No. 749,550. PATENTED JAN. 12, 1904.

E. J. FULGHUM.

MACHINE FOR TRIMMING AND MATCHING THE ENDS OF FLOORING.

APPLICATION FILED AUG. 18, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

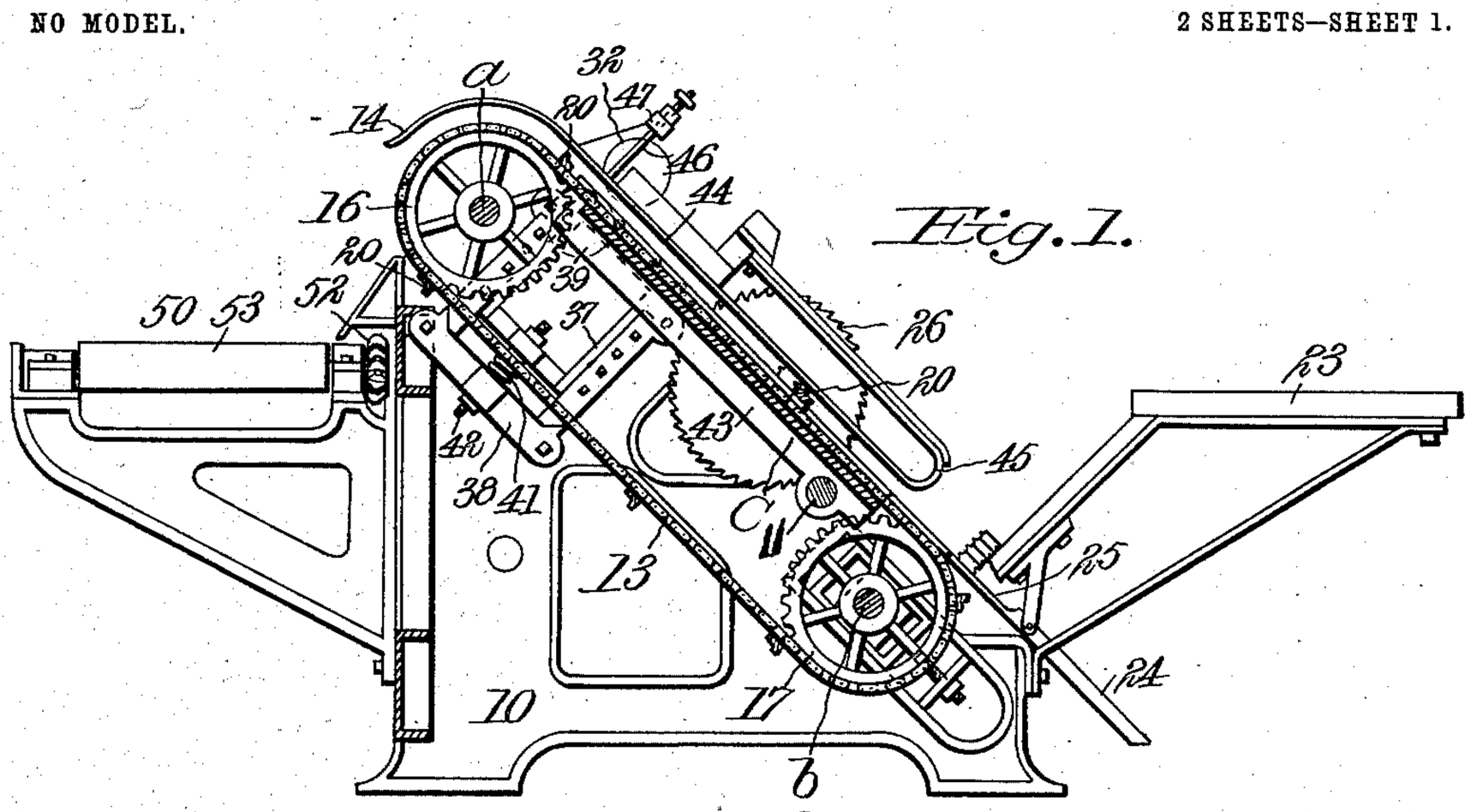

Fig. 1.

