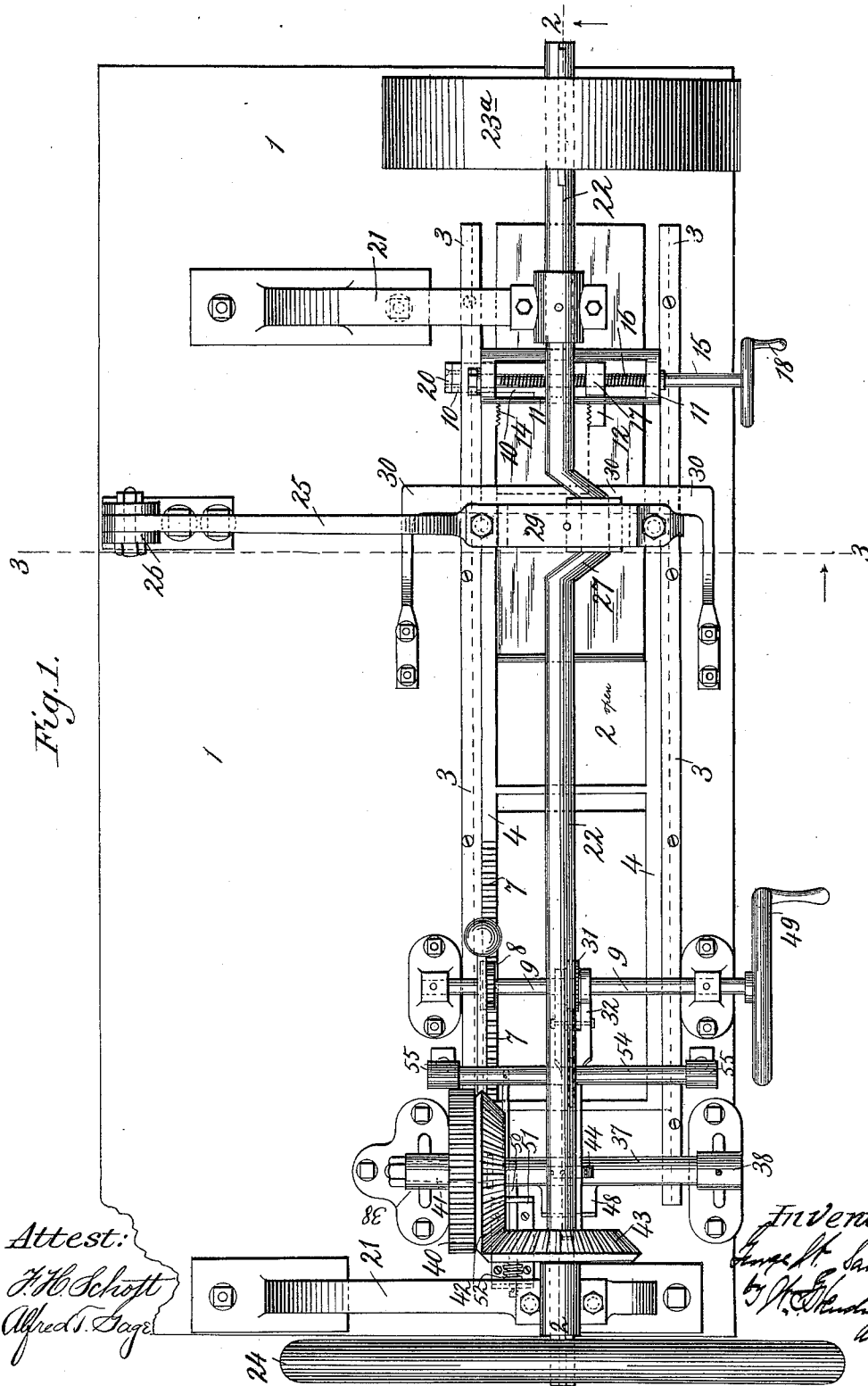


G. W. SAMPLE.
MATCH SPLINT MACHINE.

No. 566,279.

