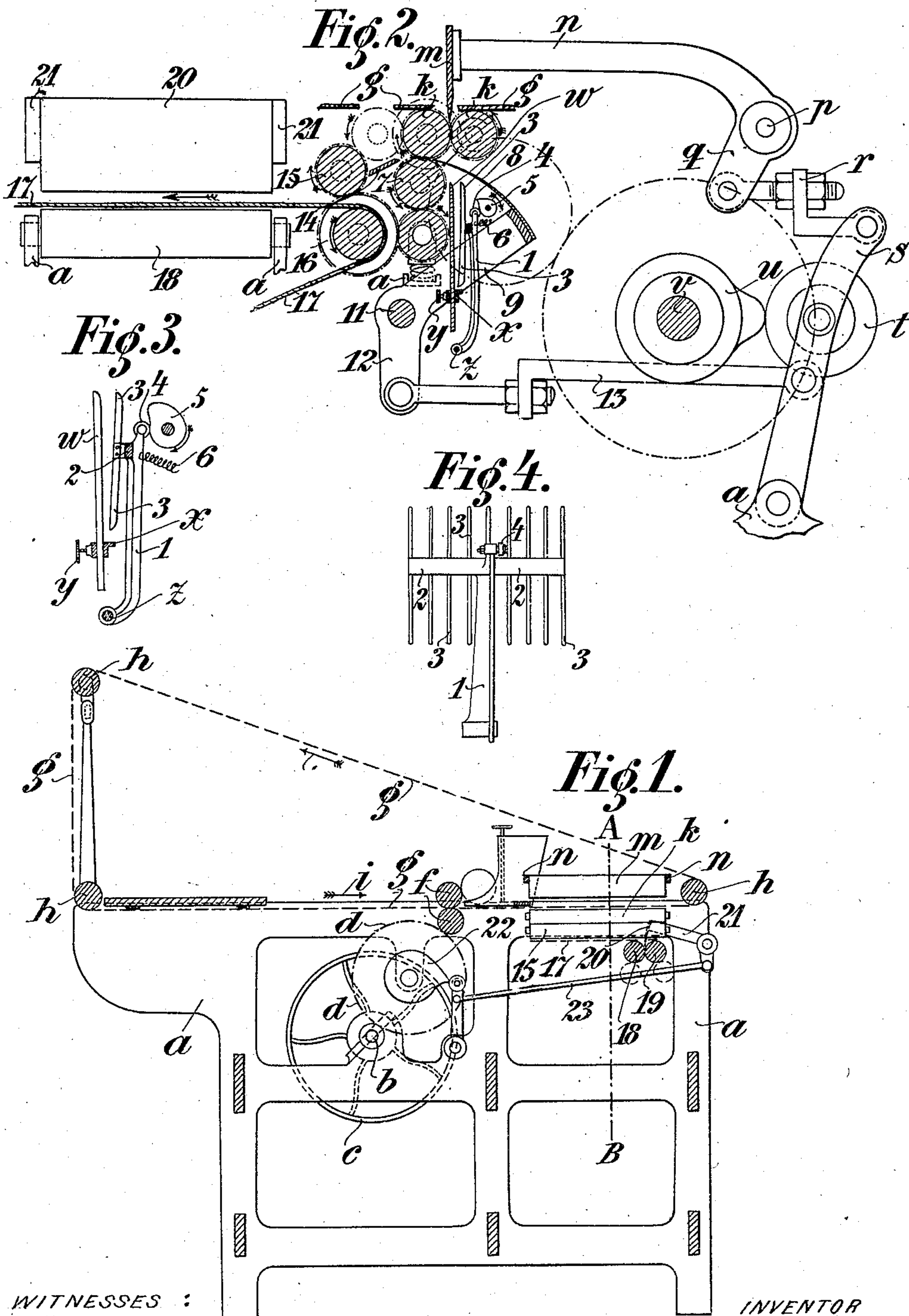


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B. J. JENSEN.  
MACHINE FOR MAKING PAPER BAGS.  
APPLICATION FILED DEC. 3, 1903.



WITNESSES :

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# UNITED STATES PATENT OFFICE.

BERNHARDT JOHAN JENSEN, OF COPENHAGEN, DENMARK.

## MACHINE FOR MAKING PAPER BAGS.

SPECIFICATION forming part of Letters Patent No. 788,262, dated April 25, 1905.

Application filed December 3, 1903. Serial No. 183,565.

*To all whom it may concern:*

Be it known that I, BERNHARDT JOHAN JENSEN, engineer, of No. 60 Oelenschlaegersgade, Copenhagen, in the Kingdom of Denmark, have invented certain new and useful Improvements in and Connected with Machines for Making Paper Bags, of which the following is a specification.

The present invention refers to improvements in machines for making paper bags and which are provided with folding-rollers and folding-knives. These machines suffer from the drawback that the folded sheets after being submitted to one or more foldings are apt to become baggy, so that the two sides of the half-finished bag are no longer smooth or do not lie closely together. When such a baggy half-finished bag is hit by the folding-knife, the fold will lie aslant on the bag or the latter will when passing the rollers get creased and the finished product gets a less attractive look. This drawback can be alleviated by this invention, which consists of the two sides being, immediately before the half-finished bag is struck by the folding-knife, pressed flatly against each other, either on their whole surface or merely near the spot which is subsequently struck by the folding-knife. By this arrangement the sides of the bag are squeezed together and eventual bagginess or creases are smoothed. Moreover, the bag is straightened if it should have partly collapsed and if the machine be thus arranged that the bag is held tightly between the compressing device until it is struck by the folding-knife the bag will be folded in the right manner.

