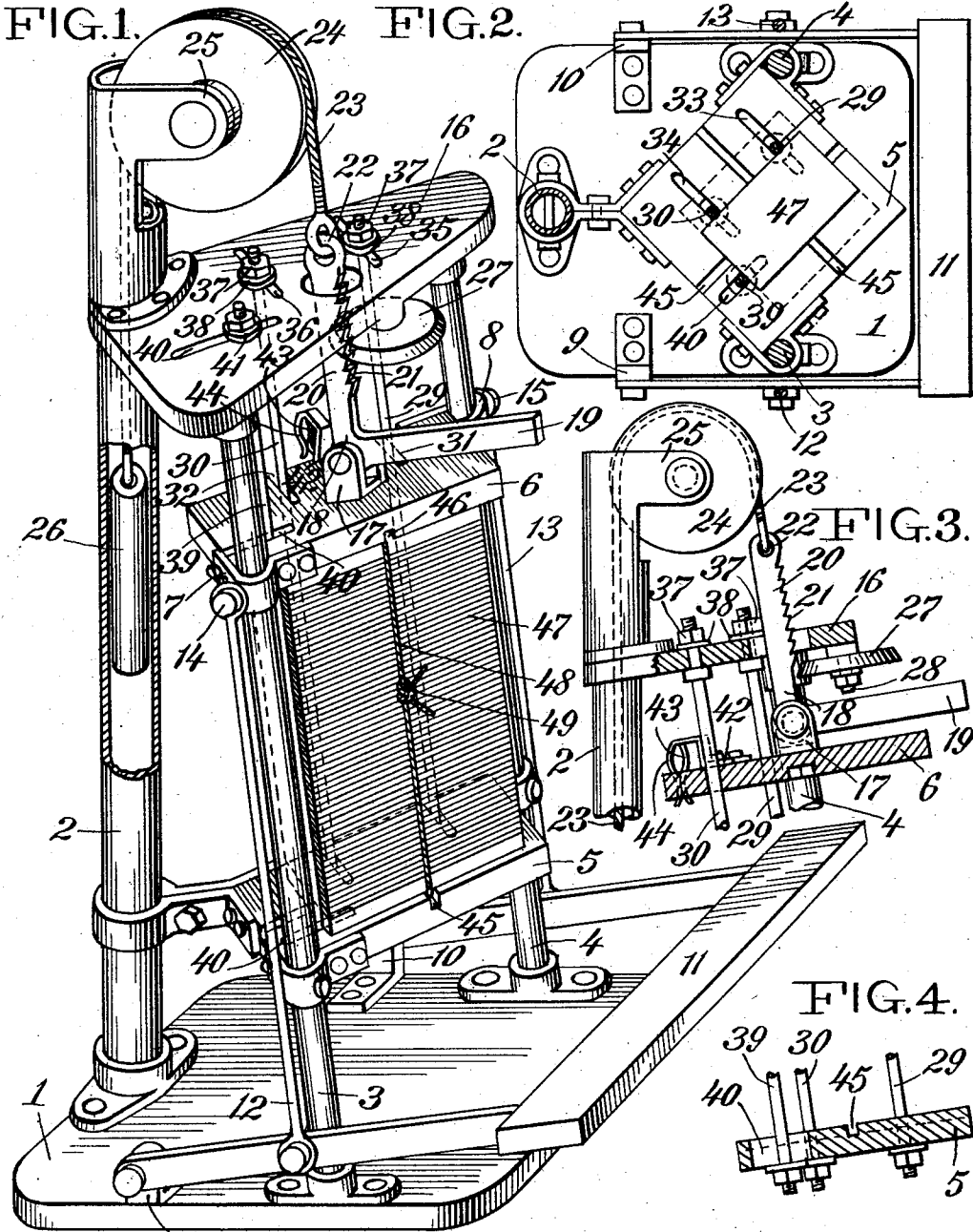


W. Y. DEAR.
BUNDLING MACHINE.
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1,055,022.

Patented Mar. 4, 1913.



WITNESSES:

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WILLIAM Y. DEAR, OF JERSEY CITY, NEW JERSEY.

BUNDLING-MACHINE.

1,055,022.

Specification of Letters Patent.

Patented Mar. 4, 1913.

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To all whom it may concern:

Be it known that I, WILLIAM Y. DEAR, a citizen of the United States, residing in the city of Jersey City, county of Hudson, and State of New Jersey, have invented certain new and useful Improvements in Bundling-Machines, of which the following is a specification.

