

No. 752,650.

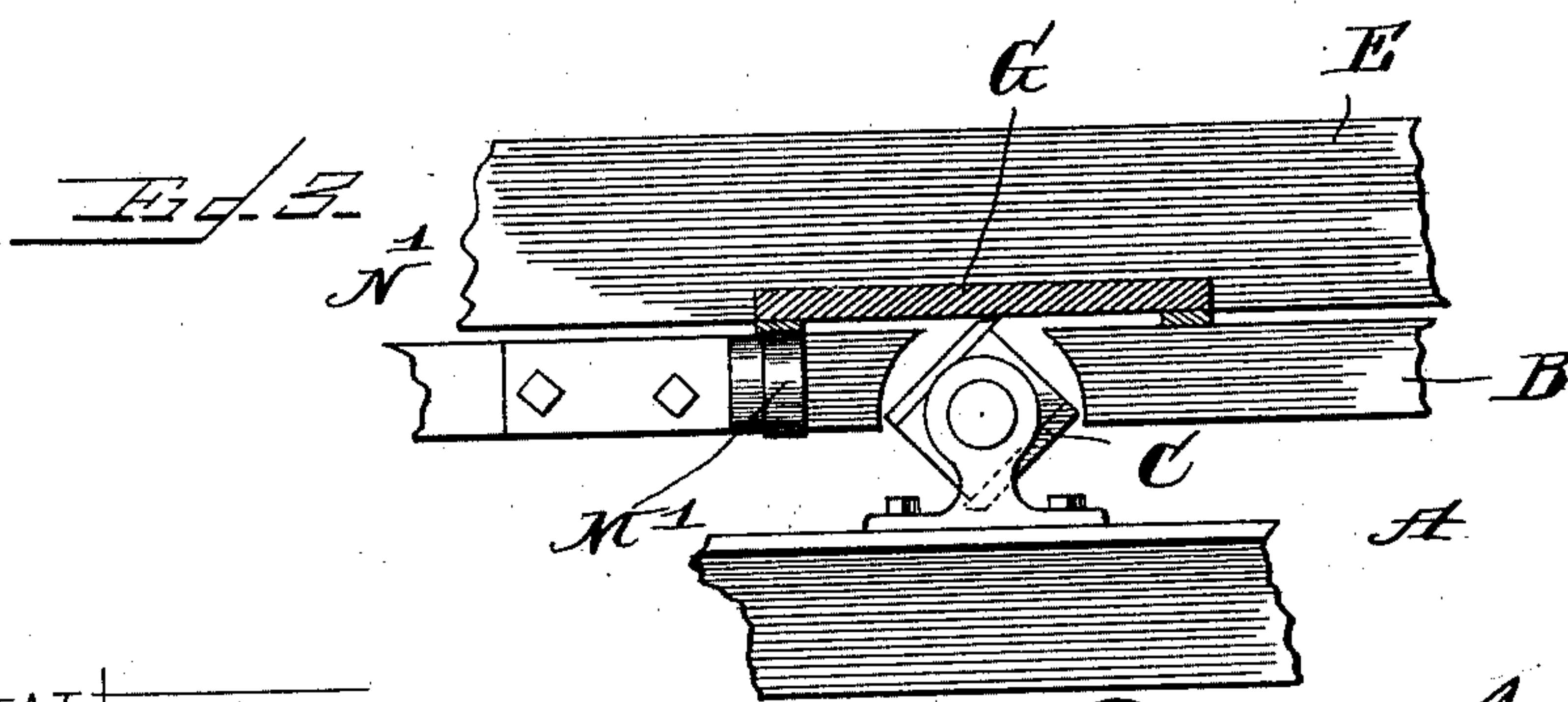
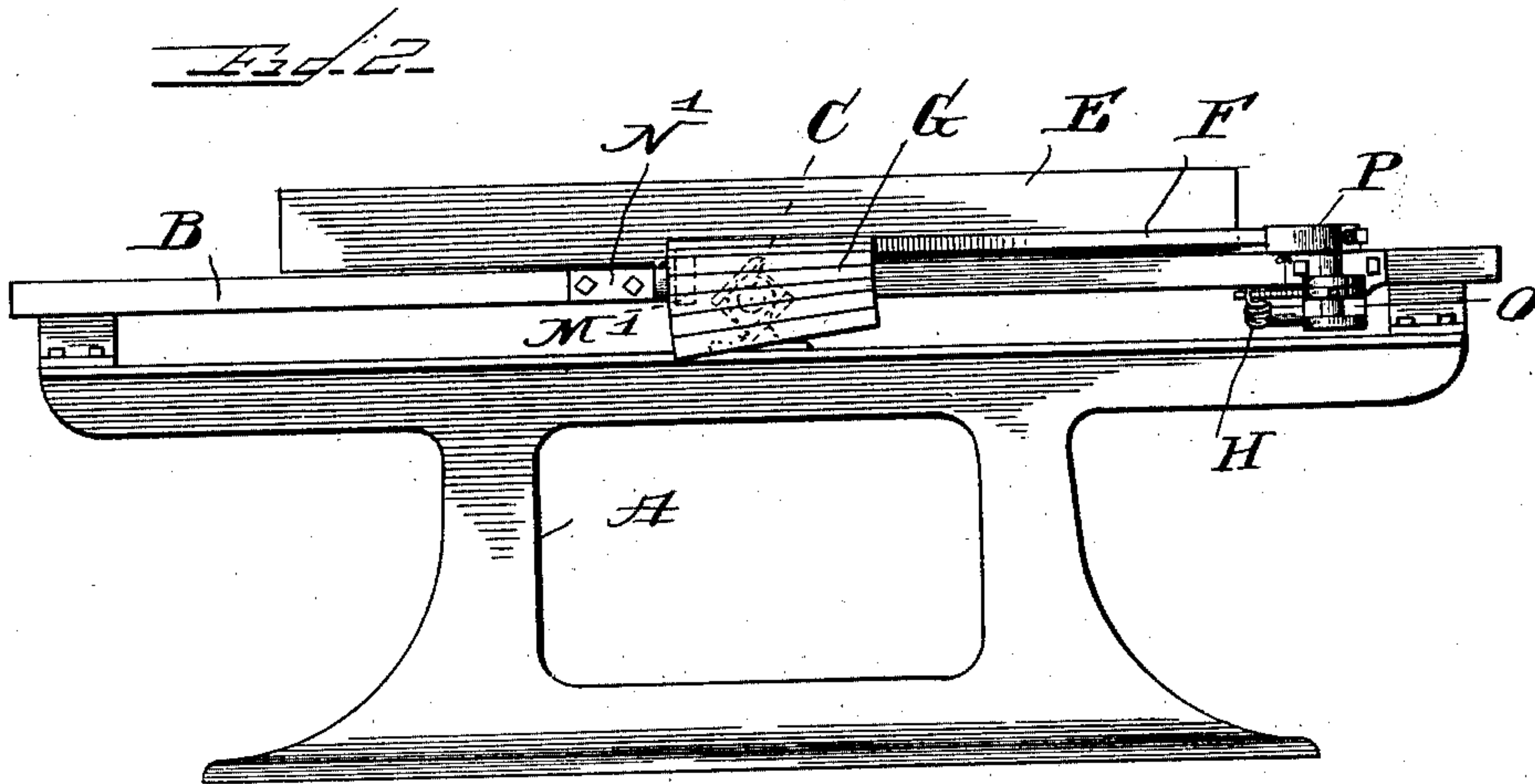
