Feb. 27, 1923. 1,447,155

J. J. SEMASHKO

MACHINE FOR ASSEMBLING TILES

Filed June 9, 1921 8 sheets-sheet 1

Fig. 1.

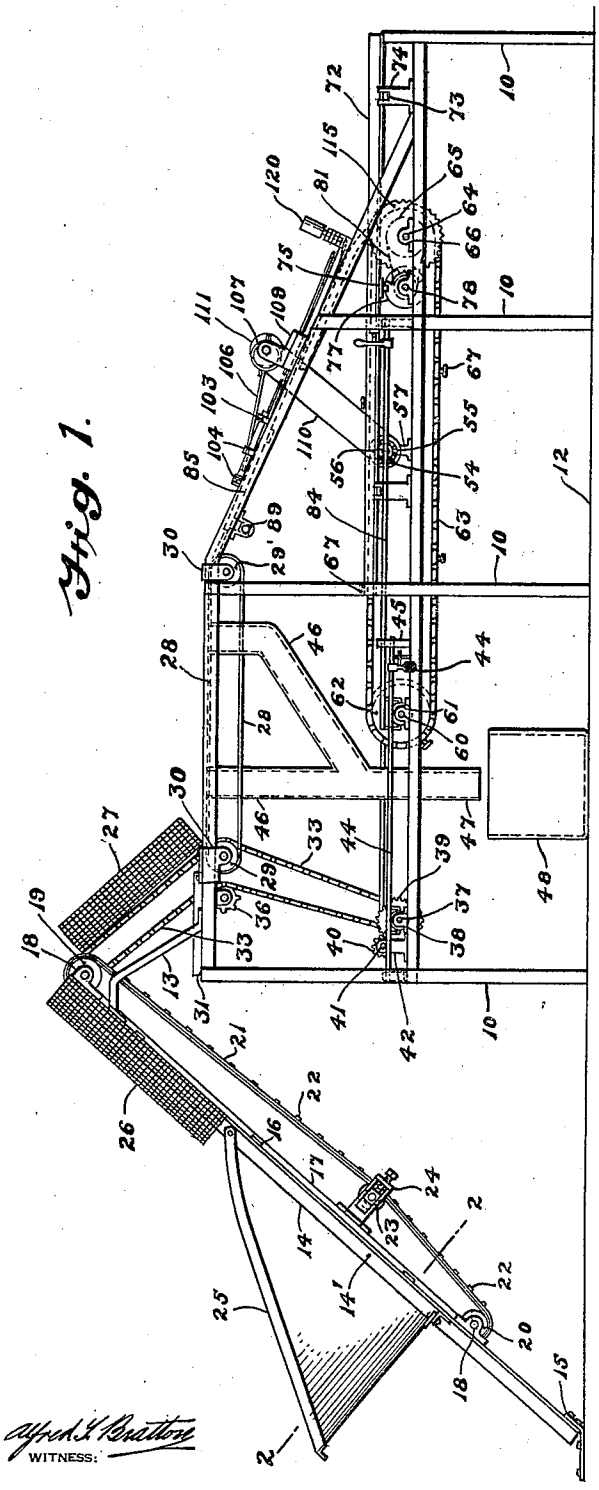


Fig. 3.

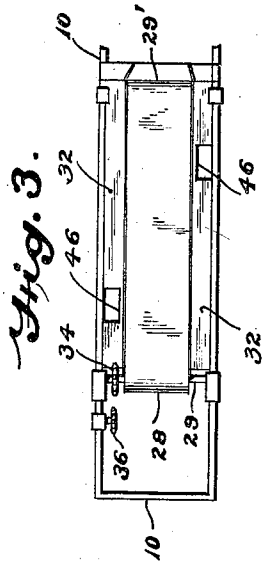
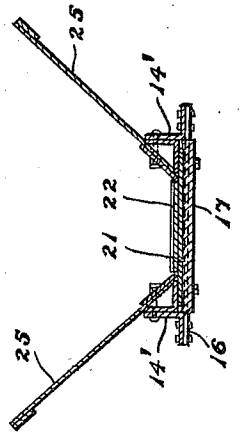


Fig. 2.



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Feb. 27, 1923.

1,447,155

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MACHINE FOR ASSEMBLING TILES

Filed June 9, 1921

8 sheets-sheet 2

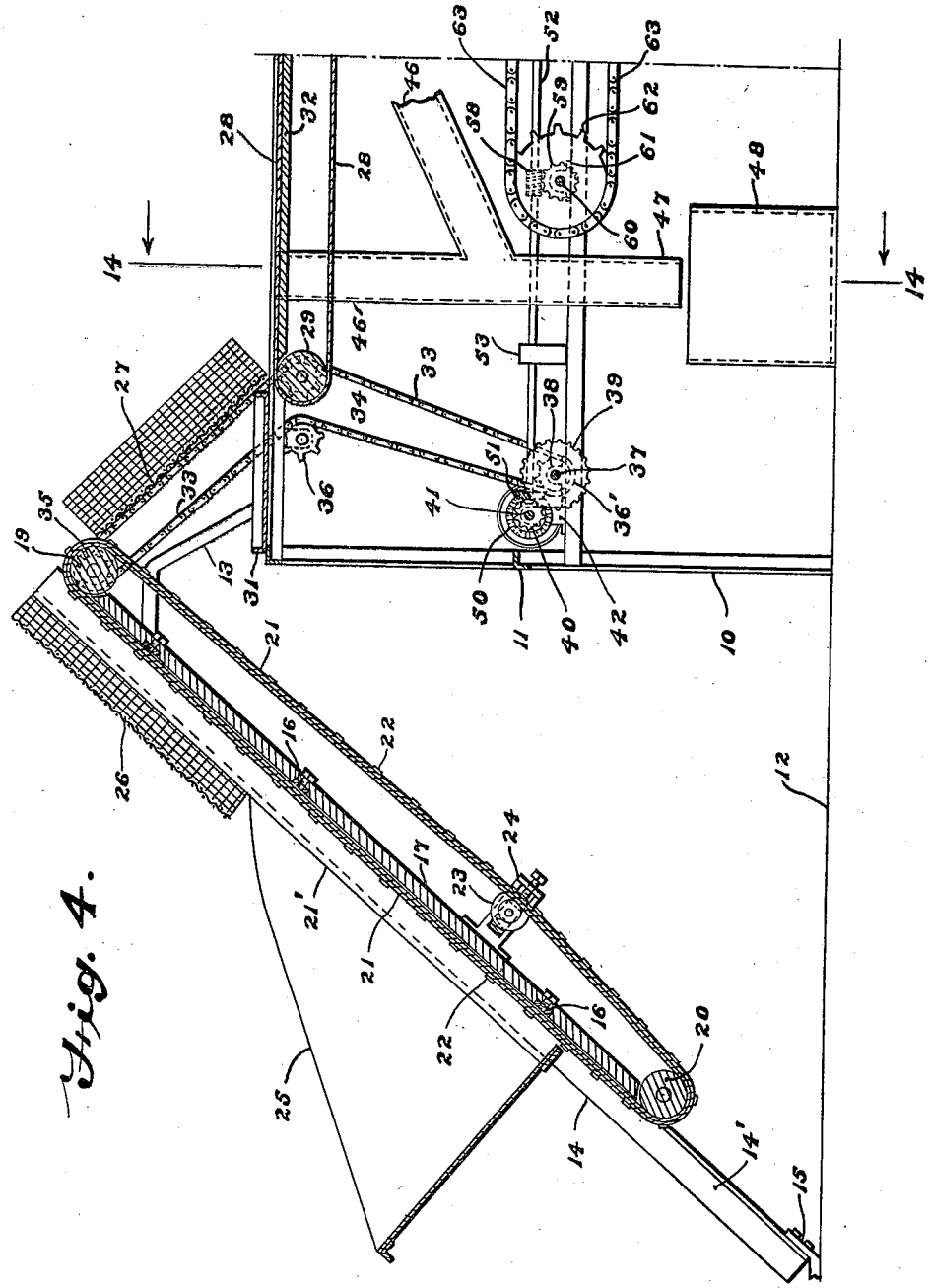


Fig. 4.

