(No Model.)

J. BOULARD.

MATCH AND TOOTHPICK MACHINE.

No. 481,522. Patented Aug. 23, 1892.

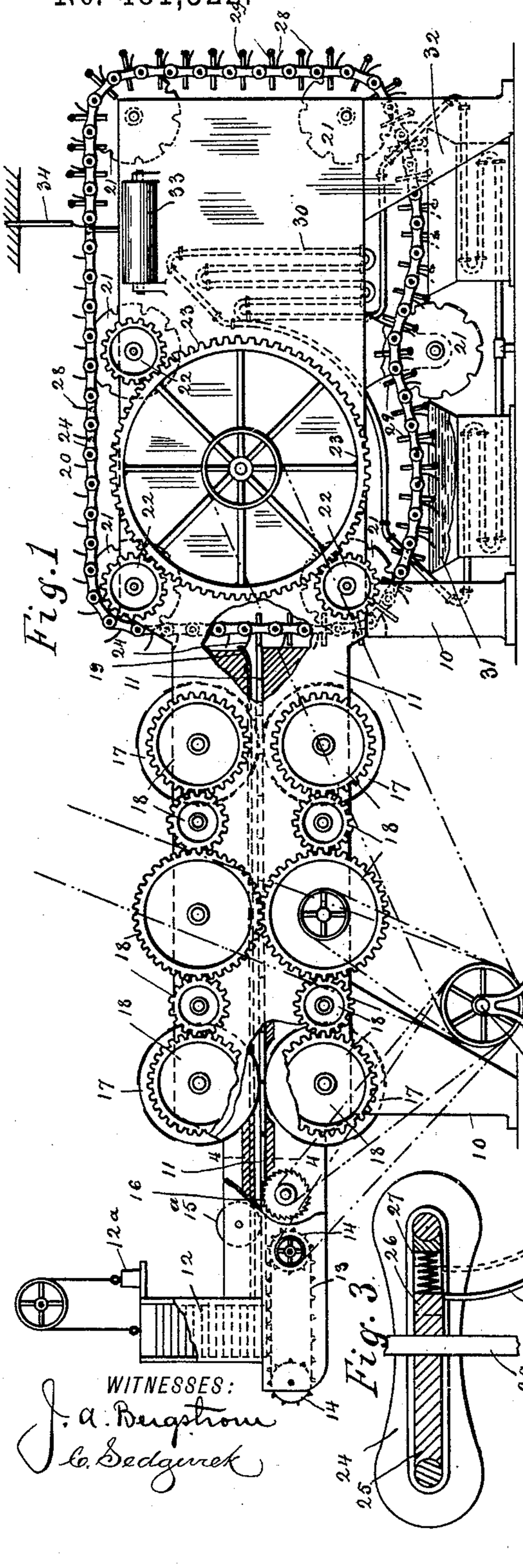

Fig. 1.

