(No Model.)

T. R. MOORE.

KNIFE BLADE MACHINE.

No. 481,804. Patented Aug. 30, 1892.

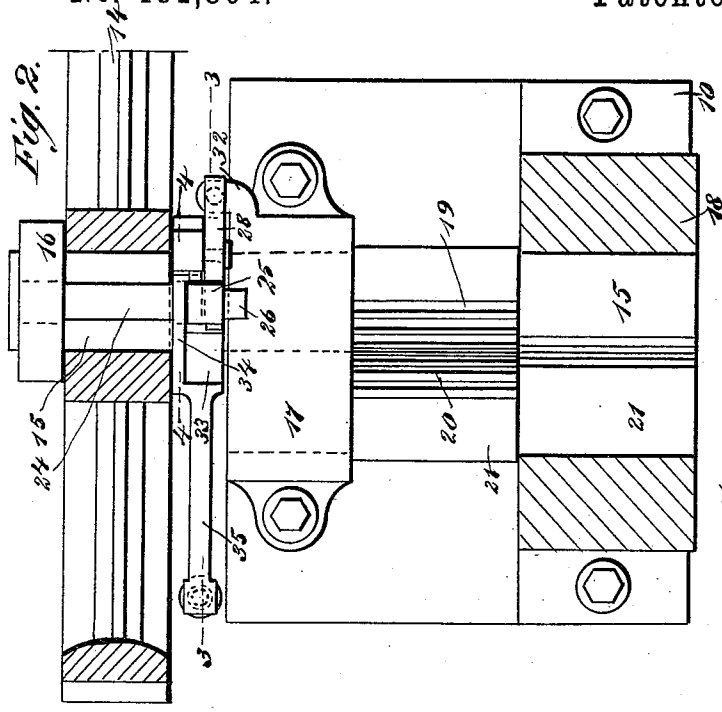

Fig. 2.

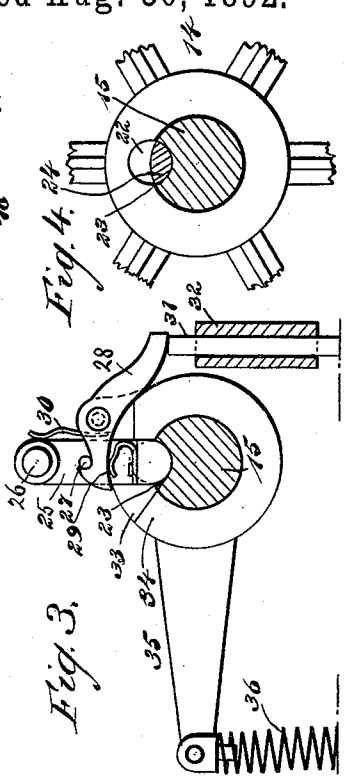

Fig. 4.

Fig. 3.

