

No. 626,457.

Patented June 6, 1899.

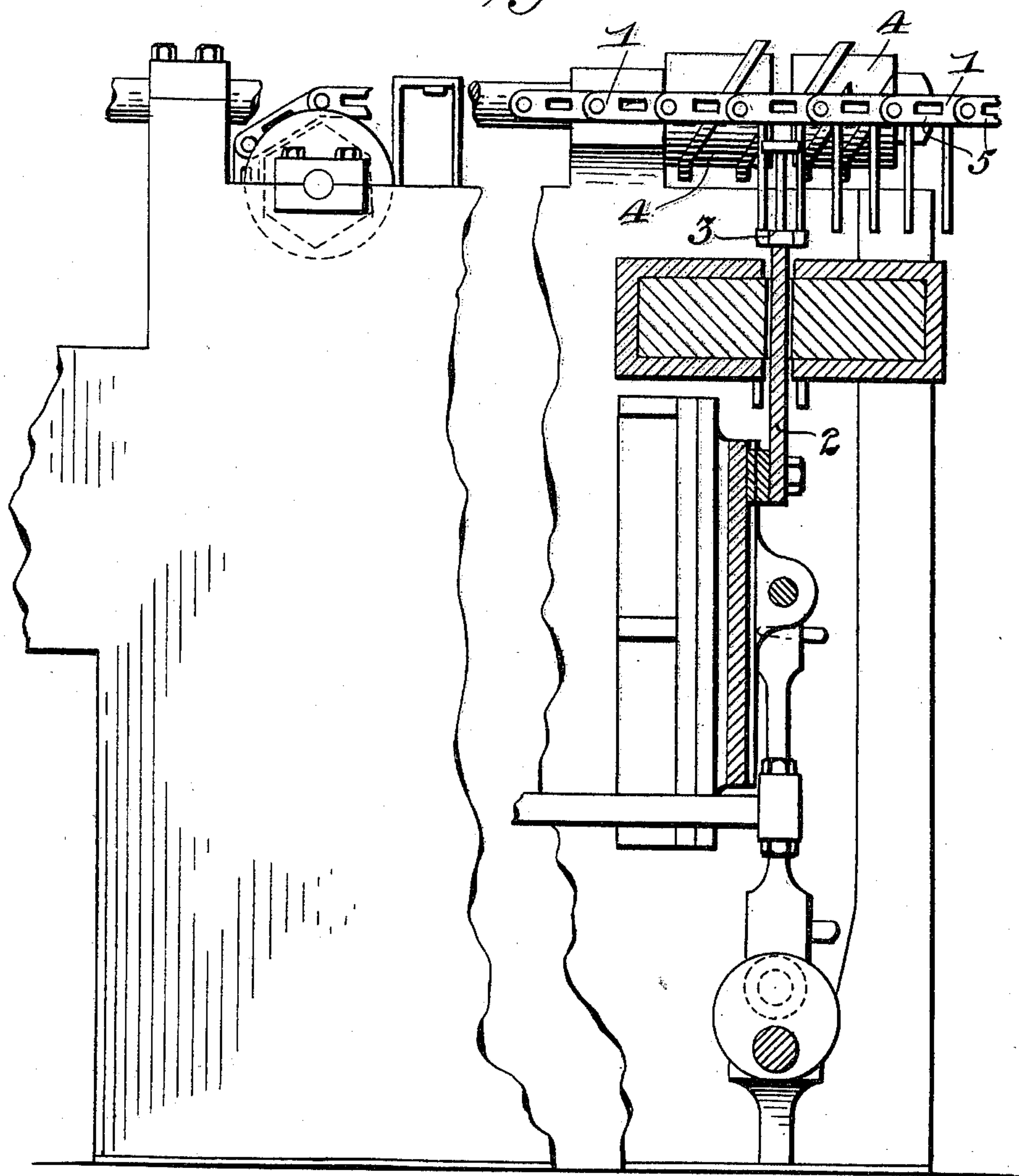
W. E. COOK.
MATCH MACHINE.

(Application filed Jan. 21, 1899.)