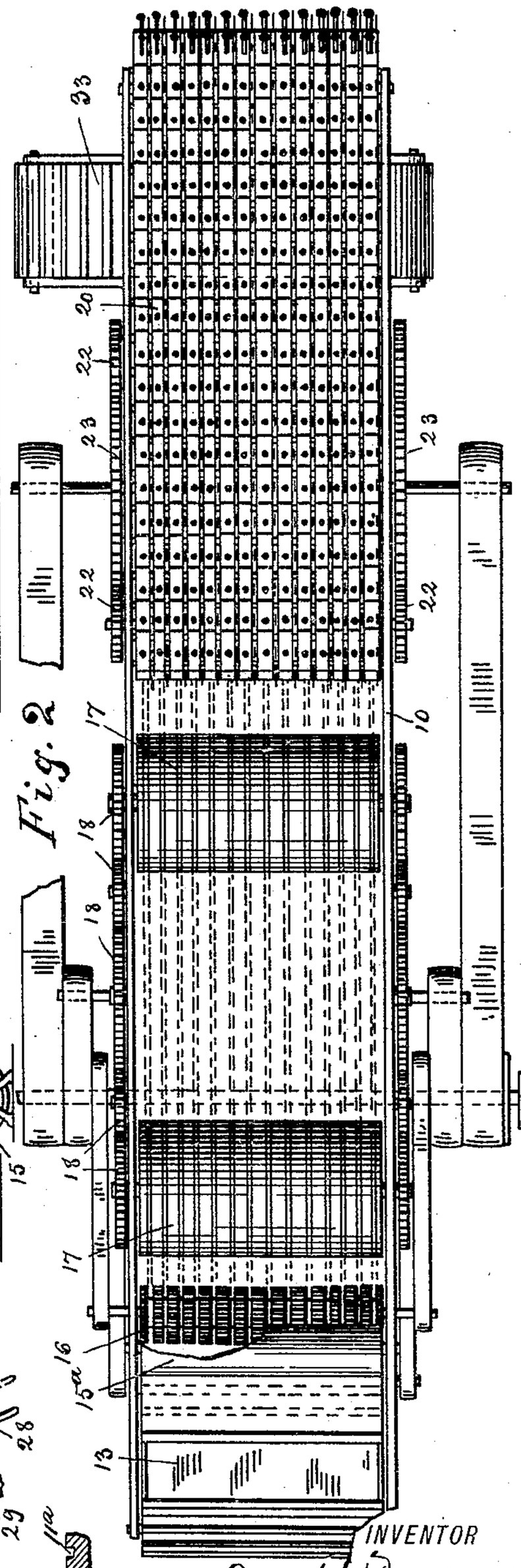

Fig. 2.

Fig. 3.

Fig. 4.

WITNESSES:
J. A. Bergstrom
C. Sedgwick

INVENTOR
Joseph Boulard
BY
Munn & Co
ATTORNEYS.

UNITED STATES PATENT OFFICE.

JOSEPH BOULARD, OF NEWPORT, RHODE ISLAND.

MATCH AND TOOTHPICK MACHINE.

SPECIFICATION forming part of Letters Patent No. 481,522, dated August 23, 1892.

Application filed September 17, 1891. Serial No. 405,937. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH BOULARD, of Newport, in the county of Newport and State of Rhode Island, have invented a new and Improved Match and Toothpick Machine, of which the following is a full, clear, and exact description.

My invention relates to improvements in machines for making matches and wooden toothpicks; and the object of my invention is to produce an efficient and durable machine which will rapidly cut blocks of wood into toothpicks or matches, as the case may be, and which will print the same, deliver them into a carrier, dry them thoroughly, and, finally, deliver them into a suitable receptacle, and which in case matches are being made will also dip the matches in the necessary baths, so that a finished article will be made by the machine.

To this end my invention consists in certain parts and details and combinations of the same, as will be hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures of reference indicate corresponding parts in all the views.

Figure 1 is a broken side elevation, partly in section, of the machine embodying my invention. Fig. 2 is a broken plan view of the same. Fig. 3 is an enlarged detail sectional view of one of the catches of the carrier; and Fig. 4 is a broken detail cross-section of a portion of the bench-top, taken on the line 4 4 in Fig. 1.

The machine is provided with a main substantial frame 10, one end of which is formed into a bench 11, at the front end of which is a box 12, adapted to carry blocks of wood which are to be sawed into toothpicks or matches, and the box is provided with a suitable counter-balance 12^a to facilitate its easy adjustment. The box 12 delivers upon the feed-belt 13, which is mounted horizontally in the front end of the bench and which turns over sprocket-wheels 14, one of the sprocket-wheel shafts having a belt connection with the driving-shaft 15, and the feed-belt is arranged to deliver the blocks of wood upon the bench-top and beneath a feed-roller 15^a, which forces the blocks against a series of saws 16, the saws being placed so as to cut the blocks into strips of the necessary size to make matches or toothpicks. The bench 11 in front of the saws 16 is provided in its top surface with a series of parallel grooves 11^a to receive the match-splints or toothpicks. After being sawed the match-splints or toothpicks are delivered into the channels 11^a and forced forward, one abutting against the other beneath the printing-rollers 17, which are arranged above and below the bench-surface and adapted to print the splints, and these rollers are geared together by means of a series of gear-wheels 18, so that they will all run at the same rate of speed. One of the gear-wheels 18 has a belt connection with the driving-shaft 15, and motion is imparted from it to the remaining gear-wheels.

The rear end of the bench has an upwardly-curved flange 19, arranged above the channels 11^a of the bench, and this flange is intended to open the spring catches or grippers in the carrier 20, so that the splints or picks may be delivered to the carrier. This carrier is mounted in the main frame, so that it will travel vertically downward by the rear end of the bench, and the carrier runs upon sprocket-wheels 21, which are arranged at convenient points in the frame and which are provided with gear-wheels 22, connecting with the main gear-wheel 23, the latter having a belt connection with the driving-shaft 15. The carrier is made up of a series of links 24, which carry cross-slats 25, adapted to open in the middle, the slats having a sliding portion or jaw 26, which is pressed by a spring 27 and which has an outwardly-extending curved finger 28. A series of these catches or grippers are arranged at intervals on the carrier, and when the fingers come in contact with the flange 19, as shown in Fig. 1, the sliding part 26 is raised, so that the match-splints 29 or toothpicks, as the case may be, may be forced into the opening in the slats, and after the fingers pass the flange the return of the slide portion 26 will hold the splints or picks in place.

