March 17, 1925. 1,530,272

W. D. McDERMOTT

ANTIFRICTION ATTACHMENT FOR DIE BLOCKS

Filed April 15, 1924

Fig. 1.

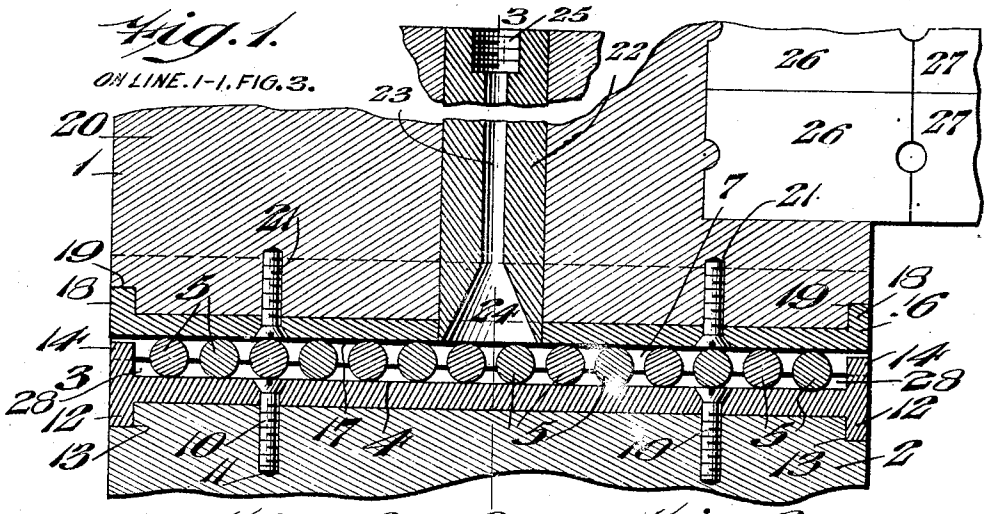


Fig. 2.

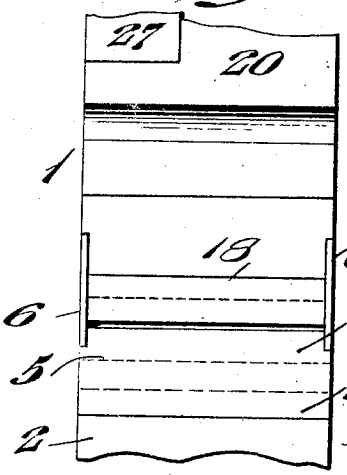


Fig. 3.

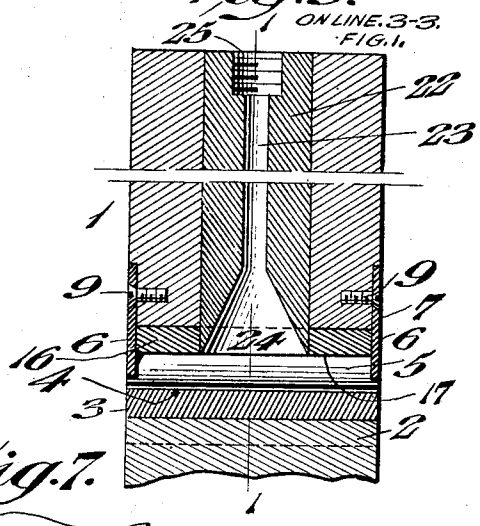


Fig. 7.

Fig. 4.

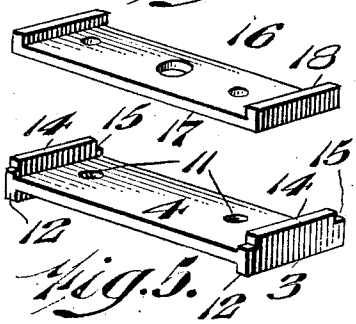


Fig. 5.

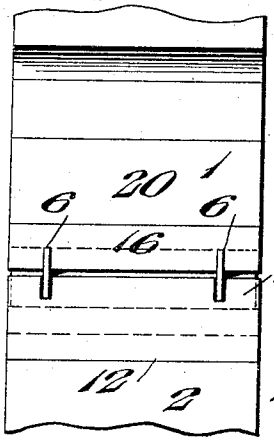
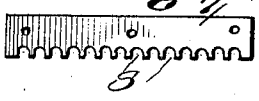


Fig. 6.



INVENTOR:
William D. McDermott
BY
Wiedersheim & Lambert
ATTORNEYS.

