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T. W. DOOLITTLE.
GUARD FOR WOODWORKING MACHINES.
APPLICATION FILED NOV. 2, 1914.

Patented Sept. 28, 1915.

1,154,911.

Fig. 1.

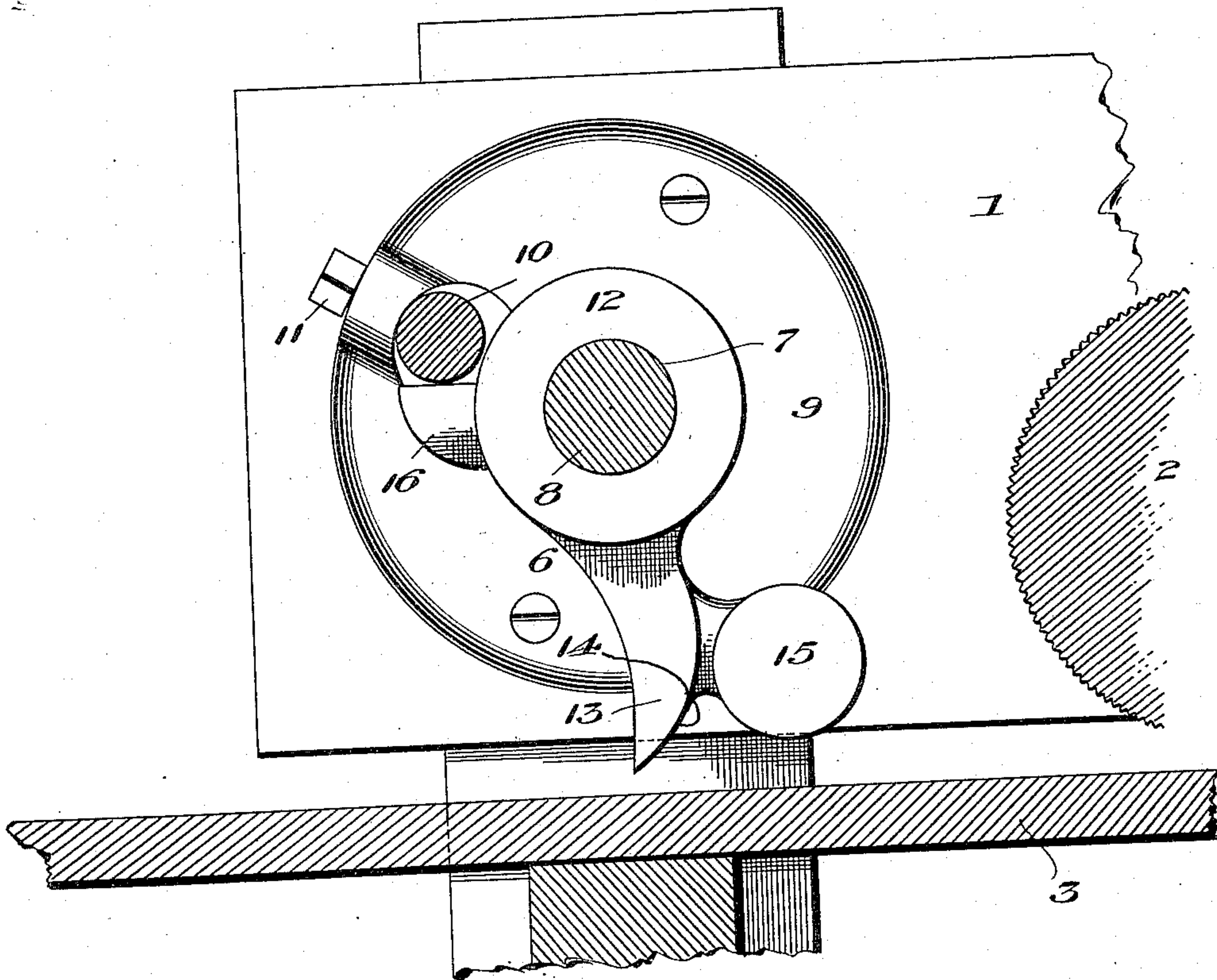
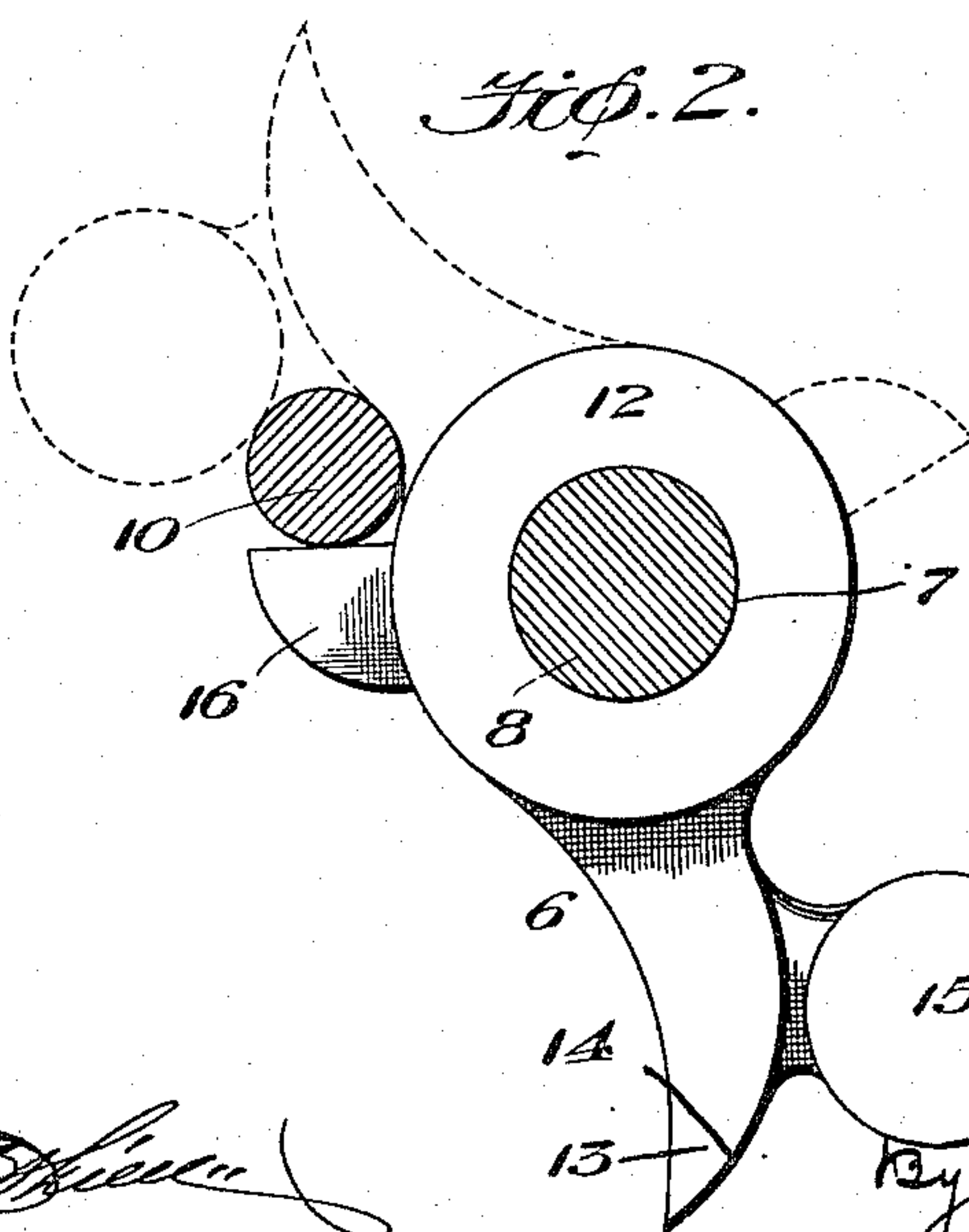


