H. GLANZ.

Machine for Making Rope Molding.

No. 167,329. Patented Aug. 31, 1875.

Fig. 1.

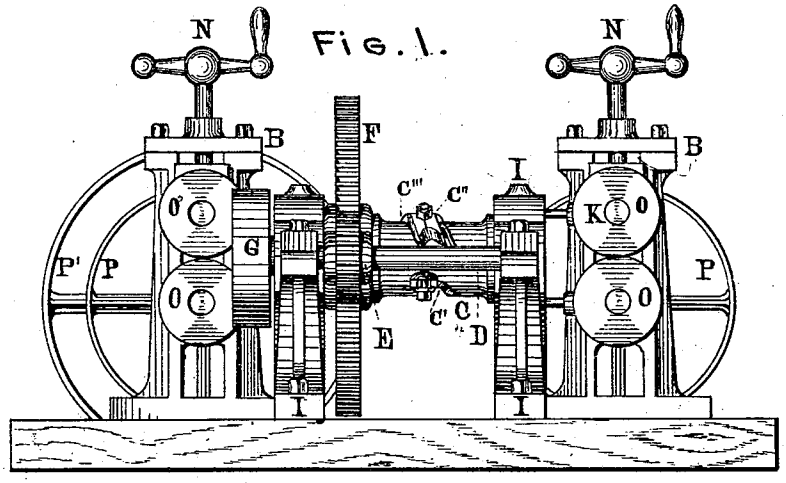


Fig. 2.

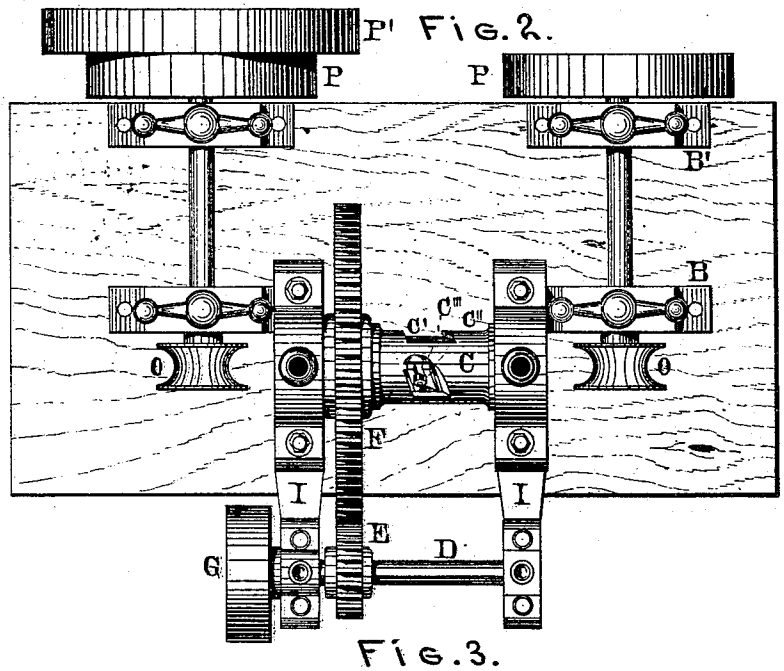
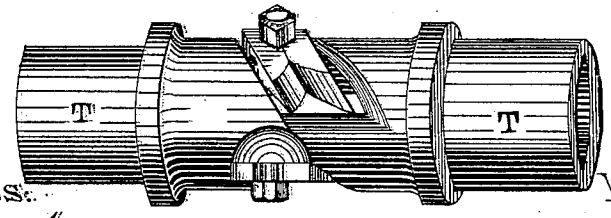


Fig. 3.



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by Michael J. Stark

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N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

2 Sheets--Sheet 2.

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Fig. 4.

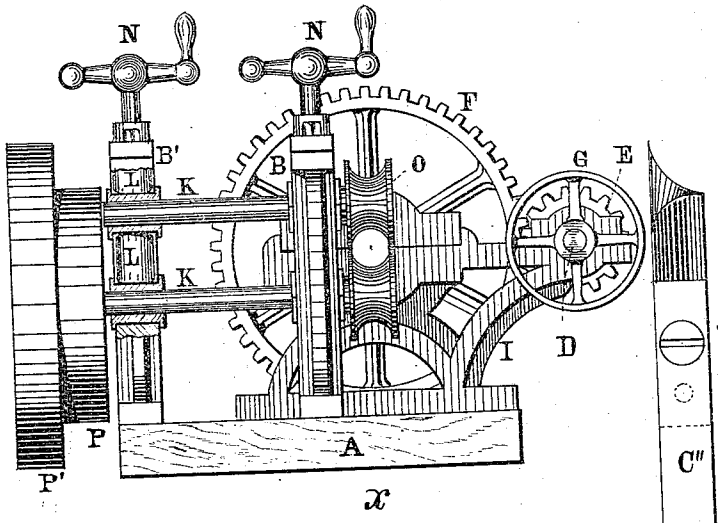


Fig. 8.

