W. D. BROCK.

SAFETY GUARD FOR MACHINES.

APPLICATION FILED NOV. 8, 1913.

1,106,920. Patented Aug. 11, 1914.

Fig. 1.

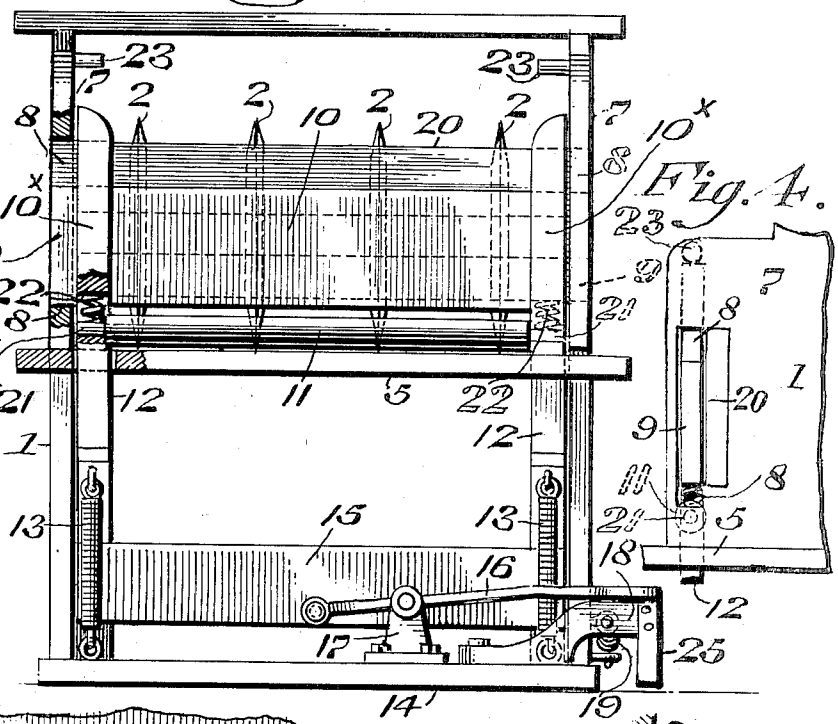


Fig. 3.

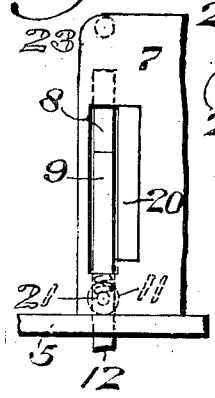


Fig. 4.

Fig. 2.

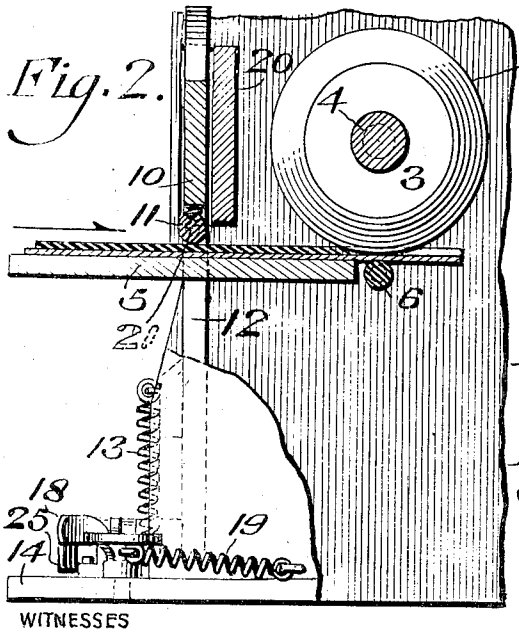


Fig. 5.

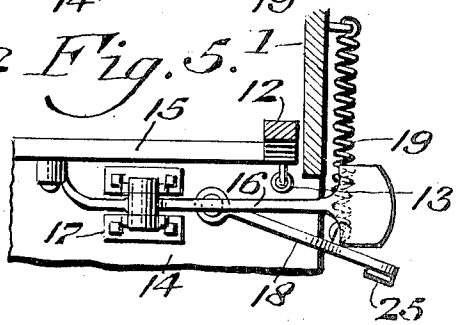
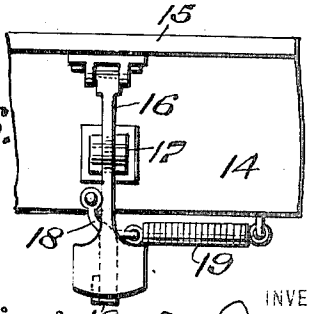


Fig. 6.



WITNESSES

P. F. Nagle.

L. Bourelle.

INVENTOR

William D. Brock.

