Jan. 2, 1923.

1,440,800

A. SCHENK.
SIDING MILL.
FILED JUNE 6, 1921.

4 SHEETS-SHEET 1

Fig. 1

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Arthur Schenk.
BY David E. Lain,
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4 SHEETS-SHEET 2

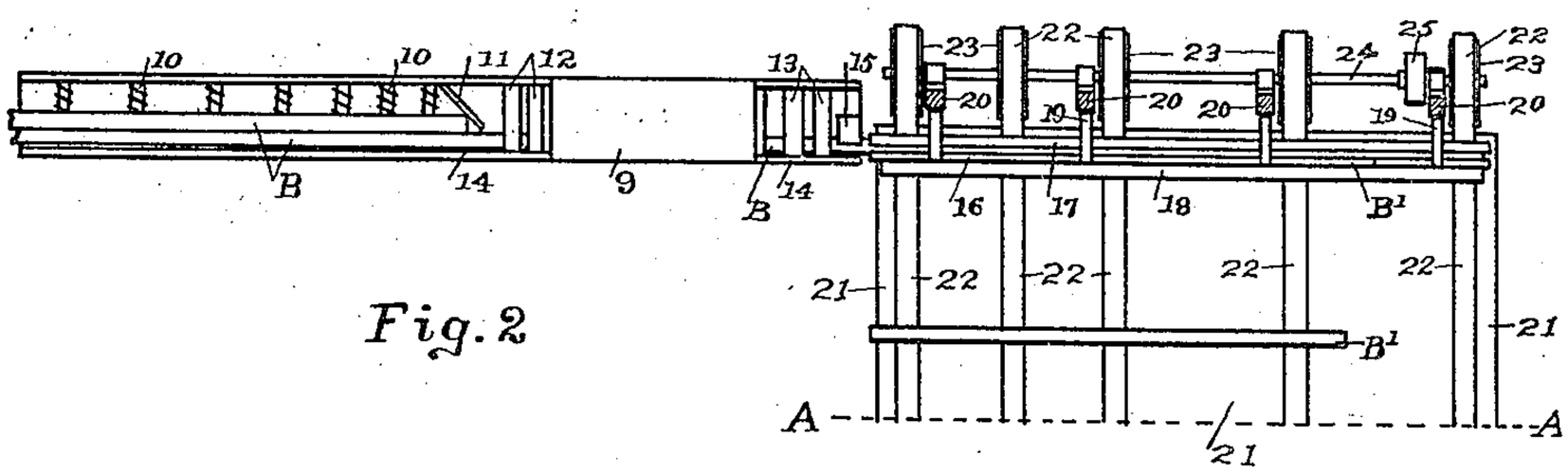
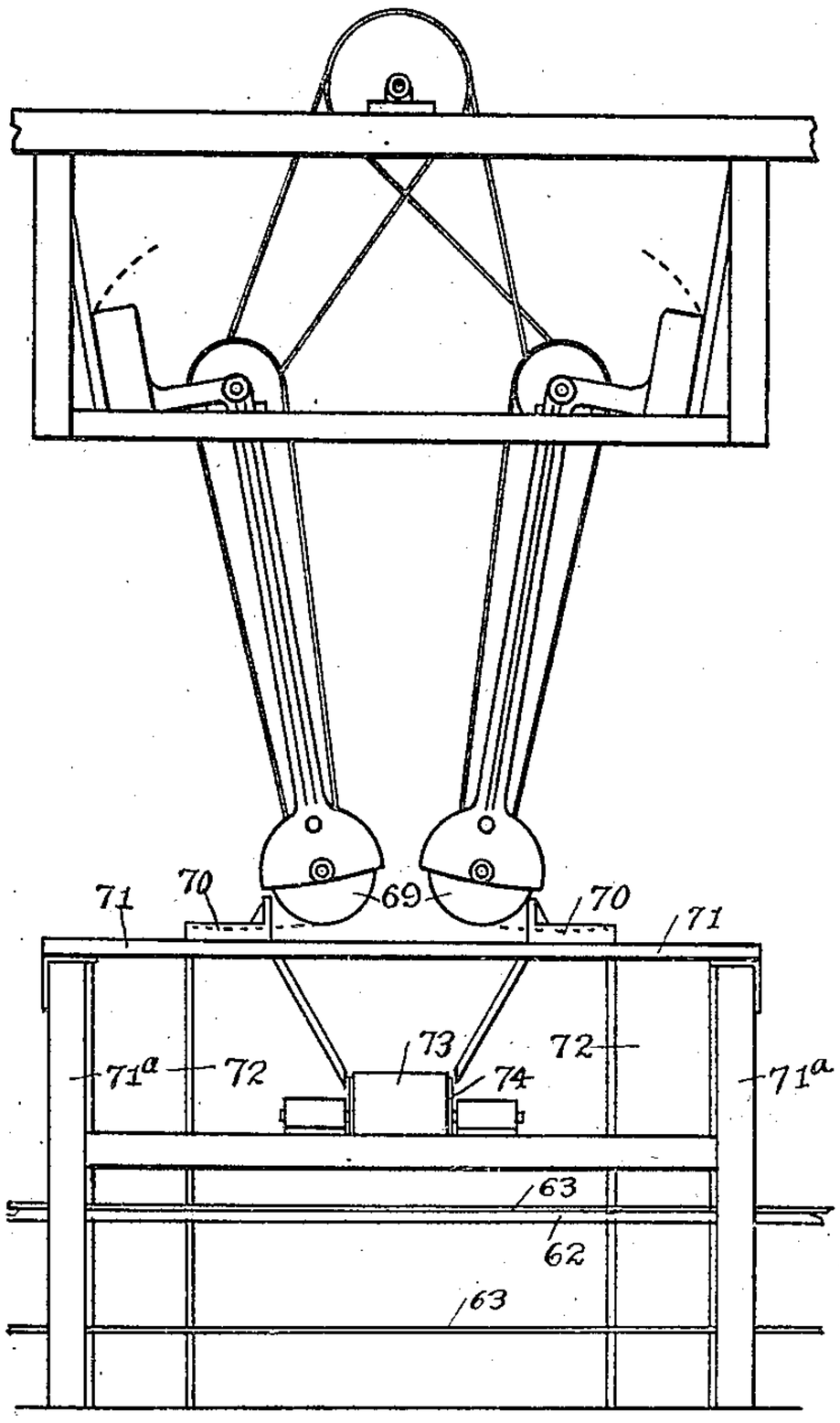