Fig. 2.

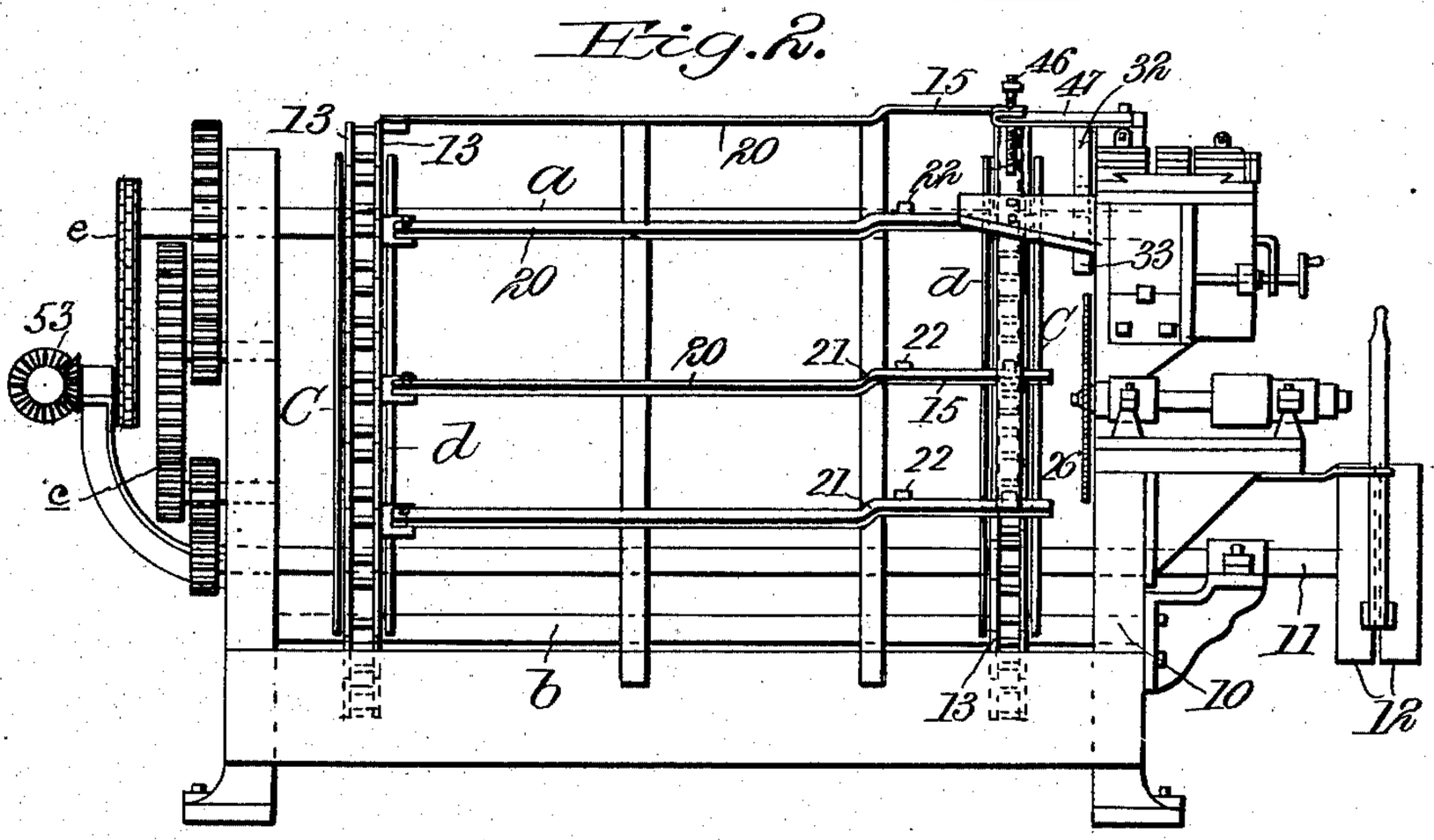

Fig. 3.

