

Dec. 27, 1949

R. O. OAKLEY ET AL

2,492,497

MACHINE FOR BURSTING PERFORATED FORMS

Filed Nov. 4, 1948

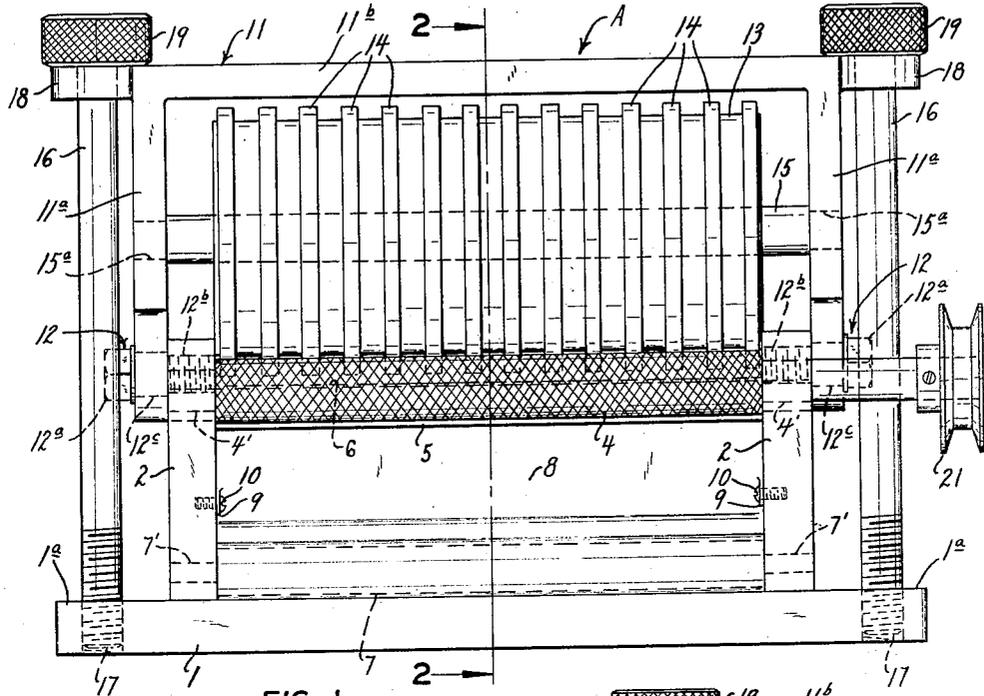


FIG. 1

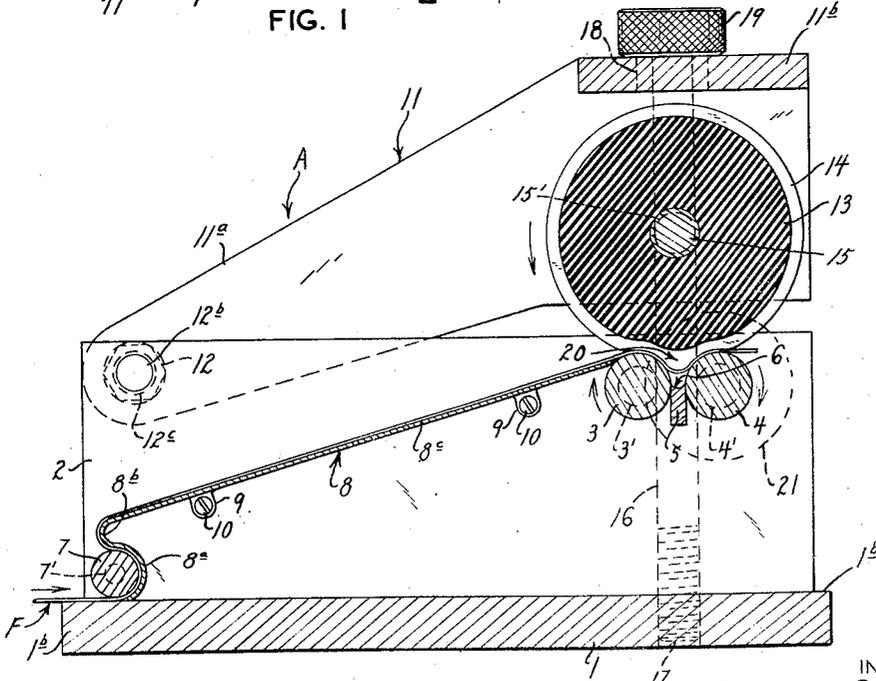


FIG. 2

INVENTORS  
RICHARD O. OAKLEY  
RICHARD C. OAKLEY  
BY  
*Emmarrington,*  
AT TORNEY

# UNITED STATES PATENT OFFICE

2,492,497

## MACHINE FOR BURSTING PERFORATED FORMS

Richard O. Oakley, Richmond Heights, and  
Richard C. Oakley, St. Louis, Mo.