Fig. 2

Fig. 3



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4 SHEETS-SHEET 3

Fig. 4

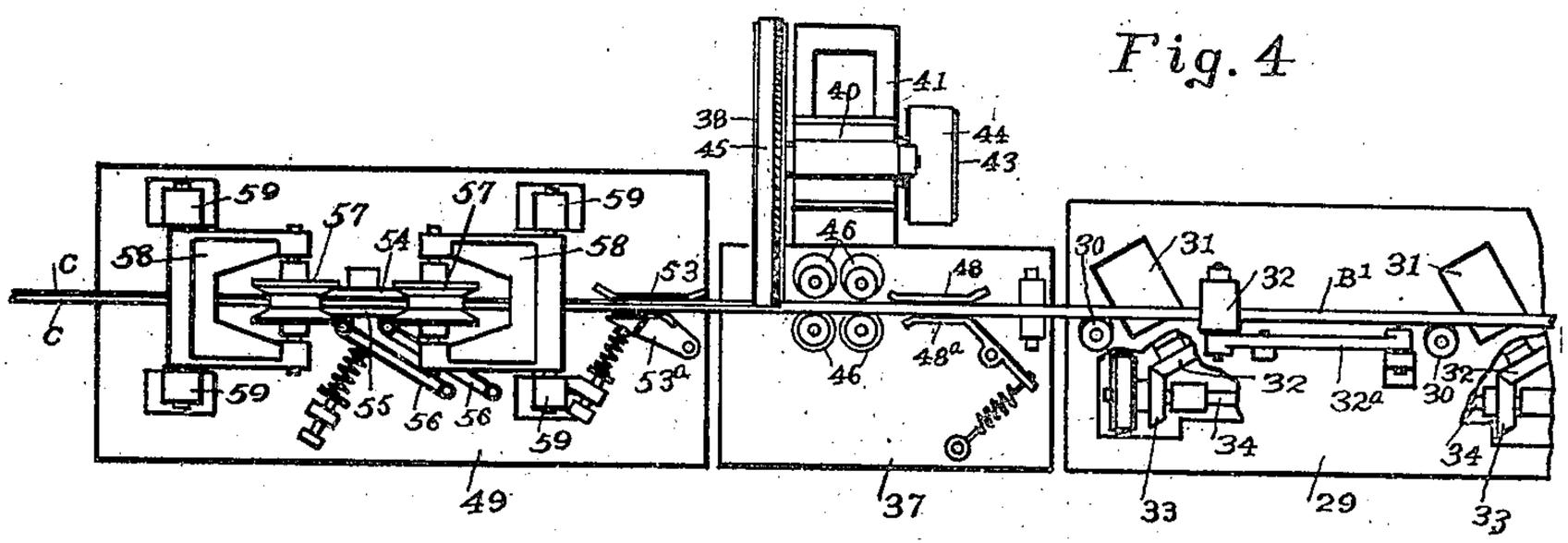


