May 20, 1930. J. A. WHITE 1,759,676

DRIVEN SLITTER FOR PAPER SLITTING MACHINES

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Fig. 1.

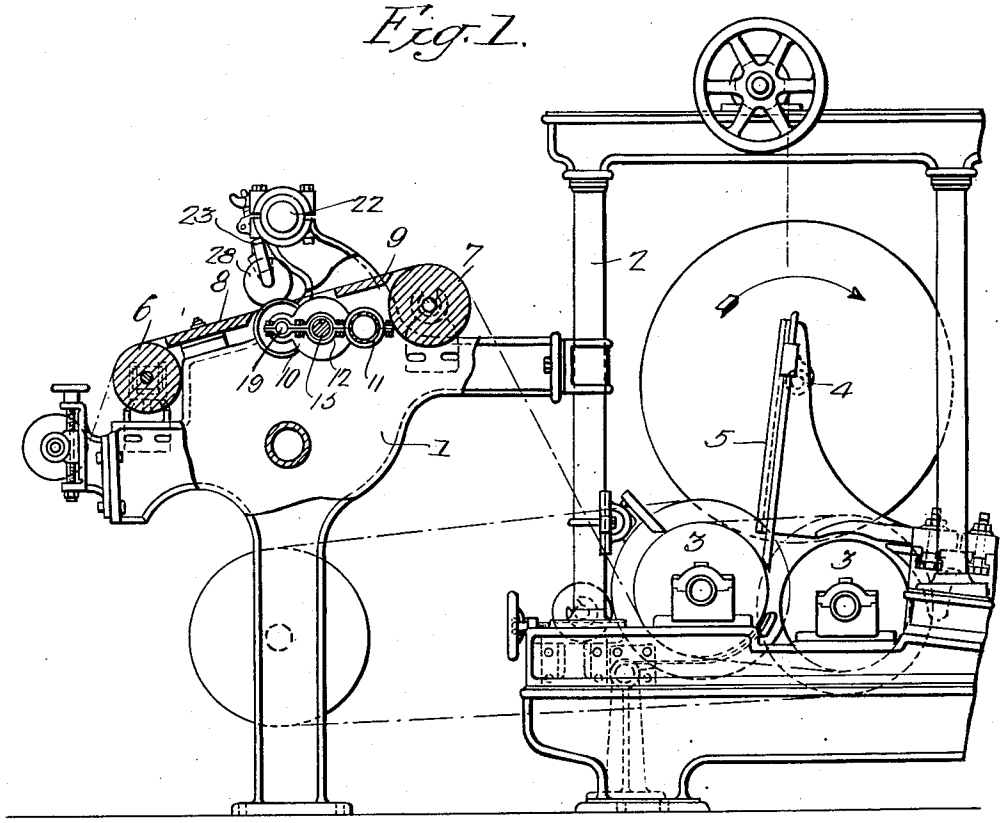
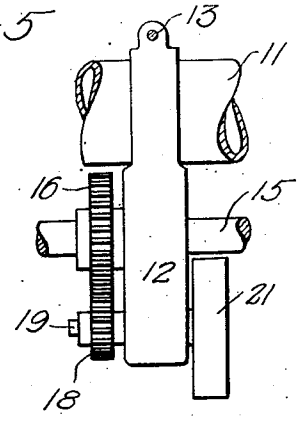


Fig. 5



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Fig. 3.

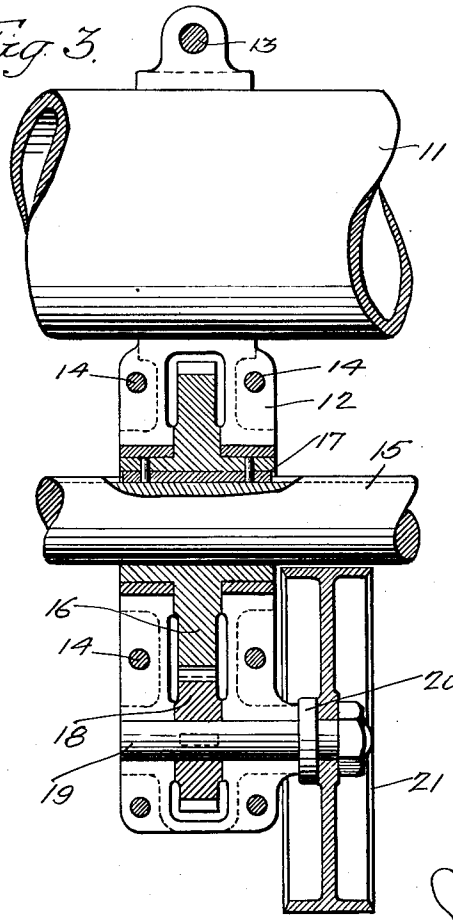


Fig. 4.

