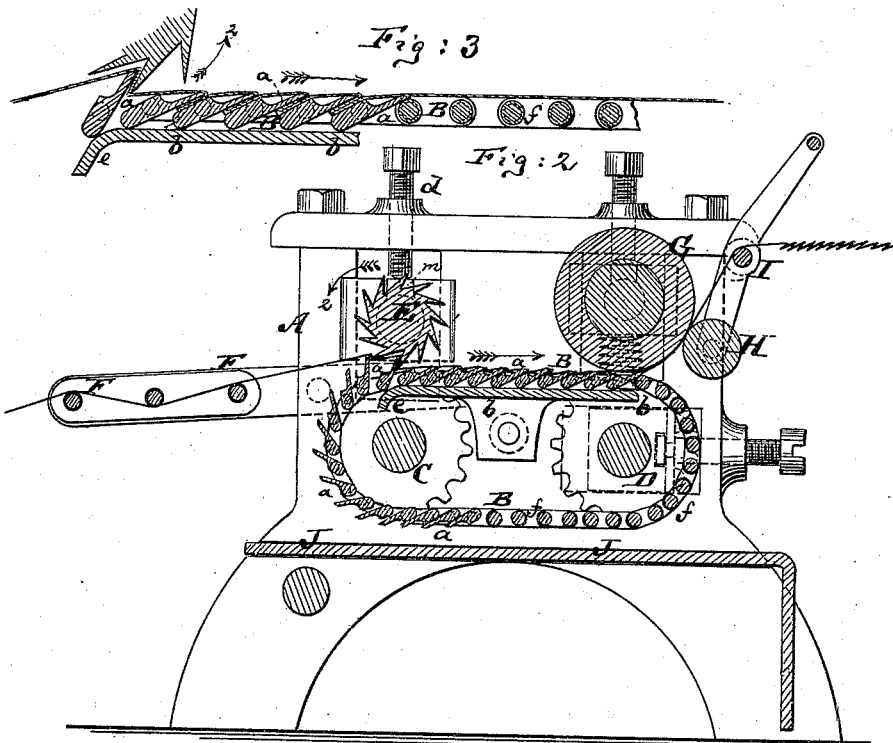
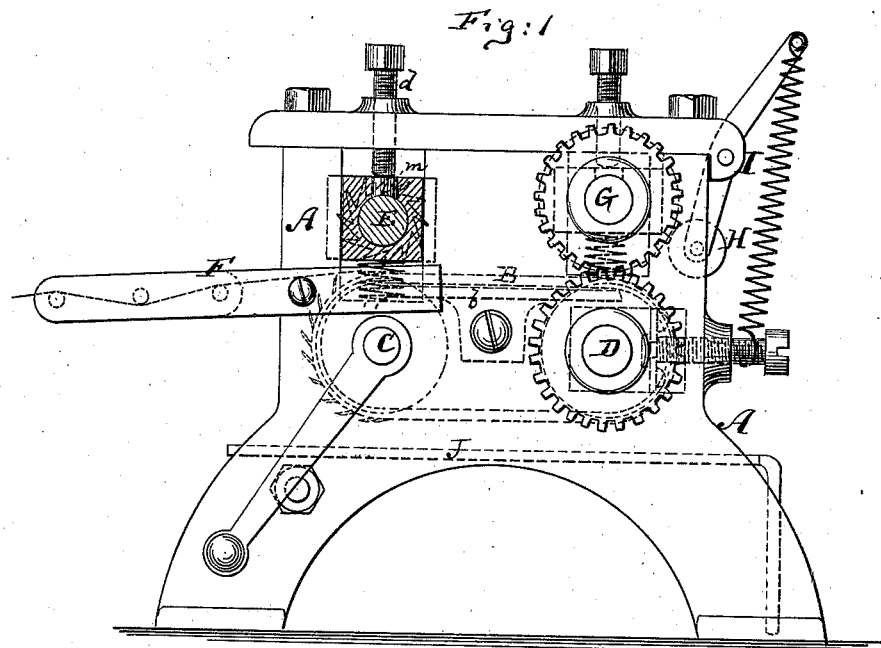


F. PANSE.  
Plaiting-Machine.  
No. 214,787. Patented April 29, 1879.



Witnesses:  
John C. Turnbridge.  
Willy G. E. Schütz.

