

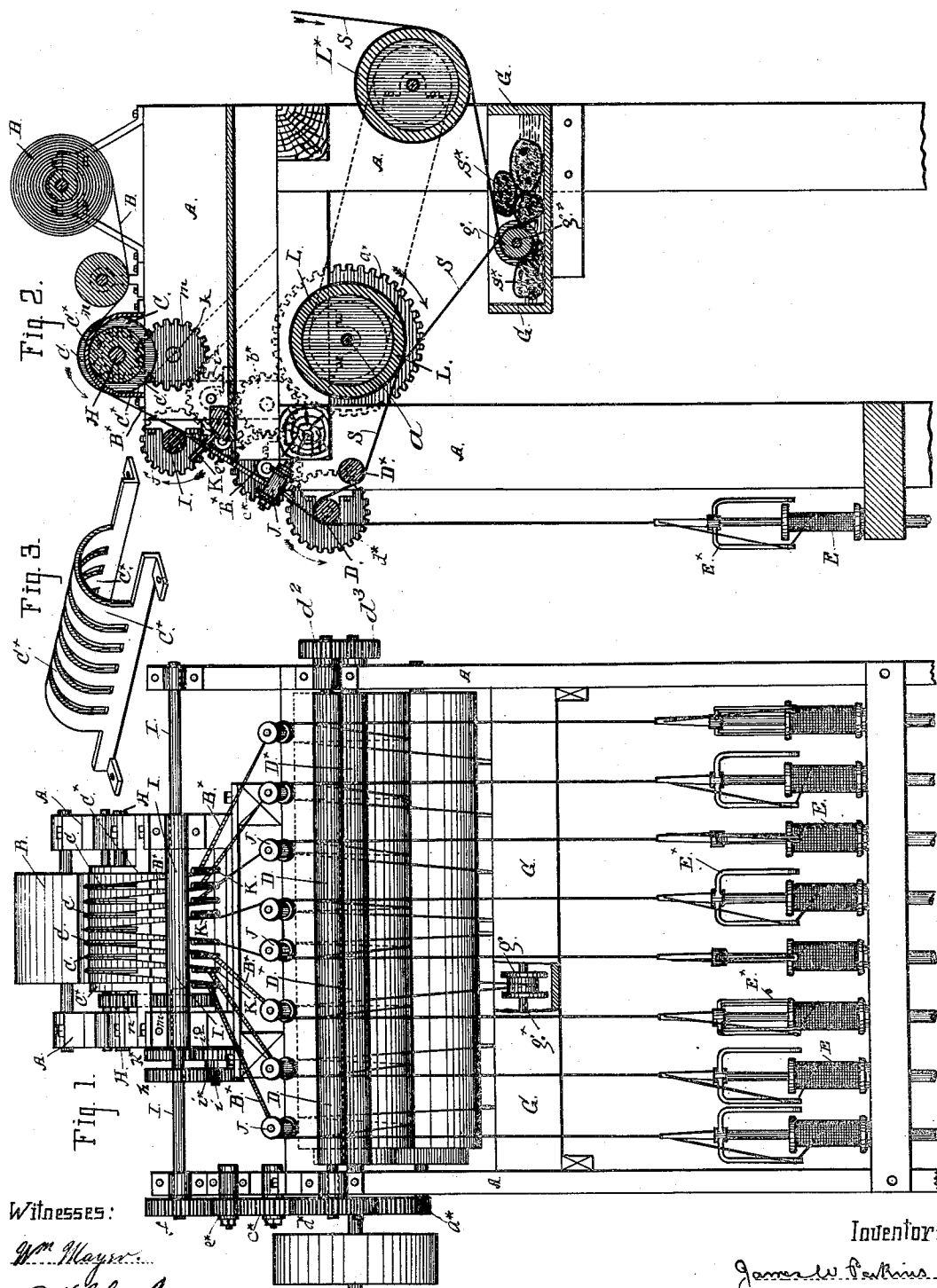
(No Model.)

