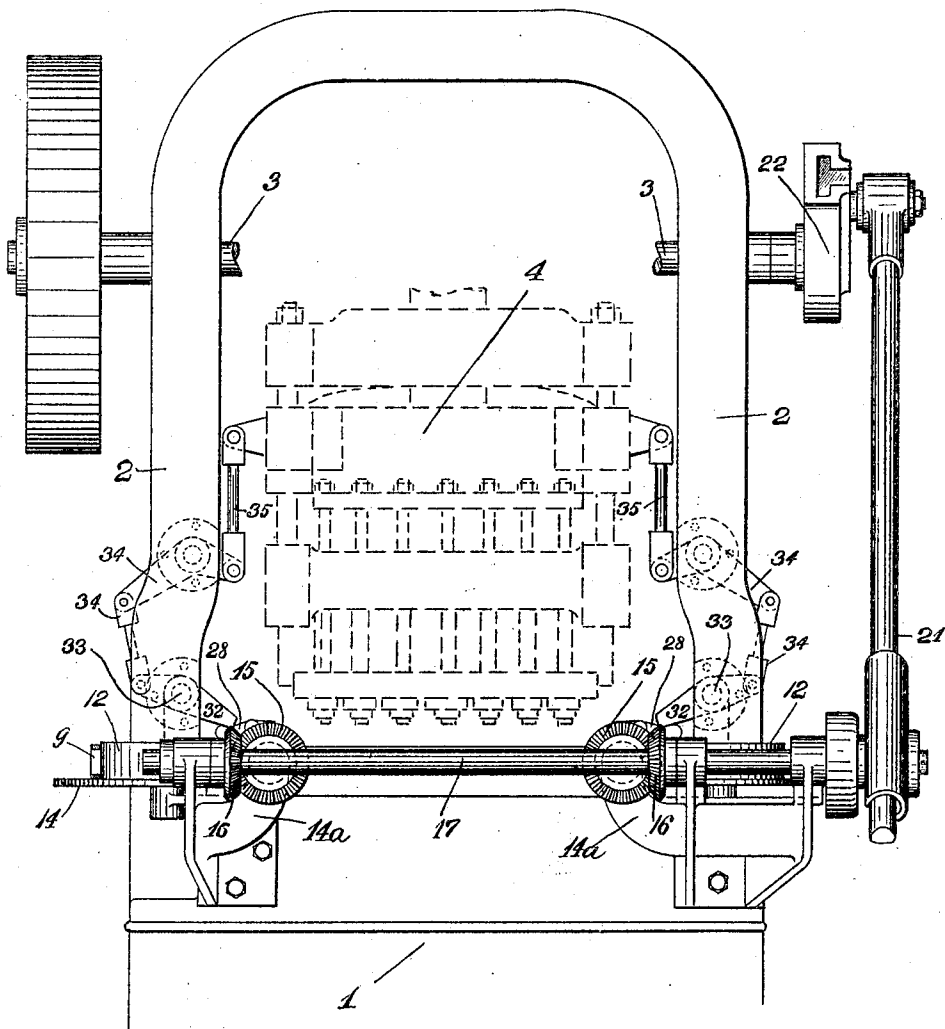


O. S. BEYER.
SHEET FEEDING MACHINE.
APPLICATION FILED FEB. 3, 1904.

