No. 881,225. PATENTED MAR. 10, 1908.

H. W. CARPENTER.

SLAT WEAVING MACHINE.

APPLICATION FILED MAY 10, 1906.

3 SHEETS—SHEET 3.

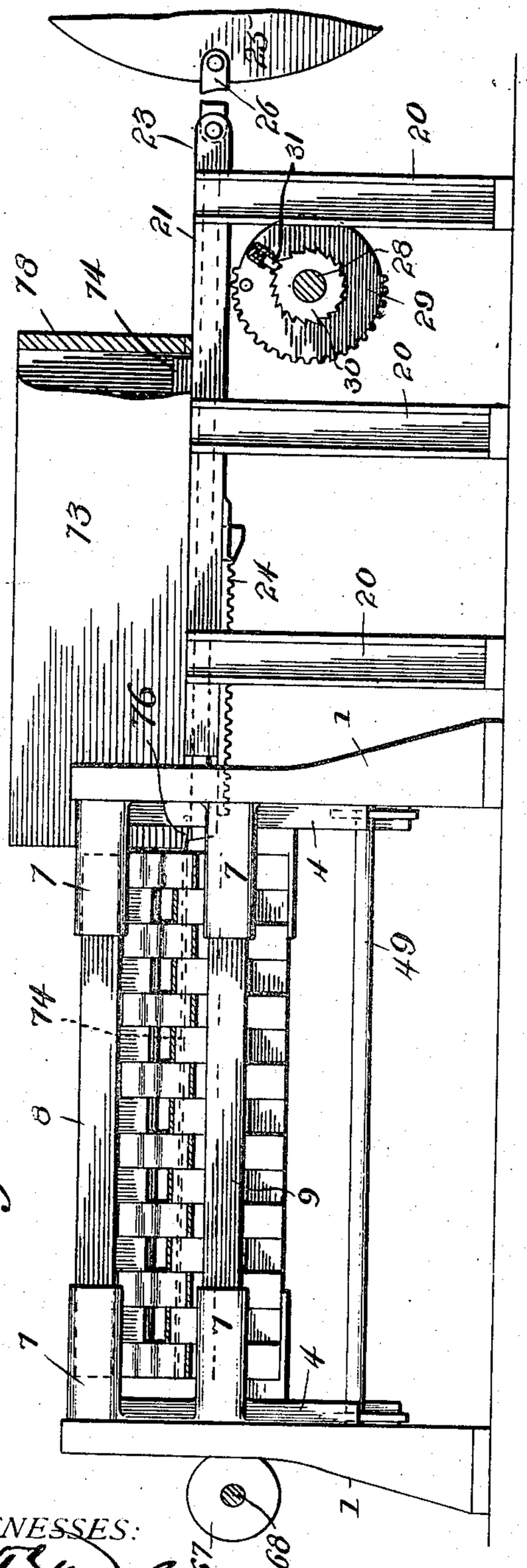

Fig. 3.

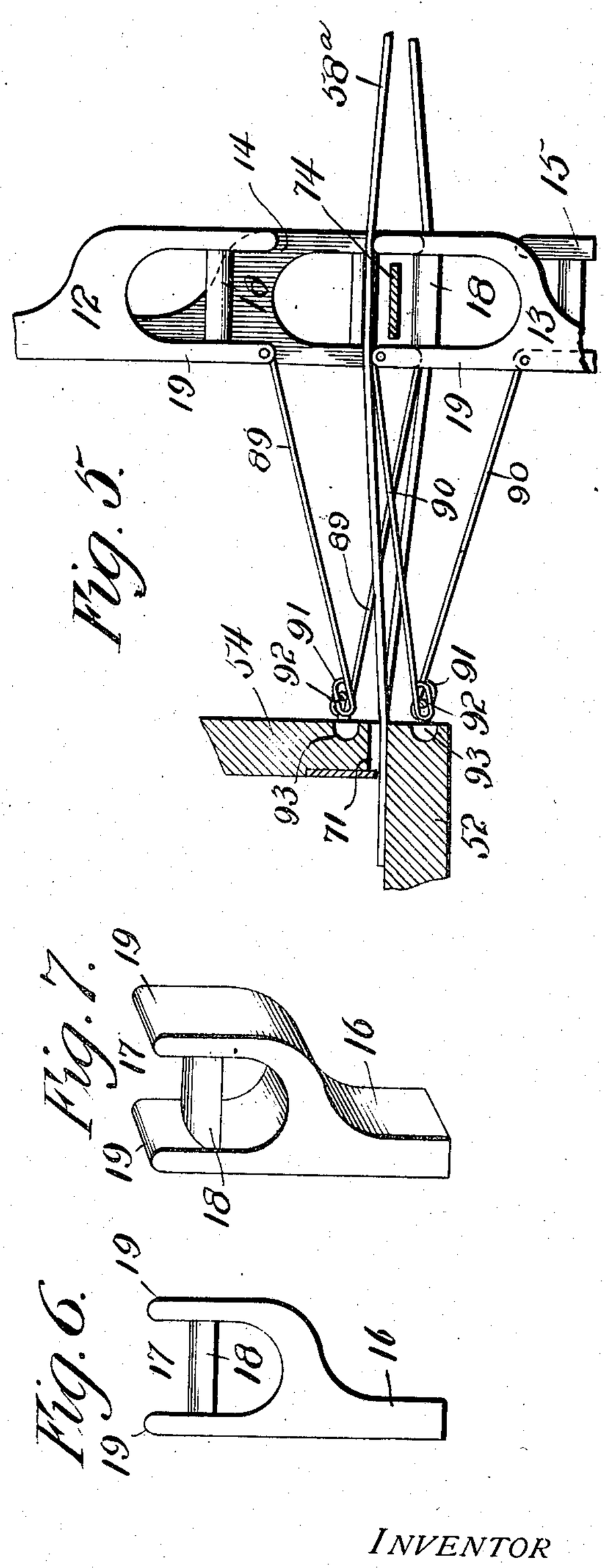

Fig. 5.

