

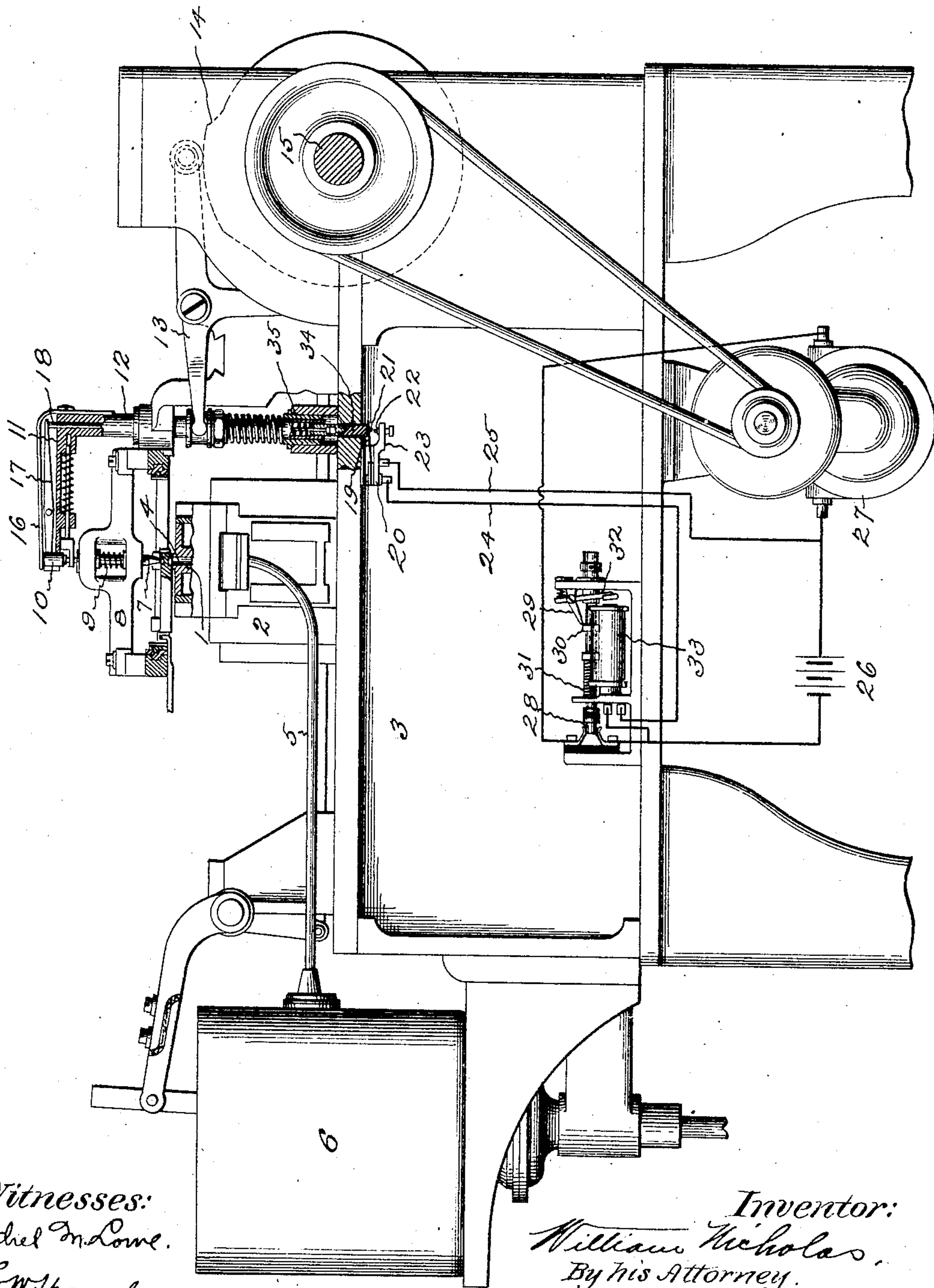
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W. NICHOLAS.

SQUIRT PREVENTER FOR TYPE CASTING MACHINES.

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UNITED STATES PATENT OFFICE.

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SQUIRT-PREVENTER FOR TYPE-CASTING MACHINES.

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To all whom it may concern:

Be it known that I, WILLIAM NICHOLAS, a citizen of the United States, residing at Thompsonville, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Squirt-Preventers for Type-Casting Machines, of which the following is a specification.

In an automatic type-casting machines the matrix with the character-cavities and the mold in which type-bodies are cast are movable relatively to each other in order to bring the desired matrix-cavity over the mold-opening. When these parts are tightly held together, molten metal is forced into the mold and matrix, and the character is formed in the matrix-cavity and the body of the type is formed in the mold-opening. It is common to force the molten metal by means of a pump into the mold-opening and the matrix-cavity, which must be alined with great precision and must be tightly clamped together or molten metal will squirt between the adjacent faces of the matrix and the mold and form a fin on the type. A squirt necessitates the stopping of the machine for the purpose of removing the defective type and wiping away the squirted metal, otherwise the squirted metal will prevent a close joint from being made between the faces of the matrix and the mold, so that the subsequent castings will produce very imperfect type. This incurs a loss of time, due to the stoppage of the machine, and also disturbs the matter being set up.

United States Patent No. 702,941 to Goodson, June 24, 1902, shows and describes a mechanism which when a squirt occurs causes the pump to stop forcing molten metal to the mold and matrix. The mechanism of that machine is such that although the pump is stopped and tape are not cast after a squirt occurs the remaining mechanisms continue operating and the tape which controls the operation feeds along, so that when the squirt is cleared and the pump again started an omission will appear in the matter being set up by reason of the feed of the tape after the casting has been stopped.