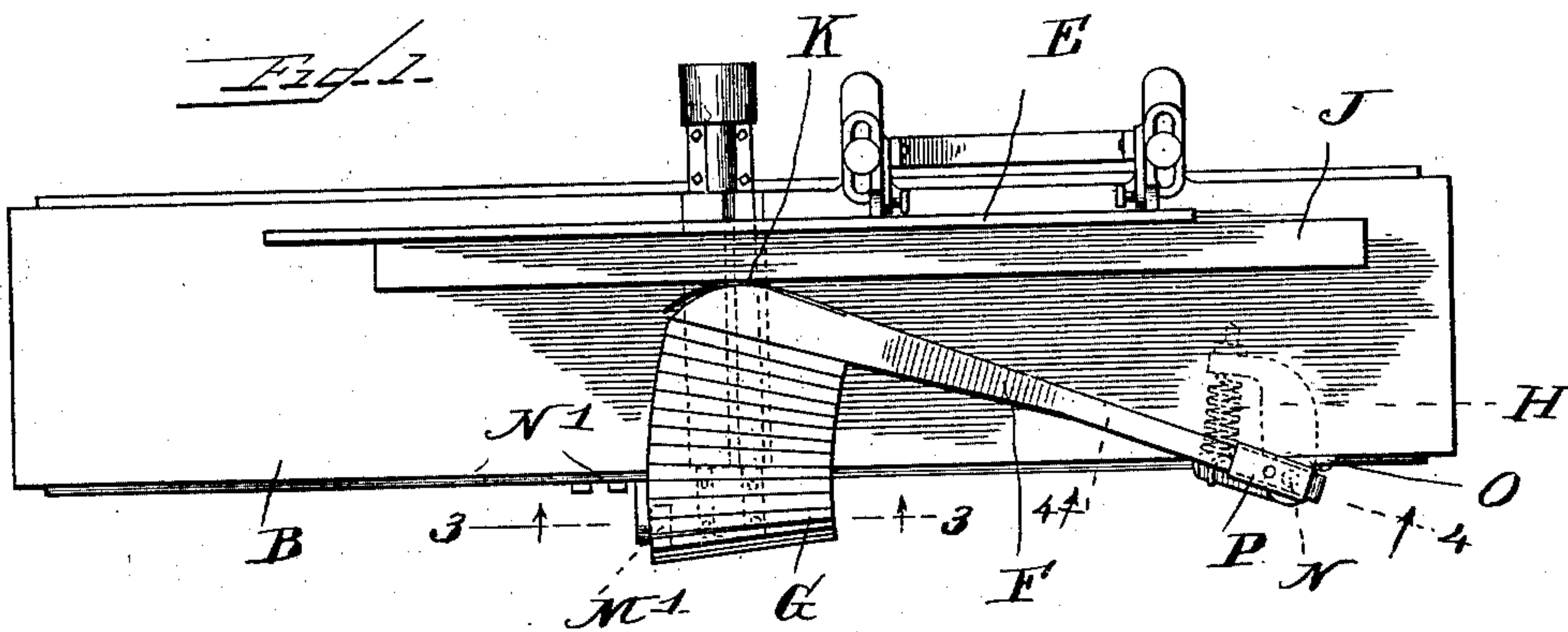
PATENTED FEB. 23, 1904.

