April 6, 1937. J. MOSCINI 2,076,502

RHINESTONE MAKING MACHINE

Original Filed April 14, 1932 3 Sheets-Sheet 1

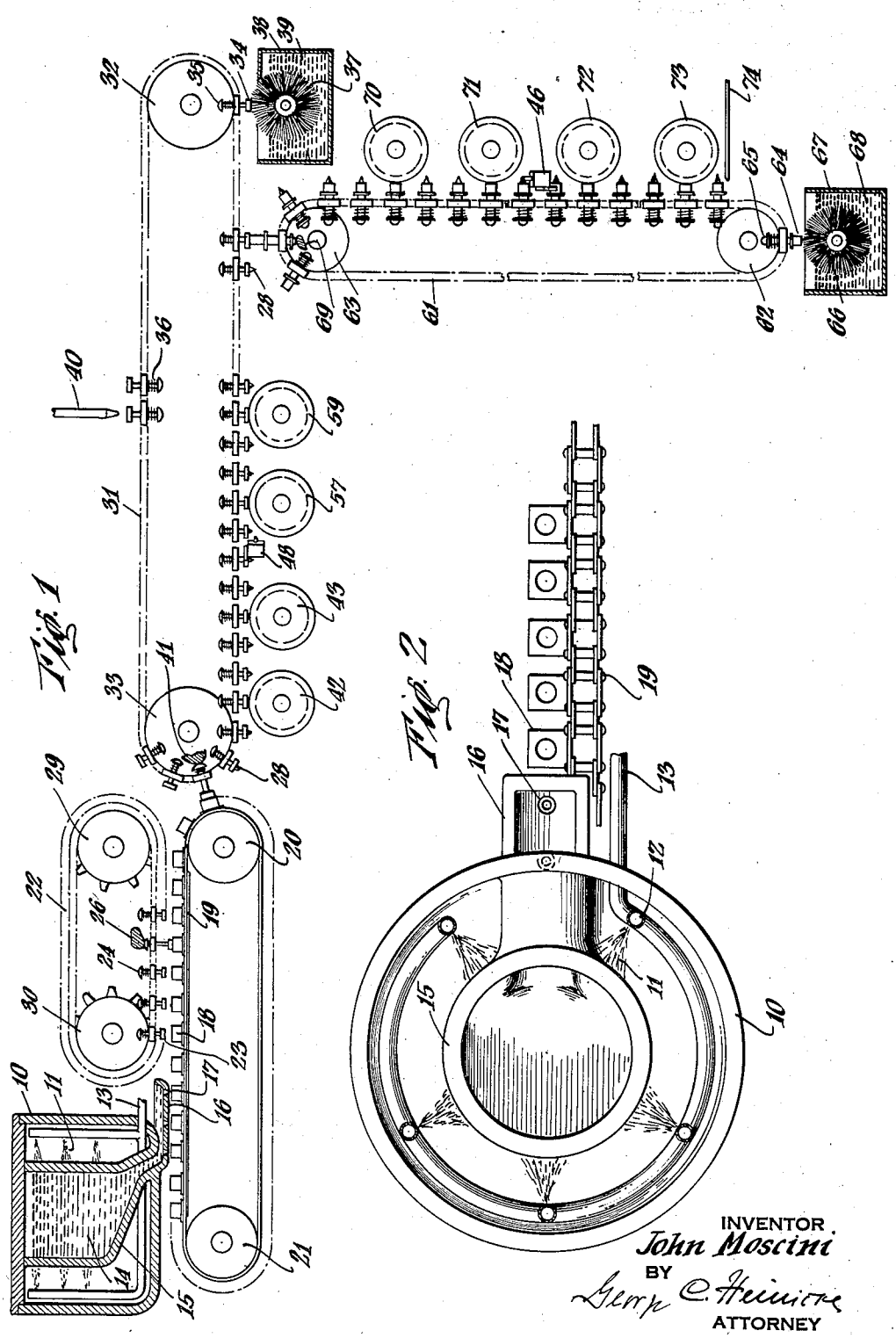


Fig. 1

