

F. A. HAZARD.
 BACK STOP ATTACHMENT FOR PAPER FEEDS.
 APPLICATION FILED SEPT. 28, 1909.

1,014,147.

Patented Jan. 9, 1912.

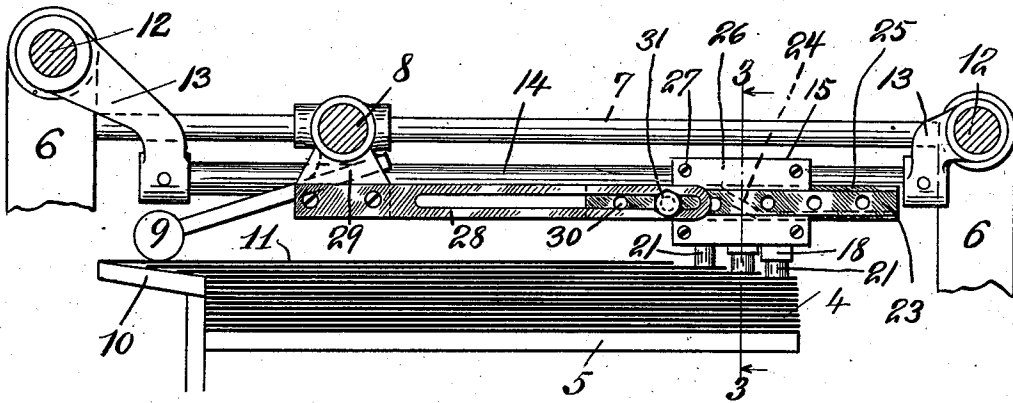


Fig. 1

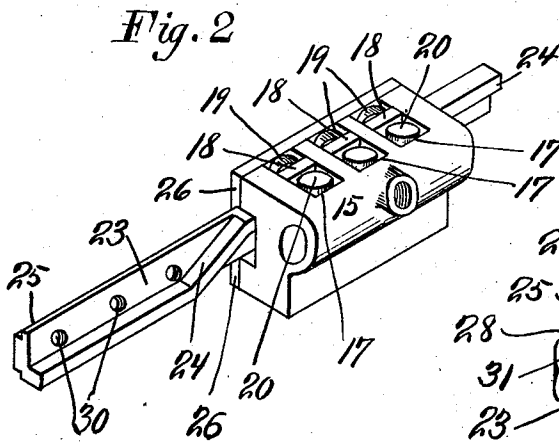


Fig. 2

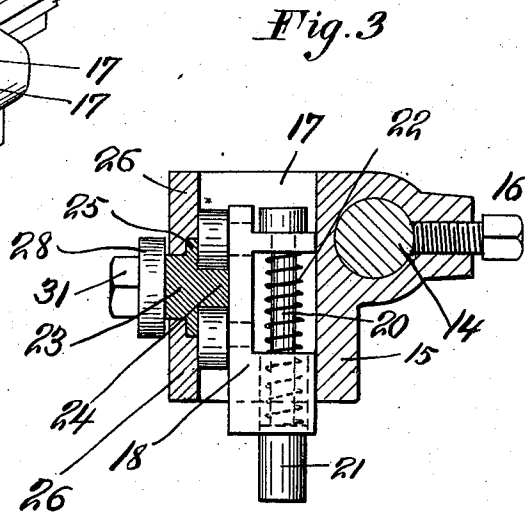


Fig. 3

Witnesses
 M. M. Riemann
 H. Y. Leard

Frank A. Hazard Inventor
 By his Attorney
 Van E. A. Koenigsberg

UNITED STATES PATENT OFFICE.

FRANK A. HAZARD, OF NEW YORK, N. Y., ASSIGNOR TO JOSEPH T. KAVENAUUGH, OF
NEW YORK, N. Y.

BACK-STOP ATTACHMENT FOR PAPER-FEEDS.

1,014,147.

Specification of Letters Patent.

Patented Jan. 9, 1912.

Application filed September 28, 1909. Serial No. 520,012.

To all whom it may concern:

Be it known that I, FRANK A. HAZARD, a citizen of the United States of America, and a resident of the city, county, and State of New York, have invented certain new and useful Improvements in Back-Stop Attachments for Paper-Feeds, of which the following is a specification.

This invention relates to paper separating mechanisms and refers in particular to the back stop mechanism or means for retaining the uppermost sheets of paper as the top sheet is being removed.

The particular objects of the invention as well as the means for accomplishing the same are fully set forth in the following specification and will be easily understood by reading the same in connection with the accompanying sheet of drawings in which my invention is disclosed in the form of a back stop attached to a separating mechanism.