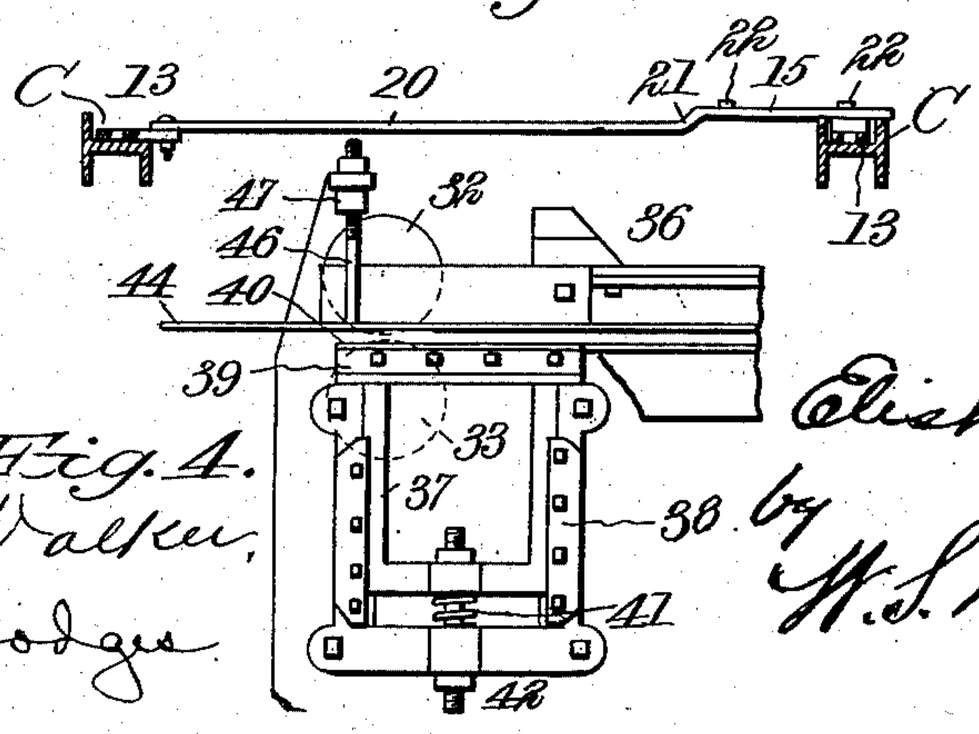

Fig. 4.

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NO MODEL. 2 SHEETS—SHEET 2.

Fig. 6.

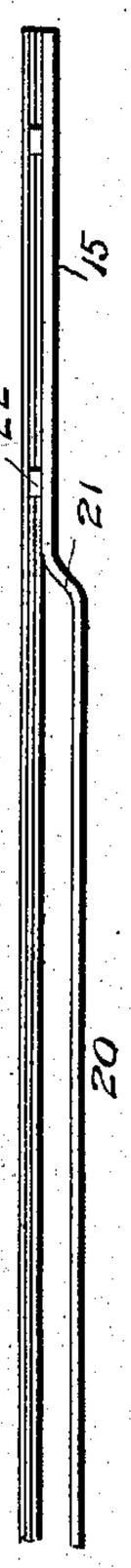


Fig. 7.

Fig. 8.

