

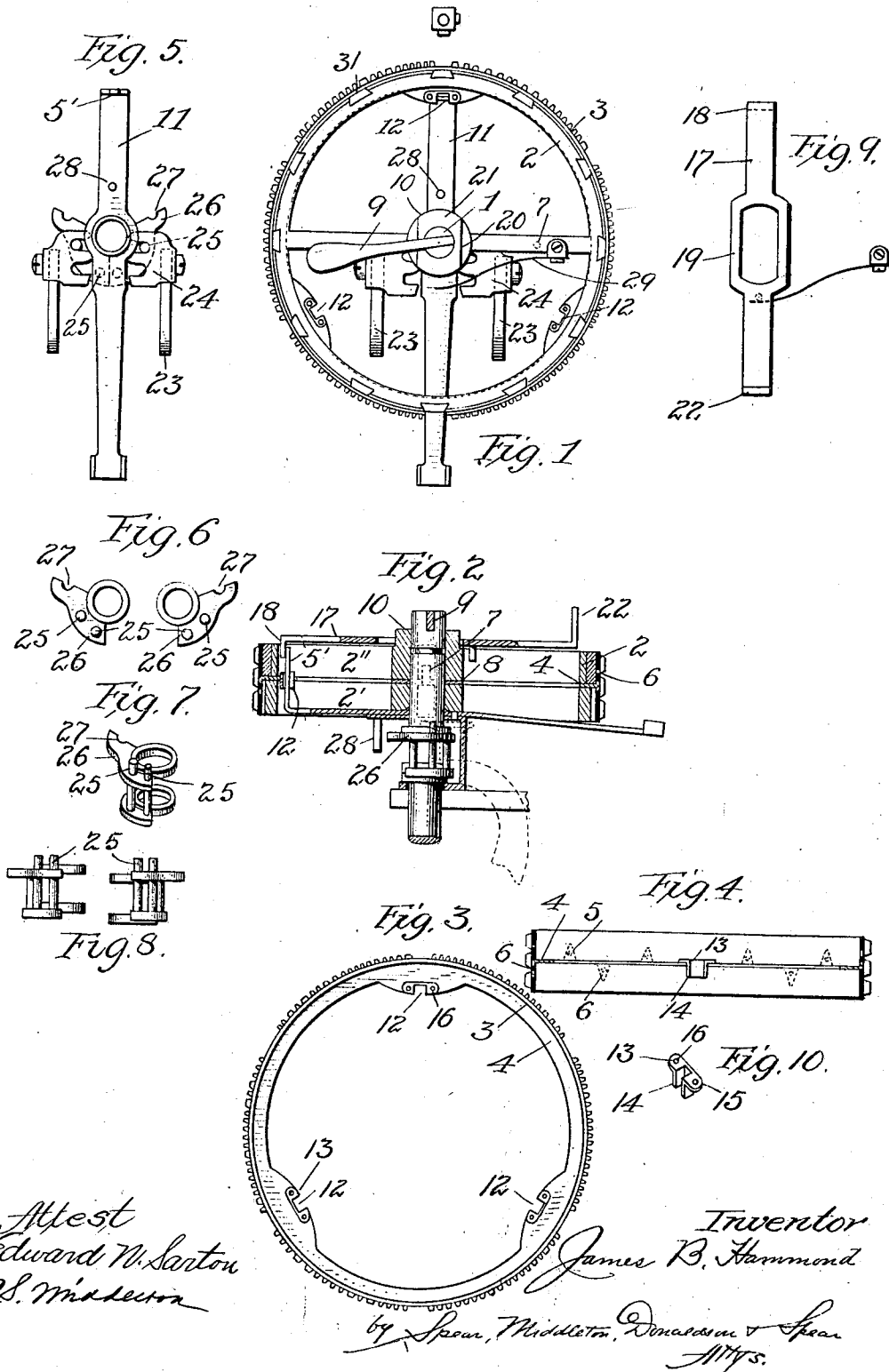
No. 825,968.

PATENTED JULY 17, 1906.

J. B. HAMMOND.

TYPE WRITER SHUTTLE AND DRIVING MECHANISM.

APPLICATION FILED DEC. 10, 1904. RENEWED JUNE 15, 1906.



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TYPE-WRITER SHUTTLE AND DRIVING MECHANISM.

No. 825,968.

Specification of Letters Patent.

Patented July 17, 1908.