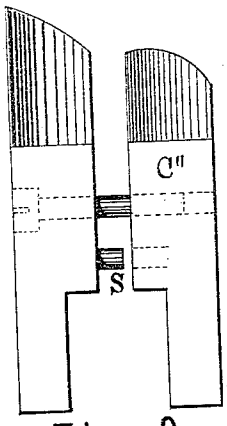


Fig. 9.

Fig. 10.

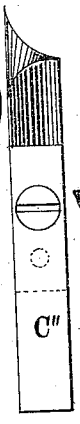


Fig. 5.

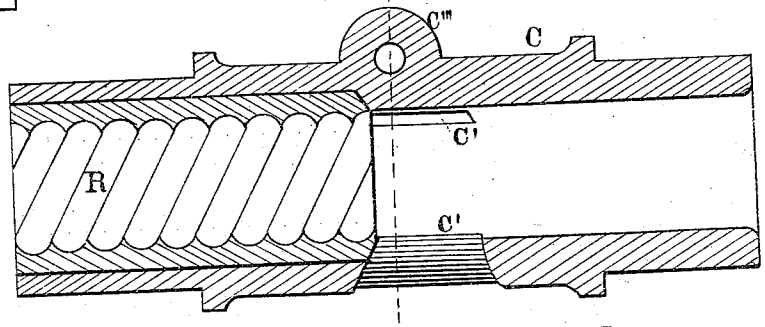


Fig. 6.

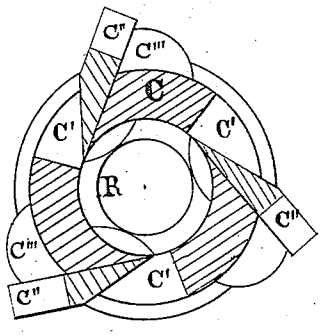
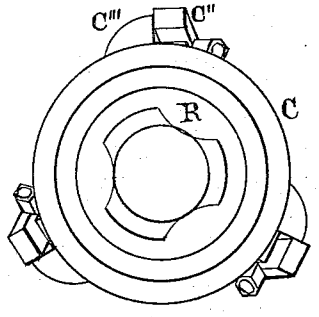


Fig. 7.



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UNITED STATES PATENT OFFICE.

HENRY GLANZ, OF BUFFALO, NEW YORK, ASSIGNOR OF ONE-HALF HIS RIGHT TO PETER C. GLANZ, OF SAME PLACE.

IMPROVEMENT IN MACHINES FOR MAKING ROPE-MOLDING.

Specification forming part of Letters Patent No. **167,329**, dated August 31, 1875; application filed May 28, 1875.

To all whom it may concern:

Be it known that I, HENRY GLANZ, of the city of Buffalo, in the county of Erie and State of New York, have invented an Improvement in Machines for Making Rope-Moldings; and I do hereby declare that the following is a full, clear, and exact description of the same, having reference to the accompanying drawings, making a part of this specification, and illustrating my invention more fully.

This invention relates in general to improvements on machines for making rope-moldings, and its nature will be first ascertained, and then pointed out in the claims.

In the accompanying drawings, Figure 1 is a front elevation of my rope-molding machine. Fig. 2 is a plan of the same. Fig. 3 is a perspective view of the cutter-head. Fig. 4 is a side elevation; Fig. 5, a longitudinal section through the cutter-head; Fig. 6, a transverse section in line *x x'*, Fig. 5. Fig. 7 is an end view of the same; and Figs. 8, 9, and 10, detached views of the cutters.

Like letters of reference indicate similar parts in the various figures.

To enable others skilled in the art to which my invention pertains to make and use the same, I shall proceed to describe its construction and operation.

