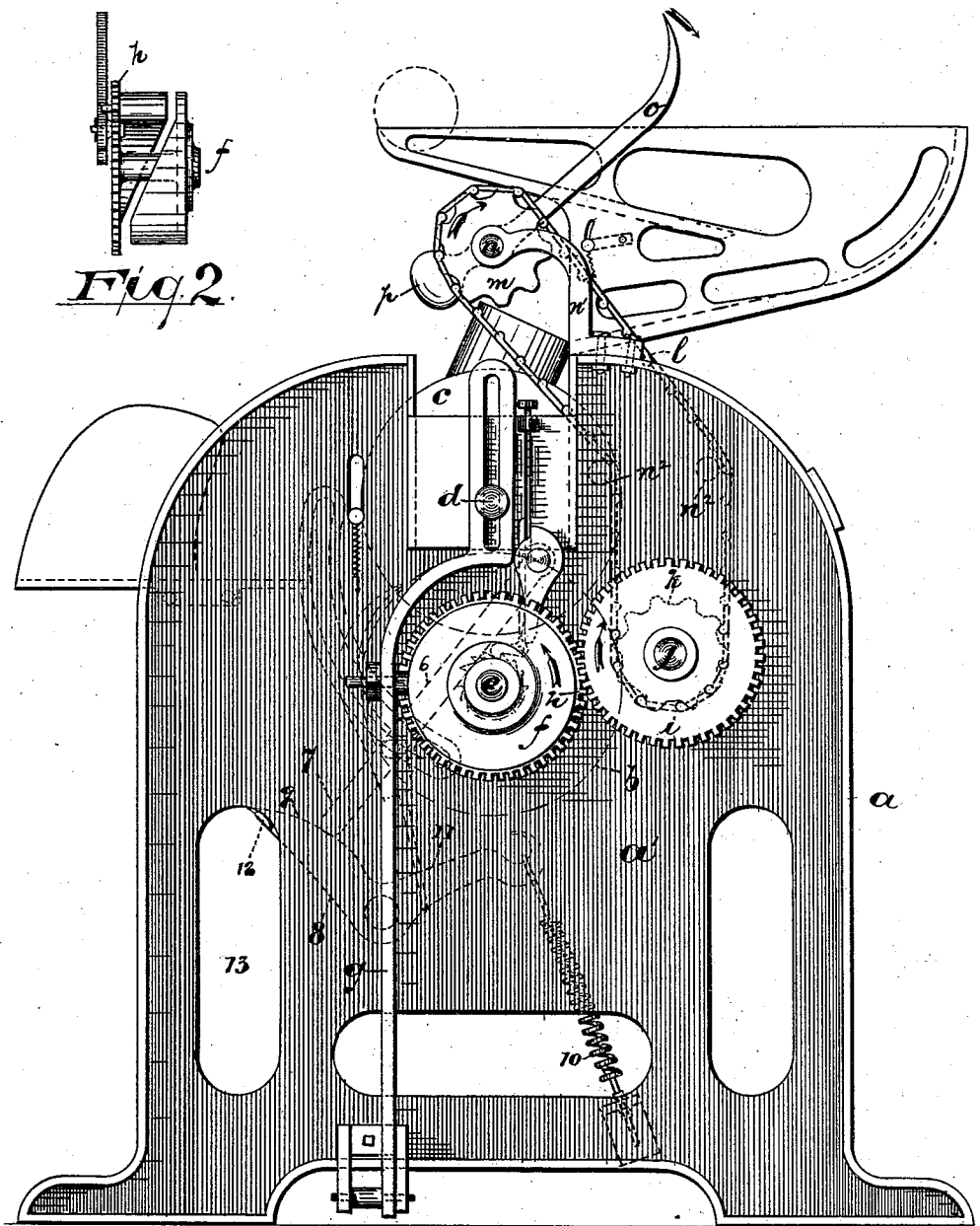
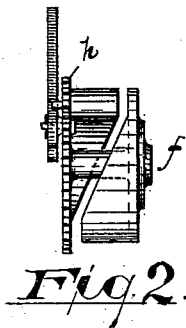


(No Model.)

G. J. TORRANCE.
BALLING MACHINE.

No. 472,774.

Patented Apr. 12, 1892.



Witnesses

Inventor:

Oscar A. Michel
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UNITED STATES PATENT OFFICE.

GEORGE JAMES TORRANCE, OF HARRISON, NEW JERSEY.

BALLING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 472,774, dated April 12, 1892.

Application filed December 5, 1890. Serial No. 373,697. (No model.)

To all whom it may concern:

Be it known that I, GEORGE JAMES TORRANCE, a citizen of the United States, residing at Harrison, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Balling-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to certain improvements in that class of balling-machines illustrated in my prior patents, No. 370,574, of September 27, 1887, and No. 430,900, of June 24, 1890, the objects of which improvements are to reduce the noise of the machine when the same is in operation; to secure an easier movement, and thus reduce the wear on the machine, and to secure other advantages and results, some of which will be hereinafter set forth in connection with the description of the working parts.

