No. 659,277. Patented Oct. 9, 1900.

R. WILSON.

FEEDING DEVICE FOR PRINTING PRESSES.

(Application filed Nov. 22, 1899.)

(No Model.) 3 Sheets—Sheet 1.

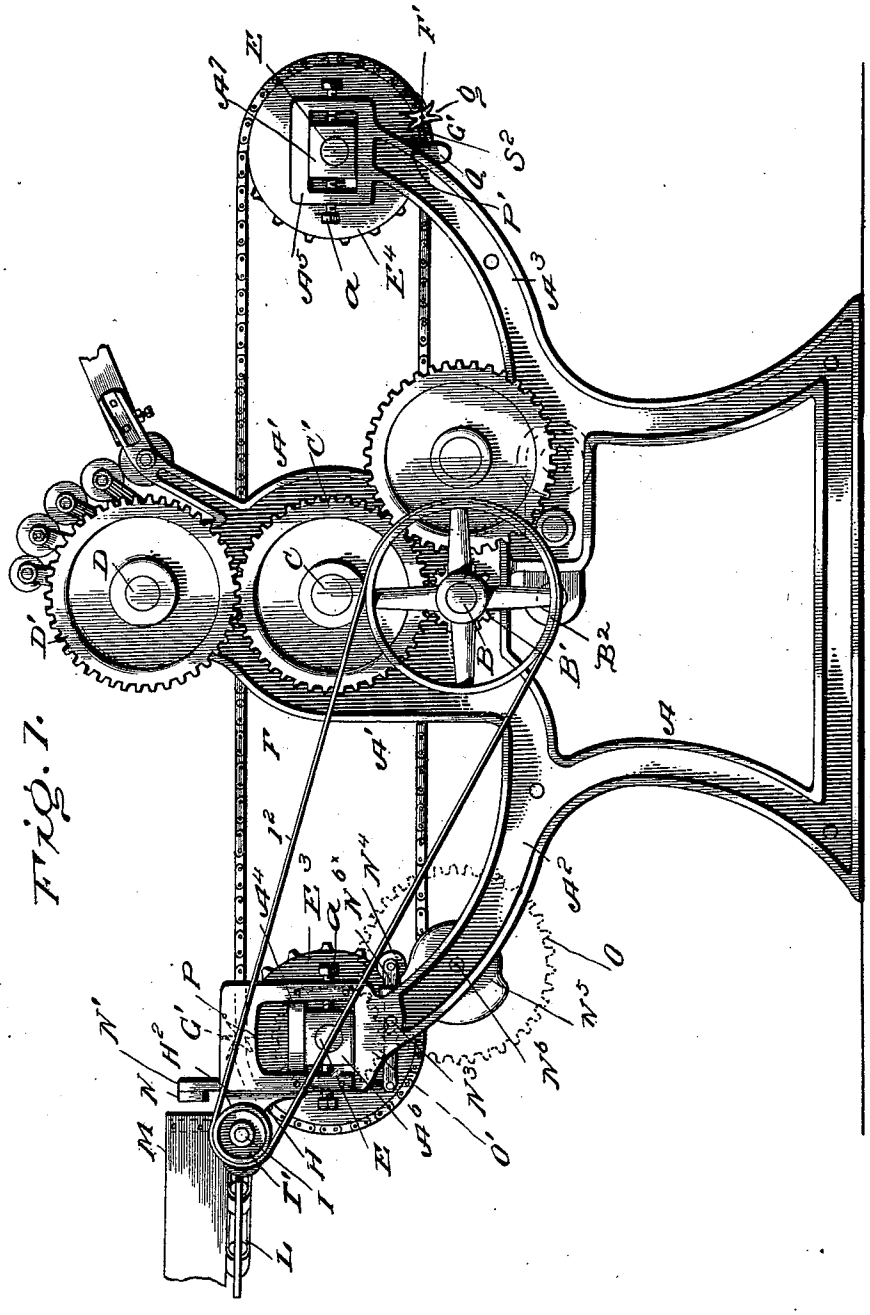

Fig. 1.