(No Model.)

3 Sheets—Sheet 1.

Fig. 1.



WITNESSES

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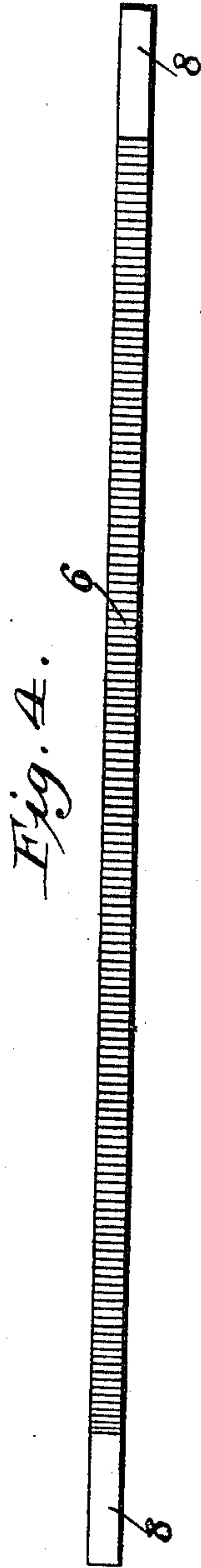
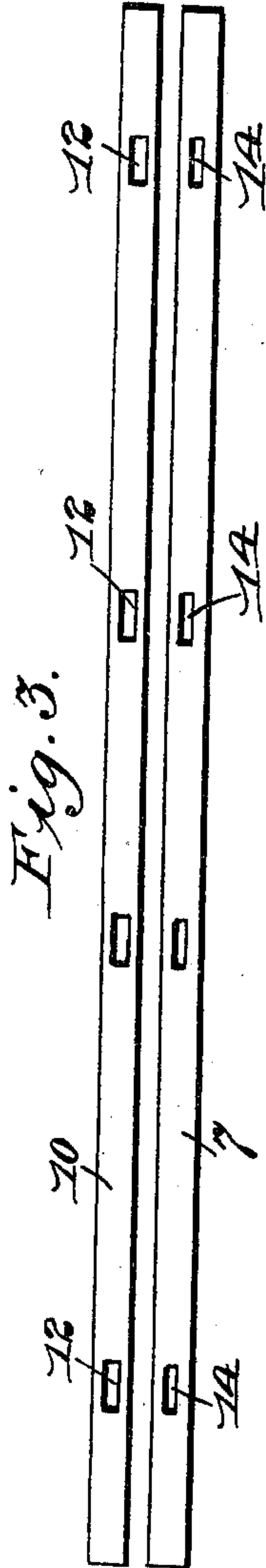
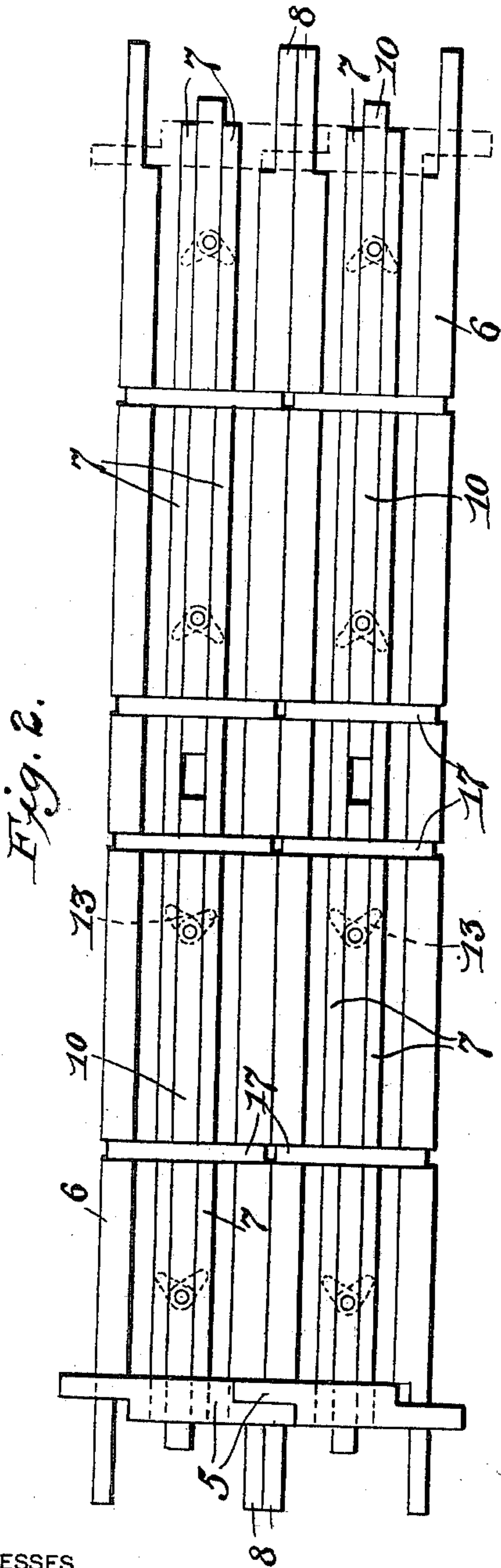
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3 Sheets—Sheet 2.