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UNITED STATES PATENT OFFICE.

WILLIAM D. McDERMOTT, OF PHILADELPHIA, PENNSYLVANIA.

ANTIFRICTION ATTACHMENT FOR DIE BLOCKS.

Application filed April 15, 1924. Serial No. 706,793.

To all whom it may concern:

Be it known that I, WILLIAM D. McDERMOTT, a citizen of the United States, and residing at Philadelphia, county of Philadelphia, State of Pennsylvania, have invented a certain new and useful Antifriction Attachment for Die Blocks, of which the following is a specification.

My invention relates to a novel construction of an anti-friction attachment for a die block, for bolt forging and upsetting machines, open die rivet machines, nut forging machines and the like, and consists of a novel construction of upper and lower gibs, means for securing said upper gib to a movable die block, and means for securing the lower gib to a stationary base member, said lower gib being so constructed that it forms a support for antifriction devices or rollers, which are held by novel means in predetermined positions relative to each other, and to said gibs, whereby friction on the die block is practically eliminated, and wear and tear on the toggles and pins or other actuating mechanism for the die block is lessened and water and scale is prevented from having access to the bottom of the die block, the latter being kept true and level at all times.

It further consists of a novel means for lubricating the anti-friction devices and their adjuncts.

It further consists of a novel construction of a movable die block and gib therefor, and a base and gib therefor, and anti-friction devices intermediate said gibs, in conjunction with novel means for retaining the anti-friction devices in their relative positions with respect to each other.

It further consists of other novel features and advantages, all as will be hereinafter fully pointed out.

For the purpose of illustrating my invention, I have shown in the accompanying drawings certain forms thereof which are at present preferred by me, since they will give in practice satisfactory and reliable results, although it is to be understood that the various instrumentalities of which my invention consists can be variously arranged and organized and that my invention is not limited to the precise arrangement and organization of these instrumentalities as herein shown and described.

Figure 1 represents a vertical sectional view of an anti-friction attachment for die blocks and the like embodying my invention, the section being taken on line 1—1, Figure 3.

Figure 2 represents an end view of Figure 1.

Figure 3 represents a vertical section on line 3—3 of Figure 1.

Figures 4 and 5 represent a perspective view of the upper and lower gibs in detached position.

Figure 6 represents a side elevation of one of the roller retaining devices in detached position.

Figure 7 represents an end view somewhat similar to Figure 2, but showing the devices for retaining the friction rollers located in a slightly different position.

Similar numerals of reference indicate corresponding parts.

Referring to drawings:—

1 designates my novel construction of anti-friction attachment for bolt forging and upsetting machines and the like, comprising the lower stationary base member upon the top of which is supported the lower gib 3, whose construction will be best understood from Figure 5, and comprises the body or flat surface 4 upon which the roller bearings 5 are supported and rotate and are kept the requisite distance apart by the spacing devices 6, which comprise a body portion 7 having the bottom concavities 8 which engage the upper convex surfaces of said roller bearings 5. There are two of the ball spacing devices 6 employed as seen in Figure 3 and they are held in position by the screws 9 or the like, as will be understood from Figure 3.

The lower gib 3 is secured to the stationary base or block 2 by means of the screws 10, which pass through the holes 11 best seen in Figure 5, and said gib is provided with the end pendant flanges 12, which are seated in the recessed portions 13 of the stationary base member 2, so that it will be seen that the lower gib 3 is securely locked in immovable position upon its base 2. The lower gib 3 is also provided with the upwardly extending end flanges 14 having the end recesses 15 which receive the ends of the roller spacers 6. 16 designates the upper gib, whose bottom surface 17 rests and rolls upon the rollers 5, said upper gib being provided with the upwardly extending end flanges 18, which are seated or interlocked in the recesses 19 of the upper die block 20.

21 designates screws which secure the upper gib 16 to the die block 20, so that said upper gib and die block move as a unit, 22 designates a plug seated in the upper movable block 20, and having the lubricant passage 23 therethrough, which terminates in the flarnig outlet 24, the upper end 25 of said passage 23 being threaded for the application of a suitable lubricant forcing device thereto.