Fig. 7.

Fig. 6.

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3 SHEETS—SHEET 2.

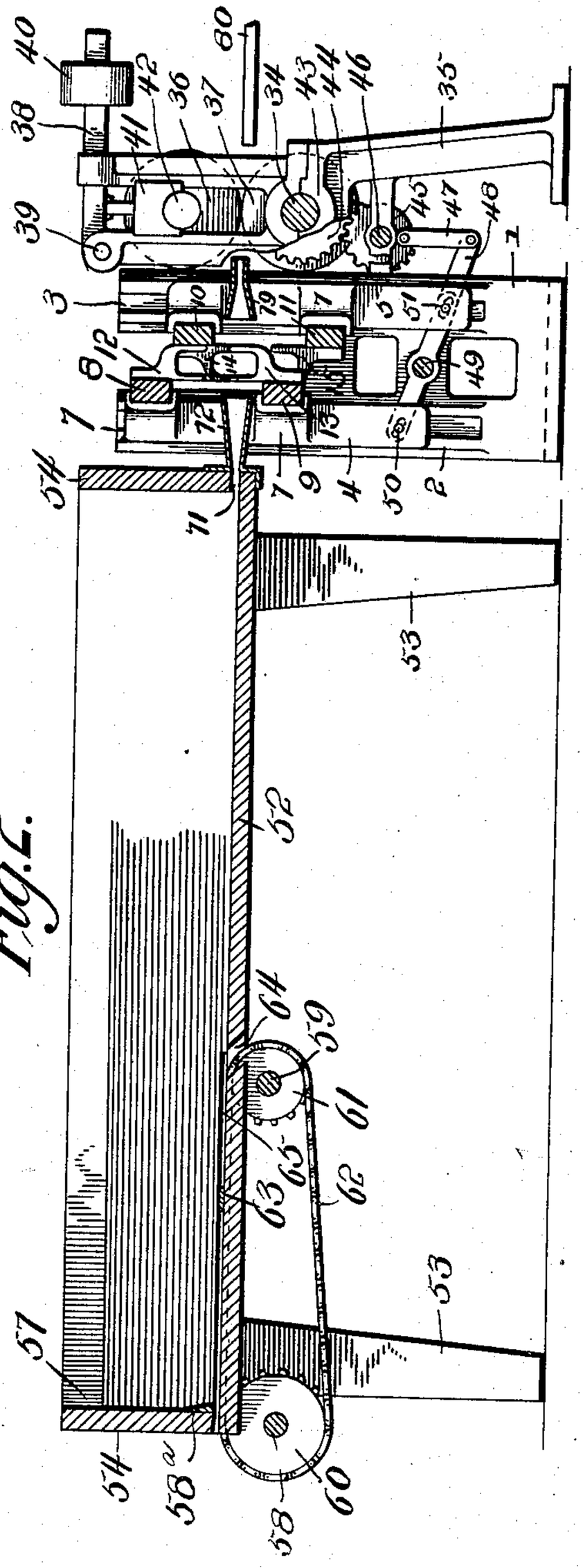

Fig. 2.

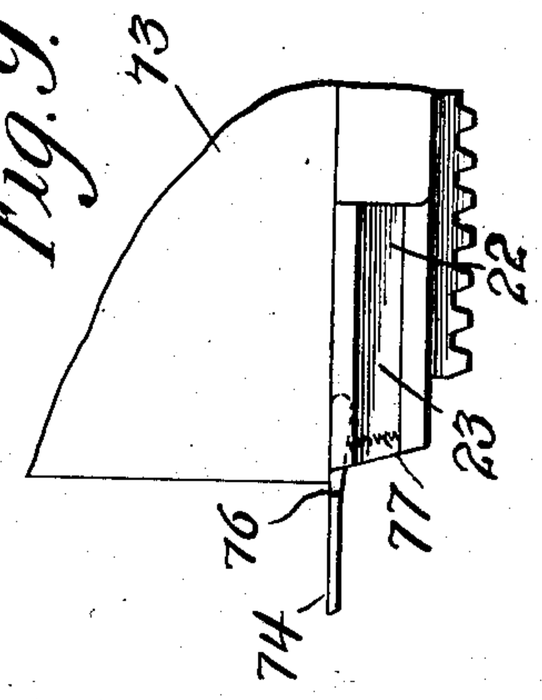

Fig. 9.