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Alfred J. Bratton
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Feb. 27, 1923. 1,447,155

J. J. SEMASHKO

MACHINE FOR ASSEMBLING TILES

Filed June 9, 1921 8 sheets-sheet 3

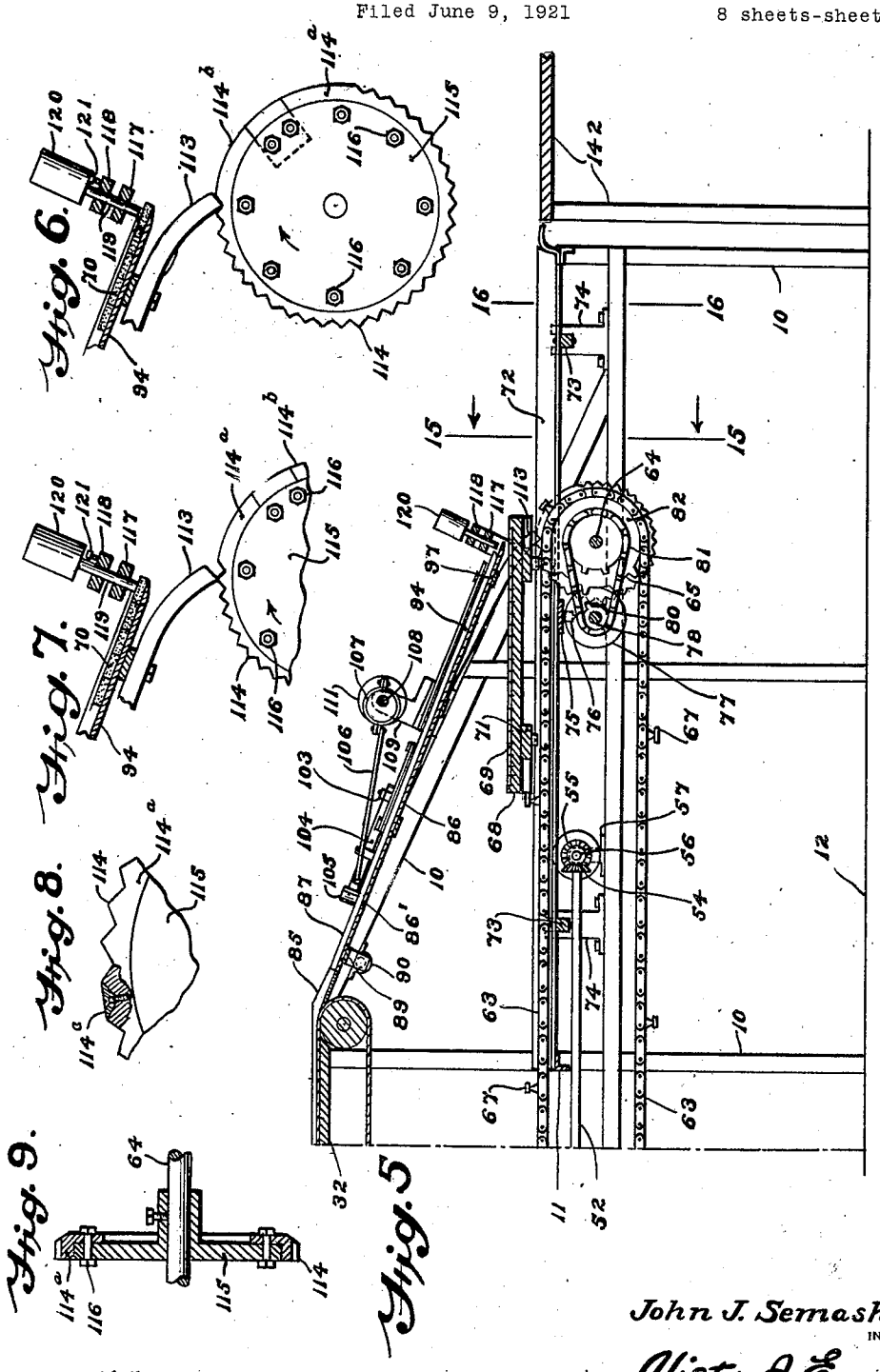


Fig. 6.

Fig. 7.

Fig. 8.

Fig. 9.

Fig. 5.

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Feb. 27, 1923. 1,447,155

J. J. SEMASHKO

MACHINE FOR ASSEMBLING TILES

Filed June 9, 1921 8 sheets-sheet 4

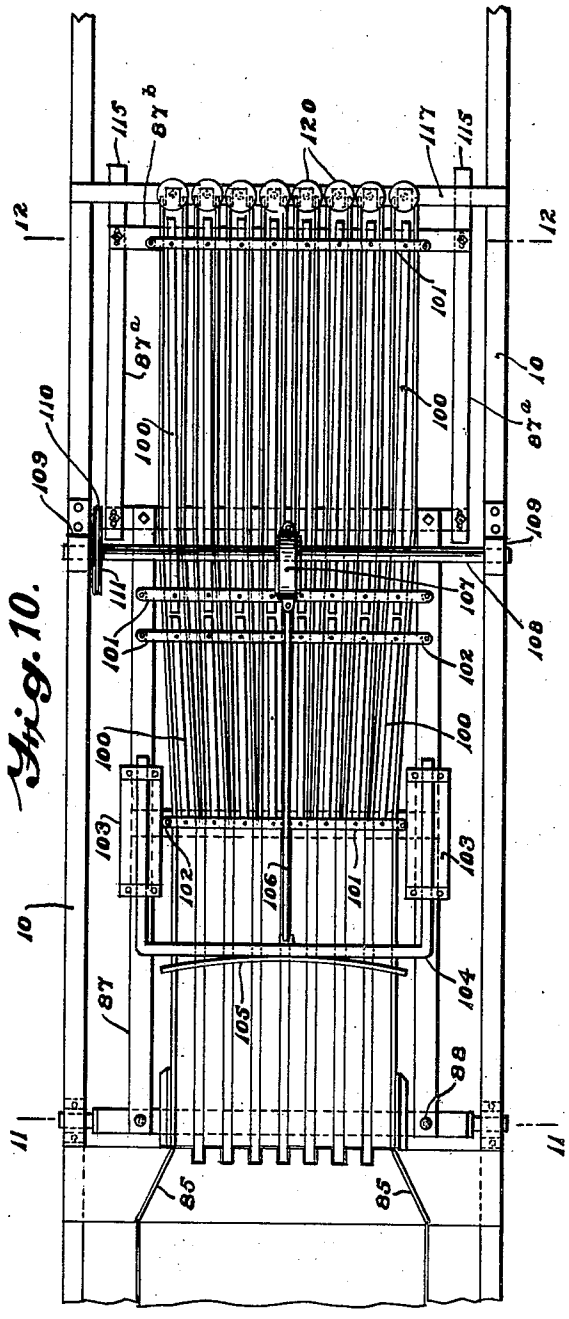


Fig. 10.