Inventor:  
Friedrich Panse  
by his attorney  
O. W. Briesen

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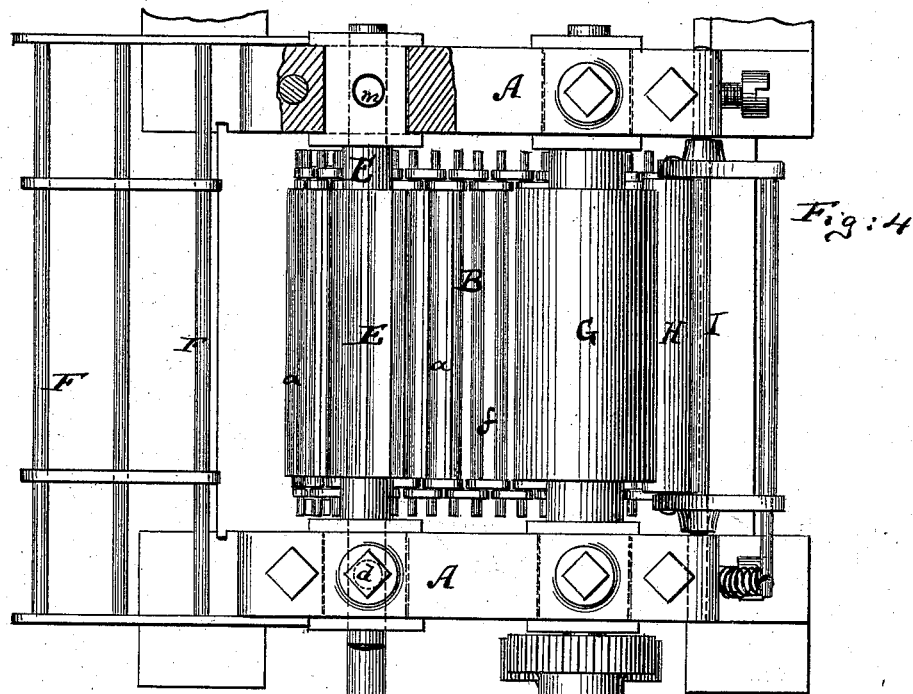