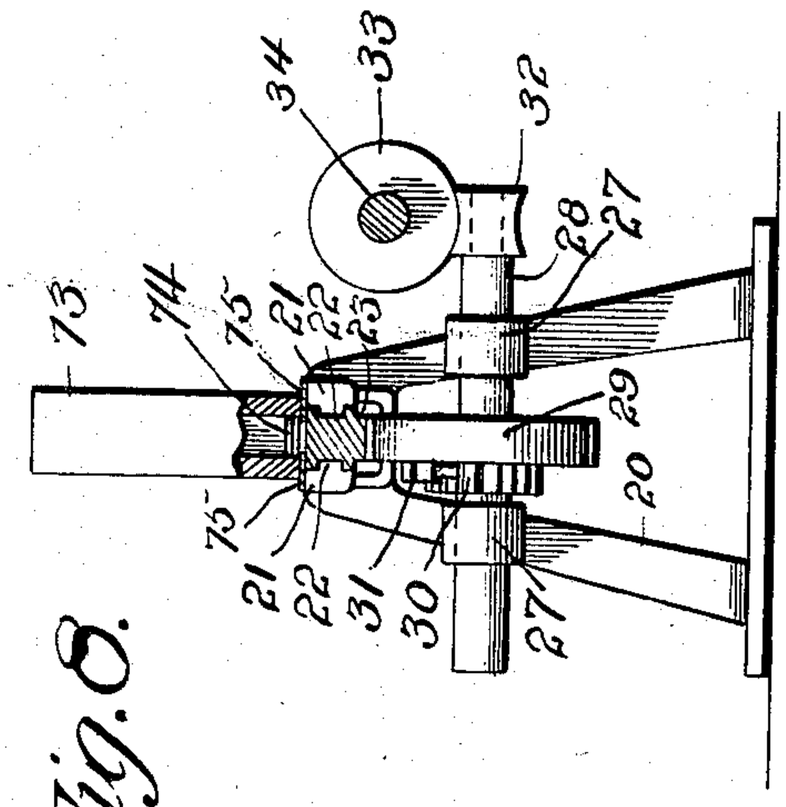

Fig. 8.

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3 SHEETS—SHEET 1.

Fig. 1.

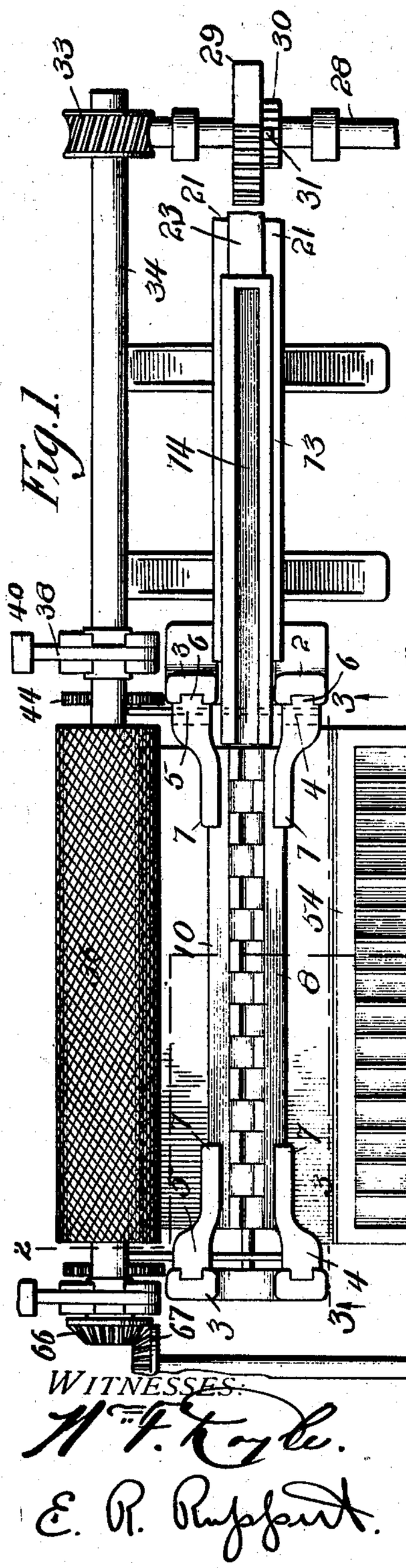
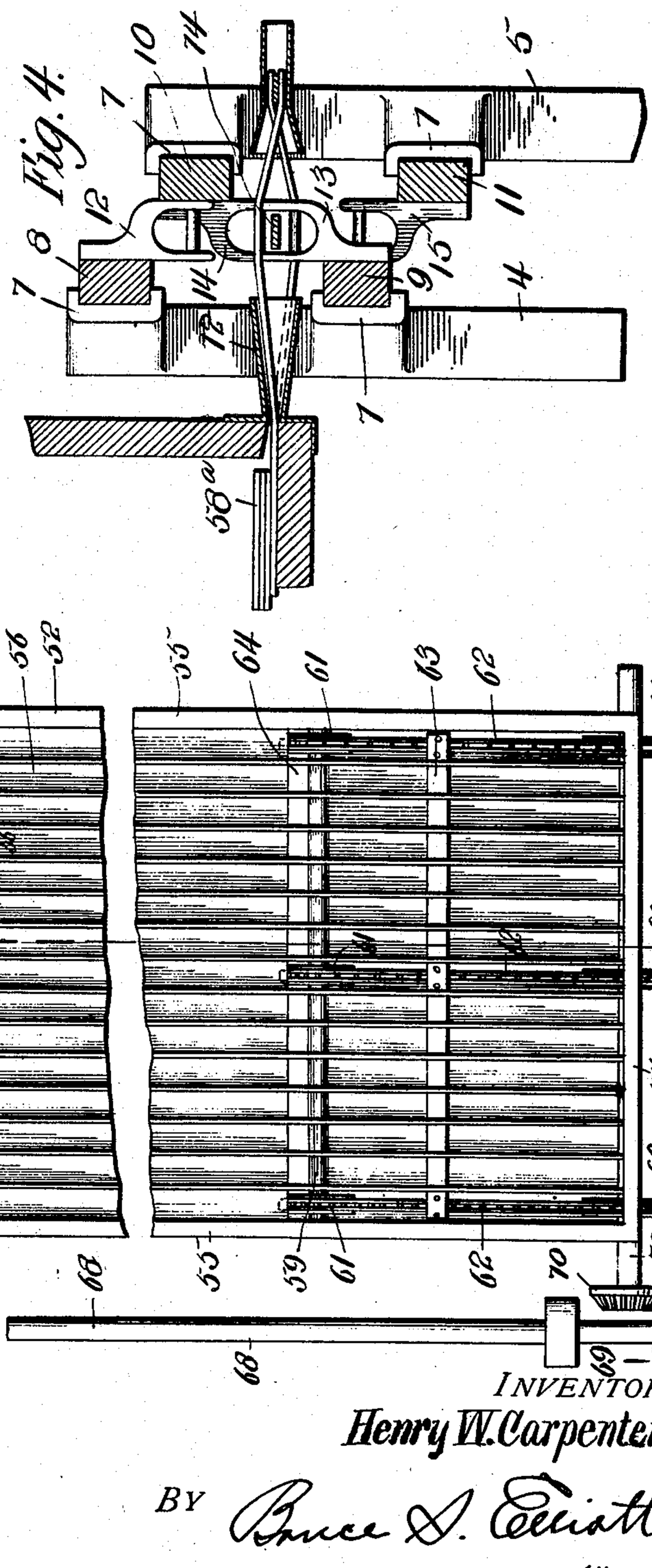


Fig. 4.