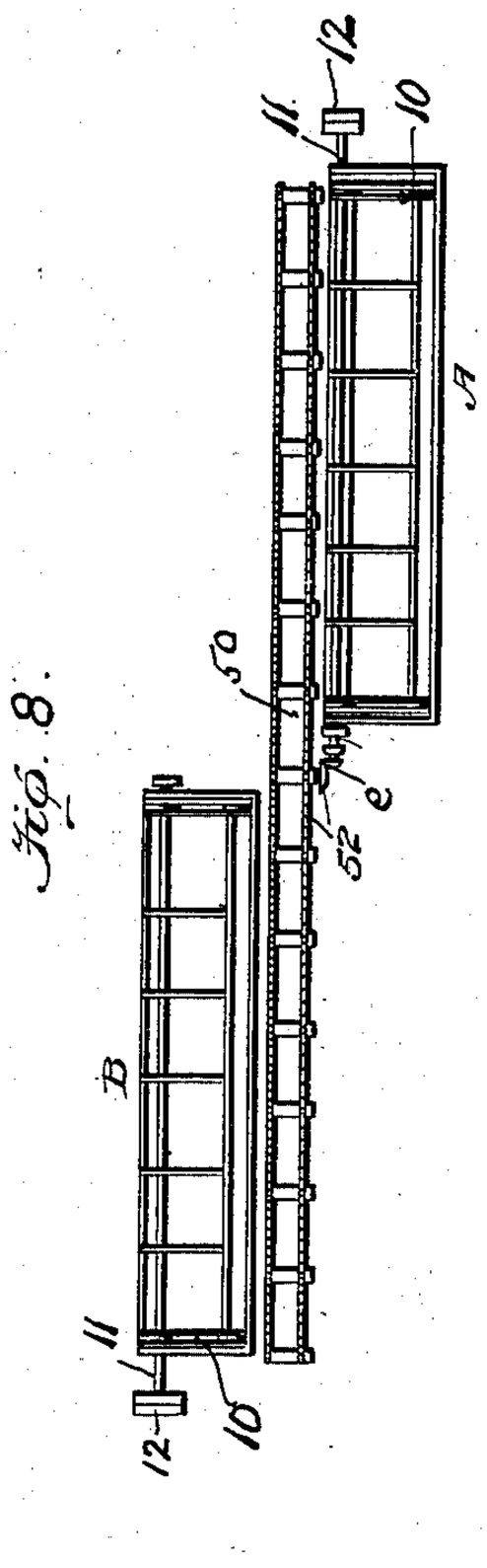
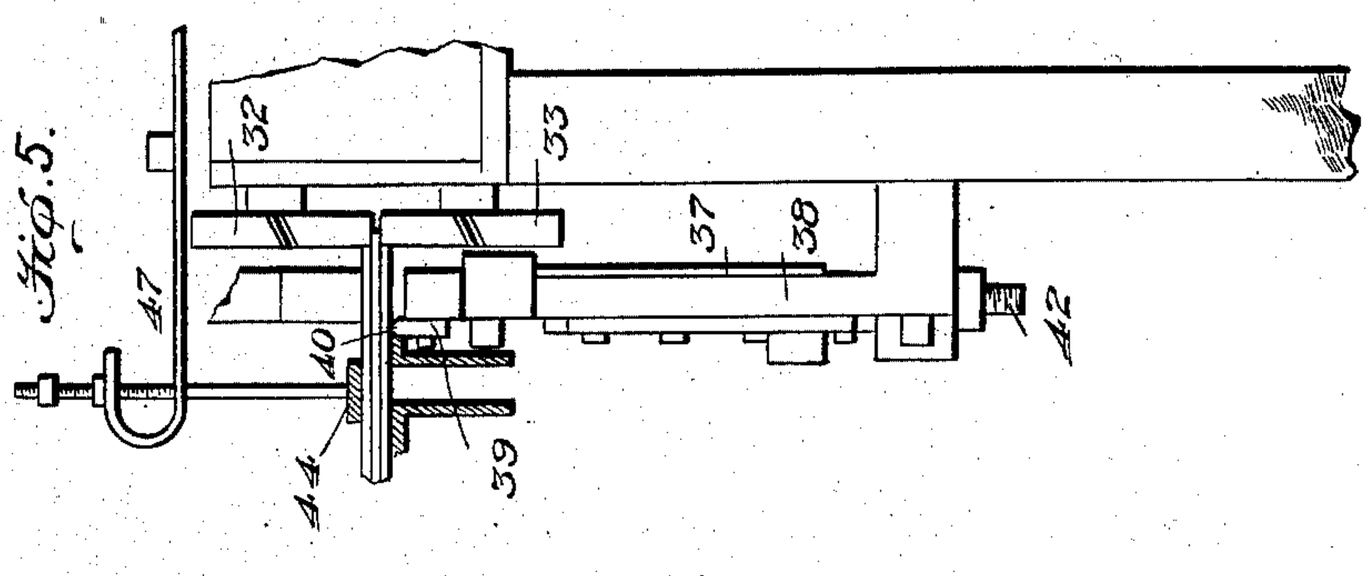


Fig. 5.