Fig. 2.



Witnesses

[Signature]
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UNITED STATES PATENT OFFICE.

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GUARD FOR WOODWORKING-MACHINES.

1,154,911.

Specification of Letters Patent.

Patented Sept. 28, 1915.

Application filed November 2, 1914. Serial No. 869,723.

To all whom it may concern:

Be it known that I, TRACY W. DOOLITTLE, a citizen of the United States, residing at Endicott, in the county of Broome and State of New York, have invented certain new and useful Improvements in Guards for Woodworking-Machines, of which the following is a specification.

This invention relates to woodworking machines and particularly to saw mills and wood finishing machines. In the operation of these machines it frequently occurs that pieces of material operated upon are thrown violently from the machine by reason of the operation of the saws, cutters or other tools which rotate at a very high rate of speed, with the result that persons near the machine are sometimes killed and frequently are seriously injured.

The object which I have in view is to provide a simple, cheap easily operated device whereby the throwing out of a piece of material being worked upon, after being properly introduced in a machine may be prevented.

A further object is to provide a device of the character referred to which is capable of being moved rapidly into and out of operative position, and which is so formed and has the parts so arranged that it will adjust itself automatically for operation upon material of different thicknesses introduced at the same time into a machine.

A further object of the invention is to provide a safety device of the kind referred to wherein the operative parts, upon which most of the work and strain is imposed in use may readily be removed separately and replaced at small cost when worn or broken.

With these objects in view the invention consists of the guard for machines of the kind referred to having the novel generic and specific features of construction and arrangement of the parts substantially as hereinafter described and claimed.

In the drawing, Figure 1 is a side view partly in section of a portion of a planing machine with the guard in position thereon; and, Fig. 2 is a side view of one of the dogs forming part of the device, the dog being shown in operative position by full lines and by dotted lines in the position assumed when out of operative position, the shaft and bar employed being shown in section.