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UNITED STATES PATENT OFFICE.

HENRY W. CARPENTER, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR TO AMERICAN WOVEN LATH COMPANY, OF WASHINGTON, DISTRICT OF COLUMBIA, A CORPORATION OF WEST VIRGINIA.

SLAT-WEAVING MACHINE.

No. 881,225. Specification of Letters Patent. Patented March 10, 1908.

Application filed May 10, 1906. Serial No. 316,217.

To all whom it may concern:

Be it known that I, HENRY W. CARPENTER, a citizen of the United States, residing at Washington, in the District of Columbia, have invented new and useful Improvements in Slat-Weaving Machines, of which the following is a specification.

This invention has for its general object to provide a novel machine which shall operate in a thoroughly practical, feasible and expeditious manner to weave slats, or thin strips of wood of definite lengths, whereby to form woven lathing.

Specific objects of the invention relate to a novel shed-forming mechanism and means for operating the same; to a novel feed-mechanism for feeding the warp-strips to the shed-formers; to a novel feed-mechanism for feeding the weft-strips between the warp-strips; to novel means for guiding the warp-strips into the shed-formers; to novel means for securing the intermittent feed of the warp-strips through the shed-formers after the feed-mechanism has ceased to actuate the same; and, finally, to details of construction and operation of parts, all as hereinafter more fully described and particularly pointed out in the claims.

In the accompanying drawing illustrating the invention, and in which like reference numerals indicate corresponding parts in the various views:—Figure 1 is a top plan view of my improved machine; Fig. 2 is a cross-section taken on the line 2—2 of Fig. 1; Fig. 3 is a view in front elevation of the weaving machine proper, being a section on the line 3—3 of Fig. 1, viewed in the direction of the arrow; Fig. 4 is a cross-section on an enlarged scale, through a portion of the feed table and the shed-formers, illustrating the operation of weaving the slats; Fig. 5 is a view similar to Fig. 4, but on a still larger scale, omitting the supports for the shed-formers, illustrating a modification in the means for guiding the warp-strips to the shed-formers; Fig. 6 is a view in side elevation, on an enlarged scale, of a single shed-former; Fig. 7 is a perspective view of the same; Fig. 8 is a sectional end elevation, illustrative of the mechanism for feeding the weft-strips; Fig. 9 is a broken view, in elevation, and on an enlarged scale, showing a detail of the same.

Referring now to the drawings the numerals 1 indicate uprights constituting the main frame of the weaving machine proper each of which is provided on its inner side with two slide-ways indicated by 2 and 3, respectively, said slide-ways being preferably formed as an integral part of said uprights.

4—5 indicate, respectively, two pairs of slide-members, each of which is provided at its outer side with guides 6, which are adapted to engage and slide in the corresponding slide-ways 2—3 of the uprights 1. Each of the slide-members 4—5 is provided at its upper end and about mid-way its length, respectively, with two inwardly-projecting socket-members 7, in each of which is secured one end of a bar, indicated, respectively, by the numerals 8—9—10—11, the bars of the respective slide-members extending parallel substantially throughout the width of the weaving portion of the machine. Secured to the bar 8 of the slide-member 4, at suitable intervals throughout its length, and projecting downwardly therefrom are a series of shed-formers 12. Secured on the bar 9 of said slide-members in a corresponding manner are a series of shed-formers 13 which project upwardly from said bar, the respective shed-formers 12 and 13 being directly opposite each other, or in vertical alinement. On the bar 10 of the slide-members 5 are mounted a series of shed-formers 14, which are located at suitable intervals throughout the length of said bar and are arranged to alternate with the series of shed-formers 12. In other words, the shed-formers 12 and 14 work in the same vertical plane but have a relative staggered relation. On the bar 11 of said slide-members are mounted a series of shed-formers 15 which are directly under, or in vertical alinement with the shed-formers 14, and in like manner alternate with the shed-formers 13. The opposing ends of the respective shed-formers 12 and 13 and 14 and 15 are separated by a considerable space, as more clearly illustrated by Fig. 4, this space being for the purpose, as will hereinafter more fully appear, of providing an entrance for the warp-strips into the shed-formers and also for providing a certain amount of lost motion to permit the feed of said warp strips.

All of the shed-formers are alike in construction, and I have illustrated the construction of one of these clearly in Figs. 6 and

7. Referring to these figures, it will be seen that said shed-former comprises a base or flanged portion 16 by means of which it is secured to its bar or support and has an enlarged bifurcated end portion affording a U-shaped recess 17. Extending transversely across this recess is a curved guard or support 18, which is for the purpose of supporting and guiding the weft-strips and preventing their ends from engaging against the edges of the warp-strips as said weft strips are being fed through the warp-strips. The shed-former being recessed as described, provides two prongs 19 which are the active agents in forming the shed. The slide-members 4—5 are adapted to be alternately raised and lowered to form the sheds in the warp-strips and the machanism for accomplishing this operation will now be described.