Application November 4, 1948, Serial No. 58,336

10 Claims. (Cl. 164—84.5)

1

This invention relates generally to machines for bursting perforated forms so as to separate such forms along their lines of perforations into individual sheets, and more specifically to a machine of this type which is of such improved construction and arrangement that it is capable of performing its intended function in an improved and highly efficient manner, the predominant object of the invention being to provide a machine for bursting perforated forms which is extremely simple in construction and which is capable of efficient operation at high speeds.

Fig. 1 is a front elevational view of the improved machine of this invention.

Fig. 2 is a vertical section taken on line 2—2 of Fig. 1.

In the drawing, wherein is shown for purposes of illustration, merely, one embodiment of the invention, A designates the improved machine generally. The machine A includes as a part of its mechanical structure a base plate 1 from which is extended upwardly a pair of spaced, side plates 2. By referring to Fig. 1 it will be noted that opposite end portions 1a of the base plate 1 project outwardly beyond the spaced, side plates 2, and, as is indicated in Fig. 2, portions 1b of the base plate 1 extend outwardly beyond the front and rear edges of said spaced, side plates 2. By referring particularly to Fig. 2 it will be noted that the spaced, side plates 2 support a pair of rollers 3 and 4, these rollers 3 and 4 being formed from metal, or other hard material. The rollers 3 and 4 are provided at their opposite ends with reduced portions which serve as trunnions 3' and 4', these trunnions being supported in bearing openings formed in the spaced, side plates 2 so as to support said rollers 3 and 4 for rotary movement. The rollers 3 and 4 are spaced apart, as is shown in Fig. 2, and disposed between said rollers is a bar 5 which is fixedly supported by the spaced, side plates 2, said bar being provided with a curved top face 6 which serves a function to be hereinafter set forth.

The spaced, side plates 2 support, also, a roller 7 which is located at the rear, or form-entering end of the machine A, this roller having reduced portions 7' at its opposite ends that serve as trunnions and which are supported in bearing openings formed in the spaced, side plates 2 whereby the roller 7 is supported by said side plates for rotary movement. Additionally, the machine A is provided with a guide member 8 which is formed from suitable material, sheet

2

metal, for instance, and which includes a curved portion 8a that embraces the forward portion of the roller 7, as is shown to good advantage in Fig. 2, said curved portion 8a of said guide member 8 being spaced slightly from the peripheral face of the roller 7. The curved portion 8a of the guide member 8 merges into a curved portion 8b which in turn merges into an upwardly and forwardly inclined portion 8c which terminates immediately adjacent to a rear portion of the peripheral face of the roller 3. The guide member 8 is disposed between the spaced, side plates 2, extending from one to the other of said side plates, and said guide member is provided with ears 9 at its opposite edges which receive fastening devices 10 that secure said guide member to said spaced, side plates 2.

The machine A includes a head 11 which comprises a pair of spaced arms 11a that are joined by a top wall 11b, the rear portions of said spaced arms 11a being disposed outwardly of the spaced, side walls 2 in contact with outer face portions of said spaced, side plates 2. The head 11 is pivoted to the spaced, side plates 2 by means of bolts 12 which are provided with heads 12a which are disposed outwardly of the arms 11a, and screwthreaded shank portions 12b that are screwthreadedly seated in screwthreaded openings formed in the spaced, side plates 2, said bolts 12 being provided with smooth, intermediate portions 12c which are disposed in openings formed in the arms 11a of the head 11.