Application filed December 10, 1904. Renewed June 15, 1908. Serial No. 321,915.

To all whom it may concern:

Be it known that I, JAMES BARTLETT HAMMOND, a citizen of the United States, residing at New York, N. Y., have invented certain new and useful Improvements in Type-Writer Shuttles and Driving Mechanism Therefor, of which the following is a specification.

My invention relates to type-writers of the general class known as the "Hammond," and concerns more particularly a shuttle mechanism whereby strength and lightness are secured and a shuttle is provided which is capable of carrying a large number of characters. The invention consists in the features and combination and arrangement of parts hereinafter described, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a plan view of a shuttle with its anvil and the driving mechanism immediately associated with the shuttle. Fig. 2 is a central vertical sectional view from front to rear through the shuttle and its driving mechanism and anvil. Fig. 3 is a plan view of the shuttle detached. Fig. 4 is a sectional view of the shuttle detached. Fig. 5 is a plan view of part of the driving mechanism for the shuttle. Fig. 6 is a plan view of the speed-dogs forming part of the driving mechanism. Fig. 7 is a perspective view of one of the speed-dogs. Fig. 8 is an elevation of the speed-dogs. Fig. 9 is a plan view of a device for operating a part of the shuttle-arm to release the shuttle. Fig. 10 is a detail perspective view of a reinforcing-piece for the shuttle.

In the drawings, 1 indicates the center post of the print mechanism, upon which is supported the anvil 2, which is of ring form. The shuttle is also of ring form, as shown at 3, and surrounds the anvil. In order to secure lightness and strength, I form the shuttle of hard rubber and reinforce or strengthen it by means of a flange or fin 4, which extends entirely around the inner side of the circular shuttle. I prefer to make this flange or strengthening-piece of metal and mold the rubber into connection therewith, though I do not wish to limit myself to a metal flange or to one which is formed independently of and attached to the shuttle, as an integral flange may be used, such as is illustrated in my application for Letters Patent of the United States, filed October 21, 1904, Serial No. 229,445. In the present instance I show the flange as located at a point intermediate of the upper and lower edges of the shuttle and

preferably at a substantially central point. The metal flange is provided with a series of annular points 5, some of which extend upwardly and others downwardly from the flange, and these are perforated, and when the shuttle is molded into connection with the flange the rubber or material of which the shuttle is composed enters the perforations 6 in the projections of the flange, and thus acts as rivets to hold the flange and the shuttle-rim firmly together. A shuttle thus constructed is very light, weighing only a fraction of an ounce, and it presents all necessary rigidity and stiffness for withstanding the work to which it is subjected. Being made circular in form, a large surface is presented for carrying a maximum number of characters. The anvil associated with this form of shuttle having a continuous circular flange intermediate of its height is of special construction and consists of two parts, the lower part 2' being suitably secured to the central post 1, while the upper part 2'' is adapted to be removed, and thus permit the shuttle to be removed and replaced when desired. The two parts of the anvil are held against circumferential displacement with each other by a pin 7 on one part fitting in an opening in the other part. The flange of the shuttle extends into the space between the upper and lower parts of the anvil and is free to move between the two parts circumferentially thereof. A washer 8 is preferably employed between the two parts of the anvil surrounding the center post. For holding the upper part of the anvil in place an arm 9 is employed, the end of which is adapted to fit in a slot or notch in the top of the anvil-post, and thus it overlies the hub or central portion 10 of the upper part of the anvil. This arm 9 is arranged as in the known form of Hammond type-writer and needs no special description.

The shuttle is driven by an arm 11, adapted to turn about the anvil-post and having an upturned end 5', adapted to fit in notches 12 in the flange of the shuttle. The present shuttle indicates that there are three fonts of type carried by the shuttle or three different sets of characters for different languages, and, secondly, there is one of the notches 12 provided for each set of characters belonging to one language. At the point where the notches are formed the flange of the shuttle is widened inwardly, and I prefer to employ at the notch a reinforcing-piece 13 (shown in

detail in Fig. 10) and consisting of a metal piece having depending sides 14 and horizontal extensions or ears 15, adapted to lie on the upper surface of the flange, where they are riveted, as shown, at 16.