Fig: 4

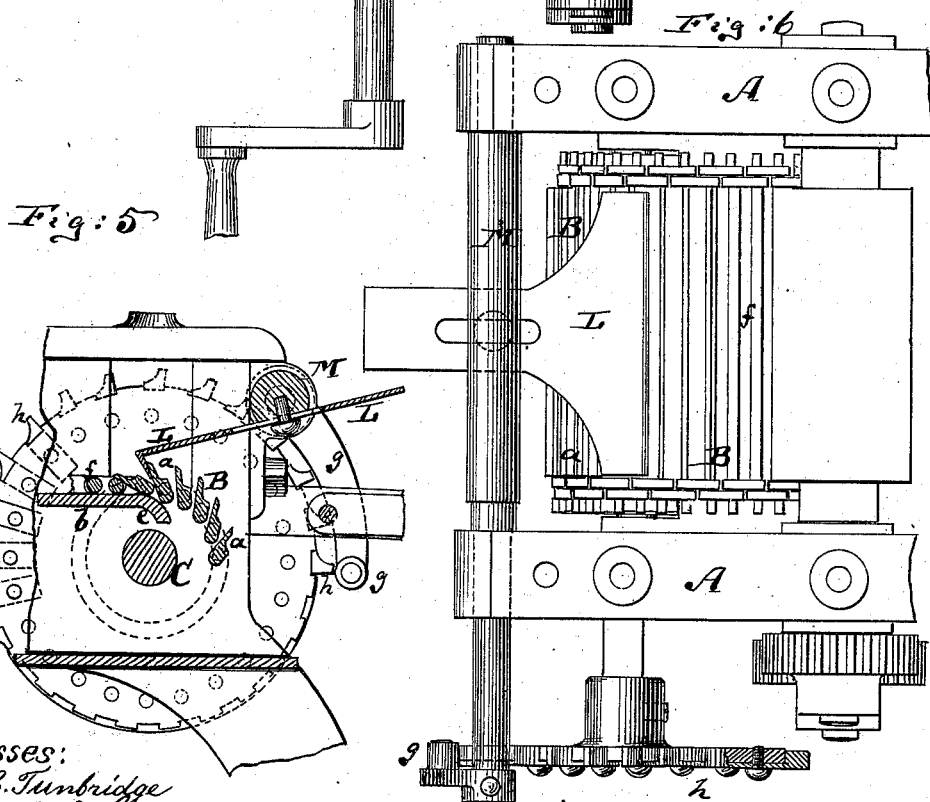


Fig: 5

Fig: 6

Witnesses:  
John C. Tunbridge  
Willy G. C. Schutty.

Inventor: Friedrich Panse  
by his attorney A. W. Briesen

# UNITED STATES PATENT OFFICE.

FRIEDRICH PANSE, OF NEW YORK, N. Y., ASSIGNOR OF ONE-HALF HIS RIGHT TO DAVID KISCH AND LOUIS M. SIMSON, SAME PLACE.

## IMPROVEMENT IN PLAITING-MACHINES.

Specification forming part of Letters Patent No. **214,787**, dated April 29, 1879; application filed January 27, 1879.

*To all whom it may concern:*

Be it known that I, FRIEDRICH PANSE, of the city of New York, in the county and State of New York, have invented a new and useful Improvement in Plaiting-Machines, of which the following is a specification.

Figure 1 is a side elevation, partly in section, of my improved plaiting-machine. Fig. 2 is a vertical longitudinal section thereof; Fig. 3, a detailed longitudinal section, on an enlarged scale, of the blade-chain used for forming the plaits; Fig. 4, a plan or top view of the machine; Fig. 5, a detailed sectional view of a modification thereof, and Fig. 6 a top view of the modification.

Similar letters of reference indicate corresponding parts in all the figures.

This invention relates to a machine for forming plaits by continuous process, and by means of a chain of blades, which are made to lap over the doubled fabric to retain it in the doubled condition until the fabric is ready to be discharged from the machine. In connection with this chain I use a plaiting instrument in shape of a toothed roller or reciprocating blade, which, entering between the blades of the chain, puckers the fabric down and brings it into the folded or plaited condition.

The invention consists, aside from the features which are hereinabove mentioned, in various other details of improvement, which will be more fully pointed out in the detailed description of the parts of the machine.

In the drawings, the letter A represents the frame of the machine. In this frame is placed, between suitable cheek-pieces thereof, an endless chain, B, which passes around two drums or rollers, C D, and to which motion in the direction of the arrow indicated in Fig. 2 is imparted whenever one of these drums or rollers is revolved.

The chain B is composed of a series of pivoted blades, *a a*, which can be made to overlap one another, as at the middle portion of Fig. 2, or to stand substantially parallel to each other, as at the left-hand end of Fig. 2.

In the former position they are held, and in it they are virtually confined, by means of a stationary plate, *b*, which is a fixture in the frame of the machine below the upper part of

the endless chain. This plate *b*, when struck by the lower ends of the blades, folds them together, because the distance from the center or pivot of each blade and the lowermost end of the same is longer than the distance between the pivot and the upper surface of the plate *b*.

It will be furthermore perceived that when the blades lap over one another, as in Fig. 3, the outer part of the one blade bears against the inner part of the next adjoining blade, &c.

Before reaching contact with the plate *b* in its rotation in the direction of the arrow the blades are free to vibrate on their pivots, to fall or be moved apart, as indicated at the left-hand end of Fig. 2. Above this free portion, or, as I may term it, liberated portion, of the blade-chain, is hung a roller, E, which is provided with a series of projecting lips or teeth, that are adapted to enter between the blades, in manner indicated in Figs. 2 and 3.

The roller E is hung in vertically-adjustable bearings, and the friction with which it revolves in its bearings may be further adjusted by means of suitable screws *d*, bearing upon elastic friction-plates *m*.

