FIVE HUNDRED AND SEVEN MECHANICAL MOVEMENTS: EMBRACING ALL THOSE WHICH ARE MOST IMPORTANT IN DYNAMICS, HYDRAULICS, HYDROSTATICS, PNEUMATICS, STEAM ENGINES, MILL AND OTHER GEARING, PRESSES, HOROLOGY, AND MISCELLANEOUS MACHINERY

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Five Hundred and Seven Mechanical Movements: Embracing All Those Which Are Most Important in Dynamics, Hydraulics, Hydrostatics, Pneumatics, Steam Engines, Mill and Other Gearing, Presses, Horology, and Miscellaneous Machinery by Henry T. Brown

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HENRY T. BROWN

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PREFACE.

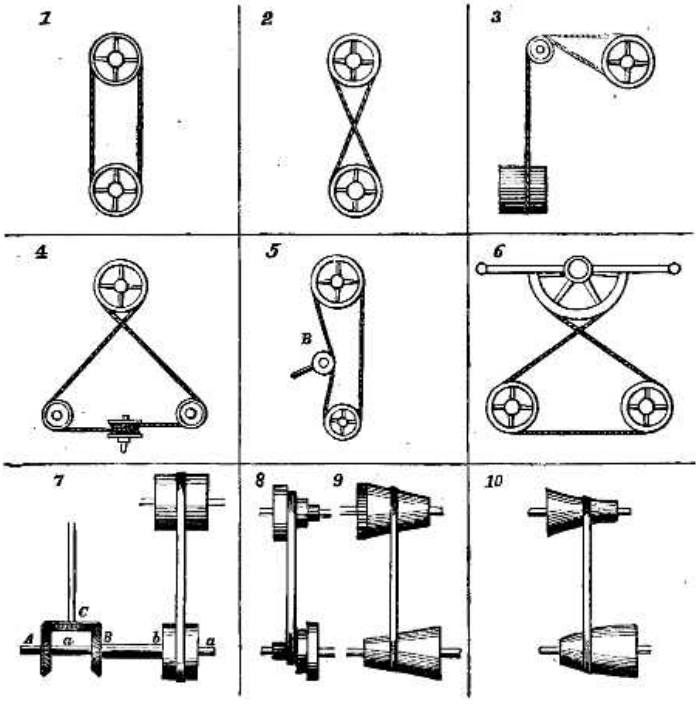
THE want of a comprehensive collection of illustrations and descriptions of MECHANICAL MOVEMENTS has long been seriously felt by artisans, inventors, and students of the mechanic arts. It was the knowledge of this want which induced the compilation of the collection here presented. The movements which it contains have been already illustrated and described in occasional installments scattered through five volumes of the AMERICAN ARTISAN, by the readers of which their publication was received with so much favor as was believed to warrant the expense of their reproduction with some revision in a separate volume.

The selection of the movements embraced in this collection has been made from many and various sources. The English works of Johnson, Willcock, Wylson, and Denison have been drawn upon to a considerable extent, and many other works—American and foreign—have been laid under contribution; but more than one-fourth of the movements—many of purely American origin—have never previously appeared in any published collection. Although the collection embraces about three times as many movements as have ever been contained in any previous American publication, and a considerably larger number than has ever been contained in any foreign one, it has not been the object of the compiler to merely swell the number, but he has endeavored to select only such as may be of really practical value; and with this end in view, he has rejected many which are found in nearly all the previously published collections, but which he has considered only applicable to some exceptional want.

Owing to the selection of these movements at such intervals as could be snatched from professional duties, which admitted of no postponement, and to the engravings having been made from time to time for immediate publication, the classification of the movements is not as perfect as the compiler could have desired; yet it is believed that this deficiency is more than compensated for by the copiousness of the *Index* and the entirely novel arrangement of the illustrations and the descriptive letter-press on opposite pages, which make the collection—large and comprehensive as it is—more convenient for reference than any previous one.

INDEX

☞ IN this INDEX the numerals do not indicate the pages, but they refer to the *engravings* and the *numbered paragraphs*. Each page of the letter-press contains all the descriptive matter appertaining to the illustrations which face it.


1
2
3
4
5
B
6
7
C
A
a
B
b
a
8
9
10

1. Illustrates the transmission of power by simple pulleys and an open belt. In this case both of the pulleys rotate in the same direction.

2. Differs from 1 in the substitution of a crossed belt for the open one. In this case the direction of rotation of the pulleys is reversed.

By arranging three pulleys, side by side, upon the shaft to be driven, the middle one fast and the other two loose upon it, and using both an open and a crossed belt, the direction of the said shaft is enabled to be reversed without stopping or reversing the driver. One belt will always run on the fast pulley, and the other on one of the loose pulleys. The shaft will be driven in one direction or the other, according as the open or crossed belt is on the fast pulley.

3. A method of transmitting motion from a shaft at right angles to another, by means of guide-pulleys. There are two of these pulleys, side by side, one for each leaf of the belt.

4. A method of transmitting motion from a shaft at right angles to another whose axis is in the same plane. This is shown with a crossed belt. An open belt may be used, but the crossed one is preferable, as it gives more surface of contact.

5. Resembles 1, with the addition of a movable tightening pulley, B. When this pulley is pressed against the band to take up the slack, the belt transmits motion from one of the larger pulleys to the other; but when it is not, the belt is so slack as not to transmit motion.

6. By giving a vibratory motion to the lever secured to the semi-circular segment, the belt attached to the said segment imparts a reciprocating rotary motion to the two pulleys below.

7. A method of engaging, disengaging, and reversing the upright shaft at the left. The belt is shown on the middle one of the three pulleys on the lower shafts, *a*, *b*, which pulley is loose, and consequently no movement is communicated to the said shafts. When the belt is traversed on the left-hand pulley, which is fast on the hollow shaft, *b*, carrying the bevel-gear, B, motion is communicated in one direction to the upright shaft; and on its being traversed on to the right-hand pulley, motion is transmitted through the gear, A, fast on the shaft, *a*, which runs inside of *b*, and the direction of the upright shaft is reversed.

8. Speed-pulleys used for lathes and other mechanical tools, for varying the speed according to the work operated upon.

9. Cone-pulleys for the same purpose as 8. This motion is used in cotton machinery, and in all machines which are required to run with a gradually increased or diminished speed.

10. Is a modification of 9, the pulleys being of different shape.