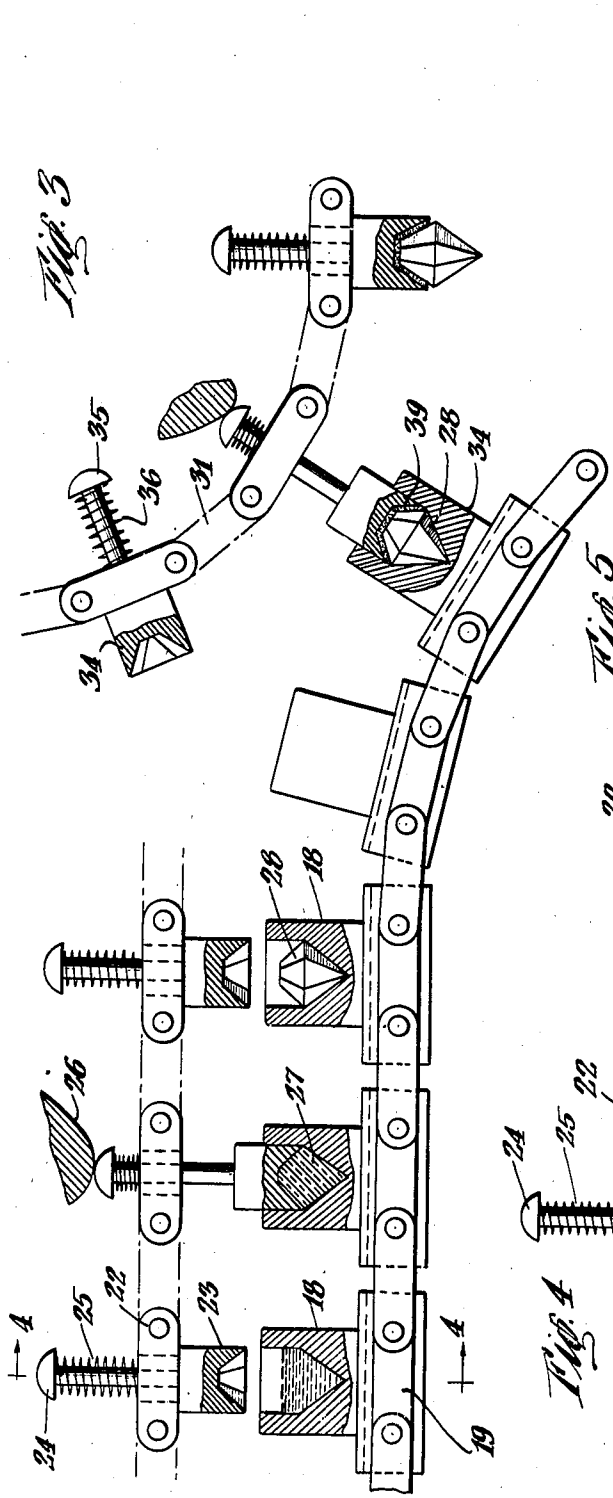
Fig. 2

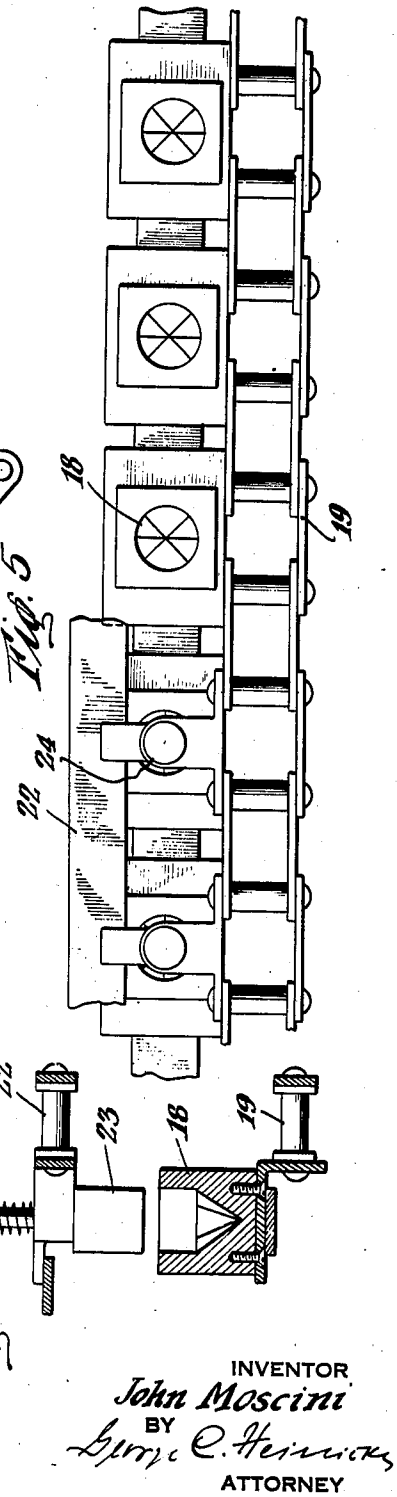
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RHINESTONE MAKING MACHINE

