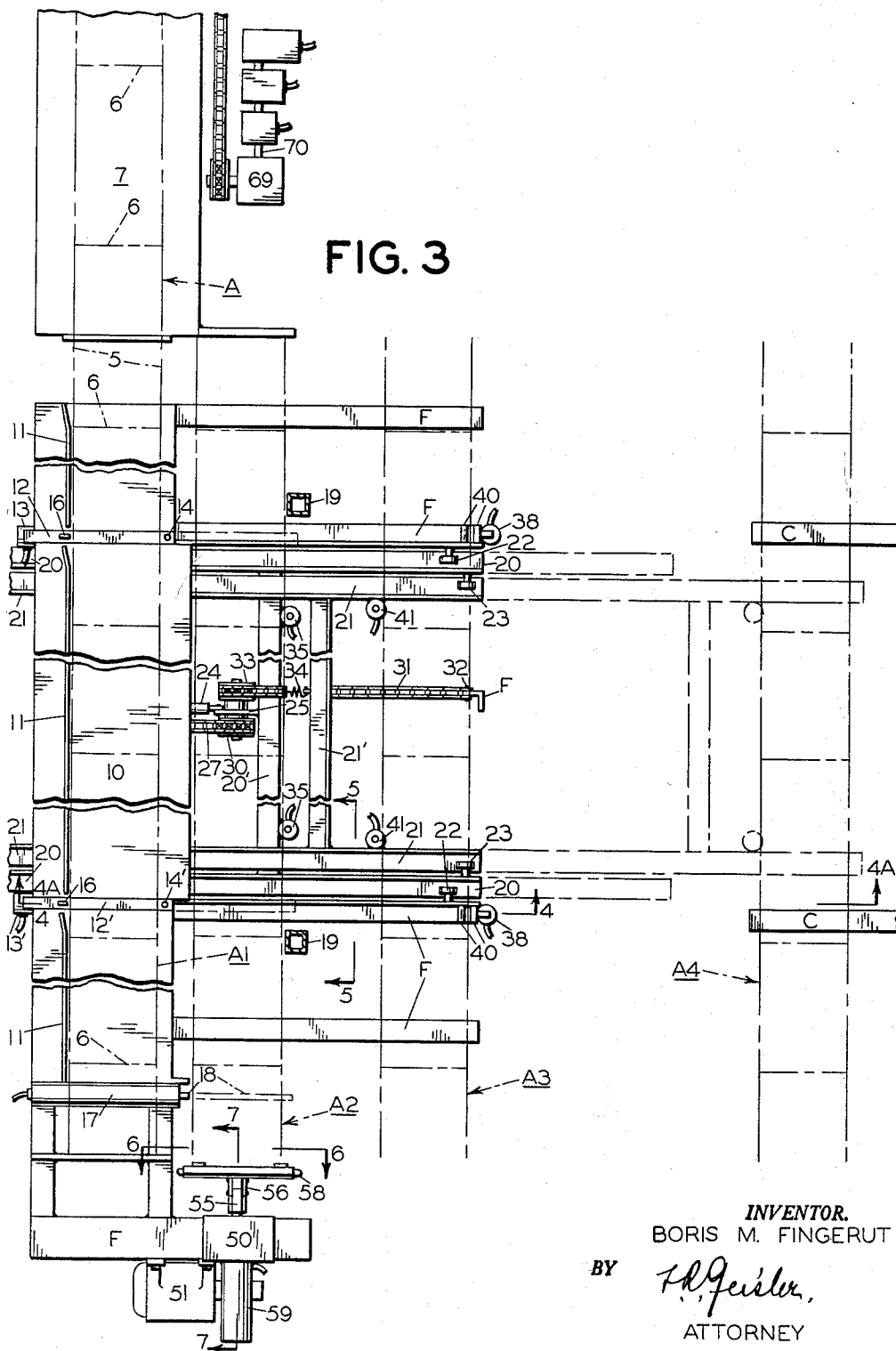


FIG. 3

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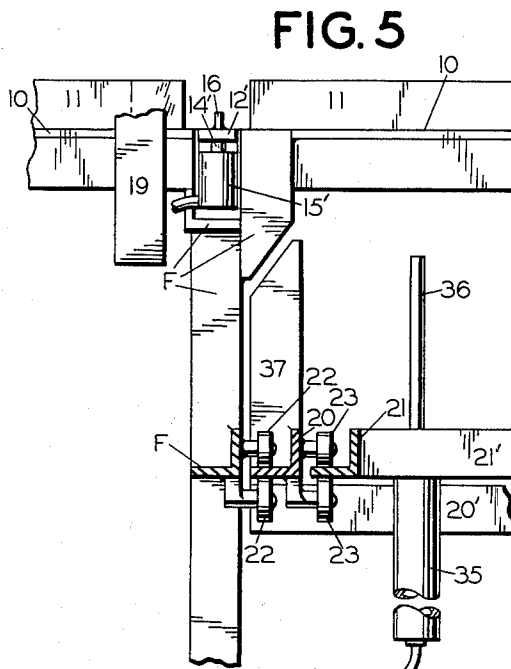
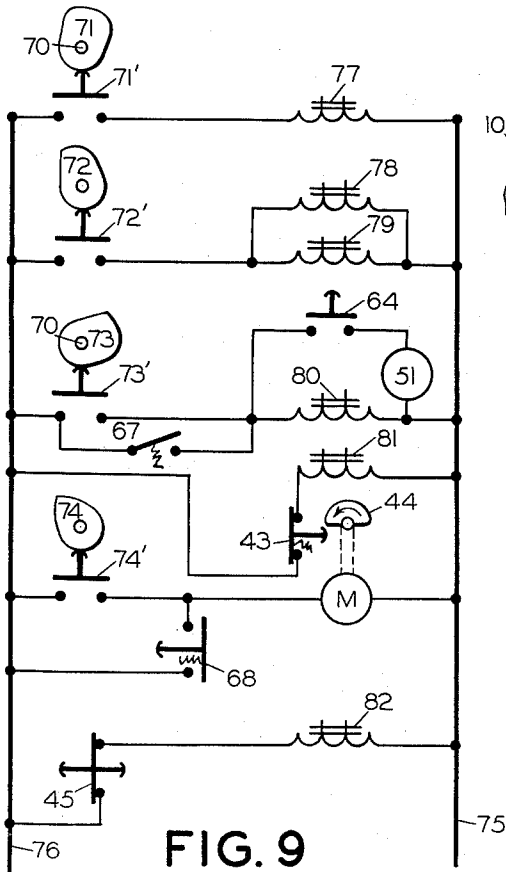
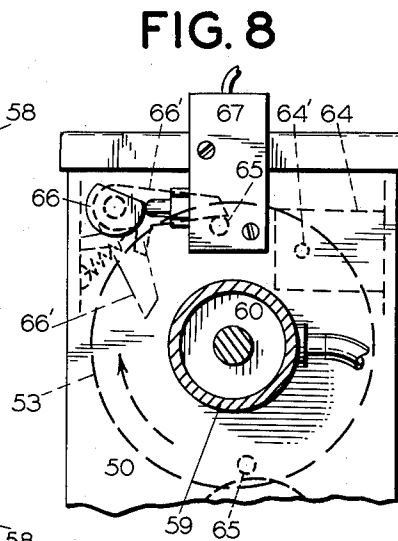
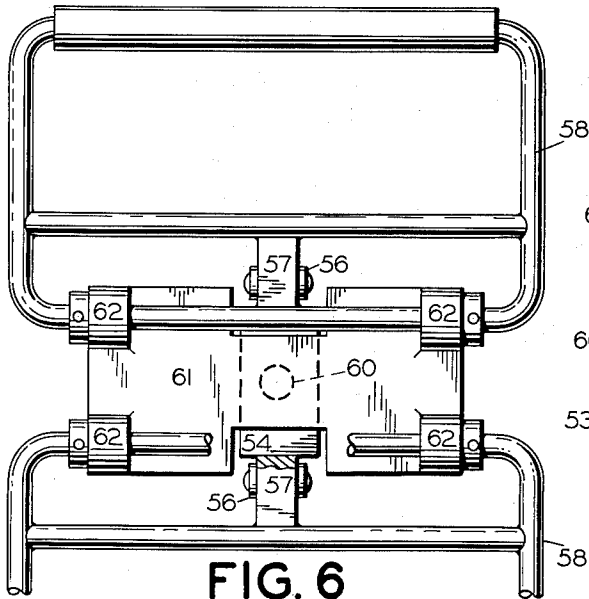
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4 Sheets-Sheet 4



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DEVICE FOR COLLECTING AND STACKING MASONRY REINFORCEMENTS AND THE LIKE

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5 Claims. (Cl. 214-6)

The present invention is concerned with the handling and stacking of fabricated articles as they are delivered one by one from a production source, and, more particularly, is concerned with a special type of masonry reinforcement as it is received from the machine in which it is fabricated. These masonry reinforcements are manufactured in standard sizes several feet in length, and, in order that they may be conveniently arranged for immediate shipment or storage as produced, it is desirable to have them arranged in uniform stacks of desired size so that the stacks can be tied and handled as units.

Heretofore the placing of these reinforcements in desired stacks has customarily been done manually. An object of the present invention is to provide a simple mechanical device which will collect and stack the reinforcements automatically as they are delivered consecutively from the machine in which they are fabricated.