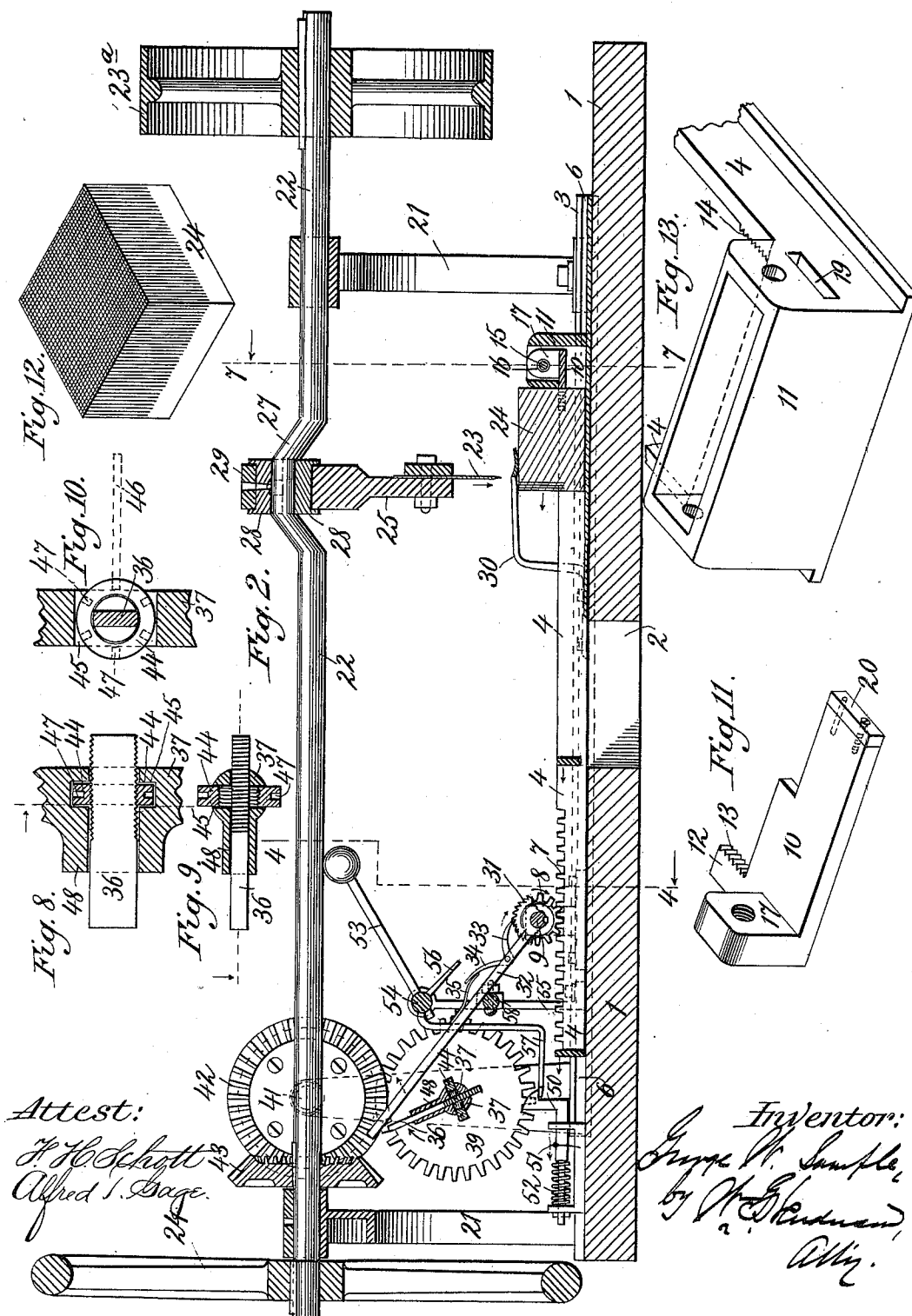
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Fig. 3.