In order to provide means for readily shifting from one set of characters to another or from one language to another, I employ a release device for the upwardly-extending finger 5'. This device consists in the present embodiment of my invention of a slide 17, having a downwardly-turned end 18, arranged to lie normally in rear of the normal position of the upwardly-extending finger 5'. The slide has an elongated opening 19 at its central portion, whereby it is guided on the flattened sides 20 of the collar 10, surrounding the center post. The slide at its front end is provided with an upturned finger-piece 22, and by grasping this and drawing the slide forwardly the finger 5' will be withdrawn from the notch in the flange of the shuttle, and then the shuttle may be twirled so as to bring a different set of characters to the printing-point.

While I have shown a shuttle in the form of a ring, I do not wish to limit all features of my invention to their combination with a shuttle of this character, as other forms of shuttle may be used in connection with some of the features of the invention. In order to drive the shuttle-arm, I employ driving-arms 23, adapted to swing toward the front and rear, as in the ordinary Hammond type-writer, the said arms being provided with toothed portions 24 at their upper ends adapted to engage pins 25, carried by speed-dogs 26, which are adapted to swing around the center post. These speed-dogs have notches 27 near their outer ends adapted to engage a pin 28, projecting downwardly from the shuttle-arm. Normally the speed-dogs lie in the position indicated in Fig. 5, and when a driver 23 is operated the corresponding speed-dog will be turned about the center post and will contact with the pin 28, and thus swing the shuttle-arm to bring the desired character to the printing-point. The general action and advantages of these speed-dogs are fully brought out in my application above referred to and need not be particularly described herein further than to say that by their use rapidity in the operation of the machine is secured.

I do not wish to limit myself to a sliding releasing device for releasing the shuttle-arm from the shuttle, as the same result may be accomplished by the use of a pivoted releasing device.

It will be noticed from Figs. 7 and 8 that the speed-dog instead of being formed with elongated sleeves surrounding the center post, as in the specification above referred to, are provided with rings, one at the top and one at the bottom, surrounding the center

post and turning thereon, this construction rendering the parts lighter and reducing friction.

The releasing-slide for the finger of the shuttle-arm is held in normal position by a spring 29, bearing against a pin on the said slide.

I prefer to furnish the anvil with a series of bearing blocks or points 31 for the inner face of the shuttle to work against. These bearing-blocks are dovetailed into the face of the anvil, as shown.

It will be seen that by the construction above described the shuttle can be released from its driving mechanism without moving the shuttle from the horizontal plane in which it is located. This is rendered possible because the flange of the shuttle is provided with the notches opening inwardly to the inner edge thereof and because the finger of the shuttle-arm is adapted to be pressed radially inward to release the shuttle. Heretofore in changing a shuttle in this type of machine it has been customary to raise the shuttle from its working position in order to disengage it from this shuttle-arm; but such action in the present arrangement is not necessary.

I claim as my invention—

1. In combination in a type-writer, an anvil and a shuttle of unbroken-ring form, having a continuous flange formed separately therefrom and attached thereto, said flange extending entirely around the circular shuttle, substantially as described.

2. A type-writer shuttle composed of hard rubber, and a metallic flange having points projecting at right angles thereto and embedded in the rubber, said points being perforated to receive a part of the rubber, substantially as described.

3. In combination in a type-writer, a shuttle of unbroken-ring form having a continuous flange on its inner side and an anvil formed in two parts, one of which is removable to permit removal and replacing of the shuttle, the flange of which works between the two parts of the anvil, the said shuttle being open within the flange, and a shuttle-arm working in the open space and engaging the continuous flange, substantially as described.

4. In combination in a type-writer, a shuttle, a shuttle-arm having a finger engaging a notch in a part of the shuttle, and a releasing device adapted to withdraw the said finger from the notch to permit circumferential adjustment of the shuttle, substantially as described.

5. In combination in a type-writer, a shuttle, a shuttle-arm engaging a notch therein and a sliding release device for detaching the shuttle-arm from the shuttle, substantially as described.

6. In combination, the anvil, the anvil-post, the shuttle, the shuttle-arm having a

finger engaging a notch in the shuttle, and a releasing device to engage the said finger and withdraw it from the shuttle, said releasing device being supported on the center post, substantially as described.

7. In combination in a type-writer, an anvil having a series of bearing points or blocks inserted therein and projecting slightly from its surface, and a shuttle adapted to move on the said points, substantially as described.

8. In combination with a shuttle, the anvil, the anvil-post, speed-dogs for driving the shuttle, each having upper and lower bearing-rings to engage the center post, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES BARTLETT HAMMOND.

Witnesses:

CHAS. M. STEIN

JOHN M. BANCROFT.