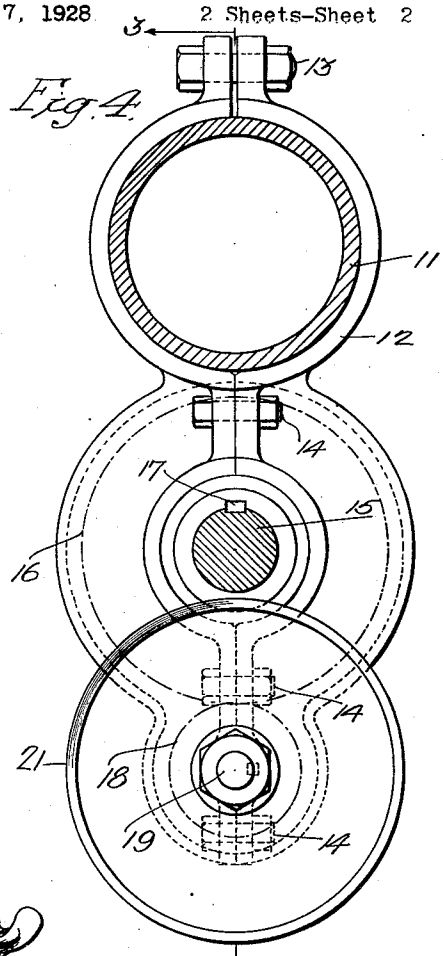
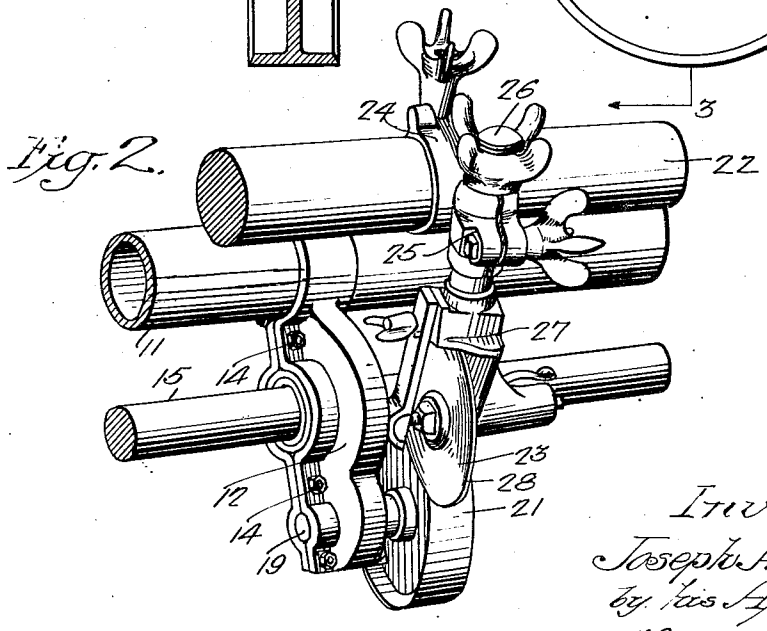


Fig. 2.



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UNITED STATES PATENT OFFICE

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DRIVEN SLITTER FOR PAPER-SLITTING MACHINES

Application filed July 7, 1928. Serial No. 291,078.

My invention relates to certain improvements in slitting machines for paper and like material, in which the paper passes between upper slitters and lower or driven slitters. After being slit, the paper is wound upon a drum winder of any ordinary type.

One object of my invention is to improve the construction and arrangement of the driven slitters.

A further object of the invention is to support the driven slitters on a heavy cross-bar, using a light shaft for driving the slitters which are geared to the shaft.

In the accompanying drawings:

Fig. 1 is a side view, partly in section, showing a winder and a slitter in section to illustrate clearly my invention;

Fig. 2 is a perspective view showing the upper and bottom or driven slitters in their relation to each other;

Fig. 3 is a sectional view on the line 3—3, Fig. 4, showing the supporting cross-bar, the shaft and driven slitters;

Fig. 4 is a side view of the driven slitters, showing the supporting cross-bar in section; and

Fig. 5 is a view illustrating a modification of the invention.