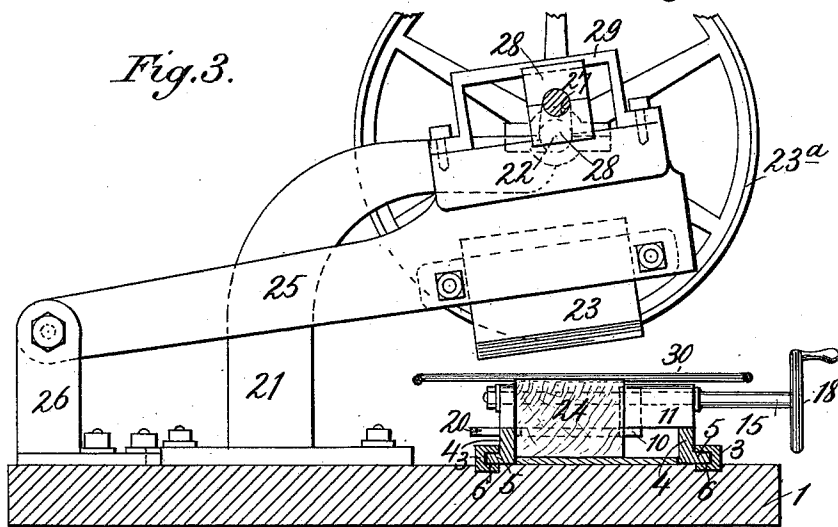
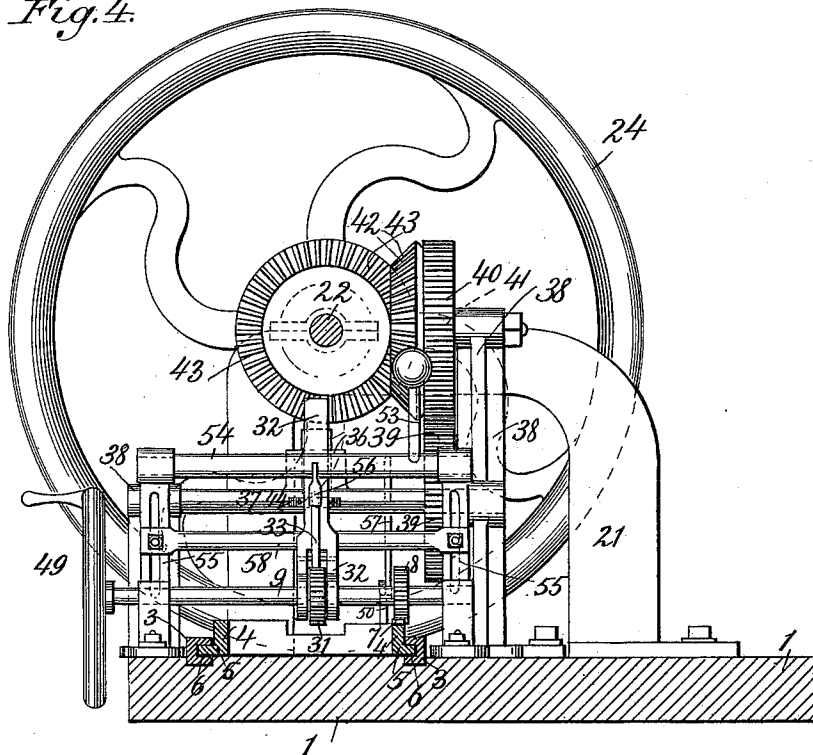


Fig. 4.