The special masonry reinforcement for the handling of which the present device has been particularly developed comprises a pair of main longitudinally-extending side rods or wires which are joined at regular intervals by transverse rods or wires which have their ends welded respectively on the two main longitudinal rods or wires. This type of masonry reinforcement and a machine recently developed for fabricating the same are described in my co-pending application executed under date of April 10, 1961 and entitled "Machine for Making Masonry Reinforcement." A plan view of such reinforcement is also shown in FIG. 1 of the drawings herein.

Since with such reinforcement the transverse rods or wires are welded on the top on the main longitudinal rods or wires, and thus do not extend in the same plane with the longitudinal rods or wires, it is desirable, when arranging such reinforcements in stacks for shipment or storage, to turn every alternate one in the stack upside down in order that the stack will be more compact and easier to handle and will take up less space. Another important object of the present invention accordingly is to provide an improved device for handling and stacking such reinforcements which will cause the alternate reinforcements received from the fabricating machine to be turned over before being placed on the stack, without necessitating any manual handling of the reinforcements while they are being arranged in desired stack form.

The manner in which these objects and other incidental advantages are attained with the device of the present invention, and the construction and manner of operation of this device will be described briefly with reference to the accompanying drawings.

In the drawings:

FIG. 1 is fragmentary plan view of the particular masonry reinforcement for which the device of the present invention is especially intended, as previously mentioned;

FIG. 2 is a fragmentary side elevation and FIG. 2A is a corresponding fragmentary end elevation of a stack of such reinforcements showing the reinforcements arranged as desired in the stack so as to make the stack as compact as possible;

FIG. 3 is a foreshortened plan view of the device, showing, in broken lines, one of the masonry reinforcements in the successive positions which it occupies in the device, and showing also the end of the fabricating machine

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chine for the reinforcement which delivers the reinforcement onto the collecting and stacking device as the reinforcement is completed;

FIG. 4 is a sectional elevation taken on the line 4-4 of FIG. 3 drawn to a larger scale;

FIG. 4A is a similar sectional elevation taken on line 4A-4A of FIG. 3 showing certain portions of the device moved out to their extended position from the position as illustrated in FIG. 4;

FIG. 5 is a fragmentary section on line 5-5 of FIG. 3 drawn to the same scale as FIG. 4;

FIG. 6 is a fragmentary section on line 6-6 of FIG. 3 drawn to the same scale as FIG. 4, and also being taken on line 6-6 of FIG. 7;

FIG. 7 is a fragmentary sectional elevation on line 7-7 of FIG. 3 drawn to the same scale as FIG. 6;

FIG. 8 is a sectional elevation taken on line 8-8 of FIG. 7; and

FIG. 9 is a partial wiring diagram.

In FIG. 1 the masonry reinforcement illustrated, and indicated as a whole by the reference character A, is composed of the two main side wires 5, 5 which are connected at regular intervals by the transverse wires 6. The ends of the transverse wires are welded on the side wires respectively. When producing these reinforcements in any standard size it is customary to have them placed and bound together in stacks, and since the transverse wires and the main side wires do not extend in the same plane it is also customary, in stacking the reinforcements, to turn every other one over so as to make each stack as compact as possible. FIGS. 2 and 2A show such a portion of such stack arrangement, the individual reinforcements being indicated at a, b, c, d, e, f, and g. In the device of the present invention the turning over of every other article or reinforcement as it is delivered from the fabricating machine, as well as the stack of the articles or reinforcements, is done automatically as later explained.

Referring now to FIGS. 3, 4 and 5, the collecting and stacking device includes a top deck 10 supported on a suitable rigid skeleton frame. Portions of the frame only are shown in the figures and are indicated by F. The deck 10 is preferably mounted at a height at least one inch lower than the deck of the fabricating machine from which the reinforcement is delivered to allow the rear or cut end of the reinforcement to drop out of the way of the advancing or forward end of the next reinforcement formed on the machine. In FIG. 3 the discharging end of the machine 7 is indicated.

The deck 10 has a pair of transverse slots to accommodate a pair of movable slides 12 and 12'. A fence 11 extends on the deck along one side so as to guide the reinforcement as it is received onto the deck, the fence 11 being interrupted at the slides 12 and 12'. Each of the slides 12 and 12' carries a finger 16 which is in alignment with the fence 11 when the slide is in the retracted position (such position of each slide being shown in full lines in FIG. 3). These fingers 16 move the reinforcement out from the deck 10 (to the right as viewed in FIGS. 3 and 4) when the slides 12 and 12' are moved to the extended positions indicated in broken lines.

