

No. 680,170.

Patented Aug. 6, 1901.

T. OLDFIELD & J. A. SCHOFIELD.
CUSHIONED DRIVING DEVICE.

(Application filed Mar. 6, 1901.)

(No Model.)

FIG. 1.

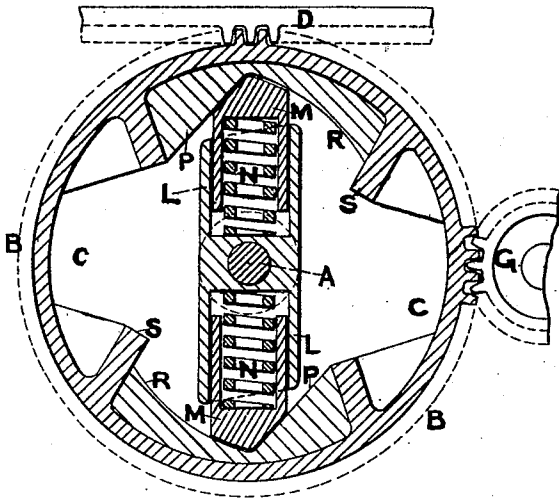


FIG. 2.

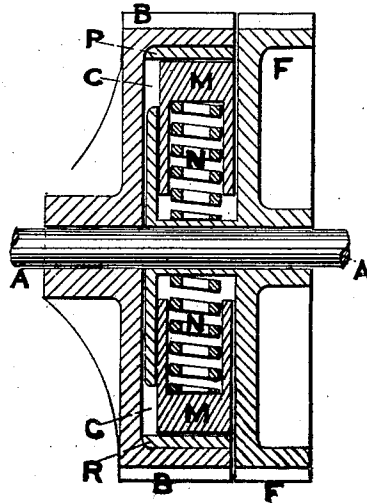
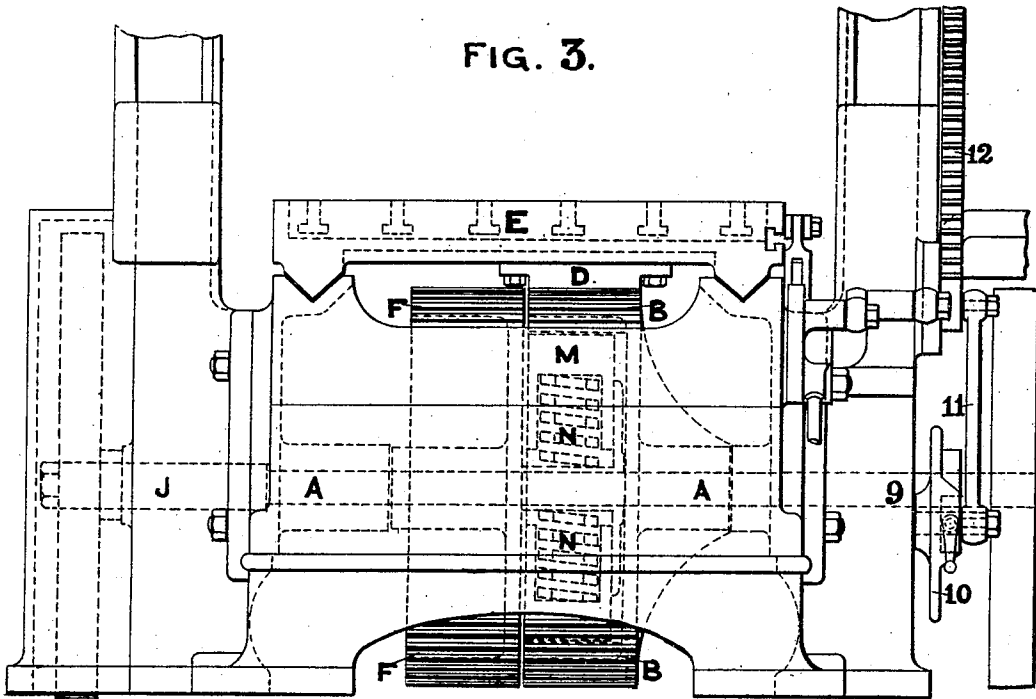


FIG. 3.



—Witnesses—
Abner Reed
William Deau.

—Inventors—
Tom Oldfield
Joseph Arthur Schofield

UNITED STATES PATENT OFFICE.

TOM OLDFIELD AND JOSEPH ARTHUR SCHOFIELD, OF HALIFAX, ENGLAND.

CUSHIONED DRIVING DEVICE.

