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W. CLORER.

MACHINE FOR TWISTING AND COVERING CORDS, &c.

No. 408,696. Patented Aug. 13, 1889.

Fig. 1.

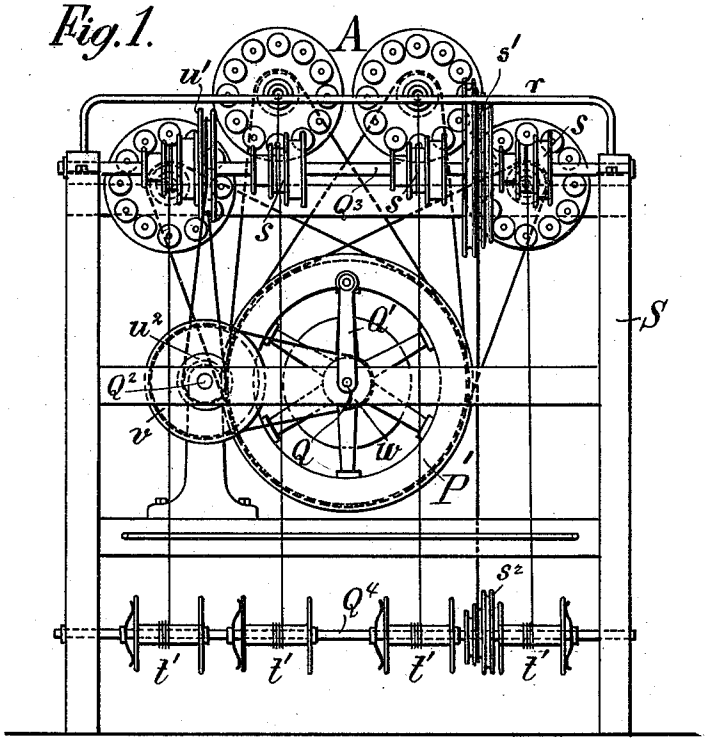
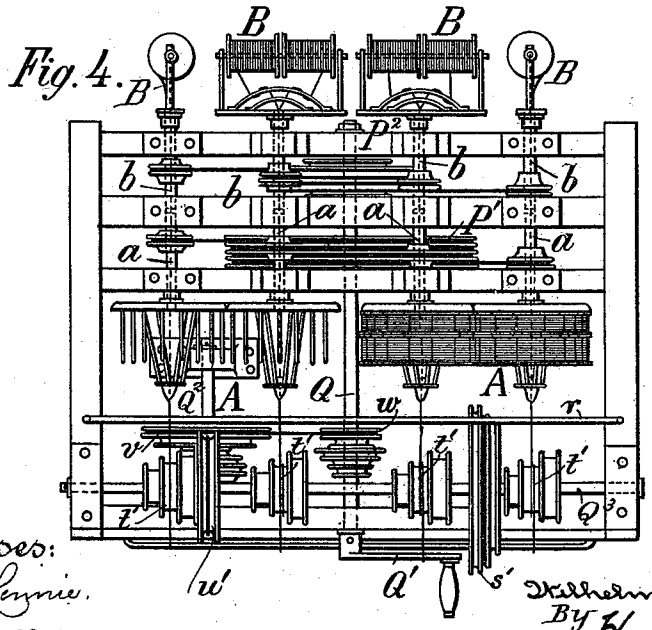


Fig. 4.



Witnesses:
John A. Kennie.
J. L. Caplinger

Inventor
Wilhelm Clorer.
By Henry Connett
Attorney.

N. PETERS, Photo-Lithographer, Washington, D. C.

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Fig. 2.