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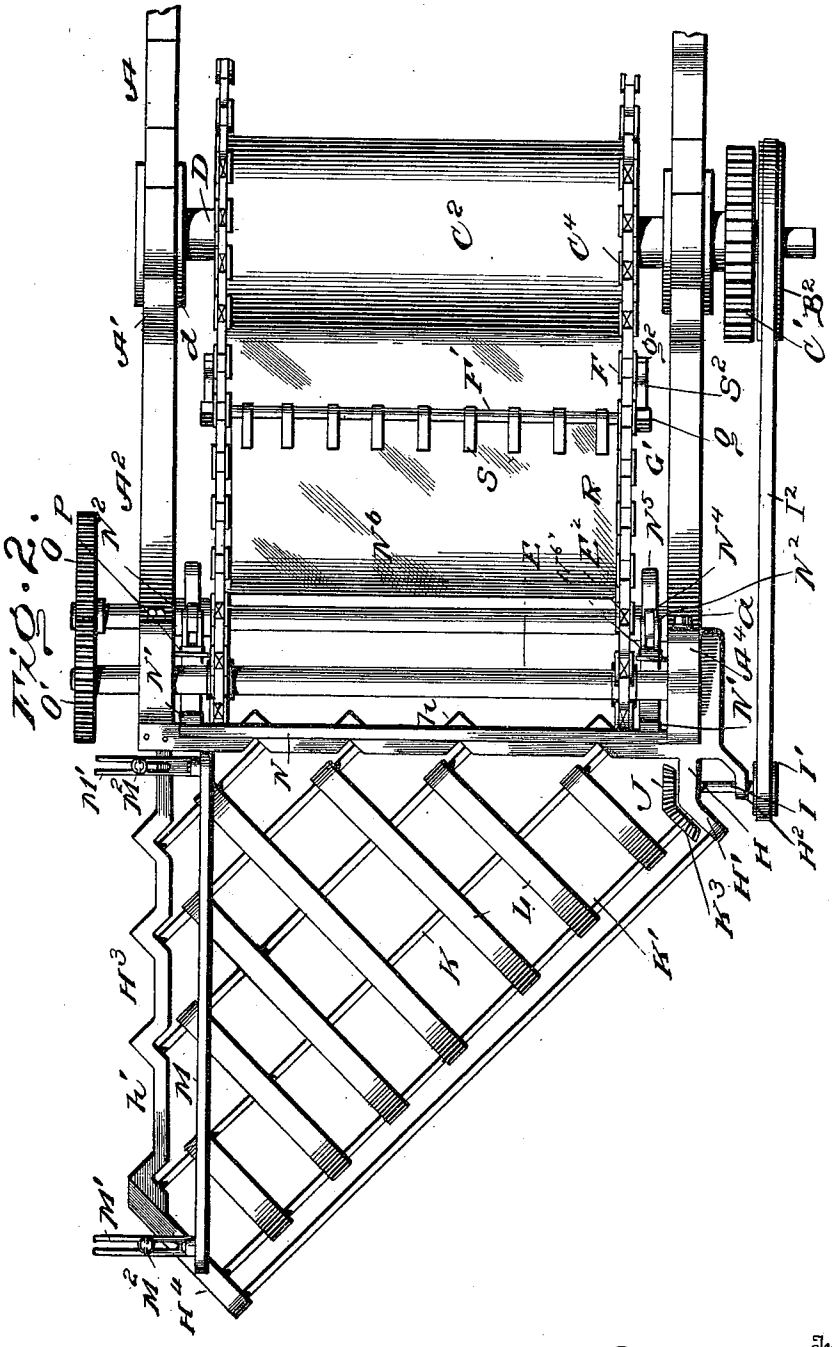