Positive motion by outside mechanism is not intended to be imparted to the roller E, my object being to have it turn by means of the projecting blades of the endless chain, which, as they strike the rounded end *e* of the plate *b*, are turned up into the way of the roller E, touch one of the lips or teeth thereof, and, as the motion of the chain is continued, impart intermittent rotary motion to said roller in the direction of the arrow 2. (Shown in Fig. 2.)

The fabric to be plaited is admitted to the machine over friction-rollers or guide-pieces F F, from which it passes to the top surface of the chain B, and here it has to ride over the elevated blades at the left-hand end thereof, being the end which is nearest to the guide-pieces F. As each blade takes hold of a projecting lip or tooth of the roller E, the lip or tooth in question pushes the fabric beneath it against the face of the said blade, as shown in the first left-hand blade of Fig. 3; and in this position, against the face of the blade, the fabric is confined as soon thereafter as the blade is folded down upon the blade next in front of

it, thereby doubling the fabric in between the several blades in manner clearly shown in Fig. 3. Having been thus doubled or plaited, the fabric is confined in the new position by being clamped between the several blades until, after having traversed the length of the machine, it is discharged and allowed to pass out between two rollers, G and H, and over another roller, I, or through other suitable channels.

Pending its passage through the machine, as in manner stated, the fabric, which is usually but not necessarily moistened and starched, is exposed to the action of heat that is applied beneath the machine against the heating-plate J, (shown in Fig. 2,) under which there is a suitable burner, so that the starched or unstarched fabric will be dried and caused to maintain the position into which it is folded by the apparatus herein described.

In some cases it is desirable to partly plait and partly leave flat a piece of fabric. To perform this, it is only necessary on my machine to leave part of the chain B without the blades wherever the fabric is not to be plaited.

Thus in Fig. 2 is shown the right hand and lower part of the chain to be without the blades, simply provided with blank rollers, which will have no effect upon the roller E, and therefore consequently, also, none upon the fabric. The rollers in question, being the blank parts of the chain, are marked *f* in the drawings.

In Figs. 5 and 6 is shown a modification of my invention, which consists in substituting for the roller E a vibrating, and, to some extent, reciprocating plate, L, which is made to slide on a rock-shaft, M, and to rock with the same, and which forms the plaits in precisely the same manner in which they are formed by the lips or teeth of the roller E.

The rock-shaft obtains its vibrating motion through the aid of a crank, *g*, which bears upon a toothed roller, *h*. Whenever one of the teeth of the roller *h* strikes the crank *g* and elevates the same, it causes the shaft M to vibrate and the plate L to be pushed down between the two blades of the chain, and thereafter the

crank drops behind the tooth, and the plate L is, by a suitable spring, raised out from between the two blades of the chain, and continues to form plaits in manner fully understood from the foregoing description.

On this modification, in order to produce blank parts on a fabric, or, in other words, leave them flat, it is only necessary to remove some of the teeth from the roller *h*, as indicated in Fig. 5, thereby preventing the plate L from vibrating and from performing the functions which, otherwise, it performs in making plaits.

It is, of course, well understood that whenever the upper part of the plate L is pushed down between two blades of the chain it forms a plait, which is then grasped by the two blades of the chain coming close together after the elevation of the plate L. Thus the plate L operates as the equivalent of the roller E.

I claim—

1. In a plaiting-machine, the combination of the chain or apron having overlapping blades *a a*, with the roller E, having one or more projecting lips or teeth to enter between the blades of the chain and form plaits, and with mechanism for folding the blades *a* against one another after the withdrawal of the said lips or teeth, substantially as herein shown and described.

2. In combination with the chain or apron having the overlapping blades *a a*, the lower plate, *b*, applied for the purpose of fixing the position of the blades with reference to one another, substantially as specified.

3. The heating-plate J, applied in combination with the chain B, having blades *a a*, and shaft E, substantially as specified.

4. The combination of the bladed chain B and toothed roller E with the elastic friction-piece *m* and adjusting-screw *d*, the elastic friction-piece bearing bodily upon the shaft of the roller, substantially as herein shown and described.

FRIEDRICH PANSE.

Witnesses:

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T. B. MOSHER.