In the said drawing Figure 1 is a side elevation of a portion of a paper separating mechanism provided with a back stop embodying my invention. Fig. 2 is a perspective view of the back stop and Fig. 3 is a sectional view on line 3—3 of Fig. 1.

Referring first to Fig. 1 the reference numeral 4 denotes a stack of paper suitably supported on a platform 5 which preferably is of the type operated vertically by weights or the like so as to always keep the top sheet at the same level. 6, 6 indicate standards connected on each side by a rod 7 upon which reciprocates a separating means comprising the carriage 8 and separating roller 9. As this latter is moved over the stack of paper it combs out the sheets over the shelf 10 as shown, until finally the top sheet 11 is removed by feeding means not shown. The separating means may be operated in any suitable manner and the means for doing so need not be shown, nor described in detail. The said standards support transverse rods 12, 12 to which are fastened brackets 13, 13 supporting the guiding rod 14. Upon this latter is adjustably fixed the back stop casing 15 by means of a set screw 16. Said casing is provided with sockets 17 for the reception of the plungers 18, each of which carries two cam rollers 19. Each plunger further supports a pin 20 having a head 21. The pin is movably carried in the plunger as shown and between the latter and the

head 21 there is an expansion spring 22. In order to operate the plungers I provide a slide 23 having a cam 24. The slide is provided with flanges 25 sliding under the gibbs 26 which latter are secured to the casing by screws 27. The slide is operated from the aforesaid carriage 8 by means of a connecting bar 28 fast to the arm 29 secured to the carriage. The bar 28 is slotted and the slide is provided with a plurality of holes 30 so that these two members may be adjusted with relation to one another, and fastened by a screw 31.

The operation is as follows: The carriage 8 is reciprocated to cause the roller 9 to comb the sheets and through the instrumentality of the arm 29 and connecting bar 28 the slide 23 with cam 24 is reciprocated in the casing 15 and between the rollers 19, causing the plungers 18 to be reciprocated vertically in succession so that as the sheets are being advanced by the separator; the plungers are operated to cause the pins to engage the rear edge of the sheets next to the top one. In this manner the sheets are being held firmly while the top sheet is being removed—by any suitable feeding means not shown—and practically assuring of but one sheet being removed at a time.

In Fig. 1 the separator is shown in the middle of its forward stroke—to the left. Thus it will be seen that when the top sheet is advanced beyond the shelf 10 the plungers will all be in their lowest position and the pins firmly engaging the paper, and on the rearward, to the right, stroke of the separator the pins will be raised and remain up until the separator has again advanced the top sheet. Then the plungers will again descend to hold the succeeding sheets. During this operation it will be noted that the cam 24 supports the pins in their upper position. The successive disengagement of the pins with the pile is for the purpose of holding on to the sheets as long as possible until the top sheet is finally separated. The spring seated pins 20 are of vital importance. They are of such lengths that the heads 21 will always engage the paper, but if the level of the stack should vary, then the springs permit the pins to adjust themselves. This assures a positive and elastic touch of the pin heads upon the paper. If the plungers acted directly on the paper a very fine adjustment of the lifting of the

paper would be necessary in order to insure that the sheets would be prevented from following the top sheet, and on the other hand to avoid undue strain on the back stop mechanism. Attention is also directed toward the adjustability of the cam stroke in the casing. For instance, it may be adjusted to cause a long dwell to the plungers when the latter are in the upper position only. This is particularly advantageous when the paper is slow to separate as it gives the member 9 plenty of time to act. This renders the device specially adaptable to various kinds of separating mechanisms. I may of course use any number of plungers and in other details vary or change the construction set forth, but I claim all such changes or alterations as properly come within the scope of the claims.

20 I claim:—

1. In a back stop mechanism the combination of a sheet advancing device, a plurality of pins adapted to engage the top sheets of a stack of sheets, a reciprocating cam for

operating said pins in succession and means 25 for operating said cam from the said sheet advancing device.

2. In a back stop mechanism the combination of a sheet advancing device, a plurality of pins, a cam for supporting and operating 30 said pins to cause the same to successively engage the top sheets of a stack of sheets and means for causing the said cam to travel a distance equal to the distance of travel of the said device. 35

3. In a back stop mechanism the combination of a plurality of pins, a cam, a sheet advancing device, means for reciprocating the cam from the said device to cause the said pins to be lifted successively in such a manner that the pin nearest the sheet advancing device is lifted first. 40

Signed at New York, N. Y. this 21 day of September 1909.

FRANK A. HAZARD.

Witnesses:

IVAN KONIGSBERG,
K. G. LEARD.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents Washington, D. C."