My invention relates to means for quickly and accurately bundling piles of sheet material cut to practically the same size, and is especially adapted for use in bundling printed sheets of paper as they come from the press, preparatory to being bound. It may also be used to advantage in bundling blank sheets of paper and the like as the material comes from the cutter. My improved device provides means for vertically aligning the individual sheets, compressing them into a compact bundle and automatically holding them in such position while they are being tied.

In the accompanying drawings which form a part of this specification, Figure 1 is a perspective view of the complete machine; Fig. 2 is a transverse sectional plan view of the lower half of the machine; Fig. 3 is a detail of the upper half of the machine, parts being shown in section; Fig. 4 is a detail sectional view through the lower platform of the machine.

Referring to the drawings in detail, the numeral 1 designates a base to which is affixed the hollow vertical post 2 and the two parallel inclined posts 3 and 4. Permanently secured to these three posts and slanting downwardly along a diagonal toward the vertical post is an adjustably fixed rectangular lower platform or platen 5. Parallel to this fixed or stationary platform or platen is a similar movable platform or follower 6, slidably mounted upon the posts 3 and 4 by means of the collars 7 and 8, respectively. Pivoted to brackets 9 and 10, secured to the base, is a treadle 11. Links 12 and 13 are pivoted to the arms of this treadle and are also pivoted to the collars 7 and 8 of the movable platform or follower at 14 and 15, respectively. Permanently secured near the top of the three posts is an upper stationary platform 16 parallel to the lower platform 5 and the follower 6. Pivoted to a bracket 17, secured to the top of the movable platform or follower, is a bellcrank-lever 18 comprising the handle 19 and the arm 20, upon one face of which is cut a series of

ratchet teeth 21. This arm terminates in an eye 22, to which is secured a rope or cord 23 passing over the pulley 24 carried in bearings 25 formed in the upper end of the vertical post. The other extremity of this rope extends into the cavity in the interior of the vertical post, and to it is secured a weight 26 adapted to reciprocate longitudinally within the post. A pawl-disk 27 rotatably mounted upon a shaft 28 is secured to the upper fixed platform in such a position as to engage the ratchet teeth on the bellcrank-lever when the movable platform or follower is lowered.

The two rods 29 and 30 passing, respectively, through the slots 31 and 32 in the movable platform or follower, the parallel slots 33 and 34 in the lower fixed platform or platen, and the parallel slots 35 and 36 in the upper fixed platform, are provided at their extremities with nuts 37 and washers 38 for clamping them in position. The slots through which these guide rods pass are substantially perpendicular to the long sides of the platforms. A similar guide-rod 39 enters a series of aligned parallel slots 40 in the three platforms, these slots being substantially perpendicular to the short sides of the inclined platforms. Similar means 41 are provided top and bottom for clamping this guide-rod in position.

A clip 42 affixed to the top of the movable platform or follower has the two spring leaves 43 and 44 extending below the edge of this platform. This clip I preferably make of spring brass or other resilient material, so that the leaves 43 and 44, which normally contact near their lower extremities, may readily be forced apart, but will immediately return to the position shown in the drawings. In the upper surface of the lower fixed platform I form a groove 45 substantially parallel to the short sides of the platform and midway between them. In the lower surface of the movable platform or follower I provide a similar groove 46 parallel to the groove 45.

The operation of my device is as follows: I first adjust and clamp in position the three guide rods to accommodate the size of sheet which I wish to form into bundles. A cord is passed from the front of the machine through the slot 46, forced between the leaves of the clip, carried vertically downward and then through the groove 45 back to the front of the machine. This is done

with the movable platform or follower in its uppermost position, near the top fixed platform, the parts being substantially as shown in Fig. 3. A pile of loose sheets is then placed upon the lower fixed platform of the machine, the three guide rods causing the sheets to aline themselves into a smooth pile. The treadle is then forced downward, carrying with it the movable platform or follower, which compresses the sheets into a compact bundle. The cord 48 is drawn tight around the bundle, the leaves of the spring clip readily releasing it as it is pulled taut, and the cord is knotted, as shown at 49. During the operation of tying the cord the sheets are kept under compression without the necessity for maintaining pressure upon the treadle through the engagement of the ratchet teeth on the bellcrank-lever with the pawl-disk. This permits the operator of the machine to devote his entire attention to the tying of the cord. As soon as the bundle is securely tied, the handle 19 is tripped upward, thus forcing the ratchet teeth out of engagement with the pawl-disk, and the weight 26, acting through the rope 23, immediately causes the movable platform or follower to rise to its uppermost position and permits the bundle to be removed from the machine. The use of a rotatable pawl-disk provides an engaging surface equal in length to the periphery of the disk and avoids the necessity for frequent removal of the pawl when a portion of its engaging face becomes worn.