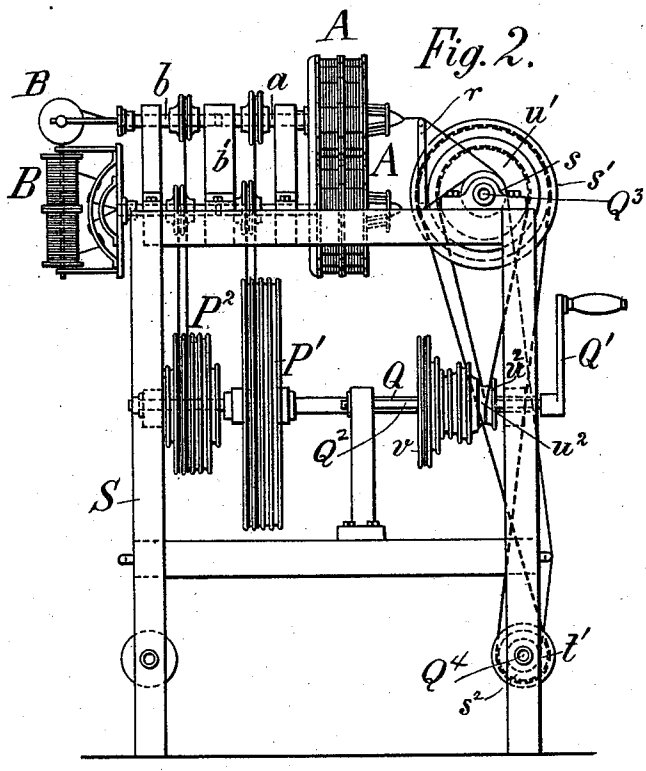
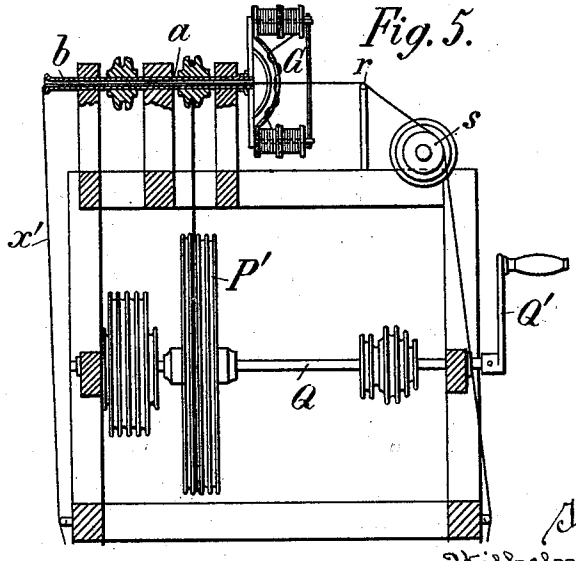


Fig. 5.



Witnesses:
John A. Rennie.
J. D. Lapelungein

Inventor,
William Clorer
By Henry Connett
Attorney

N. PETERS, Photo-Lithographer, Washington, D. C.

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Fig. 3.

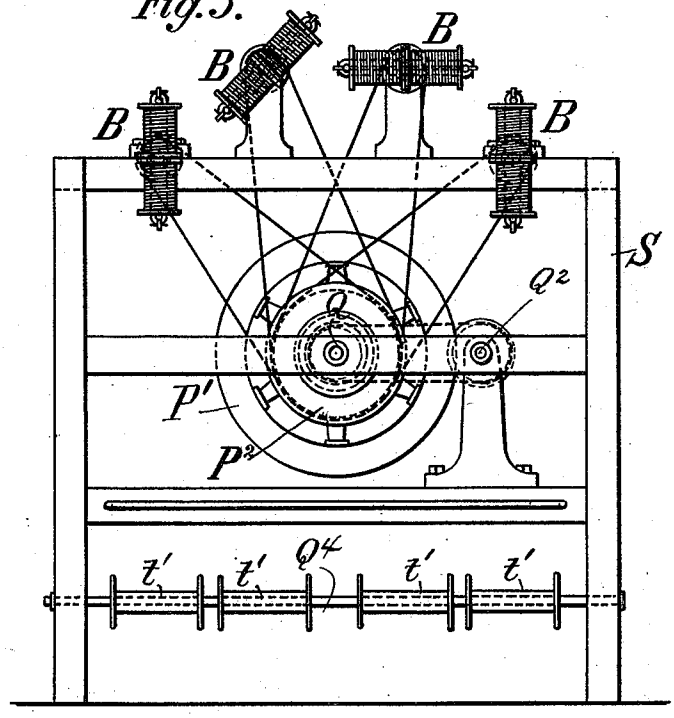
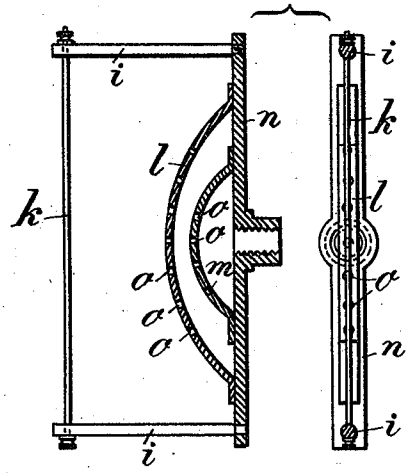


Fig. 10.