In the drawing the guard or safety device is for purposes of illustration shown as applied to a planing machine though as will be apparent from an understanding of the invention it may with equal facility be applied to saw mills and various other woodworking machines.

In the drawing 1 represents a portion of the frame of a planing machine, and 2 represents a feed roller. Arranged beneath the roller is a work table 3 which is vertically adjustable in any suitable way as is usual in machines of the character referred to.

Arranged in front of the feed roller 2 are a series of freely swinging dogs 6 each having therein an opening 7 which receives a shaft 8 suitably fixed to the sides of the frame on the inner faces thereof. Extending across the machine in front of and a short distance above the shaft 8 is a bar 10, against which portions of the dogs 6 bear when the dogs are out of operative position and by which the dogs are prevented from being moved out of operative position when the dogs are in place for use. The bar is preferably seated in sockets in the plates 9, and retained by set screws 11.

The dogs employed are each composed of a main, substantially circular body 12 and each has integrally formed with it a pointed preferably curved projection 13 having a curved forward face 14.

Located above the projection 13 is a protuberance 15 forming a weight, the action of which is to maintain the projection 11 in a downward or operative position when the dogs are intended for use or to retain them in place when put in positions out of use. Arranged on the faces of the dogs opposite to these on which the protuberances 15 are located are lips 16 each having an upper plane surface.

In the use of the device the dogs are moved to a position out of operation, as shown by dotted lines in Fig. 2 when the work to be operated upon is being introduced into the machine. When the dogs are in this position they bear upon the upper face of the bar 10, and this bar is such a distance in rear of the shaft 8, that when the dogs rest upon it, the weights 15 of the dogs are back of the vertical axis of the shaft 8. Thus the weights serve to retain the dogs out of operative position and to prevent their accidental displacement. Be-

fore the beginning of the operation of the machine the dogs are turned down bringing them into the positions shown by full lines in Fig. 2 of the drawing, bringing the ends of the projections 13 to bear upon the material to be operated upon. The arrangement of the shaft 8 with respect to the feed roller 2 is such that when the dogs are turned down to positions for use the ends of the projections 13 bear upon the material to be operated upon a short distance forward of the vertical axis of the shaft 8, when the feed roller bears on such material. When the parts are in this position the free forward movement of the material is permitted, but any rearward movement thereof is instantly checked by the action of the dogs. The dogs are prevented from being put out of operation by the sinking of the projections 13 into the material and the turning of the dogs on the shaft 8 by contact of the lips 16 of the dogs with the lower face of the bar 10. Should the dogs be turned to bring the projections 13 thereof downward when no material is in the machine, the contact of the dogs with the bar maintains the dogs in such position that no obstruction to the introduction of material to be operated upon is offered, the ends of the projections being held a short distance forward of the shaft 8 and being thus in position to be readily swung forward by contact with the upper face of the work introduced.

As each dog employed is capable of independent swinging on the shaft, it will be clear that the guard will be equally effective when several pieces of wood of different thicknesses to be operated upon are introduced into the machine to which the guard is applied as when one or more pieces of the same thickness are introduced.

When in the operation of the guard, a force is exerted by a saw or other tool to throw a piece of wood rearward from the machine, no considerable injury will, under ordinary circumstances, be done to its surface, for the reason that the front curved faces of the projections of the dogs will be brought into contact with the wood and its movement will be checked by wedging of the wood between such curved faces and the table 5. The breadth of the curved faces is such that little or no penetration of the wood takes place.

The described construction permits of the ready application of the device to machines of varying widths by the utilization of longer or shorter shafts and bars and of a greater or less number of dogs, and the substitution of a new dog for a worn or broken one may be accomplished easily and at small cost.

I claim:

1. A guard of the kind described comprising a plurality of freely swinging dogs, a shaft on which the dogs are mounted, means for mounting the shaft above a feedway or table, and a bar arranged adjacent to such shaft in the path of the swinging movements of the dogs to limit their movement in one direction to normally operative substantially vertical positions, and to limit the movement of the dogs and to support them when swung in the opposite direction.

2. A guard of the kind described comprising a plurality of freely swinging dogs, each dog being provided on its rear face adjacent to the engaging surface of the dog, with a protuberance constituting a weight, a shaft on which the dogs are mounted, means for mounting the shaft above a feedway or table, and a bar arranged forward of such shaft in the path of the swinging movements of the dogs to limit their movements in one direction to normally operative substantially vertical positions, and to limit the movement of the dogs and support them when swung in the opposite direction.

3. A guard of the kind described comprising a plurality of freely swinging dogs, each dog being provided on its rear side with a curved bearing surface and with a protuberance constituting a weight, a shaft on which the dogs are mounted, means for mounting the shaft above a feedway or table, and a bar arranged forward and above such shaft in the path of the swinging movements of the dogs to limit their movements in one direction to normally substantially vertical positions and to limit the movement and support the dogs when swung in the opposite direction.

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

TRACY W. DOOLITTLE.

Witnesses:

FLORENCE N. CRAWFORD,
LEWIS S. CLARK.