

F. ZAISS.

Machines for Making Match-Sticks.

No. 136,893.

Patented March 18, 1873.

FIG 2.

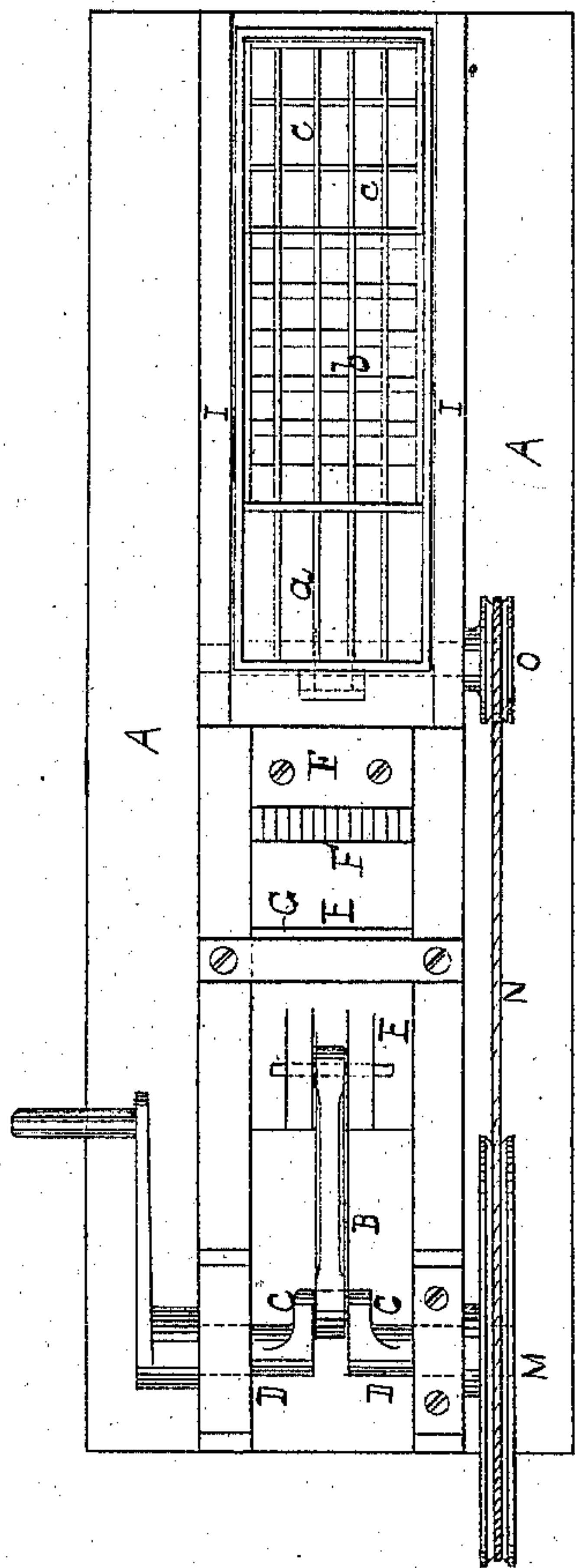


FIG 3



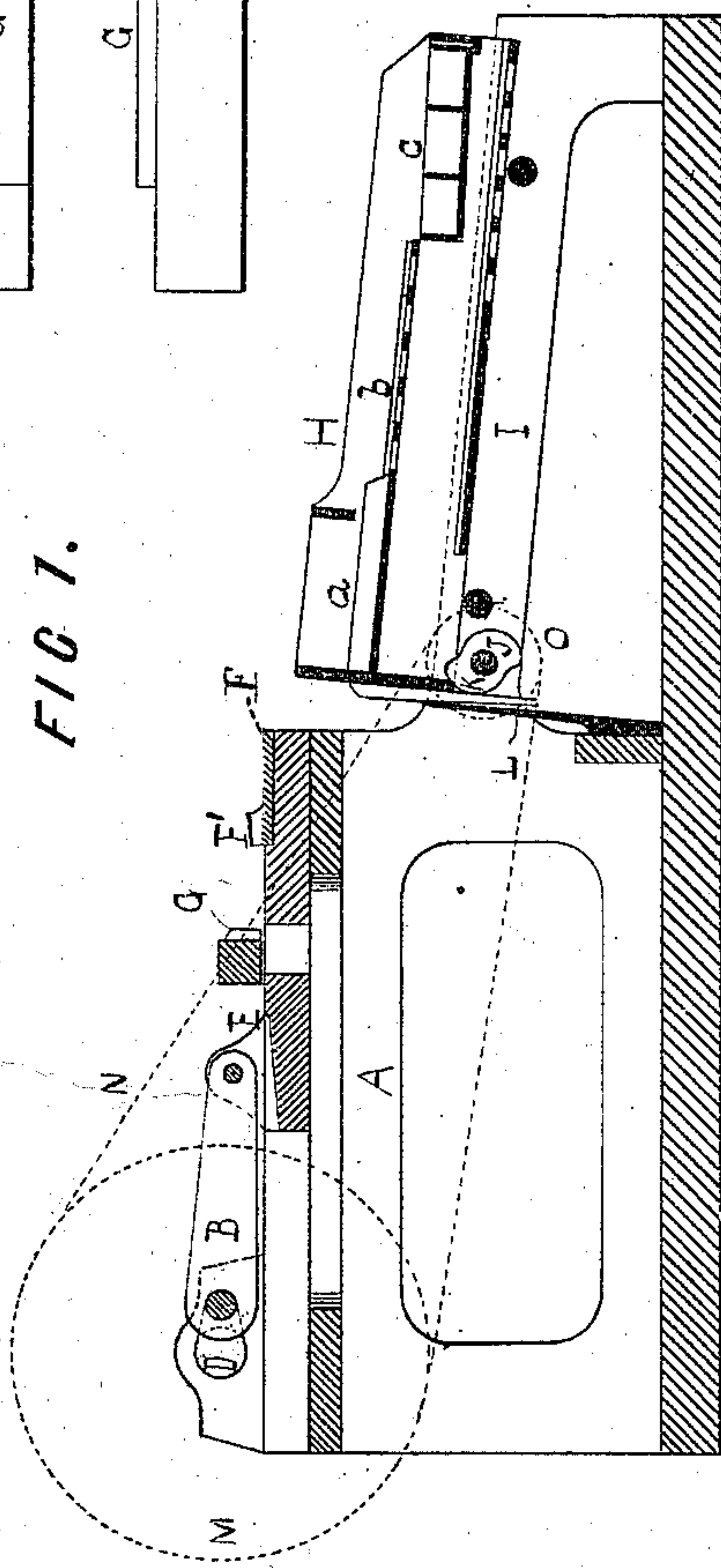