F. P. BURKHARDT & F. STREICH.
SURFACING AND JOINTING MACHINE.

APPLICATION FILED MAY 28, 1903.

2 SHEETS--SHEET 1.

NO MODEL.



WITNESSES.

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C. H. Lenn

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2 SHEETS—SHEET 2.

Fig. 4.

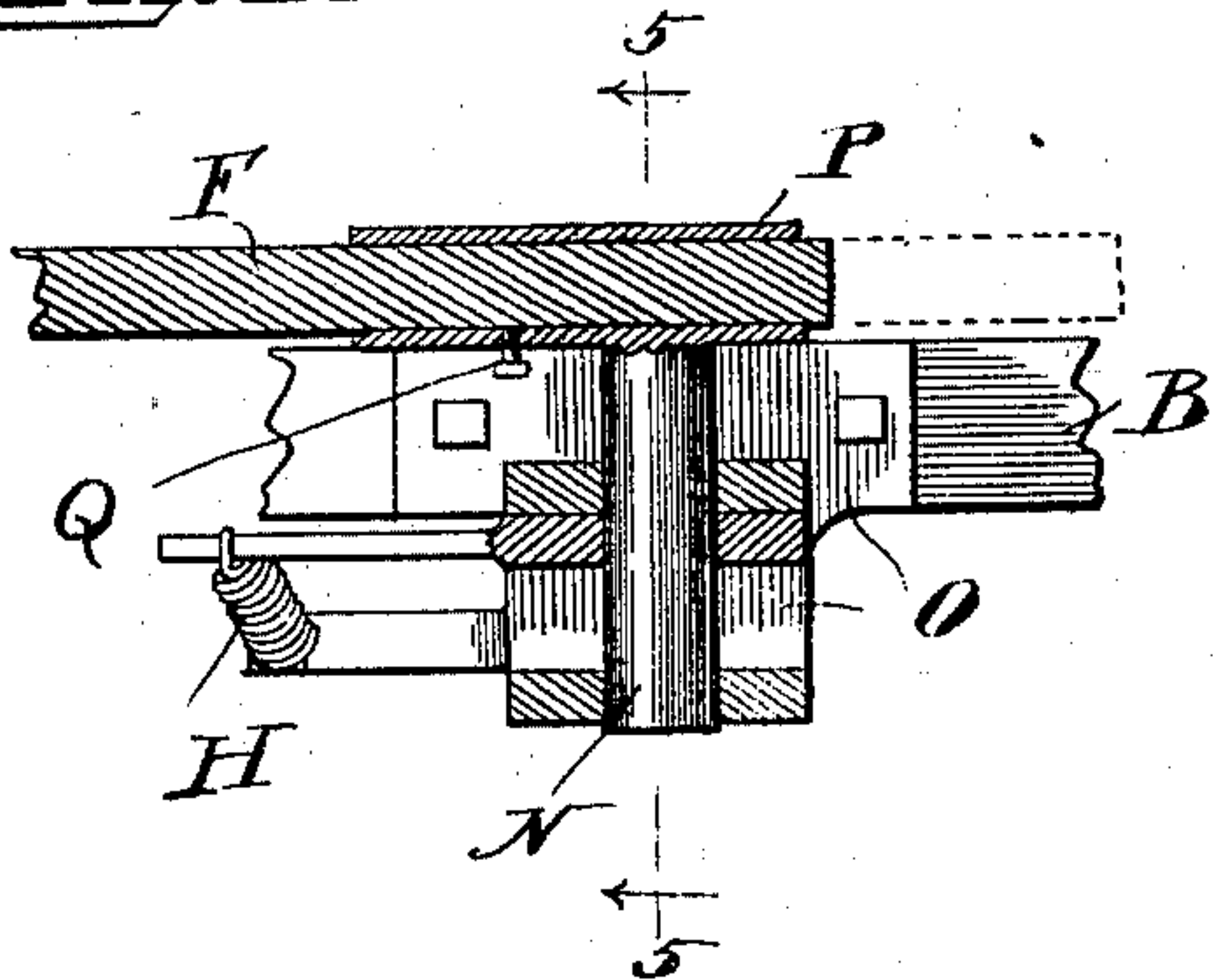
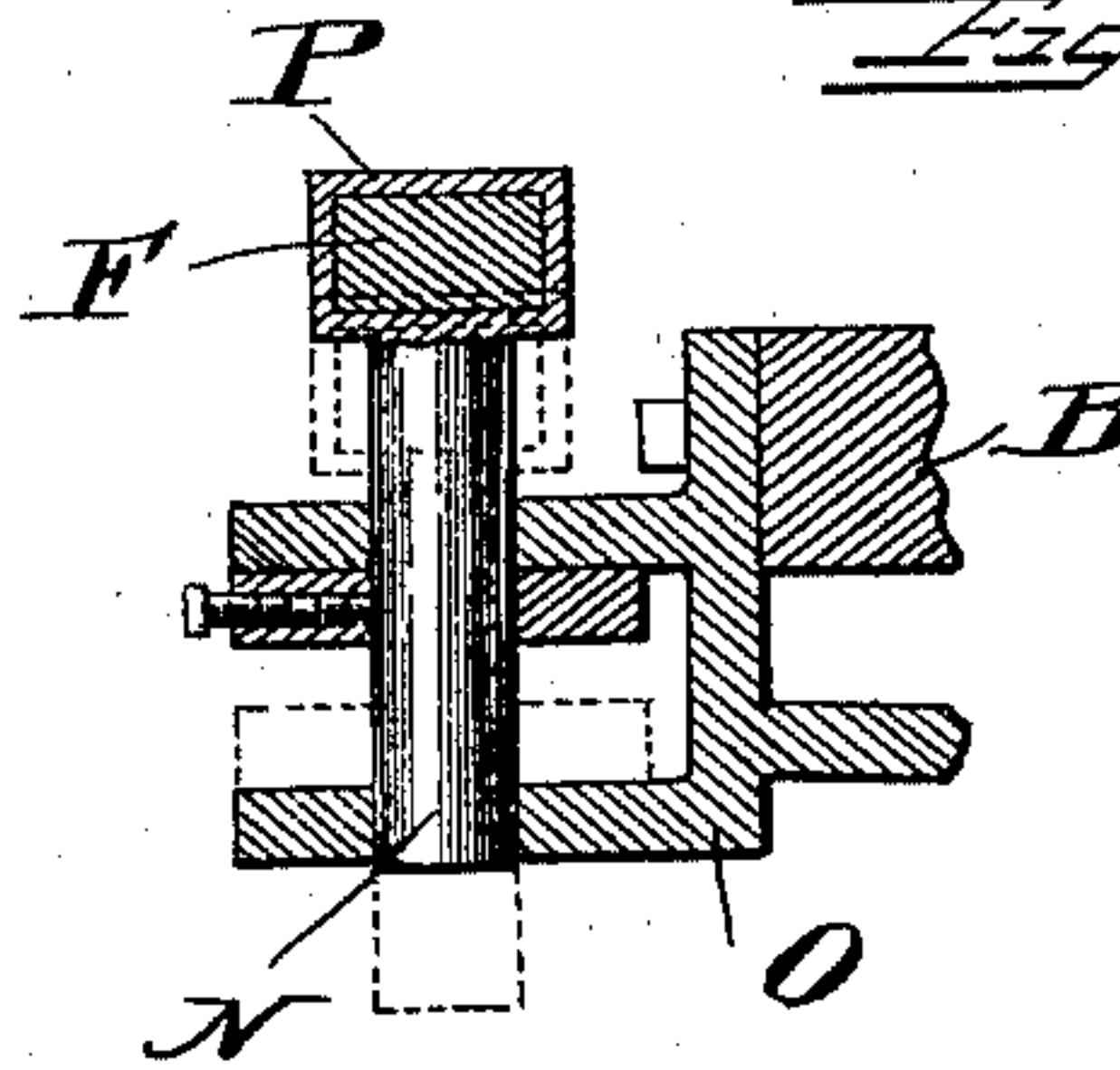