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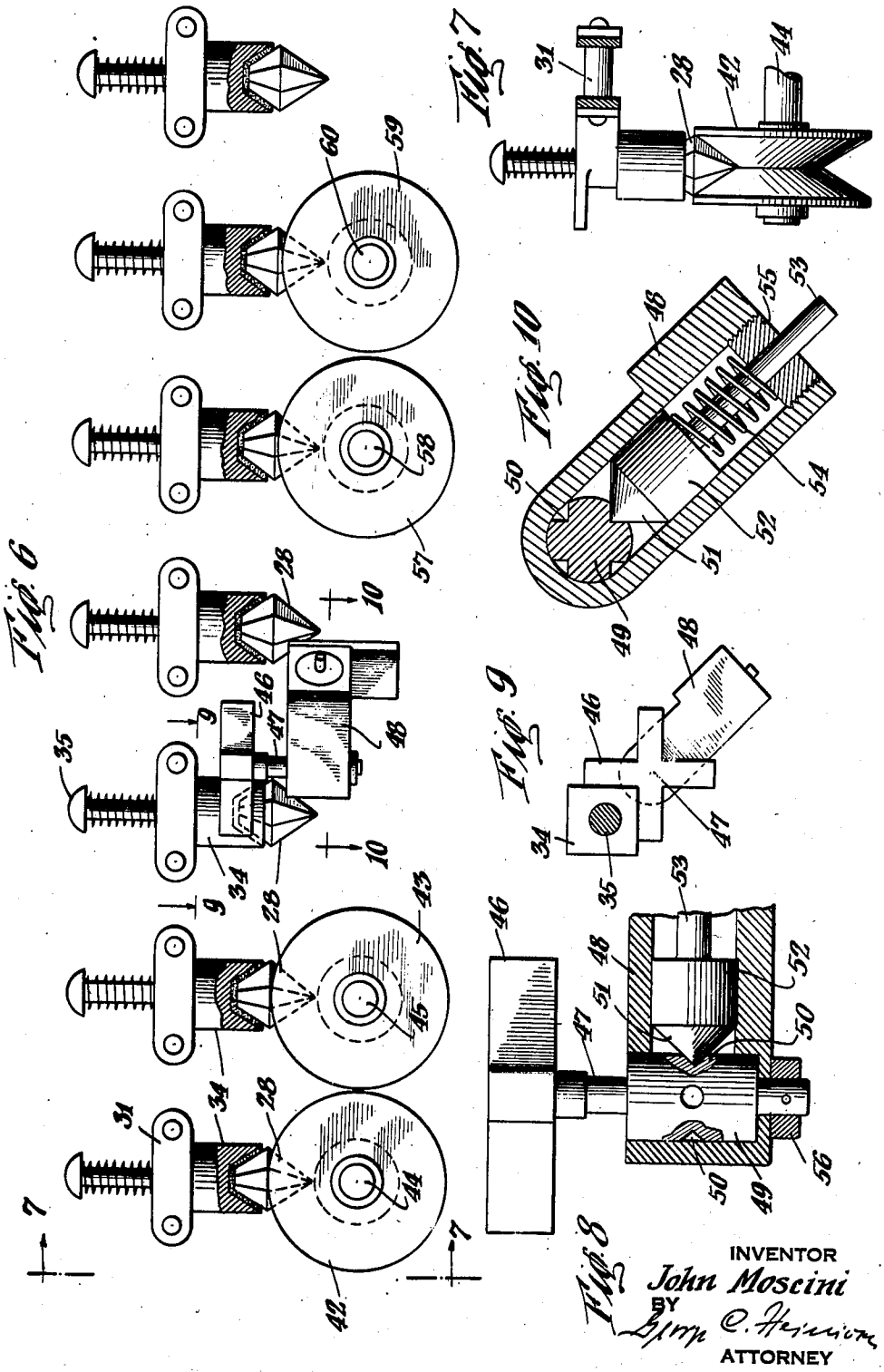


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RHINESTONE MAKING MACHINE

Original Filed April 14, 1932 3 Sheets-Sheet 3



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UNITED STATES PATENT OFFICE

2,076,502

RHINESTONE MAKING MACHINE

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Refiled for abandoned application Serial No. 605,157, April 14, 1932. This application June 5, 1936, Serial No. 83,814

3 Claims. (Cl. 49—1)

This invention relates to a novel and improved rhinestone producing machine set forth in my forfeited application filed April 14, 1932, Serial Number 605,157, allowed December 9, 1932, the principal object of my invention is to provide a machine in which by successive steps the stones are molded from a molten glass mass, removed from their molds into other molds, provided with adhesive material, to which they adhere to be guided to grinding and polishing tools to grind and polish one side of the outer ends of the stones to be then turned to expose their other sides to other grinding and polishing tools, whereafter the stones are removed from their molds to expose their inner ends to grinding and polishing tools grinding and polishing one side of the stone to be turned to expose their other side to other grinding and polishing tools and finally to be removed from their molds and collected.