Fig. 1

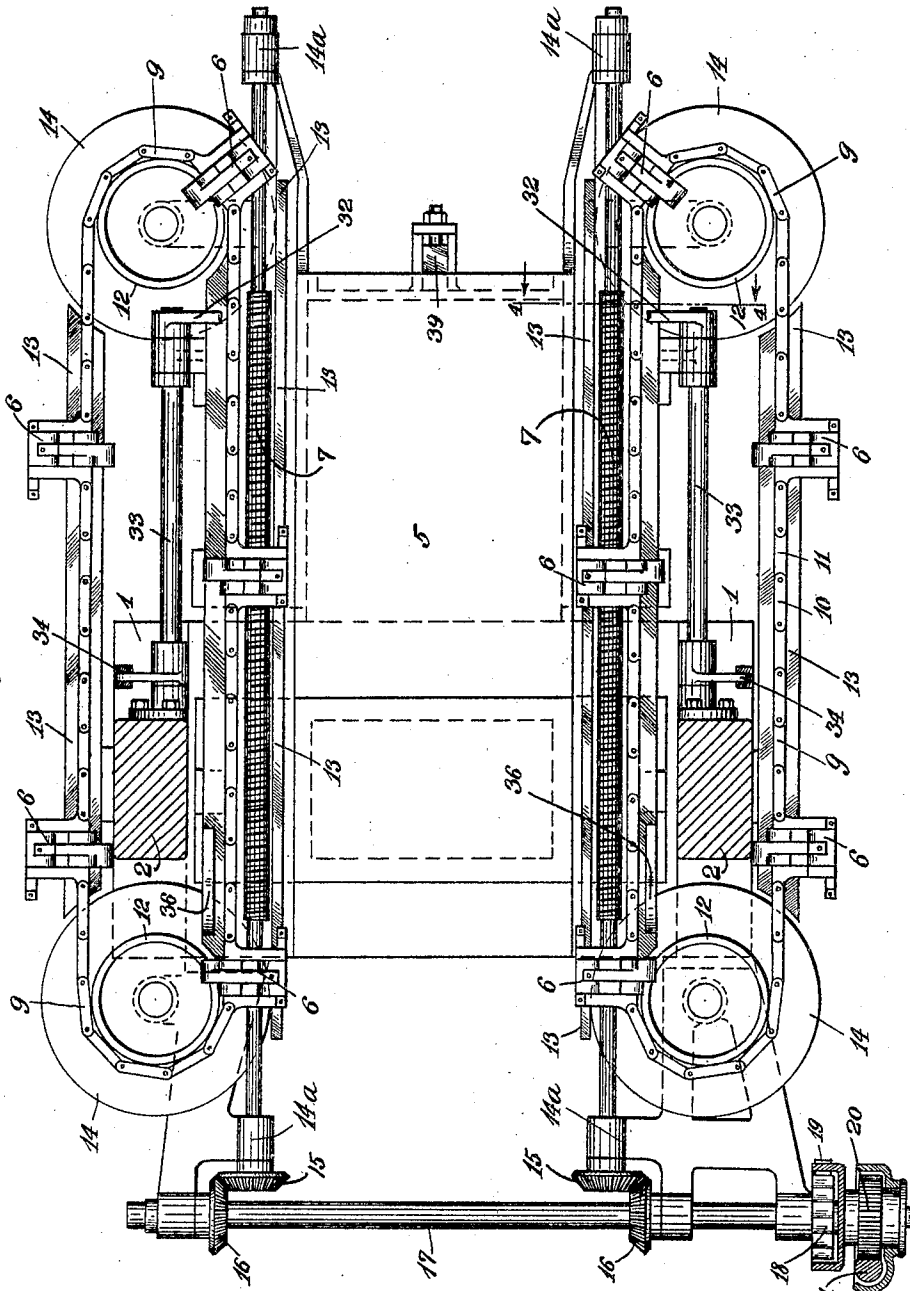


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Fig. 2