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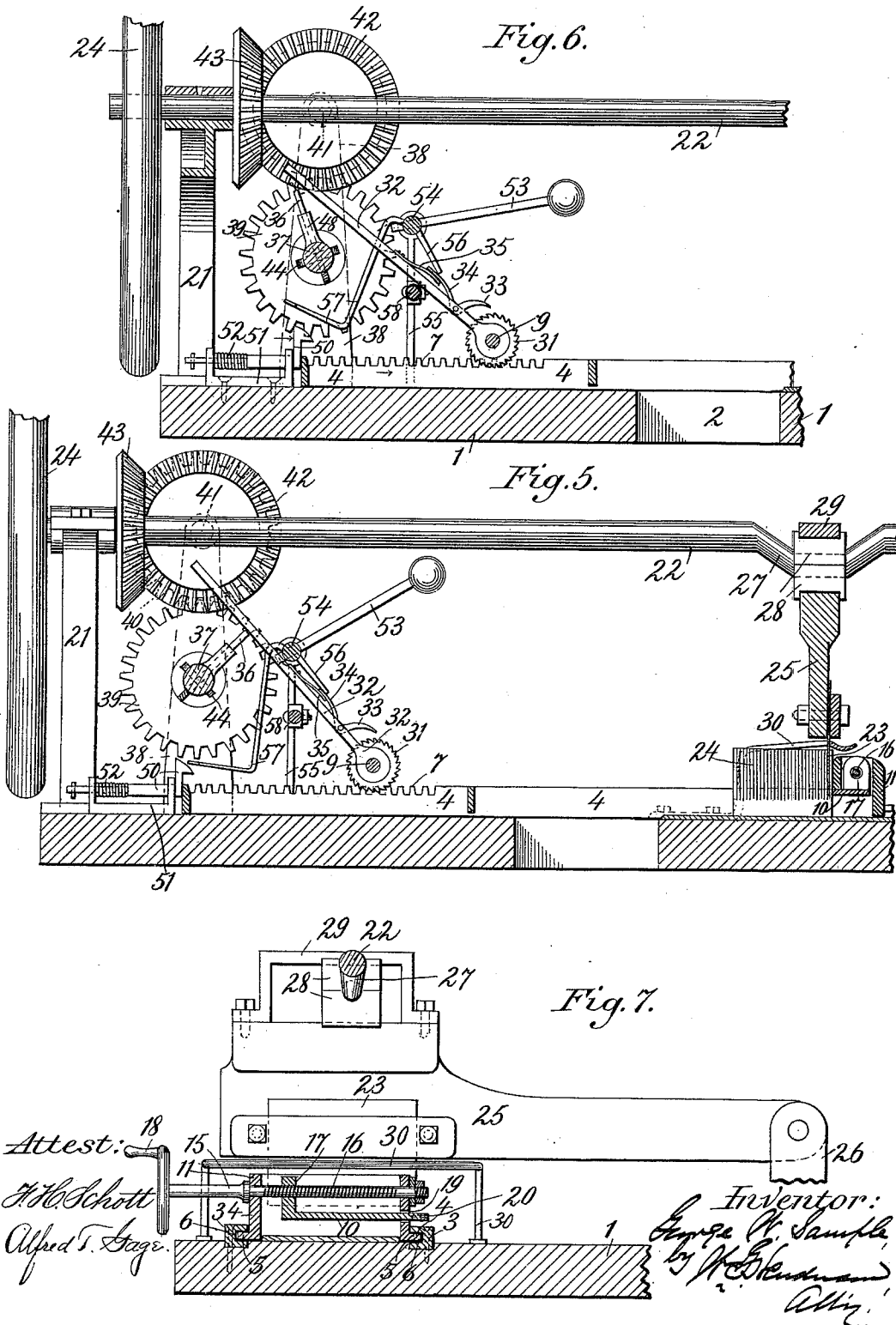
H. H. Schott
Alfred T. Sage

Inventor:
George W. Sample,
by H. H. Schott
Att'y.

G. W. SAMPLE.
MATCH SPLINT MACHINE.

No. 566,279.

Patented Aug. 18, 1896.



UNITED STATES PATENT OFFICE.

GEORGE WM. SAMPLE, OF YORK, PENNSYLVANIA, ASSIGNOR OF ONE-HALF
TO WILLIAM FREDRICK OTTMAYER, OF SAME PLACE.

MATCH-SPLINT MACHINE.

SPECIFICATION forming part of Letters Patent No. 566,279, dated August 18, 1896.

Application filed May 31, 1895. Serial No. 551,166. (No model.)

To all whom it may concern:

Be it known that I, GEORGE WM. SAMPLE, a citizen of the United States, residing at York, in the county of York and State of Pennsylvania, have invented certain new and useful Improvements in Match-Splint Machines; and I do 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, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to machines for making match-splints; and it has for its object to provide a machine simple in construction and efficient in operation, and possessing features of novelty in various particulars and producing improved results, all as will hereinafter more particularly appear, reference being had to the accompanying drawings, forming a part hereof, and in which—