FIG 4



FIG 5



FIG 1.



INVENTOR

Frederick B. Zauss
by *Francis D. Pastorius*
his Atty in fact

WITNESSES

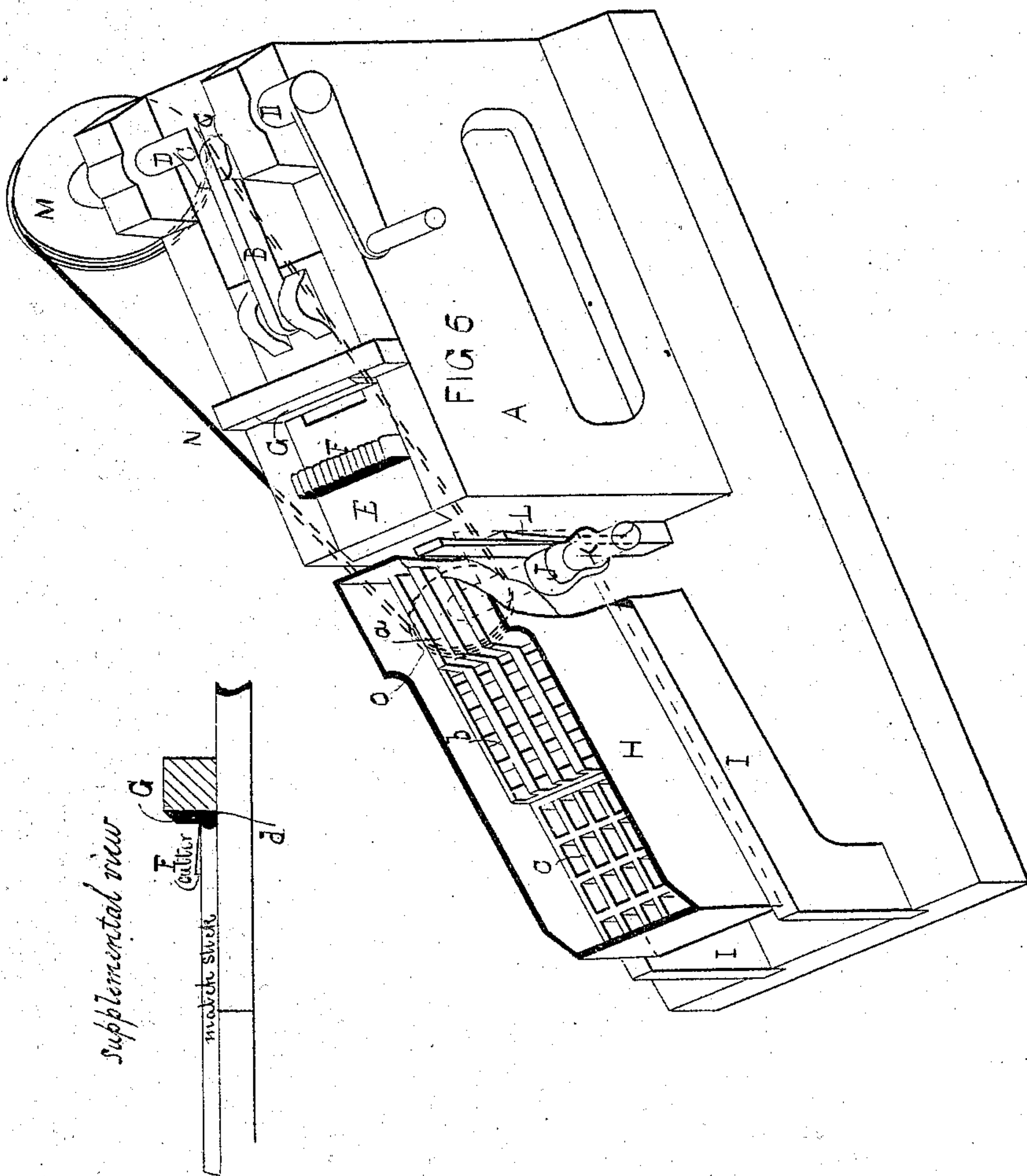
John Yilla
Edmund P. Lockman.