Referring particularly to Figs. 1, 3 and 8, the numerals 20 indicate supports, mounted at the upper ends of which are spaced, parallel rails 21, each of which has on its inner side a longitudinally extending tongue 22. 23 indicates a bar, which is provided on opposite sides with grooves to engage the tongues 22, and is thereby slidably mounted on said tongues. At its forward end portion, and on its under side, the bar 23 is provided with a rack-bar 24. 25 indicates a crank-wheel, which may be driven from any suitable source of power (not shown) near the periphery of which is pivotally secured one end of a pitman 26 the opposite end of which is pivotally connected to the rear end of the bar 23. Mounted in suitable bearings 27 beneath the rails 21, and extending at right-angles thereto, is a shaft 28 on which is loosely mounted a mutilated gear 29, the teeth of which are adapted to be engaged and released by the teeth of the rack-bar 24.

Fixedly secured to the shaft 28 by the side of the gear 29 is a ratchet-wheel 30, the teeth of which are adapted to be engaged by a spring-controlled pawl 31 mounted on the side of the gear 29. As the wheel 25 revolves, the pitman 26 will cause the bar 23, carrying the rack-bar 24 to be reciprocated back and forth. In the forward movement of said-rack bar, or the movement to the left, as the parts are shown in Fig. 3, its teeth will engage those of the gear 29 and turn the latter to substantially the position shown in said Fig. 3, after which the teeth of said rack-bar move out of engagement with said gear. In this movement, the pawl 31 simply slides over the teeth of the ratchet-wheel 30, and the latter remains stationary. In the return, or rearward movement of the rack-bar, it will again engage the gear 29 and turn the same, and in this movement the pawl 31 engages a tooth of the ratchet-wheel 30 and causes the same to revolve with the gear 29, and thereby impart rotation to the shaft 28. Secured on one end of the shaft 28 is a worm-gear 32 which meshes with a worm-wheel 33 secured on the end of a shaft 34.

35 (Fig. 2) indicates an auxiliary frame, in the upper part of which, opposite the shed-formers, are mounted two relatively large rollers 36, 37, the upper one, 36, of which rests upon the lower, and is held in yielding contact therewith, under a greater or less pressure, by means of two arms 38, pivoted to the frame at 39 and carrying adjustable weights 40 and bearing-blocks 41 which are pressed down by said weights upon the upper side of the shaft 42 of said roller at opposite ends of the latter, as shown in Figs. 1 and 2. The shaft 34 extends throughout the entire width of the machine, and is supported in bearings 43 in the frame 35. The lower roller 37 is mounted on and fixedly secured to this shaft between the end members of the frame 35. Fixedly secured on the shaft 34, near the ends of the lower roller 37 are gear wheels 44, which mesh with smaller gear-wheels 45 mounted on a shaft 46. Pivotally secured at one end near the periphery of each gear-wheel 45 is a pitman 47, the opposite end of which is pivotally secured to the outer end of a lever 48 pivotally mounted intermediate its ends on a rod 49 extending transversely across the machine beneath the shed-formers and secured at opposite ends in the uprights 1. Only one of the gear and lever arrangements just described is illustrated in Fig. 2, but it will be readily understood that at the opposite end of the roller 37 to that shown an exactly similar arrangement is provided. The outer end of each of the levers 48 has a slotted pivotal connection with a slide-member 4, and intermediate its bearing on the rod 49 and its connection with the pitman 47, a similar pivotal connection with a slide-member 5, as shown by dotted lines, as to one set, in said Fig. 2, and indicated by 50, 51, respectively. It will thus be seen that as the shaft 28 is placed in rotation by the rack-bar 24, as previously described, the worm-gear 32 on said shaft, meshing with the worm-wheel 33 will operate to rotate the shaft 34 and consequently the gears 44 and the roller 37 on said shaft. The gears 44 actuate the gears 45, which, through the medium of the pitman 47, will cause the levers 48 to be rocked on the rod 49 as a pivot and thereby alternately raise and lower the two sets of slide-members 4—5 and consequently the two sets of shed-formers 12—13 and 14—15. This movement of the shed-formers, however, as will presently appear, is intermittent. The purpose of rotating the roller 37 will also appear later.

I will now describe the mechanism for feeding the warp-slats to the shed-formers: Referring to Figs. 1 and 2, the numeral 52 indicates a table, supported on standards 53. Said table is oblong in shape, and has one end

of contact with the even numbered slats and the lower shed-formers 15 will engage the under sides thereof and press them upward. As the slide-members 4 are again raised by the action of the lever 48, the reverse operation ta' es place and the odd numbered slats will be pressed upward by the series of shed-formers 13 while the even numbered slats will be pressed downward by the series of shed-formers 14, and this latter is the position of the parts shown by Fig. 4. This alternate raising and lowering of the alternate slats forms the sheds, as will be understood, and it is while the parts are in the position shown in Fig. 4, or the corresponding reversed position, that the weft slats are fed into the sheds formed by the warp slats, and the mechanism for accomplishing this operation will now be described.

73 indicates a receptacle which is mounted upon the upper side of the rails 21 and is located as shown in Fig. 3 at right angles to the line of movement of the warp slats 58[a]. The receptacle 73 is of a width on its interior to snugly receive the weft slats 74 which are piled one upon the other flat wise in said receptacle; and the latter may be made as high as necessary to accommodate the desired number of weft slats. The receptacle 73 is about the length on its interior of a weft slat and its inner edge is located closely adjacent to the innermost shed-formers as clearly indicated in Fig. 1. The bottom of said receptacle is open and secured on its bottom edge, on opposite sides thereof, are two strips 75 which project slightly within the inner edges of said receptacle and serve to support the slats within the latter.