Fig. 5

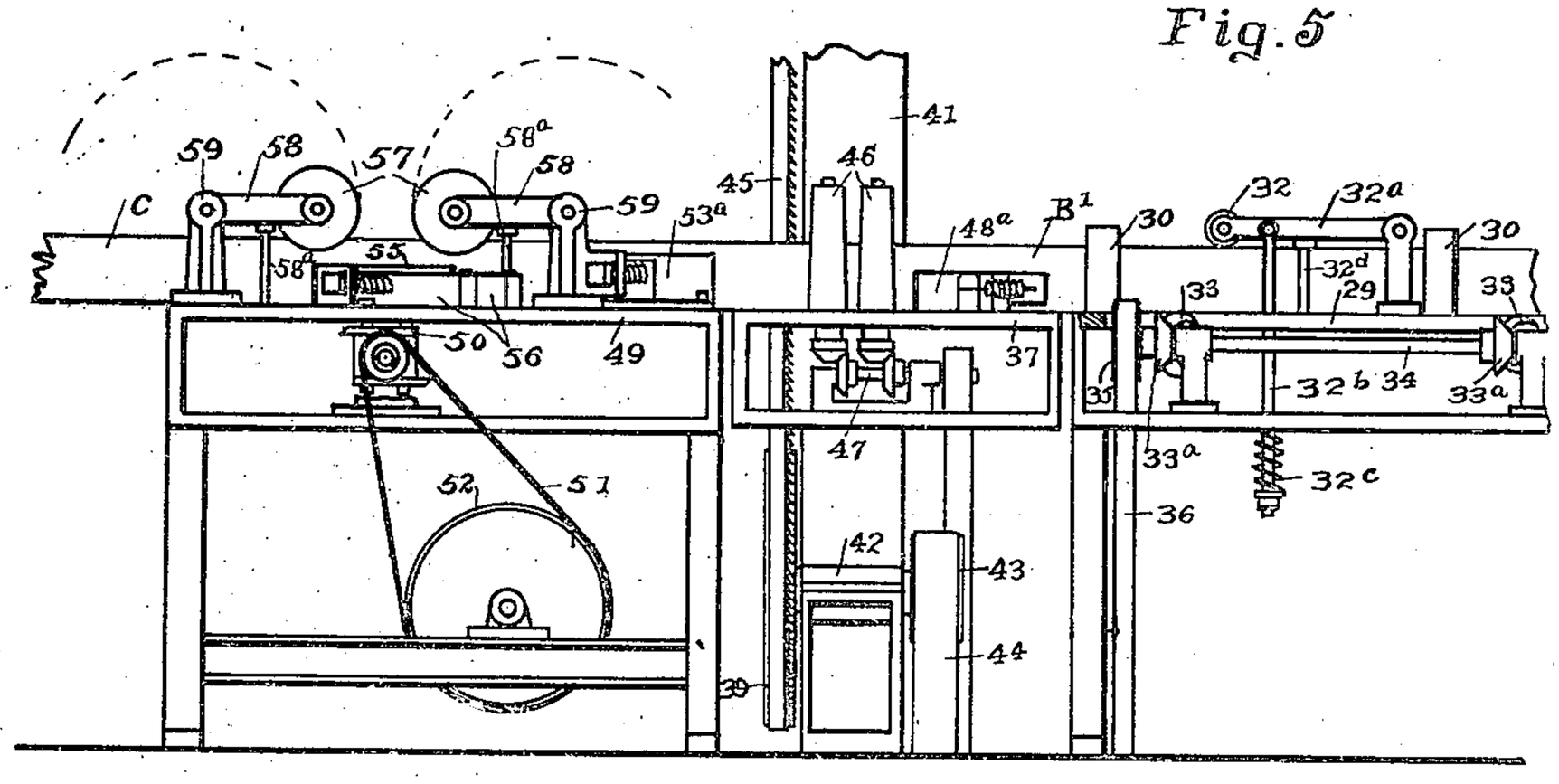


Fig. 6

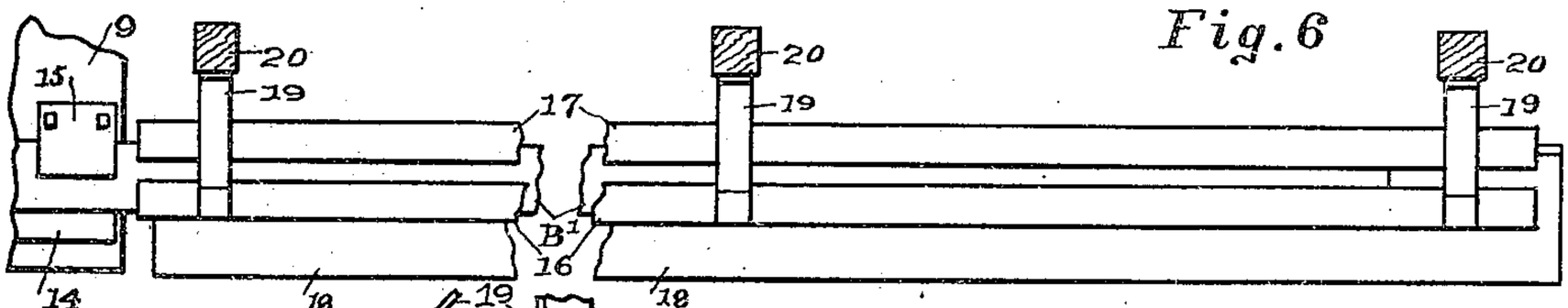
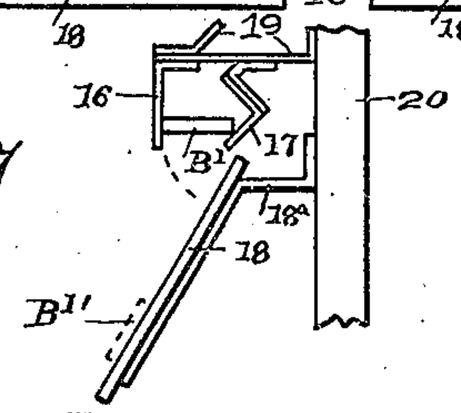