Figure 1 is a plan view of the machine with splint-block shown in place in clamp in dotted lines. Fig. 2 is a longitudinal central section on line 2 2 of Fig. 1. Fig. 3 is a transverse section on line 3 3 of Fig. 1. Fig. 4 is a transverse section on line 4 4 of Fig. 2. Fig. 5 is a longitudinal central section, showing the carriage at the end of the stroke and the splint-block split and the ratchet feed mechanism in its inoperative position. Fig. 6 is a similar view showing the wiper in a different position from that shown in Fig. 5. Fig. 7 is a transverse section on the line 7 7 of Fig. 2, showing the knife in its lowest position. Figs. 8, 9, and 10 are enlarged detail sectional views of the wiper and its adjusting-nut. Fig. 11 is a perspective view of the sliding clamping-jaw removed from the carriage. Fig. 12 is a perspective view of a splint-block as finished by the machine, and Fig. 13 is a perspective view of one end of the carriage. In the drawings the numeral 1 designates a base or bed plate on which the machine is supported and formed with an opening 2 for the passage of chips and cuttings that may result in splitting the splint-block. Upon the bed-plate 1 are two parallel slotted rails 3, on which slides the carriage 4, said carriage hav-

ing lateral flanges 5, which fit and slide in the slots 6 of the rails 3. The carriage has along one edge cog-teeth 7, with which engage the teeth of a cog-wheel 8, mounted on shaft 9, so that the carriage may be moved back and forth, as will be hereinafter more particularly described.

The carriage has at one end a clamp adapted to clamp the splint-block while the same is being split. The preferred construction of this clamp is a plate 10, fitted in a box 11 at the end of the carriage and adapted to slide therein transversely of the carriage, so as to adjust the clamp to the width of the splint-block in order to securely clamp the block. The lower portion of the front of the box 11 is cut away so as to form an open way, and through this open way extends a jaw 12 of the plate 10, and having a serrated edge 13 corresponding with a serrated edge 14 on one side of the carriage, so that the splint-block will be gripped by said serrated edges.

The clamp is inserted in the box 11 from the under side of the box and is supported within the box by a shaft 15, which has its bearings in the ends of the box and is formed with screw-threads 16, which engage with threads formed in a lug 17, formed as a part of the clamp and lying inside of the box, said threaded lug serving as a nut on the threaded shaft, so that by turning the shaft by means of a crank 18 or otherwise the clamp and its jaw 12 can be moved so as to bind the splint-block. One end of the plate 10 is supported within the box 11 by fitting in a slot 19, formed in one end of the box and through which slot the plate has a sliding movement. For convenience of inserting the plate 10 placed in the box I make the plate shorter than the inside length of the box, and after the plate is inserted I secure to its end by means of screws or pins a block 20, which can be inserted in the slot 19 from the outside and secured to the plate by the pins, thus giving the plate an end bearing in the slot 19. For convenience I will designate the plate 10 and its serrated portion 12 as a "movable jaw."

From the bed-plate 1 rise standards 21, turned inwardly at their upper ends and sustaining in suitable boxes a longitudinally-extending driving-shaft 22, which may have a

driving-pulley 23^a at one end and be provided with a fly-wheel 24 at the other end. This drive-shaft is formed with a crank 27, which is connected with the reciprocating slicing-knife 23, so as to reciprocate the same for the purpose of slicing the splint-block designated by the numeral 24. I prefer to attach this knife 23 to an arm or a lever 25, suitably hinged or pivoted at its rear end to a support 26, and to connect this lever above the knife with the crank 27 of the shaft 22 by a two-part boxing 28, the parts of which are held together by a clamp 29.

The splint-block 24, besides being held by the clamp already described, is also held down to the carriage by a presser-foot 30, which is bolted to the bed-plate 1 and bears upon the top of the splint-block, as illustrated, so as to hold down that block and prevent it from being lifted by the slicing-knife during the upward stroke of the knife after it has made an incision in the block. This presser-foot is somewhat elastic, especially the portion of it which bears upon the splint-block, so that the block can be forced under the foot and be firmly held by the tension of the presser-foot.