Supported by the arms 11a of the head 11 and disposed therebetween is a roller 13 which is formed of rubber or other suitable resilient material, said roller 13 preferably, though not necessarily, being provided with longitudinally spaced, circumferential ribs 14. The roller 13 is mounted on a shaft 15 which is provided with reduced portions 15a at its opposite ends, these reduced end portions of said shaft 15 being disposed in bearing openings that are formed in the opposed arms 11a of the head 11 so as to support the roller 13 for rotary movement. The roller 13 is forced into close contacting engagement with the rollers 3 and 4 by a pair of head adjusting elements 16 which comprise rods whose lower end portions are screwthreaded and are received in screwthreaded openings 17 formed in the base plate 1. The head 11 of the machine A is provided with outwardly projected extensions 18 having openings formed therethrough through which upper portions of the rods of the head adjusting elements 16 extend, there being head portions 19 at the upper ends of said rods which

3

engage the top faces of said extensions 18. By rotating the head adjusting elements 16 in the appropriate direction the forward portion of the head 11 of the machine is moved downwardly so as to force the roller 13 into tight engagement with the rollers 3 and 4, sufficient pressure being exerted by said roller 13 against the rollers 3 and 4 to cause a part of the resilient roller 13 to bulge downwardly between the upper portions of said rollers 3 and 4, as is indicated at 20 in Fig. 2.

The trunnions 4' of the roller 4 at one side of the machine A has fixedly mounted thereon a suitable pulley 21. This pulley receives a power transmission belt (not shown) by which power is transmitted from a suitable source of power (not shown) to said roller 4 for rotating said roller 4 and the rollers 3 and 13.

In the operation of the machine of the present invention a form F is fed under the roller 7 and between said roller and the curved portion 8a of the guide member 8, said form moving upwardly about the curved portion 8b and upwardly and forwardly along the top face of the portion 8c of said guide member 8 to the bite of the rollers 3 and 13. The rollers 3, 4, and 13 are rotated in the direction indicated by the arrows in Fig. 2 and therefore the form F will be drawn between the rollers 3 and 4 and the roller 13, and as each line of perforations of the form reaches a point between the upper portions of the rollers 3 and 4 the rolling bulge 20 formed at the bottom of the resilient roller 13 by the pressure exerted by the roller 13 against the rollers 3 and 4, will burst the form at said line of perforations, thereby separating the form into its individual sheets. The bar 5 serves to prevent the form F from following around the roller 3 and thus causes said form to travel over its proper course.

We claim:

1. A machine for bursting perforated forms comprising a base frame, a pair of spaced rollers supported for rotation by said base frame, a head supported for movement relative to said base frame, a roller supported by said head for rotation in contact with said pair of spaced rollers, means for guiding a perforated form to the bite of said roller supported by said head and one of said pair of spaced rollers, said roller supported by said head being formed of resilient material and said pair of rollers being formed of relatively hard material, and means for subjecting said roller supported by said head to such pressure against said pair of spaced rollers that a portion of the material of said roller supported by said head is bulged outwardly between said pair of spaced rollers.

2. A machine for bursting perforated forms comprising a base frame, a pair of spaced rollers supported for rotation by said base frame, a head supported for pivotal movement relative to said base frame, a roller supported by said head for rotation in contact with said pair of spaced rollers, means for guiding a perforated form to the bite of said roller supported by said head and one of said pair of spaced rollers, said roller supported by said head being formed of resilient material and said pair of rollers being formed of relatively hard material, and means for subjecting said roller supported by said head to such pressure against said pair of spaced rollers that a portion of the material of said roller supported by said head is bulged outwardly between said pair of spaced rollers.

4

3. A machine for bursting perforated forms comprising a base frame, a pair of spaced rollers supported for rotation by said base frame, a head supported for pivotal movement relative to said base frame, a roller supported by said head for rotation in contact with said pair of spaced rollers, means for guiding a perforated form to the bite of said roller supported by said head and one of said pair of spaced rollers, said roller supported by said head being formed of resilient material and said pair of rollers being formed of relatively hard material, means for subjecting said roller supported by said head to such pressure against said pair of spaced rollers that a portion of the material of said roller supported by said head is bulged outwardly between said pair of spaced rollers, and means for subjecting said rollers to rotation.

4. A machine for bursting perforated forms comprising a base frame, a pair of spaced rollers supported for rotation by said base frame, a head supported for pivotal movement relative to said base frame, a roller supported by said head for rotation in contact with said pair of spaced rollers, means for guiding a perforated form to the bite of said roller supported by said head and one of said pair of spaced rollers, said roller supported by said head being formed of resilient material and said pair of rollers being formed of relatively hard material, means for subjecting said roller supported by said head to such pressure against said pair of spaced rollers that a portion of the material of said roller supported by said head is bulged outwardly between said pair of spaced rollers, and means for subjecting said rollers to rotation by applying rotative force to one of said pair of rollers.