BY Wiederstein & Fairbank.

ATTORNEYS

UNITED STATES PATENT OFFICE.

WILLIAM D. BROCK, OF OXFORD, PENNSYLVANIA.

SAFETY-GUARD FOR MACHINES.

1,106,920. Specification of Letters Patent. Patented Aug. 11, 1914.

Application filed November 8, 1913. Serial No. 799,852.

To all whom it may concern:

Be it known that I, WILLIAM D. BROCK, a citizen of the United States, residing at Oxford, in the county of Chester, State of Pennsylvania, have invented a new and useful Safety-Guard for Machines, of which the following is a specification.

My invention consists in applying to a machine employed for cutting, slicing, trimming, stamping, punching, molding, shaping, pressing, striking-up, perforating, seaming or otherwise acting on material or goods, a device adapted to prevent the hand of the operator from reaching or being directed to a dangerous working member of such machine, thus guarding the same from accidents while in no way interfering with the operation of feeding and running of the machine.

The invention is satisfactorily illustrated in the accompanying drawing, but the important instrumentalities thereof may be varied, and so it is to be understood that the invention is not limited to the specific details shown and described.

Figure 1 represents a front elevation, partly broken away, of a machine having a safety guard embodying my invention applied thereto. Fig. 2 is a side elevation looking at the right of Fig. 1 with portions broken away and parts shown in vertical section. Figs. 3 and 4 represent side elevations of detached end portions thereof. Fig. 5 represents a top or plan view of the treadle portion thereof. Fig. 6 represents a top or plan view of another form of the treadle portion of the invention.

Similar numerals of reference indicate corresponding parts in the figures.

Referring to the drawings:—1 designates the frame of a machine of the character stated. In the present case there is shown as the working member thereof, a rotary cutter which is composed of a series of circular blades or knives 2, and the limb 3, the latter being supported on the axle or journal 4, whose bearings are on the sides of said frame, 1, said blades or knives receiving power in any suitable manner. Connected with the frame and extending in front of the cutter is the table 5, which is adapted to support goods fed to the cutter. Below the cutter and rearward of the table 5 is the friction roller 6, whose bearings are on the sides of the frame, the members thus far described being well known in the art. In the portion 7 of the sides of the frame in front of the cutter are the vertical slots or ways 8 in which are freely fitted the tongues 9 on the sides of the vertically moving guard 10, which is composed of a plate or piece of metal, wood or other suitable material and located as is evident in front of the cutter. Mounted in vertical slots in the sides 10^x of said guard is the transversely-extending roller 11 which is adapted to rise and fall with said guard and in operation to contact with the material passed through the machine on its way to the cutter. Depending from said sides of the guard 10 and continuous thereof are the hangers 12 with which are connected the springs 13 which are also connected with the base 14 of the machine, said springs having for their object the lowering of the guard and consequently of the roller 11 placing the latter in the normal position of the guard on the table 5, thus closing the space in front of the cutter so that the hand of the operator is obstructed by said roller and guard in passing to the cutter thus protecting said hand from injury by the latter.

The lower ends of the hangers 12 are connected with and braced by the cross piece 15, on which latter is pivotally mounted the inner limb of the treadle 16, whose bearings are on the ears 17 which are bolted to the base 14, the outer limb of said treadle being within convenient reach of the foot of the operator at the side of the machine, consequently, when said outer limb is depressed, the treadle raises the guard and with it the roller 5, whereby the goods to be cut, trimmed, sliced or otherwise treated by the blades or knives 2 when placed on the table 5, may be passed under said roller. The treadle is then let-go, when the roller contacts with and rotates on the upper face of the goods, and thus the spaces between the goods and said roller and in front of said cutter are closed, and thus the hand of the operator is obstructed from reaching the cutter, and so prevented from injury by the latter. In the normal position of said treadle 16 and consequently of the guard 10, the former is controlled from motion by the lever 18 which is mounted on the base 14 of the machine and capable of movement laterally at the side of the machine beneath the outer limb of the treadle 16, as shown in Fig. 1, thus preventing the operation of the treadle. But when said lever is moved from

the treadle as occasion requires, the treadle may be lowered as will be apparent in Figs. 2 and 5.

In order to retain the lever in its normal position under the treadle, the former has connected with it the spring 19 which is also connected with the side of the frame 1, its tendency being to draw the lever, in the present case, to the right, and hold it stationary under the treadle, but when the lever is pushed to the left, said spring yields, allowing the lever to clear the underside of the treadle when the latter may be operated. The side of the lever now bears against the side of the treadle, and owing to the action of the springs 19 it holds the treadle sufficiently firm to prevent its motion, but when the lever is pressed slightly from the treadle, the latter is free to move when it returns to its normal position, as in Fig. 1, and the lever also returns to its normal position under the outer limb of the treadle, thus again preventing the operation of the treadle and the consequent ascent of the guard 10 and roller 11.