Fig. 7



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4 SHEETS-SHEET 4

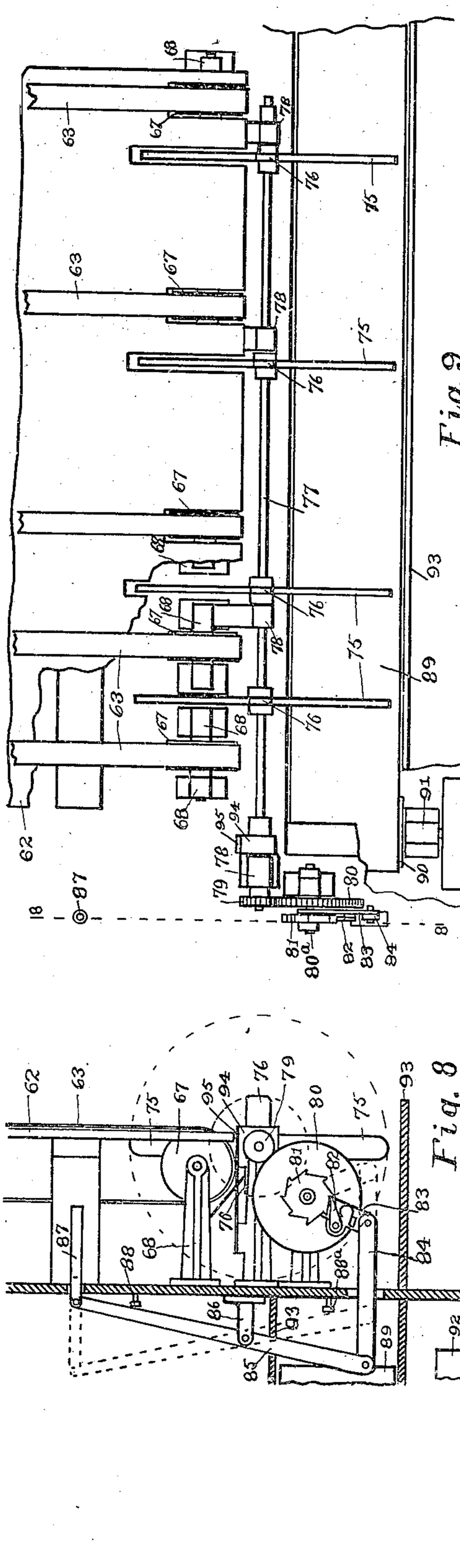

Fig. 9

Fig. 8

Arthur Schenk, INVENTOR.

BY David E. Lain,

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Patented Jan. 2, 1923. 1,440,800

UNITED STATES PATENT OFFICE.

ARTHUR SCHENK, OF MARIETTA TOWNSHIP, WHATCOM COUNTY, WASHINGTON, ASSIGNOR TO WHATCOM FALLS MILL COMPANY, OF BELLINGHAM, WASHINGTON.

SIDING MILL.

Application filed June 6, 1921. Serial No. 475,311.

To all whom it may concern:

Be it known that I, ARTHUR SCHENK, a citizen of the United States, and resident of the township of Marietta, in the county of Whatcom and State of Washington, have invented a new and useful Siding Mill, of which the following is a specification.

My invention relates to improvements in siding mills, an assemblage of machines and appurtenances used in the manufacture of beveled siding; and the main object of my invention is to provide a jointer adapted for automatically taking the resawn boards from the siding resaw and, after planing one edge, deliver them to a conveyor. In order to show the proper location and use of this machine in the mill, a general drawing of the mill is included as a part of this specification.

I attain this object with the jointer mechanism in the association of machines illustrated in the accompanying four sheets of drawings in which Figure 1 is a plan view of my siding mill, exclusive of the grader's table, not shown in any of the views, cut off at line A—A; Fig. 2 is a continuation and completion of Fig. 1 from line A—A; Fig. 3 is an end elevation of a trimmer's table and side elevation of a pair of trimmer saws; Fig. 4 is a plan view of an automatic, resaw feed table, a resaw and the siding jointer; Fig. 5 is a side elevation of Fig. 4; Fig. 6 is a plan view of a receiving trip or board holder and dropper; Fig. 7 is an end elevation of Fig. 6; Fig. 8 is an end elevation of a controllable, damaged-siding bulkhead and conveyor; and Fig. 9 is a plan view of Fig. 8. Figs. 3–9 are drawn on a larger scale.

Similar characters refer to similar parts throughout. Certain parts are broken away for lack of space or to show other parts hidden thereby.