The invention is illustrated in accompanying drawings, in which—

Figure 1 shows a longitudinal section of a bag-machine of the said kind with the second pair of folding-rollers and appurtenant parts removed. Fig. 2 is a section on the line A B of Fig. 1. Fig. 3 shows the device forming the subject of the present invention seen from the side and at a larger scale, and Fig. 4 shows the same device seen from behind.

*a* is the frame of the machine, carrying a spindle *b*, caused to revolve by means of the pulley *c*. The spindle *b* by means of a gear-  
ing *d* drives two rollers *f*, between which are

located a row of parallel endless ribbons *g*, carried over guide-rollers *h*, fixed on the frame, which ribbons when the machine is at work move in the direction indicated by the arrow *i*. Underneath the ribbons *g* are arranged two folding-rollers *k*, having their axles parallel with the moving direction of the ribbons, and above the ribbons *g* is arranged a folding-knife *m*. This knife is attached to two arms *n*, capable of turning on a bolt *p*, and the arms *n* carry another arm, *q*, which by means of a link is connected with a lever *s*. The lever *s* is provided with a roller *t*, actuated by a cam-disk *u*, fixed upon a spindle *v*, driven from the spindle *b* by suitable means, such as gearings or the like.

The sheets from which the bags are to be made are placed on the endless ribbons *g* and are by means of these carried over the rollers *k*. As soon as a sheet arrives just above these rollers it is being struck by the up and downward moving knife *m*, which is arranged in such a manner that its edge is parallel with the axles of the rollers *k* and that it will strike, when moving downward, just between the two rollers. It can also move up and down between two of the parallel ribbons *g*. The folding-rollers *k* are made to revolve from the spindle *v* by means of a suitable gearing and in the direction indicated by the arrows, and as the folding-knife strikes against a sheet it will be folded and pressed down between the rollers *k*, which will catch hold of it and carry it farther downward.

Below the rollers *k* is arranged a plate *w*, upon which a rail *x* may slide up and down and be kept in position by means of a set-screw *y*. Underneath the plate *w* is arranged a spindle *z*, having bearings in the frame *a* and carrying a movable arm *l*. This arm is provided with a cross-bar 2, to which is fixed a number of rods 3. The arm *l* has at its top a roller 4, moving upon a revolving cam-disk 5, against which it is pressed by means of a spring 6. When the sheet folded by the rollers *k* moves downward, the folded edge strikes against the rail *x*, and when thereupon the rods 3, by means of the cam-disk 5 having its spindle-bearings in the frame, are pressed up against the rail *x*, and when there-



upon the rods 3 by means of the cam-disk 5 are pressed up against the plate *w*, the two halves of the sheet are pressed together, whereby a bagging is prevented.

5 Below one of the folding-rollers *k* and in close proximity of same is arranged a third folding-roller, 7, revolving in the opposite direction to the roller *k*, and the machine is provided with a second folding-knife, 8, fixed  
10 to arms 9, arranged to turn on a spindle 11. The arms 9 are connected with another arm, 12, which by means of a rod 13 is connected with the arm *s*. The folding-knife 8 moves forward and backward and strikes just be-  
15 tween the rollers *k* and 7. The once-folded sheet resting on the rail *x* will, when the position of the side rail has been properly adjusted with the upper end, reach into the path of the folding-knife 8 and will consequently  
20 be struck by same, whereupon it is drawn in between the rollers *k* and 7, and thus folded a second time. The half-finished bag is, by means of the rollers *k* 7, directed underneath a guide-board 14 in between two revolving  
25 rollers 15 and 16, which get hold of the bag and push it farther onto a row of parallel and endless ribbons 17, running in grooves in the rollers 16 and guided in their movements by suitable guide-rollers. Below the  
30 parallel ribbons 17 is arranged a third pair of revolving folding-rollers, 18 19, whose axles are parallel with the ribbons 17, and above these ribbons is a third folding-knife, 20, attached to arms 21, that are being moved from  
35 the spindle *b* by means of a cam-disk 22 and a rod 23, whereby the knife 20 is moved up and down between the ribbons 17, so that it

just strikes between the rollers 18 and 19. A bag carried forward by the ribbons 17 will consequently be struck by the knife 20 and  
40 pressed down between the rollers 18 and 19, whereby the third folding, which is at a right angle with the two first foldings, is effected. From the rollers 18 19 the finished bags are leaving the machine. During the traveling  
45 of the sheets these have been provided with glue at the proper places by means of suitable gluing devices.

The machine herein shown and described, with the exception of the compressing device, 50 forms no part of the invention sought to be covered in this application.

What I claim, and desire to secure by Letters Patent, is—

1. A bag-making machine comprising fold- 55 ing-rollers, a folding-knife coacting therewith, a guide-plate, a rail adjustable on said plate, and a plurality of swinging rods forward of the plate.

2. In a bag-making machine, a pair of fold- 60 ing-rollers, a guide-plate below the rollers, a bar adjustable on the plate, a swinging arm forward of the guide-plate, a cross-bar attached to said arm, a plurality of rods connected to said bar, and a cam for swinging  
65 the arm toward the guide-plate.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

BERNHARDT JOHAN JENSEN.

Witnesses:

P. HOFMAN-BARY,  
A. G. MICHELSON.