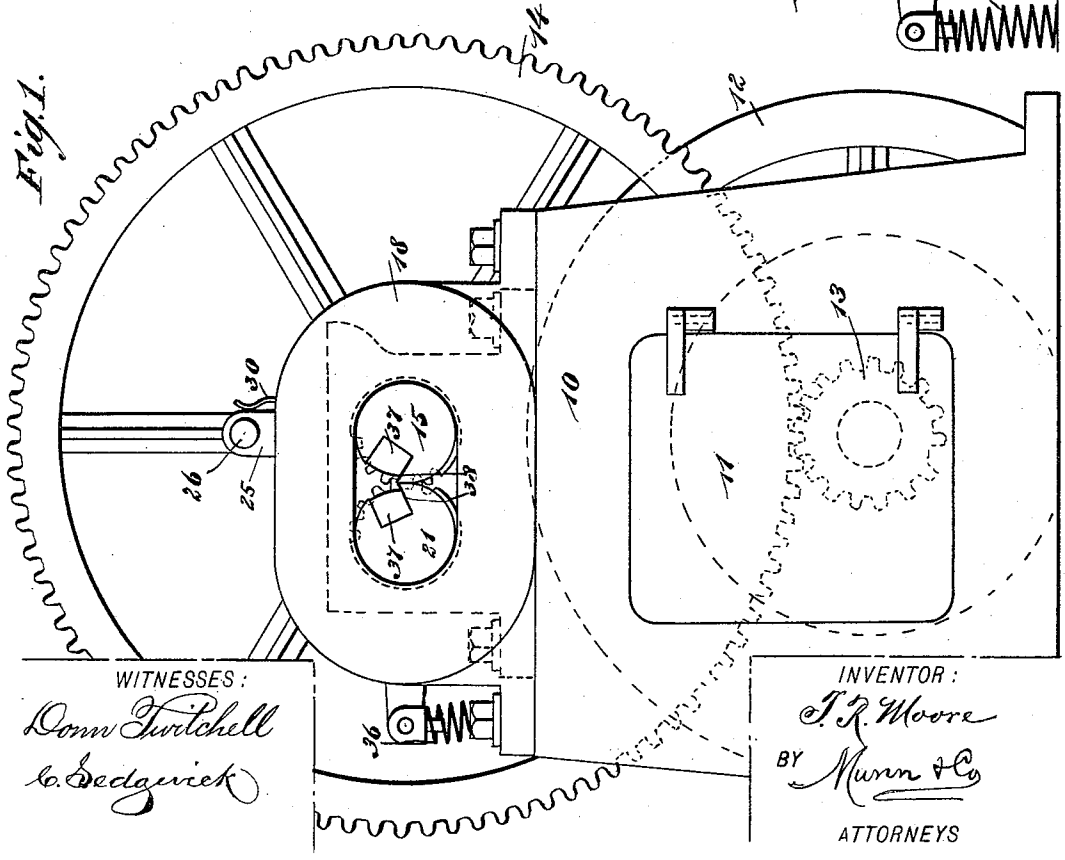

Fig. 1.

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UNITED STATES PATENT OFFICE.

THOMAS R. MOORE, OF WALDEN, NEW YORK.

KNIFE-BLADE MACHINE.

SPECIFICATION forming part of Letters Patent No. 481,804, dated August 30, 1892.

Application filed January 7, 1892. Serial No. 417,265. (No model.)

To all whom it may concern:

Be it known that I, THOMAS R. MOORE, of Walden, in the county of Orange and State of New York, have invented a new and Improved Knife-Blade Machine, of which the following is a full, clear, and exact description.

My invention relates to improvements in knife-blade machines; and the object of my invention is to produce a simple, strong, durable, and rapid-working machine by means of which strips of metal may be brought to the right shape for finishing and which will shape all the pieces of metal alike.

To this end my invention consists in certain features of construction and combinations of parts, which will be hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures of reference indicate corresponding parts in all the views.

Figure 1 is a broken front elevation of the machine embodying my invention. Fig. 2 is a sectional plan view of the same. Fig. 3 is a detail cross-section on the line 3 3 in Fig. 2 of the tripping mechanism, and Fig. 4 is a cross-section of the same on the line 4 4 in Fig. 2.

The machine is provided with a substantial hollow base 10, which is preferably provided with a door 11, which enables its interior to be reached, and on the frame is a driving-pulley 12, which carries a pinion 13, the latter meshing with a large gear-wheel 14, which turns loosely at the back end of the machine on a roller 15, being held in place by a collar 16. The roller 15 is mounted on top of the base 10 and turns in the bearings 17 and 18 on the front and rear part of the base, the said bearings being hollow, as best shown in Fig. 1, and having sufficient strength to resist the pressure of the die-rolls when applied to the metal, as hereinafter described. The roller 15 is provided throughout its middle portion and on one side with longitudinal teeth 19, which mesh with similar teeth 20 of a roller 21, which roller is arranged parallel with the roller 15 and turns in the bearings 17 and 18, both rollers 15 and 20 having shoulders adjacent to the bearings to prevent them from moving endwise, as best shown in Fig. 2.

The gear-wheel 14, which turns loosely on the roller 15, has a longitudinal and nearly semicylindrical recess 22 on the inner portion of its hub, which recess registers with a corresponding recess 23 in the roller 15, and the recess 23 is adapted to receive the tripping-piece 24, which fits snugly in the recess, but which may turn therein, and the conformation of the tripping-piece is such that it may be turned so that its upper surface will form a continuation of the roller 15, as best shown in Fig. 4. This tripping-piece 24 is provided at one end with a crank 25, which is arranged between the hub of the gear-wheel 14 and the bearing 17 of the rollers, and this crank has near the top and on the front side a stud 26, which when the crank is turned is adapted to engage the surface of the bearing 17, as hereinafter described.

