(No Model.) 2 Sheets—Sheet 1.

H. B. SARGENT & A. A. PAGE.

SCREW MACHINE.

No. 589,144. Patented Aug. 31, 1897.

Fig. 1.

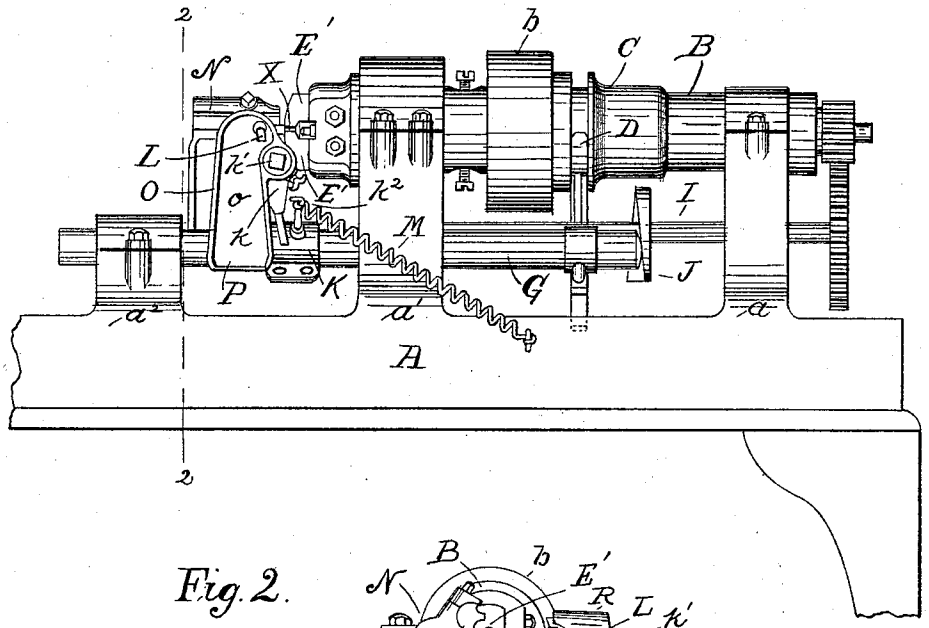
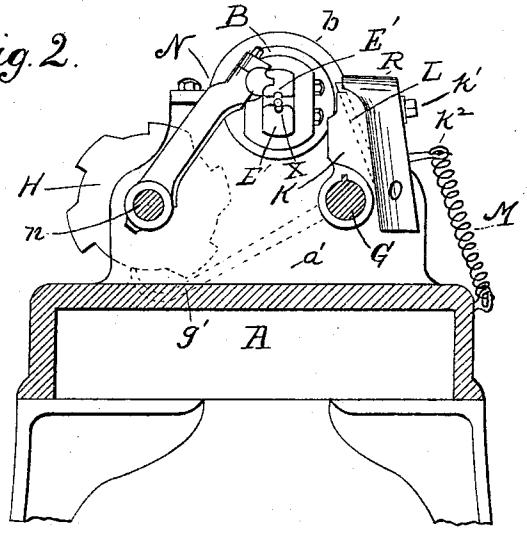


Fig. 2.



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(No Model.) 2 Sheets—Sheet 2.

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SCREW MACHINE.

No. 589,144. Patented Aug. 31, 1897.

Fig. 3.

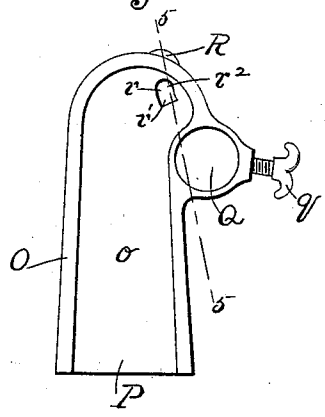


Fig. 4.

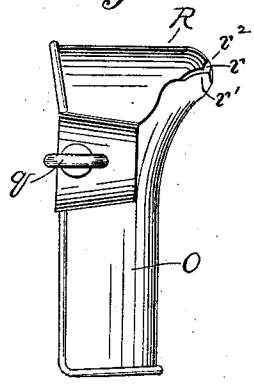
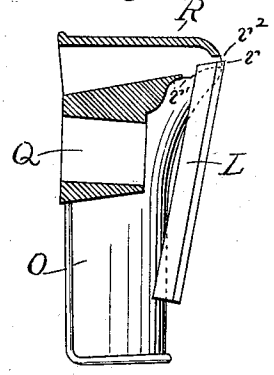


Fig. 5.



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UNITED STATES PATENT OFFICE.