Fig. 5.



Witnesses—

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UNITED STATES PATENT OFFICE.

FRANKLIN P. BURKHARDT AND FRANK STREICH, OF CHICAGO, ILLINOIS.

SURFACING AND JOINTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 752,650, dated February 23, 1904.

Application filed May 28, 1903. Serial No. 159,051. (No model.)

To all whom it may concern:

Be it known that we, FRANKLIN P. BURKHARDT and FRANK STREICH, citizens of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Surfacing and Jointing Machines, of which the following is a specification.

This invention relates to safety-guards for surfacing and jointing machines.

The object of the invention is to provide a safety-guard which is simple in construction and efficient in operation, whereby the operator or machine attendant is efficiently protected against danger of injury from the cutters.

A further object of the invention is to provide a safety-guard for surfacing and jointing machines wherein work of varying widths is automatically accommodated.

A further object of the invention is to provide a safety-guard which may be placed in convenient position out of the way when not required for service.

Other objects of the invention will appear more fully hereinafter.

The invention consists substantially in the construction, combination, location, and arrangement of parts, all as will be more fully hereinafter set forth, as shown in the accompanying drawings, and finally pointed out in the appended claims.

Referring to the accompanying drawings, and to the various views and reference-signs appearing thereon, Figure 1 is a view in top plan of a surfacing or jointing machine, showing the application thereto of a safety-guard embodying the principles of our invention. Fig. 2 is a view in side elevation of the construction shown in Fig. 1. Fig. 3 is a broken view, partly in side elevation and partly in vertical longitudinal section, on the line 3 3, Fig. 1, looking in the direction of the arrows. Fig. 4 is a broken detail view, in section, on the line 4 4, Fig. 1, looking in the direction of the arrows. Fig. 5 is a broken detail view in section on the line 5 5, Fig. 4, looking in the direction of the arrows.

The same part is designated by the same ref-

erence-sign wherever it occurs throughout the several views.

In the practical operation of surfacing and jointing machines it frequently happens that material is operated upon the width of which is not sufficient to cover the entire area of operation of the cutters, and therefore in handling the material or in feeding the same by hand through the machine the danger is incurred of the hand of the machine attendant or other part of his body coming in contact with the cutters, thereby resulting in injuring him.