The slides 12 and 12' are secured to piston rods respectively of a pair of air pistons mounted in the air cylinders 13, 13', one of these cylinders being shown at 13' in FIG. 4. Another air cylinder 15 or 15' is carried by each of the slides 12 and 12', being positioned below the end of the slide, and each of the cylinders 15 or 15' operates a plunger 14 or 14' which, in raised position, acts as a guide for the opposite side of the reinforcement. Thus when the reinforcement is delivered onto the deck 10 it extends along between the fingers 16 and the raised plungers 14 and 14' of the slides 12 and 12', as indicated

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by the broken lines A1 in FIG. 3, and, when the slides 12 and 12' then move to their extended positions, they move the reinforcement with them to the position indicated by the broken lines A2 in FIG. 3.

Another cylinder 17 (FIG. 3), located at the far end of the deck 10, operates a supporting bar 18 which acts to support the far end of the reinforcement when the reinforcement is moved laterally by the slides 12 and 12'.

When the slides 12 and 12' and the bar 18 move out to their extended positions (as indicated in broken lines in FIGS. 3 and 4), and thus move the reinforcement laterally to the position of A2 (FIG. 3), the two plungers 14 and 14' in the ends of the two slides are dropped down to retracted position. Then the slides 12 and 12' and the bar 18 return quickly to their retracted positions, slipping from under the moved reinforcement A2, which causes the reinforcement to drop down onto supporting elements positioned at a lower level in the device and later described. The slides 12 and 12' and the bar 18 are not retracted simultaneously but the bar 18 and the slide 12' are retracted first, causing the far end of the reinforcement to drop first, whereupon the slide 12 is retracted and the dropping of the reinforcement is completed. Each reinforcement as it is dropped from the upper level to the lower level in the device forms part of a desired stack on the lower level. However the alternate reinforcements received from the fabricating machine are turned over prior to being dropped to the lower level. The reason for this has already been explained, and the means by which such alternate reinforcements are automatically turned over will now be described.

Referring to FIGS. 3, 6 and 7, a housing 50 is mounted on the end portion of the main frame F of the device in the location indicated in FIG. 3. A gear 53 (FIG. 7) has an integral sleeve portion 53' which is rotatably supported in a bearing 50' in the housing 50. The axis of the gear 53, sleeve 53' and supporting bearing 50' is substantially in horizontal alignment with the laterally moved reinforcement A2. A head 54 is carried on the outer end of the sleeve 53' normally spaced a slight distance from the outside of the housing 50. A pair of ears 55 extend forwardly from opposite sides of the head 40. Pairs of hinged links 56 (see also FIG. 6) connect the ears 55 with a pair of brackets 57 which are secured respectively to a pair of identical flipper frames 58, the shape of one of these flipper frames being shown in FIG. 6.

A plunger rod 60 (FIG. 7) is slidably mounted in the gear 53 and in the sleeve 53', being co-axial therewith, and is slidable in the walls of the housing 50 and in the head 54. The plunger rod 60 is connected to a piston within the air cylinder 59, the cylinder being supported on the rear wall of the housing 50. The delivery of compressed air into the cylinder 59, causing the spring-controlled piston and plunger rod 60 temporarily to be moved to the left (as viewed in FIG. 7) is controlled by a solenoid which is actuated periodically and automatically by a cam-operated switch mentioned later. A plate 61 (see also FIG. 6) is secured on the outer end of the plunger rod 30. The plate 61 carries an upper and lower pair of ears 62 in which the upper and lower flipper frames 58 are rotatable.

From FIG. 7 it will now be apparent that, when the plunger rod 60 and plate 61 are moved to the left (as viewed in this figure) from their normal full line position, the two flipper frames 58 will be swung towards each other from their normal vertical position and will be brought into contact with opposite faces of a reinforcement A2 which has been moved out laterally in the device.

When the plate 61 is moved inwardly (to the left) by the plunger rod 60 (FIG. 7) the plate 61 engages the head 54 of the sleeve 53' and causes the head 54 and sleeve 53', and therewith the gear 53, also to be moved a slight distance to the left against the force of the interposed spring 63.

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This sliding movement of the gear 53 to the left releases a spring contact element 64' on a micro switch 64 which causes temporary actuation of a motor 51. The motor 51, through the medium of a suitable gear reduction, operates a gear 52 which meshes with the gear 53. The resulting rotation of gear 53, and therewith of the head 54, rotates the flipper frames 58 and the reinforcement A2 which the flipper frames have gripped between them. The gear 53 rotates 180° each time and then stops.

A pair of fingers 65 are mounted on the gear 53 at diametrically opposite points (see FIGS. 7 and 8). These fingers are so arranged as to engage a spring-loaded arm 66' of a cam element 66 which opens a normally closed switch 67. The switch 67, when opened, acts to disconnect the circuit to the motor, as later explained. At the same time the air exhausts from the cylinder 59, causing the spring-actuated piston and the plunger rod 60, and therewith the plate 61, flipper frames 58, and gear 53 to return to normal position.