Witnesses:
John A. Reinie.
J. D. Lapslinger

Inventor.
Wilhelm Clorer.
By Henry Connett
Attorney.

N. PETERS, Photo-Lithographer, Washington, D. C.

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MACHINE FOR TWISTING AND COVERING CORDS, &c.

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Fig. 6.

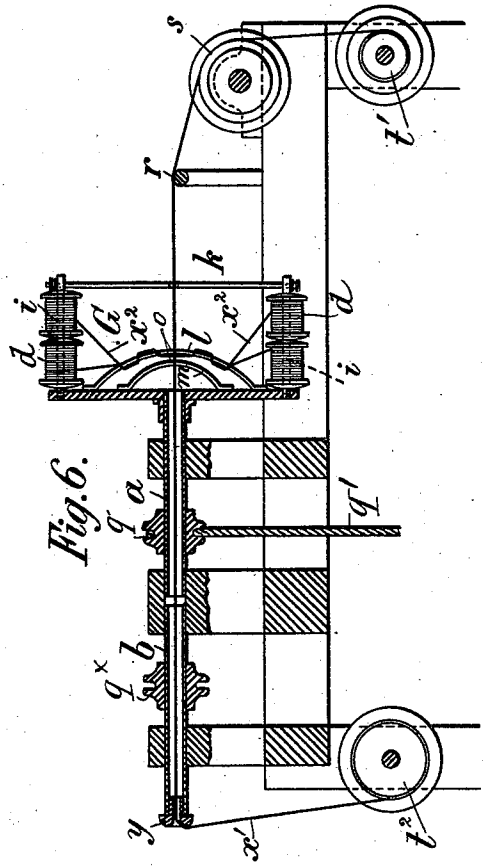


Fig. 8.

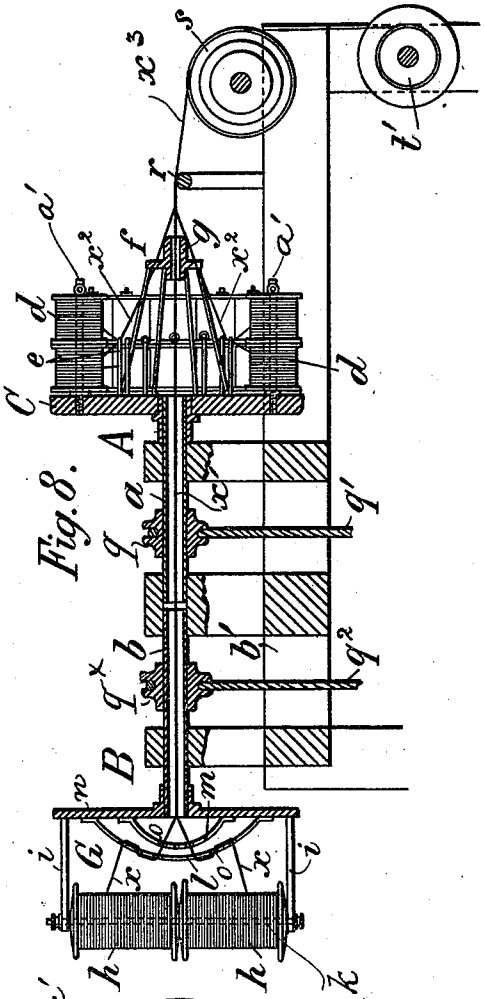


Fig. 7.