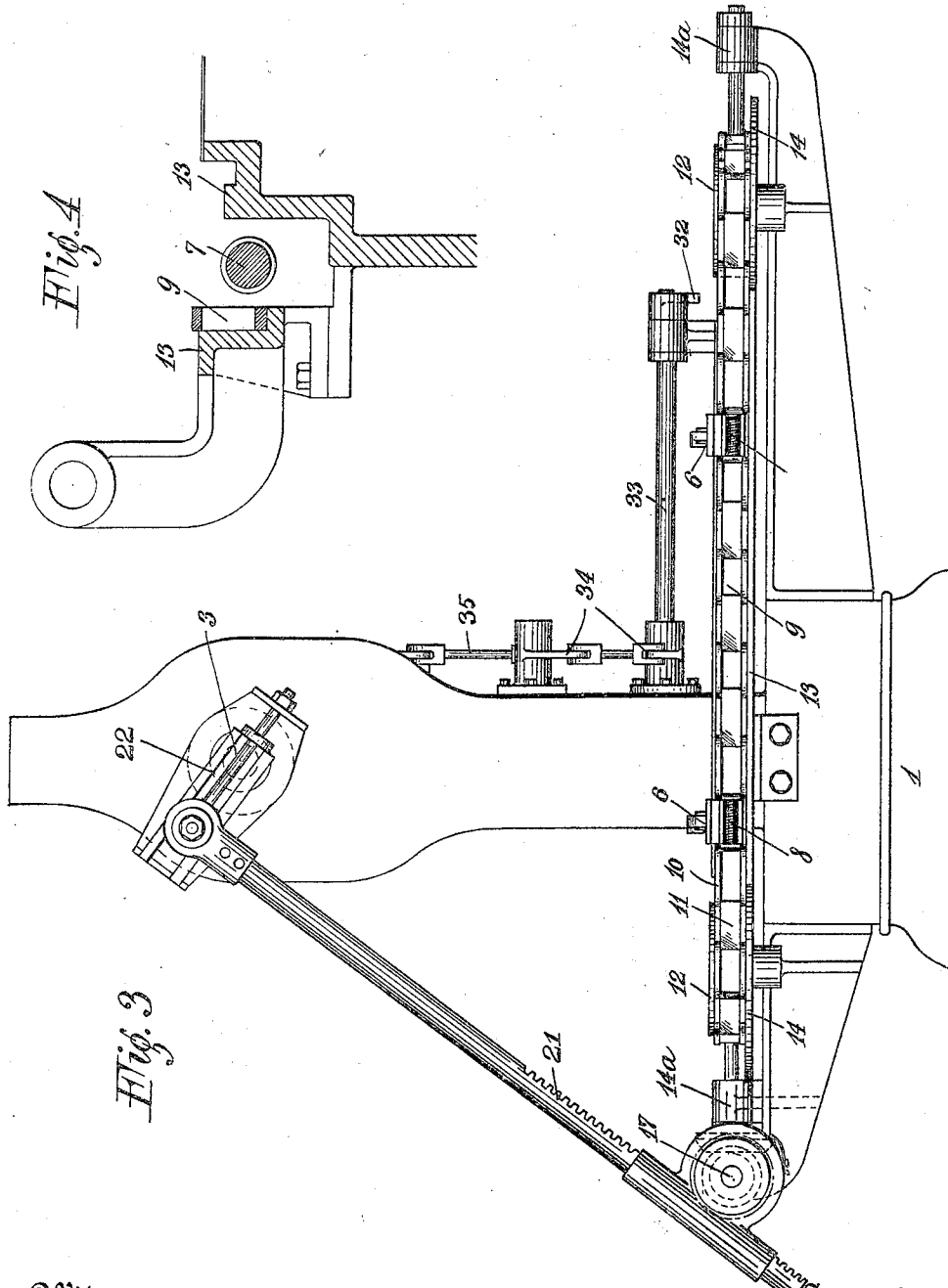
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4 SHEETS—SHEET 3.