The delivery of air to the cylinder 59 for operating the plunger rod 60 is automatically controlled so that this takes place with the delivery of alternate reinforcements to the device. In other words, only alternate reinforcements are engaged and turned by the flipper frames 58. When such alternate reinforcements are delivered, the turning of the reinforcement by the flipper frames occurs immediately after the rod 18 and slide 12' are retracted and before the slide 12 is retracted, so that one end of the reinforcement still rests on the slide 12 while the opposite or far end of the reinforcement is being handled by the flipper frames.

A pair of side stationary stops 19 (FIGS. 3 and 4) extend downwardly a short distance adjacent the ends of the slides 12 and 12' when these are in extended position and serve as guides and guards for the outside edge of the reinforcement as it is being dropped and/or turned. These stops are supported by top frame members (not shown).

A lower sliding frame, composed of a pair of parallel slide bars 20 (FIG. 3) connected by a cross bar 20', and also connected at their inner ends (not shown), is mounted in the device for receiving the reinforcements as they are dropped from the top level. The slide bars 20 are slidably mounted on pairs of wheels 22 which are carried on main frame members (FIGS. 3, 4 and 4A). A plate 25, secured to the cross bar 20', is connected by a connecting rod 24 with a crank 26 secured on a shaft driven from a motor M through suitable gear reduction. Thus, as the crank 26 revolves the slide bars 20 are moved from the retracted full line position out to the broken line position shown in FIG. 3 and then back to retracted position.

A pair of air cylinders 35 are supported from the cross bar 20'. These air cylinders operate the plungers 36 (FIG. 4) which are thrust up to raised position when the slide bars 20 are retracted, and thus provide guides for the outer side edge of the reinforcements as they are placed in the stack on the slide bars 20. A pair of upright legs 37, one of which is shown in FIG. 4, are secured on the slide bars 20 near their inner ends and are spaced inwardly from the plungers 36 a distance slightly greater than the width of the reinforcements, and thus these legs provide guides for the inner side edges of the reinforcements as they are stacked, as indicated in FIG. 4.

When the predetermined number of reinforcements have been stacked on the slide bars 20 these bars move to outward position, through the operation of the motor M as previously explained, and move the stack of reinforcements to the outer position indicated on the right in FIG. 4 as A3. When the slide bars 20 are moved outwardly the plungers 36 are dropped by their cylinders 35 in lowered out-of-the-way position.

A pair of stationary air cylinders 38 are supported from lower main frame members. Vertical piston rods 39, operated by the cylinders 38, carry U-shaped holders 40 (FIGS. 4 and 4A). When the slide bars 20 are moved to their outward position, carrying the stack of

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reinforcements with them to the position indicated at A3, the piston rods 39 and the U-shaped holders are raised, as shown best in FIG. 4A, the U-shaped holders sliding up over the outer main side wires of the reinforcements in the stack A3. These U-shaped holders then hold the reinforcements firmly in place in the stack, and, while they are so held, the operator can tie cords or wires around the stack, or place other binding means on the stack since the stack has now been completed. When the U-shaped holders 40 have gripped the stack the slide bars 20 move back to retracted position to receive the reinforcements for the next stack. Delivery of air under pressure into the cylinders 38 is controlled through a solenoid valve (not shown) which is actuated by a spring-controlled switch 43 (FIGS. 4 and 4A) which is opened when a switch element is engaged by a rotating cam 44 secured on the shaft carrying the crank 26. The cylinders 38 are double acting and the arrangement is such that the pistons in the cylinders 38 move to lower position when the slide bars 20 start moving outwardly, and the pistons are raised when the slide bars 20 have reached their outward position thus causing the U-shaped holders 40 to be raised, and these holders remain raised while the slide bars 20 move back to retracted position.

A second sliding frame is similarly composed of a pair of parallel slide bars 21 (FIG. 3) connected by a cross bar 21' and joined at their inner ends (not shown). The pair of slide bars 21 are located adjacent the slide bars 20 respectively, and pairs of wheels 23 carried by the bars 20, support the slide bars 21 and thus enable the second sliding frame to have sliding motion with respect to the first sliding frame. When both frames are in retracted position the ends of the slide bars 21 are flush with the slide bars 20, as shown in FIG. 3, but when the sliding frame with the bars 20 moves to outward position the sliding frame with the slide bars 21 moves outwardly considerably further than the frame with the slide bars 20, as shown by the broken lines in FIG. 3, and the outward movement of the sliding frame with the bars 21 occurs twice as fast as the movement of the sliding frame with the slide bars 20. The manner in which this takes place will now be described.

A sprocket wheel 30 (FIGS. 3, 4 and 4A) is rotatably supported on the plate 25. A sprocket chain 27 has one end anchored to the main frame of the device at 28. The other end of this chain is secured to the rear of the sliding frame having the slide bars 21. Consequently when the frame containing the slide bars 20 and the plate 25 is moved outwardly by the connecting rod 24 and crank 26, the frame with the slide bars 21 will move out twice as fast.