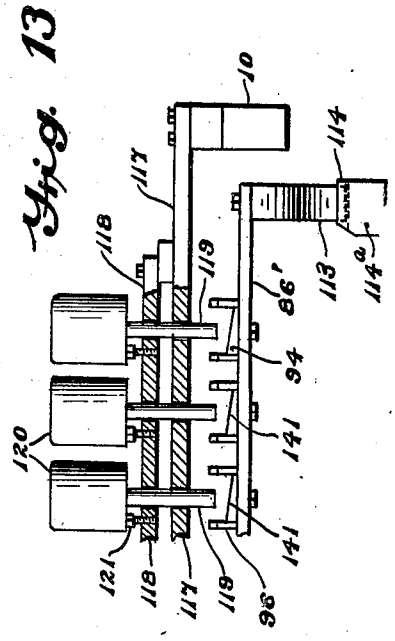


Fig. 13

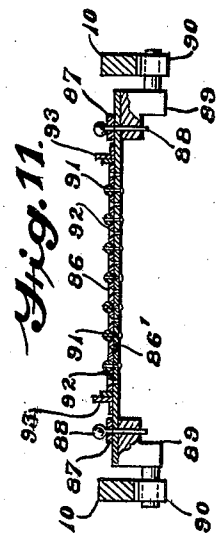


Fig. 11.

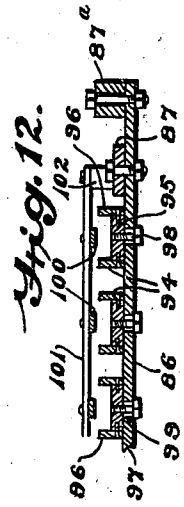


Fig. 12.

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Feb. 27, 1923. 1,447,155

J. J. SEMASHKO

MACHINE FOR ASSEMBLING TILES

Filed June 9, 1921 8 sheets-sheet 5

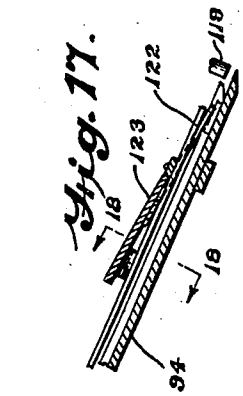


Fig. 17.

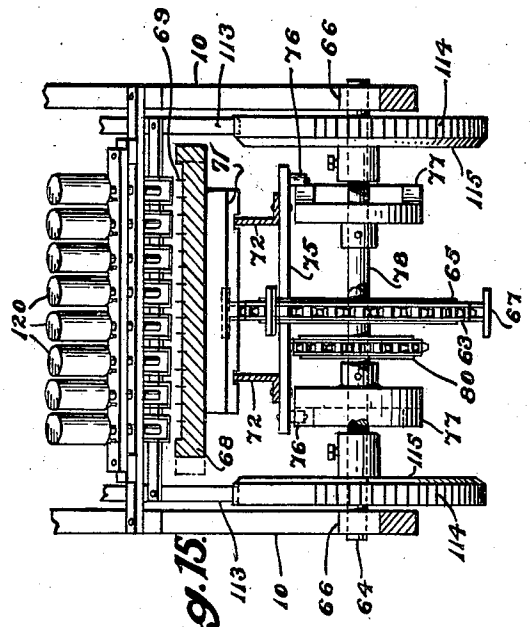


Fig. 15.

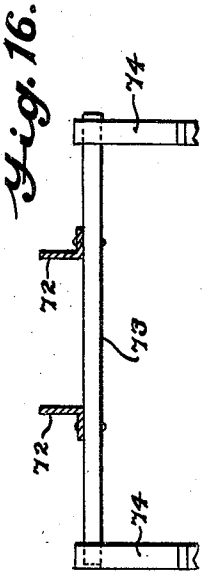


Fig. 16.

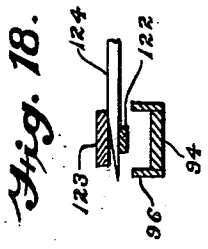


Fig. 18.

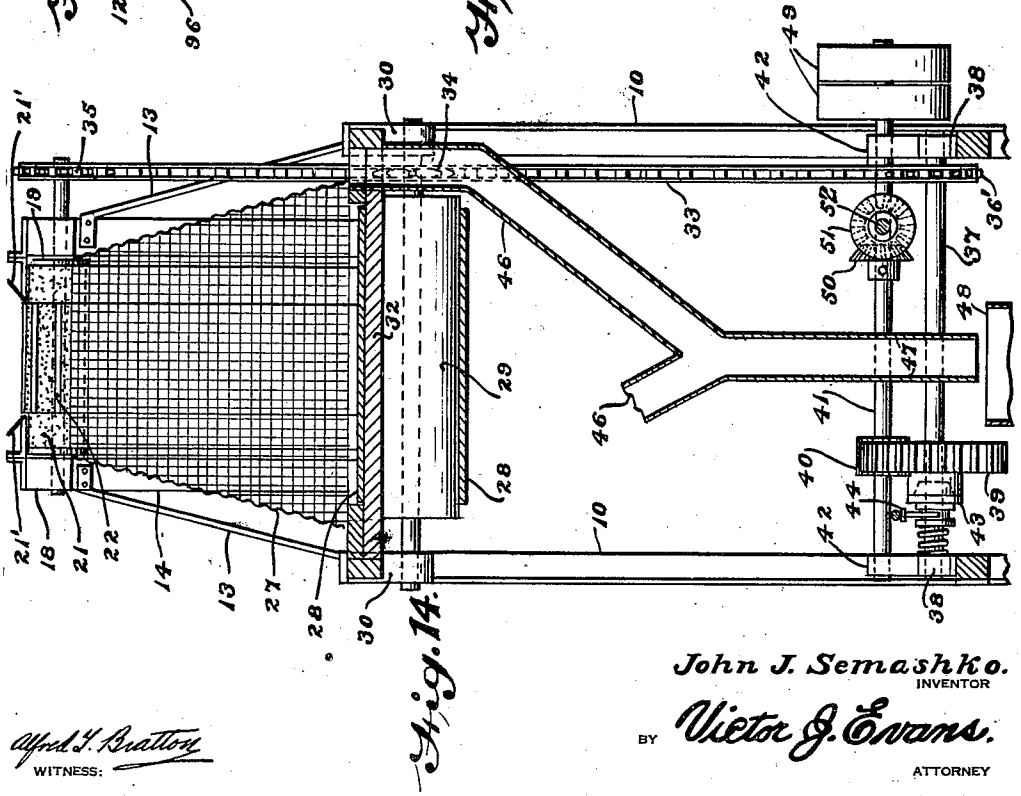


Fig. 14.

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Feb. 27, 1923. 1,447,155

J. J. SEMASHKO

MACHINE FOR ASSEMBLING TILES

Filed June 9, 1921. 8 sheets-sheet 6

Fig. 19.