HENRY B. SARGENT, OF NEW HAVEN, AND ALBERT A. PAGE, OF EAST HAVEN, CONNECTICUT, ASSIGNORS TO THE SARGENT & COMPANY, OF NEW HAVEN, CONNECTICUT.

SCREW-MACHINE.

SPECIFICATION forming part of Letters Patent No. 589,144, dated August 31, 1897.

Application filed April 23, 1897. Serial No. 633,531. (No model.)

To all whom it may concern:

Be it known that we, HENRY B. SARGENT, of the city of New Haven, and ALBERT A. PAGE, of the town of East Haven, in the county of New Haven, State of Connecticut, have invented a new and useful Improvement in Screw-Machines, fully set forth and described in the following specification, taken in connection with the accompanying drawings, which form a part thereof, and in which—

Figure 1 is a side elevation of a screw-machine embodying our invention; Fig. 2, a transverse vertical section on lines 2 2 of Fig. 1; Figs. 3 and 4, enlarged detail views of the separator and casting in front and side elevations, respectively; and Fig. 5, a vertical section on lines 5 5 of Fig. 3.

In all figures similar letters of reference represent like parts.

This invention relates to screw-machines; and it consists in a novel construction of separators or mechanism for separating the chips and shavings from the stock, and is more particularly a modification of the separator and conduit shown and claimed in another application made by us, executed on even date herewith, filed in the United States Patent Office on the 23d day of April, 1897, and numbered 633,530.

The invention is illustrated as applied to a single-spindle machine resembling that in the application referred to, and in which A represents the bed of the machine, with standards a, a', and a^2, and B a revolving spindle rotated by the pulley b. A collar C, operated by a lever D, forces the jaws E′ to grip the stock or blank X. A shaft G, loosely journaled in the supports a' and a^2, is rocked by a dog g', engaged by a cam H and reciprocated by a second cam J, mounted on a shaft I. On the shaft G is secured a tool-holder K, having a hook k^2, to which is connected one end of a spring M, the other end of which is attached to the bed A of the machine in such manner as to draw the shaft G toward the right, Fig. 1, and rock it, so that the tool-holder is swung away from the stock to the right, Fig. 2. The tool L is mounted on the tool-holder by means of a clamp k and bolt k' and is brought into engagement with the stock by the dog g' rocking the shaft against the tension of spring M. The tool first engages with the end of the blank near the spindle B or jaws E′, but gradually moves toward the other end as shaft G is forced toward the left, Fig. 1, by cam J. A support N on a second rocking shaft n, Fig. 2, is adapted to bear on the opposite side of the blank from the tool L while the tool is in operation to steady the work. When the tool is disengaged from the stock or the stock is about to be discharged from the jaws E′ of the spindle B, the support N is rocked toward the left, Fig. 2, to prevent its interference with the stock when falling into its proper receptacle.

In the construction shown in the accompanying drawings the separator for deflecting the chips as they are cut on the blank and the conduit for guiding the chips in the desired direction into the proper receptacle are formed integral, the whole being adjustably mounted on the tool-holder.

The casting O, embracing the separator and conduit, is formed with a longitudinal concavity o to make the conduit, the lower end of which, P, is adapted to fit over any suitable receptacle to receive the chips or shavings as they fall. The upper end of the conduit o extends to substantially beneath the point of engagement between the tool L and blank X. At this upper end of the casting is a nose-piece R, projecting in the direction of the stock and provided at its functional end with two contiguous slots r and r', the one, r, being vertical, the other, r', horizontal. The upper edge r^2 of the slot r forms the separating-surface, and when in operation the engaging end of the tool L projects into the horizontal slot r' of the separator and extends into the vertical slot r, so as to leave a slight clearance between it and the separator r^2, Fig. 5.

The casting O is adapted to be attached to the tool-holder by means of a circular slot Q, which fits over the cylindrical shank of bolt k'. A thumb-screw q secures the casting to the bolt k of the tool-holder K, so that the

proper relation is established between the separating edge r^2 and engaging-point of the tool L.

The operation of the device is as follows: When the tool-holder rocks on its shaft to bring the tool in contact with the blank, the separator R, being mounted on the tool-holder, is brought into such proximity with the cutting edge of the tool L that the chips or shavings arising from the stock or blank extend into the clearance between the tool and separating edge r^2 and are deflected or guided by the separating edge into the interior of the separator. As the conduit is formed integral with the separator, the chips forced into the interior of the latter fall naturally through the former into the receptacle placed beneath. The chips produced by the operation of the tool on the stock are thereby separated from the stock while it is still being operated upon and are guided in the desired direction. When the tool-holder is rocked away from the blank, the separator and conduit are together removed from their position near the blank or now-finished product, which may be ejected from the spindle to fall freely without possible interference from these mechanisms. By the formation of the casting O to embrace the separator and conduit a simple construction is produced which permits both parts to be simultaneously adjusted to the tool.