Another object of my invention is the provision of a rhinestone manufacturing machine in which the molds are provided with spring controlled plungers, operated by cams to carry the mold parts against one another and to separate them after the molding operation.

Still another object of my invention is the provision of a rhinestone making machine equipped with containers for sealing wax kept in liquid condition to secure the stones in their molds.

A further object of my invention is the provision of a rhinestone molding machine in which the stones are ground and polished on one side and equipped with special turning devices to expose their other sides to other grinding and polishing tools.

A still further object of my invention is the provision of a rhinestone producing machine equipped with means for removing the ground and polished stones from their molds into other molds to expose their inner ends to grinding and polishing tools for grinding and polishing one side of the stones turning the same and exposing them to other grinding and polishing tools for finishing the stones whereby means are provided to remove the finished stones from their molds and collect the same.

These and other objects and advantages of my invention will become more fully known as the description thereof proceeds and will then be specifically defined in the appended claims.

In the accompanying drawings forming a material part of this disclosure:

Fig. 1 is a side elevation, partly in section of a rhinestone producing machine constructed according to my invention.

Fig. 2 is a fragmentary top plan view thereof.

Fig. 3 is a detail sectional view of the molding and connecting elements used in my machine on their conveyor chains and on a somewhat enlarged scale.

Fig. 4 is a section on line 4—4 of Fig. 3.

Fig. 5 is a fragmentary detail top plan view of the molds and their conveyor belt.

Fig. 6 illustrates the grinding and polishing of one end of the stone and the turning and grinding and polishing operation of the other end of the stone in their successive order.

Fig. 7 is an end view seen on line 7—7 of Fig. 6.

Fig. 8 is a sectional side elevation of the mold turning member.

Fig. 9 is a top plan view thereof seen in the direction of arrows 9—9 of Fig. 6.

Fig. 10 is a section through the mold turner on line 10—10 of Fig. 6.

As illustrated, the material from which the rhinestones are to be made, preferably glass is deposited in a crucible 10 heated by the gas flames 11 of burners 12 supplied with gas through a conduit 13.

The molten glass 14 within a basin 15 is discharged through a tube 16 having suitable discharge openings 17 in the bottom, into the half-molds 18 on an endless conveyor 19 of suitable well-known construction, guided over the feed rollers 20, 21 rotated from any source of power. Above the conveyor 19, another conveyor 22 is arranged carrying a plurality of half molds 23, supplementing the half mold 18, and provided at the ends of plungers 24 adapted to be depressed against the action of the springs 25 wound about the plungers 24 between their heads and the conveyor, by means of a cam 26 attached to a machine part. The cam will press mold half 23 into mold half 18 to form the stone as indicated at 27 in Fig. 3. After plunger 25 has passed cam 26 its spring will raise plunger 25 and mold 23 so as to leave the molded stone in form 18 as shown at 28, in Fig. 3.

Belt or conveyor 22 is guided over the sprocket wheels 29, 30, driven in the usual well-known manner from any suitable source of power.

A third conveyor 31 is arranged in juxtaposition to conveyor 19 and is guided over wheels 32, 33, and carries the half molds 34 on the lower ends of plungers 35 having springs 36 wound about their shafts between their heads and the conveyor. The molds 34 are guided past a brush 37 or similar member revolving in a tank 38 filled with molten sealing wax 39 or the like substance to cover the interior of molds 34 with this substance, which to insure its holding quality is passed through a gas flame of burner 40.

A cam 41 on the machine frame presses the molds 34 with their sealing wax into engagement with the stone 28 and picks the same out of its mold 18 and the conveyor carries it to a grinding wheel 42 having the form clearly illus-

trated in Fig. 7, and a polishing wheel 43, on shafts 44, 45, rotated from any suitable source of power.

The grinding wheel 42 and the polishing wheel 43 having done their work and ground and polished one side of the stone 28 held in mold 34, it now becomes necessary to turn the stone in its seat to grind and polish its other side also. This is effected by the mechanism illustrated in Figures 8, 9 and 10, in which a cross 46 on a spindle 47 engages the mold 34 as shown in Fig. 9.