On the inner end of the bar 23 is pivotally mounted a push-finger 76 which is normally pressed upward by means of a spring 77. This push-finger is located centrally of the end of the bar 23 and is in a position to press upward against the bottom of the lowermost weft slat 74 in the receptacle 73. In the rotation of the crank wheel 25 after the bar 23 is drawn backward to the extreme limit of its movement in this direction, the push-finger 76 will pass from under the lowermost weft slat 74 and spring upward against the bottom edge of the back wall 78 of the receptacle 73, and thus be in a position to engage the end of said lowermost weft slat. When the bar 23 starts outward, in such movement said lowermost weft slat will be carried forward by the push-finger into the longitudinal opening afforded by the series of shed-formers and between the warp strips, which at this moment are held in the position shown at Fig. 4, that is, with the odd numbered slats raised and the even numbered-lowered, or vice versa, by reason of the fact that there is no movement of the shed-formers in the forward movement of the rack bar, as previously described.

As the rack bar starts on its return movement and engages the gear 29, the shed-formers and feed mechanism will be operated as already described, and owing to the fact that the distance between opposing shed-formers is great enough to allow of one shed-former of a pair moving out of engagement with a slat and traveling some distance before the opposing shed-former again engages a slat, there will be a certain amount of lost motion, and during the period of this lost motion the feed-bar 63 will push the warp-slats forward the requisite distance, or substantially so, to permit the weft slat introduced to be interlocked by the warp slats in the next movement of the shed-formers. The warp strips are, in practice, fed forward a fraction less than four inches in each cycle of movement, the warp slats being 48 inches long and 13 weft slats being interwoven therewith to form a complete woven lath. As each warp slat is pressed downward or upward by a shed-former, its edge is carried slightly below or above the curved support 18 of the adjacent shed-former, so that as the weft slats 74 are introduced there is no possibility of their ends striking against the sides of said warp slats. As the woven lath passes from the shed-formers it enters a longitudinally disposed guide 79, which is opened at both sides and is positioned on the auxiliary frame 35 directly opposite the line of meeting of the two rollers 36 and 37. These rollers rotate intermittently in unison with the sprocket-chains 62 and at the same rate of speed as the latter, and hence when the feed bar 63 passes through the opening 64 in the table 52 and out of contact with the warp strips, said warp strips will have been engaged by the rollers 36 and 37 and the continued forward feed of the slats through the shed-formers is then produced by said rollers. In order to provide a positive engagement of these rollers with the slats their surface may be roughened or corrugated, as will be understood, and the requisite frictional engagement can be secured by adjusting the weights 44 on the arms 38.

80, Fig. 2, indicates a table which is adapted to receive the slats as they pass from between the rollers 36 and 37.

Referring now to Fig. 5, I have indicated a modified means for feeding the warp slats 58[a] to the shed-formers. In this construction the table 52 is located at a greater distance from the shed-formers than is the case where the guides 72 are employed and has pivotally secured above and below each of its openings 71 a bar 89—90, respectively, each of which is pivotally secured at its outer end to the outer end of the inner prong 19 of a shed-former. Said bars are pivotally secured to the table 52 by having loops 91 formed at their inner end which engage the eyes 92 secured on the front of the table

located adjacent to and directly in front of the shed-formers. The upper side of this table is inclosed by means of end walls 54 and side walls 55. The space between the side walls is divided up into a number of slat-receptacles 56 by means of a series of division walls 57 arranged equi-distant and extending parallel with said side walls and each other from end to end of the table. As shown in Fig. 1, these division walls provide, in conjunction with the sides of the table, fifteen spaces, or receptacles, but a greater or less number may be provided according to the width of the weaving machine, or the width of the lath to be woven. The warp-strips, 58[a], are ordinarily four feet in length, and are piled flat, one on top of the other in the series of receptacles 56, as clearly indicated in Fig. 2. The end walls, side walls and division walls of the table 52 may be made as high as desired to provide receptacles 56 accommodating a greater or less number of slats at a time. Mounted beneath the table 52 in suitable bearings and extending transversely thereof, are two shafts 58, 59, one of which is located at the rear end of the table and the other well toward the center thereof. On the shaft 58 are three sprocket-wheels 60 and on the shaft 59 three similar but somewhat smaller sprocket-wheels 61. Sprocket-chains 62 pass around these sprocket-wheels. 63 indicates a feed-bar which is connected to the three sprocket-chains 62 and extends transversely across the same. The peripheries of the two sprocket-wheels 60—61 are flush with the upper edge of the table 52 so that in the revolution of the sprocket-chains 62 the feed-bar 63 will pass upon and slide over the rear portion of the table. It passes from the table through a transverse slot 64 provided therein adjacent to the outer edge of the sprocket-wheels 61. In order to permit the feed-bar 63 to pass on to the table the rear portions of the side bars 55 and division bars 57, and the rear-end bar 54 are cut away at their lower edges to provide a space 65 which is just wide enough to accommodate the width of the bar 63. This space is also the exact width of a warp-slat 58[a]. It will thus be seen that with the receptacles 56 provided with a number of warp-slats that the l wer slat in each receptacle will rest upon the table 52 and its rear end will be exposed in the slot 65 in position to be engaged by the feed-bar 63 as the latter is brought to enter the recess 65 by the rotation of the sprocket-chains 62.

For rotating said sprocket-chains, I provide the following mechanism: Mounted on the opposite end of the shaft 34 to that containing the worm wheel 33 is a bevel-gear 66 which is in mesh with a similar bevel-gear 67 mounted on the end of a shaft 68 which extends parallel to the table 62 and at its rear end is provided with a bevel-gear 69 which meshes with a similar bevel-gear 70 on the end of the shaft 58 on which the sprocket-wheels 60 are mounted. It will thus be seen that as the shaft 34 rotates it not only actuates the shed-formers as before described, but through the medium of the bevel-gears and shafts mentioned, actuates the sprocket-chains 62 which latter, through the medium of the feed-bar 63 operates to feed the lower slat in each of the receptacles 56 toward the shed-formers.