This invention improves that which forms the subject of Patent Number 837,087 granted to George W. Loggie Nov. 7, 1906 for receiving trip and conveyors.

More particularly: 9 is a wood planer, adapted for planing both sides and either one or both edges of the boards as desired.

10, 10 are live, corrugated feed rolls on the bed of said planer.

11 is a deflecting bulk head.

12, 12 are live, down-presser rolls in front of the planer heads.

13, 13 are down-presser rolls behind the planer heads.

14 is the back guide of the planer.

15 is a top and front guide.

B, B are the rough boards from which the beveled siding is made.

B^1 are said boards after passing said planer.

16 is the front, bottomless guide of the board receiver and trip.

17 is the inclined, back ledge and guide of said trip.

18 is an inclined apron beneath said trip.

18^a is one of a number of similar brackets fastened to posts 20 and to apron 18.

19, 19 are brackets fastened to said posts and to trip guides 16 and 17 for supporting the latter.

20, 20 are posts erected behind said trip for supporting same and for supporting bearings for shaft 24.

21 is a platform for supporting board-conveyer belts 22.

22, 22 are board-conveyer belts driven by pulleys 23 and also on pulleys 26.

23, 23 are pulleys mounted fixed on shaft 24 for mounting and driving belts 21.

24 is a shaft on which pulleys 23 are mounted fixed and which is mounted for revolution in bearings fastened to posts 20.

25 is a driver pulley mounted fixed on shaft 24.

26 is one of a number of pulleys mounted on shaft 27 for mounting the delivery end of conveyer belts 22.

27 is a shaft mounted for revolution in bearings 27^a which are fastened to beam 27^b.

28 is a table at the delivery end of conveyer 22 for holding boards B^1.

29 is the table of an automatic resaw feed device.

30, 30 are dead, standing rolls on said resaw, feed table forming a back guide.

31, 31 are live rolls on the feed table lying horizontally but inclined toward said back guide rolls to force the boards against the same.

32 is the roll of a down presser bearing on the upper edge of the boards as fed into the resaw. 32^a is a pivoted arm on which roll 32 is mounted for revolution. 32^b is a holding-down rod pivoted to arm 32^a and passing through the table of the resaw feed beneath which it is retained under spring pressure

by spring 32c. 32d is an adjustable stop beneath arm 32a.

33, 33 are bevel gears fixed to the shafts of live rollers 31 engaged with bevel gears 33a fixed on countershaft 34.

34 is a countershaft mounted in bearings on table 29 for revolution and mounting fixed driving pulley 35, which is driven by belt 36.

37 is a band resaw adapted to saw each of boards B1 into two pieces of beveled siding C as they pass therethrough.

38 is the upper pulley of said resaw mounted for revolution in bearing 40.

39 is the lower band wheel of said resaw mounted for revolution in bearing 42.

41 is the main frame of the resaw.

43 and 44 are respectively the driving pulley for saw, band wheel 39 and the belt for driving the same.

45 is the band saw mounted on band wheels 38 and 39.

46, 46 are four live rolls for feeding the boards into resaw 37. Said live feed rolls are driven by bevel gears fixed thereto engaged with fixed bevel gears on countershafts 47 which are belt driven.

48 is a fixed back guide on table 37 for boards B1. 48a is a spring-pressed, hinged front guide for said boards.

49 is a jointer following resaw 37 for finishing the lower edge of boards B1 after they are sawn in two by saw 45 which leaves said edge roughened with splinters.

50 is the jointer head mounted for revolution in the usual way and driven by belt 51 over drive pulley 52.

53 is a fixed back guide for the resawn boards on table 49. 53a is a pivoted, spring-pressed front guide cooperating with 53.

54 is a fixed back guide for said resawn boards over jointer head 50.

56, 56 are a pair of spring-pressed, parallel-motion links pivoted to front guide 55 and to table 49 to cooperate with back guide 54.