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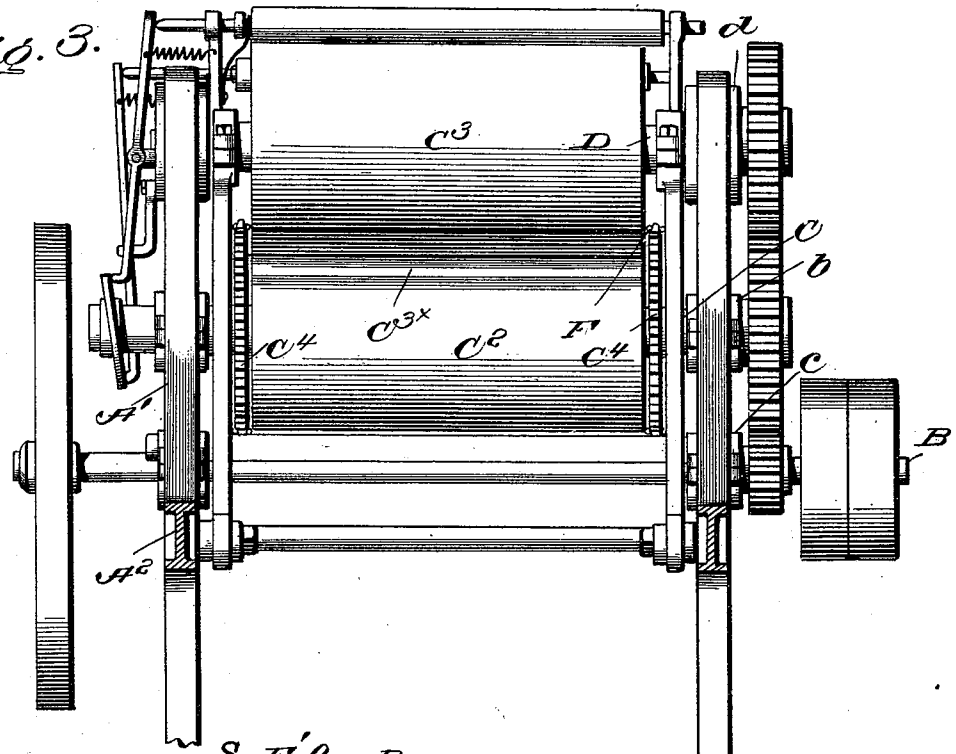
(No Model.) 3 Sheets—Sheet 3.

FIG. 3.



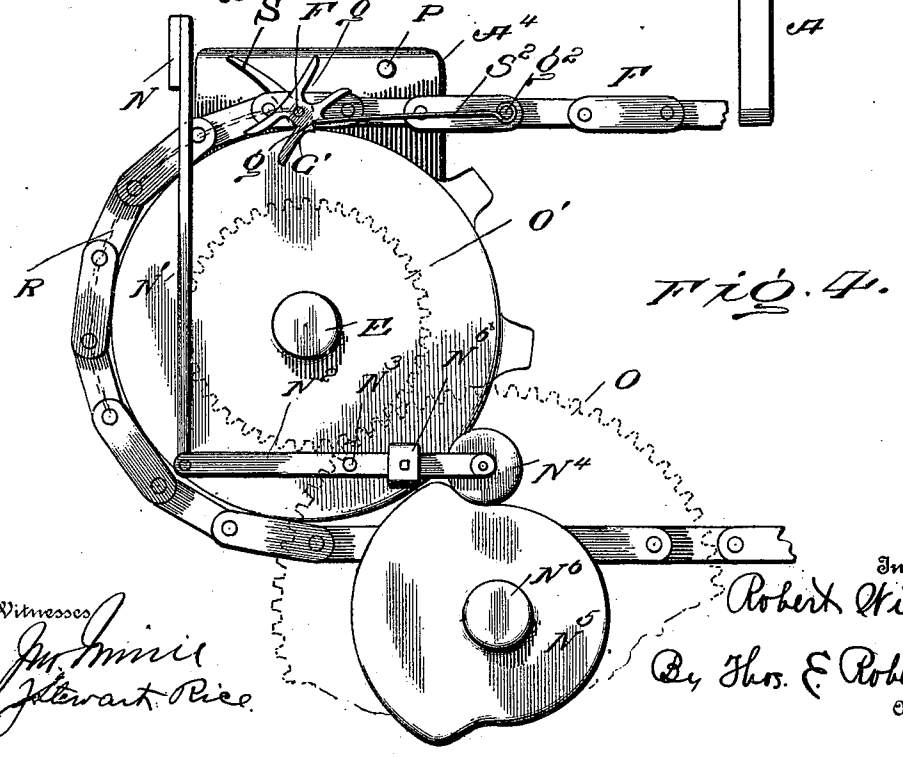


FIG. 4.