On the front side of the crank 25 is a stud 27, which is adapted to engage the hook end of a pawl 28, which pawl is pivoted adjacent to the crank, and the pawl is normally pressed into engagement with the stud by a bent spring 29, which is fixed to the lower portion of the crank and which presses against the lower side of the pawl. The upper end of the crank is normally thrown to one side, so as to throw the crank out of a vertical position, by a spring 30, which is arranged between the crank and the bearing of the pawl 28. The outer end of the pawl 28 rests upon the upper end of a treadle-lever 31, which may be operated in any of the usual ways and which is held to move vertically in a keeper 32, and by forcing up the lever it will be seen that the pawl 28 may be disengaged from the stud 27, so as to permit the crank 25 to turn. When the crank 25 is in a vertical position, the tripping-piece 24 will be in the position shown in Fig. 4, which permits the gear-wheel 14 to turn loosely on the roller 15; but when the crank is thrown out of a vertical position the tripping-piece 24 is turned up so that one edge of it will enter the recess 22 in the gear-wheel and the gear-wheel and roller will then turn together. The crank 25 is held to turn in a recess 33 of the collar 34, which collar is fixed to the roller 15 and is provided with a later-

ally-extending arm 35, which is normally pressed upward by a spring 36, mounted on a frame or base 10. It will thus be seen that when the pawl is disengaged from the crank the roller 15, the crank 25, the collar 34, and arm 35 will all move forward together, and when the stud 26 strikes the bearing 17 the tripping-piece 24 will be tipped back into its position of rest in the recess 23 and the crank 25 will be turned so as to be re-engaged by the pawl 28, this being effected by the pressure of the spring 36.

It will be seen that the roller 15 and crank 25 will not revolve, but will oscillate, and the tripping mechanism above described I do not claim in detail as a part of my invention, as it is a common means of effecting the movements described; neither do I limit myself to the use of this particular tripping mechanism, as other means may be employed for accomplishing the purpose without departing from the principle of my invention.

The rollers 15 and 21 are provided near their front ends with registering dies 37, which are held in recesses in the rollers and which are also held on the sides adjacent to the teeth 19 and 20, so that when the rollers are oscillated the dies will be brought together. The dies are wider at the top than at the bottom, thus leaving projections 38 on the rollers, which projections will catch and hold the strips of metal which are to be formed into knife-blades.

The operation of the machine is as follows: The normal position of the machine is shown in Fig. 1, and when in this position a strip of hot metal to be shaped into a blade is inserted between the rollers 15 and 21, so as to rest on the projections 38 adjacent to the dies 37. The operator then releases the pawl 28 by means of the treadle-lever 31 and the crank 25 will be thrown by the spring 30 so as to bring the tripping-piece 24 into the path of the gear-wheel 14, as above described, and the rollers will thus be moved forward and downward, thus causing the dies 37 to be jammed forcibly upon the metal strip, and as the dies are wider and thicker at their upper portions the upper part of the strip will be formed into an edge, and the lower part being thicker will form the back of the blade. When the rollers have moved far enough to shape the blade, the tripping-piece 24 will be turned back in the manner described and the spring 36 will return the rollers to their normal position.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination, with the frame having double bearings 17 18, of the two rolls geared together and mounted in said bearings to oscillate, the front ends of the rolls being provided within the bearing 18 with longitudinally-extending dies to receive the blank lengthwise between them and roll it transversely, and an operating mechanism, substantially as set forth.

2. The combination, with the frame and the parallel oscillating rolls journaled in bearings thereon, geared together between their ends, and provided at their front ends within one bearing with the opposed dies, of a spring-actuated lever on the rear end of one roll to return the rolls to their normal positions, a gear-wheel loose on said lever-actuated roll, and a locking and tripping mechanism for locking and unlocking said gear and roll, substantially as described.

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Witnesses:
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