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WITNESSES
John Mills
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UNITED STATES PATENT OFFICE.

FREDERICK ZAISS, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN MACHINES FOR MAKING MATCH-STICKS.

Specification forming part of Letters Patent No. 136,893, dated March 18, 1873.

To all whom it may concern:

Be it known that I, FREDERICK ZAISS, of the city and county of Philadelphia, and State of Pennsylvania, have invented an Improvement in Machines for Making Match-Sticks, of which the following is a specification:

The invention is intended for using refuse lumber, ends, &c., in the manufacture of match-sticks; the machine is constructed for working any size blocks that will cut with the grain of the wood, and are of lengths not greater than the stroke of the cutter-head; a winnower forms part of the machine, whereby the match-sticks after being cut are straightened or regulated, cleaned of shavings and dirt, and collected in boxes.

Figure 1 is a longitudinal section. Fig. 2 is a plan view. Figs. 3, 4, 5 are views of the butting-block. Fig. 6 is a isometrical perspective view, partly sectioned.

A is the frame of the machine, which should be strongly and durably made to resist the vibrations incident to the working-parts. B is a rod, which connects the crank C of the shaft D with the cutter-head E of the machine. F is a plate secured to the reciprocating cutter-head E, and provided with a series of cutters, F', of suitable shape for cutting match-sticks, placed transversely on the cutter-head. G is a butting-block, of any soft material, and is provided with a series of rounded punches, *d*, against which the cutters take at the forward or cutting-stroke. H is a winnower on the inclined part I of the frame A. Its bottom is formed of the straightening-ways *a*, the riddle-frame or sieve *b*, and the collecting-boxes *c*. A cam, J, or other equivalent device of the shaft K, presses the winnower against a spring, L, when motion is communicated from the driving-pulley M hung on the shaft D by the belt N to the pulley O hung on the shaft K. The reciprocating action of the cam and the spring gives to the winnower a peculiar jerking movement.

The blocks to be made into match-sticks are introduced between the cutters F and the

butting-block G. The forward stroke cuts as many sticks as there are cutting-points presented, which continue in the same until the next stroke, when they are forced out by the punches *d* on the butting-block G and those being cut. After leaving the cutters the sticks pass into the straightening-ways *a* of the winnower H, and are placed parallel and lengthwise of the machine by the jerking motion hereinbefore referred to. From the ways they go on the riddle frame or sieve *b*, where the shavings and other matters are removed, and then drop into the collecting-boxes *c* to be taken away by an attendant. The stroke of the cutter-head can be varied by using a crank-wheel with an adjustable crank-pin, which would require a very slight change in the arrangement of the several parts, and would adapt the machine to the manufacture of sticks of any reasonable length.

The butting-block G, against which the cutters strike upon the completion of their forward stroke, is provided with a series of punches, *d*, which enter the cutters to operate on the cut match-stick to aid in discharging the sticks from the cutters. These punches are preferably formed on the butting-block by running the machine a short time before commencing to cut the match-sticks, by which means the cutters enter the soft material of the block and cut the punches of the same form and size as the cutters themselves.

The operator of the machine holds the block and adjusts it to the cutters to suit its shape and the grain of the wood in order to work the whole of it into match sticks.

I claim—

The cutter-head and cutters E F, butting-block G, and the winnower H, when used substantially for the purpose shown and described.

In testimony whereof I hereunto sign my name in presence of two subscribing witnesses.

FREDERICK ZAISS.

Witnesses at signing:

BERNHARD FELDMANN,
FRANCIS D. PASTORIUS.