The object of this invention is to arrange a mechanism which will stop the entire machine when a squirt occurs, so that the operative may at once know that there is trouble and so that the mechanisms will not run idle and waste power and be subjected to unnecessary wear and feed the tape beyond where the squirt occurs.

This invention provides a mechanism which closes an electric circuit if the matrix is separated from the mold when in casting position, which circuit when closed causes a cut-out to open the main power-circuit and stop the motor.

The invention is illustrated as designed for use in connection with a type casting and setting machine, such as is shown and described in United States Patent No. 609,098 to Goodson, August 16, 1898. The figure of the drawings show in side elevation so much of the parts of such a machine as is necessary to a comprehension of the invention.

The mold 1 is supported on a bed 2, mounted on the frame 3, as usual. Communicating with the opening 4 is a pipe 5, leading from the melting-pot 6. When the machine is operated, molten metal is pumped from this pot through the pipe into the opening in the mold and the cavity in the matrix, as usual.

The mechanisms for locating the matrix in casting position form no part of this invention. Therefore as they are fully disclosed in the prior Goodson patents they are not herein described and shown.

The final centering of the matrix, so the desired character-cavity will exactly coincide with the opening in the mold, is affected by a centering-pin 7, which coöperates with centering-recesses in the back of the matrix-block. This centering-pin is loosely supported by a yoke 8 and is held up by a spring 9.

Above the centering-pin is a head 10, loosely carried in the end of the arm 11 of the vertically-movable post 12. This post is raised and lowered in the usual manner at the proper time by the lever 13 and the cam 14 on the main cam-shaft 15. The head 10 in the end of the arm is pushed downwardly by the

spring-finger 16. A lever 17, pivoted on the arm, has one end engaging the head 10 and the other end engaging a rod 18, that extends downwardly through the post. On the lower
 5 end of this rod is a piece of insulating material 34, that is pressed downwardly by a spring 35, so as to engage with a spring-finger 19, that is supported by and insulated from a bracket 20, attached to the under side of the
 10 top of the frame. This spring-finger has a contact-point 21, that is adapted to make contact with a point 22 on the arm 23 of the bracket when the finger is pressed down by the rod. The insulated spring-finger 19 is
 15 connected with a wire 24, and the bracket-arm 23 is connected with a wire 25. The insulating-tip insulates the rod from the frame and finger and yields so the bracket will not be broken or strained if the rod is pressed down
 20 hard.

The source of motive power, which in this instance is indicated as a battery 26, is connected with the motor 27 in the usual way. In this circuit is a cut-out 28. The plug of this cut-
 25 out is held so as to keep the circuit closed by the engagement of the finger 29 with the collar 30 on the shank of the plug. When this finger is raised, the spring 31 pushes back the plug and opens the motor-circuit. The finger
 30 29 is connected with a lever 32, bearing the armature of a magnet 33. The coils of this magnet are connected with the wires 24 and 25, so that when the circuit is closed through these wires and the magnet is energized the
 35 armature is pulled so as to lift the finger from the collar and allow the spring to push back the plug and open the motor-circuit.

In case of a squirt or the accumulation of any matter between the face of the mold and
 40 the face of the matrix, so that the matrix is lifted and the centering-pin cannot go down to its lowest limit when the post is drawn down, the lifted centering-pin oscillates the lever 17 and causes the rod 18 to be pushed
 45 downwardly, so as to join the points 21 and 22 and close the magnet-circuit through the wires 24 and 25, and thus cause the motor-circuit to be opened and the entire machine to be
 50 stopped.

The invention claimed is—

1. In a type-casting machine, a mold and a matrix movable with relation to each other,

mechanism for centering the movable part, an electric circuit, mechanism operated by the movable part for closing the electrical cir- 55
 cuit if the matrix-surface and the mold-surface are not tight together when in casting position, a translating device actuated by the closing of the electrical circuit, a motor for driving the machine, and mechanism con- 60
 trolled by the translating device for cutting off the power which energizes the motor, substantially as specified.

2. In a type-casting machine, a mold, a matrix movable with relation to the mold, a centering-pin adapted to locate the matrix in casting position, an electrical circuit, mechanism actuated by the centering-pin for closing the electrical circuit if the centering-pin cannot properly locate the matrix, a translating device actuated by the closing of the circuit, a motor for driving the machine, and mechanism controlled by the translating device for cutting off the power that energizes the motor, substantially as specified. 75

3. In a type-casting machine, a mold, a matrix movable with relation to the mold, a centering-pin adapted to locate the matrix in casting position, a lever adapted to be moved by the centering-pin, a rod adapted to be moved 80
 by the lever, an electrical circuit adapted to be closed by the movement of the rod if the matrix is not properly located by the centering-pin, a translating device actuated by the closing of the electrical circuit, a motor for 85
 driving the machine, and mechanism controlled by the translating device for cutting off the power that energizes the motor, substantially as specified.

4. In a type-casting machine, a mold and a 90
 matrix movable with relation to each other, an electrical circuit, mechanism for closing the electrical circuit if the matrix-surface and the mold-surface are not tight together when in casting position, a translating device in the 95
 electrical circuit that is actuated when the circuit is closed, and mechanism controlled by the translating device for cutting off the power that operates the machine, substantially as specified.

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