It has been the usual practice in making slitting machines to mount the bottom or driven slitters on a heavy shaft, having its bearings at each side of the machine. This shaft is driven at a high speed and vibrates to a considerable extent, causing the slitters to wear away very rapidly. In making repairs the entire shaft has to be removed in order to detach an imperfect slitter and replace it by another slitter.

My invention obviates the objection noted above, as the slitters are independently mounted on a heavy cross-bar, so that an imperfect slitter can be readily replaced and removed without disturbing the balance of the slitters.

Referring to Fig. 1 of the drawings, the slitters are mounted on a frame 1 which is usually attached to the frame 2 of a winding machine. The machine is partly shown. Two drums 3 support the roll of paper as it is formed on a spindle 4, which travels upon rails 5 as the roll increases in size. The drums are driven in any suitable manner.

Mounted on the frame 1 are two guide rolls 6 and 7, over which the paper passes. 8 and 9 are two guide tables, one located in front of the driven slitters 10, and the other at the rear of the slitters.

A heavy bar 11 extends from one side of the machine to the other side and is stationary. Mounted on this bar are individual slitters. These slitters may be of any number and may be arranged at different distances apart, being set by the operator to cut the paper into strips of the width desired.

The bottom or driven slitters 10 consist of a frame 12, which is clamped to the bar by bolts 13. The frame is made in two parts and bolts 14 secure the parts together.

Extending through gear wheels 16 mounted in each frame 12 of the slitter is a driven shaft 15 having a longitudinal spline therein. The gear wheel 16 has a key 17 which extends into the groove in the shaft, as clearly shown in Fig. 3.

Meshing with the gear wheel 16 is a pinion 18 mounted on a shaft 19 having its bearings in the frame 12. One end of the shaft 19 extends beyond the frame and has a collar 20, and on the shaft beyond the collar is mounted the lower slitter blade 21. The blade in this instance is a double edged blade, the edges being beveled as shown. By making the blade in this manner, when one edge is worn, the blade can be reversed.

The upper or top slitters are not driven. A bar 22, extending from one side frame to the other, supports independent top slitters 23. Each slitter consists of a clamp 24, which attaches the slitter to the bar. This clamp has a socket 25 for a spindle 26 on the head 27 which carries the top slitter blade 28. The top and bottom slitters of each set are so adjusted as to slit the paper as it passes between the slitters, the top slitter being driven from the bottom slitter.

By the construction described above, independent driven bottom slitters are mounted upon a rigid bar and are driven by a slow speed shaft, and as each slitter blade is mounted upon a short shaft on its own frame,

the slitter blade can be removed and reversed or replaced readily. Also, the slitters can be made extremely wide without the use of intermediate bearings, as the supporting bar can be used to carry the load. In some instances, the gear wheel and pinion may be located at one side of the frame as in Fig. 5, but I prefer the construction shown, as the gear wheel and pinion are located in a protecting casing.

While the driven slitter is shown as the bottom slitter, in some types of machines the slitters may be reversed, the driven slitter being above the web of paper, while the other slitter, which is not positively driven, may be located under the web of paper.

I claim:—

1. The combination in a driven slitter of a paper-slitting machine, of a transverse support; a slitter frame carried by said support; a driven shaft passing through the frame; a gear wheel at the frame through which the shaft extends; a pinion meshing with the gear wheel; a shaft on which the pinion is mounted; and a slitter blade mounted on the shaft.

2. The combination in a driven slitter of a paper-slitting machine, of a transverse support; a series of slitter frames adjustable longitudinally on said support; a drive shaft passing through the frames; gear wheels on the shaft at the slitter frames and through which the shaft extends; a pinion on each slitter frame meshing with its gear wheel; a shaft on which the pinion is mounted; and a slitter blade removably mounted on the shaft.

3. The combination in a driven slitter of a paper-slitting machine, of a transverse support; a slitter frame adjustably mounted on the support; a driven shaft parallel with the said support and extending through said frame; a gear wheel within the frame keyed to said driven shaft; a transverse shaft; a slitter on the shaft outside of the frame; a pinion on the shaft within the frame and meshing with the gear wheel; and means for adjustably securing the slitter frame to the transverse support.

4. The combination in a driven slitter of a paper-slitting machine, of a transverse support; a slitter frame adjustably mounted on the support; a driven shaft extending through the frame and parallel with the support; a gear wheel mounted in bearings on the frame and splined to the driven shaft; a slitter shaft having a slitting blade thereon; and a pinion on the shaft meshing with the gear wheel, the parts being so arranged that the slitter frame can be adjusted in any position on the transverse support.

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