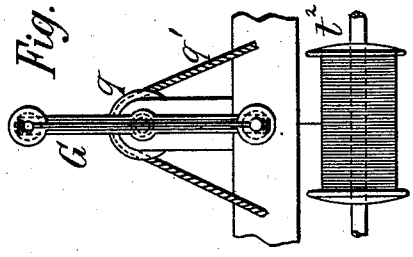
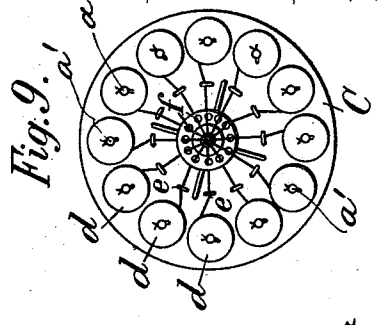


Fig. 9.



Witnesses:
John A. Rennie
J. L. Chapman

Inventor.
Wilhelm Clorer,
By Henry Connett
Attorney.

N. PETERS. Photo-Lithographer. Washington. D. C.

UNITED STATES PATENT OFFICE.

WILHELM CLORER, OF MANNHEIM, BADEN, GERMANY, ASSIGNOR TO ERNST LEVI, LEOPOLD OESTREICHER, AND DANIEL OESTREICHER, ALL OF SAME PLACE.

MACHINE FOR TWISTING AND COVERING CORDS, &c.

SPECIFICATION forming part of Letters Patent No. 408,696, dated August 13, 1889.

Application filed January 16, 1889. Serial No. 296,500. (No model.) Patented in Germany September 3, 1888, No. 47,228; in France November 30, 1888, No. 194,458; in Belgium December 14, 1888, No. 84,292, and in Austria-Hungary March 22, 1889, No. 62,525.

To all whom it may concern:

Be it known that I, WILHELM CLORER, a subject of the Grand Duke of Baden, and a resident of Mannheim, in the Grand Duchy of Baden, Empire of Germany, have invented certain Improvements in Machines for Twisting and Covering Cords, and the Like, (for which I have been granted patents in Germany, No. 47,228, dated September 3, 1888; in Belgium, No. 84,292, dated December 14, 1888; in France, No. 194,458, dated November 30, 1888, and in Austria-Hungary, No. 62,525, dated March 22, 1889,) of which the following is a specification.

My invention relates to machines for twisting and overspinning or covering threads, cordage, and the like; and the principal object of the invention is to improve the construction of the flier, whereby it may be utilized for overspinning the core or for twisting the core, all as will be hereinafter set forth.

In the accompanying drawings, illustrative of my invention, Figure 1 is a front view of a machine embodying my invention and combining in one machine four twisting and overspinning machines driven from one shaft. Fig. 2 is a side view of said machine; Fig. 3, a rear view, and Fig. 4 a plan. The four machines embodied in this compound machine may be all alike. Fig. 5 is a sectional elevation of a modification of the machine adapted for overspinning an untwisted core. Fig. 6 is a sectional elevation, and Fig. 7 is an end view, of a modification of the machine illustrated in Fig. 5, but on a larger scale. Fig. 8 is a sectional elevation, and Fig. 9 a front end view, of one machine embodying my invention. These views illustrate, on a larger scale, the construction of the several machines combined, as seen in Figs. 1, 2, 3, and 4. Fig. 10 comprises two views of the flier detached and on a larger scale than Fig. 8.

In order that my invention may be the better understood, I will first refer to and describe the construction illustrated in Figs. 8 and 9, where my invention is shown as embodied in a single twisting and overspinning machine, where the core is made up of two separate strands.

A is the overspinner as a whole, and B is the core-twister as a whole. G is the flier of the core-twister, which is secured to the end of a tubular shaft *b*, mounted in a suitable frame *b'*. This flier carries two spools or bobbins *h h*, on which are wound the respective strands *x x*, which form the core. By reference to Fig. 10 the construction of the flier G may be fully understood. It comprises a bar *n*, provided at its middle with a screw-threaded socket, which receives the end of the hollow shaft *b*. At its ends are arms *i i*, between the extremities of which is secured a removable stretcher *k*, on which the spools *h* are mounted.

On the inner face of the bar *n* are mounted two arched or curved tension-bars and guides. These bars have in them holes *o o*, the inner one having three holes by preference, and the outer one seven holes by preference, the central hole in each bar being aligned with the axis of shaft *b*.

The manner of threading the strands *x x* through the holes *o o* in the tension-bars is clearly illustrated in Fig. 8.