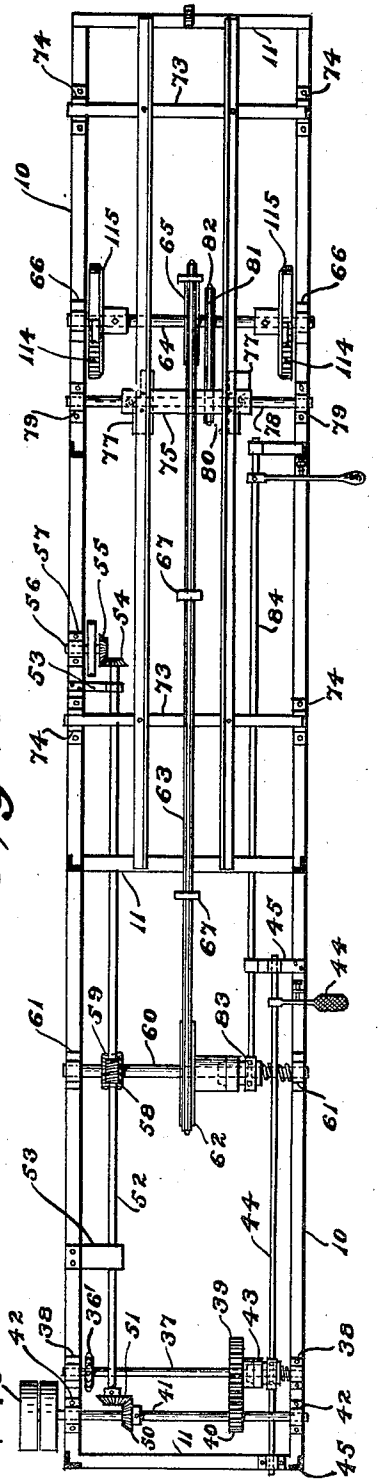


Fig. 24.



Fig. 25.



Fig. 23.

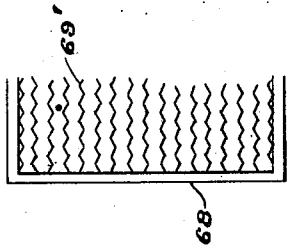


Fig. 22.

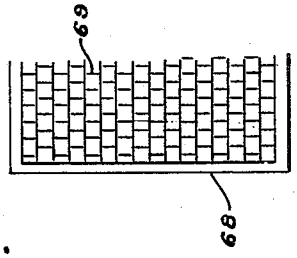


Fig. 21.

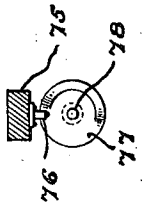
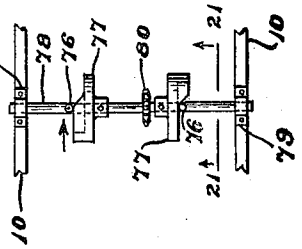


Fig. 20.



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Feb. 27, 1923. 1,447,155

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MACHINE FOR ASSEMBLING TILES

Filed June 9, 1921 8 sheets-sheet 7

Fig. 26.

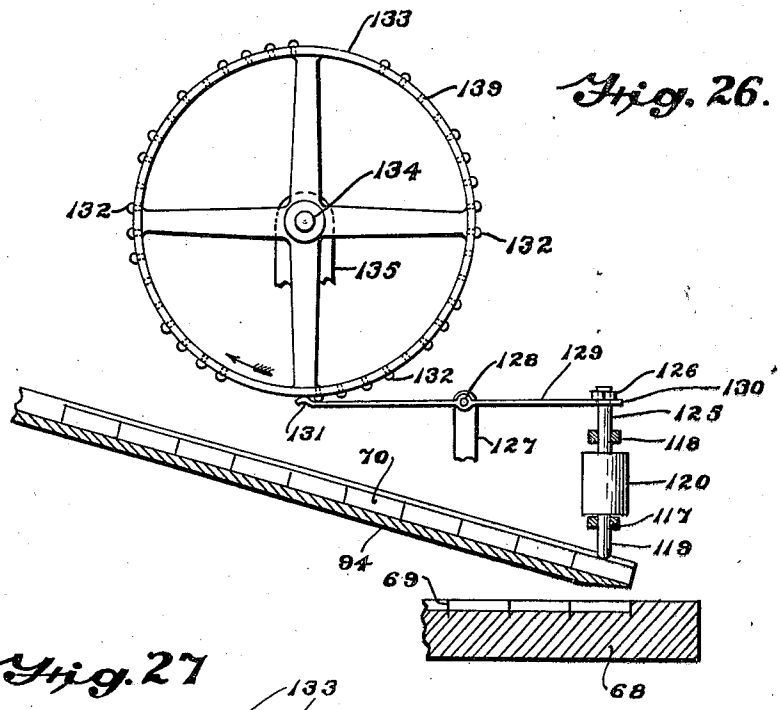


Fig. 27

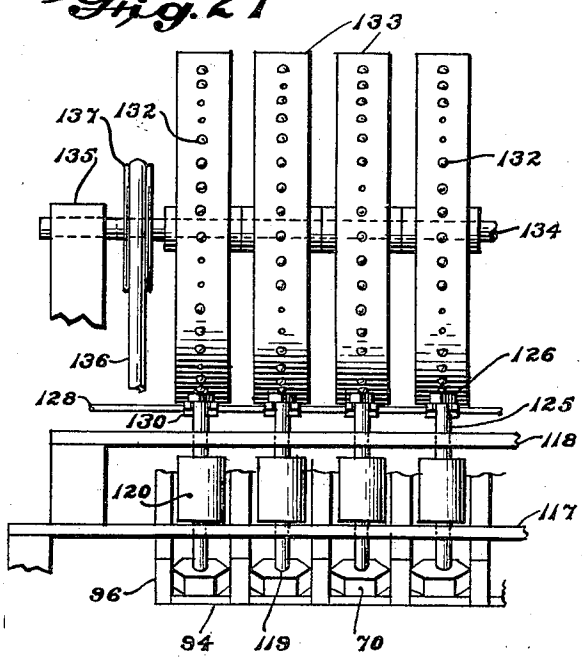
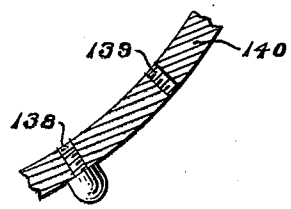


Fig. 28.