I do not confine myself to the use of this particular catch, however, as any suitable catch may be used which will hold the splints or picks in position.

The carrier is arranged so as to move around

the upper and lower rear portion of the frame 10, and coils of steam-pipe 30 are arranged within the frame and carrier, so that the splints or picks will be subjected to heat and dry rapidly. These pipes also serve to heat the material in the baths 31 and 32, which are arranged beneath the rear portion of the frame 10 and in the path of the carrier, the first bath 31 consisting of sulphur and the second of phosphorus; but the baths may be made of any suitable material and are held in convenient tanks, as shown in Fig. 1.

When the machine is used in making toothpicks, the baths are not used; but when matches are made the splints are carried in a vertical position, as shown in Fig. 1, so that their lower ends will just dip into the baths, and they are then carried around to the top of the machine-frame, at which point they are delivered upon the carrier 33, which extends laterally from beneath the upper portion of the carrier 20 and delivers the matches or picks into a suitable receptacle. Above the top portion of the carrier 20 and at a point vertically above the carrier 33 are depending arms 34, which engage the fingers 28 of the carrier-catches, and thus liberate the splints or picks, so that they will drop upon the carrier 33.

From the foregoing description it will be seen that the goods of the character described may be very rapidly made and that they will be dried and finished when delivered by the carrier 33 into the receiving-receptacle.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. In a match and toothpick machine, the combination, with a series of saws and a carrier, of a printing mechanism between the saws and carrier, substantially as and for the purpose set forth.

2. In a match and toothpick machine, the combination, with a series of saws, of a printing mechanism in rear of the saws and a carrier in rear of the printing mechanism and provided with automatically-operated grippers for seizing the splints, substantially as described.

3. In a match and toothpick machine, the combination, with a series of saws and a feed mechanism for delivering the material to the saws, of printing-rollers in rear of the saws and an endless carrier in rear of the printing-rollers and provided with automatically-operated grippers for seizing the splints, substantially as described.

4. In a match and toothpick machine, the combination, with a series of saws and a printing mechanism in rear of the saws, of an endless carrier provided with automatically-operated grippers for seizing the splints as they are delivered from the printing mechanism and a heater within the frame, around which the endless carrier travels, substantially as described.

5. A match and toothpick machine comprising a bench, a feed mechanism arranged to deliver upon the bench, a series of saws arranged to project through the bench-top, a carrier held to move opposite the rear end of the bench, a series of catches carried by the carrier and adapted to receive articles from the bench, automatic means for operating the catches, and baths arranged beneath the carrier and adjacent thereto, substantially as described.

6. A match and toothpick machine comprising a bench, a feed mechanism adapted to deliver upon the bench, a series of saws mounted in the bench and projecting through the bench-top, a series of revoluble printing-rollers mounted upon the bench, a carrier adapted to move opposite the rear end of the bench, said carrier having a series of spring-catches therein, a carrier arranged beneath the top surface of the main carrier and adapted to deliver into a receptacle, and automatic means for operating the catches, substantially as described.

7. A match and toothpick machine comprising a bench, a feed-belt arranged to deliver upon the bench, a feed-box mounted above the feed-belt, a series of saws held to revolve in the bench-top, a series of printing-rollers mounted on the bench, a carrier held to move opposite the rear end of the bench, said carrier having a series of spring-catches therein adapted to receive articles from the bench, a laterally-extending carrier arranged beneath the main carrier and adapted to receive articles therefrom, and means for operating the carrier-catches, substantially as described.

8. In a match and toothpick machine, the combination, with the bench and the mechanism for feeding articles longitudinally thereon, of a main carrier held to move opposite the end of the bench, said carrier having a series of spring-catches thereon, baths arranged in the path of the carrier, a laterally-extending carrier arranged beneath the main carrier, and means for operating the main carrier-catches, substantially as described.

9. In a match and toothpick machine, the combination, with the spring-pressed carrier-catches consisting of sliding spring-pressed jaws having projecting fingers, of tripping flanges and arms arranged in the paths of the catch-fingers, substantially as described.

10. In a match and toothpick machine, an endless carrier formed of links provided with spring-pressed jaws, said jaws having curved fingers, substantially as described.

JOSEPH BOULARD.

Witnesses:
MICHAEL W. CALLAGHAN,
MARTIN W. KING.