The carriage with the splint-block is fed forward step by step or intermittently at regular intervals, so that when the slicing-knife has made an incision and been withdrawn the block will be moved the required distance for the knife to make another incision, the block and carriage remaining stationary while the incision is being made and while the knife is being withdrawn. The mechanism that I employ for this purpose is as follows: The shaft 9, which carries the cog-wheel 8, also carries a ratchet-wheel 31, keyed thereto, and has also secured to it, so as to turn loosely thereon, a lever 32, provided with a pawl 33, engaging with the teeth of the ratchet 31, which pawl is illustrated as formed with a heel 34, against which bears a spring 35, so as to hold the pawl in engagement with the ratchet-wheel. The lever 32 is periodically lifted by a wiper 36, secured to a shaft 37, journaled in standards 38 and rotated by gear-wheel 39, keyed to the shaft, and with which meshes a gear-wheel 40, fitted loosely on a shaft 41, fitted in the standard 38 and having a beveled gear 42 to turn with it, with which meshes a beveled gear 43, keyed to the main drive-shaft 22. These parts are so proportioned that during each revolution of the shaft 37 the wiper 36 will be caused to bear against the lever 32 so as to lift the same and thus cause the pawl 33 to turn the ratchet 31 the distance of one tooth, thus transmitting to the carriage 4 through the cog-wheel 8 movement, so as to move the splint-block the required distance for the slicing-knife to make another incision. When in every revolution of the shaft 37 the wiper 36 is carried out of contact with the lever 32, said lever drops back, so that its pawl 33 will engage with another tooth of the ratchet-wheel 31, so as to make another partial rota-

tion of the same when the wiper again comes in contact with the lever 32 so as to lift the same. The extent of rotation of the ratchet-wheel 31 in each movement of the lever 32, and the consequent extent of movement of the carriage 4 so as to regulate the thickness of the match-splint, is governed by the length of the wiper 36. The longer the wiper the greater the throw of the lever 32 and the greater the extent of the rotation of the ratchet-wheel and consequent movement of the carriage. To provide for the adjustment of the length of the wiper, which preferably is a flat plate, as illustrated, the same is fitted in the shaft 37, so as to slide therein. To enable this to be done, the opposite edges of the wiper are screw-threaded, as illustrated in Figs. 8 and 9 of the drawings, and a nut 44 is fitted in an opening 45 in the shaft 37 and made to encircle the wiper and have its threads engage the threads of the wiper, so that by turning the nut, which may be done by means of a pin 46, (illustrated by dotted lines in Fig. 10,) and which will fit in any one of the series of holes 47 made in the periphery of the nut, the wiper may be adjusted to the length desired. I prefer to form a boss 48 on the shaft 37, through which the wiper will pass and which will form an extended bearing for the wiper.

When the carriage reaches the limit of its movement, it will strike a spring-actuated catch, which is normally in engagement with the foot of a lever, and disengage the catch from the foot, so as to release the lever, in order that a finger actuated by the lever may be thrown against the heel of the pawl 33 and hold the pawl out of engagement with the ratchet-wheel 31, as illustrated in Figs. 5 and 6 of the drawings, and thus throw the ratchet-wheel and the cog-wheel 8 out of operation and leave the same unaffected by the continuing operation of the main drive-shaft, the wiper, and connecting-gears. This permits the carriage to be returned to its first position by rotation of the shaft 9 through the instrumentality of a hand-wheel 49. Before the carriage is returned to its first position the splint-block 24 is released from its clamp and turned one-quarter around, so that the block may be sliced at right angles to the first slicing, and thus divide or slice the block into distinct match-splints, the operation of slicing being the same as that described.

The preferred construction of the spring-actuated catch and pawl-releasing means is the following: The catch is designated by the numeral 50 and has a sliding movement in the bracket 51 and is provided with a spring-coil 52, which serves to move the catch to its normal position after it is released by the movement of the carriage therefrom. The releasing-lever is designated by the numeral 53 and is attached to the rotatable shaft 54, which is journaled in suitable standards 55. The shaft is provided with the finger 56, adapted to bear against the heel of the pawl 33, and is also provided with the member 57, which is

practically a part of the lever and forms the foot to the lever and adapted to engage the spring-actuated catch 50. Normally this foot 57 is engaged and held by the spring-catch 50, so as to hold up the lever and keep its finger 56 out of engagement with the heel of the pawl, as illustrated in Fig. 2 of the drawings, and thus permit the pawl to operate in the feeding of the carriage during the slicing operation. As soon as the spring-actuated catch is struck by the carriage the foot of the lever is released and the lever drops, so as to throw its finger 56 against the heel of the pawl, and thus throw the pawl out of operation, as before described. After the carriage is returned to its first position the lever 53 is raised, which may be done by hand, so as to throw its foot 57 into locking engagement with the spring-actuated catch 50, and thus release the pawl and permit it to assume its operating position. Inasmuch as the lever 32 is connected with the shaft 9 so as to turn freely thereon a suitable support is provided for that lever when in its lowest position. This support may be a transverse rod 58, adjustably secured in an appropriate manner to the standards 55 so as to limit the downward movement of the lever.