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No. 749,550. Patented January 12, 1904.

UNITED STATES PATENT OFFICE.

ELISHA J. FULGHUM, OF TRAVERSE CITY, MICHIGAN, ASSIGNOR OF ONE-HALF TO TRAVERSE CITY IRON WORKS, OF TRAVERSE CITY, MICHIGAN.

MACHINE FOR TRIMMING AND MATCHING THE ENDS OF FLOORING.

SPECIFICATION forming part of Letters Patent No. 749,550, dated January 12, 1904.

Application filed August 18, 1902. Serial No. 120,080. (No model.)

To all whom it may concern:

Be it known that I, ELISHA J. FULGHUM, a citizen of the United States, residing at Traverse City, in the county of Grand Traverse and State of Michigan, have invented new and useful Improvements in Machines for Trimming and End-Matching Flooring, of which the following is a specification.

This invention relates to certain new and useful improvements in machines for trimming and matching the ends of flooring.

The invention has for its object the production of a machine of this character in which the flooring-boards are first trimmed and tongued on one end and then automatically conveyed to a second trimming and matching mechanism, whereby the other ends of said boards are trimmed and grooved, the operation being continuous.

A further object is to provide improved means for feeding the boards to the cutting mechanism.

A further object is to provide simple and efficient means for holding the flooring while being operated upon by the matching mechanism.

The invention will be hereinafter fully set forth, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a transverse sectional view of my improved machine. Fig. 2 is a front view thereof. Fig. 3 is a sectional view illustrating the relation of the carrier-bars and chainways. Figs. 4 and 5 are detail views of the holding devices. Figs. 6 and 7 are detail views of one of the carrying-bars with a board in position to be fed to the cutting mechanism. Fig. 8 is a diagrammatical view of the entire machine.

Referring to the drawings, 10 designates a frame or support, having a shaft 11 mounted therein and arranged to be rotated by pulley 12, driven from any suitable source of power.

The carrier comprises an apron, formed by chains 13 passing around sprocket-wheels 16 and 17, keyed to shafts *a b*, mounted in frame 10, carrying-bars 20 being extended between said chains and having their ends secured to the latter. Shafts *a* and *b* are operated from shaft 11 by gearing *c*. The chains run in suitable ways *d*, preferably arranged at an angle of forty-five degrees, and the shaft *b* of sprocket-wheel 17 is mounted in a suitable tension device, as shown. Each carrier-bar 20 is curved or offset at 21 to form a comparatively short member 15, having engaging lugs 22, which serve to feed the lumber forward as the same is fed in the line of movement of the feed-bars from any suitable table. The trimming-saw 26 is keyed to the usual arbor and may be rotated by any suitable means. (Not shown.) The cutting-heads 32 33 of the tonguing mechanism are also rotated by any suitable means. (Not shown.) Extending beneath the feeding-table 23 is a pivoted lever 24, provided with a series of arms or members 25, arranged to engage and raise the lowermost board, whereby the lugs 22 will pass thereunder.

The ends of the flooring-strips are held firmly in place while being acted upon by the cutter-heads by means of a holding device 36, the same consisting of a frame 37, mounted in a guiding member 38. To the upper end of said frame is secured a bar 39, which is beveled to form a sharp edge 40, said edge being held in normal engagement with the under side of a flooring-strip by means of a coil-spring 41 interposed between frame 37 and guiding member 38, said spring encircling a rod or bolt 42, working loosely in both said frame and guiding member, the tension of said spring being regulated by suitable nuts, as shown. The chainway C is provided with a bar 43, which is, in effect, a continuation of bar 39. The top of the board is engaged by the free end of a spring presser-plate 44, said plate being bowed and supported at 45, as shown, said plate being extended over a substantial portion of the length of the chainways C, the free end thereof terminating in downwardly-curved portions 14. The free end of said plate is held in engagement with said board by means of a threaded rod 46, adjustably mounted in a spring member 47.