WITNESSES

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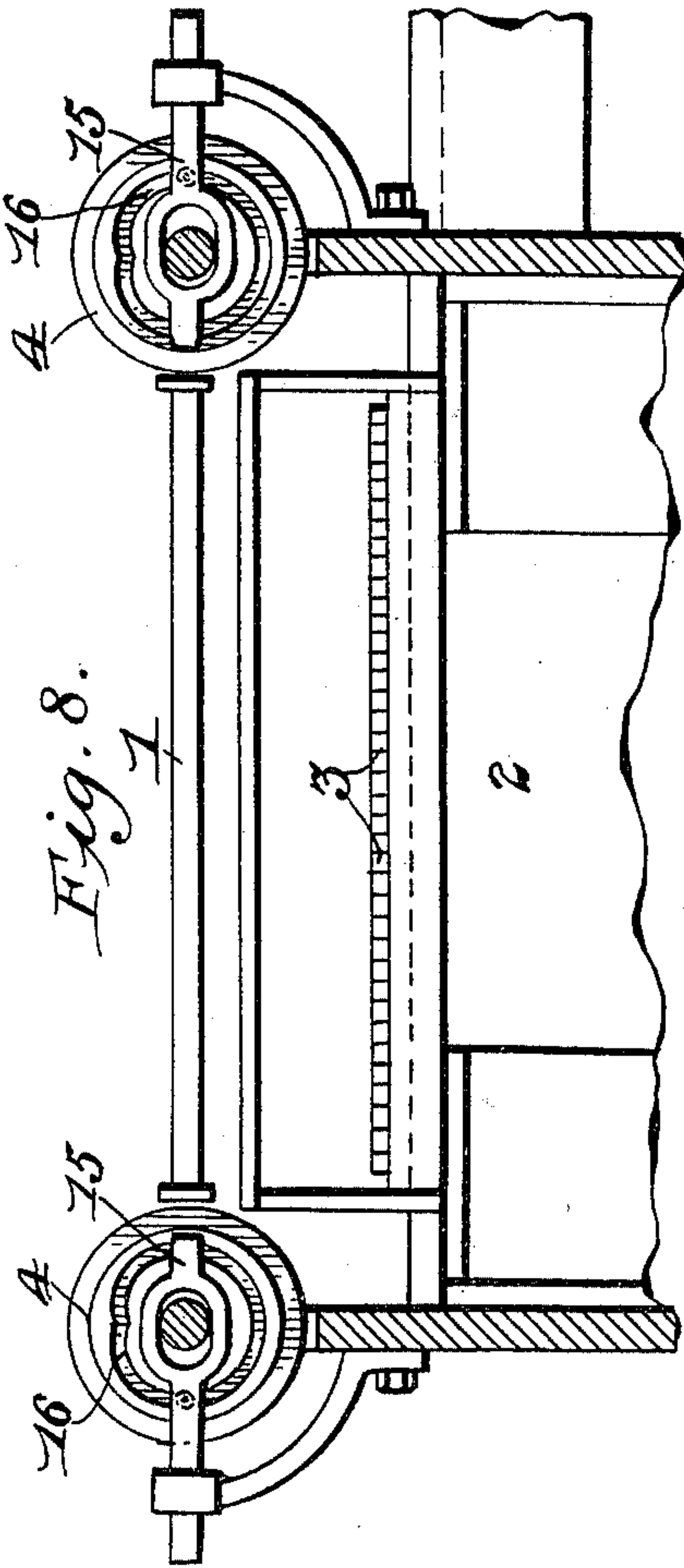