In the same frame *b'*, and aligned with the shaft *b*, is another hollow shaft *a*, which forms a part of the overspinner A. On the end of the shaft *a* is secured a disk C, which has arms *a'* projecting from its face, on which are rotatively mounted the spools *d d d*, &c., bearing the respective strands x^2 x^2, &c., to be spun over the core *x'*. This core, formed by the twisting together of the two strands *x*, passes longitudinally through the two shafts *a* and *b* and on through an eyelet *g*, mounted on the face of disk C and aligned with the axis of the said shafts. The several covering-strands x^2 are led from their respective spools *d* through guides *e* and *f* to the front of eyelet *g*, where they converge and join the core *x'*. The finished cord or thread x^3 passes over a take-up or delivery wheel *s*, around which it is wrapped once or twice, and is led

thence down to a drum or spool t', on which it is wound up as fast as completed. On the shaft a is secured a pulley or sheave q, whereby the overspinning device A is driven through belt q', and on the shaft b is a similar sheave or pulley $q^{\times}$, whereby the core-twister B is driven through a belt q^2. The cord may pass over a support r (seen at the right in Fig. 8) arranged just in front of the point where the covering-strands converge upon the core.

The two threads x x forming the core x' are twisted together by the rotation of the shaft b, and the tightness of the twist will be proportioned to the speed at which said shaft is driven. The speed at which the take-up wheel s and spool t' are driven relatively to the speed of the overspinner A will govern the tightness of the overspinning, as will be well understood.

The number of strands in the core and of the strands spun over the core may be varied almost indefinitely, as may also the relative speeds of the independently-driven parts. The shafts a and b may rotate in the same or in contrary directions. If only one strand is used in the core, then but one spool h will be mounted on the stretcher k.

The principal figures 1, 2, 3, and 4 show a compound machine embodying four machines like that just described mounted in a suitable main frame S and driven from a shaft Q in common. This shaft may be provided with a crank Q', and it has on it a pulley P', from which the several overspinning devices A are driven, and a pulley P^2, from which the several twisters B are driven. A pulley w on shaft Q is belted to a pulley v on a counter-shaft Q^2, and a pulley w^2 on this counter-shaft is belted to a pulley w' on the shaft Q^3, whereon the take-up wheels s are mounted. On this shaft Q^3 is secured a pulley s', which is belted to a pulley s^2 on the shaft Q^4, on which the several drums t' are mounted. Thus all the moving elements of the mechanism are driven from the main shaft Q. By using cone-pulleys the speed may be varied in a well-known manner.

In Fig. 4 the overspinning devices at the left side are shown without any spools d on the arms a' merely to avoid obscuring the drawings.

It may be remarked that the machine described can be easily modified so as to make overspun cords of which the axial thread or core is not twisted. This is illustrated in Figs. 5, 6, and 7. In effecting this change the flier G is unscrewed from the shaft b, which is allowed to remain at rest, and the disk C, with its attachments, is removed from shaft a and replaced by the flier, as seen in Figs. 6 and 7. However, the spools h will be first removed from the rod k, and spools d, containing the covering-thread, placed on the arms i of the flier. The core x' is led from a drum t^2 (seen at the left in Fig. 6) through an eyelet y, set in the end of shaft b, and thence through the bores in shafts b and a, over the support r and take-up wheel s, to the spool or drum t'. On its way it passes through the central holes o in the tension-bars l and m on the flier G, and at this point it receives the covering-threads x^2. The stretcher k of the flier may be omitted altogether; but if used in operating in the above manner it must have in it an aperture for the passage of the finished cord.

Fig. 5 is a sectional view merely designed to illustrate how several machines similar to that shown in Fig. 6 may be driven from one common shaft, said view corresponding in this respect to Fig. 2.

Having thus described my invention, I claim—

The combination, with the tubular shaft to which it is fixed, of the flier G, consisting of the bar n, furnished with a socket at its middle to receive said shaft, the arms i i on the respective ends of said bar, the removable spool-carrying stretcher k, mounted in said arms, and the two arched tension-bars mounted on the face of the bar n and provided with holes o for the passage of the strands, as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILHELM CLORER.

Witnesses:
KARL SENFT,
DANIEL ERSLEIN.