The boards are delivered by the feeding-

bars upon a conveyer 50, formed of a series of rolls 53, connected by sprocket-chains 52, which are operated through the medium of suitable connections 54, whereby the flooring-boards are conveyed from the tonguing mechanism A to the grooving mechanism B. The grooving mechanism is identical with the tonguing mechanism, save that in lieu of the cutter-heads 32 33 cutters arranged to cut a groove are employed, and hence further description thereof is unnecessary.

In practice the boards are fed to the carrier in such manner that the lugs 22 of bars 20 will engage therewith, the curves or offsets of said bars serving to keep the ends of the flooring to be matched a distance above the opposite end, so as to keep clear of the frame. The lugs 22 are so placed as to force the ends of the flooring to proper line, irrespective of the length or crookedness of the piece to be matched. As the flooring is advanced the spring presser-plate retards the same sufficiently to keep the lugs 22 in close contact with the board, one end of which is successively trimmed by saw 26 and tongued by the cutter-heads 32 33, after which the strip is deposited upon the carrying-rolls 53 and conveyed to the grooving mechanism, where the other end is similarly treated, a groove being formed therein in lieu of a tongue.

From what has been said it will be observed that I have produced a simple and inexpensive machine, whereby flooring-boards are readily trimmed on one end and then automatically conveyed to a mechanism for trimming and grooving the other end, the operation being continuous and uninterrupted. It will be particularly observed that as the boards are fed forward to the cutting mechanism the engaged end is brought up squarely in relation thereto, the disengaged end being free to swing in either direction over the depressed portion of the feeding-bars, whereby the tongue or groove, as the case may be, is cut parallel with the end edges of the board, whereby I am enabled to match the ends of very crooked or badly-warped lumber with great accuracy. A further advantage lies in my improved holding mechanism, whereby the flooring-boards are held absolutely rigid while being operated upon by the cutting-heads.

I claim as my invention—

1. A machine of the character described comprising a frame, and a carrier having bars adapted to engage the flooring near one end thereof and provided with a curved or offset portion over which the disengaged end of the flooring is adapted to swing.

2. A machine of the character described, comprising a frame, and a carrier having bars each provided with a short member adapted to engage the flooring near one end thereof, and a longer depressed member over which the disengaged end of the flooring is free to swing.

3. A machine of the character set forth, comprising a frame, and a carrier having bars each provided with engaging lugs near one end, the opposite end thereof being depressed to permit the disengaged end of the flooring to swing thereover.

4. A machine of the character described, comprising a frame, a carrier having bars adapted to engage the flooring near one end and provided each with a curved or offset portion over which the disengaged end of the flooring is adapted to swing, cutting mechanism adjacent to the engaging portions of said bars, and means for simultaneously operating said carrier and cutting mechanism.

5. In a machine of the character described, the combination with a supporting-frame, and a feed-apron having engaging bars provided with depressed portions over which the disengaged end of the flooring is adapted to swing, of a presser-plate adapted to retard the movement of said flooring.

6. In a machine of the character described, the combination with a supporting-frame, and a feed-apron having engaging bars provided with depressed portions over which the disengaged end of the flooring is adapted to swing, of a presser-plate adapted to retard the movement of said flooring, and means for regulating the pressure of said plate.

7. In a machine of the character described, the combination with a supporting-frame, and a feed-apron having engaging bars provided with depressed portions over which the disengaged end of the flooring is adapted to swing, of a presser-plate adapted to retard the movement of said flooring, and a threaded rod arranged to limit the movement of the free end of said spring-plate.

In testimony whereof I affix my signature in presence of two witnesses.

ELISHA J. FULGHUM.

Witnesses:
SAMUEL M. BROWN,
FLETCHER P. MARVIN.