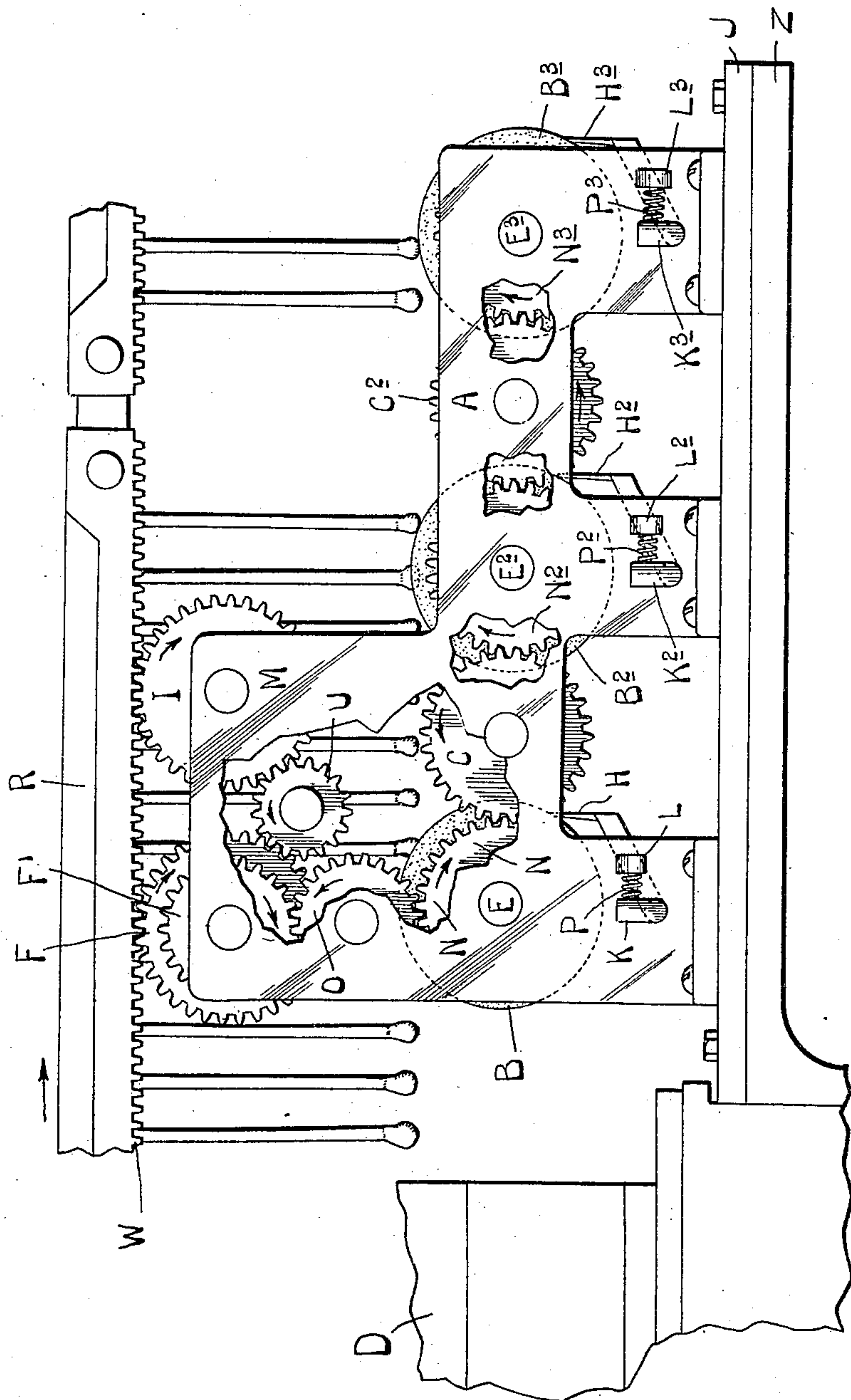


J. E. STATE.
ATTACHMENT FOR MATCH MAKING MACHINES.
APPLICATION FILED MAY 13, 1908.

935,825.

Patented Oct. 5, 1909.



Witnesses
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JOSEPH E. STATE, OF EAST ST. LOUIS, ILLINOIS.

ATTACHMENT FOR MATCH-MAKING MACHINES.

935,825.

Specification of Letters Patent.

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Application filed May 13, 1908. Serial No. 432,732.

To all whom it may concern:

Be it known that I, JOSEPH E. STATE, a citizen of the United States, residing in the city of East St. Louis, in the county of St. Clair and State of Illinois, have invented certain new and useful Improvements in Attachments for Match-Making Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, which forms part of this specification.

This invention relates to improvements in attachments for match making machines and is adapted for use in connection with machines or devices which place two compositions of matter on the tips of match splints.