The spindle 47 enters with its lower end a casing 48, in which it carries a roller 49 provided with depressions 50 adapted to be engaged by the conical inner end 51 of a plunger 52 having at its outer end a rod 53 attached thereto about which a spring 54 is wound within casing 48 between plunger 52 and a plug 55 closing the lower end of casing 48, and the plunger can be operated by a handle 56 to turn the stone to expose its other side to the grinder 57 on shaft 58 and thereafter to a polishing tool 59 on shaft 60.

As shown in Fig. 1, a fourth conveyor 61 running over wheels 62, 63, driven from any suitable source carries molds 64 having spring controlled plunger rods 65 past a brush 66 or the like within a casing 67 filled with a molten sealing wax 68. If now the conveyor carries the molds 64 in front of the ground and polished stones on conveyor 31 to which conveyor 61 is rectangularly disposed, the plungers 65 will be engaged by a cam 69 and pressed against the action of their springs against the stone 28 in mold 34 and the sealing wax in the same which has become cold and brittle will release the stone and the same will adhere to the mold 64 and carried by the conveyor forth to the grinding and polishing wheels 70, 71, respectively to polish one side of the stone, whereafter the same is turned by a device similar to device 46 illustrated in Fig. 9.

The conveyor 61 then carries a stone to another grinding wheel 72 and a polishing wheel 73 whereafter the finished stone is removed from the mold by the engagement of a suitable tool 74, to be collected in a suitable receptacle.

The operation of my machine will be entirely clear from the above description by simultaneously having reference to the drawings. The glass is melted in a suitable crucible and then the molten mass is deposited into the half molds successively carried by a conveyor to the discharge opening of the crucible. A cam 26 will press the supplementary molds on a second conveyor for molding the stone into the half mold, as illustrated in Fig. 3 and after passing the cam, the springs of the plungers will withdraw the plunger of the supplementary mold from the half mold holding the stone.

Other plunger controlled molds on a third conveyor provided with molten sealing wax which is kept semi-liquid will be carried in front of the half mold with the stone exposed and encounters a cam to press the molds provided with sealing wax against the stone which will now adhere to said mold to be carried successively to a grinding and polishing roller to grind and polish one side of the stone.

The molds are then turned by a special device to expose their other side to other grinders and polishers.

A fourth conveyor, angularly disposed to the third conveyor brings other molds having spring controlled plungers in front of the ground and polished stones and a cam engaging the plungers will press the molds provided with fresh sealing wax against the stones in the molds on the third containing the wax which has become brittle and will take the stones along and carry the same to other grinding and polishing rollers for grinding and polishing one side of the stone. Thereafter another mold turning device will turn the stones to expose their other side to other grinding and polishing tools, whereafter the stones will be engaged by a suitable tool or device for removing the same entirely from their mold to be collected in suitable receptacles.

It will be understood that I have described and shown the preferred construction of my rhinestone molding machine as one example only of the many possible ways to practically construct the same, and that I may make such changes in its general arrangement and in the construction of the minor details thereof as come within the scope of the appended claims, without departure from the spirit of my invention, and the principles involved.

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

1. A rhinestone producing machine comprising a means for forming the stones from molten glass, a means for cementing the stones to a mold, means for turning the stones to expose the sides of their outer ends, to grinding and polishing tools, means to transfer the stones to other molds provided with a cement and to expose their inner ends to grinding and polishing tools for grinding and polishing both sides of said inner ends, and a means to remove the finished stones from their molds.

2. In a rhinestone producing machine, a means for forming molten glass into stones, comprising half molds into which the molten glass is successively poured, other half molds supplementing the first named half molds and provided at the ends of cam controlled plungers for forming the stones by pressing the plunger operated half molds into the first named half molds, springs for withdrawing said plunger molds from the molds in which the stones are formed, a means for cementing the stones to a mold, means for turning the stones to expose the sides of their outer ends to grinding and polishing tools, means to transfer the stones to other molds provided with a cement and to expose their inner ends to grinding and polishing tools for grinding and polishing both sides of said inner ends, and a means to remove the finished stones from their molds.

3. In a rhinestone producing machine a means for forming the stones from molten glass, a means for cementing the stones to a mold said means comprising a tank containing a sealing or cementing material, means for keeping said cementing material viscous, molds passed by said tank, and brushes revolving in said tank for providing said molds during their passage by the tank with cement, spring controlled plungers for pressing the stones into the cemented molds, means for turning the stones to expose the sides of their outer ends to grinding and polishing tools, means to transfer the stones to other molds provided with a cement and to expose their inner ends to grinding and polishing tools for grinding and polishing both sides of said inner ends, and a means to receive the finished stones from their molds.

JOHN MOSCINI.