At the forward end of the table the end wall 54 is provided with an aperture 71 opposite each of the receptacles 56 to permit the slats in said receptacles to pass out of the same into the shed-formers. Secured on the forward end-wall 54 of the table are a series of rectangular outwardly-flaring guides 72, one of which is located opposite each aperture 71, and each guide being substantially the width of a warp-strip. The guides 72 are for the purpose of directing the slats into the shed-formers, and are outwardly-flaring to permit the up and down movement of the slats in forming the sheds as will more clearly appear from an inspection of Fig. 4 of the drawings.

In the operation of the device thus far described, and assuming the relative positions of the slide-members and shed-formers to be as shown in Figs. 2 and 4, the rack-bar 24 in its return movement engages the gear 29 and revolves the shaft 28, which through the mechanism described will actuate the shed-formers. The slide-members 4 being in uppermost position will begin to descend, carrying with them the shed-formers 12 and 13, and the slide-members 5 being in their lowermost position will begin to rise carrying upward the shed-formers 14 and 15. At the same time the sprocket chains 62 will be revolved from the shaft 24 as previously described and the feed-bar 63 engaging the rear ends of the lowermost slats in the receptacles 56 will begin to feed them forward and out through the respective guides 72. Assuming the slats in each alternate receptacle 56 to have odd numbers and those in the intermediate receptacles to have even numbers the relative arrangement of the parts is such that as the spaces between the two sets of shed-formers come into alinement opposite the guides 72, the warp slats 58[a] will have their forward ends moved into these spaces, the odd numbered slats passing between the series of shed-formers 12 and 13 and the even numbered slats between the series of shed-formers 14 and 15. In the continued downward movement of the slide-members 4, the lower shed formers 13 will move out of contact with the odd numbered slats and after a slight further movement the shed-formers 12 will engage the upper sides thereof and press them downward, while as to the shed formers carried by the slide-members 5, the upper shed-formers 14 will be moved out

which is further provided with recesses 93 to permit of the necessary endwise movement of said bars in the up and down movement of the shed-formers. As the warp-strips 58ª are fed from the table their outer ends will be supported by the lower bars 90 and their passage into the space between opposing shed-formers insured. As the upper shed-formers 12 descend the upper bars 89 will be carried between the warp slats and thus serve in a measure to guide them in their forward movement. The lower bars 90 in moving upward will also pass between the warp strips which have been pressed downward and serve to guide them as clearly indicated in the drawing.

By my machine woven lathing can be manufactured continuously and expeditiously, and the laths will be uniform in character, as the mechanism described insures certainty and uniformity of action and the liability of breaking, splitting or cracking the laths is reduced to the minimum.

I claim

1. A slat-weaving machine embodying two sets of shed-formers, each set comprising opposing relatively stationary shed-formers, and said sets being simultaneously reciprocable in right lines in opposite directions.

2. A slat-weaving machine embodying two sets of shed-formers transversely recessed for the passage of the weft-slats, each set comprising relatively stationary shed-formers, and said sets being simultaneously reciprocable in right lines in opposite directions.

3. A slat-weaving machine embodying two sets of shed-formers transversely recessed for the passage of the weft-slats, each set comprising opposing relatively stationary shed-formers, and said sets being simultaneously reciprocable in right lines in opposite directions.

4. A slat-weaving machine embodying two sets of shed-formers transversely recessed for the passage of the weft-slats, each set comprising opposing, vertically-disposed and relatively stationary shed-formers, and said sets being simultaneously reciprocable in opposite directions.

5. A slat-weaving machine embodying two sets of shed-formers, each set comprising opposing, relatively stationary shed-formers, and said sets being simultaneously reciprocable in right lines in opposite directions and in the same vertical plane, the shed-formers of one set alternating in position with those of the other.

6. A slat-weaving machine embodying two sets of shed-formers, each set comprising an upper and lower series of shed-formers arranged directly opposite each other in spaced relation, said sets of shed-formers being simultaneously reciprocable in right lines in opposite directions, and the shed-formers of one set alternating in position with those of the other, in the same vertical plane.

7. In a slat-weaving machine, in combination with two sets of shed-formers, each set comprising oppositely-directed, relatively stationary shed-formers, and said sets of shed-formers being simultaneously reciprocable in right lines in opposite directions, means for feeding warp-slats to said shed-formers, and means for feeding weft-slats between the warp-slats.

8. In a slat-weaving machine, in combination with two sets of shed-formers, each set comprising oppositely-directed, relatively stationary shed-formers transversely recessed for the passage of the weft-slats, and said sets of shed-formers being simultaneously reciprocable in right lines in opposite directions, means for feeding warp-slats to said shed-formers, and means for feeding weft-slats through the recesses of the latter and between the warp-slats.

9. In a slat-weaving machine, in combination with two sets of shed-formers, each set comprising oppositely-directed, relatively stationary shed-formers, said sets of shed-formers being simultaneously reciprocable in right lines in opposite directions, means for intermittently feeding warp-slats to and through said shed-formers, and means for feeding weft-slats between the warp-slats.

10. In a slat weaving machine, in combination with two sets of shed-formers each set comprising opposing, relatively stationary shed-formers, and said sets being simultaneously reciprocable in right lines in opposite directions, a support for warp slats located adjacent thereto, means for intermittently feeding warp slats from said support to and through said shed-formers, guides for directing the warp slats to said shed-formers, and means for feeding weft slats between the warp slats.

11. In a slat weaving machine in combination with two sets of shed-formers each set comprising opposing, relatively stationary shed-formers, and said sets being simultaneously reciprocable in right lines in opposite directions, a support for the warp slats, means for intermittently feeding said slats from the support to said shed-formers, a guide for each slat mounted on said support, and means for feeding weft slats between the warp slats.