Having now described our invention, which may vary greatly without departing from the spirit thereof and may be applied to different types of machines and styles of tool-holders, what we claim, and desire to secure by Letters Patent, is—

1. In a screw-machine, the combination with a rotary spindle for carrying stock or blanks; of a tool-holder; a tool mounted thereon to engage with the stock carried by the spindle; an integral device, the body portion of which comprises a conduit for guiding the chips from the stock, and the upper end a separator adapted to fit over and in close proximity with the end of the tool when engaging the stock, to deflect or guide the chips from the stock into the conduit, substantially as described.

2. In a screw-machine, the combination with a rotary spindle for carrying stock or blanks; of a tool-holder; a tool mounted thereon to engage with the stock carried by the spindle; and an integral device adapted to move synchronously with the tool-holder and the body of which forms a conduit for guiding the chips from the stock; and the upper end a separator formed integral with said conduit and adapted to fit over and in close proximity with the end of the tool when engaging the stock, to deflect or guide the chips from the stock into the conduit, substantially as described.

3. In a screw-machine, the combination with a rotary spindle for carrying stock or blanks; of a tool-holder; a tool mounted thereon to engage with the stock carried by the spindle; and an integral device mounted on the tool-holder and the body portion of which forms a conduit for guiding the chips from the stock; and the upper end a separator adapted to fit over and in close proximity with the end of the tool when engaging the stock, to deflect or guide the chips from the stock into the conduit, substantially as described.

4. In a screw-machine, the combination with a rotary spindle for carrying stock or blanks; of a tool-holder; a tool mounted thereon to engage with the stock carried by the spindle; and an integral device adjustably mounted on the tool-holder and the body portion of which forms a conduit for guiding the chips from the stock; and the upper end a separator adapted to fit over and in close proximity with the end of the tool when engaging the stock, to deflect or guide the chips from the stock into the conduit, substantially as described.

5. In a screw-machine, the combination with a spindle for carrying stock or blanks; of a tool-holder; a tool mounted thereon to engage with the stock carried by the spindle; and a conduit adjustably mounted on the tool-holder and extending from substantially beneath the point of engagement between the tool and stock to guide the chips from the stock in their proper direction, substantially as described.

6. In a screw-machine, the combination with a rotary spindle for carrying stock or blanks; of a rocking reciprocating shaft; a tool-holder mounted thereon for carrying the tool and bringing it into proper engagement with the stock; and an integral device mounted on the tool-holder and the body portion of which forms a conduit for guiding the chips from the stock, and the upper end a separator adapted to fit over and in close proximity with the end of the tool when engaging the stock, to deflect or guide the chips from the stock into the conduit, substantially as described.

7. In a screw-machine, the combination with a rotary spindle for carrying stock or blanks; of a tool-holder having a clamp and bolt; a tool secured to the tool-holder by said clamp and bolt and adapted to engage with the stock carried by the spindle; and a device mounted on said bolt, securing said tool, and the body portion of which forms a conduit for guiding the chips from the stock and the upper end a separator adapted to fit over and in close proximity with the end of the tool when engaging the stock, to deflect or guide the chips from the stock into the conduit, substantially as described.

8. In a screw-machine, the combination with a rotary spindle for carrying stock or blanks; of a tool-holder; a tool mounted thereon to engage with the stock carried by the spindle; and an integral device, the body portion of which forms a conduit for guiding the

chips from the stock, and the upper end a separator, provided with a slot into which the end of the tool is adapted to extend, when engaging with the stock, so as to allow a clearance between one end of the slot and tool into which chips from the stock are deflected or guided by the separator into the conduit, substantially as described.

9. In a screw-machine, the combination with a spindle for carrying stock or blanks; of a tool-holder having a clamp and bolt; a tool secured to the tool-holder by said clamp and bolt and adapted to engage with the stock carried by the spindle; and a conduit mounted on said bolt, securing said tool and extending from substantially beneath the point of engagement between the tool and stock to guide the chips from the stock in their proper direction, substantially as described.

In witness whereof we have hereunto set our hands, at New Haven, in the county of New Haven, State of Connecticut, this 21st day of April, 1897.

HENRY B. SARGENT.
ALBERT A. PAGE.

Witnesses:
WILLIAM T. COOKE,
CHARLES L. BALDWIN.