A second sprocket wheel 33 (FIG. 3) is also mounted on the plate 25. A second sprocket chain 31, having one end anchored to a stationary outer frame member at 32, has its other end attached, through the medium of the spring 34, to a cross bar 21' of the frame with the slide bars 21. Thus when the frame with the slide bars 20 and the plate 25 are moved back to retracted position, the frame with the slide bars 21 is similarly moved back twice as fast to retracted position.

The two sliding frames, thus the frame with the slide bars 20 and the frame with the slide bars 21, move back to retracted position when the stack of reinforcements (in the position indicated by A3) is engaged by the raised U-shaped holders 40, the holders 40 preventing the stack from moving back with the slide bars 20 and 21. The sliding frames remain in their normal retracted position while a second stack of reinforcements is being collected. During this interval the operator has time to tie the first stack as it is held in outer position. Then, when the second stack is completed and the frames with the slide bars 20 and 21 again start moving outwardly, the piston rods 39, and therewith the U-shaped holders 40,

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are lowered to enable the first stack to move on out of the way of the second stack.

A pair of air cylinders 41 (FIGS. 3, 4 and 4A) are carried by the slide bars 21 and are located in the relative position shown in FIG. 3. Plungers 42 are operated by these cylinders 41 and these plungers are raised whenever the slide bars 21 start moving outwardly and are lowered when the slide bars start to return to retracted position.

Thus when the pairs of slide bars start moving outwardly and the second stack of reinforcements is ready, the lowering of the holders 40 and the raising of the plungers 42 will cause the first stack now to be moved still further outwardly with the slide bars 21 to the final position indicated at A4 in FIGS. 3 and 4A. In this final location the stack is moved into position for transfer onto a suitable chute or suitable conveying means (indicated in part at C in FIG. 3) through which the first stack is now conveyed to a desired location for shipment or storage.

A stationary double-acting switch 45 (FIGS. 4 and 4A) is mounted on the main frame of the device and is so arranged as to be operated in one direction by engagement with an arm 46' carried by the lower sliding frame with the bars 20, when the sliding frames are in retracted position and to be operated in the opposite direction by engagement by an arm 46 carried by the same sliding frame when the sliding frames are in extended position. The switch 45 actuates solenoid-controlled valves for the cylinders 35 (which operate the plungers 36) and for the cylinders 41 (which operate the plungers 42). The solenoid-controlled valves for the cylinders 35 and 41 are so arranged that the plungers 36 and 42 will be raised when the switch 45 is moved in one direction by the arrival of the sliding frames to retracted position and will be lowered as soon as the sliding frames arrive at their extended position. Thus the plungers 36 and 42 are raised when the frames arrive at their retracted position and remain raised throughout the time the reinforcements are being stacked and also while both sliding frames are moving to outward position, and the plungers 36 and 42 are lowered when the frames reach outward position and remain lowered while the frames move back to retracted position.

The manner in which the operation of the device is automatically controlled in synchronism with the delivery of reinforcements from the fabricating machine will now be briefly explained with reference to FIG. 9. A series of rotating switch-actuating cams 71, 72, 73 and 74, are operated by connections with a shaft 70 (FIG. 3) which is driven through suitable gear connection, indicated at 69, from the main operating motor (not shown) of the fabricating machine 7.

The cams 71 and 72 (FIG. 9) are so arranged that each rotation will correspond to the delivery of a fabricated reinforcement from the machine 7. The cam 73 is so arranged that it will rotate only once during the delivery of two consecutive reinforcements from the fabricating machine 7, and the cam 74 is so arranged that only one rotation of this cam will take place during the delivery of a predetermined number of reinforcements, the number corresponding to the number desired for each completed stack of reinforcements.

The rotation of cam 71 causes temporary closing of a switch 71' upon the delivery of each reinforcement on the deck of the device. The closing of switch 71' activates solenoid valves, indicated at 77, for the cylinder 13 which operates the first slide 12, and the cylinder 15 on the end of slide 12 which operates the plunger 14 on the slide 12. Similarly the rotation of the companion cam 72 temporarily closes the switch 72' which causes activation of solenoid valves, indicated at 78, which operate the cylinder 13' for the slide 12' and the cylinder 15' on the end of slide 12' for the plunger 14'. Closing of switch 72' also activates a solenoid valve, indicated at 79, for the cylinder 17 for the slide bar 18 (FIG. 3). The cams 71 and 72 are so shaped and arranged that the slide bars 12, 12' and

18 will be moved outwardly simultaneously but the slide bar 12 will remain out in extended position slightly longer than the bars 12' and 18, as previously mentioned.