Briefly stated, the operation of a machine equipped with my improved attachment is preferably as follows: The match splints are mounted on suitable carriers which convey them to a composition applying device whereby the tips of said splints are covered with a composition of friction igniting substance. After the igniting substance becomes dry, or substantially dry, it is covered with a composition of non-friction igniting material. This non-igniting material, while in a plastic state, is pushed upwardly so as to expose the friction igniting material by means of elastic rolls over which the splints are carried. The elastic rolls, by pushing the non-friction igniting substance upwardly while it is in a plastic state, cause the finished match to have a head that is almost entirely covered with non-friction igniting material, the igniting substance being exposed only at the extreme tip. If desired, the rolls can be so located that the extreme tip of the match will also be covered by a thin coat of non-friction igniting substance.

I do not deem it necessary to show or describe a complete match making machine nor the composition applying devices, because this invention is adapted for use in connection with various types of well known match making mechanism, such for example as is shown in the patent to Donnelly, No. 778,953.

In the accompanying drawing which illustrates the preferred form of my invention, the figure is a side elevation of a portion of a match making machine, one of the side frames of my improved attachment being partly broken away.

D indicates a portion of the match making

machine to which bracket Z and a base plate J is secured. Side frames A, supported on the base plate, are provided with an extension M which constitutes a bearing for the journals of gear wheels F and I, said gears being in mesh with rack teeth W on the splint carriers R and connected together by an idle pinion U.

B, B² and B³ respectively, indicate elastic cylinders mounted on shafts E, E² and E³. A gear wheel N secured to the shaft E meshes with an idle gear O which meshes with a pinion F¹, the latter being secured to the gear wheel F. The shafts E² and E³ are provided with gears N² and N³ which are connected together and to the gear wheel N by means of gear wheels C and C². Motion in the direction indicated by the arrow is imparted to all of the gear wheels and the elastic cylinders by the racks W which racks move horizontally when the machine is in operation. The splint carriers being in the form of sections, it is necessary to have two drive gears F and I in mesh with the racks, the object being to move the elastic rolls continuously and at substantially the same peripheral speed as the movement of the splint carriers. The elastic roll E is in a higher horizontal plane than the roll E² and the roll E³ is preferably lower than the roll E².

After the splints have received an outer coating of non-igniting material they pass over and are pressed into the soft elastic roll E. This action forces the non-igniting material upwardly and exposes the igniting material. In passing from roll E to roll E² the coating of non-igniting material (which is in a plastic state) falls by gravity slightly and is again pushed upwardly by the roll E². When the splints reach the roll E³ the outer coating is sufficiently dry to remain in the position to which it is forced by said roll. Roll E³ preferably forces the outer coating upwardly so as to leave only a small portion of the igniting material exposed at the extreme tip of the match. Scrapers H, H² and H³ are for the purpose of removing any paste which adheres to the pressing rolls while said rolls are acting on the match splints. The scrapers are pivoted to the side frames A and yieldingly forced into engagement with the rolls by springs P, P² and P³, said springs being arranged on stationary lugs L, L² and L³.

K, K² and K³ indicate cranks secured to the scraper arms and engaged by the free ends of the springs.

The elastic rolls are preferably very soft, and may be similar to those used in inking devices for printing presses.

I claim:

1. An attachment for machines which make matches having tips covered with an outer coating of non-friction igniting substance, said attachment comprising a yielding device arranged to force said outer coating away from the extreme tips of the matches; substantially as described.

2. An attachment for machines which make matches having tips covered with an outer coating of non-friction igniting substance, said attachment comprising a yielding device arranged to force said outer coating away from the extreme tips of the matches, a splint carrier, and means for causing said yielding device and the splint carrier to operate in unison; substantially as described.

3. In an attachment for match making machines having splint carriers, a revolving cylinder of elastic material arranged in said machine in such a position that the heads of the matches in the splint carriers will impinge on said cylinder, for the purpose set forth.

4. In an attachment for match making machines having splint carriers, a revolving

cylinder of elastic material arranged in said machine in such a position that the heads of the matches in the splint carriers will impinge on said cylinder, and means for causing the periphery of said cylinder to move at substantially the same speed as the splint carriers; substantially as described.

5. In an attachment for match making machines having splint carriers, three revolving cylinders of elastic material, placed in said machine in such a position that the heads of matches in the splint carriers will impinge on each cylinder, for the purpose set forth.

6. In an attachment for match making machines having splint carriers, three revolving cylinders of elastic material, placed in said machine in such a position that the heads of matches in the splint carriers will impinge on the cylinders consecutively, one of said cylinders being arranged to exert less pressure on the match heads than the cylinder which performs the preceding pressing operation; substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses this 6th day of May 1908.

JOSEPH E. STATE.

Witnesses:

G. W. KILLION,
J. E. KOEN.