With a machine constructed substantially as described the splint-block is automatically fed forward under an intermittent or step-by-step movement, the block being checked for a sufficient time in its movement to let the slicing-knife make an incision and then to be withdrawn from the block, which is then fed forward the requisite distance for another slice to be made, without in the meanwhile stopping the main drive-shaft and power-transmitting wheels, the ratchet-wheel however being automatically engaged and disengaged by its pawl, so as to impart the step-by-step movement to the carriage. The carriage after reaching the limit of its forward movement is free to be moved back to its first position without stopping the main drive-shaft and power-transmitting gear by reason of the automatic throwing out of operation of the impelling-pawl, and this without stopping the main driving gears and shaft. The width or thickness of the match-splints can be regulated by the extent of movement permitted to the lever of the impelling-pawl. The splint-block is prevented by the presser-foot from being lifted while the slicing-knife is being withdrawn from the block, and the splint-block, whatever be its dimensions within the capacity of the machine, is securely clamped to the carriage by the adjustable clamp.

The foregoing are some of the advantages possessed by the machine, with simple means for effecting the several objects.

The machine as a whole is simple in construction, composed of comparatively few parts, and efficient in operation, and capable of turning out a large number of match-splints in a short period of time.

I have illustrated and described with particularity the preferred details of construction of the several parts and their arrangement, but it is obvious that changes can be made in the details without departing from the essential features of my invention.

Having described my invention and set forth its merits, what I claim is—

1. In a match-splint machine, the combination of a traveling splint-block carriage provided with a rack-bar, a shaft extending transversely of the carriage and having a pinion engaging the teeth of the rack-bar, a clutch-lever connected to said shaft, a rotatable shaft carrying a wiper to contact with said lever, a drive-shaft arranged substantially above and longitudinally of the line of feed of the traveling carriage, a slicing-knife pivoted at one side of the carriage and eccentrically connected to the drive-shaft so as to lie above the block to be sliced, and a train of gears connecting the drive-shaft and the wiper-shaft, substantially as and for the purposes described.

2. In a match-splint machine, the combination with a splint-block carriage, of a pawl, ratchet and lever connected by means to said carriage to move the same, means for periodically actuating said lever, a lever provided with a foot and having a finger adapted to be brought into contact with said pawl to release it from the ratchet, and a catch engaging the foot of said lever to hold said finger normally out of contact with the pawl and adapted to release said foot to permit the lever to throw the finger against the pawl and release it, substantially as and for the purposes described.

3. In a match-splint machine, the combination of a traveling splint-block carriage, a shaft connected with said carriage to move it back and forth, a clutch-lever connected with said shaft to rotate the shaft in one direction and adapted to be unclutched from the shaft to permit the shaft to be reversed for moving the carriage in the opposite direction, a continuously-driven extensible threaded wiper-arm for actuating said lever, a socket for said arm to fit in, and a nut engaging the threaded portion of the wiper to adjust the wiper for regulating the throw of the clutch-lever, substantially as and for the purposes described.

4. In a match-splint machine, the combination of a traveling splint-block carriage, a continuously-driven drive-shaft arranged parallel with and above said carriage, a slicing-knife connected to and operated by said shaft, a shaft extending transversely to the splint-block carriage and connected therewith for moving the same, a ratchet on said shaft, a lever loosely pivoted on said shaft and having a pawl engaging the ratchet, a continuously-driven wiper deriving power from the drive-shaft and arranged to periodically engage said lever to actuate the same,

a device comprising a finger adapted to engage the pawl of the lever to disengage it from its ratchet when the lever is to be rendered inoperative while it continues to be
5 actuated by the wiper, and a catch to engage a part of said device to normally hold said finger out of engagement with the pawl, said catch being located to be engaged by a part of the splint-block carriage when the lever is

to be rendered inoperative, substantially as 10 and for the purposes described.

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

GEORGE WM. SAMPLE.

Witnesses:

FRED. J. NEATER,
WILLIAM F. OTTMYER.