J. W. PERKINS.

MACHINE FOR MAKING COMPOUND PAPER AND JUTE TWINE.

No. 446,926.

Patented Feb. 24, 1891.



Witnesses:

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UNITED STATES PATENT OFFICE.

JAMES WALTER PERKINS, OF SAN JOSÉ, CALIFORNIA.

MACHINE FOR MAKING COMPOUND PAPER AND JUTE TWINE.

SPECIFICATION forming part of Letters Patent No. 446,926, dated February 24, 1891.

Application filed December 6, 1889. Serial No. 332,836. (No model.)

To all whom it may concern:

Be it known that I, JAMES WALTER PERKINS, a citizen of the United States, residing in San José, in the county of Santa Clara and State of California, have invented certain Improvements in Machines for Making Compound Paper and Jute Twine, of which the following is a specification.

This invention relates to machinery for the production and manufacture of a new twine composed of fibrous material, such as jute or flax and of paper, spun or twisted together; and it consists of certain novel paper-cutting and spinning mechanism, as hereinafter more particularly described, by which a number of continuous paper threads or narrow strips are produced from a wide ribbon or strip of paper, and are spun or combined by twisting with continuous threads of fibrous material to produce a combination jute and paper twine or cord.

In addition to the improved paper-cutting mechanism the invention embraces a certain novel construction and combination of thread-guiding bars or rolls, a moistening apparatus for the fibrous threads, and the combination of these parts and mechanism with twisting bobbins and fliers producing a machine for manufacturing the twine or cord covered by certain Letters Patent of the United States granted to me on the 9th day August, 1881, No. 245,395.

The nature of these improvements and the manner in which I proceed to construct, produce, and apply the same will be understood from the following description and the accompanying drawings.

Figure 1 is a front elevation. Fig. 2 is a central vertical section of Fig. 1. Fig. 3 is a detached perspective view of the cutter-guard.

Letter A indicates the parts of the framework, B the paper in a continuous roll, and C C* the cutter by which strip or ribbon of considerable width is divided into a number of continuous narrow strips.

D D* are thread-guiding bars or rolls, and E are bobbins and E* fliers corresponding in number to the number of paper strips produced by the cutter.

G is a moistening-trough located between the reels, (not shown,) from which the fibrous threads S are supplied to the machine and

the points at which the paper and the fibrous threads meet and are combined by twisting, the paper being spun or twisted with and over the fiber.

The cutters C are circular knives fixed on a rotating shaft H in close order and at regular distances apart, the spaces between them corresponding to the widths of the paper strips to be produced. The part C* is a stationary shield of curved shape, with slits in the upper face for the rotary cutters to set through, and it is secured to the frame by suitable fastenings, but is removable when access to the cutters is to be had either for repairs or for changing the spacing of the cutters, in which case another shield will be substituted having slits spaced according to the change in the position of the cutters on the shaft.

Shaft a of cylinder L may be the driving-shaft, and by means of suitable gearing all the parts are driven therefrom. The bar D is driven from the shaft a through gear-wheels a*, b*, c*, and d*, the shaft carrying the roller I through gear-wheels a*, b*, c*, e*, and f. The shaft carrying the roller I carries a gear-wheel h, which meshes with a gear-wheel i* on a short shaft i, which latter also carries a gear-wheel i*, which meshes into a wheel k* on a shaft k. The shaft k carries a wheel m, which gears into a wheel n on the cutter-shaft H, which is driven thereby.

I is a guide-roller over which the separate strips of paper pass and are turned downward, and J are guide-rollers loosely turning on nearly horizontal studs and set in line with the twistors to turn the paper strips B* in parallel lines downward. In front of the roller I are stationary guide-pins K, set to change the course of the strips and spread them in lines equally divergent toward the rollers J.