5. A machine for bursting perforated forms comprising a base frame, a pair of spaced rollers supported for rotation by said base frame, a head supported for pivotal movement relative to said base frame, a roller supported by said head for rotation in contact with said pair of spaced rollers, means comprising a guiding member for guiding a perforated form to the bite of said roller supported by said head and one of said pair of spaced rollers, said roller supported by said head being formed of resilient material and said pair of rollers being formed of relatively hard material, means for subjecting said roller supported by said head to such pressure against said pair of spaced rollers that a portion of the material of said roller supported by said head is bulged outwardly between said pair of spaced rollers, and means for subjecting said rollers to rotation.

6. A machine for bursting perforated forms comprising a base frame, a pair of spaced rollers supported for rotation by said base frame, a head supported for pivotal movement relative to said base frame, a roller supported by said head for rotation in contact with said pair of spaced rollers, means comprising a guide member and a feed roller for guiding a perforated form to the bite of said roller supported by said head and one of said pair of spaced rollers, said roller supported by said head being formed of resilient material and said pair of rollers being formed of relatively hard material, means for subjecting said roller supported by said head to such pressure against said pair of spaced rollers that a portion of the material of said roller supported by said head is bulged outwardly between said pair of spaced rollers, and means for subjecting said rollers to rotation.

5

7. A machine for bursting perforated forms comprising a base frame, a pair of spaced rollers supported for rotation by said base frame, a head supported for pivotal movement relative to said base frame, a roller supported by said head for rotation in contact with said pair of spaced rollers, means for guiding a perforated form to the bite of said roller supported by said head and one of said pair of spaced rollers, said roller supported by said head being formed of resilient material and said pair of rollers being formed of relatively hard material, means for subjecting said roller supported by said head to such pressure against said pair of spaced rollers that a portion of the material of said roller supported by said head is bulged outwardly between said pair of spaced rollers, the last-mentioned means comprising an adjustable element which engages said head and is engaged by a portion of said base frame, and means for subjecting said rollers to rotation.

8. A machine for bursting perforated forms comprising a base frame, a pair of spaced rollers supported for rotation by said base frame, a head supported for pivotal movement relative to said base frame, a roller supported by said head for rotation in contact with said pair of spaced rollers, means for guiding a perforated form to the bite of said roller supported by said head and one of said pair of spaced rollers, said roller supported by said head being formed of resilient material and said pair of rollers being formed of relatively hard material, means for subjecting said roller supported by said head to such pressure against said pair of spaced rollers that a portion of the material of said roller supported by said head is bulged outwardly between said pair of spaced rollers, the last-mentioned means comprising a pair of adjustable elements which engage said head and are engaged by portions of said base frame, and means for subjecting said rollers to rotation.

9. A machine for bursting perforated forms comprising a base frame, a pair of spaced rollers

6

supported for rotation by said base frame, a head supported for pivotal movement relative to said base frame, a roller supported by said head for rotation in contact with said pair of spaced rollers, means for guiding a perforated form to the bite of said roller supported by said head and one of said pair of spaced rollers, said roller supported by said head being formed of resilient material and said pair of spaced rollers being formed of relatively hard material, means for subjecting said roller supported by said head to such pressure against said pair of spaced rollers that a portion of the material of said roller supported by said head is bulged outwardly between said pair of spaced rollers, the last-mentioned means comprising a pair of adjustable elements which engage said head and are screwthreadedly engaged by portions of said base frame, and means for subjecting said rollers to rotation.

10. A machine for bursting perforated forms comprising a base frame, a pair of spaced rollers supported for rotation by said base frame, a head supported for pivotal movement relative to said base frame, a roller supported by said head for rotation in contact with said pair of spaced rollers, means for guiding a perforated form to the bite of said roller supported by said head and one of said pair of spaced rollers, said roller supported by said head being formed of resilient material and said pair of spaced rollers being formed of relatively hard material, means for subjecting said roller supported by said head to such pressure against said pair of spaced rollers that a portion of the material of said roller supported by said head is bulged outwardly between said pair of spaced rollers, the last-mentioned means comprising a pair of adjustable elements which engage extensions formed on said head and are screwthreadedly engaged by portions of said base frame, and means for subjecting said rollers to rotation.

RICHARD O. OAKLEY.

RICHARD C. OAKLEY.

No references cited.