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UNITED STATES PATENT OFFICE.

ROBERT WILSON, OF ST. LOUIS, MISSOURI.

FEEDING DEVICE FOR PRINTING-PRESSES.

SPECIFICATION forming part of Letters Patent No. 659,277, dated October 9, 1900.

Application filed November 22, 1899. Serial No. 737,902. (No model.)

To all whom it may concern:

Be it known that I, ROBERT WILSON, a citizen of the United States, residing at St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Feeding Devices for Printing-Presses, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to an improvement in a feeding device for rotary printing-presses designed especially for printing bags and paper boxes, although it is not restricted to such use; and the object of the invention is to provide a feeding device on which a bag or similar article may be placed without especial care to get it straight and which bag will be automatically set square and so held until endless chains bring toward the bag gripper mechanism to catch, hold, and draw it to and between the printing-cylinders and be automatically released after being printed.

With this object in view my invention consists in the peculiar construction, arrangement, and combinations of parts hereinafter described and then definitely claimed.

In the accompanying drawings, which illustrate the preferable way of carrying out my invention, Figure 1 is a side elevation of a press with my improvements therein. Fig. 2 is a top plan view of part of the same. Fig. 3 is an end elevation with the front part broken off to better illustrate the interior mechanism. Fig. 4 is an enlarged detail of the gripper device and the mechanism for elevating the stop-board.

Referring now to the details of the drawings by letters, A represents the frame, which may be of any desired shape, but preferably of the form shown in Fig. 1, and consists of the central upright A′ and the outwardly-projecting arms A^2 and A^3, there being, of course, one of these frames on each side of the machine substantially duplicates of each other.

The central upright or standard A′ is formed with the openings therein, and projecting through these openings are the shafts B, C, and D, journaled in suitable boxes *b*, *c*, and *d*. (See Fig. 3.)

Power is applied to the shaft B in any desired manner and communicated by means of the small pinion B′ thereon to the shafts C and D through the cog-wheels C′ and D′, of equal diameter, fixed, respectively, to said shafts C and D.

Supported on the shafts C and D and revolving therewith are the impression-cylinder C^2 and plate-cylinder C^3, and above the latter is the usual inking mechanism.

All of the parts so far described may be of the usual or any desired construction, (and therefore need no further description,) except the said impression-cylinder C^2, which is provided with a longitudinal groove $C^{3\times}$, (see Fig. 3,) for a purpose to be hereinafter described. It may also be incidentally mentioned that the large cog-wheel (meshing with cog-wheel C in Fig. 1) and its connected parts form no part of my invention, and therefore need no description.

On the top of each of the outwardly-projecting arms A^2 and A^3 of the main frame are formed frames A^4 and A^5, in which are adjustably secured by the bolts *a a* bearing-boxes A^6 and A^7. In these boxes are journaled the shafts E and E′, and on these shafts and the central shaft C are fixed sprocket-wheels E^2, E^3, and C^4, and traveling around these sprocket-wheels are the endless sprocket-chains F, which latter carry, equidistant, the gripper-rods F′, all of these parts deriving motion from the shaft C, with which the said sprocket-wheel C^4 rotates. The gripper-rods each carry a series of grippers S, placed at intervals between the chains F, and on the ends of said gripper-rods are rigidly secured the triggers G′, shaped somewhat like a letter **H** and having a **V**-shaped notch *g* in one side thereof, as clearly shown in the detail view, Fig. 4. A spring S^2 is carried by the chain, to which it is connected at g^2, and the free end of this spring acts in said **V**-shaped notch *g* and to some extent controls the movement of the **H**-shaped triggers and their grippers, as will be explained further on.