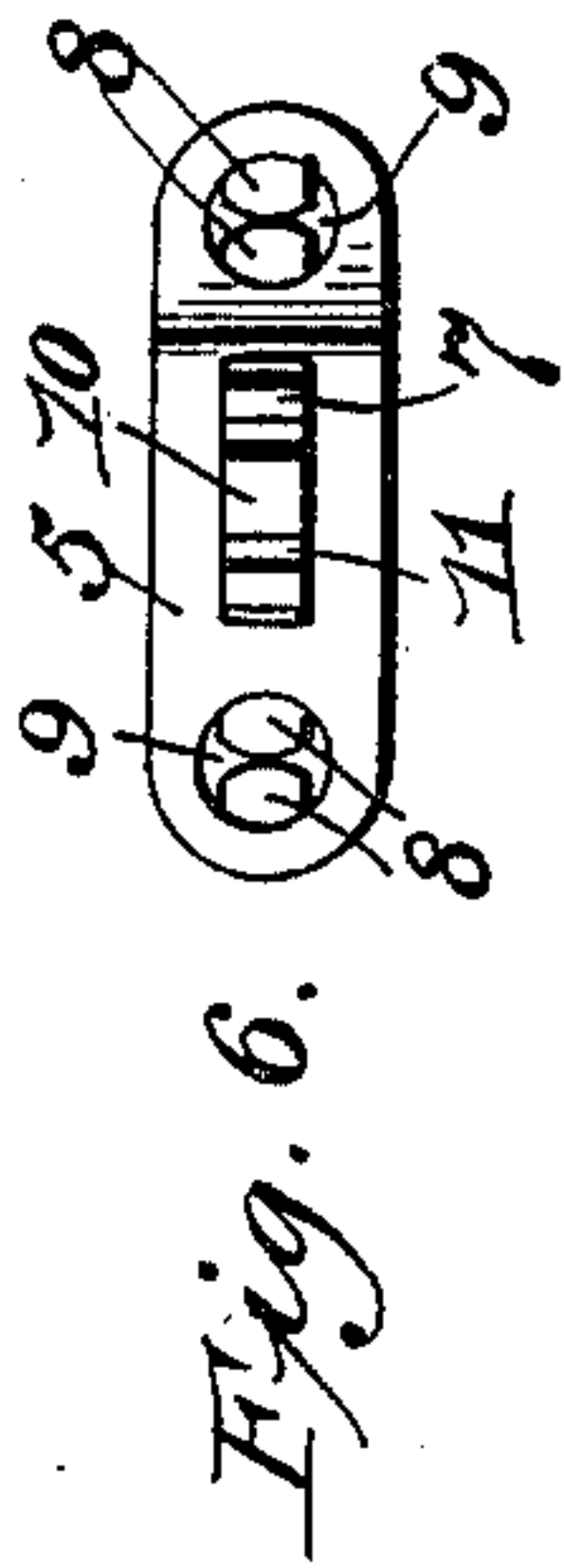
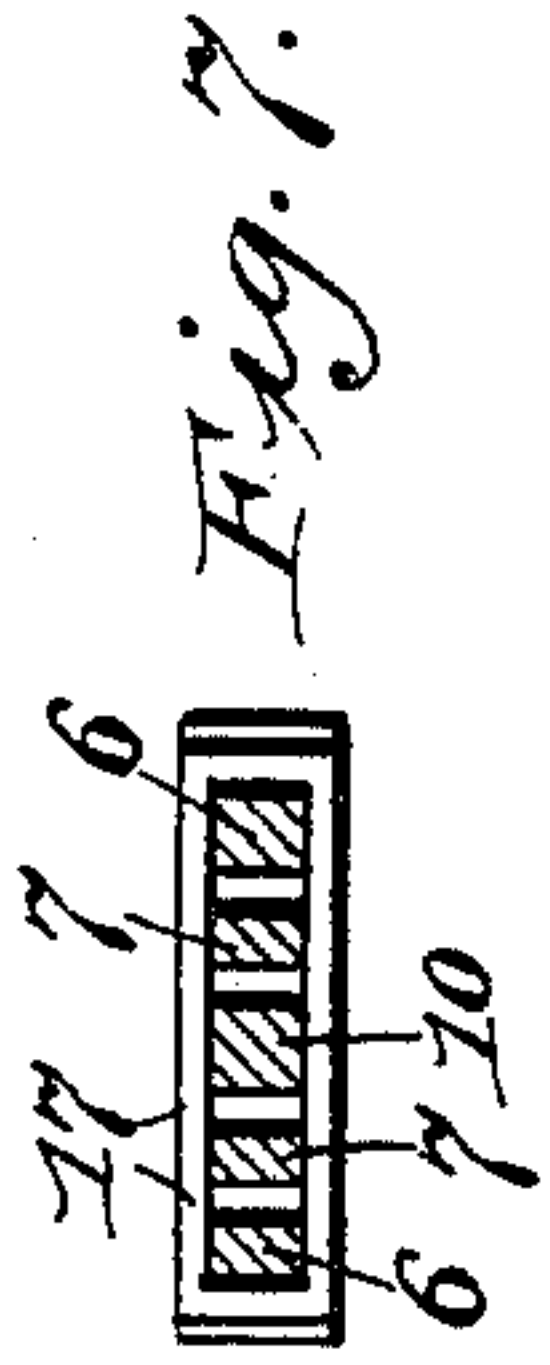