The rotation of cam 73, which occurs once with the delivery of every two reinforcements, instead of with the delivery of each reinforcement, temporarily closes switch 73' which activates the solenoid valve, indicated at 80, for operating the cylinder 59 (FIG. 7). As previously explained, the delivery of air under pressure into cylinder 59 causes movement of the flipper frames 58 into engagement with the reinforcement, and closes switch 64 (FIG. 7) so as to cause operation of the motor 51. Upon operation of the motor 51, which results in rotation of the flipper frames 58 and gears 65, the spring-operated switch 67 is immediately allowed to close and remains closed, acting as a holding circuit switch, until the flipper frames 58 and gears 65 have rotated 180°, whereupon switch 67 is again opened.

The rotation of cam 74, which, as previously mentioned, occurs once during the delivery of predetermined number of reinforcements on the device, temporarily closes switch 74' which causes operation of the motor M and results in movement of the sliding frames to extended positions and then back to retracted position. Cam 44, rotated by the motor M, engages the switch 43 when the sliding frames are moving to outward position and causes the switch 43 to open against the force of its spring. The opening and closing of switch 43, through the intermediary of the solenoid valve, indicated at 81, operates the double acting cylinders 38 in such manner that the holders 40 are dropped when the sliding frames are moving outward and are raised when the frames reach outward position and remain raised while the sliding frames return to retracted position. The spring-operated switch 68 acts as a holding circuit switch for the motor M, causing the motor to continue operating until the sliding frames have been returned to retracted position at which time a finger 68', carried by the plate 25, opens the switch 68 and thus stops the motor M until the cam switch 74' is again closed, the closing of the cam switch 74' occurring again after a further predetermined number of reinforcements have been delivered, as previously mentioned.

The double acting mechanical switch 45, by activating solenoid-controlled valves, indicated at 82, causes operation of the cylinders 35 (for the plungers 36) and of the cylinders 41 (for the plungers 42) as previously described.

Thus the operation of the entire device, the moving of each received reinforcement out from the deck 10, the dropping of the reinforcement so as to form a desired stack, with the turning over of every alternate reinforcement, and the movement of the stack to the subsequent positions until final disposal of the stack, take place automatically in synchronism with the delivery of the reinforcements from the fabricating machine.

Although the invention has been described as employed in the handling and stacking of the special type of masonry reinforcement mentioned, it is to be understood that the invention is not intended to be restricted to use exclusively with such articles inasmuch as the invention may also be employed obviously for other articles of an elongated rectangular shape which may require similar handling and stacking.

I claim:

1. In a collecting and stacking device of the character described for fabricated articles as delivered separately from a fabricating machine, an upper receiving deck, guide means on said deck for guiding one side of the article as delivered onto said deck, a pair of substantially parallel, transversely movable slides in said deck, an engaging member on each slide for engaging the side of the article positioned along said guide means, means for moving each slide and therewith the article on said slide to extended position beyond the side of said deck opposite said guide means and for subsequently returning each side to normal retracted position, a flipper assembly located at the far

end of said device, said assembly including a pair of flipper frames extending in a single transverse vertical plane when in normal inoperative position, said frames mounted on a supporting head on horizontal hinge axes, said head rotatably supported on a horizontal axis substantially in alignment with the article on the device when said article has been moved laterally beyond said deck by said slides, means for swinging said flipper frames forwardly in opposite directions towards each other so as to cause said flipper frames to engage upper and lower faces respectively of the article on said slides, related means for causing 180° rotation of said head and therewith of said flipper frames when said flipper frames are in engagement with an article moved laterally from said deck, control means operating said flipper assembly with the bringing of each alternate article into extended position by said slides, a lower slide assembly movable in a horizontal plane and positioned to receive each article dropped from said first mentioned slides and from said flipper frames, guides for causing the articles dropped onto said lower slide assembly to be positioned in stack formation, means for moving said lower slide assembly and therewith the stack of articles on said lower slide assembly into outer position when a predetermined number of articles have been accumulated in the stack and for subsequently returning said slide assembly to normal retracted position, stack holding elements for temporarily holding said stack stationary in said outer position while said lower slide assembly returns to retracted position, and operating means for said stack holding elements.

2. In a collecting and stacking device for masonry reinforcements as delivered separately from a fabricating machine, an upper receiving deck, guide means on said deck for guiding one side of the reinforcement as delivered onto said deck, a pair of substantially parallel, transversely movable slides in said deck, an engaging member on each slide for engaging the side of the masonry reinforcement positioned along said guide means, means for moving each slide and therewith the reinforcement on said deck to extended position beyond the side of said deck opposite said guide means and for subsequently returning each slide to normal retracted position, a lower slide assembly movable in a horizontal plane and positioned to receive each reinforcement dropped from said first mentioned slides, guides for causing the reinforcements dropped onto said lower slide assembly to be positioned in stack formation, means for moving said lower slide assembly and therewith the stack of reinforcements on said lower slide assembly into outer position when a predetermined number of reinforcements have been accumulated in the stack and for subsequently returning said assembly to normal retracted position, stack holding elements for temporarily holding said stack stationary in said outer position, means for raising said stack holding elements when said lower slide assembly is in outer position and for lowering said elements when said slide assembly is in retracted position, a second slide assembly slidable in the same plane with said lower slide assembly, the outer ends of said lower slide assembly and said second slide assembly being in substantial registration with each other when said lower slide assembly and said second slide assembly are in fully retracted position, means operated by the moving means for said lower slide assembly for moving said second slide assembly simultaneously with said lower slide assembly but twice as far as said lower slide assembly, stack engaging members on said second slide assembly for moving the stack into final discharging position, and means for moving said last mentioned members into operative position with the outward movement of said second slide assembly.