Bolted or otherwise secured to the outwardly-extending arms A^2 on the near side of the press (see particularly Fig. 2) is a supplemental frame H, which is provided with two arms H′ H^2, in which is journaled the short shaft I, on one end of which is a bevel-gear J and on the other a pulley I′, deriving motion from a pulley B^2 on the main shaft B through the medium of the belt I^2, as clearly shown in Figs. 1 and 2. This frame H extends clear

across the frame of the press and is also secured to the rear frame A^4, and extending at right angles to the frame H and secured thereto is a side frame H^3. These two frames H and H^3 are "stepped," as shown at $h\,h'$, and in these "steps" are journaled the shafts K, of various lengths, as shown. An arm H^4 extends from the side frame H^3 and is connected, merely for the purpose of strengthening it, to the arm H^2, before referred to. Journaled in these arms H^2 and H^4 is a shaft K', and this shaft is rotated by means of a bevel-gear K^3, meshing with the aforesaid bevel-gear J on the shaft I. A number of parallel belts L run from the shaft K' to the shafts K and are given motion by the former. It will be noticed that the line on which these belts run is toward the apex of the angle formed by the frames H and H^3.

Supported above the belts L by the arm H^4 and the side frame H^3 is a guide-board M, which can be adjusted back and forth on the frame H^3 and arm H^4 by means of the slotted bases M' and set-screws M^2.

Immediately over the frames H and running from one side of the press to the other is a stop-board N, supported by the downwardly-projecting arms N', which are pivoted to the cam-levers N^2, pivoted to the main frame at N^3. (See Fig. 1.) At the rear of this cam-lever is a roller N^4, acting on the cam N^5, fixed to the shaft N^6, which latter receives motion through the medium of a cog-wheel O, gearing with a pinion O', fast on the shaft, supporting and deriving motion from the sprocket-wheel E^2. This stop-board N and its cam and cam-lever are so arranged that when the larger part of the cam is acting on the cam-lever the board N is at its lowest position, and when the smaller part acts on the lever the board N is raised, through the action of weight N^6, fixed to the cam-lever, to allow the bag or other article to slide under the stop-board.

A pin or lug P projects from the near side of the frame H (see Figs. 1 and 4) and is so located that as the sprocket-chains pass under it, with the H-shaped trigger, its grippers, and tympan, the said pin actuates the said trigger as the latter is drawn under said pin or lug P. Likewise, there is situated on an arm Q, projecting from the end frame A^5 at the other end of the press, a pin P', so located that the sprocket-chains pass over it, and hence the pin P' acts on the lower half of the said trigger and actuates it to release the printed bag.

To each side of the sprocket-chains and immediately under the gripper-rods are connected the tympans R, each consisting of a sheet of rubber or other suitable material and arranged to pass between the cylinders with the chains and grippers in the usual manner, the said grippers and rods entering into the groove C^3 in the impression-cylinder C^2 as they pass between the cylinders.

The operation of my device is as follows: The bags, sacks, or other articles to be printed are fed one at a time onto the series of traveling belts L, which carry it to the guide-board M and stop-board N, and if the bag was not laid perfectly straight on the belts the latter, owing to the angle at which they are set, gradually work the bag squarely up against said boards M and N, where it is arrested until the stop-board is elevated. The parts are so timed that just as the chains carry one set of grippers under the stop-board the large part of the cam passes from under the cam-lever and allows the roller N^4 to drop and the stop-board to be simultaneously elevated. The belts L now carry the bag under said stop-board and onto the tympan R, and as the tympan, bag, and grippers travel the upper arms of the H-shaped trigger engage the pin P, which acts to throw the trigger into a substantially-horizontal position, where it is held by the spring S^2. Of course all of the grippers move simultaneously with the trigger, and thus catch hold of the bag and cause it to travel with them between the cylinders. As the grippers and their rods pass with the bag between the cylinders the former enter the groove C^3 in the lower cylinder in a manner easily understood, and when they pass over toward the rear sprocket-wheel E^3, with their bag, the H-shaped triggers pass over the pins P', which act to open the grippers and release the bag. Just as this set of grippers passes by the pin P' and releases the bag the other set of grippers is approaching the stop-board at the opposite end of the press to receive its bag, when the operation is repeated as before.