The bars D D* are either stationary or are rotating bars or rolls; but in either form one is set above and somewhat ahead of the other, and they are not in contact with each other. If the bars are rotated, they are rotated in contrary directions. An additional bar may be employed, if found necessary, to control the yarn or fiber. In the present construction the bars are driven from the principal shaft a in the manner above described, and

one bar is geared into the other at the opposite side of the frame by cog-wheels d^2 d^3 , as seen in Fig. 1. In the operation of these spinning bars or rolls, either stationary or rotating, the paper strips in their course from the cutter pass over and against the front of the upper bar D, and at that point they meet the fiber threads or yarns, which are drawn from reels (not shown) at the back of the machine, and, passing through the moistener G, are carried around a cylinder or large roller L on main shaft a ; or the yarn may first pass around a cylinder L^* , driven by belt from cylinder L before going to the moistener G. The cylinder L^* is for the purpose of evening and straightening the yarn, and the cylinder L is for the same purpose and also for giving the moisture an opportunity to be evenly distributed through the body of the yarn before the yarn passes through the succeeding operations. From beneath the cylinder L the yarns pass to the bar D^* , where they are turned upward, and thence over the bar D. At the point in front of this top bar the paper strips and fibrous threads are spun or twisted together, and the purpose of the bars is to prevent the yarn or fiber from untwisting before it meets the paper, as in the operation of combining the paper and fiber to produce the twine the twistors run the reverse of the twist in the yarn.

The bobbins E and fliers E^* are the same as those in general use, and being of well-known construction it is not necessary to describe or illustrate them in detail.

Those persons familiar with spinning and twisting machinery will understand from the foregoing description and from the drawings forming a part thereof how to combine and arrange for operation such twisting devices with the cutting and spinning mechanisms which constitute the principal features of this invention. In its passage through the trough the yarn is moistened by running in contact with wet sponges s^* , suitable rollers g , turning loosely on the rod g^* , being set in the trough to carry the yarn against the moisteners.

A machine of larger or smaller capacity can be produced by varying the size of the cutting and spinning mechanisms.

The yarn or fiber from which this improved twine is or may be manufactured includes jute, flax, and all such material as has been or may be found suitable for the purpose.

By the term "twine" herein used to designate the product of this machine it is intended to embrace cord and cordage, the size or thickness of the product being taken into consideration in the construction of the machine.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a machine for making combination paper and fiber twine or cord, a paper-cutting device adapted to produce a number of continuous strips of paper from a ribbon or wide strip, in combination with thread-guiding bars and twistors, substantially as described.

2. In a machine for making combination paper and fiber twine or cord, the combination of a paper-cutting device adapted to separate a ribbon or continuous strip of paper into narrow strips, paper-guiding rollers, thread-guiding bars or rolls, twistors, and a moistening device placed for operation back of the bars and adapted to moisten the thread or yarn before it is twisted with the paper, substantially as described.

3. In a machine for making paper and fiber combination twine or cord, rotating cutting-disks and a stationary shield with a curved paper-carrying surface having slits for the cutting-disks, as described, in combination with thread-guiding and paper-guiding rollers, bars, or rolls, and twisting devices, as set forth.

4. In a machine for making combination twine of paper and fibrous material, the combination, with the paper-slitting and yarn-supplying devices, of a bar D, over which both the yarn and paper pass, and the twisting devices, as set forth.

5. A machine for the manufacture of combination twine or cordage from paper and fiber, consisting, essentially, of a paper-cutting device adapted to produce continuous strips from a ribbon or wide strip of paper, a yarn feeding or supply device, means by which the yarn is dampened, a set of twistors, and a set of bars placed for operation at the point where the paper and yarn are spun or twisted together, combined for operation as set forth.

In testimony that I claim the foregoing I have hereunto set my hand and seal.

JAMES WALTER PERKINS. [L. S.]

Witnesses:

B. L. RYDER,

W. STONE.