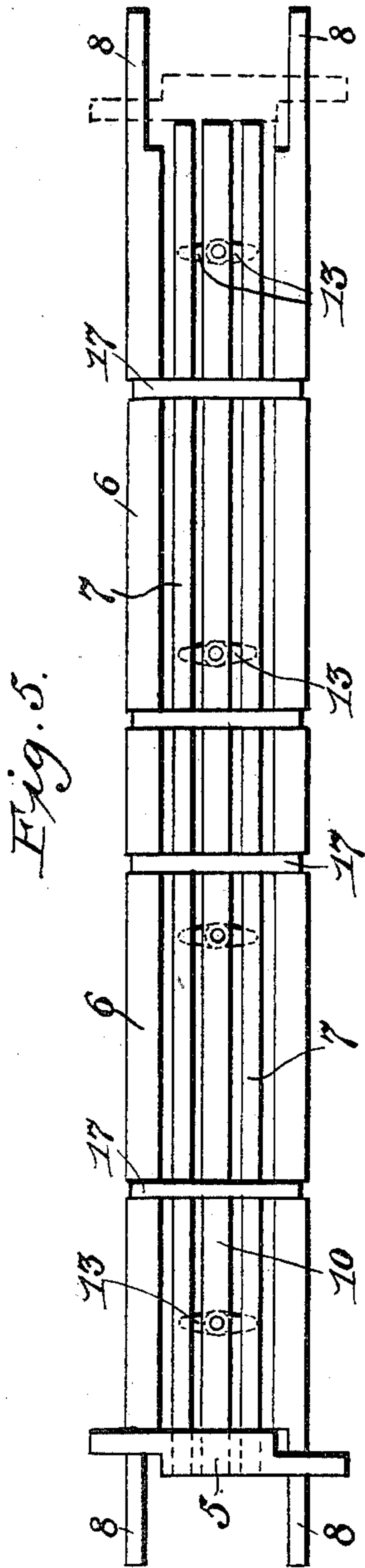
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(No Model.)