It is the special purpose of our invention to provide a safety-guard which will efficiently cover the area of operation of the cutters which is not covered by the work or material being operated on, and since work of various widths is or may be successively passed through the machine to be surfaced or jointed in carrying out our invention we propose to so construct the guard as to enable it to automatically increase or decrease the area of operation of the cutters according to the width of the material passing through the machine. This idea may be embodied in many specifically-different constructions of safety-guards.

We have shown various constructions and arrangements adapted for the accomplishment of our objects and will now describe their construction, arrangement, and mode of operation.

Referring to the accompanying drawings, reference-sign A designates the frame of a surfacing or jointing machine; B, the work-supporting table; C, the cutter, and E the adjustable work-guide. These parts may be of the usual or any well-known type, construction, or arrangement, and in the specific construction and arrangement of the details thereof form no part of our present invention, and while showing one construction and arrangement of surfacing or jointing machine the application of our invention is not to be limited or restricted to this style or type of machine.

In Figs. 1 to 5 we have shown one form of safety-guard, comprising an arm F, pivotally supported in any convenient manner at one

end, preferably adjacent to the side edge of the machine, so as to rock or swing horizontally over the top surface of the work-supporting table of the machine. At its free end
 5 is connected an apron G, arranged to operate in a plane over the cutter or cutters in case of a machine where the cutter or cutters are located below or beneath the work-supporting table. This apron is composed of suitably-articulated hinged or pivoted slats, after
 10 the fashion or in a manner similar to the rolling top of a desk. The tension of a suitable spring (indicated at H) may be exerted upon the guard-arm F in a direction to constantly
 15 press the outer or free end of such arm toward the work-guide E, the work (indicated at J) being arranged to pass between the guide E and the outer or free end of guard-arm F and to pass the cutters, being pressed
 20 against the guide by the spring-pressed guard-arm F. From this description it will be seen that the portion of the cutter or cutters not covered by the work or not otherwise in operation is normally covered over by the flexible
 25 guard-apron G, and more or less of the cutter is thus normally covered over by the protecting-apron, according to whether the work is narrow or wide, the apron being automatically drawn over the cutter or withdrawn from over the cutter according to the
 30 width of the material being operated on. The outer or free end of the guard-arm F, which is presented toward the work, is preferably curved, as indicated at K, (see Fig. 1,) so as
 35 to present a bearing-point against the edge of the work directly over the cutter whatever may be the width of the material passing through the machine.

The free end of the guard-arm F or the
 40 guard itself may be suitably supported and guided during the swinging movements thereof. This may be accomplished in many different ways—as, for instance, in the form shown, but to which our invention is not to
 45 be limited or restricted, we arrange a guide (indicated at M') in the form of a guide-roller suitably journaled in a bracket N', suitably bolted or otherwise mounted adjacent to the
 50 edge of the table. This guide-roller forms a support for the guard and over which the guard operates.

It may sometimes be desirable when the guard is not required for use to shift the same out of operative position and to a point below
 55 the surface of the table. This result may be accomplished in many specifically different ways. We have shown a simple arrangement wherein the pivot-stud N, upon which the
 60 guard arm F is carried, is journaled in a bracket O or in flanges therefrom to rock about a vertical axis and also to slide vertically therein, as indicated in full and dotted lines in Fig. 5, the bracket O being suitably bolted or otherwise affixed in convenient position adjacent to

the edge of the work-table. When the guard-
 65 arm and guard are in operative relation over the cutter, the pivot-stud N is supported in raised position, the guard-arm and guard-apron resting upon the upper surface of the
 70 table, and when the guard is not required for use the arm F is swung outwardly until it clears the edge of the table, when the pivot pin or stud N can be lowered, thereby carrying the guard-arm and its connected guard below
 75 the edge of the table.

It may sometimes occur that the journal-box in which the cutter-shaft is journaled will prevent the guard from being lowered below the surface of the table when such guard is not required for use and is swung outwardly,
 80 as above described. It may therefore become desirable to provide for shifting the guard bodily, so as to clear the cutter-journal box as well as the outer edge of the table. Any convenient means may be employed for
 85 accomplishing this result. We have shown a simple arrangement wherein the guard-arm F at its pivot end is arranged to slide back and forth through a sleeve P, carrying the pivot stud or bolt N, a set-screw Q serving to hold
 90 said arm in the sleeve. By loosening this set-screw the guard-arm F may be shifted longitudinally through the sleeve P until the free end of the guard or the guard-apron clears the
 95 cutter-journal box, when the guard may be lowered out of operation beneath the top surface of the table.