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BY Victor J. Evans
ATTORNEY

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Feb. 27, 1923. 1,447,155

J. J. SEMASHKO

MACHINE FOR ASSEMBLING TILES

Filed June 9, 1921 8 sheets-sheet 8

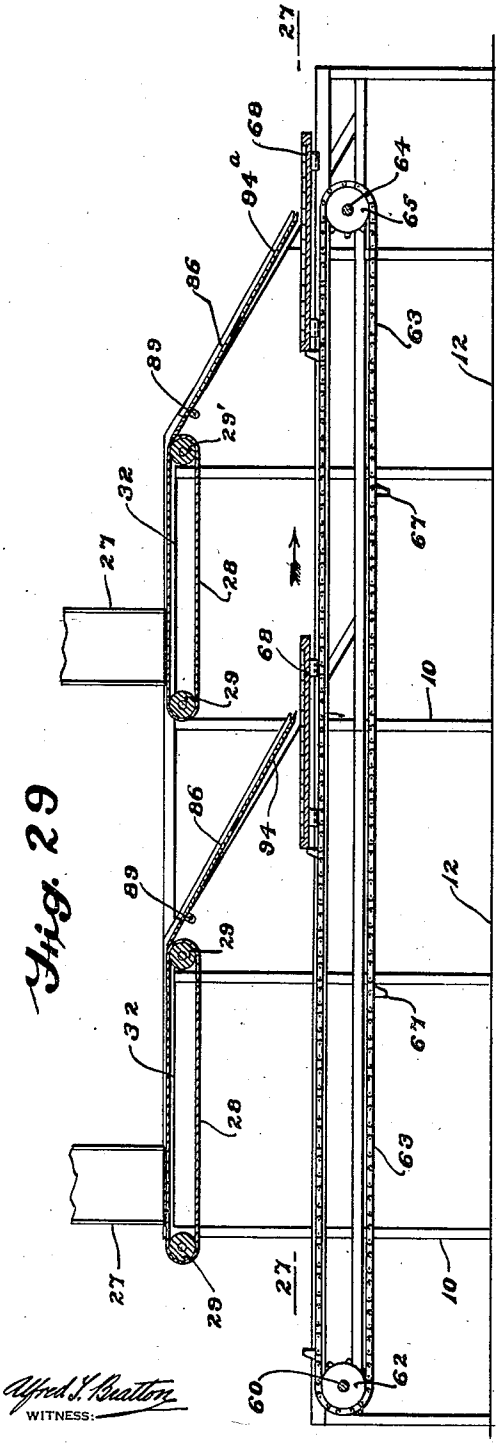


Fig. 29

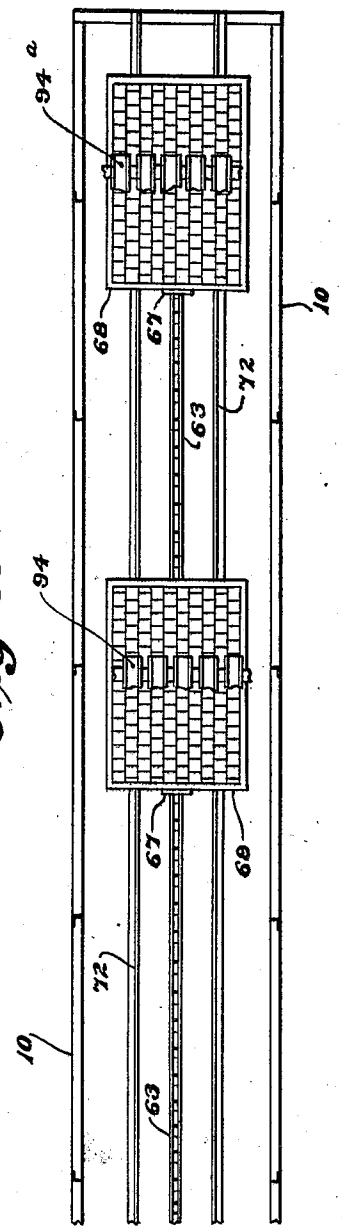


Fig. 30

Alfred J. Beatton
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BY Victor J. Evans
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Patented Feb. 27, 1923. 1,447,155

UNITED STATES PATENT OFFICE.

JOHN J. SEMASHKO, OF MORRISVILLE, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO DANIEL P. FORST, OF TRENTON, NEW JERSEY.

MACHINE FOR ASSEMBLING TILES.

Application filed June 9. 1921. Serial No. 476,336.

To all whom it may concern:

Be it known that I, JOHN J. SEMASHKO, a citizen of Russia, residing at Morrisville, in the county of Bucks and State of Pennsylvania, have invented new and useful Improvements in Machines for Assembling Tiles, of which the following is a specification.

This invention relates to machines for assembling tiles, that is to say, machines which are employed for feeding tiles to and arranging the same on to boards or the like with one surface exposed ready to receive a gummed sheet of paper ready for application to a floor or other surface in the same manner which tiles assembled by hand are employed.

The primary object of my invention is to provide a new or improved tile assembling machine by the use of which manual labor is reduced to a minimum, whilst the tiles are fed to the boards for transportation or storage and more efficiently handled than has heretofore been possible, whereby a considerable economy in time and labor is effected.

Another object of this invention is to provide a machine of the type referred to by means of which small tiles no matter what their shape may be can be assembled in regular order in spaced relation or close juxtaposition ready to receive an adhesive coated sheet of paper or other appropriate material ready for use when covering a floor or other flat surface.

A still further object of this invention is to provide a machine of the character designated which is automatic in action and by the use of which the tiles are conveyed from the source of supply to an assembly conveyor and thence conducted in properly assembled position to the boards on which they are packed for transportation or storage ready for use.

Another very important object of this invention is the provision of a tile assembling machine which eliminates the necessity for feeding the boards twice through the machine when handling polygonal shaped tiles; in other words, by my present invention aligning rows of polygonal tiles are simultaneously fed to the boards and not alternate rows as has heretofore been the case, whereby a great saving of time is effected.

With the foregoing and other objects in view as will become more apparent as this description proceeds, this invention consists essentially in the novel features of construction, combinations and arrangements of parts hereinafter fully described, and more particularly defined by the appended claims.

In the further disclosure of the invention reference is to be had to the accompanying sheets of explanatory drawings constituting a part of this specification and in which like characters of reference designate the same or corresponding parts in all the views.

Figure 1 is a side elevation of one practical embodiment of this invention.

Figure 2 is a section through the feed-hopper and taken approximately on the line 2—2 in Figure 1.

Figure 3 is a top plan of the conveyor belt which conveys the tiles from the feed-hopper elevator to the shaker and discharge mechanism.

Figure 4 is an enlarged vertical section through the feed hopper and associated parts.

Figure 5 is a similar enlarged vertical section through the shaker and board feeding mechanism.

Figure 6 is a fragmentary enlarged detail of the tile feed regulating and interrupting means and which also ensures the proper setting of the tiles on the boards as they leave the shaker mechanism and chute, the feed regulating and interrupting means being illustrated in the operative position.

Figure 7 is a similar fragmentary detail showing the tile member regulating and interrupting means in the inoperative position.

Figure 8 is a sectional detail showing a modified stop means for interrupting the flow of the tiles from the board feeding chute.

Figure 9 is a sectional detail showing a convenient means for providing a readily removable tile feed regulating and interrupting device such as is illustrated in Figures 6 and 7.

Figure 10 is an enlarged top plan view of the shaker mechanism and tile feed regulating and interrupting means.

Figure 11 is a transverse section taken approximately on the line 11—11 in Figure 10.

Figure 12 is a fragmentary enlarged cross section taken on the line 12—12 in Figure 10.

Figure 13 is an enlarged detail of the gravity tile feed regulating means.

Figure 14 is an enlarged transverse section taken on the line 14—14 in Figure 4 and looking toward the left hand thereof.

Figure 15 is an enlarged transverse section taken approximately on the line 15—15 in Figure 5 and looking in the direction of the arrows.

Figure 16 is a transverse section on the line 16—16 in Figure 5.

Figure 17 is an enlarged sectional detail of a modified tile releasing means.

Figure 18 is a transverse section on the line 18—18 in the preceding figure.

Figure 19 is a plan of the machine operating mechanism generally.

Figure 20 is a detail view of the shifting rail actuating means hereafter more particularly referred to.

Figure 21 is a sectional detail taken on the line 21—21 in the preceding figure.

Figure 22 is a fragmentary plan of a board for receiving square tiles arranged to break joint.

Figure 23 is a detail fragmentary plan of a board for receiving hexagonal tiles.

Figure 24 is a perspective view of a square tile.

Figure 25 is a similar view of a hexagonal tile.

Figure 26 is a sectional elevation of a power actuated means for releasing the tiles from the board feeding chute.

Figure 27 is a fragmentary front elevation of the same.

Figure 28 is an enlarged detail hereinafter more specifically referred to.

Figure 29 is a diagrammatic longitudinal section of a slightly modified form of the invention; and,

Figure 30 is a sectional plan of the same taken approximately on the line 27—27 in the preceding figure.