3 Sheets—Sheet 3.



WITNESSES

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UNITED STATES PATENT OFFICE.

WILLIAM E. COOK, OF OGDENSBURG, NEW YORK.

MATCH-MACHINE.

SPECIFICATION forming part of Letters Patent No. 626,457, dated June 6, 1899.

Original application filed June 1, 1898, Serial No. 682,269. Divided and this application filed January 21, 1899. Serial No. 702,957. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM E. COOK, a subject of the Queen of Great Britain, residing at Ogdensburg, in the county of St. Lawrence and State of New York, have invented certain new and useful Improvements in Match-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in carrier-chains for match-machines; and it consists in a chain comprising a series of sections pivoted together, each of said sections having outer and inner slats, the outer slats being fixed and the inner ones movable, expansion members, and pivoted arms connecting the inner movable slats to the said expansion members, the construction being such that when the expansion members are moved horizontally they will cause the inner slats to grip the match-splints between themselves and the outer fixed slats.

It also consists in such other novel constructions, combinations, and arrangements of parts as will be hereinafter more fully described and claimed.

This application is a division of an application filed by me on the 1st day of June, 1898, Serial No. 682,269, for improvements in match-machines.

In the accompanying drawings, Figure 1 represents a vertical longitudinal section through a portion of the match-machine, showing the carrier-chain mounted therein, which is constructed in accordance with my invention. Fig. 2 represents a top plan view of a portion of my improved chain. Fig. 3 represents a side elevation of the inner faces of the expanding portion of the chain, showing the recesses in which the arms are pivoted. Fig. 4 shows an elevation of one of the gripping-faces of the conveyer-chain, which is roughened to better grip the match-splints. Fig. 5 represents a detailed plan view of one section of the carrier-chain, the central portion being expanded. Fig. 6 represents an end elevation of one of said sections, showing one of the connecting-links of the chain. Fig. 7 represents a detail cross-section through the said chain-

section; and Fig. 8 represents a detail transverse section through a match-machine, illustrating one means of operating the expansion members.

1 in the drawings represents my improved carrier-chain; 2, a cutter-head of a suitable match-machine; 3, cutting-dies mounted upon the said cutter-head, and 4 4 cams for moving the carrier-chain forward in the match-machine.

Carrier-chains constructed in accordance with my invention may be used in match-machines of various kinds, but are especially well adapted for use in machines that are similar to that described and claimed by me in an application filed June 1, 1898, Serial No. 682,269. As will be seen from Fig. 1 in the drawings, a machine of this character is adapted to cut two rows of splints at a time and to carry them up and deposit them in the carrier-chain. I find that it is advisable to construct the sections of such a chain so that they will be capable of gripping the match-splints and forcibly pulling them from the cutters. In carrying out this idea I construct my carrier-chain 1 of a series of sections, which are pivotally connected together by means of links, as 5, so as to form an endless flexible conveyer or chain. Each of the sections is provided with outer fixed slats, as 6, and inner movable slats, as 7. The outer fixed slats 6 are provided with reduced ends, as 8, which are adapted to extend into the journal-bearings 9, formed in the links 5. The reduced ends 8 of said fixed slats only occupy one-half of the bearings 9, both of the reduced ends 8 of the adjoining fixed slats of two sections extending into the said bearings, and thus forming the pivotal connection between the two chain-sections, as will be clearly seen in the drawings. The reduced end portions of the fixed slats extend sufficiently beyond the links 5 to be engaged by the cam 4, whereby the carrier-chain may be fed forward in the machine. The links 5 are also provided with centrally-arranged elongated slots, into which the ends of the inner movable slats extend, they finding a loose bearing therein. Interposed between the inner movable slats are mounted expansion members or bars, as 10, the ends