57, 57 are a pair of grooved, down-presser rolls mounted for revolution on arms 58, 58, in bearings 59, 59. The weight of these rolls provides sufficient downward pressure for the purpose intended. They bear on adjustable stops 58a, 58a when not carried by passing siding.

60 is a table with back stop 61 located to receive the siding strips C as they leave the jointer.

62 is the platform of a siding carrier the front end of which is beneath table 60.

63, 63 are carrier belts moving over platform 62, mounted on pulleys 64, 64 and 67, 67.

Pulleys 64 are mounted fixed on shaft 65, which is mounted for revolution in bearings fastened beneath table 60 and is driven by pulley 66.

Each of pulleys 67 is separately mounted on a short shaft for revolution in pairs of bearings 68 fastened to the floor beneath the rear or delivery end of conveyer 62.

69, 69 are two pairs of trimmer saws hingably mounted on over-head frames above an alley between conveyers 21 and 62.

70, 71, 70, 71 are two pairs of trimmer tables supported on table frames 71, 71 transversely over conveyers 21 and 62.

72, 72 are refuse chutes leading from said trimmer tables in said alley to refuse conveyers, not shown, beneath the mill floor.

73, 73 are conveyer belts, one mounted on a pulley 74 beneath each pair of trimmer saws, and each having its distant end near a grading table, not shown, mounted on a driven pulley, not shown. Each of conveyers 73 moves at the bottom of a chute between each pair of trimmer tables 70.

75, 75 are arms mounted fixed, centrally, on shaft 77, which is mounted in bearings parallel with the shafts of pulleys 67 at the delivery end of conveyer 62.

76, 76 are bulkhead-standards projecting from each side of each of arms 75 in line with shaft 77.

77 is a shaft mounted on bearings 78 and mounting fixed arms 75.

79 is a spur gear mounted fixed on one end of shaft 77.

80 is a spur gear mounted fixed for revolution with a counter shaft 80a and engaged with gear 79. Said countershaft is mounted for revolution in bearings fastened to the floor.

81 is a ratchet mounted fixed on the outer end of shaft 80a.

82 is a spring-pressed pawl pivoted to arm 83 engageable with ratchet 81.

83 is an arm one end of which is mounted for revolution on shaft 80a, between ratchet 81 and gear 80 and its other end is pivoted to link 84.

84 is a link connecting arm 83 with fulcrumed lever 85.

85 is a lever fulcrumed at 86 beneath the mill floor.

87 is a floor push pivoted to the distant end of lever 85 and projecting upward through a hole in the floor.

88 and 88a are adjustable stops to limit the movements of lever 85.

89 is a conveyer belt transverse to the delivery end of conveyer 62 mounted on pulley 90 and another pulley, not shown.

91 is a counter shaft bearing for mounting pulley 90 and driver pulley 92.

93, 93 are the walls of a chute leading to conveyor belt 89.

94 is a square boss mounted fixed on shaft 77.

95 is a flat spring fastened to one of pedestals 78 and adapted to bear on boss 94.

The patent granted to George W. Loggie,

referred to, describes a siding mill using a planer without the live, feed rolls 10, and one which does not have an automatic, resaw feed device, such as 29, nor the jointer 49, nor the controllable bulkhead 75, 76.

In operation: Rough boards are placed on the table of planer 9 and are automatically fed into the same by the cooperation of corrugated, live feed rolls 10 and inclined bulkhead 11.

In passing through the planer the boards are either planed on both sides and both edges, or on both sides and one edge, as desired. When planed on one edge only, the rough edge is the one next to planer guide 14. The following boards, in turn, projects each board into the board receiver and trip where the rear edge of the board bears on inclined ledge 17, its front edge bears against front guide 16 and it is prevented from turning over by top and rear guide plate 15. When a board has entirely passed beneath guide plate 15 and cleared the planer bed its front edge turns downward and it slides down on apron 18 and on to conveyer belts 22, with its rough edge foremost. Thence it proceeds beneath trimmer tables 70 to table 28. From this table each board is taken by hand shoved forward flatwise and stood flatwise against standing rolls 30 with its rough edge bearing on live rolls 31 which rapidly carry it endwise into live, resaw rolls 46 while forcing it against rolls 30. It is then driven through the resaw, which saws it into two flat, beveled pieces of siding which must pass, while being sawn, between guides 53, 53[a] and guides 54, 55, and beneath rolls 57 while its lower edge is being planed by jointer head 50.