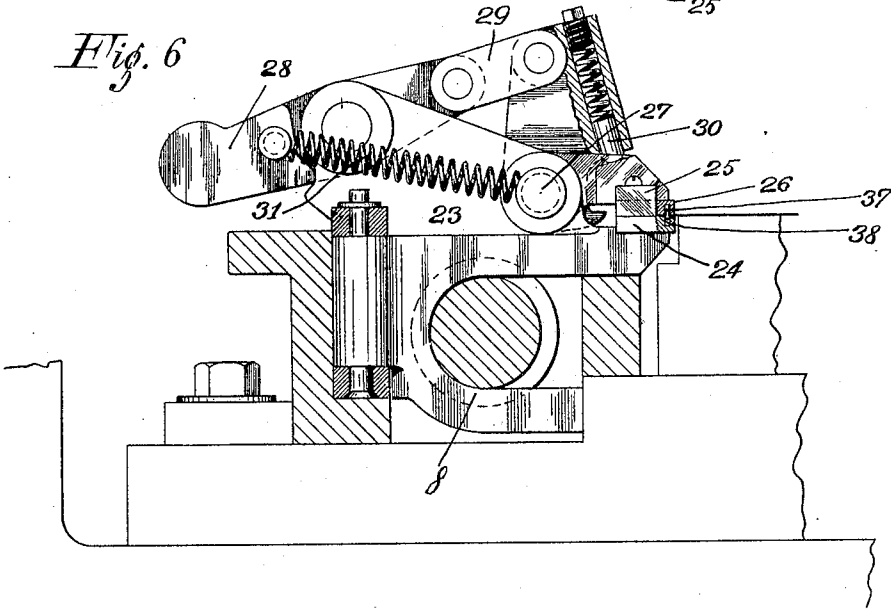
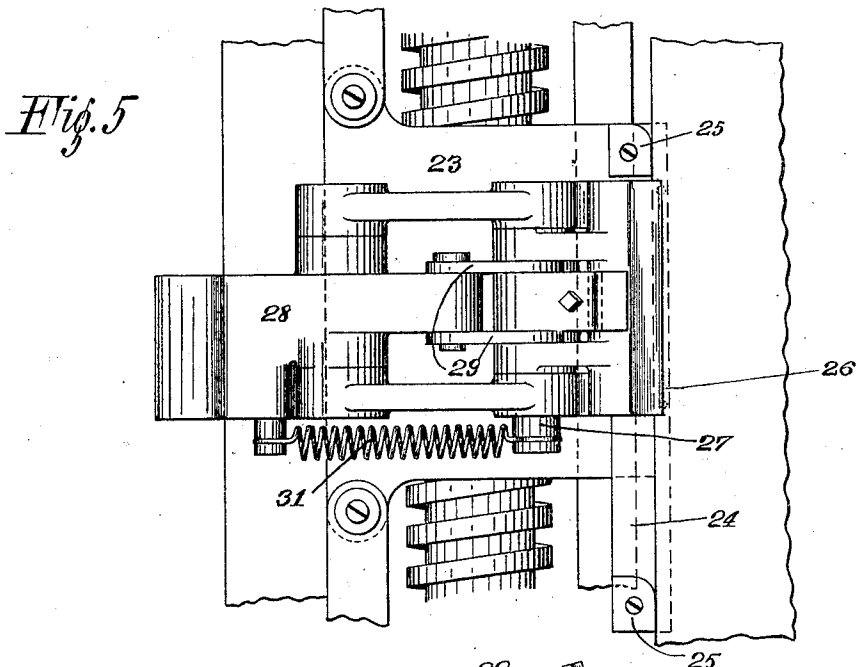
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UNITED STATES PATENT OFFICE.

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E. W. BLISS COMPANY, A CORPORATION OF WEST VIRGINIA.

SHEET-FEEDING MACHINE.

No. 822,181.

Specification of Letters Patent.

Patented Oct. 17, 1905.

Application filed February 3, 1904. Serial No. 191,772.

To all whom it may concern:

Be it known that I, OTTO S. BEYER, a citizen of the United States of America, and a resident of East Rutherford, county of Bergen, and State of New Jersey, have invented certain new and useful Improvements in Sheet-Feeding Machines, of which the following is a specification.

My invention relates generally to sheet-feeding machines, and has more particular reference to means for feeding a sheet of material or stock to a gang or other press. In machines of this kind, and especially where decorated tin is to be stamped out, absolute accuracy is necessary. Even a slight variation amounting to perhaps only an infinitesimal part of an inch is noticeable.

To feed a sheet accurately and automatically is therefore the object of my invention. In carrying out this object I employ grippers of a suitable construction driven by means of a screw-feed and adapted to seize and release the sheet at certain predetermined intervals corresponding to the operation of the press. These screws are operated intermittently to correspond to the action of the press. Means are further provided for returning the grippers to their starting-point with relation to the endless screws, preferably operated by these screws themselves.

Other objects will appear as the specification proceeds.

In the drawings I have embodied my invention in a suitable form showing it applied to a gang-press, although my invention is not limited to a construction consisting in part of a gang-press.

In the said drawings, Figure 1 is a rear view of a gang-press embodying my invention. Fig. 2 is a plan view of the machine with the gang-press and side frames removed. Fig. 3 is a side elevation of the machine. Fig. 4 is a sectional view on the line 4-4 of Fig. 2. Fig. 5 is a plan detail view of one of the grippers. Fig. 6 is an end view of Fig. 5.

Similar characters of reference are employed to denote similar parts.

The parts are properly mounted in a suitable framework 1, having the side frames 2, in which is mounted the main shaft 3 for operating in this instance the gang-press 4.