3. In a collecting and stacking device for masonry reinforcements as delivered separately from a fabricating machine, an upper receiving deck, guide means on said deck for guiding one side of the reinforcement as delivered onto said deck, a pair of substantially parallel, transversely movable slides in said deck, an engaging

member on each slide for engaging the side of the masonry reinforcement positioned along said guide means, a retractable plunger on each slide for guiding the opposite side of said reinforcement, means for moving each slide and therewith the reinforcement on said deck to extended position beyond the side of said deck opposite said guide means and for subsequently returning each slide to normal retracted position, means for retracting said plungers as said slides reach extended position, a lower slide assembly movable in a horizontal plane and positioned to receive each reinforcement dropped from said first mentioned slides, guides for causing the reinforcements dropped onto said lower slide assembly to be positioned in stack formation, means for moving said lower slide assembly and therewith the stack of reinforcements on said lower slide assembly into outer position when a predetermined number of reinforcements have been accumulated in the stack and for subsequently returning said assembly to normal retracted position, stack holding elements for temporarily holding said stack stationary in said outer position, means for raising said stack holding elements when said lower slide assembly is in outer position and for lowering said elements when said lower slide assembly is in retracted position, a second slide assembly carried by said lower slide assembly and slidable in the same plane with said lower slide assembly, means operated by the moving means for said lower slide assembly for moving said second slide assembly and so arranged that said second slide assembly will be moved simultaneously with said lower slide assembly but at greater speed than said lower slide assembly, stack engaging members on said second slide assembly for moving the stack into final discharging position, and means for moving said last mentioned members into operative position with the outward movement of said second slide assembly.

4. In a collecting and stacking device for masonry reinforcements as delivered separately from a fabricating machine, an upper receiving deck, guide means on said deck for guiding one side of the reinforcement as delivered onto said deck, a pair of transversely movable slides in said deck, an engaging member on each slide for engaging the side of the masonry reinforcement positioned along said guide means, means for moving each slide and therewith the reinforcement on said deck to extended position beyond the side of said deck opposite said guide means and for subsequently returning each slide to normal retracted position, a flipper assembly located at the far end of said device, said assembly including a pair of flipper frames extending in a single transverse vertical plane when in normal inoperative position, said frames mounted on a supporting head on horizontal hinge axes, said head rotatably supported on a horizontal axis substantially in alignment with the reinforcement on the device when

said reinforcement has been moved laterally beyond said deck by said slides, means for swinging said flipper frames forwardly in opposite directions towards each other so as to cause said flipper frames to engage upper and lower faces respectively of the reinforcement on said slides, related means for causing 180° rotation of said head and therewith of said flipper frames when said flipper frames are in engagement with a reinforcement, control means operating said flipper assembly with the bringing of each alternate reinforcement into position beyond the side of said deck, a lower slide assembly movable in a horizontal plane and positioned to receive each reinforcement dropped from said first mentioned slides and from said flipper frames, guides for causing the reinforcements dropped onto said lower slide assembly to be positioned in stack formation, means for moving said lower slide assembly and therewith the stack of reinforcements on said lower slide assembly into outer position when a predetermined number of reinforcements have been accumulated in the stack and for subsequently returning said assembly to normal retracted position, stack holding elements for temporarily holding said stack stationary in said outer position, means for raising said stack holding elements when said lower slide assembly is in outer position and for lowering said elements when said lower slide assembly is in retracted position, a second slide assembly slidable in the same plane with said lower slide assembly, means operated by the moving means for said lower slide assembly for moving said second slide assembly and so arranged that said second slide assembly will be moved simultaneously with said lower slide assembly but at twice the speed of said lower slide assembly, stack engaging members on said second slide assembly for moving the stack into final discharging position, and means for moving said last mentioned members into operative position with the outward movement of said second slide assembly.

5. The combination set forth in claim 4, with said means for moving said slides, said control means operating said flipper assembly, said means for moving said lower slide assembly, and said means for raising and lowering said stack holding elements automatically regulated by the delivery of the masonry reinforcements onto the device from the fabricating machine.

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