The upper die block 20 carries the dies 26 which may be of any suitable construction and move in unison therewith and in conjunction with the stationary dies 27 effect the forging of the bolt, nut or other device. In Figure 7 I have shown the roller spacing devices 6 as located between the outer walls of the base 2 and block 20, and secured in position by any suitable means. It will be understood from the foregoing that the base 2 and the lower gib 3 interlocked therewith are stationary and that the rollers 5, can revolve freely on the top surface 4 of said lower gib. The upper gib 16 and the die block 20 move to and fro in a horizontal plane in the act of forging as a unit, upon the upper convex surfaces of the roller bearings, and are actuated in the desired direction by any suitable mechanism, which it is unnecessary to describe in detail in effecting the formation of the bolts, nuts or the like. By reason of the empolyment of the rollers 5 positioned as shown in Figures 1 and 2, friction is reduced to a minimum, the die block and its adjuncts is more readily actuated, and the life of the machine is prolonged indefinitely. The lubricant passages 23 and 24 enable the desired parts to be effectively lubricated at all times, and a durable and efficient construction is thus produced, which has been found in practice to function with a maximum degree of efficiency.

It will be apparent from the foregoing that by my novel device I minimize friction on the die block, and lessen wear and tear on said die block and its actuating mechanism, which greatly prolongs the life of the machine. I am further enabled by my novel construction to keep water and scale from the bottom of the die block, and the latter is by my novel invention kept true and level at all times.

It will be further apparent that by my invention I decrease the cost of maintenance and upkeep of the machine and I greatly increase its yearly capacity, since there is no stoppage of the machine required to make constant repairs, as is the case in machines, with which I am familiar, which are not equipped with my invention.

It will be understood that the die block may be actuated or reciprocated by any suitable mechanism, which it is unnecessary to describe in detail, and my invention is applicable to the die blocks of bolt forging and upsetting machines, open die rivet machines, or nut forging machines as well as all standard machines of this general character.

It will be further understood that the grease passage 23 may be drilled directly through the die block 20, if desired, and it will be further seen that the body of grease which is faced with the grease chamber or space 23 between the upper and lower gibs effectively prevents any dirt, water or scale having access to the rollers 5, so that all the parts are properly lubricated at all times, since the space between the upper and lower gibs is in practice filled with grease at all times.

It will now be apparent that I have devised a new and useful anti-friction attachment for die blocks, which embodies the features of advantage enumerated as desirable in the statement of the invention and the above description, and while I have, in the present instance, shown and described preferred embodiments thereof which will give in practice satisfactory and reliable results, it is to be understood that these embodiments are susceptible of modification in various particulars without departing from the spirit or scope of the invention or sacrificing any of its advantages.

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

1. In a device of the character stated, a base, a lower gib secured thereto and having upwardly extending terminal flanges, roller bearings supported upon said lower gib, an upper gib supported on said roller bearings, a die block to which said upper gib is secured, said upper gib and die block moving as a unit upon said roller bearings, and oppositely located spacing devices for said roller bearings, said spacing devices being carried by and movable with said upper die block.

2. In a device of the character stated, a base, a lower gib secured thereto and having upwardly extending terminal flanges, roller bearings supported upon said lower gib, an upper gib supported on said roller bearings, a die block to which said upper gib is secured, said upper gib and die block moving as a unit upon said roller bearings, and oppositely located spacing devices for said roller bearings, said spacing devices being carried by and movable with said upper die block, in combination with a plug in said die block, having a lubricant passage therethrough discharging upon said roller bearings.

3. In a device of the character stated, a base, a lower gib secured thereto and having downwardly extending terminal flanges interlocked in recesses in said base, upper ter-

minal flanges for said lower gib, said upper terminal flanges having recesses in the ends thereof, fastening devices common to said lower gib and base, a die block, an upper gib secured to the bottom of said die block, roller bearings interposed between said gibs and oppositely located roller bearing spacing devices, carried by said die block and movable in unison therewith, the ends of said spacing devices being seated in the end recesses of the upper flanges of the lower gib.

4. In a device of the character stated, a base, a lower gib secured thereto and having downwardly extending terminal flanges interlocked in recesses in said base, upper terminal flanges for said lower gib, said upper terminal flanges having recesses in the ends thereof, fastening devices common to said lower gib and base, a die block, an upper gib secured to the bottom of said die block, roller bearings interposed between said gibs and oppositely located roller bearing spacing devices, carried by said die block and movable in unison therewith, the ends of said spacing devices being seated in the end recesses of the upper flanges of the lower gib, in combination with a plug, in said die block, having a lubricant passage therethrough discharging upon said roller bearings.

WILLIAM D. McDERMOTT.

Witnesses:
E. HAYWARD FAIRBANKS,
JOHN J. FERGUSON.