A is the bed or base plate of my machine. It can be made of any suitable material, and may be varied in form to suit the taste of the maker. Upon this bed-plate I place, at suitable distance apart, two frames, I I, made separately or connected together. These frames are provided with bearings for a cutter-head, C, and also with brackets containing like bearings for the main shaft D, and are made in the usual manner, either by fitting in separate boxes, or by babbitting the castings. The cutter-head C, whose particulars will be hereinafter specially referred to, consists of a metallic tube, having openings C′ for the insertion of the cutters C″, and the passage of the chips, and lugs C‴ cast on to fasten and adjust the said cutters in the usual manner. Upon the cutter-head C, and near one end thereof, I place a spur-wheel, F, to which motion is communicated from the main shaft D through the pinion E, while the main shaft is revolved by the main driving-pulley G. B B are two sets of standards, securely fastened to the bed-plate A by bolts, and to the frames I I by studs, as shown in Fig. 1. These standards are provided with adjustable boxes for the shafts K, and have springs L placed between them and on the top of the upper boxes, to assist in the necessary adjustment of the friction-rollers O, which is accomplished by the adjusting-screws N. O are two sets of friction-rollers, being grooved sheaves attached to the projecting end of the shaft K. They are revolved by the pulleys P P and the driving-pulley P′. P P are connected by a belt, in the usual manner. The friction-rollers O are arranged, in a manner as clearly shown in Figs. 1, 2, and 4, so that their center line is at right angles with the center line of the cutter-head C. The cutter-head C has a smooth cylindrical bore on one end, and is provided on its other end with a bushing, R, having a threaded core, which said thread corresponds to that of the rope-molding to be produced. The cutter-head has also two trunions, T, Fig. 3, upon which it revolves within the bearings of the frames I. The bushing R I produce by placing into the cutter-head a mandrel of the exact size and shape of the desired molding, and casting Babbitt or other soft metal in the intervening space, and afterward unturning the said mandrel; but it may also be made separately and inserted into the cutter-head C. The cutters C″ I construct in two longitudinal pieces, fastened together by a screw passing through them, and make them retain their relative position by the pin S. These cutters have two curved cutting-edges, corresponding to the outline of the rope-molding when in their oblique position, and intersecting each other. The joint of the two pieces constituting this cutter is made in a line with this point of intersection in order to facilitate the grinding thereof, which is very difficult to accomplish in solid cutters on account of the acute angle of the two intersecting curves. My cutter, being constructed as described, presents only curved edges, and is thus easily sharpened. In order to enable me to sharpen these cutters without altering their shape thereby, and always to produce exact

fac-similes of the same, I cave the cutter-blanks on their lower side for some distance from the end, parallel with the upper side, by suitable milling machinery, and then bevel, harden, and grind them on the upper side only, whereby the exact shape of the cutter is retained. The particulars of these cutters are clearly illustrated in Figs. 8, 9, and 10. I attach as many of these cutters to the cutter-head as the molding has threads or turns. In the drawings I illustrate one having three cutters, which is thus capable of producing rope-moldings with triple twists. It will be observed that, by making the bushing R removable, and keeping a number of them, of different sizes and pitches internally, on hand, I can produce all the various sizes and pitches of rope-moldings without changing or substituting the cutter-heads, by simply adjusting the cutters to the various sizes, so that a cutter-head having a clear front opening of, say, three inches is capable of producing, in conjunction with the different bushes, all the sizes below that diameter. As a matter of economy in the first cost of my machine, this arrangement is a decided feature, although, for doing a large amount of work with one machine only, it may be more advisable to keep a number of complete cutter-heads and accessories, set to the different sizes, &c., on hand, and removing and substituting them as occasion demands, for the reason that the removal and substitution is quicker done than the adjustment of the cutters.

The operation of my machine is as follows: I first round the sticks to be converted into rope-moldings in a suitable machine, and, my machine being put in motion, pass them between the circular grooves of the front set of friction-rollers, which will forward the same to the cutters. The circumferential speed of these friction-rollers is determined by the pitch of the molding; but it is always best to run them somewhat faster, as they will thereby release the threads from strain when passing the feed-bushing R, which alone governs the speed or forward movement of the sticks. These, after passing the cutters, enter the threaded bushing R, its thread engaging with that of the molding, and feeding the same along, the friction-rollers assisting thereby, and at the same time preventing the sticks from turning.

Rope-moldings are now made with right or left twists. These two kinds can be easily made on my machine by arranging the cutters and feed-bushings correspondingly, and by revolving the cutter-head in the direction desired. I produce the change of revolution by changing the belt of the main driving-pulley G, either running it parallel or crosswise, as the case may be; but I may also produce the desired result by other well known and suitable agencies.

Having thus fully described my invention, I desire to secure to me by Letters Patent—

1. The combination, with the frames I I, having the bearings for the cutter-head, and for the main shaft, of the shaft D, pinion E, spur-wheel F, cutter-head C, and the feeding device, consisting of the standards B B′, provided with adjustable yielding boxes, and the grooved friction-sheaves O, the whole arranged to operate substantially as described, and for the purpose set forth.

2. The cutter C″, made of two longitudinal pieces, each having a single curved cutting-edge, the said pieces being jointed longitudinally in a line with the intersection of the two curves by a screw and steady-pin, passing transversely through the adjacent pieces, substantially as described and shown, and for the use and purpose set forth.

3. The combination, with the revolving cutter-head C, of the internally-threaded feed-bushing R, and a double set of adjustable, yielding, grooved friction-rollers, O, arranged as described, substantially in the manner and for the purpose set forth.

In testimony whereof I have hereto subscribed my name in the presence of two attesting witnesses.

HENRY GLANZ.

Witnesses:

MICHAEL J. STARK,

THOS. EDMONDS.