The invention consists in the improved balling or spooling machine and in the arrangements and combinations of parts thereof, substantially as will be hereinafter set forth, and finally embodied in the clauses of the claim.

Referring to the accompanying drawings, in which like letters and numerals indicate corresponding parts in each of the figures, Figure 1 is a side elevation of the improved machine, and Fig. 2 is a detail more fully showing the construction of a certain cam.

In said drawings, *a* indicates the frame of the machine, of which *a'* is one of the side plates, *b* is the drum, and *c* the flanges. (Shown in dotted outline.) *d* indicates the spindle, adapted to be operated to move longitudinally to allow the spools to be forced, when full, from between the flanges. All said parts and their co-operating mechanisms for driving them have been fully shown and described heretofore, and further description is deemed to be unnecessary.

To reduce the noise of working the machine and at the same time secure greater durability, I have arranged in connection with the recip-

rocating "breaker" a spring-controlled cushion adapted to break the force of the blow of said breaker in its return movement after severing the sliver in the ordinary manner. Heretofore the force of the return movement has been broken by a rubber or leather cushion. In practice this has been found to be objectionable to some extent because of the effect of oil thereon and because of its lack, after considerable use, in ability to cushion the blow and prevent objectionable jarring.

To secure a more efficient cushion for the breaker is the especial object of the invention.

On the driving-shaft *e*, which carries and gives motion to the drum *b*, is arranged the ordinary cam *f*, (shown in detail in Fig. 2,) which said cam operates the lever *g* to give lateral or longitudinal movement to the spindle *d* to withdraw the same from engagement with the spool. Said cam, however, differs from those heretofore commonly employed in that one of the parts thereof is provided with peripheral gear-teeth or cogs *h*, which mesh with and impart rotary motion to a gear-wheel *i*, arranged on a stud or shaft *j*, having its bearings on one of the side plates of the machine-frame. On the opposite or inner side of said frame-plate on said shaft is a sprocket-wheel *k*, and to co-operate therewith is a chain-belt *l* and sprocket-wheel *m*, arranged above the body of the machine on a shaft *n*, carried by a bracket *n'*, the said belt connecting the two said sprocket-wheels, so that rotary movement is imparted to the upper one. The belt is guided in its course by guide wheels or rollers *n''*, which hold the said chain from the spool. The bat or pusher is fixed to the shaft *n*, and is thus given a rotary movement in the direction indicated by the arrow, and thus is enabled to force the filled spool from between the flanges. By this construction at the moment when the spool is completely filled with sliver and the ordinary ratchet-and-pawl mechanisms of the cam are brought into play to start the said cam and operate the lever *g* and spindle *d* the cog-wheeled portion of the cam is revolved, together with the wheels *i*, *k*, and *m*, and the bat is turned by an easy and comparatively slow movement, the return of the bat to its initial position not being between the flanges and across the line of the

spindle. The bat *o* is provided with a weight *p* to counterbalance the same.

The mechanisms employed for cushioning the return of the breaker are shown in outline with sufficient clearness to illustrate the construction. The breaker-lever 6 is extended, as at 7, to engage a pivoted lever 8, arranged on the side plate of the machine. The engaging-surface 9 of the pivoted lever is inclined, so that the extension 7 engages the same by a sheering movement and is retarded by a frictional contact, as will be understood. This causes the pivoted lever to turn on its center against the power exerted by a spring 10. The friction thus induced retards the movement of the breaker-lever, so that when it finally engages the stop projection 11 of the pivoted lever it does so with little or no noise. The movement of the breaker-lever is limited by a stop-lug 12 at the forward end of the cushioning-lever, which lies in the opening 13 of the side plate and at the proper limit of movement engages said side plate.

Having thus described the invention, what I claim as new is—

1. In a spooling or balling machine, the combination, with the sliver-spooling apparatus and the breaker-lever, of a pivoted cushioning-lever secured to the frame below the breaker-lever, one arm of said cushioning-lever being in a position to be engaged by the lower end of said breaker-lever to cause a gradual stopping thereof, and a spring con-

necting the other end of the cushioning-lever to the frame.

2. In a spooling or balling machine, the combination, with the breaker-lever and the sliver-spooling apparatus, of a cushioning-lever arranged to receive and cushion the return movement of said breaker-lever, substantially as set forth.

3. In a spooling or balling machine, the combination, with mechanism for spooling the sliver and a breaking-lever, of a cushioning-lever having the inclined surface 9, a stop projection 11, and a spring bearing against said lever, whereby the latter is held into frictional contact with the breaking-lever, substantially as set forth.

4. In a spooling machine, the combination, with the spooling mechanisms and a breaking-lever, of a cushioning-lever having the inclined surface to receive the break-lever, a lug 12 to limit the movement of the cushioning-lever, a stop projection to limit the movement of the break-lever, and a spring bearing against said cushioning-lever, substantially as and for the purposes set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 24th day of November, 1890.

GEORGE JAMES TORRANCE.

Witnesses:

OSCAR A. MICHEL,
R. E. POWELL.