What I claim as new is—

1. In a printing-press, a frame having a central upright and arms projecting therefrom, shafts supported by said central upright, printing-cylinders supported by said shafts, sprocket-wheels also supported by one of said shafts, a shaft supported by each of said projecting arms, sprocket-wheels supported by said shafts, sprocket-chains traveling around the last-mentioned sprocket-wheels and driven by the sprocket-wheels supported by the central upright, gripper mechanism carried by said chains, a stop-board, means for feeding bags against said stop-board, and a cam and cam-lever supported by one of said arms and arranged to move said stop-board to allow the bags to be fed thereunder and caught by the gripper mechanism, substantially as described.

2. The combination in a printing-press, of a frame having a central upright, arms extending outwardly therefrom on each side thereof, shafts supported by said central upright, printing-cylinders carried by said shafts, sprocket-wheels supported by one of said shafts, a shaft on each side of the printing-cylinders supported by the said outwardly and upwardly extending arms, sprocket-wheels carried by said shafts, sprocket-chains traveling around the last-mentioned

sprocket-wheels and driven by the said central sprocket-wheels, and gripping mechanism carried by said chains between the said printing-cylinders, substantially as described.

3. The combination in a printing-press, of a frame having a central upright, arms extending outwardly therefrom on each side thereof, shafts supported by said central upright, printing-cylinders carried by said shafts, sprocket-wheels supported by one of said shafts, a shaft on each side of the printing-cylinders supported by the said arms, sprocket-wheels carried thereby, sprocket-chains traveling around the last-mentioned sprocket-wheel and driven by the sprocket-wheels supported by the central upright, gripper mechanism carried by said sprocket-chains comprising a spring-actuated H-shaped trigger, a pin or lug projecting from one of said arms and arranged so that one side of the H-shaped trigger is engaged thereby, and a pin or lug on the opposite arm arranged to engage the opposite side of said trigger, substantially as described.

4. The combination in a printing-press, of a frame having a central upright, shafts, printing-cylinders and sprocket-wheels suitably supported by said central upright, arms extending outwardly from said central upright and supporting-frames at the ends thereof, bearing-blocks adjustably supported in said frames, shafts and sprocket-wheels suitably carried by said adjustable bearing-blocks, the said chains engaging the sprocket-wheels supported by the said central upright and passing around the sprocket-wheels at each end of the machine and between the printing cylinders, and gripper mechanism carried by said chains, substantially as described.

5. The combination in a printing-press, of a frame having a central upright, shafts, printing-cylinders and sprocket-wheels suitably supported by said central upright, arms extending outwardly from said central upright and supporting-frames at the ends thereof, bearing-blocks adjustably supported in said frames, shafts and sprocket-wheels suitably carried by said adjustable bearing-blocks, the said chains engaging the sprocket-wheels supported by the said central upright and passing around the sprocket-wheels at each end of the machine and between the printing-cylinders, gripper mechanism carried by said chains comprising an H-shaped trigger, a pin or lug suitably supported so that it engages one side of said H-shaped trigger to cause it to catch the bags, and a pin or lug suitably supported so as to engage the opposite side of said H-shaped trigger to release the bags, substantially as described.

6. The combination in a printing-press, of a frame having a central upright, shafts, printing-cylinders and sprocket-wheels suitably supported by said central upright, arms extending outwardly from said upright, shafts and sprocket-wheels suitably carried by said arms, sprocket-chains engaging the sprocket-wheels supported by the said central upright and traveling around said sprocket-wheels and between the printing-cylinders, gripper mechanism carried by said chains comprising an H-shaped trigger, a pin or lug suitably supported by one of said arms so that it engages one side of said H-shaped trigger, a pin or lug suitably supported by the opposite arm so as to engage the opposite side of said H-shaped trigger, a stop-board, means for feeding bags against said stop-board, and a cam and cam-lever supported by one of said arms and arranged to elevate said stop-board to allow the bag to be fed thereunder just as said gripper mechanism passes under said stop-board, substantially as described.

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

ROBERT WILSON.

Witnesses:
A. SELIGSTEIN,
ISSE SELIGSTEIN.