Referring now more particularly to the drawings in detail I construct a main framework 10 from appropriate section material such as angle irons braced by end and cross members 11 to ensure rigidity and said frame work is conveniently secured to the floor 12 in any of the well known ways. Obliquely inclined at one end of the framework 10 and connected thereto by supports 13 is a second framework 14 secured at its lower end by angle plates 15 to the floor 12, and this framework 14 is conveniently made from spaced angles 14′ rigidly braced by cross ties 16 and a floor 17. This framework 14 is also provided at its upper and lower ends with bearings 18 in which are journaled shafts or rollers, 19, 20 over which passes a composite elevator belt 21 provided with transverse slats 22 for the purpose later on explained; and intermediate the aforesaid rollers 19, 20 there is provided a third or flanged roller 23 journaled in adjustable bearings 24 mounted on the underside of the framework 14 and thereby furnishing an effective means for taking up any slack that may develop in the elevator belt 21 as well as ensuring easy running of the same.

Securely attached to the inclined framework 14 is a hopper 25 of appropriate material and pattern that serves as a receiver for the tiles which are to be assembled by passage through the machine, and it is to be noted that the sides of said hopper 25 extend upwards into close proximity with an inverted channel shaped screen 26 of reticulate material mounted over the upper part of the framework 14 and which serves to protect the tiles carried upwards by the composite elevator belt 21 from falling over the sides of the machine; or in other words, the small tiles handled, due to their formation and agitation when being elevated by the elevator belt 21, are liable to be catapulted therefrom and the screen 26 serves to project them downwards either back again on to said belt 21 or into the hopper 25. Inclined guides 21′ are also fitted at the sides of the elevator belt 21 to aid in preventing the tiles from falling therefrom. Adjoining the upper roller 19 and inclining downwardly therefrom is a channel-shaped truncated screen 27 of reticulate material which serves to screen the tiles as they leave the elevator belt and thereby remove any foreign matter or small broken parts, and from this screen 27 the tiles are fed to a conveyor belt 28 carried by horizontally disposed rollers 29, 29′ journaled in appropriate bearings 30 on the framework 10. A removable tray 31 is arranged beneath the screen 27 to collect the dust and other material passing therethrough.

The conveyor belt 28 traverses a table 32 and it is to be here noted that during their transit thereover is the only time that any manual labor is employed, namely, for removing any defective tiles as well as turning over all tiles which may be face downwards. The conveyor belt 28 and elevator belt 21 are simultaneously operated by a chain drive 33 passing over sprocket wheels 34, 35 respectively, mounted on the aforesaid rollers 29, 19, said chain drive 33 also passing over an adjustable idler 36 and a third sprocket wheel 36′ keyed or otherwise secured on a counter-shaft 37, journaled in bearings 38 carried by the framework 10. This counter-shaft 37 is in turn driven by means of a toothed wheel 39 in mesh with a pinion 40 on the power shaft 41 journaled in bearings 42 on the framework 10. A friction or other clutch control 43 is provided for connecting up the counter-shaft 37 to the power shaft 41, or disconnecting same therefrom as required, said clutch being actuable by means of a manual trip 44 supported in bearings 45 on the frame 10.

To one or both sides of the aforesaid table

32 I attach or otherwise secure one or more chutes 46 conveniently having a common outlet or discharge 47 for dumping any damaged tiles, picked off of the conveyor belt 28, into a receptacle or container 48 which may be emptied periodically or whenever required; and it will thus be seen that provision is made for an operator to be stationed at each side of the table 32 whereby the prompt handling of the machine and consequential increased output are greatly enhanced. Motive power of any suitable nature may be imparted to the machine in any of the well known ways, for example, by a belt drive connecting to the pulleys 49 on the power shaft 41; or, the machine may be made self-contained by connecting thereto an electric motor as will be readily understood by those acquainted with the art to which this invention appertains.

Mounted on the aforesaid first motion shaft 41 is a bevel gear 50 in mesh with a corresponding gear 51 on the end of a longitudinally disposed shaft 52 journaled in bearings 53, and said shaft 52 is similarly fitted at its other end with a miter gear 54 in mesh with a corresponding miter gear 55 keyed or otherwise secured on a stub axle or shaft 56 journaled in a bearing 57 on the framework 10. Intermediate the ends of the shaft 52 is a worm 58 adapted to drive a worm wheel 59 on a cross-shaft 60 journaled in bearings 61 on the framework 10 and said cross-shaft 60 supports a sprocket or toothed wheel 62 over which passes a chain 63 that serves to drive another cross-shaft 64 by means of a chain wheel 65 journaled in bearings 66 on the framework 10, and this chain 63 is provided at intervals of its length with outstanding T-shaped engaging devices or stops 67 for the purpose later on explained.

The tile receiving or assembling-boards 68 are of any of the well known types and may be provided with thin division strips 69 of rectangular formation as shown in Figure 22, or hexagonal division strips 69′ as indicated in Figure 23 respectively, to accommodate tiles 70 of the patterns illustrated by Figures 24 and 25, but it will be obvious that said division strips 69 or 69′ may be of any other pattern, or they may be dispensed with entirely. These tile receiving or assembly boards 68 are fitted on their undersides with notched battens 71 for sliding movement along longitudinal rails 72 which are transversely connected by cross ties 73 in turn supported by forked bearings 74 on the aforesaid framework 10. In order to make provision for the automatic movement of the assembly boards 68 laterally to release or feed the tiles for filling alternate spaces between the division strips 69 or 69′ I secure a transverse bar 75 at a convenient point beneath the rails 72 and pivotally mount thereon laterally rotatable anti-friction rollers 76 for co-operation with opposed cam discs 77 carried by a transverse shaft 78 journaled in bearings 79 on the framework 10. The transverse or cam-shaft 78 is provided with a sprocket wheel 80 over which passes a roller chain 81 that is driven by a toothed wheel 82 on the aforementioned shaft, and it is to be here noted that I also provide an appropriate friction or other clutch 83 on the shaft 60 under the action of a suitable knockout 84 whereby the drive of the chain 63 and the mechanisms operated thereby may be disconnected or set in operation at will and as desired; furthermore, I wish here to remark that in Figure 15 I have broken away the shaft 64 for a clearer conception of the parts behind and carried by the shaft 78.

The tiles 70 as they leave the aforesaid conveyor belt 28 are guided by inwardly converging strips 85—Figure 10—on to a removable chute 86 conveniently consisting of a base or floor plate 86′ and spaced side members 87, 87ª, said base plate being held by pins 88 on rockers 89 journaled in bearings 90 on the framework whereby provision is made for a slight up-and-down oscillatory movement as later on explained. Longitudinally of the plate 86 for a portion thereof, are spaced ribs and removable liner strips 91, 92 respectively, as well as side guides or angles 93 whereby the tiles 70 are downwardly guided to a series of adjustable chutes 94, each of which includes a bottom or runner 95 and space sides 96—Figure 12—said runners being clamped to cross bars 97 by cap screws or studs 98 passed through slots 99 in said cross bar. These adjustable chutes 94 it will be noted on reference more particularly to Figure 10—converge outwardly for a part of their length and thereafter continue in parallelism to their points of discharge on to the boards 68. Mounted in spaced relation over the upper and lower halves of each chute 94 are aligning strips 100 conveniently attached to cross bars 101 supported by bearings 102 on the aforesaid side members 87, and a cross bar 87ᵇ, and said strips serve to prevent the tiles from jumping out of the chutes 94 in their passage downwards to the boards 68.