of the said members extending also through the elongated slots 11 in the links 5, the outer ends projecting beyond the said links, as seen in Fig. 2 of the drawings. The expansion members or bars 10 are provided with horizontal slots, as 12. (Clearly seen in Fig. 3 of the drawings.) In these slots are pivotally mounted arms, as 13, one arm extending upon either side of the said bar and into slots, as 14, formed in the inner faces of the movable slats 7. These arms 13 are pivotally connected to said movable slats in the said slots 14. It will thus be seen that when the expansion members or bars are in their outer position, as seen in Fig. 2, the pivoted arms 13 will draw the inner movable slats 7 against the said expansion-bars. This, it will be noted, forms comparatively wide spaces between the outer fixed slats and the inner movable ones, so that the match-splints may be readily placed between the said slats when the cutter rises. Now if the expansion members or bars 10 are forced inwardly the pivoted arms 13 will operate to force the inner movable slats apart and grip the match-splints between them and the outer fixed slats. It will be seen that the pivoted arms 13 thus operate as toggle-levers to operate the said inner slats. The expansion-bars 10 may be two in number in each chain-section, as seen in Fig. 2 of the drawings, they being adapted to operate in opposite directions to each other and sufficient space being left between their inner ends for this purpose. As seen in Fig. 5 of the drawings, one expansion-bar may be used in each section, if desired, instead of two, the construction being in other respects the same. In this construction, however, the bar will only be operated from one end at a time. As seen in Fig. 4 of the drawings, I preferably form the gripping-faces with roughened surfaces in order to better grip the match-splints.

While I may employ any suitable means for knocking the movable expansion-bars inwardly for gripping the match-splint, yet I preferably employ the mechanism described in my previous application above referred to and now illustrated in Fig. 8 of the drawings. This mechanism comprises longitudinally-moving bolts, as 15, suitably guided in their movements and arranged opposite to the path of the carrier-chain, the said bolts being provided with antifriction-rollers, which engage cam-bars, as 16, formed in the faces of the chain-feeding cams 4. This mechanism has been completely described and claimed in my aforesaid application, and therefore need not be further described here.

As seen in Figs. 2, 5, and 7 of the drawings, I preferably employ links, as 17, to assist in holding the slats of each section in the proper position, the said links being preferably countersunk, so as to be flush with the surface of the carrier-chain.

It will be apparent that my improved carrier-chain is exceedingly simple in construc-

tion and very effective for gripping the splints as they are received from the splint-cutter.

Having now described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A carrier-chain for match-machines, comprising a series of sections linked together, the said sections comprising outer fixed slats and inner movable slats, expansion-bars interposed between the said inner slats, means for movably joining the said expansion-bars with each of the inner slats, whereby when the expansion-bars are moved longitudinally the inner slats will be spread apart or drawn together, substantially as described.

2. A carrier-chain, comprising sections linked together having outer fixed slats and inner movable slats, expansion-bars interposed between the inner slats, pivoted arms connecting the said expansion-bars with the said inner slats, the construction being such that when the expansion-bars are moved longitudinally they will cause the inner slats to be expanded or contracted, substantially as described.

3. A carrier-chain for match-machines, comprising sections linked together, the said sections comprising outer fixed slats and inner movable slats, the said fixed slats having reduced end portions adapted to extend into journal-bearings in the chain-links, the said links also having elongated slots, into which the ends of the movable slats extend, expansion-bars interposed between the movable slats and extending through the said elongated slots in the links pivoted arms mounted in slots in the said expansion-bars connecting them with the inner movable slats, the construction being such that when the expansion-bars are moved longitudinally they will expand or contract the inner slats for gripping or releasing the match-splints, substantially as described.

4. A carrier-chain for match-machines made up of sections linked together, each section of the said chain comprising outer fixed slats and inner movable slats, the gripping-faces of the said slats being roughened, expansion-bars mounted between the inner movable slats and toggle-levers connecting the said expansion-bars with the said movable slats, the said toggle-levers being mounted in suitable slots formed in the expansion-bars and the inner slats, the construction being such that when the expansion-bars are forced inwardly the inner movable slats will be caused to grip the match-splints between them and the outer fixed slats, substantially as described.

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

WILLIAM E. COOK.

Witnesses:

NELLIE G. LAWRENCE,
EDWARD L. STRONG.