SPECIFICATION forming part of Letters Patent No. 680,170, dated August 6, 1901.

Application filed March 6, 1901. Serial No. 50,122. (No model.)

To all whom it may concern:

Be it known that we, TOM OLDFIELD and JOSEPH ARTHUR SCHOFIELD, subjects of the King of Great Britain, residing at Halifax, in the county of York, England, have invented certain new and useful Improvements in and Relating to Cushioned Driving Devices, of which the following is a specification.

The object of our invention is to construct planing, shaping, and other machines having a quick return, so as to overcome the momentum and neutralize the shock of the sliding or moving table of planing-machines, slotting-machines, and the ram of shaping-machines and the like upon reversing.

In the drawings, Figure 1 is a sectional side elevation of internally-chambered rack gear-wheel, showing cam-surfaces or inclines, also section of winged boss and spring-plungers for actuating same. Fig. 2 is a sectional end elevation of Fig. 1, also of keyed gear-wheel for driving same. Fig. 3 is an end view of a planing-machine, showing our improved mechanism for operating the table and overcoming the momentum of same at each reversal applied.

Upon the rack gear-wheel shaft A of planing and similar machines we mount a loose gear-wheel B, the body of which is dished or recessed to form an internal chamber C. This wheel B gears with and operates by means of the rack D the table E. Adjoining this wheel and keyed upon the same shaft is a second gear-wheel F, operated by any approved driving mechanism. We also form upon the boss of the wheel F suitable wings forming annular chambers L. Sliding within these chambers are suitable plungers M, supported by spiral springs or the like N. These wings or chambers L project or fit within the internal chamber C of the rack gear-wheel, and the spring-plungers M in moving radially to and from the center bear upon inclines, concave or cam surfaces P R, formed upon the internal rim of the wheel B. These cam-surfaces P R are of varying section. The surfaces P are acted upon by the plungers at each reversal of the table—that is, from slow to quick return—the surfaces R being acted upon on reversal from quick to slow for cutting.

The action is as follows: In operating the

table the pressure of the spring-plungers upon the surfaces R is such as to overcome the resistance of the table E. Consequently upon the wheel F being set in motion the plungers revolve the rack gear-wheel B and feed the table for cutting. In case the resistance set up by the cutter and table during cutting or on reversing from slow to quick return is greater than the pressure of the spring-plungers aforesaid the wings or slides L come in contact with projections or stops S, conveniently placed within the rim of the wheel B, which thus effect the desired result. The surfaces R are not of so acute an angle as the surfaces P, because the resistance to be overcome is less upon the feed than upon reversal from quick return to slow for cutting or from slow to quick for return. Consequently the action of the plungers upon the said surfaces is more sensitive, compensating for the varying resistances set up by the cutters or the table—as, for instance, upon the cutter meeting with slot-holes or hollow places in the casting, or the cutting increases or diminishes, or upon the reversal of the table. It will thus be seen that the action of the spring-plungers upon the surfaces R acts as a buffer to the varying resistances or pressures aforesaid for absorbing the momentum of the table upon reversal from slow to quick return. Upon reversing the table E after cutting—that is, from slow to quick return—the surfaces P being more acute in angle to the said plungers than the surfaces R offer more resistance with a corresponding effect upon the plungers, so increasing the brake-power in order to compensate for the extra or increased pressure or momentum of the table to be overcome consequent upon such reversal. Immediately the strain or pressure ceases—that is, when the machine stops—the spring-plungers simultaneously take up the positions shown at Fig. 1; but as soon as the machine is started they act upon the said surfaces P R, as the case may be, according to the resistance to be overcome, thereby preventing shock, vibration, and sudden strain upon the working parts of the machine. The extraordinary strain caused by the momentum of the table in reversing is absorbed in like manner.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. The combination, with a driving-shaft, and chambers L secured thereon; of a power-transmitting wheel journaled concentric with the said shaft and provided with inclined surfaces P and R, and spring-actuated plungers 5 slidable in the said chambers and engaging with the said inclined surfaces and stops, substantially as set forth.
2. The combination, with a driving-shaft, 10 and chambers L secured thereon; of a power-transmitting wheel journaled concentric with the said shaft and provided with inclined sur- faces P and R and stops S at the ends of the inclined surfaces R, and spring-actuated plungers slidable in the said chambers and engag- 15 ing with the said inclined surfaces and stops, substantially as set forth.

In testimony whereof we hereunto affix our signatures in the presence of two witnesses.

TOM OLDFIELD.

JOSEPH ARTHUR SCHOFIELD.

Witnesses:

ABM. REED,

WILLIAM DEAN.