Mounted in appropriate bearings 103 on the side members 87 is a stirrup shaped bar 104 having fixed to its outer face an arcuate strip 105 that serves in use as an agitator and distributor for evenly distributing the tiles 70 fed from the conveyor 28 over the chute 86, and hingedly connected to the rear of the bar 104 is a pitman 106 connecting with an eccentric 107 carried by a transverse shaft 108 journaled in bearings 109 on the framework 10. This shaft 108 is driven by means of a belt or other appropriate

drive 110 and drive wheel or pulley 111 from a corresponding wheel or pulley 112 on the hereinbefore referred to stub-axle or shaft 56.

The free ends of the aforesaid side members 87′ are downwardly curved as shown in Figures 6 and 7 to provide what may be termed pawl or detent like portions 113 for co-operation with the toothed peripheral edges 114 of spaced discs 115 keyed or otherwise securely mounted on the shaft 64 and their purpose is to feed the tiles 70 row by row evenly across the boards as later explained. In connection with these discs 115 I prefer to make them with removable rims or perimeters 114ª appropriately bolted thereon by bolts 116, and it is to be noted that the toothed edges 114 are provided with a plain interruption 114ᵇ which provides for a cessation of the tile feed from the chutes 94 when a board 68 has the alternate longitudinal spaces filled and is ready to be returned for the filling of the intervening rows, and when said board is completely filled with tiles 70 ready for removal. Obviously the number of teeth 114 will conform to the number of tiles in a row longitudinally of the board 68, and by making the rims or perimeters 114ª removable it will be seen that the machine is adapted for filling boards of different lengths; or I may use V-shaped inserts 114ᶜ between the teeth of the toothed edge 114 to create the necessary interruptions as shown by Figure 8 and as will be readily understood therefrom.

Transversely across the outlet end of the chutes 94 I mount spaced and superposed bars 117, 118 having registering holes therein to receive the shanks 119 of gravity fall plungers or weights 120 adapted for accurate adjustment in a vertical direction by studs 121 in the bar 118 as will be apparent to those skilled in the art, and whereby the lower ends of said shanks 119 can be arranged to contact with the tiles 70 one by one in sequence as they are about to discharge on to the boards 68. In addition, these gravity-fall-plungers or weights 120 serve to cut off and interrupt the discharge of tiles 70 when an assembly board is filled until another or the following board 68 is in position thereunder.

In conjunction with the aforesaid gravity-fall-plungers or weights 120 I may employ the means illustrated by Figures 17 and 18, and which comprise forked tongues 122 hingedly supported by a bar or bars 123 so that said tongues 122 normally are out of engagement with the tiles 70 about to be discharged from the chutes 94, the insertion of a pointed rod, or cam-bar 124 between said bar or bars 123 and chute sides 96 obviously forcing said tongues 122 into gripping engagement on to the tiles 70 when desired as will be clearly apparent to those acquainted with the art to which this invention appertains. The pointed rod or cam bar 124 may be manually or mechanically moved into and out of operative position to effect the aforesaid gripping engagement of the tongues 122 on the tiles.

In some instances where it might be undesirable to employ the means above set forth for imparting an up-and-down oscillatory movement to the chute 86, or where it is preferable that said chute remain stationary, and the tiles 70 be released therefrom in staggered or varied relation from different feed supplies, I preferably employ the means illustrated by Figures 26 to 28 inclusive, and which consists of spaced superposed bars 117, 118—as hereinbefore set forth—supported transversely of the chute discharge end, said bars 117, 118 slidably housing the gravity-fall-plungers or weights 120 which in this instance are provided with upwardly projecting stems 125 passing through holes in the upper bar 118, and terminated with adjusting nuts 126. Supported by bearings 127 in the framework 10 is a horizontally mounted transverse rod or shaft 128 on which is pivoted a series of double-ended strip like levers 129 the aligning ends to one side whereof are forked at 130 to engage beneath the adjusting nuts 126, whereas the opposed ends are bent to constitute keys 131, which lie in the path of stops 132 on the periphery of a wheel 133 secured on a transverse shaft 134 journaled in bearings 135 on the framework 10, and arranged for rotation by means of a belt, rope or other drive 136 and pulley 137 from any convenient part of the machine such as the pulley 112 on the stub axle or shaft 56. It is also to be here particularly noted that the stops 132 are provided with threaded shanks 138—Figure 28—for insertion into correspondingly threaded holes 139 in the rim 140 of the wheels 133, thereby making provision for an adjustment of a variable nature; or in other words, providing for different intervals in the feed of the tiles 70 to aligning rows longitudinally of the boards 68.

Figures 29 and 30 illustrate diagrammatically what may be termed a single feed machine in that I provide two elevators feeding screens 27 and conveyors 28, said conveyors disharging on to channeled chutes 86, 94, 94ª, it being noted that one chute 94 supplies tiles to alternate spaces on the board 68, whereas the other chute 94ª supplies tiles to the intervening spaces. With this arrangement the rails 72 are stationary and the cam mechanism 77 for moving same laterally is omitted. Thus it will be seen that the boards 68 pass directly through the machine and are not returned for filling intervening spaces.

From the foregoing description it will be

clearly seen that by this invention there is provided an extremely efficient tile assembling machine, the operation whereof will be clearly apparent to those acquainted with the art to which it appertains, therefore, a lengthy outline is deemed unnecessary beyond stating that as the tiles are fed to the hopper 25 they are elevated therefrom by the elevator 21 and dumped on to the screen 27 from which they are transported by the conveyor 28 to the chute 86 and during passage thereover are agitated by the shaker or stirrup shaped bar 104 into proper alignment for feeding to the adjustable chutes 94 from which they are discharged on to the assembling boards 68 as hereinbefore set forth. It is also to be most particularly noted that the discharge ends of the chutes 94 for a few inches of their length are sloped to one side as shown at 141 in Figure 13, so that the tiles 70 slide off to one side of said chutes whereby they are delivered onto the boards 68 in accurate register, whilst the assembling boards 68 as they leave the rails 72 are passed directly on to a table 142—Figure 5—for the application to the tiles of a gummed paper in accordance with the prevailing practice of the trade.

Whilst I have described and shown the best form of my invention at present known to me it is to be clearly understood that I do not limit myself in any way to the precise details of construction, combination and arrangement of parts hereinbefore disclosed, but consider myself fully at liberty to make such variations and changes to adapt the machine to different service conditions; and it is hereby intended to include all such reasonable changes and other combinations of the several parts as fairly fall within the scope of the appended claims.

Having described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In a machine for assembling articles of uniform pattern, means for feeding a quantity of said articles thereto, a conveyor for transporting said articles to a chute divided into independent channels, means for agitating said articles as they enter the independent channels, means for effecting the release of the articles from the independent channels in aligning rows, means for receiving the aligning rows of articles in staggered relation, and means for interrupting the release of said articles when a predetermined number thereof have been assembled.

2. In a machine for assembling tiles of uniform pattern, means for feeding a quantity of tiles thereto, means for transporting the tiles from the screening means to a chute divided into independent channels, means for agitating the tiles as they enter the independent channels, means for effecting the release of the tiles from the independent channels in aligning rows, means for receiving the aligning rows of tiles in staggered relation, and means for interrupting the discharge of said tiles when a predetermined number thereof have been assembled.