5 is a feed-table for receiving the sheet to be punched or stamped, on either side of which

are located grippers 6 for feeding the sheet. These grippers are suitably operated by means of the two longitudinally-extending screws 7, one on either side of the machine. In the present instance the said grippers are threaded internally, as indicated at 8, for properly engaging with the screws 7 on the forward stroke. Suitable means must of course be provided for returning the grippers to the forward end of the screws, and to this end I provide an endless chain or belt 9, composed in this instance of the links 10 and blocks 11. The grippers are located equidistant on this belt, each taking the place of one of the blocks 11. At each end of the machine I provide drums, as 12, around which the belt or chain passes. To properly support the grippers and chain as they travel around, there are provided guides 13, suitably secured to the framework, and disks, as 14, are carried by the drums 12. From this it will appear that one or more grippers being in engagement with the endless screw the rotation of the said screw will gradually move the gripper forward, thereby dragging all the other grippers with it and returning them to the starting-point by reason of the fact that all the grippers are connected together. By this means the return movement of the grippers to the starting-point will be controlled by the operation of the screws.

The screws 7 are suitably mounted in bearings and driven intermittently in any manner found useful. In the present instance the said screws carry the bevel-gears 15, meshing with the gears 16, mounted on the transverse shaft 17, carrying the ratchet 18, which in turn receives its motion from the pawl 19, moving with the gear 20, operated by the rack 21, connected to the crank 22, carried by the main shaft 3. The parts will of course be so arranged that the screws are rotated on the upward stroke of the press or while the press is not acting upon the sheet.

All the grippers are constructed alike, so that one only will be described.

The gripper is formed with a main portion 23, internally threaded, as previously pointed out, and carrying the lower jaw 24, which may be formed as one or more blades. This lower jaw is of a considerable length and is provided with the edge guides 25 and is adapted to extend in under the side edges of the

sheet. The upper jaw 26 is pivoted at 27 on the main portion and is opened and closed by means of the pivoted lever 28 through the instrumentality of the links 29 and spring-detent 30, which latter prevents any undue jar or shock. A spring 31 is provided to hold the gripper, or rather the upper jaw of the same, in either its closed or open position—that is, to hold the lever 28 in the position to which it has been moved.

Any means can of course be employed to open or close the grippers or to operate the pivoted lever 28. I prefer to use means operated by the action of the press to close the grippers, positioned at such a point as to seize the sheet at the proper moment. In this instance these means take the form of a finger 32, mounted on the rock-shaft 33 and connected, through the links 34 and rod 35, to the punch or other member of the press, so that the said press will close the grippers on the downward movement. To open the grippers, there is provided a wedge-shaped portion 36 on the guide 13 or elsewhere on the framework, so positioned as to contact with the pivoted lever 28 at the proper moment.

The upper and lower jaws of the grippers are provided with corresponding pins 37 and apertures 38 to properly seize the sheet. The sheet is placed against the stop 39, and at the proper moment a gripper on each side of the sheet moves into position and coming up under the fingers 32, which upon the downward movement of the punch closes the grippers, will then seize the sheet. As the punch rises the screws 7 will be operated and will feed the grippers carrying the sheet forward. After the sheet has been acted upon, in this instance a number of times, the grippers will reach the wedge-shaped portions 36, which will open the same. As the grippers are moved forward by the screws the grippers not on the screws will be dragged around and returned to the starting-point. The scrap will be suitably disposed of by any means.

What I claim is—

1. In a machine of the character set forth, the combination with a gripper adapted to move a sheet in a horizontal plane, of a screw for imparting feeding motion to the gripper, means for rotating said screw intermittently in one direction only, and means for returning the gripper to its starting position controlled by the action of the screw.

2. In a machine of the character set forth, the combination with a gripper, of a screw for imparting a feeding motion to the gripper, a punch, means for operating the punch, and for rotating the screw intermittently in one direction only, means for returning the gripper to its starting position controlled by the action of the screw, means for closing the gripper operated at periods corresponding to the action of the punch, and means for opening the said gripper.

3. In a machine of the character set forth, the combination with a gripper, of a screw for moving said gripper in one direction, the said gripper being adapted to be moved on and off the said screw.

4. In a machine of the character set forth, the combination of two series of grippers located one on either side of the feed-table, and a screw for moving each series of grippers in one direction to bring them successively into operating position.

5. In a machine of the character set forth, the combination of two series of grippers located one on either side of the feed-table, a screw for moving each series of grippers in one direction to bring them successively into operating position, and means for operating said screws intermittently.

Signed at Brooklyn, New York, this 26th day of January, 1904.

OTTO S. BEYER.

Witnesses:

MARTIN J. SCHMITT,
E. S. PORTER.