In Fig. 6 I show the lever, the treadle and connected parts at a right angle to those shown in the other figures without, however, producing different results, excepting that said lever and treadle may be operated at the front of the machine instead of the side, as previously referred to, but as to the positions of said members, I do not limit myself, so long as the guard may be raised or opened by the treadle, and the latter locked by the lever substantially in the manner stated.

Secured to the frame, rearward of the guard 10 is the board or plate 20 which extends in vertical position between said guard and the front of the working member of the machine, as a stationary member which is adapted to extend above the guard plate 10 when the latter is in its lowermost position, so as to increase the covering of the space over the guard at or near the upper portion of the blades 2 of the cutter, so as to prevent the hand of the operator from reaching directly above said guard, and so contact with said blades, but this is not an essential feature.

Provision is made to allow the roller 11 to rise in its bearings due to inequalities in the material to be operated upon or for thicker material by the journals 21 of said rollers mounted freely in the slots in the side pieces 10^{x} of the guard plate 10 as has been stated, so as to be movable vertically therein. Springs 22 are interposed in said slots between the upper ends of the same and adjacent portions of said journals 21 so as to exert pressure downwardly on the latter and consequently on said roller, thus serving to hold the roller down to its work while also allowing it to yield upwardly, the effect of which is evident. In order to limit the upward movement of the guard plate especially as it is liable to forcibly be raised by the action of the foot treadle 16, there are secured to the sides 7 of the frame 1, the pins, plugs or shoulders 23 which project inwardly from said sides and are in the paths of the side pieces 10^{x} of the guard plate so as to be struck by the latter as stops, the effect of which is evident.

In order to cause the lateral movement of the lever 18 to be conveniently performed by the foot of the operator, there is connected with the side of said lever the hanger 25 which reaches to nearly the floor of the room containing the machine where it may be pressed by one foot leaving the other foot free to lower the treadle.

While I have shown the guard as applied to a machine whose working member is a rotary cutter, such machine may be of an order having another working member of either of the kinds hereinbefore enumerated, but the device will be found admirably adapted for a candy machine, a paper cutting slicing and trimming machine, and feed devices for various machines to which, however, I do not limit myself.

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

1. A guard for a machine of the character stated composed of a normally spring-depressed vertically movable plate, the same being mounted on the frame of the machine in front of the working member thereof, and over the feed table thereof, and means for raising and lowering said guard.

2. A machine of the character stated provided with a feed table, a normally spring-depressed vertically movable plate forming a guard for the working member of the machine in front of said member and over said table, means for moving said guard plate in opposite directions, and means on the frame of the machine for guiding said plate.

3. A guard for a machine of the character stated composed of a normally spring-depressed vertically movable plate, the same being mounted on the frame of the machine in front of the working member thereof and over the feed table thereof, and a transversely-extending roller on the lower portion of said plate, the same being adapted to follow the motion of said plate from and to said table.

4. A guard for a machine of the character stated, composed of a vertically movable plate, means on the frame of the machine fixed with relation to the plate for guiding said plate in its motions, a spring connected with said plate and frame for normally lowering said plate and holding it in its operative position, and a treadle connected with said plate for raising the same.

5. A guard for a machine of the character stated, composed of a movable plate, the same being mounted on the frame of said machine over the feed table and in front of the working member thereof, a device adapted to raise said plate, and means coöperating with said device for preventing operation of said device in the normal condition thereof.

6. A guard for a machine of the character stated, composed of a movable plate, the same being mounted on the frame of said machine over the feed table and in front of the working member thereof, a treadle connected with said plate adapted to raise the same, and a lever adapted to engage said treadle to prevent the operation of the latter in its normal position.

7. A machine of the character stated provided with a feed table, a plate forming a guard for the working member of the machine in front of the same and over said table, a roller on the lower portion of said plate adapted to follow the motion of said plate from and to said table, a suitably mounted treadle pivotally connected with said plate for raising said plate, and spring means suitably connected with said plate for normally holding the same in its operative position.

8. A machine of the character stated provided with a feed table, a plate forming a guard for the working member of the machine in front of the same and over said table, a roller on the lower portion of said plate adapted to follow the motion of said plate from and to said table, a suitably mounted treadle pivotally connected with said plate for raising said plate, and a lever adapted to engage said treadle and prevent the operation of the latter when in its normal position.

WILLIAM D. BROCK.

Witnesses:
WILLIAM WILSON,
MORRIS W. DICKINSON.