It will thus be seen that my improved device supplies means for quickly and accurately tying neat bundles from piles of loose sheets. The obliquity of the platform upon which the sheets are placed causes them naturally to fall into proper alinement against the guide-rods, thus automatically forming the sheets into a smooth pile.

The machine is especially adapted for extreme rapidity of operation, inasmuch as its action is partially automatic, and the attention of the operator is directed to only one operation at a time.

It is obvious that where it is desired to bundle only one size of sheets with the machine or only a small range in sizes, the guides need not be made adjustable.

While I have illustrated and described only one embodiment of my improved device, I realize that it is of broad application and susceptible of many modifications without departing from the scope of my invention.

Having thus described my invention, I claim.

1. In a bundling machine, a base, a platform supported above said base and inclined to the horizontal, said platform having a rectangular working surface, a follower above said platform, parallel thereto and

movable in a direction perpendicular to said platform, guides for the material to be bundled, said guides being perpendicular to said platform and follower and respectively adjacent to the depressed sides of said surface and defining the same, a treadle pivoted to said base, and links pivoted at their lower ends to said treadle and at their upper ends to said follower.

2. In a bundling machine, a base, a vertical tubular upright mounted thereon, a pair of parallel uprights mounted on said base, the plane of their axes being inclined toward said tubular upright, a pair of platforms secured to said uprights, a follower above the lower of said platforms, parallel thereto and slidable upon said inclined uprights in a direction perpendicular to said lower platform, guides for the material to be bundled carried by said platforms, said guides being parallel to said inclined uprights, a treadle pivoted to said base, a pair of links pivoted at their lower ends to said treadle and at their upper ends to opposite ends of said follower, a lever pivoted at its lower end to said follower, and having ratchet teeth thereon, a pawl carried by the upper platform adapted to engage said ratchet teeth, a cord secured to the upper end of said lever, a pulley carried by said tubular upright over which said cord passes and a counterweight guided in said tubular upright, and suspended at the free end of said cord.

3. In a bundling machine, a platen, a follower mounted above said platen, parallel thereto and movable in a direction perpendicular to said platen, means for forcing said follower toward said platen, a rod pivoted to said follower and having ratchet teeth thereon, a stationary pawl adapted to engage said teeth, a cord secured to the upper end of said lever, a guide over which said cord passes and a counterweight suspended on the free end of said cord.

4. In a bundling machine, a stationary platform inclined to the horizontal, a follower parallel to and movable in a direction perpendicular to said stationary platform, said platform and follower having corresponding rectangular working surfaces, guides for the material to be bundled perpendicular to said platform and follower and adjacent respectively to two convergent sides of said working surfaces, means for forcing said follower toward said stationary platform, means for automatically locking said follower in a plurality of positions against pressure in a direction away from the stationary platform, means for releasing said follower, and means for automatically restoring said follower to its initial position when released.

5. In a bundling machine, a stationary platform inclined to the horizontal, a fol-

lower movable in a direction perpendicular to said platform, said platform and follower having corresponding rectangular working surfaces, guides for the material to be bundled perpendicular to said platform and follower and adjacent respectively to two convergent sides of said working surfaces, a rod pivoted to said follower, teeth cut on a face of said rod, a rotatable pawl-disk mounted on a fixed part of the machine and adapted to engage said teeth and automatically lock said follower in a plurality of positions against movement in a direction away from said stationary platform.

6. In a bundling machine, a stationary platform inclined to the horizontal, a follower movable in a direction perpendicular to said platform, said platform and follower having corresponding rectangular working surfaces, guides for the material to be bundled perpendicular to said platform and follower and adjacent respectively to two convergent sides of said working surfaces, a bellcrank-lever pivoted to said follower having ratchet teeth cut on a face of one arm thereof, a rotatable pawl-disk mounted on a

fixed part of the machine adapted to engage said teeth and automatically lock the said follower in a plurality of positions against movement in a direction away from said stationary platform, and means for applying tension to the ratchet arm of said bellcrank-lever in a direction substantially perpendicular to said follower.

7. In a bundling machine, a stationary platform inclined to the horizontal, a follower movable in a direction perpendicular to said platform, guides for the material to be bundled perpendicular to said platform and follower, a bellcrank-lever pivoted to said follower and having ratchet teeth cut on a face of one arm thereof, a rotatable pawl-disk mounted on a fixed part of the machine adapted to engage said teeth and automatically lock the follower in a plurality of positions against movement in a direction away from said stationary platform.

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Witnesses:

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