From the foregoing description it will be seen that we provide a simple construction of
 100 automatic cutter-guard which may be readily applied to any ordinary surfacing or jointing machine and one which is simple and efficient in operation and covers or uncovers more or less of the cutter-operating area, according to
 105 the width of the material being operated on.

Having now set forth the object and nature of our invention and various constructions embodying the principles thereof, what we claim as new and useful and of our own invention, and desire to secure by Letters Patent, is—
 110

1. In a surfacing and jointing machine, and in combination with surfacing and jointing cutters, a flexible apron arranged to be normally drawn over the portion of the surfacing and jointing cutters not required for use to
 115 entirely cover the same, and an arm arranged to bear against the edge of the material during its passage through the machine, said arm carrying said apron, as and for the purpose set forth.
 120

2. In a surfacing or jointing machine, and in combination with a table and surfacing and jointing cutters, of an arm pivotally mounted at one end and having its free end arranged to
 125 operate over the surfacing and jointing cutters, a guard-apron carried by to move with said arm, and means for yieldingly pressing said arm, said apron hanging freely over the

edge of said table toward the material being operated upon, whereby more or less of the area of operation of the cutters is entirely covered according to the width of the material being operated upon, as and for the purpose set forth.

3. In a surfacing and jointing machine, and in combination with a work-guide and surfacing and jointing cutters, of a guard-arm, a bracket upon which said arm is pivotally mounted at one end, the material being arranged to pass between the free end of said arm and the guide, means for yieldingly pressing said arm toward said guide, and a flexible guard apron or extension carried by the free end of said arm and operating over the cutters, as and for the purpose set forth.

4. In a surfacing and jointing machine, and in combination with a work-guide and surfacing and jointing cutters, of a bracket, a pivot-stud journaled to swing in said bracket and arranged to be moved longitudinally in its bearings, a guard-arm carried by said stud, a cutter-guard carried by said guard-arm at the free end thereof, and means for yieldingly pressing the free end of said arm toward said guide, whereby said arm may be rocked or swung to clear the work-table and be lowered below the surface of said table, as and for the purpose set forth.

5. In a surfacing and jointing machine, and in combination with a work-guide, a work-supporting table and cutters, of a pivot-stud, a guard-arm slidably mounted upon said stud, a flexible apron carried by said arm at the free end thereof, and means for yieldingly pressing the free end of said arm toward said guide, as and for the purpose set forth.

6. In a surfacing and jointing machine, a work-table, a side guide and cutters, in combination with a flexible apron normally operating to entirely cover and uncover the unused portion of the cutters according to the width

of the material to be operated upon, and means for shifting said apron to a position, when not required for use, beneath the surface of the work-table, as and for the purpose set forth.

7. In a surfacing and jointing machine, and in combination with cutting mechanism, a flexible apron, means normally operating to draw the shield or guard over the cutting mechanism, said means yielding to the passage of the material through the machine to uncover the portion of the cutting mechanism required for use, as and for the purpose set forth.

8. In a surfacing or jointing machine, and in combination with cutting mechanism, a flexible guard-apron, means normally operating to draw said apron over the cutting mechanism, said means yielding to the passage of the material to be operated upon through the machine to uncover the portion of the cutting mechanism required for use upon the material, and a supporting-guide over which the apron operates, as and for the purpose set forth.

9. In a surfacing or jointing machine, and in combination with cutting mechanism, a pivotally-mounted guard-arm, a flexible guard-apron carried by said arm, at its free end, means normally acting upon said arm to draw said apron over the cutting mechanism, said means yielding to the passage of the material through the machine to expose the portion of the cutting mechanism required for use upon the material, and a guide-roller arranged at the edge of the machine and over which said apron operates, as and for the purpose set forth.

In witness whereof we have hereunto set our hands, this 26th day of May, 1903, in the presence of the subscribing witnesses.

FRANKLIN P. BURKHARDT.

FRANK STREICH.

Witnesses:

FRANK T. BROWNE,

C. H. SEEM.