3. In a machine for assembling tiles of uniform pattern, an elevator for feeding the tiles thereto, a conveyor for transporting the tiles from the screen to a chute divided into independent channels, an agitator for evenly distributing the tiles over the channeled chute, gravity fall means for effecting the release of the tiles from the channeled chute in aligning rows on to tile receiving means, mechanism for reciprocating the tile receiving means laterally whereby successive rows of aligning tiles are discharged in staggered relation, and mechanism for interrupting the discharge of said tiles when a predetermined number thereof have been assembled.

4. In a machine for assembling tiles of uniform pattern, an elevator for feeding the tiles thereto, a conveyor for transporting the tiles from the screen to a hingedly mounted chute divided into independent channels, an agitator including a reciprocal member having an arcuate portion for evenly distributing the tiles over the channeled chute, a gravity fall means for effecting the release of the tiles from the channeled chute in aligning rows on to a tile receiving tray, mechanism for reciprocating the tile receiving tray laterally whereby successive rows of aligning tiles are discharged in staggered relation, and mechanism for interrupting the discharge of said tiles when a predetermined number thereof have been assembled on the tray.

5. In a machine for assembling tiles of uniform pattern, an elevator for feeding the tiles thereto, a conveyor for transporting the tiles from the screen to a hingedly mounted chute divided into independent channels, an agitator including a slidably mounted stirrup shaped member having an arcuate portion, eccentric mechanism for reciprocating said agitator whereby the tiles are evenly distributed over the channeled chute, gravity fall means for effecting the release of the tiles from the channeled chute in aligning rows on to a tile receiving tray, mechanism for reciprocating the tile receiving tray laterally whereby successive rows of aligning tiles are discharged in staggered relation, and mechanism for interrupting the discharge of said tiles when a predetermined number thereof have been assembled on the tray.

6. In a machine for assembling tiles of uniform pattern, an elevator for feeding the tiles thereto, a conveyor for transporting the tiles from the screen to a hingedly mounted chute divided into independent channels, an agitator including a slidably mounted stirrup shaped member having an arcuate por-

tion, eccentric mechanism for reciprocating said agitator whereby the tiles are evenly distributed over the channeled chute, a gravity fall device slidably mounted over the outlet end of each channel in the hingedly mounted chute for effecting the release of the tiles therefrom in aligning rows on to a tile receiving tray, mechanism for reciprocating the tile receiving tray laterally whereby successive rows of aligning tiles are discharged in staggered relation, and mechanism for interrupting the discharge of said tiles when a predetermined number thereof have been assembled on the tray.

7. In a machine for assembling tiles of uniform pattern, an elevator for feeding the tiles thereto, a conveyor for transporting the tiles from the screen to a hingedly mounted chute divided into independent channels, an agitator including a slidably mounted stirrup shaped member having an arcuate portion, eccentric mechanism for reciprocating said agitator whereby the tiles are evenly distributed over the channeled chute, an adjustable gravity fall device slidably mounted over the outlet end of each channel in the hingedly mounted chute for effecting the release of the tiles therefrom in aligning rows on to a tile receiving tray, mechanism for reciprocating the tile receiving tray laterally whereby successive rows of aligning tiles are discharged in staggered relation, and mechanism for interrupting the discharge of said tiles when a predetermined number thereof have been assembled on the tray.

8. In a machine for assembling tiles of uniform pattern, an elevator for feeding the tiles thereto, a conveyor for transporting the tiles from the screen to a chute divided into independent channels, an agitator including a slidably mounted stirrup shaped member having an arcuate distributing portion, eccentric mechanism for reciprocating said agitator whereby the tiles are evenly distributed as they enter the channeled chute, gravity fall devices slidably mounted over the outlet ends of the channels in the aforesaid chute, mechanically actuable means for raising said gravity fall devices synchronously for effecting the release of the tiles therefrom in aligning rows on to a tile receiving tray, mechanism for reciprocating the tile receiving tray laterally whereby successive rows of aligning tiles are discharged in staggered relation, and means for interrupting the discharge of said tiles when a predetermined number thereof have been assembled on the tray.

9. In a machine for assembling tiles of uniform pattern, an elevator for feeding the tiles thereto, a conveyor for transporting the tiles from the screen to a chute divided into independent channels, an agitator including a slidably mounted stirrup shaped member having an arcuate distributing portion, eccentric mechanism for reciprocating said agitator whereby the tiles are evenly distributed as they enter the channeled chute, gravity fall devices slidably mounted over the outlet ends of the channels in the aforesaid chute, a series of levers pivoted on a common shaft adapted to co-operate with said gravity fall devices, a rotatable member in alignment with each lever and having projections about its peripheral surface for oscillating said levers to release aligning rows of tiles on to a tile receiving tray, means for turning the aforesaid shaft step by step, mechanism for reciprocating the tile receiving tray laterally whereby successive rows of aligning tiles are discharged in staggered relation, and means for interrupting the discharge of said tiles when a predetermined number thereof have been assembled on the tray.

10. In a machine for assembling tiles of uniform pattern, an elevator for feeding the tiles thereto, a conveyor for transporting the tiles from the screen to a hingedly mounted chute divided into independent channels, an agitator including a slidably mounted stirrup shaped member having an arcuate distributing portion, eccentric mechanism for reciprocating said agitator, a series of gravity fall devices slidably mounted over the outlet ends of the channeled chute for effecting the release of the tiles therefrom in aligning rows on to a tile receiving tray, laterally movable spaced rails for supporting said tray, can mechanism for effecting the lateral reciprocation of said spaced rails and tile receiving tray whereby the tiles are fed thereto in aligning rows having staggered relation, and means for interrupting the discharge of said tiles from the chute when a predetermined number thereof have been assembled on the tray.

11. In a machine for assembling tiles of uniform pattern, an elevator for feeding the tiles thereto, a conveyor for transporting the tiles from the screen to a hingedly mounted chute divided into independent channels, an agitator including a slidably mounted stirrup shaped member having an arcuate distributing portion, eccentric mechanism for reciprocating said agitator, a series of gravity fall devices slidably mounted over the outlet ends of the channeled chute for effecting the release of the tiles therefrom in aligning rows on to a tile receiving tray, laterally movable spaced rails for supporting said tray, cam mechanism for effecting the lateral reciprocation of said spaced rails and tile receiving tray whereby the tiles are fed thereto in aligning rows having staggered relation, and spaced discs having teeth about their peripheral edges for co-operation with depending detent portions on the chute whereby the latter is oscillated step by step to release aligning rows of tiles,

and said toothed peripheral edges having blank portions whereby the discharge of tiles is interrupted when a tray is returned to the machine for filling alternate longitudinal rows of tiles.

12. In a machine for assembling tiles of uniform pattern, an elevator for feeding the tiles thereto, a conveyor for transporting the tiles from the screen to a hingedly mounted chute divided into independent channels, an agitator including a slidably mounted stirrup shaped member having an arcuate distributing portion, eccentric mechanism for reciprocating said agitator, a series of gravity fall devices slidably mounted over the outlet ends of the channeled chute for effecting the release of the tiles therefrom in aligning rows on to a tile receiving tray, laterally movable spaced rails for supporting said tray, cam mechanism for effecting the lateral reciprocation of said spaced rails and tile receiving tray whereby the tiles are fed thereto in aligning rows having staggered relation, and spaced discs having removable annular peripheral portions provided with teeth on their rim portions for co-operation with depending detent portions on the chute whereby the latter is oscillated step by step to release aligning rows of tiles, and said toothed peripheral edges having blank portions whereby the discharge of tiles is interrupted when a tray is returned to the machine for filling alternate longitudinal rows of tiles.

In testimony whereof I affix my signature.

JOHN J. SEMASHKO.