While passing over the jointer jamming sometimes occurs in guides 54, 55 due to broken fragments from damaged parts moving between the wedge-form surfaces of the siding or to the failure of damaged ends to properly abut and remain in line, thus passing to sidewise relation and requiring more room transversely. The cause of the stopping resulting can be quickly removed in my jointer by lifting rolls 57 by hand when the guides beneath are accessible and the pressure is relieved by withdrawing guide 55. The wide, flaring grooves of downpresser rolls 57 allow for considerable increase in the width of the stream of stuff passing beneath them.

As fast as the strips of beveled siding pass on to table 60, 61 they are placed by hand on to conveyer belts 63 which move them toward planer 9 and beneath trimmer tables 71. As they approach and leave each trimmer table they are accessible to the trimmer sawyers who place them on to trimmer tables 70, trim their ends and saw them into a variety of standard lengths by using saws 69. From this operation short pieces of trimmings fall directly into chutes 72 on to conveyer belts beneath and are carried to the furnace room for fuel. Longer pieces of trimmings are recut into lengths no longer than about 18 inches and are also thrown into said chutes. Pieces of damaged siding longer than this, say about four feet long, unsuited for the minimum length of siding, are thrown by hand back on to conveyer belts 63 which carry them to controllable bulkhead 75, 76. Also, it not infrequently occurs that in passing through the several devices and machines a board is cracked from end to end, rendering it entirely unfit for siding. Such boards are not removed from belts 63 and are allowed to pass to bulkhead 75, 76. When an accumulation of these damaged strips appears on arms 75 the trimmer sawyer near floor push 87 depresses it with his foot, moving it downward as far as it will go. As drawn, this causes ratchet 81 to revolve the space of one of its eight teeth. Gear 79 has one fourth the diameter of gear 80, thus said turning of ratchet 81 causes gear 79 and arms 75 to make a one-half revolution, dumping the damaged strips on said arms into chute 89 and on to conveyer belt which carries them to a place where they are assorted and made into forms adapted for other uses.

Pawl 82 engaged with ratchet 81 prevents the weight of the damaged strips accumulating on arms 75 from turning the arms backward. While spring 95 bearing on a flat side of square boss 94 prevents arms 75 from moving beyond their operative position by momentum when the bulkhead is being dumped by operating floor push 87.

As ordinarily operated the trimmer sawyers must reduce all pieces unsuited for siding to the short lengths of waste referred to. This requires valuable time of the most expert employees and results in using for fuel much material that can better be diverted to more valued uses.

I have employed chain-and-lug conveyers to replace the belts 22 to good advantage.

Having thus disclosed my invention, what I claim is new and desire to secure by Letters Patent is,—

1. In a siding mill in combination, a beveled-siding board resaw, a wood jointer table at the delivery end of said resaw, a revoluble jointer head beneath said table, downpresser rolls mounted for revolution on axes parallel to the axis of said jointer head and on arms hingedly mounted on brackets above said table, stops whereby the downward movement of said downpresser arms are limited, a back guide over said jointer head and beneath said downpressers, a spring-pressed guide bar movable through parallel positions with and in front of said

back guide, and a siding conveyer operable at right angles to said jointer and from the delivery end of the same.

2. In a siding jointer in combination, a jointer table, a revoluble jointer head mounted for revolution beneath said table, a back guide fixed on said table transversely of the axis of said jointer head and above the same, a front-bar guide mounted on spring-pressed pivoted arms for movement away from and parallel with said back guide against the reaction of said springs, and two downpresser rolls each having a deep flaring annular groove mounted for revolution in a line parallel with and above said guides, on arms hingedly mounted on brackets above said table, and adjustable stops adapted to limit the downward movements of said downpresser arms.

ARTHUR SCHENK.