12. In a slat weaving machine, in combination with two sets of shed-formers simultaneously reciprocable in right lines in opposite directions, a support for the warp slats, means for intermittently feeding the warp slats from said support to and through said shed-formers, guides for said slats comprising bars pivotally connected at opposite ends, respectively, to the shed-formers and said support, and means for feeding weft slats between the warp slats.

13. A slat weaving machine embodying two sets of transversely recessed shed-formers simultaneously reciprocable in right lines in opposite directions, each shed-former having an outwardly curved guard for the weft-slats located within and extending across its recess.

14. In a slat weaving machine, in combination with shed-forming mechanism, a support for the warp slats having a transverse slot, a series of sprocket-chains mounted adjacent to said support, means for operating the same, a feed bar connecting said chains and adapted to travel over said support and through its slot to push the warp slats intermittently to and through said shed-forming mechanism, and means for feeding weft slats between the warp slats.

15. In a slat weaving machine, in combination with reciprocating shed-forming mechanism, a receptacle for warp slats located adjacent thereto, means for intermittently feeding warp slats from said receptacle to and through the shed-forming mechanism, friction rollers mounted adjacent to said shed-forming mechanism on the opposite side thereof to said receptacle and adapted to receive the laths as woven, and means for rotating said rollers in synchronism with said slat feeding means.

16. In a slat weaving machine, in combination with reciprocating shed-forming mechanism, means for intermittently feeding warp slats to and through the same, a receptacle for weft slats, means for feeding at stated intervals a weft slat between the warp slats, said means embodying a reciprocating slide bar, and means operating during the movement in one direction of said slide bar for actuating the feed means for the warp slats.

17. In a slat weaving machine, in combination with reciprocating shed-forming mechanism, means for intermittently feeding warp slats to and through the same, a receptacle for weft slats, means for feeding at stated intervals a weft slat between the warp slats, said means embodying a reciprocating slide bar, and means operating during the movement in one direction of said slide bar for actuating the shed-forming mechanism and the feeding means for said warp slats.

18. In a slat weaving machine, in combination with reciprocating shed-forming mechanism, means for intermittently feeding warp slats to and through the same, a receptacle for weft slats, means for feeding at stated intervals one of said weft slats between the warp slats, embodying a slide bar having a rack, a shaft operatively connected with the warp slat feeding means, a gear loose on said shaft, a ratchet wheel fixed thereon, a spring pawl carried by the gear and engaging the teeth of said ratchet wheel, said rack bar being adapted to engage said gear in its movement in one direction to rotate said shaft and to rotate the gear in its movement in the opposite direction without rotating said shaft whereby is secured the alternate feeding of the warp and weft slats.

19. In a slat weaving machine, in combination with shed-forming mechanism, means for feeding warp slats to and through the same, a receptacle for weft slats, means for feeding a weft slat at stated intervals between said warp slats, embodying a slide bar forming a bottom for said receptacle and having at its end an upwardly pressing push-finger, and means for reciprocating said slide bar.

20. In a slat weaving machine, in combination with a frame, parallel slide bars mounted therein each carrying two sets of shed-formers, the shed-formers of each set being oppositely-disposed and separated, a lever pivotally mounted on said frame intermediate its ends and pivotally connected to opposite slide bars, and means for intermittently rocking said lever on its support to alternately raise and lower said slide bar.

21. In a slat-weaving machine, in combination with a frame, a pair of slide-bars mounted in parallel relation in each end of said frame, supports connecting corresponding slide-bars, two sets of opposing, separated shed-formers mounted on the said supports, and means for intermittently reciprocating said slide-bars simultaneously in opposite directions.

22. In a slat weaving machine, in combination with reciprocating shed-forming mechanism, means movable in a right line for intermittently feeding warp slats to and through said shed-forming mechanism, a pair of friction rollers located adjacent to said shed-forming mechanism and adapted to receive between them the lath as woven, and means for rotating said rollers in synchronism with the warp slat feeding means.

23. In a slat weaving machine, in combination with reciprocating shed-forming mechanism, means movable in a right line for intermittently feeding warp slats to and through the same, a pair of friction rollers mounted adjacent to said shed-forming mechanism and a apted to receive the lath as woven, means for feeding at intervals a weft slat between the warp slats and actuating means associated with the warp slat feeding means, said rollers, and the weft slat feeding means, and operated to actuate said rollers and warp slat feeding means in synchronism, and in alternation with said weft slat feeding means.

24. In a slat weaving machine, in combination with reciprocating shed-forming mechanism, means movable in a right line for feeding warp slats to and through the same, a shaft, means associated with said shaft for actuating the shed-forming mechanism, means associated with said shaft for ac-

tuating the warp slat feeding means, means for feeding a weft slat at intervals between said warp slats, and actuating mechanism adapted to rotate said shaft and to operate said weft slat feeding mechanism in alternation.

25. In a slat weaving machine, in combination with shed-forming mechanism, a table having a transverse slot, a series of division walls mounted on said table in parallel relation to provide receptacles, each of said division walls having its bottom edge cut away from its rear end to said transverse slot, sprocket-chains mounted at opposite sides of said table and adapted to travel substantially flush with the surface thereof from its rear end to said slot, and a feed bar connecting said sprocket-chains and adapted to travel over the surface of said table beneath the cut-away portions of said division walls and through said slot, for the purpose described.

26. In a slat weaving machine, a shed-former comprising a body portion having a bifurcated end and a curved support extending between the walls of said bifurcated portion.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

HENRY W. CARPENTER.

Witnesses:
BRUCE S. ELLIOTT,
W. E. ROBINSON.